I. OBJECTIVES OF THE ENVIRONMENTAL MANAGEMENT PLAN

The compilation of this Environmental Management Plan (EMP) forms part of the requirements of the EIA Regulations 2010 and compliance with the contents of this report is required during the construction and operational phases of the project. The EMP serves as an environmental management tool by providing a generic structured plan of mitigatory measures, which serves as a guide to assist in minimising the potential environmental impact of the activity that may arise during the construction and operational phases.

The EMP provides a set of guidelines for the environmental management of all works to be executed by the Engineer and Contractor, so as to have a minimum impact on the environment in accordance with all relevant legislation, policies and standards.

In this context it should be viewed as a dynamic or ‘living’ document, which may require updating, or revision during the life-cycle of the project to address new circumstances as the need arises. It is essentially a written plan of how the environment is to be managed in practical and achievable terms.

The effectiveness of the EMP is limited by the level of adherence to the conditions set forth in this report by the Developer and the Contractor. It is further assumed that compliance with the EMP will be monitored on a regular basis as set out in the EMP and contractual clauses.

The EMP forms part of the Contract Documentation and is thus a legally binding document. An individual responsible for environmental damage must pay costs both to environment and human health and the preventative measures to reduce or prevent additional pollution and/or environmental damage from occurring (the Polluter Pays Principle).

Further to the above, the following objectives apply:
- To state the standards and guidelines which Eskom will be required to adhere to in terms of environmental legislation;
- To set out the mitigation measures and environmental specifications which Eskom will be required to implement for the construction phase of the project in order to minimise the extent of environmental impacts, and where possible to improve the condition of the environment;
- To provide guidance regarding the method statements which Eskom will be required to compile and implement to achieve the environmental specification;
- To define corrective actions which Eskom must take in the event of non-compliance with the specifications of this EMP;
- To mitigate potential negative impact associated with the project and ensure optimising of positive impact;
- To prevent long-term or permanent environmental degradation;
- To ensure that the applicant, construction workers and the operational and maintenance staff are well acquainted with their responsibilities in terms of the environment;
- To ensure that communication channels to report on environment related issues are in place.

II. DETAILS OF THE PERSON WHO PREPARED THE EMP

This Environmental Management Plan was prepared by Landscape Dynamics cc, an environmental consultancy firm established in May 1997. Their core business involves the execution of Environmental
Impact Assessments that include the compilation of Environmental Management Plans for all of these projects. The team members responsible for this project and the compilation of the EMP are Annelize Grobler (012 460 6043 / 082 566 4530 / agrobler@landscapedynamics.co.za), a qualified landscape architect specialising in the field of environmental impact assessments, and Susanna Nel (021 855 0912 / 082 888 4060 / susanna@landscapedynamics.co.za).

III. DETAILS OF THE PROPOSED ACTIVITY

The applicant is Eskom Holdings SOC Limited, Eskom Distribution – Western Operating Unit: Land Development. The contact person is Ms Justine Wyngaard at the Eskom offices in Brackenfell, Cape Town (Tel 021 980 3112 / 082 938 3479 / Fax 082 980 3503 / justine.wyngaardt@eskom.co.za).

The Eskom Phantom Project will consist of:
- A new 10MVA substation will be constructed.
- The proposed substation will have tubular busbars, the peak of the building will be 6.7m, the height of the tubular busbars would be 6.1m and the height of the earth wire columns would be 10.7m.
- A short 132kV powerline (approximately 160m) will be constructed from the new Phantom substation to the existing 132kV Blanco-Knysna powerline.
- The site will consist of a rectangular servitude area with dimensions 95m x 35m (3 325m²) that is required for the road access as well as a square site of 60m x 75m (4 500m²) for the construction of the substation, equalling 7 825m² in total. The heights of the structures would be as follows: 6.7m (building), 6.1m (tubular busbars) and 10.7m (earth wire columns).

The Eskom Phantom Substation is situated next to the Rheenendal Road in the Knysna area in the Western Cape Province.

IV. LEGAL REQUIREMENT

The applicable legislation in terms of the environment refers to procedures prescribed by the provisions of the Environmental Impact Assessment Regulations, 2010, made under Section 24 (5) of the National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA). Of particular importance is Section 28 (1) of NEMA which places an obligation on all individuals to take due care of the environment and to ensure remedial action is instituted to minimise and mitigate environmental impact.

The relevant applicable activities for which environmental authorisation had been applied for are:

<table>
<thead>
<tr>
<th>GNN R.544, 18 June 2010 (Listing Notice 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GNN R.544, 18 June 2010, Item 10</strong></td>
</tr>
<tr>
<td>The construction of facilities or infrastructure for the transmission and distribution of electricity</td>
</tr>
<tr>
<td>(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts;</td>
</tr>
<tr>
<td>(ii) or inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.</td>
</tr>
<tr>
<td>A short 66kV powerline of approximately 160m will be constructed.</td>
</tr>
</tbody>
</table>
### GNN R.546, 18 June 2010, Item 4

The construction of a road wider than 4m with a reserve less than 13.5m:
- In an estuary;
- All areas outside urban areas;
- In urban areas:
  - Areas zoned for use as public open space within urban areas; and
  - Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose.

An access road wider than 4m will be constructed within the substation itself or between the Rheenendal Road and the substation site.

### GNN R.546, 18 June 2010, Item 12

The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.
- Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;
- Within critical biodiversity areas identified in bioregional plans;
- Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuary, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas.

According to the SANBI Ecosystem Threat Status Map – original extent (attached in Appendix A), the proposed site falls within a Critically Endangered Ecosystem.

The vegetation on site is Knysna Sand Fynbos and is categorised as Critically Endangered. 75% or more of the vegetative cover constitutes indigenous vegetation.

The proposed site falls within a Critical Biodiversity Area as well as an Ecological Support Area.

### GN 546, June 2010, Number 13

The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such vegetation is required for:

1. The undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the activity is regarded to be excluded from this list;
2. The undertaking of a linear activity falling below the thresholds mentioned in Listing 1 in terms of GN R.544 of 2010.

(a) Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority.
(b) National Protected Area Expansion Strategy Focus areas.
(c) Western Cape
   i. In an estuary
   ii. Outside urban areas, the following:
      - A protected area identified in terms of NEMPAA, excluding conservancies;
      - National Protected Area Expansion Strategy Focus areas.

The proposed site falls within a Critical Biodiversity Area as well as an Ecological Support Area.

According to information provided by SANPARKS, the proposed site falls within the Knysna Protected Environment, which was declared as such in terms of NEMPAA.

The site falls within 10km from the Garden Route National Park.

The site is in close proximity, but not within an Informal Protected Area.

Refer to the SANBI map: "National Protected Areas" as attached in Appendix A.
V. DETAILS OF PERSONS RESPONSIBLE FOR IMPLEMENTATION OF EMP

The following undertaking must be filled out and signed by the applicant and forwarded to DEA prior to commencement of construction:

AGREEMENT & UNDERTAKING OF THE APPLICANT

I hereby confirm and state that I am aware of the contents of the Environmental Management Plan and the conditions of the Environmental Management Plan and shall comply with all legislation pertaining to the nature of the work to be done and all things accidental thereto.

Signed on behalf of ____________________________

Date: ____________________________

Place: ____________________________

Signature: ____________________________

Full Name: ____________________________

Application for environmental authorisation had been lodged with the Department of Environmental Affairs (DEA).
Postal Address: ________________________________

Physical Address: ________________________________

Office Telephone Number: ________________________________

AGREEMENT & UNDERTAKING OF THE ENVIRONMENTAL CONTROL OFFICER

The following details of the Environmental Control Officer must be filled out, signed and forwarded to the Department of Environmental Affairs prior to construction:

Company Name: ________________________________

Contact Person(s): ________________________________

Physical Address: ________________________________

Street Address: ________________________________

Office Telephone Number: ________________________________

Cell phone Number: ________________________________

Fax Number: ________________________________

V. PROPOSED MECHANISM FOR COMPLIANCE

Key impacts generally associated with Eskom construction activities which are applicable to this project are:

- Impact on natural habitat (fauna and flora)
- Impact on birds
- Impact on cultural heritage resources
- Risk of groundwater pollution
- Risk of erosion
- Community Impact

Specifications and conditions are hereby provided to limit and/or prevent impact on these components during all the phases of project development, namely

- Specifications applicable throughout all Phases of Project Development
- Design & Pre-construction Phase
- Construction Phase
- Post-construction & Operational Phase
ROLES AND RESPONSIBILITIES
SPECIFICATIONS APPLICABLE THROUGHOUT ALL PHASES OF PROJECT DEVELOPMENT

DEPARTMENT OF ENVIRONMENTAL AFFAIRS
The National Department of Environmental Affairs (DEA) is the designated authority responsible for authorising this EMP. DEA has overall responsibility for ensuring that the Applicant complies with the conditions of Environmental Authorisation and the EMP.

DEA shall also be responsible for approving any amendments to the EMP (if required). DEA may also perform random site inspections to check compliance with the EMP.

DEPARTMENT OF WATER AFFAIRS
The Department of Water Affairs has confirmed rights to inspect the project at any time to ensure compliance with relevant legislation.

ESKOM HOLDINGS SOC LTD (DEVELOPER)
The Applicant is the Developer and has overall responsibility for compliance with the EMP as it is a fundamental component of the authorisation requirements for the project.

This means that the Developer must:
- Ensure that the professional team and the Contractors are appropriately briefed and that their appointment includes environmental requirements as relevant;
- Ensure that he/she is kept fully informed of the performance of the project against the requirements of the EMP;
- Ensure that appropriate action is taken where consistent incidents of non-compliance are taking place;
- Ensure that any corrective action required by the authorities is implemented.

Project Co-ordinator (PC)
The primary responsibility of the Project Co-ordinator (PC) is to ensure that the Contractor complies with the environmental specifications in this document. In addition the PC shall:
- Assume overall responsibility for the effective implementation and administration of the EMP;
- Ensure that the EMP is included in the Contractors’ contract (including all subcontractors);
- Ensure that the EMP and any other relevant documentation are provided to the applicable contractors;
- Inform Environmental Practitioner of the date of construction at least 2 months in advance.

Construction Supervisor and the Contractor (if utilised);
- Undertake regular inspections of the Contractor’s site (in conjunction with the Clerk of Works, where relevant) as well as the powerline servitude in order to check for compliance with the EMP in terms of the specifications outlined in this document.
- Keep a register of major incidents (spills, injuries, complaints, legal transgressions, etc.) and any other relevant issues related to the EMP;
- Report any problems (or complaints) concerning the environment arising out of the construction phase to the appointed Environmental Control Officer;
- To ensure Contractor staff are trained in accordance with the EMP;
- To implement recommendations of possible audits.
• The contractor environmental site representative to have the following training, from a recognised or accredited institution:
  o Oil Spill Management Training
  o Integrated Waste Management
  o Environmental Awareness /Induction
  o Tree Identification (vegetation management)
  o Environmental Law Training
  o Environmental Authorisation_Environmental Management Plan (EA_EMP) Training

• The environmental site representative to be permanently on site during construction.
• The environmental site representative should have an appointment letter stipulating roles and responsibilities.

**Eskom construction team or external construction contractor and all subcontractors**

The construction team / contractor / subcontractor shall:

• Ensure that the environmental specifications of this document are effectively implemented. This includes the on-site implementation of steps to mitigate environmental impacts;
• Monitor environmental performance and conformance with the specifications contained in this document during site inspections;
• Discuss implementation of and compliance with this document with staff at routine site meetings;
• Report non-compliances to EMP and Environmental Authorisation to PC and Environmental Control Officer (ECO) immediately (on discovery), within 24 hours of the event discovered or occurred;
• Report progress towards implementation of and non-conformances with this document at site meetings with the PC;
• Ensure that suitable records are kept and appropriate documentation is available to the PC; and
• Ensure that construction employees are trained in accordance with the requirements of the EMP.

The Contractor will conduct all activities in a manner that minimises disturbances to and impacts on the environment.

The Contractor is deemed not to have complied with this EMP if:

• There is evidence of contravention of clauses within the boundaries of the property and adjacent areas during the Construction Phase;
• If environmental damage ensues due to negligence;
• The Contractor fails to comply with corrective or other instructions issued by the Local Authority, PC, ECO, or the Developer within a specified time;
• Failure to take any reasonable measure to protect the environment if there is a perceived or identified environmental risk associated with an activity that has not been defined in the EMP; and
• The Contractor fails to respond adequately to complaints from the public.

Application of a penalty clause will apply for incidents of non-compliance as per the Schedule of Fines as mentioned below. Such fines will be paid by the Contractor to the Developer and will be used in rehabilitation and/or landscaping.

**Environmental Control Officer (ECO)**

The key responsibility of the ECO is to ensure that all the conditions stipulated in the Environmental Authorisation are being adhered to and should monitor project compliance with the conditions of the Environmental Authorisation, environmental legislation and the recommendations of the EMP.

Furthermore, the duties of the ECO shall include, inter alia, the following:

• Ensuring the necessary environmental authorisations and permits, if any, has been obtained;
• Advising the Contractor on environmental issues within defined construction areas;
• Undertaking once-per-month site visits, or more if required to ensure compliance with this EMP;
• Completing environmental checklists during site visits and keeping a photographic record of progress on site from an environmental perspective;
• Reporting back on any environmental issues/incidents to the DEA as reported to by the Contractor; and ensure that DEA is informed of work progress on site;
• Preparing an environmental audit report at the conclusion of the construction phase.
• Attending site meetings where applicable and where necessary inspect the construction site on a regular basis to ensure that the mitigation and rehabilitation measures are applied.
• Make reasonable amendments to the EMP in co-operation with the contractor. Penalties for non-compliance must be enforced.
• Remain employed until all rehabilitation measures as required for implementation due to construction damage, are completed and the site is handed over to Eskom by the contractor.
• Any conservation authority/institution as listed in the List of Interested and Affected Parties for the project should be allowed reasonable access to the construction site on request and arrangement with the ECO and the contractor.

Environmental Training and Awareness
The purpose of the environmental training is to communicate potential environmental impacts relating to construction activities to contractors to ensure that precautionary measures are undertaken to avoid and/or mitigate the impacts. Environmental awareness training sessions should be undertaken prior to any work commencing by any contractor or sub-contractor on site as well as throughout the construction phase. The ECO shall give initial EMP training prior to any work starting on site. The training record must be kept on the project file for each training session.

Where possible the presentation will be conducted in the language of the employees. The environmental training could, as a minimum, include the following:
  o The importance of conforming with all environmental policies, procedures, plans and systems;
  o The significant environmental impacts, actual or potential, which could result from their work activities;
  o The environmental benefits of improved personal performance;
  o The roles and responsibilities in achieving conformance with the environmental policy and procedures, including emergency preparedness and response requirements;
  o The potential consequences of departure from specified operating procedures
  o The mitigation measures to be implemented when carrying out their work activities;
  o The importance of not littering;
  o The need to use water sparingly;
  o Details of, and encouragement to, minimising the production of waste and re-use, recover and recycle waste where possible;
  o Details regarding palaeontological, archaeological and historical sites which may be unearthed during construction, and the procedures to be followed should these be encountered;
  o The procedures which should be followed should a grave or any other archaeological and/or palaeontological finds be encountered or unearthed during the construction phase;
  o Details regarding flora and fauna of special concern, including protected/endangered plant and animal species, and the procedures to be followed should these be encountered during construction.

EMP training and awareness before commencement of construction
• Eskom will provide an Environmental Management Plan and Awareness Training for all employees of the Contractor, sub-contractor, consultants, agents, visitors and suppliers. The initial training workshop will be held prior to any work commencing on site. The Contractors shall ensure that all construction personnel, including senior route staff, sub-contractors and suppliers etc., attend the environmental awareness-training prior to commencing any work i.e. camp establishment, clearing and installations. Additional staff,
sub-contractors and suppliers coming on to the route must attend an environmental awareness workshop prior to the commencing their duties. Subsequent training and awareness sessions will be arranged at a mutually agreed time and venue.

- The main contractor must provide the ECO with (a) a list of all sub-contractors and their scope of work for the contract and (b) a time schedule of works before the initial environmental training awareness session is scheduled. This will assist the ECO to schedule subsequent EMP awareness training sessions as and when required.

- No construction work may take place on site unless under the supervision of a person who has attended an Environmental Awareness session.

- The PC shall inform the environmental practitioner prior to starting construction, so that training can be given.

EMP awareness training throughout the construction phase

- EMP awareness training must be given to new contractors and sub-contractors that start to work on site throughout the construction phase at various stages.

- All contractor and sub-contractor teams involved in work on site must be briefed on their obligations towards environmental controls and methodologies in terms of this EMP prior to commencement of any construction and construction related activities on an on-going basis throughout the construction phase.

- In the case of new workers coming on site throughout the construction programme, the site contractor is responsible to ensure all new labour arriving on site is made aware of the contents of the EMP and is briefed on the Environmental Awareness Training session.

- A register must be kept of all training given to contractors and sub-contractors, indicating the date, time, venue, attendees, name of trainer, name of contractor, signatures and unique numbers / identity numbers of attendees.

- If the construction is phased and the activities are different, a training session must be conducted before the commencement of each phase. The environmental issues, construction impacts and mitigation measures for each phase must be discussed in detail at this training session.

Emergency Management

All emergency incidents should be investigated in terms of Eskom's EPC 32-95: Safety, Health & Environmental Incident Management Procedure, in addition to any ELC requirement. This procedure describes the high-level intention for the effective incident management of work-related incidents as well as environmental damage. The aim of this procedure is to ensure and facilitate the effective and efficient management of incidents from the moment that one occurs, until it can be audited that corrective and preventive measures were developed and taken. This procedure is supported by annexes which set out the detailed rules, requirements and action steps as well as useful examples and templates. These two have to be read and applied together to ensure that the aim of this procedure and its supporting annexes is met.

An Emergency Incident can be defined as an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed. It is also an accident involving the spilling of a harmful substance that finds or may find its way into a water resource.

An Environmental Incident can be defined as pollution, erosion, cutting of protected and/or indigenous trees, hazardous substance spillages, wildlife interactions, public complaints and loss of biodiversity caused by Eskom Distribution’s activities, as well as non-compliance to legislation such as Environmental Authorisations, Record of Decisions, permits and licences.

Incident Management – Aims and objectives

The aims and objectives of incident management are as follows:

- Reduce risk and prevent any recurrence of incidents
Ensure incidents are managed effectively
Ensure incidents are classified and recorded accurately
Ensure prompt and appropriate investigation
Promote the proactive use and value of near-miss occurrence reporting
Improve the quality of safety and the work environment by learning from incidents, including near miss occurrences;
Share incident information with all site personnel and other subcontractors.
Report to relevant authorities as appropriate
Promote the analysis of trends and review practices accordingly

Incident Reporting
After becoming aware of an incident, the following should be done as per Eskom's ELC procedure:

- All incidents must be reported via flash report within 24 hours or end of shift, regardless of the severity of the incident. Once an employee identifies that an incident has occurred, he/she must immediately notify his/her supervisor of such an incident, regardless of its severity, so that an appropriate and timely response can be made, an initial evaluation conducted, and an incident classification made.
- The responsible supervisor shall then send a flash report to the ECO and Project Coordinator within 24 hours of the incident. Thereafter, it will be determined by the ECO if reporting to the authorities is required.
- Immediate clean-up action is required;
- Eskom then has 14 days to formally investigate the incident internally before sending a report to the applicable authorities.

Hazardous Waste - Incident Reporting
If a leakage or spillage of hazardous substances occurs as a result of Eskom’s activities or other users, the local emergency services will be immediately notified of the incident. The location, nature of the load and the status of the site of the accident itself (i.e. whether further leakage is still taking place, whether the vehicle or the load is on fire, etc.) must be provided.

Written records of the corrective and remedial measures decided upon, and the progress achieved therewith over time, must be kept. Such progress reporting will be important for monitoring and auditing purposes. The written reports may be used for training purposes in an effort to prevent similar future occurrences.

Emergency Preparedness
Eskom’s environmental emergency procedures ensure that there will be an appropriate response to unexpected or accidental actions or incidents that will cause environmental impacts, throughout the life cycle of the project. Such incidents may include, inter alia:

- Accidental discharges to water and land;
- Accidental exposure of employees to hazardous substances;
- Accidental veld fires;
- Accidental spillage of hazardous substances;
- Specific environmental and ecosystem effects from accidental releases or incidents

The Emergency Preparedness Plan
- Construction employees shall be adequately trained in terms of incidents and emergency situations.
- An emergency preparedness plan will include details of the organisation (manpower) and responsibilities, accountability and liability of personnel.
- The emergency preparedness plan shall include a list of key personnel.
- Details of emergency services (e.g. the fire department, spill clean-up services, etc.) shall be listed.
- Internal and external communication plans, including prescribed reporting procedures shall be listed.
o Actions to be taken in the event of different types of emergencies shall be included.

o Training plans, testing exercises, and schedules for effectiveness shall be included.

o Eskom will comply with the emergency preparedness, and incident and accident-reporting requirements, as required by the Occupational Health and Safety Act, 1993 (Act No 85 of 1993), the National Environmental Management Act, 1998 (Act No 107 of 1998), the National Water Act, 1008 (Act No 36 of 1998) and the National Veld and Forest Fire Act, 1998 (Act No 101 of 1998) as amended, and/or any other relevant legislation.

o **Hazardous material**
  - Information on hazardous materials, including the potential impact associated with each, and measure to be taken in the event of accidental release shall be listed.

**Spillages**

o Streams, rivers, underground water and dams will be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, wash water, organic materials and bituminous products.

o In the event of a spillage during the construction phase, the responsibility for spill treatment will be with Eskom and Eskom will be liable to arrange for competent assistance to clear the affected area.

o Eskom will compile and maintain environmental emergency procedure, to ensure that there will be an appropriate rapid response to unexpected or accidental environmental related incidents throughout the life cycle of the project.

o Incidents must be reported in line with OU Oil Spill Management Instruction and the Eskom’s Incident Management Procedure. The incident must be reported within 24 hours via a flash report.

o The Environmental Control Officer (ECO) will assess the situation and act as required in all cases; the immediate response will be to contain the spill. The exact treatment of soil/water pollution will be determined by the ECO.

o Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice must be sought for appropriate treatment and remedial procedures to be followed. The costs of containment and rehabilitation will be for Eskom’s account, including the costs of specialist input.

o **Hazardous substance spillages**
  - Hazardous substance spillages can be defined as any hazardous liquids or substances spilt that have the potential to pollute aquatic or terrestrial ecosystems or present a health hazard to other living organisms.
  - The Eskom construction team shall have an oil spill kit on site and where working with hazardous substances, also drip trays on trucks.
  - Vegetated areas cleared of hazardous waste will be re-vegetated.

**During an emergency situation, the following will apply**

o No person shall be allowed to approach a spill, fire, etc. unless he/she is equipped with the personal protective clothing and equipment.

o The risk involved shall be assessed before anyone approaches the scene of the incident with the emergency response plan as per Oil Spill Management Instruction and Environmental Emergency Preparedness Procedure.

o Any known or discovered spillage of toxic substances into a stream or river should be followed by immediate monitoring of the receiving streams and rivers.

**Fires**

o The adjacent landowners will be informed and/or involved in case of any fire that pose a threat to landowners.

o It must be ensured that the basic firefighting equipment is supplied to all living quarters, site offices, kitchen areas, workshop areas and stores.

o Welding gas cutting or cutting of metal will only be allowed inside the working/demarcated areas and with appropriate firefighting equipment at hand.
Monitoring
Monitoring will be undertaken as and when required. Any incidents that might have a detrimental impact on the environment will be investigated and environmental monitoring will be conducted. Complaints received will be checked through verifiable monitoring.

Inspections
On-going visual inspections will be conducted by the ECO. The ECO will spend time on site on the lookout for any unsafe acts and activities that transgress the requirements as specified in the EMP to define what action shall be taken to rectify the problem and prevent its reoccurrence.

Written instructions
Written reporting will be given following an audit. The written instructions will indicate the source or sources of the problems identified on site and propose solutions to those problems. The implementation to solutions will be assessed in a follow-up audit and further written instructions issued if required. Maximum allowable response time is 4 working days unless specified otherwise by the ECO.

Liaison
Eskom will comply with the requirements for public consultation as required by the National Environmental Management Act, 1009 (Act No 107 of 1998).

Throughout the project, ongoing liaison will be maintained with authorities and communities when needed to ensure that the following is done;
- Timeous advanced warning of any project activities that may have some impact on the surrounding communities i.e. blasting;
- Ongoing feedback on the environmental performance of the project;
- A complaints’ register needs to be opened and maintained by the ECO. The register will contain the contact details of the person who made complaints and information regarding the complaint itself, including the date of submission.

Checking and Corrective Action
Non-compliance with the specifications of the EMP constitutes a Breach of Contract for which Eskom must be immediately notified accordingly. Eskom will be deemed not to have complied with the EMP if;
- There is evidence of contravention of the EMP specifications within the boundaries of the construction site, site extensions and access roads;
- There is contravention of the EMP specifications which relate to activities outside the boundaries of the construction sites;
- Environmental damage ensues due to negligence;
- Construction activities take place outside the defined boundaries of the site;
- Eskom fails to comply with corrective or other instruction.

Non-compliance will be dealt with in terms of the contract documentations signed by the various parties.

*The approved Eskom penalty fee structure is as follows:*

<table>
<thead>
<tr>
<th>Non – compliance</th>
<th>Penalty for non-compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-CONSTRUCTION</td>
<td></td>
</tr>
<tr>
<td>Failure to demarcate Construction area/working areas off before construction starts.</td>
<td>R10 000-R15 000</td>
</tr>
<tr>
<td>Failure to maintain demarcated area(s) throughout the construction phase</td>
<td></td>
</tr>
<tr>
<td>Failure to demarcate stock piling area of building materials</td>
<td>R1 000</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Fencing off the construction site with mesh fencing of 1.8m, where necessary or other suitable material as agreed on by ECO and contract specifications</td>
<td>R5 000</td>
</tr>
<tr>
<td>Sitting of access road/s to be approved by ECO &amp; demarcated with stakes before any construction starts (if applicable)</td>
<td>R5 000</td>
</tr>
<tr>
<td>Temporary route used for construction must be determined on site with ECO (if applicable)</td>
<td>R1 000 - R5 000</td>
</tr>
<tr>
<td>Sensitive features that may be harmed/removed/harvested must be clearly marked or demarcated and all construction team must be made aware of this.</td>
<td>R2 500 - R5 000</td>
</tr>
<tr>
<td>Failure to give environmental awareness to Construction team and all sub-contractors of all environmental aspects that could lead to imposition of environmental penalties/fines and keep the proof on file.</td>
<td>R5 000 - R10 000</td>
</tr>
<tr>
<td>All appointed contractors must attend Environmental Training contractor to assure that all subcontractors be informed and signed DOU</td>
<td></td>
</tr>
<tr>
<td>Method statements must be provided on request by the ECO. No work may commence until the Method Statement is accepted by the ECO/Project Coordinator and Clerk of Works and contractor representative.</td>
<td>R2 500 - R5 000</td>
</tr>
</tbody>
</table>

**CONSTRUCTION**

| Failure to keep a copy of the EMP & Environmental Authorisation/Record of Decision (ROD) with all the conditions of approval and the relevant Method Statements must be kept on at site at all times. | R500 - R5 000 |
| Construction team behaviour | |
| Construction team may not overnight on site. | R200 - R2 500 |
| All noise and sound generated during all phases of the projects must comply with the relevant SANS codes and standards. | |
| Eating of meals only allowed in demarcated area | |
| No pets permitted on site | |
| Construction crew must stay within the demarcated construction area. (Applicable in sensitive sites) | R5 000 - R10 000 |
| Failure to park all construction vehicle on the demarcated area and provision of any oil leaks must be made for example Drip trays | R1 000 - R5 000 |
| Driving, parking and storing of machinery vehicles are only allowed inside demarcated areas and existing roads. | R500 - R5 000 |
| Machinery may only be used on the road and may not disturb the vegetation on the sides of the road except if cleared by ECO. Machinery used must be carefully considered to limit environmental damage | |
| Failure to conduct bush clearing according to Eskom procedure for vegetation clearance and maintenance within the Overhead Powerline Servitude and on Eskom owned land (refer to EPC 32-247) | R5 000 - R10 000 |
| Failure to undertake herbicide spraying under the supervision of registered Pest Control Officer. | R5 000 - R10 000 |

**Excavations**

<p>| No topsoil may be removed or altered outside the demarcated area and/or which was not specified. Storage of topsoil outside demarcated area to obtain permission from the landowner. | R5 000 - R10 000 |</p>
<table>
<thead>
<tr>
<th><strong>Toilets</strong></th>
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<tbody>
<tr>
<td>Failure to put ablution facilities on site for the construction worker during the construction phase. These facilities must be used by the construction workers and be removed when the project is completed.</td>
<td>R2 500 - R5 000</td>
</tr>
<tr>
<td>Failure serviced the toilets regularly, (according to the manufacturer’s instructions) and kept clean.</td>
<td>R1 000</td>
</tr>
<tr>
<td><strong>Fire Prevention</strong></td>
<td></td>
</tr>
<tr>
<td>Failure to keep fire equipment on site at all times</td>
<td>R500 - R4 000</td>
</tr>
<tr>
<td>Failure to keep firefighting equipment to be in good working order and serviced.</td>
<td>R500 - R2 500</td>
</tr>
<tr>
<td>Keeping of open fire on site, this pose a risk of fire.</td>
<td>R1 000 - R5 000</td>
</tr>
<tr>
<td><strong>Dust pollution control</strong></td>
<td></td>
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<tr>
<td>Failure to suppress dust through regular water spraying the emitted during the construction phase (Site specific/weather Dependent)</td>
<td>R500 - R5 000</td>
</tr>
<tr>
<td><strong>Water run-off</strong></td>
<td></td>
</tr>
<tr>
<td>No contamination of water bodies, rivers, dams or wetlands is permitted</td>
<td>R5 000 - R15 000</td>
</tr>
<tr>
<td>Failure to take special care where the powerline will cross river, streams or wetlands.</td>
<td>R2 500 - R10 000</td>
</tr>
<tr>
<td><strong>Waste Management</strong></td>
<td></td>
</tr>
<tr>
<td>Failure to provide dust bins/skip on site in order to handle all waste litter generated during construction phase of the project.</td>
<td>R500 - R5 000</td>
</tr>
<tr>
<td>General litter / building refuse must be cleaned up on a regular basis from the site</td>
<td>R300 - R5 000</td>
</tr>
<tr>
<td>Cement-contaminated water, paint, oil, cement slurries, etc. must be stored in watertight containers or as agreed with ECO</td>
<td>R500 - R5 000</td>
</tr>
<tr>
<td>Failure to report oil spillage to ECO via flash report within 24 hours of the spill occurring</td>
<td>R2 500 - R5 000</td>
</tr>
<tr>
<td>Any cement / concrete spillage to be cleaned up immediately.</td>
<td>R500 - R5 000</td>
</tr>
<tr>
<td>Ready-mix delivery trucks must not carry out the wash down of their trucks on or around the site unless arranged with ECO.</td>
<td>R5 000 - R10 000</td>
</tr>
<tr>
<td>Waste must be disposed of at an official waste deposit site on a regular basis. Keep the proof on file, waste manifest.</td>
<td>R200 - R5 000</td>
</tr>
<tr>
<td>The absence of or inadequate drip trays or binding facilities for on site oil leakage</td>
<td></td>
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<tr>
<td>Failure to clean up oil/fuel leaks from on-site machinery</td>
<td>R200 - R5 000</td>
</tr>
<tr>
<td>Failure to keep oil spill remediation chemicals on site.</td>
<td></td>
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<tr>
<td><strong>Soil erosion</strong></td>
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<tr>
<td>Failure to prevent degradation and soil erosion on the construction site.</td>
<td>R500 - R5 000</td>
</tr>
<tr>
<td>Failure to notify property owners of the construction before commencement and obtain the permission in writing and keep on file.</td>
<td>R2 500 - R5 000</td>
</tr>
<tr>
<td><strong>Rehabilitation</strong></td>
<td></td>
</tr>
<tr>
<td>Failure to remove rocks and stones/stock pile in area recommended by ECO</td>
<td>R500 - R5 000</td>
</tr>
<tr>
<td>Failure to remove all old concrete and alien materials from site</td>
<td>R500 - R5 000</td>
</tr>
<tr>
<td>Failure to clear all waste and building material on site before commissioning of the project</td>
<td>R500 - R5 000</td>
</tr>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Failure to comply with the Environmental Conditions of the approved Environmental Authorisation</td>
<td>R5 000 - R20 000</td>
</tr>
</tbody>
</table>
ENVIRONMENTAL SUPERVISION

Eskom Distribution, specifically the Environmental Control Officer (ECO), Clerk of Works (CoW) and Project Coordinator (PC) must inspect the construction site on a regular basis (during pre-construction, construction and post-construction periods) to confirm the current state of the site and to ensure that the mitigation and rehabilitation measures are applied as specified in the EMP. These officers might make reasonable amendments to the EMP in co-operation with the contractor.

ON-SITE COMMUNICATION PROCEDURE

On site start-up / kick-off meeting
- The mandatory on-site start-up meeting that is conducted preferably 14 days but not less than 5 working days prior to commencement of any site/camp establishment, earthworks and/or construction activities and will relate to additional discussed information that must be complied with during the entire construction phase.
- All site-specific issues and arrangements as discussed and agreed on at the site start-up meeting.
- Information pertaining to specific site construction agreements that was discussed at the kick-off meeting on site by all the relevant parties and agreed on and must be recorded and included as part of the EMP.
- Any changes made to the EMP as per the agreements between all parties on site must still fall within the conditions of the Environmental Authorisation.
- At the site start-up meeting, the following issues must be discussed:
  - The Construction EMP & other relevant site documents
  - Project to be discussed and all uncertainties are cleared
  - Method statement/s to be discussed
  - Access routes
  - Road and construction area to be demarcated
  - Materials stockpile and lay down areas to be demarcated
  - Method of stockpiling to be discussed
  - Firefighting procedures
  - Mandatory firefighting equipment & fire preventative measures
  - Mandatory site equipment and facilities
  - Solid waste facilities and removal intentions
  - Placement, type and service of toilets to be agreed on
  - Placement and type of rubbish bins and removal of rubbish to be agreed on
  - Environmental Education and awareness training session to all contractors & onsite staff/labour.
  - Location & establishment of concrete batching plant facility.

Monthly construction progress meetings
- Environmental matters pertaining to the construction of the project must be included as an agenda item on the monthly project construction progress meeting.
- The ECO must be invited to monthly construction progress meetings to discuss findings of site audits, mitigation measures and other issues arising pertaining to the implementation of the EMP conditions.
Minutes of meetings
- Environmental issues, action items, complaints, incidents and mitigation measures must be recorded in minutes of monthly construction project meetings.
- The ECO must be included in the circulation of minutes of meetings in order to stay informed of construction progress and construction issues as they relate to the receiving environment.

DESIGN
- The engineering drawings must adhere to any site-specific mitigation measures (if applicable) supplied by a geotechnical engineer for the project in order to accommodate the geotechnical and earth-scientific constraints in terms of founding and construction methods, construction materials, excavation, etc.
- The engineers must ensure that all new light fixtures associated with the substation provide precisely directed illumination to reduce light spillage beyond the immediate surrounds of the substation site (if applicable).
- A surface runoff management plan indicating the management of all surface runoff generated as a result of the development (during construction and operation) must be compiled. This is specifically relevant to the substation site (if applicable). It should indicate how water velocities will be reduced before stormwater enters natural channels and how natural processes for water infiltration of the affected landscape will be accommodated. This study is to be commissioned by Eskom Engineering or done by an internal Engineer, and to be included in the substation’s design specification Terms of Reference.
- The design to incorporate storm water management during and post construction.

SITE REQUIREMENTS
Eskom representatives must liaise personally with every directly affected landowner prior to any construction activities taking place. A detailed schedule (inclusive of postal addresses and/or fax and e-mail numbers) of affected landowners and other key stakeholders are included as the Register of Interested & Affected Parties in Appendix E of the Basic Assessment Report. The objectives of this liaison will be the following:
- To identify the most effective time schedule for construction activities to take place on the applicable properties;
- To confirm access routes and Eskom gate localities;
- To confirm site-specific requirements as identified during the EIA process;
- To identify any additional site-specific issues with reasonable mitigatory measures that had not been identified and documented during the Public Participation Procedures of the Basic Assessment process undertaken for this project;
- To update the contact details of affected landowners in case access to properties are required for both maintenance and emergency situations;
- To confirm the contact details of the contractor and Eskom representatives to ensure effective communication during the construction and operational phases of the project.

Construction workers should wear clearly identifiable clothing that allows for easy recognition of contract workers on private property.

A copy of this EMP must be submitted to relevant landowners should they request it. They can assist Eskom in assuring that the contractor adheres to rules as stipulated and that mitigation measures are applied. They can also assist with measures to ensure that farming activities (if required) can continue under the powerline. The exact placement of pylons and the height thereof must be designed to accommodate any spill points, if relevant.
VEGETATION

- The loss of habitat under the substation cannot be mitigated. However, if fynbos surrounding the substation and along the line route is managed appropriately by clearing and controlling the invasion of aliens, this could be seen to have a positive impact on the fynbos in the area.
- Transplanting of live plants of *Selago vilicaulis* is highly unlikely to be successful. It is thus recommended that a fynbos rehabilitation expert is used to harvest seed and propagate plants that can then be planted in the fynbos surrounding the site in the appropriate locations that should also be determined by a fynbos expert.
- Alien clearing management, using best practice methods that will enhance the recovery and persistence of fynbos vegetation is the proposed mitigation measure.

PLANT REHABILITATION AND RESCUE PLAN MITIGATIONS

Storing and replacing topsoil is not an adequate measure for rehabilitating this fynbos. The soil stored seedbank does not represent the full diversity of species present, and will tend to favour short lived species and not the longer lived species that are an important component of vegetation recovery. Thus additional measures are required in order for proper rehabilitation to be achieved.

Fynbos is a fire driven ecosystem, and many species in fynbos are dependent on fires to regenerate and persist in the system. There is also a succession process in vegetation recovery following fire, and any rehabilitation plan in fynbos will need to facilitate this process. Further to this there are microclimatic differences across a site that needs to be considered in a rehabilitation plan. A different sweet of plants will need to be planted in different ratios based on subtle difference in slope, aspect and soil within a site.

A fynbos rehabilitation expert will need to assess local site conditions in order to carefully plan and execute the appropriate rehabilitation.

What areas to rehabilitate
Any undeveloped areas that are disturbed or where the ground has been disturbed or damaged should be rehabilitated. Open areas within the developed area need not be rehabilitated to pristine fynbos but a few easily established species that were recorded on the site should be used. Retaining walls and embankments can and should also be rehabilitated.

The primary aim should be to minimise disturbance to the developed area so that the need to rehabilitate is negated. Areas at the edge or surrounding the developed area must NOT be rehabilitated, and only the appropriate alien control measures must take place here. Further no go areas that are demarcated must also NOT be rehabilitated or interfered with before, during or after construction.

No go areas must be clearly demarcated before any construction commences. This will need to be done by an appropriate specialist to ensure that the correct areas are protected. Such areas will only be defined once the preferred alternative is decided.

Drainage and erosion control
The appropriate measures will need to be put in place to prevent erosion of topsoil and loose sand during and after construction. Further, the appropriate drainage of storm water runoff from the substation must be done so that it does not cause erosion in the surrounding fynbos. This will be necessary because of the steep slopes at both the site alternatives.
Alien vegetation and weed control
Alien invasive weed species at the site and along the route will need to be removed before construction commences. An appropriate alien clearing specialist should be consulted on the correct method of felling and killing the different species. Herbicide is required to kill certain species immediately after they are cut down otherwise they will grow back from the roots.

Cut material should be removed from the site and chipped. If chipped material is used as mulch or for stabilising loose sand in rehabilitation efforts then only plants that are not bearing seed should be used for this purpose to prevent contamination of recovering areas. Several weed species invariably colonize open or disturbed areas and regular inspections and weeding of rehabilitating areas is an essential part of the rehabilitation process.

A very important mitigation measure, that includes management measures, is to clear all the alien vegetation within 100m of the chosen site and to maintain the fynbos in an alien free state in perpetuity. This would help to preserve the fynbos surrounding the site which might help to offset the impact from the loss of fynbos within the site. This might also ensure the long term survival of the fynbos surrounding the site. The cut aliens should be removed from the site and surrounding area to reduce the fuel load and prevent scorching of the soil surface and fynbos seed bank.

Species to use in rehabilitation
Lists of the species that can be used for rehabilitation of the sites are provided in the Impact Assessment Report (attached in Appendix D). No other species that are not in this list should be used, unless it can be shown that they have occurred on the site. Only the species that were recorded along the sites and routes should be used. A mix of the different growth forms should be used. The exact combination and proportions of each species will vary between and within sites and will need to be determined by the appropriate plant rehabilitation expert in consultation with a fynbos botanist.

Seed collection, propagation and planting
Most fynbos shrubs do not transplant successfully. Thus in addition to replacing topsoil and rescuing and relocating certain plant species, the majority of plants will need to be propagated by collecting seed and establishing plants in a nursery before planting out in rehabilitated areas.

There are several aspects of seed collection that will require the knowledge of an experienced botanist for this to be done properly. Seeds must be collected locally either from plants that will be destroyed when construction commences or from plants in the immediate area. Plants of a similar species bought from a nursery are not suitable to use for rehabilitation. Seed must be collected at the right time (when seed is ripe), with the correct equipment and stored in an appropriate place. The rehabilitation expert that is used must know or establish the correct method for each species. The expert will also need to know how to germinate and grow the plants in an appropriate way so that when they are planted they survive. This requires an understanding of how old the plants must be to allow maximum chance of survival and also the appropriate time of year and climatic conditions for when to plant. Most fynbos seed will also require smoke treatment to break seed dormancy and enhance germination.

Rescue and relocation of plants
The majority of fynbos shrubs are notoriously difficult to transplant. However, certain growth forms transplant better than others. The plant rehabilitation expert should know which species are worth trying to transplant and which will need to be propagated by seed. In general, if done in the appropriate way, succulents, bulbs, grasses and herbs transplant better than shrubs. Shrubs transplant more successfully if they are less than one year old.
It is recommended that in areas where there is a dense grass layer that sods of intact vegetation are transplanted. Shrubs should first be pruned to a minimum so they are easier to transport with the sods. Pruned material from indigenous shrubs should be stored separately in a dry place on tarpaulin so any uncollected seed is stored here. This material can be used as mulch once the topsoil has been replaced.

Sods should be dug out manually with a spade, or machine-cut, and be about 30cm wide and 30cm deep. Care should be taken to keep the sods intact and to place them immediately into soil lined containers and stored in a nursery. The containers should also be lined with soil taken from the site, and no foreign soil should be introduced. Once inside the containers more soil from the site should be poured around the sods so that no roots are exposed. An appropriate rehabilitation expert will be required to manage the process. There are many factors that need to be considered in order to make this kind of rehabilitation successful. It is also important that sods are stored at the closest nursery to the site and looked after properly until they are planted back in areas to be rehabilitated.

**Topsoil storage and replacement**

Topsoil from the site once the sods have been removed should be stored in a predetermined space on the site, preferably in an area that is already disturbed. Care should be taken to separate topsoil taken from heavily infested parts of the site and that were there were fewer aliens. If possible only the topsoil from un-infested areas should be used, and only the soil from infested parts if that becomes necessary.

Replaced topsoil should be lightly compacted and smoothed over. After that it must be roughened up by placing mulch and in random places digging small holes as these provide natural places for seed to settle and germinate. This surface should then be left to settle for about a month before the sods are replanted. Sods should be spaced apart and not planted in rows, but randomly. Holes must be dug out of the topsoil and the sods buried so that no roots are exposed and the sods should be very slightly below the top soil surface, so that rainfall drains naturally towards the sods. Mulch from stored indigenous shrubs should be used to create small contours and to help with curbing soil erosion on steeper slopes.

**Monitoring and evaluation of rehabilitated areas**

The rehabilitated areas will need to be inspected every few months by a rehabilitation expert or suitably qualified botanist for the first two years to assess the status of the recovering vegetation and to make recommendations for what needs to be done to ensure that the sites recover properly. Weeding of emerging alien invasives and other weeds as well as replanting dead plants are envisaged actions.

**Permits**

It will be determined if any permits would be necessary for the removal / relocation / cutting of any protected plants once the project has been finalised. Applications for these permits must be made to the applicable authorities before construction commences.

The appointed botanist will provide detail to the exact permit requirements and where these permit applications should be made.

In general, the following authorities will be involved and the applicable legislation will be:

- **Cape Nature:**
  - Section 63(1)b & c of the Nature Conservation Ordinance of 1974 (Ordinance 19 of 1974)
  - Nature Conservation Regulations 955 of 1975

- **Department of Agriculture:**
  - Section 7(1) and 15(1) of the National Forests Act of 1998 (Act 84 of 1998)
AVIFAUNA

Collisions with powerlines
The powerline spans that connect the substation to the main Blanco-Knysna powerline should be marked with Bird Flight Diverters on the earth wire of the line, five metres apart, alternating black and white.

FRESHWATER RESOURCES

- Construction activities must be limited to the construction site itself, which should be clearly demarcated.
- If diesel/petrol refuelling is to take place on the site a special area must be demarcated for this purpose. This area should be paved with an underlying layer that will prevent leakages or spills from reaching the subsurface soil or underground water table.
- Sealed sanitation systems must be used and must be emptied and serviced at regular intervals by registered companies only. These systems must be within the contractor’s camp / construction site area. Please note that there must be one toilet for every fifteen workers
- No effluent to be dumped in the veld.
- During the construction phase all facilities (houses, ablution, store rooms etc.) should be erected within the demarcated area of the substation.
- Cooking or fires must be allowed within specially demarcated areas to prevent accidental fires spreading into the adjacent open areas. Remove of all construction material and equipment after construction.
- All alien vegetation on the site (where present) must be removed and eradicated.
- Remove of all waste construction material to an approved waste disposal site.
- No campsite or temporary storage facilities must be erected within or outside of the development site.
- Littering must be prevented in these areas by the placement of bins with lids at various points within the construction corridor. These bins must be emptied on a daily basis.
- Mixing of cement may only take place directly at the site where the concrete slabs are to be positioned. All unused cement/concrete/building material must be removed from the area after construction.
- No refuelling of any vehicle is allowed within the powerline corridor or in the adjacent natural areas.
- The longest possible span distance between pylons must be used to reduce the number of pylons.
- Removal of any tree/shrub/herbaceous species outside the construction corridor is forbidden.

COMPLIANCE WITH SPECIFICALLY IDENTIFIED LEGAL REQUIREMENTS

Due to the absence of freshwater features of any significance within the study area, there is no perceived impact of the surrounding freshwater environments and no mitigation measures are deemed necessary. No Water Use Authorisation is required.

National Forest Act (Act 122 of 1984) and/or the Nature Conservation Ordinance of 1974 (Ordinance 19 of 1974) and / or the Nature Conservation Regulations 955 of 1975
During the walk-down phase, the botanist will indicate if there are any protected trees or other plants that need to be cut / removed / relocated. The permit requirements will then be determined and applications must be made to the Department of Agriculture and/or Cape Nature before construction commences.
MITIGATION FOR VISUAL IMPACT

Mitigation for the Substation

Preplanning
- Detailed landscaping planning incorporated into the engineering drawings.
- Retain existing pine trees between the road and the site.
- Seasonal vegetation establishment
  - Tree felling, planting programme and maintenance to coincide with Construction period.
  - Make allowance for maintenance period of 5 years, which would include alien eradication and replanting, watering of trees on Rheenendal Road.
  - Procuring services of an environmental control officer.
  - Quality fynbos to be fenced off with a three strand fence for protection.
  - Plant rescue to be arranged for protection and reuse of quality fynbos.
- Selection of a site for the construction camp which is not visible from the Rheenendal Road.
- Selection of topsoil. Storage should be no longer than 3 months.
- Sourcing of fynbos brush cut mulch seed from within a 5km radius.

Construction
- Vegetation
  - Clearing of site.
  - Search and rescue of plants
  - Brush cut all fynbos material. Store whole to save seed.
  - Topsoil stripped and stored on platform and also on gabion areas.
  - Excess subsoil of cut material to be removed from site and dumped in a suitable location (old quarry rehabilitation).
  - Cut of drains to prevent silt traps and prevent construction runoff water entering natural vegetation areas.
  - Place gabions.
  - Shape subsoil.
  - Place topsoil (at least 300mm deep).
  - Hand plant trees (4 litre bag size) on slopes as follows:
    - Prepare plant hole 2 x size of plant bag;
    - Plant trees with compost 3:4:2:4 and water retaining granules;
    - Species (Large shrubs to small trees).
  - Place brushwood on top of topsoil in horizontal rows.
  - Hydro seed (seed mix to be monitored by ecological control officer. Recommended mix 10% synodin daxtalon, 5% keurboom seed, 85% mixed species fynbos seed. Seed must be viable and must be collected within 5 km of site. Approximately 3 plants per 2m² spread over every 5m²).
- Structures
  - Drape green shade cloth around site to reduce visual intrusion of construction vehicles (depending on site visibility).
  - Dark grey weld mesh to be used for security fencing effectively reducing the strong white colour, and texture of cement / wire security fence. Plant indigenous creepers on security fence (if possible).
  - Access gate to be set back from the road.
  - Access road to be paved with brown paving bricks.
  - Building and roof should be painted a dark grey colour in order to blend into the surrounding landscape.
  - Signage to be subdued and set back from the road.
Gabion Structures

- For the cut face: 3m Gabion retaining walls filled with brown stone to replace the cement retaining wall would immediately reduce the colour and texture contrast. The upper wall is cut back to a gentle slope.
- Embankments should be stabilized with MacMat erosion control mats laid between gabions on vulnerable slope surfaces as per supplier’s diagrams. MacMat needs to be laid up to the natural contour level, above cut face to tie into natural slope and planted with fynbos type vegetation.
- For the support walls, gabions filled with brown stone to replace the cement retaining wall would immediately reduce the colour and texture contrast. Contrast would be further reduced with planting of indigenous succulent type vegetation on top of the gabions which would grow over the gabions (and also act as a fire retardant).
- Gabion retaining structures are placed on revised contour lines to assist in blending the rectangular shape of the building platform into the natural landscape. They also contain the fill material so as to minimise the visual impact of sprawling fill material on the mountain slope.
- Planting of small indigenous trees and large shrubs in terraces between the gabions (using soft engineering techniques) are required to reduce the visual contrast generated by the support walls and partially screen the views of the eastern valley receptors.
- Tree planting adjacent the road for screening (with some medium sized trees) would effectively screen medium to long term northbound views of the receptors.
- Establishing indigenous trees adjacent to Rheenendal Road in order to replace existing alien trees and create ecotone effect for screening:
  - Vigorously growing young trees of 10kg size to be used;
  - Compost 4:2:4 and water retaining polymer to be used.
- Mixed species of trees to be planted on fill slopes in groups of 5 to 7 trees evenly spaced per 5m². Tree species could include: Buddleia saligna; Torcononthus camphorates; Grevia accidentalis; Rhus lucida; Chrysanthe moides monolifera; Rapanea melenophlocos; Rhus chirindensis and Olea Africana
  - Groups to be fenced off with a 3 strand barbed wire fence for protection.

Operation

- Light mitigation to control light spillage
- 5 year maintenance plan to ensure growth of the ecotone forest trees and vegetation on the gabions.

Mitigation for the powerlines

Preplanning

- Retain existing trees in road reserve as interim measure. Plant indigenous tree groups to replace alien vegetation over a planned time span.
- Tree felling, planting programme and maintenance to coincide with Construction period.
- A lattice structure should be used as there are no monopoles in the area.

Construction

- Establishing indigenous trees adjacent to Rheenendal Road north and southbound in order to replace existing alien trees:
  - Vigorously growing young trees of 10kg size to be used;
  - Compost 4:2:4 and water retaining polymer to be used.
- Mixed species of trees to be planted on fill slopes in groups of 5 to 7 trees evenly spaced per 5m². Tree species could include: Buddleia saligna; Torcononthus camphorates; Grevia accidentalis; Rhus lucida; Chrysanthe moides monolifera; Rapanea melenophlocos; Rhus chirindensis and Olea Africana
  - Groups to be fenced off with a 3 strand barbed wire fence for protection.
Operation
- Plant indigenous tree groups to replace alien vegetation over a planned time span. Fell pine trees adjacent Site 1 when indigenous trees have reached a suitable height for screening.

CONSTRUCTION SITE
- Accommodation for labourers must either be limited to guarding personnel on the construction site (with labourers transported daily to and from the site) or a separate fenced and controlled area where proper accommodation and relevant ablution and washing facilities are provided.
- The location of the construction site must be negotiated with the relevant landowner and specifications of the landowner must be adhered to.
- The construction site office and storage areas for material and equipment must be fenced in to prevent impacts and human interference to spread further than the site.
- Storage facilities for construction equipment must be provided for.
- Encourage the construction contractor to employ local people as far as is reasonably practical and encourage the contractor to transport them daily to and from the site. This would reduce solid and liquid waste production and water demand at the site camps.
- Contractors should develop a comprehensive site camp management plan. This should apply even in the case of the limited accommodation camps as discussed above.
- Plan site campsites an appropriate distance from any facility where it can cause a nuisance and could cause a safety hazard (in terms of mining activities such as blasting).
- Minimise on-site storage of petroleum products.
- Ensure proper maintenance procedures in place for vehicles and equipment.
- Servicing of vehicles to be in designated areas with appropriate spill management procedures in place.
- Ensure measures to contain spills readily available on site (spill kits).
- Sufficient ablution and proper cooking facilities must be provided at the site camp.
- Deposit solid domestic waste in containers and dispose at municipal waste disposal sites regularly.
- Dispose of liquid waste (grey water) with sewerage.
- Install appropriate facilities at the campsite. Preferably utilise municipal systems (conservancy tanks with periodic removal) or chemical toilets.
- Ensure compliance with stringent daily clean up requirements of site camp inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc) and dispose at municipal waste disposal sites.

FIRE MANAGEMENT
Eskom will manage the fire risk within the servitude from a fire risk point of view and the field service office will be in close communication with the fire protection agency in the area. Reducing the vegetation load and managing the alien vegetation will also contribute to the prevention and the spreading of fires. The servitude itself can in many cases act as fire break within the landscape.

The following are applicable to both the construction and operational phases:
- No fires may be made for the burning of vegetation and waste, neither as source of heat or cooking.
- No open fires are to be made on site – cooking facilities must be provided, particularly for security staff.
- Branches and other debris resulting from pruning processes should not be left in areas where it will pose a risk to infrastructure.
- Fires shall not be made for the purpose of chasing or disturbing any fauna.
- The adjacent landowners must be informed and/or involved in case of any fire that may pose a threat to their properties.
- It must be ensured that the basic firefighting equipment is supplied to all living quarters, site offices, kitchen areas, workshop areas and stores and be kept available during construction phase.
- Welding gas cutting or cutting of metal will only be allowed inside the working/demarcated areas and with appropriate firefighting equipment at hand.

**APPOINTMENT OF CONTRACTORS**

- The EMP will be made binding on all Contractors operating on the site and will be included in contract documents of all appointed contractors. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.
- All identified site specific measures as determined during the Basic Assessment process for a specific property must be considered and implemented during the construction phase of this project.
- The appointment of contractors with proven track records of sound environmental performance should be given priority.
- The contractor must ensure that, as far as possible, the majority of unskilled labour is obtained from the local residents in the macro area.
- The contractor must ensure that he is well aware of the implications of and must ensure compliance with the following legal requirements, guidelines and policies:
  - All relevant Eskom standards, specifications and procedures to manage the significant aspects with regards to oil management, bush clearing, entrance of private property, etc.
  - Requirements in terms of removing cutting and/or trimming of protected trees in terms the Forest Act (Act 122 of 1984).
  - All Sections and Regulations of the National Water Act, 1998(Act 36 of 1998) must be complied with; specifically specifications as described in Section 19 on Pollution and Waste.
  - Environmental Best Practice Guidelines and Specifications, compiled by the Department of Water Affairs.
  - Legislation with regard to graves that is included in the National Heritage Resources Act (No 25 of 1999). It should be noted that the act also distinguishes between various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).
- The contractor must be aware that all waste material generated during and after construction should be disposed of at a permitted landfill site and an agreement letter between the municipality and the contractor regarding the disposal of such waste material should be obtained.
CONSTRUCTION PHASE

GROUND AND SURFACE WATER

- In all cases, abstraction of water from watercourses for construction purposes will not be allowed. Arrangements must be made prior to construction with the landowners or municipal water must be carted in.
- Under no circumstances must surface or groundwater be polluted.
- Adequate oil containment precautions must be taken.
- If a spill from a construction vehicle occurs it must be reported to ECO with immediate effect. A bio-remediation contractor must be appointed to rehabilitate large oil spills. Small oil spills must be cleaned immediately with an oil spill kit. Spills must be immediately stopped and a drip tray be used to catch any leaks until the risk can be eliminated and mitigation/rehabilitation measures applied.
- Minimise on-site storage of petroleum products.
- Ensure proper maintenance procedures are in place for vehicles and equipment.
- Servicing of vehicles to be done in designated areas with appropriate spill management procedures in place.
- Ensure that measures to contain spills are readily available on site (spill kits).
- All hazardous substance spills must be reported, recorded and investigated.
- All stormwater runoff must be managed efficiently so as to avoid stormwater damage and erosion to adjacent properties.
- During and after construction, stormwater control measures should be implemented especially around stockpiled soil, excavated areas, trenches etc. to avoid the export of soil into any watercourse.
- Stormwater should not be discharged into the working areas and it should be ensured that stormwater leaving the footprint of the proposed development areas is not contaminated by any substance, whether that substance is solid, liquid, vapor or any combination thereof.
- Stockpiling of construction material and soils should be such that pollution of water resources is prevented and that the materials will be retained in a storm event.
- Drinking water and water for ablution facilities must be provided to all construction workers on the construction site.

WASTE MANAGEMENT

General Waste

- Expected constructed waste (unused steel, conductor cables, cement or concrete) and general waste around the construction site (plastic, tins and paper) may degrade the environment if not disposed in the correct manner.
- Littering or illegal dumping of any waste material is prohibited.
- No waste disposal holes may be made on site.
- Under no circumstances should waste be burnt on site.
- Waste separation should be encouraged for recycling purposes.
- Provision must be made for the collection of all general waste materials. Rubbish bags and bins with lids must be provided at various points within the construction corridor and must be emptied on a regular basis.
• Deposit solid domestic waste in containers and dispose at registered municipal waste disposal sites regularly.
• For all waste that is disposed of, Eskom shall obtain waste manifests and disposal certificates, which shall be recorded and reported to the ECO on a monthly basis.
• Liquid waste (grey water) must be disposed with sewerage.

Construction Waste
• Ensure compliance with stringent daily clean up requirements of site camp inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc) and dispose at municipal waste disposal sites.
• Construction waste must be collected and sold for recycling purposes as far as possible.

Sewage
• Portable ablution facilities must be placed within the construction servitude and must be serviced by registered companies only and on a regular basis. There should be one toilet for every fifteen workers.
• No effluent to be dumped in the veld or any watercourse.
• The use of the open veld for ablution is prohibited.

Hazardous Waste
• Oil contaminated waste (soil, cloths used to clean small spills, spill kits, content of drip trays, etc.) must be disposed of at a facility that is registered as a hazardous landfill facility.
• All hazardous substances at the site must be adequately stored and accurately identified, recorded and labelled. All these hazardous substances should be disposed of at a H:H registered waste disposal facility.
• Hydrocarbon (oil, diesel, petrol) waste as well as hydrocarbon containing material must be regarded as hazardous waste and separated from general waste.
• Persons who remove hazardous waste must be appropriately qualified and authorised.

PREPARATION OF SERVITUDE / VEGETATION CLEARANCE
• The procedures for vegetation clearance and maintenance within overhead powerline servitudes and on Eskom owned land, updated September 2009 or latest approved revision thereafter, must be implemented (EPC 32-247).
• Vegetation clearance is often one of the very first activities of construction. The Project Coordinator shall inform the ECO before the vegetation clearance contract is issued. Vegetation clearance is considered commencement of construction. Eskom needs to notify the DEA of its intention to commence with construction before vegetation clearance can commence.
• Indigenous vegetation which does not interfere with the safe operation of the powerline should be left undisturbed.
• Clearing for pylon positions must be done to the minimum required for that specific pylon.
• Vegetation clearing during construction must be restricted to the footprint of the substation infrastructure only and the powerline servitude.
• Existing access roads must be used as far as possible and the creation of new access tracks for powerline construction should be minimised.
• Unnecessary impacts (such as driving off road) on surrounding natural vegetation must be avoided.
CONTROL OF ALIEN VEGETATION

- Alien vegetation in servitudes shall be managed in terms of the Regulation GNR.1048 of 25 May 1984 (as amended) issued in terms of the Conservation of Agricultural Resources Act, Act 43 of 1983. In terms of these regulations, Eskom shall “control” i.e. to combat Category 1, 2 and 3 plants to the extent necessary to prevent or to contain the occurrence, establishment, growth, multiplication, propagation, regeneration and spreading such plants within servitude areas or land owned by Eskom.
- The use of herbicides shall be in compliance with the terms and conditions of The Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act 36 of 1947).

PROTECTION OF FAUNA AND FLORA

- No animals or birds may be fed, disturbed, hunted or trapped.
- No plant material may be removed if not part of identified vegetation clearance.

Specific to the Phantom Substation Project

- Rescue and relocate to off the site any animals before and while construction proceeds.
- Ensure that alien vegetation control happens as recommended to protect the habitat for these animals.
- Demarcate sensitive areas where no access of any kind will be allowed during construction, most notably the pond located in the track leading from Site 1 to the existing powerline, as this might represent suitable habitat for the Endangered Knysna leaf-folding frog.

AVIFAUNA

For the restriction and/or prevention of disturbance to birds and destruction of their habitat, the following will apply:
- Disturbance to and killing of birds must be prevented.
- Unnecessary habitat destruction must be avoided.
- The removal of large trees should be avoided if at all possible.
- All dismantling, construction and maintenance activities must be carried out according to best environmental practice principles so as to minimise habitat destruction (see in this respect the Eskom Environmental Procedure, EPC 32-96). The unnecessary removal of large trees IS not allowed (see also in this respect the Procedure for Vegetation Clearance and Maintenance within Eskom owned land, EPC 32-247).

SOIL EROSION

- To cause the loss of soil by erosion is an offence under the Soil Conservation Act, Act No 76 of 1969.) Access roads and site surfaces must be monitored for deterioration and possible erosion. Pro-active measures must be implemented to curb erosion and to rehabilitate eroded areas. All areas susceptible to erosion must be installed with temporary and permanent diversion channels and berms to prevent concentration of surface water and scouring of slopes and banks, thereby countering soil erosion.
- All cleared areas must be ripped and rehabilitated after construction. The top 200mm layer of topsoil must be removed and stockpiled in heaps not higher than 2m and replaced on the construction areas once the activities have been completed. The affected areas should be replanted with a grass mixture indigenous to the area.
- All vehicle movement must be along existing roads or tracks as far as possible.
• All stormwater runoff must be managed efficiently so as to avoid stormwater damage and erosion to adjacent properties.
• The viability of undertaking construction during the dry months of the year should be investigated in order to overcome possible problems caused by excessive moisture.
• Should any new temporary access roads be required, the following should apply in areas which are prone to erosion:
  o Where a cutting is made, subsoil drains should be installed wherever a perched water table occurs within 900m of the formation in all cuttings and below fills in the alluvial zones.
  o It is further critical to manage surface water. Drains should be provided along the top and bottom of all deep cuttings. This is to minimise the flow of surface water and erosion to the exposed cut faces and erosion along the toe of the cuttings.
  o Steep sections of the service road must be supplied of sufficient drainage areas to reduce flow velocity of run-off water.
  o Any eroded sections must be rehabilitated and part of the management plan must include regular inspections of the water run-off areas.
• If any erosion occurs, rehabilitation must immediately be done.

COMMUNITY ISSUES (SAFETY, SECURITY, NOISE, DUST, ETC.)

• Farm gates and fences must be left in the state it was found.
• Under no circumstances shall access be gained by cutting or “dropping” of fences. All gates shall be left closed and the Eskom servitude gates shall be securely locked at all times.
• Construction workers must be extremely careful not to damage any property along the proposed route. Should any damage occur it should be reported to the ECO and repaired and to a state prior to the damage to the written satisfaction of the landowner and ECO.
• Removal of agricultural products is prohibited.
• No firewood may be collected.
• No open fires are to be made on private property.
• In order to prevent and/or minimise crime, it is required that all construction workers be supplied with controlled serviced accommodation or be supplied with daily transport to and from the site.
• No wandering on adjacent properties is allowed, unless written consent has been obtained from the relevant landowners.
• All adjacent landowners have to be informed of the blasting programme (if applicable) prior to any blasting taking place. Contractors must liaise personally with adjacent landowners. All communication in this regard must be documented. Blasting may only be undertaken by specialists in the field and should be limited to small localised areas. All relevant legislation must be adhered to.
• All construction workers will be allowed only for specified day light hours. Transport should be made available by the contractor to remove labourers from the site after working hours.
• Secure accommodation facilities must be provided for guarding personnel.
• Supervision of labourers must at all times take place.
• Construction hours will be restricted to specific periods that exclude Sundays and public holidays.
• Sweeping of construction sites, clearing of building rubble and debris and watering of construction sites (storage areas, roads, etc.) must take place on a regular basis.
• All excavated areas must be clearly marked and barrier tape must be placed around them to prevent humans and animals from falling into them.
CULTURAL-HISTORICAL COMPONENT

Should any evidence of archaeological sites or remains not previously identified (e.g. remnants or stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal/ash concentrations), unmarked human burials or other categories of heritage resources are found during construction activities, SAHRA APM Unit (Mr Philip Hine or Mrs Colette Scheermeyer, tel 021 462 4502) must immediately be alerted and an accredited professional archaeologist must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological significance, a Phase 2 rescue operation might be necessary.

PALAEONTOLOGY

The coversands on site have low palaeontological sensitivity. Notwithstanding, there is a small possibility that a fortuitous fossil find may occur. Sometimes the bones of large animals (elephant, buffalo, rhino) occur in coversands and dunes. Such could feasibly survive in some form in the pedogenic environment of the Knysna coversands. Fossils may also occur in an imperfectly preserved form such as concretions or nodules formed in cavities.

It is recommended that the excavations and excavated material be monitored by construction personnel for the occurrence of archaeological material and possible fossils. In the event of a potential fossil find, the actions as described below should be followed.

Actions/Control and Responsibility

<table>
<thead>
<tr>
<th>Action / control</th>
<th>Responsibility</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inform staff of the need to watch for potential fossil occurrences.</td>
<td>Eskom, ECO, contractors</td>
<td>Pre-construction</td>
</tr>
<tr>
<td>Inform staff of the procedures to be followed in the event of fossil occurrences.</td>
<td>ECO / Palaeontology specialist</td>
<td>Pre-construction</td>
</tr>
<tr>
<td>Monitor for presence of fossils</td>
<td>Contractor personnel and ECO</td>
<td>Construction</td>
</tr>
<tr>
<td>Liaise on nature of potential finds and appropriate responses.</td>
<td>ECO and palaeontology specialist</td>
<td>Construction</td>
</tr>
<tr>
<td>Excavate main finds, inspect pits &amp; record selected, key/higher-risk excavations.</td>
<td>Palaeontology specialist</td>
<td>Construction</td>
</tr>
<tr>
<td>Obtain permit from HWC for finds.</td>
<td>Palaeontology specialist</td>
<td>Construction</td>
</tr>
</tbody>
</table>

Monitoring for fossils

A regular monitoring presence over the period during which excavations are made, by either an archaeologist or palaeontologist, is generally not practical. The field supervisor/foreman and workers involved in digging excavations must therefore be encouraged and informed of the need to watch for potential fossil and buried archaeological material. Workers seeing potential objects are to report to the field supervisor who, in turn, will report to the Environmental Control Officer (ECO). The ECO will inform the archaeologist and/or palaeontologist contracted to be on standby in the case of fossil finds.

To this end, responsible persons must be designated. This will include hierarchically:

- The field supervisor/foreman, who is going to be most often in the field;
- The ECO for the project;
- The Project Manager.
Other alternatives could be considered, such as the employment of a dedicated monitor for the construction period.

**Contacts for reporting of fossil finds**
Iziko Museums of Cape Town: SA Museum, 021 481 3800.
- Dr Romala Govender: 021 481 3895, 083 441 0028.

Heritage Western Cape
- Troy Smuts: 021 483 9543

**Fossil Find Procedures**
It is improbable that fossil finds will require declarations of permanent “no go” zones. At most a temporary pause in activity at a limited locale may be required. The strategy is to rescue the material as quickly as possible.

The procedures suggested below are in general terms, to be adapted as befits a context. They are couched in terms of finds of fossil bones that usually occur sparsely, such as in the aeolian deposits. However, they may also serve as a guideline for other fossil material that may occur.

Bone finds can be classified as two types: isolated bone finds and bone cluster finds.

**Isolated Bone Finds**
In the process of digging the excavations, isolated bones may be spotted in the hole sides or bottom, or as they appear on the spoil heap. By this is meant bones that occur singly, in different parts of the excavation. If the number of distinct bones exceeds 6 pieces, the finds must be treated as a bone cluster.

Response by personnel in the event of isolated bone finds:

- **Action 1**
  An isolated bone exposed in an excavation or spoil heap must be retrieved before it is covered by further spoil from the excavation and set aside.

- **Action 2**
  The site foreman and ECO must be informed.

- **Action 3**
  The responsible field person (site foreman or ECO) must take custody of the fossil. The following information is to be recorded:
  - Position (excavation position).
  - Depth of find in hole.
  - Digital image of hole showing vertical section (side).
  - Digital image of fossil.

- **Action 4**
  The fossil should be placed in a bag (e.g. a Ziplock bag), along with any detached fragments. A label must be included with the date of the find, position information and depth.

- **Action 5**
  ECO contacts the standby archaeologist and/or palaeontologist and should describe the occurrence and provide images as soon as possible, i.e. via email.

**Response by Palaeontologist in the event of isolated bone finds**
The palaeontologist will assess the information and liaise with Eskom as well as the ECO and a suitable response will be established.
Bone Cluster Finds
A bone cluster is a major find of bones, *i.e.* several bones in close proximity or bones resembling part of a skeleton. These bones will likely be seen in broken sections of the sides of the hole and as bones appearing in the bottom of the hole and on the spoil heap.

Response by personnel in the event of a bone cluster find:

- **Action 1**
  Immediately stop excavation in the vicinity of the potential material. Mark (flag) the position and also spoil that may contain fossils.

- **Action 2**
  Inform the site foreman and the ECO.

- **Action 3**
  ECO contacts the standby archaeologist and/or palaeontologist. ECO to describe the occurrence and provide images as soon as possible, *i.e.* via email.

Response by Palaeontologist in the event of a bone cluster find
The palaeontologist will assess the information and liaise with Eskom as well as the ECO and a suitable response will be established. It is likely that a Field Assessment by the palaeontologist will be carried out as soon as possible.

It will probably be feasible to “leapfrog” the find and continue the excavation farther along, or proceed to the next excavation, so that the work schedule is minimally disrupted. The response time/scheduling of the Field Assessment is to be decided in consultation with Eskom.

The field assessment could have the following outcomes:

- If a human burial, the appropriate authority is to be contacted. The find must be evaluated by a human burial specialist to decide if Rescue Excavation is feasible, or if it is a Major Find.

- If the fossils are in an archaeological context, an archaeologist must be contacted to evaluate the site and decide if Rescue Excavation is feasible, or if it is a Major Find.

- If the fossils are in a palaeontological context, the palaeontologist must evaluate the site and decide if Rescue Excavation is feasible, or if it is a Major Find.

Rescue Excavation
Rescue Excavation refers to the removal of the material from the “design” excavation. This would apply if the amount or significance of the exposed material appears to be relatively circumscribed and it is feasible to remove it without compromising contextual data. The time span for Rescue Excavation should be reasonably rapid to avoid any or undue delays, *e.g.* 1-3 days and definitely less than 1 week.

In principle, the strategy during mitigation is to “rescue” the fossil material as quickly as possible. The strategy to be adopted depends on the nature of the occurrence, particularly the density of the fossils. The methods of collection would depend on the preservation or fragility of the fossils and whether in loose or in lithified sediment. These could include:

- On-site selection and sieving in the case of robust material in sand.

- Fragile material in loose/crumbly sediment would be encased in blocks using Plaster-of Paris or reinforced mortar.

If the fossil occurrence is dense and is assessed to be a “Major Find”, then carefully controlled excavation is required.
Major Finds
A Major Find is the occurrence of material that, by virtue of quantity, importance and time constraints, cannot be feasibly rescued without compromise of detailed material recovery and contextual observations. A Major Find within the development site is however not expected.

Management Options for Major Finds
In consultation with Eskom, the following options should be considered when deciding on how to proceed in the event of a Major Find.

Option 1: Avoidance
Avoidance of the Major Find through project redesign or relocation. This ensures minimal impact to the site and is the preferred option from a heritage resource management perspective. When feasible, it can also be the least expensive option from a construction perspective.

The find site will require site protection measures, such as erecting fencing or barricades. Alternatively, the exposed finds can be stabilised and the site refilled or capped. The latter is preferred if excavation of the find will be delayed substantially or indefinitely. Appropriate protection measures should be identified on a site-specific basis and in wider consultation with the heritage and scientific communities. This option is preferred as it will allow the later excavation of the finds with due scientific care and diligence.

Option 2: Emergency Excavation
Emergency excavation refers to the “no option” situation wherein avoidance is not feasible due to design, financial and time constraints. It can delay construction and emergency excavation itself will take place under tight time constraints, with the potential for irrevocable compromise of scientific quality. It could involve the removal of a large, disturbed sample by excavator and conveying this by truck from the immediate site to a suitable place for “stockpiling”. This material could then be processed later. Consequently, emergency excavation is not a preferred option for a Major Find.

Exposure of Fossil Shell Beds
Response by personnel in the event of intersection of fossil shell beds:
- **Action 1**
  The site foreman and ECO must be informed.
- **Action 2**
  The responsible field person (site foreman or ECO) must record the following information:
  - Position (excavation position).
  - Depth of find in hole.
  - Digital image of hole showing vertical section (side).
  - Digital images of the fossiliferous material.
- **Action 3**
  A generous quantity of the excavated material containing the fossils should be stockpiled near the site, for later examination and sampling.
- **Action 4**
  ECO contacts the standby archaeologist and/or palaeontologist. ECO to describe the occurrence and provide images as soon as possible, i.e. via email.

Response by Palaeontologist in the event of fossil shell bed finds
The palaeontologist will assess the information and liaise with Eskom and a suitable response will be established. This will most likely be a site visit to document and sample the exposure in detail, before it is covered up.
Reporting
Should fossils be found a detailed report on the occurrence/s must be submitted. This report is in the public domain and copies of the report must be supplied to the IZIKO S.A. Museum, Heritage Western Cape as well as the Saldanha Bay Local Municipality. It must fulfil the reporting standards and data requirements of these bodies.

Application for a Palaeontological Permit
A permit from Heritage Western Cape (HWC) is required to excavate fossils. A palaeontologist should be the qualified specialist responsible for assessment, collection and reporting of the fossils. A permit has not been applied for prior to the making of excavations. Should fossils be found that require rapid collecting, application for a retrospective palaeontological permit will be made to HWC immediately. The application requires details of the registered owners of the sites, their permission and a site-plan map. All fossil finds must be recorded and the fossils and their contextual information (a report) must be deposited at a SAHRA-approved institution.
POST-CONSTRUCTION & OPERATIONAL PHASE

SOIL EROSION

- Specifications for topsoil storage and replacement to ensure sufficient soil coverage as soon as possible after construction activities must be implemented.
- All embankments (if any) must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.
- After construction, all temporary access roads should be rehabilitated.
- The site must be rehabilitated and replanted with suitable, indigenous grass to prevent erosion where necessary.

FRESHWATER RESOURCES

- It is important that any of the cleared areas that are not hardened surfaces are rehabilitated after construction is completed by re-vegetating the aquatic features and their associated buffer areas disturbed by the construction activities with suitable indigenous plants.
- Clearing of debris, sediment and hard rubble associated with the construction activities should be undertaken post construction to ensure that flow within the drainage channels are not impeded or diverted.
- All crossings over drainage channels or stream beds after the construction phase should be rehabilitated such that the flow within the drainage channel is not impeded.
- Maintenance of infrastructure related to the project should only take place via the designated access routes and multiple crossings over streams and rivers should not be established.

CONSTRUCTION SITE CLEARANCE

- After construction all building material, signs of excess concrete, equipment, houses, ablution facilities, building rubble, refuse and litter must be removed and cleaned up from the construction site as well as from the store room by the contractor.
- Items that can be used again should be recycled. Unusable waste steel and aluminium to be managed according to Eskom procedures.
- Once construction is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc. are sufficiently and adequately rehabilitated to the landowners’ satisfaction.

COMMUNITY ISSUES

- All complaints received with regards to poor conduct of Eskom personnel, malfunction of or damage to Eskom structures, bird killings as a result of electrocutions and/or collisions, etc. will be investigated by Eskom in cooperation with all the relevant stakeholders.
- Eskom to manage complaints as per GTX line and or direct Eskom personnel on site or contractor site representative. All complaints will be managed according to Eskom existing measures such as 32 - 95
- A list of all names, telephone numbers and addresses of the relevant Eskom employees, contractors and all affected landowners must be compiled, regularly updated and must be available in case of emergency and where access is required for maintenance and debushing purposes.
• No wandering on adjacent properties is allowed, unless written consent has been obtained from the relevant landowners.

VEGETATION MAINTENANCE OF THE SERVITUDE

• Vegetation maintenance of servitude must be done according to Vegetation Management Procedure and permit/licenses as obtained from CapeNature and DAFF (if required).
• The management of alien vegetation is governed by Regulation GNR.1048 of 25 May 1984 (as amended) issued in terms of the Conservation of Agricultural Resources Act, Act 43 of 1983. In terms of these regulations, Eskom must “control” i.e. to combat Category 1, 2 and 3 plants to the extent necessary to prevent or to contain the occurrence, establishment, growth, multiplication, propagation, regeneration and spreading such plants within servitude areas or land owned by Eskom.

FIRE RISK MANAGEMENT

• The existing complaints structure must be revised by Eskom and be updated on a regular basis and communicated with all the affected landowners to ensure effective response and service supply.
• The contact details of all affected landowners as well as relevant Eskom staff must be listed, updated regularly and distributed to all stakeholders to ensure effective communication in the case of emergencies such as veld fires.
• Branches and other debris resulting from pruning processes should not be left below conductors or in areas where it will pose a risk to infrastructure.
• Debris shall not be burnt under any circumstances.
• Fires shall not be made for the purpose of chasing or disturbing any fauna.
• Eskom encourages affected landowners and maintenance staff to participate in the Fire Protection Agency.
• Eskom must engage with CapeNature and/or SANParks and/or other applicable organisations in environmentally / fire sensitive areas. Together they should compile the most effective fire management plan for the specific affected area.

AVIFAUNA

Regular monitoring for bird collisions along the line should be undertaken and should there be bird mortalities as result of collisions, appropriate steps must be taken to improve mitigation measures.

ACCESS AND SERVITUDE MAINTENANCE ROADS

General
• Eskom access and maintenance roads may only be used for its intended purpose - the use of these roads for any other purpose is prohibited.
• Drivers must stay within the speed limit in order to ensure the safety of other road users.
• All general SA road safety rules and regulations will apply while driving on Eskom’s access and maintenance roads.
• Access to the powerline route shall be by means of approved access roads only. No unauthorised access is permitted.
• Off-road driving is strictly prohibited.
• Should any road be damaged by Eskom, the applicable landowner should immediately be informed and remedial action should be done as soon as possible.
• Eskom personnel should treat private property with respect at all times, for example gates should be lock after entering and exiting, no fauna or flora may be destroyed, killed or collected, the veld may not be used for ablution facilities and swimming in any natural or manmade water features are prohibited.
• The type of vehicle used should be conducive to the road condition; only 4x4 vehicles will be allowed on 4x4 roads. Where at all possible, 4x4 driving should not take place in wet conditions as this can easily cause additional damage to the road.

**Speed limit**
• A maximum speed limit of 40km/h should be adhered to when driving on gravel (i.e. 2 wheel track) roads.
• The driving speed should be appropriate to the road conditions at all times. This could ensure the safety of the driver, other occupants as well as surrounding properties.
• Follow the Eskom speed limit of 60km on gravel roads where applicable. The speed limit should not exceed 40km for construction vehicles.

**Dust Control**
• Speed limits must be strictly adhered to in order to limit the levels of dust pollution.
• Should any complaints from landowners be received (i.e. dust on crops), Eskom should attend to it immediately and appropriate dust control measures should be discussed with the landowners and implemented (i.e. speed calming measures).

**Erosion**
• Should any signs of erosion be evident along the access and maintenance roads, remedial action should take place as soon as possible.
• In areas which are prone to erosion, soil berms could be placed on the roads at convenient intervals, not exceeding a height of 0,5m, to curtail the speed and erosion potential of any stormwater flowing across the gradient of the site. This could be applicable to roads on steep slopes.

**Monitoring**
• Eskom personnel must be made aware of general acceptable road conditions, especially gravel roads and deviations there from should be reported to Eskom’s Environmental Management. Access and maintenance roads must be monitored for deterioration and possible erosion at all times.
• Should any road works / rehabilitation be required, monitoring thereof should take place, especially during the rainy season to ensure the effectiveness thereof.
• Adhere to Farm Access procedure at all times.

**MONITORING PROGRAMMES**
• Inspection of the servitude should include monitoring of the servitude line during the Post-Construction and the Operational Phase to detect any potential erosion problems timeously. Mitigatory measures should immediately be identified and implemented by Eskom in cooperation with the landowner.
• Any incidents resulting from Eskom structures and operation that might have a detrimental impact on the environment will be investigated and measured and, if applicable, will be identified in close cooperation with the affected parties and/or stakeholders and be implemented and monitored accordingly.
• Eskom must at all times follow this EMP for maintenance and operational practices to ensure consistent, effective and safe performance of the infrastructure.
Annexure 1

Eskom Safety, Health, Environment and Quality (SHEQ) Policy
The SHEQ Policy should be communicated at all environmental awareness training sessions