9. ENVIRONMENTAL MANAGEMENT PLAN

There is an increasing recognition that good environmental performance makes good business sense. Environmental risks and uncertainties impact to some extent on all companies, and affect investment decisions, consumer behaviour and Government policy. Management of energy, natural resources or waste will affect current performance; failure to plan for a future in which environmental factors are likely to be increasingly significant may risk the long-term future of a business (Crown, 2006).

Eskom has recognised the environmental and economic benefits that may be delivered with the appropriate environmental and social planning in the earliest possible stages of the project. Eskom acknowledges the requirements of Government of the Republic of South Africa, its customers, financiers, employees and the community in which it operates, to carry out its works in an environmentally and socially acceptable and sustainable manner. Eskom, therefore, reiterates its ongoing commitment to prudent environmental management in the manner that is firmly spelled out in this EMP.

To achieve these objectives, Eskom undertakes to carry out the following:

- To establish corporate controls to ensure that policy is implemented and maintained;
- To conduct activities in a manner consistent with environmental requirements;
- To comply with applicable environmental laws and regulations;
- To identify potential hazards of an operation and implement the appropriate controls or procedures prior to undertaking such operations;
- To ensure as far as practicable, and within appropriate standards, that design and operation of equipment and site facilities are safe and are maintained in a safe condition;
- To establish the level of training and experience of employees and contractors and ensure that they are adequate and maintained;
- To deal promptly and effectively with any incidents by such means as to give priority to the safety of employees, Contractors and the public and in a manner which minimizes impact on the environment;
- To conduct activities in a manner which has due and proper regard for the safety and welfare of employees, Contractors, visitors on site and members of the general public who might be affected by company's operations; and
- To monitor the environmental performance.

9.1. SITE ESTABLISHMENT

Prior to the contractor moving on to site and establishing the construction camp a crucial meeting is required between the key role players, including Eskom Project Manager, Lead Contractor and ECO. The purpose of the meeting is induction of the key role players on SHE and their responsibilities for the duration of the construction phase of the project. It is the responsibility of the Project Manager and ECO to fully describe the project plan, including responsibilities, schedule and convey all information and answer questions relating to the identified aspects, their impacts and specific actions necessary and/or prompts to mitigate them.

In a meeting to follow this, it is envisaged that the key role players will meet with the landowner(s) to inform him/her/them of the project plan. All responsibilities will be clarified for the landowner(s), the project schedule and all relevant information will be conveyed to the landowner(s) and any questions answered. Contact details will be left with the landowner(s) or, as necessary, a copy of the EMP.

A third meeting with all site personnel including decision makers, ECO and Project Manager, Lead Contractor and subcontractors will be arranged for the purpose of a general induction of all contractor staff to the scope of the project and the workings of the SHE programme. This is where golden rules relevant for mitigation of site Health, Safety and Environmental Aspects will be set out. Most importantly all site contractor personnel's attention will be drawn to the site access plan where each aspect and its relevant mitigation measure and performance criteria highlighted.

Table 9.1: **Summary checklist of reasonable measures mitigating Impacts associated with site establishment and relevant performance criteria**

Impact	Mitigation measure	Performance criteria
• Disruption to landowner activities and access due to overlap of use of facilities • Existing client facilities • Noise • Dust • Waste • Additional identified impact/s?	• Agreement on which facilities for ablutions and which roads for access • Agreement on responsible use of Eskom housing and ablution facilities if available • Agreement on environmentally responsible use of water • Agreement on mitigation of noise nuisance – when work will cease? • Arrangements for dust from road traffic to be suppressed by regular application of drawn water – Not Municipal Water!!! • Deliver chemical toilet to site prior to arrival of personnel • Arrangement with either Landowner or registered Municipal Landfill for receipt of construction site waste • Set-up Waste Bins – Paper, Plastic, Glass, Metal & parts,	• Minutes of meetings o Landowner, Contractor and ECO o Landowner, Contractor and ECO & key staff members o All site personnel including decision makers, the Landowner, ECO and Project Manager o Confirmation of Receipt of induction signed by all project personnel – Landowner, Construction Site Manager, ECO and all construction site staff • Agreements on facility and road-use and condition signed by landowner and client and filed for

Impact	Mitigation measure	Performance criteria
	Rubber	reference under section Project Landowner/Client Agreements • Records of disposal of hazardous waste including defunct electrical equipment • Observed evidence of orderly approach and set-up of all amenities before main workforce arrives on site • Construction site camp fenced and gated with lock and key by Construction Site Manager prior to arrival of workforce

Site establishment shall take place in an orderly manner and all amenities shall be installed before the main workforce move onto site. **A method statement is required from the Contractor at tender stage that includes the layout of the camp, management of ablution facilities and wastewater management**.

The Contractor camp shall have the necessary ablution facilities with chemical toilets where such facilities are not available at commencement of construction. The Contractor shall supply a wastewater management system that will comply with legal requirements and be acceptable to Eskom. Where Eskom facilities are available the Contractor shall make use of such facilities where it is viable and possible. The Contractor shall supply waste collection bins where such is not available and all solid waste collected shall be disposed of at a registered waste dump. A certificate of disposal shall be obtained by the Contractor and kept on file.

Where a registered waste site is not available close to the construction site, **the Contractor shall provide a method statement with regard to waste management. Under no circumstances may solid waste be burned on site unless a suitable incinerator is available.**

9.1.1. Monitoring

Monitoring will be performed by the ECO against the performance criteria listed in the table above. The ECO will be present throughout the site establishment period as this is a critical period in which compliance against the Safety, Health and Environmental Management Programme is initiated. The ECO will take photographs of any non-compliance and have the situation rectified immediately with assistance from the Contractor Site Manager.

9.2. HEALTH AND SAFETY

It is strongly recommended that the approach to enforcement of Health and Safety on site is behavioural based. This means that it is incumbent on all site personnel – those with and without rank, to draw each other's attention to the safety of each and every operational task entered into at the construction site.

Table 9.2: Summary checklist of reasonable measures mitigating Impacts associated with Health & Safety and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Accidents/down time due to lack of diligence • Accidents/down time due to lack of training • Accidents due to poor/lack of machinery and equipment maintenance • No record of correct procedure of operating instruction • Lack of responsibility, policing and record keeping • Use behavioural based approach to positively influence landowner and landowner personnel • Lack of reminders • Lack of adequate rest • Lack of thorough checks by technical personnel • Additional identified impact/s?	• Proof of valid current workman compensation insurance • Identify roles & responsibilities • Identify line of communication – record of appointment of site H&S Officer as required by the Health & Safety Act • Have and make available site access plan • Work flow plan • Health & Safety Policy • Site specific SHE plan • Emergency plan for accident and injury • H&S Golden Rules • Induction plan and procedure • Toolbox/green area meetings • Record near-miss/incidents/accidents • Minute Toolbox/green area meetings • Report on H&S performance • PPE use and storage • Task specific risk assessments • Equipment and Machinery manufacturer operating procedures • Task/best practice descriptions • Trained operators and proof thereof • Communication of H&S Golden Rules • Housekeeping • Medical fitness and identification records • Correct & visible signage	• Copies of emergency procedures: o Fire hazard o Lightning o Snake bite • Medical emergency • Current certificated proof of First Aid trained staff and availability • Signed proof of appointment of H&S Officer • Record of weekly H&S meeting minutes • Record of near-miss/incidents & accidents • PPE* inventory and under lock and key • Record of safe equipment/machinery by technical inspector • Sign-off on H&S Golden Rules by all site personnel • Proof of operator competence and training • Proof of drivers licenses • Proof of knowledge of H&S Golden Rules by site personnel • Correct storage of hazardous chemicals and fuels • Correct Safety signage • H&S file available on site (*Personal Protection Equipment)

9.2.1. Golden Rules

- **Working at heights**
  - Scaffold plan and inspection records
  - Trained operators, PPE (Personal Protection Equipment) including approved harnesses and roping
- **Lockout/Machinery isolation**
  - In an emergency how does is the equipment/machinery shut down?
  - Proof of equipment/machinery maintenance schedules
  - Proof of compliant electrical installations
- **Hazardous substances**
  - Keep record of Material Safety Data Sheets (MSDS) for all hazardous chemicals used on site
  - Store in isolated, bunded and ventilated structure
- **Fire**
  - What is the emergency procedure in the even of wild fire?
  - How will the construction site be safely evacuated?
- **Lightning**
  - Cease work and find shelter in vehicle/s or roofed cover – keep way from tall metal structures
  - Lie flat on the ground if at a distance from suitable cover
- **Emergency procedures**
  - Medical Emergency – First Aid Response, Emergency Service Response
  - What to do in the event of snake bite – emergency procedure for medical emergencies
  - Visibility - Compulsory wearing of safety vests and hard hats on site
  - What arrangements are in place protecting operators from drowning if attending to equipment to temporarily draw water from dams and/or rivers?
- **Personal Protective Equipment (PPE)**
  - Inventory of all necessary PPE relating to the scope of works of the project
  - Record of audits of PPE
  - Hard hats, safety boots, cotton overalls, safety glasses, ear protection, disposable dust masks, safety vests and that relevant for safe operation or assembly of equipment
- **No liquor/drugs on site and no working under the influence**
  - No liquor will be allowed on site during and after hours. Functions where liquor is allowed will be conducted off site and in with permission of the necessary decision maker.

The workforce shall also be sensitised to the effects of sexually transmitted diseases, especially AIDS. General health issues shall be brought under the attention of the site staff and condoms shall be supplied on site.

9.3. WORKSHOP AND EQUIPMENT STORAGE AREAS

Where possible and practical all maintenance of vehicles and equipment shall take place in a workshop area. During servicing of vehicles or equipment, a suitable drip tray shall be used to prevent carbon spills onto the soil, especially where emergency repairs are conducted outside

the workshop area. Leaking equipment shall be repaired immediately or be removed from site to facilitate repair. All potentially hazardous and non-degradable waste shall be collected and removed to a registered waste site.

Workshop areas shall be monitored for oil and fuel spills and such spills shall be cleaned and re-mediated to the satisfaction of the ECO. **To this end a method statement is required from the Contractors, tendering for the project, to show procedures for dealing with possible emergencies that can occur, such as fire and accidental leaks and spillage**. The Contractor / Regional staff shall be in possession of an emergency spill kit that must be complete and available at all times on site.

The following shall apply:

- All contaminated soil / yard stone shall be removed and be placed in containers. Contaminated material can be taken to one central point where bio-remediation can be done.
- Smaller spills can be treated on site.
- A specialist Contractor shall be used for the bio-remediation of contaminated soil where the required remediation material is not available on site.
- All spills of hazardous substances must be reported to the appointed Transmission Engineering Environmental Advisor or alternatively to the Regional Environmental Advisor (Tx Key Performance Indicator requirement).

9.4. STORAGE OF HAZARDOUS SUBSTANCES

All hazardous substances shall be stored in suitable containers and storage areas shall be bunded and security controlled. This includes all carbon substances like fuel and oil as well as herbicides and battery acid. **The bunded volume should be sufficient to contain the full volume of stored hazardous substance.** A register shall be kept on all substances and be available for inspection at all times. Areas shall be monitored for spills and any spills shall be contained, cleaned and rehabilitated immediately. Any leaking containers shall be repaired or removed from site (See above for actions after spills).

Storage areas shall display the required safety signs depicting "No smoking", "No naked lights" and "Danger". Containers shall be clearly marked to indicate contents as well as safety requirements. The contractor shall supply a method statement for the storage of hazardous materials at tender stage.

9.4.1. Monitoring

In this case, the Contractor Site Manager and Appointed Health and Safety Officer shall check that personnel are using the appropriate PPE. Furthermore, prior to commencement of any construction activity they shall lead personnel in considering all H&S risks associated with the intended activity. Operation of equipment will be measured against manufacturer operating procedure. Any unsafe situation shall be halted immediately and safe measures instigated. A written record will be kept of any unsafe situation, incident or accident and reported on a monthly basis.

9.5. SECURITY

It is strongly recommended that the contractor make a firm commitment to working closely with the landowner/district existing security network. Such network may take the form of a community policing initiative, services of a local security company or involvement of the local police department. The contractor must not only take responsibility for his own personnel's movement on site, but for any unidentified persons accessing the site/s where construction is progressing.

It is in the hands of the contractor to engage with the landowner on the issue of security, find out the landowners requirements and ensure that that those are kept. The Contractor Environmental Liaison Officer (CELO) and Site Contractor Manager are responsible for establishing and maintaining construction site security in accordance with the wishes of the Landowner.

Table 9.5: **Summary checklist of reasonable measures mitigating Impacts associated with Security and relevant performance criteria**

Impact	Mitigation measure	Performance criteria
• Theft, damage to property and injury, loss of life • Lack of control - break down in local security and compromising of project deadline through delays • Additional identified impact/s?	• Administer strict controls via key personnel • Identify line of communication • Have and make available site access plan • Site personnel identification register, patrols and records of incidence • Landowner agreements and written permission • Establish responsibilities in existing local networks and extend coverage to include project requirements • Site register, patrols and records of all site personnel • Emergency procedures • Substance abuse	• Proof of security procedures covering issues including: o Gates & Key Responsibility o Emergency response contact numbers o Guard placement and duty description o Full inventory of site equipment and machinery including vehicles and registrations • Confirmation of Receipt of induction relating to security procedures signed by CELO & Construction Site Manager • Documentation of proof of receipt of landowner gate keys

9.5.1. Golden Rules

- Emergency Procedures
  - What to do in the event of suspicion of an accosting, break-in or theft – an emergency procedure must detail how such situations should be handled within the context of the locality of the construction site.

- **Landowner agreements and written permission**
  - Access?
  - Movement of vehicles and personnel?
  - Afterhours movements?
  - Area for recreation?
- **Administer strict controls via key personnel**
  - Who keeps sets of keys?
  - Who keeps a register of equipment and personnel?
- **Carry Identification**
  - The contractor shall have on record and available on site the identities of all construction staff.

9.5.2. Monitoring

Close liaison will take place between the Contractor and the Landowner on this issue. It is incumbent on the Contractor – whilst on site, to represent the landowner and to report any suspicious activity directly to the landowner or the nominated security service provider.

After hours the construction site camp is to be padlocked and no personnel will be allowed to be on site at this time. The contractor should make arrangements to post a guard or have the security service provider undertake regular patrols to the site.

The contractor shall keep a record of his duty to be responsible for any keys that belong to access gates through which access is allowed by the landowner.

9.6. ACCESS

The Site Contractor Manager must make provision for emergency in the event of a delivery vehicle getting lost. It is incumbent on the contractor to inform those making deliveries how to get to the site. Critical will be ensuring that deliveries do not arrive after hours, before 08:00 and after 17:00hrs, such events are known to be nuisance incidents and if not managed can impact negatively on the client/landowner relationship.

In addition, roads that approach the site are all gravel/dirt and thus susceptible to deterioration, especially during the wet season and through repeated use by heavy vehicle traffic. Direct access to the expansion site is on cultivated farmland and the conditions are sandy and may become difficult, particularly for heavy articulated vehicles. The Contractor may need to consider the construction of a roller compacted loop road to allow access for heavy vehicles. Road drainage will be critical and any new route should have adequate road drainage humps that direct runoff water away from the road. Erosion it appears should be negligible. **It will be important that any new access routes need to be agreed with affected landowners and environmental impacts to be considered by the ECO.**

Vehicles getting stuck in the sand and mud are seen to areas for pre-emptive management action. Consideration must be given by the contractor to an emergency procedure for assisting vehicles that have become stuck as a result of poor weather and road conditions.

Permits for the transport of extra heavy goods on public roads are the responsibility of the Contractor to arrange, or as agreed with the Eskom Project Manager.

Table 9.6: **Summary checklist of reasonable measures mitigating Impacts associated with gaining access to the construction site via landowner property and relevant performance criteria.**

Impact	Mitigation measure	Performance criteria
• Deterioration in condition of existing roads • Security/speed breach • Additional identified impact/s?	• Landowner agreements and written permission • Have and make available site access plan • Use clear signage • Emergency procedures for road deterioration e.g. flooding etc. • As far as possible carry out heavy construction during the dry season • Keep to normal working hours viz. Monday to Friday, Saturday until 13:00 • Set speed limit	• Copy of landowner/client agreement on how the contractor is to travel and gain access to the site construction camp • Availability of vehicle/tractor for towing in case of emergency • Road maintenance equipment such as tractor drawn scraper and roller or agreement by landowner to regularly maintain the road surface quality and road drainage • Adherence to the speed limit (40Km/hr) • Agreement on condition of access road/s before and after construction based on photographic evidence • No claims from Landowners due to damage on existing access roads • No erosion visible on access roads three months after completion of construction • No loss of topsoil due to runoff water on access roads • No interference with the natural flow of water • No damage to fences and subsequent complaints from Landowners • All gates kept locked at all times to limit access to construction staff

9.6.1. Golden Rules

- **Landowner agreements and written permission**
  - Access through cultivated lands.
  - After completion – ripping to alleviate compaction
  - The movement of vehicles during times of the week and day e.g. no deliveries to site on the weekends or after hours
  - Use of landowner equipment and vehicles
  - Speed limit
- **Emergency procedures**
  - Who will respond when/if a vehicle gets stuck – the farmers' tractor to pull out the low-bed delivering tower structures?
- **Speed Limit**
  - Generally a speed limit of no greater than 40km per hour should be imposed
- **Gated and locked**
  - All access route gates will be closed after access
  - The construction site camp should be gated and locked after hours

9.6.2. Access planning and design

Planning of access routes to the site for construction purposes shall be done in conjunction with the Contractor, Eskom and the Landowner. All agreements reached should be documented and no verbal agreements should be made. The **normal Eskom site documentation** will be sufficient for this purpose. The Contractor shall properly mark all access roads. Roads not used shall be marked with a " **NO ENTRY** " sign.

Where new access roads are constructed, this must be done according to **design and contract specifications**. Drainage channels shall be suitably designed to ensure erosion does not occur, especially at the outflows. The new access road shall be designed to allow for the natural flow of water where required. Crossing of dongas and eroded areas on access routes shall be thoroughly planned and installed according to design and contract specifications. All areas susceptible to erosion shall be protected with suitable erosion control measures from the onset of the project. Prevention is the total aim as restoration is normally very difficult and costly.

The crossing of rivers, streams or wetlands is subject to the necessary permit from the Department of Water Affairs and Forestry. This will include any works to river or steam banks.

Where necessary suitable measures shall be taken to rehabilitate damaged areas next to the newly constructed roads.

9.6.3. Construction Site Fencing Requirements

The site shall be fenced to prevent any loss or injury to persons or livestock during the construction phase. All Eskom gates shall be fitted with locks and be kept locked at all times during the construction phase, especially when works are stopped during weekends and holidays. All claims arising from gates left open shall be investigated and if at fault, settled in full by Eskom. Any claims from the Contractor will be between Eskom and the Contractor. If any fencing interferes with the construction process, such fencing shall be deviated until

construction is completed. The deviation of fences shall be negotiated and agreed with the landowner in writing.

It is recommended that all sensitive areas be fenced off with wire fencing, with fence posts and fencing standards painted in bright colours for high visibility. Should there be a need to go beyond this area (eg for temporary spoil or topsoil storage), the requirement should be first approved by the ECO who will look for a suitable site. The use of red and white bunting (tape) outside of the secured construction area is discouraged, as bunting may be hazardous to livestock.

9.6.4. Monitoring

Access to the construction site will be monitored against the site access plan. Alternate access will not be tolerated and fines imposed on the Contractor Site Manager by the ECO where the rules are breached.

9.7. FIRE HAZARD

Wild fire is major contributor to power outages throughout the country. In conjunction with a countrywide initiative to reduce the risk of wild fires and their negative impact on electricity assets as well as the wider impacts affecting commerce and the public associated with wild fire induced outages, the opportunity exists to involve landowners in the management of fire risk. According to the Veld & Forestry Act it is incumbent on landowners to protect their own land from the threat of wild fire through applying fire management tools such as burning of firebreaks. Furthermore, as a landowner is liable for damages due to fire emanating from his/her property, it is highly advisable that landowners form organized communities to deal with wildfire on an ongoing basis. Fire protection Associations should be formed and landowners organised to facilitate the protection of property from wild fire threat.

Similarly, as the owner of the power line servitudes, Eskom will be responsible for any fires originating from the site, or fires due to contractor's negligence. Eskom will ensure the Contractor adheres to a strict no smoking policy during construction. Additionally, no cooking fires should be lit and any potential fire hazard activities (eg arc welding) should be carefully managed. The Contractor should hold fire-fighting equipment on site during the construction phase.

The nub of the mitigation for this particular environmental aspect is that the contractor must engage the landowner on procedure for handling wildfire threat. In addition, the contractor must engage and network with the local fire protection officer and abide by the protocol set out by the Act.

Table 9.7: Summary checklist of reasonable measures mitigating Impacts associated with Fire Hazard and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Loss of economic benefit – livestock/grazing production • Damage to property and risk of loss of life • Project delays – especially during fire season • Power outages and associated negative economic knock-on • Opportunity to network to facilitate maintenance of asset once lines are commissioned • Additional identified impact/s?	• Identify roles & responsibilities • Emergency plan • Accredited training in fire fighting • Properly maintained equipment • Readiness • Fire management programme to protect the asset from damage • Safe herbicide use • Monitoring	• No veld fires started by the Contractor's work force • No claims from Landowners for damages due to veld fires • No litigation • Proof of certification in basic fire fighting of at least 5 staff members • Necessary serviced and ready fire fighting equipment including: • Water tanker, tank and fire fighting hose • Backpack sprayers • Torch • PPE • Availability of contact details for local fire officer • Evidence of fire protection as recommended by the ECO e.g. mowing or firebreaks

9.7.1. Golden Rules

- **Landowner Agreement**
  - Engage with the landowner specifically on his procedure for managing wild fires
  - Fit-in with the requirements of the local Fire Association following protocol with respect training, equipment to adhering to procedure for management burns.
  - Fire management programme
- **Identify roles & responsibilities**
  - Especially during fire season, ensure that equipment is ready and trained personnel can man equipment in the case of a wild fire emergency – consider roster system for off-duty days.
- **Fire management programme**
  - Engage with the landowner regarding a suitable time to burn firebreaks to protect the construction site camp and eventually the entire substation from wild fire threat.

- **Safe herbicide use**

  - Ensure that a trained operator applies tracer lines, that herbicide application information is captured and that the hazardous chemical is stored in the hazardous chemical store.
- **Health & Safety**
  - Cotton overalls
  - Fire resistant boot soles
  - Calibrated herbicide applicator
  - Rubber gloves
  - Goggles
  - Fume mask
- **No open fires shall be allowed on site**
  - Under no circumstance (The Forest Act, No 122 of 1984) are fires to be lit on site. All cooking shall be done with gas in demarcated areas that are safe and cannot cause runaway fires. The Contractor shall have operational fire-fighting equipment available on site, especially during the winter months.

9.7.2. Monitoring

The ECO will check to ensure that emergency plans are in place and if not facilitate relationships such that assets are protected. If the contractor is to use fire as a tool to protect assets, the ECO will ensure that the personnel involved have received the necessary recognized training in basic fire fighting skills. Furthermore, that the necessary network is place including contact established with the local Fire Protection Officer and/or agreement with the landowner to handle the aspect of fire hazard and protection.

9.8. WASTE & HOUSEKEEPING

The Contractor shall dispose of all excess material on site in an appropriate manner and at a registered landfill. The ECO is to monitor the general cleanliness of the site and raise and housekeeping and waste management issues at weekly Health, Safety and Environment meetings where non-compliance will be raised and instructions given through the Contractor Site Manager.

All packaging material shall be removed from site and disposed of and not burned on site. A negotiated landfill may be used but when it is closed up, the rubble shall be compacted and there shall be at least 1m of soil covering the waste material. No landfill may be used without the consent from the Landowner. No non-biodegradable materials shall be disposed of in any unregistered waste site unless it is inert (eg soil, rubble, etc.). **A method statement regarding management and disposal of construction rubble shall be included in the tender documents by the Contractor.**

No material shall be left on site that may harm man or animals. Broken, damaged and unused spares such as porcelain, glass, nuts, bolts and washers shall be picked up and removed from site. Surplus concrete may not be dumped indiscriminately on site, but shall be removed from site and disposed of in registered landfill areas. Concrete trucks shall not be washed on site after depositing concrete into foundations. Any spilled concrete shall be cleaned up immediately. It strongly suggested that all mixing be carried out on shuttering and never directly on the soil surface.

Table 9.8: **Summary checklist of reasonable measures mitigating Impacts associated with waste and general housekeeping and relevant performance criteria**

Impact	Mitigation measure	Performance criteria
• General contamination • Unsightliness • Risk of litigation • Additional identified impact/s?	• Use environmentally sound disposal facility • Communicate the need for housekeeping and a neat and tidy work environment • Link Housekeeping with Health & Safety Awareness	• No construction rubble left lying around on site • Hand mixing to be carried out on metal shuttering • Unused mixed concrete to be disposed of off site • No incidents of litigation • No complaints from Landowners • Recycling to be actively practiced including – oil & grease, metal parts, rubber, paper, plastic & glass • A clean well kept site with everything in its place • Availability and proof of training for use of spill kits • Necessary bunding and storage facilities for fuels and hazardous chemicals • Emergency procedure for spill • Register of disposals at registered site if used

9.8.1. Golden Rules

- **Housekeeping**
  - Keep the working area tidy
  - Collect all waste on a daily basis
  - Provide safe storage bins at key locations to facilitate easy waste collection
- **Environmentally sound disposal**
  - Protect against rain and wind dispersal of waste
  - Empty waste collection areas weekly
  - Dispose of all waste at registered waste disposal sites
  - Hydrocarbons and hazardous materials need to be disposed of at registered sites
- **Recycling**
  - Recycle material where possible within the construction process
  - Investigate recycling collection centres in local municipalities

Monitoring

Daily evidence of a neatly kept construction site as well as presence of disposal bins for recycling is sought. Records of disposal at registered site are to be kept and will be checked by the ECO.

9.9. WATER RESOURCES

Eskom must ensure that the Contractor, through enforcement by the Contractor Site Manager and monitoring, feedback and reporting by the ECO, will protect water resources in the immediate vicinity of the site.

The main impacts and mitigation are set out below:

- Pollution during construction – rubble, oils, cement, etc. Mitigation is possible through waste control and fuel storage points to be kept at least 100m from wetland. Construction operations to be kept further than 50m from the wetland, except where substation footprint is in wetland area where a 5m working buffer is proposed. Establish emergency procedures for accidental spillage.
- Loss of habitat. Mitigation is limited unless an off-set area is established as a new wetland, of rehabilitate (off-site) downstream stream and wetland areas where erosion has occurred.

It is important that construction within 100m of the wetland may not start until the necessary permit has been obtained form the Dept. Water Affairs & Forestry.

9.9.1. Drainage during construction:

Location of fuel storage areas, hazardous materials (oils, chemicals, cement), concrete batching plants, washing areas, waste storage areas, ablution and latrine areas, and any other potentially polluting activities, should be at least 100m away from the wetland or stream. These areas should have drainage management features that will prevent polluted runoff entering the natural watercourse. Such features will include bunding (or berms) placed around hazardous liquid and fuel storage areas, settlement ponds below any washing areas or batch plants, etc., and it is recommended they have sufficient capacity to contain the 1-hour, 1 in 10year point rainfall event. All these facilities should have controlled access to limit the risk of accidental spillage. Additionally, areas of exposed ground greater than 50m2 should be provided stormwater runoff berms on the downslope to trap sediment during the wet season.

Water for construction and construction crew consumption will need to be imported to site by tanker (or similar). Water may not be extracted from nearby streams/wetlands without DWAF authorisation.

Towards preserving the hill slope seepage, Eskom proposes installing a cut-off drain around the extended substation, the outfall located to the north of the site. In order to prevent the creation of another artificial wetland and to limit the risk of erosion at the outfall, it is recommended that a French drain (or filter drain) is installed at the outfall to encourage seepage flow. This is in line with the recommendations of the wetland specialist report.

Protection of the wetland from construction activities will require close involvement of the ECO and Contractor. A working area within the wetland area should be no more than 5m beyond the footprint of the electricity supply infrastructure. However, there may be local areas where additional vehicle movement is required and this should be assessed and agreed by the ECO before commencement with these activities. The remaining wetland area should be fenced off with wire fencing and fence poles painted in a bright colour to ensure visibility.

Table 9.9: Summary checklist of reasonable measures mitigating Impacts associated with Water and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Water quality • Biodiversity • Drainage/soil erosivity • Quality for Human consumption and Agricultural use • Additional identified impact/s?	• Meeting requirements of DWAF regarding water usage • Landowner agreement on use of water • Identify roles & responsibilities • Identify line of communication • Have and make available site access plan • Emergency plan • • Safe herbicide use • • Monitoring of water quality against SABS standards for human and agricultural use • Reporting of incidence/accidents • Storage of hazardous chemicals and fuels • Safe waste disposal facilities • Sealed and bunded fuel and hazardous chemical storage areas • Construction site drainage to mitigate erosion and contamination	• Landowner agreement for drawing of water including position • License for drawing of water • Dry toilet – regular maintenance • Correct storage of hazardous chemicals and fuels – sealed and bunded • Correct site drainage – no evidence of erosion or poor drainage • Monitored/recorded use of herbicides by trained personnel • Spill emergency plan • Evidence of waste management implementation and recycling • No damage to natural drainage channels • No damage to river and stream banks • No visible erosion scars on embankments once construction is completed • Evidence of drainage safe vehicle and machinery service area – use of drip trays • No evidence of suspended load in water resource, linked to borrowing

9.9.2. Golden Rules

- **Legislative Requirements and Landowner Agreements**
  - Does the landowner have riparian rights – is water use registered?
  - If necessary, from where will water be drawn?
  - Where will waste be disposed of?
- **Storage of hazardous chemicals, fuel and location of ablution and latrine facilities**
  - A fuel and hazardous chemical depot will be established with correct bunding, labelling and signage.
  - Storage areas should be a minimum of 100m from the wetland edge or drainage lines.
  - Storage areas should be secured against uncontrolled access with proper wire fencing with fence poles clearly marked (bright paint) to ensure visibility.
- **Emergency Plan**
  - Trained personnel will know how to and have necessary equipment and materials to respond to a fuel or chemical spill into a local water resource.
- **Proper Waste Disposal**
  - Ensure disposal of potentially hazardous materials, and liquids in particular, at registered disposal sites.
- **Drainage**
  - Designed to protect water resource/s from contamination by silt and or contaminant emanating from the construction site.
  - Areas of exposed ground greater than 50m2 should be provided stormwater runoff berms on the downslope to trap sediment during the wet season.
  - All access roads on slopes greater than 5% to have cross berms every 30m to manage stormwater runoff.

9.9.3. Construction Camp Position in Relation to Water Resource

The construction camp may be located anywhere except within 100m from the wetland areas. Any permanent structures (if applicable) need to take into account the seasonal fluctuation in water table. A dry toilet system is recommended due to the poor drainage below 300m to 500mm from soil surface at the midslope or crest/midslope ecotone. Green water discharge should be monitored and controlled.

9.9.4. Site Drainage

Under no circumstances shall the contractor interfere with any watercourses in the vicinity of the site. Should deviation of such watercourses be required as part of the contract design specification, the specifications shall be adhered to strictly. The ECO shall ensure that all watercourses are adequately protected to prevent downstream siltation due to erosion on site. Rubble from the construction process shall be removed from site and may under no circumstances be dumped into any natural drainage channels. The normal flow of runoff water must not be impeded, as this will enhance erosion.

9.9.5. Monitoring

The ECO is to monitor for chemical contamination against the SABS standards for Human Consumption and Agricultural Use. An accredited laboratory will be used to test water samples that are drawn prior to site establishment as a benchmark and subsequently on a monthly basis. Samples will be drawn from the same position at the water resource under threat. A final sample will be drawn post site dis-establishment. Sample analyses results will be compared against initial benchmark samples.

Soil erosion and siltation will be monitored during the construction process. Any siltation in the water bodies will be removed by manual labour during the rehabilitation of the site. Any proposal for mechanical silt removal or rehabilitation activity in the wetland must first be approved by the ECO.

9.10. SOIL

As with water, the responsibility for site soil protection rests with Eskom who, through the Contractor (co-ordinated by the Contractor Site Manager) and monitoring, feedback and reporting by the ECO, will ensure a minimum of damage to soils around the site.

Design of the electricity supply infrastructure drainage needs to take into account soil conditions immediately around the site. Unattenuated storm flows from the electricity supply infrastructure may result in erosion gulleys forming downstream of the site.

Table 9.10: Summary checklist of reasonable measures mitigating Impacts associated with Soil and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Soil contamination • Export of soil resource • Additional identified impact/s?	• Landowner agreements – borrow pits, environmentally safe disposal of waste • Use clear signage • Designated area trapping oil and grease for service and maintenance of vehicles, machinery and equipment • Sealed and bunded fuel and hazardous chemical storage areas • Trained personnel • Emergency procedure for spills • Monitoring against standards for environmentally safe agricultural soils if contamination occurs • Environmentally sound disposal of waste including	• No evidence of soil erosion or contamination • Evidence of properly designed and engineered drainage • Correct location of roads according to recommendations • No visible erosion scars once construction is completed • All disturbed areas successfully rehabilitated • •

Impact	Mitigation measure	Performance criteria
	recycling and use of registered landfill sites where possible • Use of danger tape to cordon-off areas of high erosivity • Portable toilet facilities	

9.10.1. Golden Rules

- **Landowner agreements**
  - Agreement and access to proper disposal facilities either controlled by landowner or use of registered waste disposal site.
  - Agreement and access to borrowed soil for construction purposes.
- **Emergency Procedures & Training**
  - Provision of spill kits near fuel and potentially hazardous liquid storage areas within the construction camp.
  - Personnel trained in the proper use of spill kit.

9.10.2. Housekeeping

- All domestic waste must be disposed of in pre-agreed areas that either make use of correct landowner disposal facilities or registered facilities offsite. At the very least waste must be disposed into bins marked plastics, glass, metal/machinery parts and paper. Servicing, greasing of vehicles and machinery must take place at a designated safe area where there is little or no risk of contaminant entering the sites natural drainage.

9.10.3. Signage

- Areas for storage of hazardous chemicals, fuels and areas for servicing and maintenance of equipment and vehicles must be clearly sign posted (an indication of signage advised is addressed in the section under site Health & Safety).

9.10.4. Construction camp position in relation to soil resource

Mitigations on midslope or wetland ecotone areas are necessary to allow natural underground seepage towards the drainage lines and the seasonal vertical fluctuation of water between 300mm and 500mm at the midslope below soil surface closer to the wetland and 500-800mm on higher lying crest and midslope/crest areas of the study area..

9.10.5. Soil Conservation - Topsoil

The stockpile needs to be surrounded by a berm to assist managing erosion and stormwater runoff during the wet season. Where terracing is required, topsoil shall be collected and retained for the purpose of re-use later to rehabilitate disturbed areas not covered by yard

stone. Such areas include terrace embankments and areas outside the high voltage yards. Where required, all sloped areas shall be re-vegetated and stabilised to ensure proper rehabilitation is effected. These areas can be stabilised using design structures or vegetation as specified in the design to prevent erosion of steep embankments. The contract design specifications and Environmental Impact Report (EIR) recommendations shall be adhered to and implemented strictly.

The retained topsoil shall be spread evenly over areas to be rehabilitated and suitably compacted to effect re-vegetation of such areas to prevent erosion. If the residual topsoil material does not have any toxic substances, it can be used by the surrounding farmers. If the residual topsoil is toxic it should be removed and taken to a licensed landfill site. Any surplus topsoil should be disposed of at a licensed landfill site unless an alternative local disposal site is identified by the Contractor. Such site should be evaluated and approved by the ECO, giving consideration to environmental risks at that site. The process of off-site topsoil removal must be clearly documented showing location, description of end use, quantities date and time, and ECO and landowner/landfill operator signatures.

9.10.6. Earthworks & Spoil Stockpiles

A spoil stockpile area is designated in the north-east area of the construction site. This is seen to be the most suitable location for the stockpile. The stockpile needs to be surrounded by a berm to assist managing erosion and stormwater runoff during the wet season.

The extended substation yard will be terraced and substantial earthworks will be required though it is understood it is the intention that cut and fill requirements will be balanced on site requiring little import or disposal of material. However, if necessary, the Contractor will determine the source of any additional fill material required for the terracing, and will also identify the location for any disposal of excess spoil. Eskom will remain responsible for the environmental management of this process and will need to approve all borrow sources and disposal locations. No borrow pits are included in this EMP and should any borrow pit be required, then Eskom will need to approach DEAT for authorisation. To avoid this process it is recommended that fill material be obtained from licensed commercial sources. Disposal of surplus spoil should similarly be to licensed landfill operators.

9.10.7. Monitoring

The site needs to be continuously monitored for accidental spillages, uncontrolled discharges and erosion due to stormwater runoff. In the event of a spill the contaminated area should be contained to prevent the spread of pollutant. Dependent on the pollutant, the contaminated soil may need to be removed and disposed of off-site, proof of disposal obtained and the area rehabilitated/revegetated using borrowed soil.

All spillages, but particularly those near water bodies need to be inspected and recorded by the ECO, including photographic record and remediation measures.

9.11. FLORA

Responsibility for protection of site flora is in the responsibility of the Site Construction Manager and ECO.

Upon construction site dis-establishment, all denuded areas will be re-vegetated and temporary roads deep ripped to alleviate compaction. Vegetation re-establishment in areas damaged during construction need to be evaluated by a specialist botanist prior to rehabilitation. Re-establishment of veld grasses must take into consideration the location of the site and previous grassland mix. Automatic reseeding with the likes of *eragrostis sp*. is not recommended, and no exotic species such as kikuyu should be used on this site.

Table 2.11: Summary checklist of reasonable measures mitigating Impacts associated with Flora and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Reduce biodiversity • Exposure of soil to soil loss in runoff • Damage to property • Additional identified impact/s?	• Landowner agreements – borrow pits, use of fire to protect assets and fire threat emergency procedure, transplanting of trees in the way construction • Identify roles and responsibilities • Identify line of communication • Have and make available site access plan • Use clear signage and danger tape to cordon off identified protected plant species • Trained personnel in the use of herbicide to control vegetation particularly for defining tracer lines in the establishment of fire breaks • Safe storage of hazardous chemicals • Emergency procedure for spills • Monitoring against standards for environmentally safe agricultural soils	• Only vegetation cleared as required for site construction purposes • No vegetation interfering with structures and statutory requirements upon completion of the contract • No de-stumping of vegetation on river and stream embankments • No visible erosion scars three months after completion of the contract due to vegetation removal • No visible damage to the vegetation outside the site one year after completion of the contract due to herbicide leaching • No litigation due to unauthorised removal of vegetation • No unnecessary damage to natural features • Vegetation rehabilitated according to ecologists recommendations in shortest possible timeframe to prevent soil erosion

9.11.1. Golden Rules

- **Landowner engagement agreements regarding fire hazard**
  - It is extremely important that the appointed contractor knows his responsibility regarding fire protection and management. Preferably, the contractor should arrange with the landowner/farmer to burn firebreaks around the construction site camp to protect assets.
- **Site access plan and signage**
  - Protected vegetation should be clearly marked and totally avoided.
- **Herbicide application**
  - Trained and certified competent staff should apply herbicide for purposes of vegetation control.
- **Fire as a Management Tool**
  - If the contractor is to engage in the use of fire to manage vegetation in and around the construction site camp, he should do so via consultation with landowner, fire protection officer and knowledge of importance of the geographically specific Fire Danger Index. The contractor staff should be properly trained and equipped to handle wild fires.
- **Emergency procedures and correct PPE**
  - Hazardous chemicals should be clearly labelled and correctly stored. Competent operators should use the correct PPE and an emergency procedure should be practiced and available in the event of accidents and wild fire.

9.11.2. Site vegetation description

The study area comprises two biomes, namely the savanna biome in the north and grassland biome in the southern section of the study area. The majority of the study area (72%) encompasses the savanna biome. The remainder (28%) comprises the grassland biome. The transition between savanna and grassland is rapid and happens at about 26° South (starting just south of the Magaliesberg range).

The study area has also been split into three sections, namely the northern, central and southern sections. The northern section ends roughly at Dwaalboom; the central section includes the Pilanesberg and the areas east and west of the Pilanesberg and ends south of the N4 highway with the southern section ending south of Potchefstroom.

The northern section of the study area falls within the savanna biome that is predominantly Bushveld vegetation. The shrub layer is moderately developed and the grass layer is moderately to well developed.

The savanna biome is identified as having a grassy under storey and a distinct woody upper story of trees and tall shrubs. Tree cover can range from sparse to almost closed canopy (only along some drainage lines in the study area). Moist woodland comprises predominantly broadleaved, winter deciduous woodland. Soil types are varied but are generally nutrient poor.

The woodland biome in the study area represents one of the lesser-impacted areas in South Africa from an ecological point of view. Although there are major impacts such as overgrazing, it generally has not resulted in total destruction of eco-systems. This biome, and specifically

moist woodland, is particularly well represented in the study area although the habitat type is not particularly threatened or rare in South Africa.

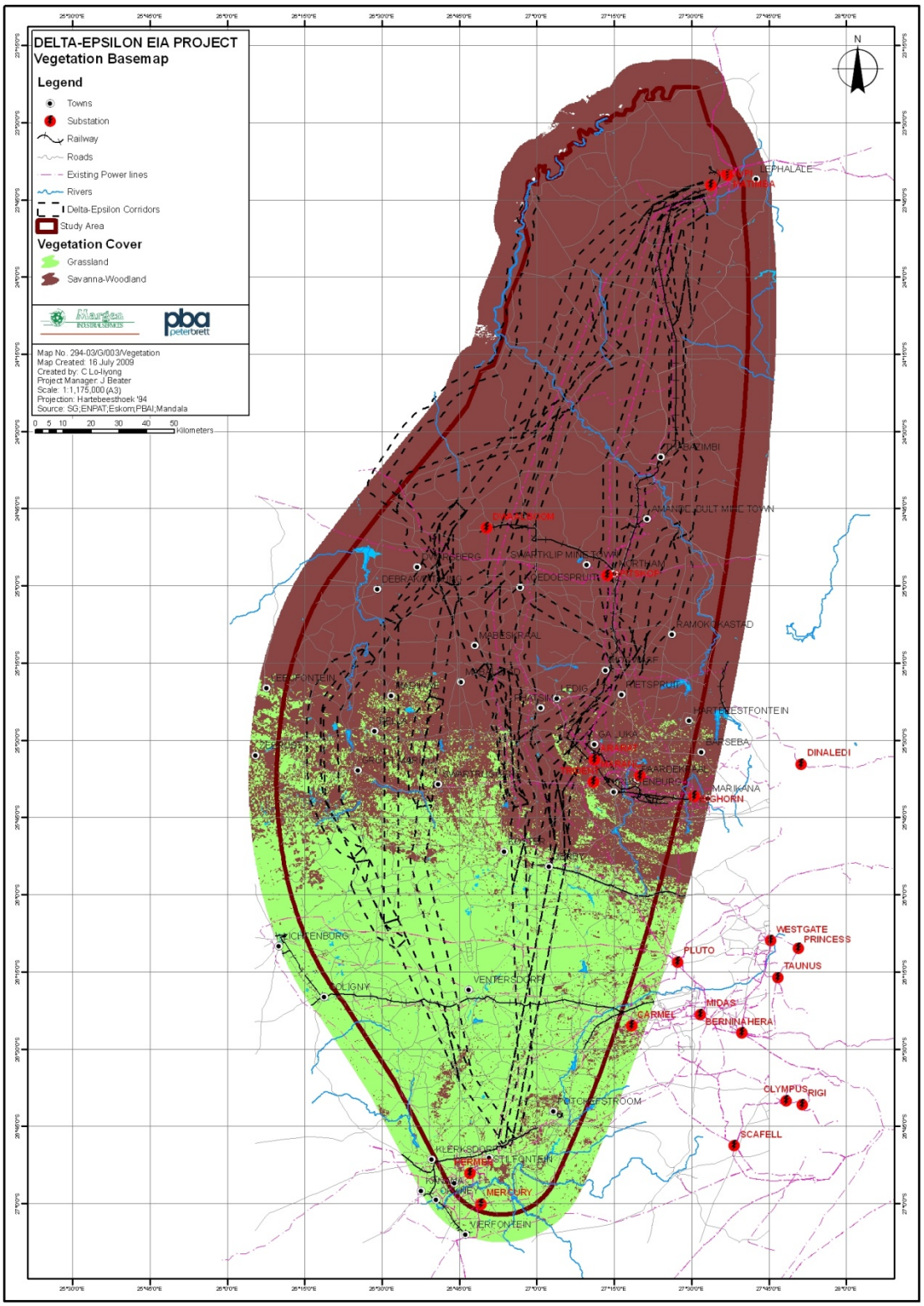

Figure 3: Vegetation Types within the Project Area

The majority of the northern parts of the central section of the study area form part of the savanna biome and is characterised by mainly Mixed Bushveld with some sections of Clay Thorn Bushveld. The area comprises of mostly undulating to flat plains. Economic activities include cattle and game farming and cultivated crops.

The middle of the study area (part of the savanna biome) features a number of rocky outcrops within flat, rolling plains affording clear views towards the Waterberg and Magaliesberg Mountain ranges.

The southern section of the study area, from Koster downwards, forms part of the grassland biome. A single layer of grasses dominates grasslands. Trees are absent, except in a few localized habitats. The Grassland Biome is the cornerstone of the maize crop, and many grassland types have been converted to this crop. The northern part of this area features the Rocky Highveld Grassland that is a transitional type between typical grasslands of the high inland plateau, and the bushveld of the lower inland plateau. Grassland vegetation is restricted to exposed sites in the irregular, undulating, high-altitude landscape, especially on the crests of rocky hills and ridges. The northern section is characterized by an open, flat and sometimes rolling topography.

The southern parts are characterized by Dry Sandy Highveld Grassland with a few Sweet Thorn Acacia karoo trees occurring only occasionally along watercourses. This is particularly true along the Vaal River in the extreme south. A number of National, Provincial and private nature and game reserves are found in the study area including Madikwe, Atherstone, Thaba Tholo and Marakele National Park

9.11.3. Access road in relation to vegetation

The access road should preferably on the east, extending north from the existing access road to substation. Sufficient provision should be made for water drainage away from the road into the wetland in case a road is envisaged on the west. Seepage under the road, from the crest to the wetland, should also be taken into account.

Avoid scraping temporary access roads. Rather cut the grass and drive over it.

9.11.4. Rehabilitation

Vegetation cover needs to be restored as quickly as possible due to the potential risk of stormwater and wind erosion. A realistic target would be to restore grass tuft distance to a minimum of 3cm.

The soil needs to be prepared and the grassland rehabilitated afterwards.

800 to 900 grams of topsoil needs to be sampled each, on the crest, gentle midslope and steeper midslope and wetland ecotones. These should be analysed chemically, in order to follow specific amelioration guidelines for the restoration of grass cover and its production potential. The next stage would be to prepare the soil, in order to initiate the amelioration process. This would involve the physical ripping and mixing of the soil material with organic and inorganic substances. The chemical and physical soil properties will therefore be addressed by

enriching the soil. Prescribed quantities of organic material and inorganic substances need to be worked into the soil. Sowing of grass seed will be the next stage.

Grass seed should be planted in not deeper than 1 cm layer of soil. Once sown the grass seed can be covered by sweeping a brush or branch of a tree over the sown area. The timing of the sowing process should co-inside with the rainy season. Grass seed should preferably not be *Eragrostis curvula*. This species becomes moribund if not regularly grazed or burned and will become a fire hazard in the long run. Tall grass species such as *Hyparrhenia hirta* invade in follow up successional stages and also pose a fire risk and also negatively impact grass cover and on plant diversity in the long run. This tall Thatching Grass is very stable and once established needs physical interference to allow other grasses to establish. Weeping Love Grass (*E. curvula*) is similar in this respect. Grass species that are shorter and provides better cover will also enhance plant species diversity in the long term. *Digitaria eriantha* and *Cynodon dactylon* are recommended, together with the annual *Eragrostis tef*.

9.11.5. Clearing of vegetation

Vegetation clearing to allow for site establishment as well as construction purposes will sometimes be required. Vegetation can be cleared mechanically with a bulldozer where terracing is required, but should be cleared by hand on other areas. All alien vegetation shall be eradicated from site during the project. Indigenous vegetation that does not pose any risks to the operation of the electricity supply infrastructure upon completion of the contract should be retained for esthetical purposes. Such vegetation shall be identified during design and clearly indicated on the site plans.

No clearing of vegetation beyond 5m from the final security fence will take place during construction unless specifically approved by the ECO.

No protected or endangered species of plants shall be removed without a permit from Nature Conservation. Where such species have to be removed due to interference with structures, the necessary permission and permits shall be obtained by the ECO prior to commencement of site works. Search, rescue and replanting of indigenous, valuable and protected species is highly recommended where possible and viable.

The use of herbicides shall only be allowed after a proper investigation into the type to be used, the long-term effects and the effectiveness of the agent. Eskom's guidelines regarding the use of herbicides (TRR/S91/032) shall be adhered to strictly. Application shall be under the direct supervision of a qualified technician. All surplus herbicide shall be disposed of in accordance with the Supplier’s specifications.

The Contractor for vegetation clearing shall comply with the following parameters:

- The contractor must have the necessary knowledge to be able to identify different species.
- The contractor must be able to identify declared weeds and alien species that can be totally eradicated.
- The contractor must be in possession of a valid herbicide applicators licence.

The Contractor shall supply a method statement regarding vegetation clearing at the tender stage.

Natural features shall be taken into consideration during design and where possible these shall be protected unless they will interfere with the operation of the electricity supply infrastructure.

9.11.6. Monitoring

Vegetation biomass is to be measured in the vicinity of the electricity supply infrastructure. This area will be managed during the operational phase to prevent fire hazard either through mechanical or fire. The ECO is to be inducted in the use of a disc metre to measure biomass and to keep baseline records at sire establishment, prior to mechanical control or burning of firebreaks.

9.12. FAUNA

As regards fauna, The Site Construction Manager and ECO are responsible in ensuring that this resource remains protected throughout the duration of the project.

A critical consideration regarding the protection of fauna is not to disturb both fauna and habitat represented in the vicinity of the construction site. Therefore an essential golden rule will be to strongly prohibit poaching and breaching of access to areas out-of-bounds as indicated on the site access plan.

Table 9.12: Summary checklist of reasonable measures mitigating Impacts associated with Fauna and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Calving and lambing mortalities associated with construction disturbance • Electrocution of taller game species • Animal mortality related with tower structure • Power outage • Additional identified impact/s?	• Limit construction during calving & lambing season • Limit or no disturbance during times of nesting • Identify risk areas and install guards etc. • • No poaching or hunting • • Educate staff on local fauna – use posters to highlight specific species requiring protection	• Confirmation of engagement and agreement with landowner regarding claim arising from animal mortalities relating to electrical infrastructure • Construction site properly fenced • Site personnel awareness and action to protect fauna – if found nesting etc. • Signage and areas requiring protection adequately fenced off • No stock losses where construction is underway • No complaints from Landowners and Communities • No litigation concerning

		stock losses and animal deaths

In addition, the Contractor shall under no circumstances interfere with livestock without the Landowner or Community members being present. This includes the moving of livestock where they interfere with construction activities. Should the Contractors workforce obtain any livestock for consumption, they must be in possession of a written note from the owner. The transportation of meat for consumption shall take into consideration any legal requirements regarding the spreading of disease. No poaching shall be tolerated under any circumstances.

9.12.1. Golden Rules

- **Communication - have and make available site access plan**
  - Crucial to the success of the project in ensuring zero or limited environmental damage is ensuring that all site personnel know and understand the construction site layout. Site personnel need and must know where they can and cannot go and this must be policed. Knowledge on local fauna and avifauna must be communicated to all personnel in a manner that the need for their protection and conservation is fully understood.
- **Clear Signage**
  - Areas out-of-bounds should be clearly sign posted and if necessary, demarcated with construction/danger tape. A fence dropper/s may be necessary to demarcate a nesting site, however, to avoid unnecessary disturbance it should be placed away from the nest itself.
- **Landowner Agreements**
  - Access – no access to areas that have not been covered in written agreement/s.
  - Culling for rations
  - Fencing and injury of livestock by equipment relating to construction and line infrastructure
- **No Hunting or Poaching**
  - Unless by landowner agreement, hunting is totally prohibited
- **Animal & Bird Protection**
  - Speed Limit
  - Prohibit construction during nesting times
  - Adhere to the construction site/landowner property speed limit – be aware of animals crossing the road and birds feeding on carrion in the road.
- **Housekeeping**
  - The construction site should be well kept at all times and waste disposed in bins designated paper, glass, plastic, rubber and metal/parts.

9.12.2. Monitoring

The ECO will conduct fence line checks to determine the state of fencing, particularly its ability to keep livestock out. Areas requiring repair shall be photographed – temporarily repaired and reported to the landowner immediately for more substantial repairs.

9.13. AVIFAUNA (BIRDS)

Two Important Bird Areas (IBAs) fall in the northern section, namely the Waterberg System IBA and the Northern Turfveld IBA situated south of Thabazimbi. The Waterberg IBA consists of the Waterberg range and its cliffs. The western-most part of this system contains the Kransberg,incorporated into the Marekele National Park, and overlaps with the study area. Kransberg holds the largest Cape Vulture colony in the world, around 700 pairs. Most of the vulture cliffs fall outside the Marekele National Park. The Kransberg also holds breeding Black Stork.

The Northern Turfveld IBA is found on a series of private farms that forms a triangle generally delineated by the Crocodile River in the east, and the Bierspruit River in the west. This area holds the core of the remaining resident South African population of Yellow-throated Sandgrouse that inhabit short open grassland, fallow fields and recently burnt ground, especially on black clay soils near water. There is a possibility that another Red Data species, the Short-Clawed Lark may also occur in this area from time to time.

Table 9.13: Summary checklist of reasonable measures mitigating Impacts associated with Avifauna and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Habitat disturbance and destruction • Collision risk • Electrocution • Animal mortality related with tower structure • Power outage • Additional identified impact/s?	• Bird specialist to undertake walk through of recommended routes once pylon positions are known so to ensure that the positions of the pylons result in minimum impact on birds • Review location of bird flight diverters' and other bird mitigation measures • Install bird perches if required. • Bird specialist to give site-specific recommendations for mitigation especially where the new power lines cross cultivated lands. • Contractor and the staff to be made aware of sensitive areas, and the contractor are responsible for the prevention of poaching. • Construction work to be confined to servitude so that habitat destruction is limited • Fit bird flappers (or equivalent) as specified by bird specialist	• Confirmation of engagement and agreement with landowner regarding claim arising from bird mortalities relating to electrical infrastructure • Site personnel awareness and action to protect fauna – if found nesting etc.

9.13.1. Golden Rules

- **Bird Protection**
  - Speed Limit
  - Prohibit construction during nesting times
  - Adhere to the construction site/landowner property speed limit – be aware of birds feeding on carrion in the road.
- **Housekeeping**
  - The construction site should be well kept at all times and waste disposed in bins designated paper, glass, plastic, rubber and metal/parts.

9.13.2. Monitoring

- Contractor and the staff to be made aware of sensitive areas, and the contractor are responsible for the prevention of poaching.
- Construction work to be confined to servitude so that habitat destruction is limited
- Fit bird flappers (or equivalent) as specified by bird specialist.
- Use existing roads during construction
- Install flappers and perches as advised by the bird specialist.
- Establish monitoring programme. The applicant is responsible for ongoing monitoring of the power line along sensitive areas (river crossings, riparian areas, valley areas) for incidents of bird collisions

9.14. ARCHAEOLOGY

Responsibility lies with the Construction Site Manager, ECO and a registered Heritage Authority to ensure that any archaeological finding or existing resource remains protected to augment the national archaeological and heritage register.

A number of Stone and Iron Age sites have been identified in the proposed power line corridors. Not all sites have been identified however as a primary result of the fact that few surveys have been conducted in the Eskom Project Area especially in the north. Stone Age sites are also not easy to detect as they may be (partly) buried under the ground and mostly consist of stone tools that are scattered across the surface of the land.

It is clear that Stone Age sites are under represented in the Eskom Project Area and that some of these sites will be found during the walk through study or when the power line corridors are surveyed and constructed.

Rock painting and engravings sites are also rare in the Eskom Project Area. It seems as if none exist in any of the proposed power line corridors and deviations.

Most of the Late Iron Age stone walled sites in the Eskom Project Area have been identified in the central part of the project area where they overlap with Sotho-Tswana and Nguni prehistory

and history. A number of these sites may be affected by the proposed power line corridors and their deviations .

The No Go Area of Molokwane, Selonskraal and occur in/near Corridor D,.

.

Stone walled sites qualify as archaeological and historical remains and are protected by Section 38 of the National Heritage Resources Act (No 25 of 1999).

A number of monuments and battlefields were distinguished in and near the border of the Eskom Project Area. At least two battlefields (Moedwil and Vlakfontein) as well as the Battlefield of Kleinfontein (24 October 1902) and the monuments erected to commemorate this battle occur in or near the proposed power line corridors.

Memorabilia which include monuments, commemorative beacons or Gardens of Remembrance qualify as a heritage memorials which are protected by Section 37 of the National Heritage Resources Act (No 25 of 1999).

The number of graveyards which were recorded in the Eskom Project Area as well as in the preferred power line corridors (none) is not a true reflection of the real number of graveyards which exist in the Project Area. A number of undetected graveyards may be affected by the Eskom Project as many informal or abandoned graveyards are difficult to detect. Formal, historical graveyards usually occur where colonial settlement took place, such as in the central and southern parts of the Eskom Project Area. It is highly likely that graveyards will be discovered during the walk-through study.

All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes 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).

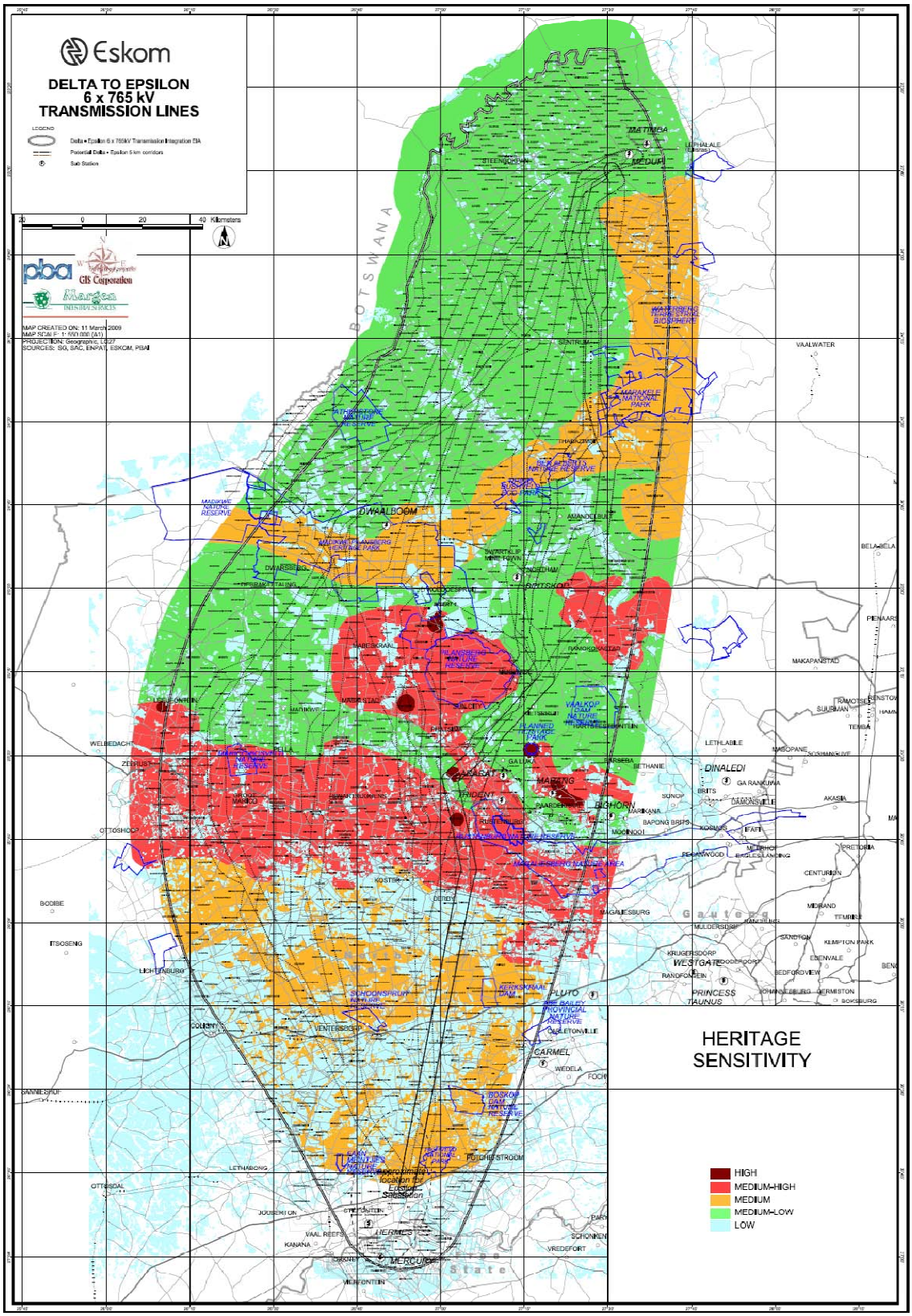

Figure 4: Map Depicting Sensitivity of Heritage Resources to Powerlines

Table 9.13: Summary checklist of reasonable measures mitigating Impacts associated with Archaeological resource/s and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Damage to existing and newly discovered sites • Tower foundations may impact on artefact occurrence (depending on depth of both) • Additional identified impact/s?	• Create awareness amongst construction site personnel • If archaeological or any other heritage site discovered during construction, all work in immediate vicinity of site must be stopped, the provincial SAHRA informed and depending on their advice await the outcome of specialist investigations before proceeding with work • Archaeological investigation (shovel testpits) to determine significance of artefact occurrence. • Permit required from SAHRA	• Induction of all construction project players on the significance of archaeology and new discoveries • Ring fencing of existing site archaeological resources – e.g. grave sites • Proof of contact details of registered authority and local SAHRA representative • Landowner/Client Agreement regarding protection and access to existing resources • No destruction of or damage to known archaeological sites • Management of existing sites and new discoveries in accordance with the recommendations of the Archaeologist • No destruction of or damage to known sites • Management of existing sites and new discoveries in accordance with legislation • No litigation due to destruction of sites

9.14.1. Golden Rules

- **Landowner agreements**
  - Prohibition of access from existing heritage sites e.g. those from which tourism interest and revenue is generated.
- **Have and make available site access plan**
  - Having knowledge of the site, ensure that archaeologically sensitive areas are kept out-of-bounds and that this is communicated to all construction site personnel. The ECO will ensure that the Contractor and contract workers have been fully briefed about the sensitivity of the graveyard at the start of the contract and that frequent reminders are made in this regard.
- **Use clear signage and demarcate sites out-of-bounds with fencing**
  - Areas requiring protection and conservation should be sign posted and protected using fencing and fence droppers. Measures for marking can include

large “Keep Clear” signs. Use of red and white bunting tape should be avoided as it poses a hazard to livestock.

9.14.2. Regulations and permits

- In the event of a new archaeological discovery during the process of construction, halt construction, and liase with the ECO to obtain a permit to continue. The ECO should contact the specialist archaeologist if specialist input is required:
- **Use spotters**
    - If a site, through previous survey, is known to have archaeological heritage, trained spotters must be used to act as the eyes for operators of plant such as bulldozer and TLB. This role requires strict adherence to the Safety Rule of being highly visible and a luminescent safety vest in recommended.

NOTE: Should the developer encounter any heritage resources, not reported on in this document, and as defined and protected by the NHRA (1999) during the course of development, the developer should immediately cease operation in the immediate vicinity and report the site to SAHRA or an ASAPA accredited CRM archaeologist.

9.14.3. Monitoring

All monuments and historical sites shall be treated with the utmost respect. Any graves shall be clearly marked and treated as no go areas. No destruction of any site shall be allowed. The graveyards will be fenced and a gate will be installed to allow access to family members.

- Trained spotters should be observing the process of construction excavation and must halt the process if the presence of any artefacts is realized. The spotter’s should be trained by an accredited archaeologist (see contact details for the National History Museum, Bloemfontein).
- The ECO’s reports should include reports on the heritage issues on site.

9.15. RECEIVING SOCIAL INFRASTRUCTURE

Engagement with the landowner by the contractor regarding local service networks is crucial to facilitate integration of the Contractor project team – inclusive of all site personnel, into the local society for the duration of the project. The Contractor should use the following list as a starting point and from which relevant contact details should be obtained and arrangements made:

- Local tourism establishments within close proximity to the construction site
- Local NGO’s – e.g. Famsa, conservation bodies and landowner associations
- Local Security Service providers
- Local Police Contact details
- Local Fire Protection Officer details
- Local General Supply Store or Co-op details
- Local Parks Board Wildlife Protection Officer

A development project of this nature may have some social impact. Within a National context of striving for ecosystem health, the positive impacts that development projects can bring into an area must be highlighted and used to uplift local communities. Some positive impacts would be:

- To enhance education of the local populace – ABET, Basic Money Management; to
- Improve community health through education about disease, particularly – HIV Aids and Tuberculosis; and
- Provide temporary employment.

A perceived negative impact associated with construction has always been increase in local crime levels. The above listed positive impacts plus diligent management of construction site security and personnel can offset this negative perception.

Table 9.14: Summary checklist of reasonable measures mitigating Impacts associated with Receiving Society Infrastructure and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Not paying a living wage and outcome of poverty stimulation including disease and crime • Damage to landowner income producing infrastructure and theft of equipment • HIV Aids & TB risks • Unwanted pregnancy • Increased exposure of lower income levels to credit risk and substance abuse • Additional identified impact/s?	• Paying living wages in line with the construction industry standards • Education plans for health, handling money and Adult Basic Education and Training (ABET) • Arrangements for construction site medical health including availability of condoms • Inductions	• No complaints from Landowners, Regional staff or Communities • No damage to private property • No unplanned disruptions of services • No damage to any plant or installations • No complaints from Authorities, Landowners and Communities regarding disruption of services • No litigation due to losses of plant, installations and income • Proof of educational arrangements for health, handling money and Adult Basic Education and Training (ABET) including schedule and contact details of local teacher/s

9.15.1. Golden Rules

- Landowner agreements
    - Agreement relating to existing landowner infrastructure and condition prior to construction establishment must be captured and agreed by the landowner and contractor.
- Education schedules

- As part of general health and safety, the contractor shall provide a schedule of informative presentations on HIV Aids and Tuberculosis education and avoidance. Condoms will be made available to all construction site personnel. The contractor will provide and carry out a schedule on judicious management of personal finances including safe use of ATM banking facilities. Provide and implement an education schedule for basic literacy.

- Inductions
  - All construction site personnel must be completely familiar with the construction site layout and areas requested out-of-bounds by the landowner.
- Construction site personnel identification
  - The contractor shall have on record and available on site the identities of all construction staff.

9.15.2. Construction camp position in relation to Receiving Social Infrastructure

If and where the power line infrastructure is close to any inhabited area, the necessary precautions shall be taken by the Contractor to safeguard the lives and property of the inhabitants. The Contractor shall under no circumstances interfere with the property of Landowners, Regional staff or nearby Communities.

No interruptions other than those negotiated shall be allowed to any essential services. Damage to infrastructure shall not be tolerated. The contractor shall rectify any damage immediately. A record of any damage and remedial actions shall be kept on site.

All existing private access roads used for construction purposes, shall be maintained at all times to ensure that the local people have free access to and from their properties. Speed limits shall be enforced in such areas and all drivers shall be sensitised to this effect.

Any possible disruptions to essential services must be kept to a minimum and should be well advertised and communicated to the Landowners and surrounding Communities. Care must be taken not to damage irrigation equipment, lines, channels and crops, as this could lead to major claims being instituted against Eskom and the Contractor. The position of all pipelines and irrigation lines in the vicinity of a site must be obtained from the Landowners or local Community and clearly marked. Where required such lines shall be deviated.

9.15.3. Monitoring

Site induction must be provided to all new recruits to the construction site. In addition to an introduction to the specific site development, induction should include; Health & Site Safety Procedures, AIDS awareness, Family Planning, Life Skills etc. Local NGO's may be approached for their inputs in these endeavours.

9.16. NOISE

The Contractor shall ensure that noise levels remain within acceptable limits, especially in built up areas. This applies especially after working hours and during the night.

Table 9.15: Summary checklist of reasonable measures mitigating Impacts associated with construction site noise and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Nuisance and negative influence on relations • Project delays • Additional identified impact/s?	• Engage with landowner regarding work times to ensure that they coincide with landowner work times • Do not work outside of the agreed hours • If an activity is reported to be too noisy – monitor it according to construction site standards and make the necessary arrangements to improve on lowering associated the decibel level	• Keep record of general complaints including noise or off-duty rowdiness of site personnel received from Landowner or community – show proof of arrangements to improve the situation • No complaints from landowner or community • No litigation • No formal complaints or claims arising due to noise pollution

9.16.1. Monitoring

The standard for noise tolerance will need to be negotiated between the Landowner and the Contractor Site Manager. A starting point would be to keep to normal working hours thereby mitigating the possibility of raised noise levels after hours. The contractor must give consideration to the very real possibility that the Landowner may entertain guests during the week and on weekends. Any after hours working is to be agreed with adjacent landowners. Furthermore efforts should be made to ensure that contractor site personnel are courteous and do not engage in raucous weekend parties.

9.17. DUST

The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the Landowner, neighbouring Communities or Regional staff at the electricity supply infrastructure. Watering of access roads is recommended, as this is normally the greatest cause of dust pollution. Speed limits can also be affected, especially on private dirt roads leading to the site. The Contractor shall attend to any complaints or claims emanating from the lack of dust control immediately.

Table 9.16: Summary checklist of reasonable measures mitigating Impacts associated with construction site dust and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Nuisance and negative influence on relations • Project delays • Additional identified impact/s?	• Engage with landowner regarding work times to ensure that they coincide with landowner work times • Do not work outside of the agreed hours • If an activity is reported to be too dusty – monitor it according to construction site standards and make the necessary arrangements to improve on lowering the associated decibel level	• Keep record of general complaints including noise or off-duty rowdiness of site personnel received from Landowner or community – show proof of arrangements to improve the situation • No complaints from landowner or community • No litigation • No formal complaints or claims arising due to dust pollution

9.17.1. Monitoring

The ECO is to carryout spot checks on the operation of the water tanker – dust is to be wetted down regularly, particularly after road use by heavy vehicles and the dry winter months. If dust becomes a nuisance and complaints are received despite wetting the road/s, then dust monitoring of dust levels should be employed to prove to the Interested and Affected Parties that the levels are inside those deemed bearable for operators working on construction site and the general public.

9.18. HOUSE KEEPING OF CONSTRUCTION SITE

It is said that if a construction site camp is neatly kept and all is kept in it's place, then generally, it reflects good site management. Furthermore, such an appearance generally reflects that the rules are understood and implemented and the project is running smoothly. Considering this, it is the responsibility of the Contractor Site Manager to enforce cleanliness of the construction site camp. The ECO will monitor, police and report on this performance requirement. Littering by the employees of the Contractor shall not be allowed under any circumstances.

The site shall be kept visually and aesthetically pleasing, especially in and around the Contractor camp. The ECO shall regularly inspect the site to ensure that it is neat and clean. Where required the campsite shall be screened by the Contractor to ensure that there is no unacceptable visual intrusion in the area of the site. Screening may be required in certain circumstances where visual impacts are sensitive, though these are not expected on this site.

Table 9.17: Summary checklist of reasonable measures mitigating Impacts associated with construction site Housekeeping and general cleanliness and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Nuisance and negative influence on relations • Project delays • Additional identified impact/s?	• Engage with landowner regarding work times to ensure that they coincide with landowner work times • Do not work outside of the agreed hours • If an activity is reported to be too dusty – monitor it according to construction site standards and make the necessary arrangements to improve on lowering the associated decibel level	• Keep record of general complaints including noise or off-duty rowdiness of site personnel received from Landowner or community – show proof of arrangements to improve the situation • No complaints from landowner or community • No litigation • No formal complaints or claims arising due to poor house keeping • No complaints from affected parties on or around the site • Filed photographic record of non-compliance

9.18.1. Monitoring

The ECO shall demand a neatly kept construction site at all times and have the contrary rectified immediately by the Contractor Site Manager.

9.19. SENSITIVE ELECTRICAL EQUIPMENT/ASSETS

Once the contractor has received equipment for which the infrastructure is being built, it is his responsibility to keep it safe and in delivery condition until installed.

All equipment moved onto site or off site during a project is subject to the legal requirements as well as Eskom specifications for the transport of such equipment. Oil filled equipment such as CT's, VT's and capacitor cans have specific safety requirements regarding their handling, transport and storage. The Contractor shall meet these safety requirements under all circumstances. All equipment transported shall be clearly labelled as to their potential hazards according to specifications. All the required safety labelling on the containers and trucks used shall be in place.

It is understood there is no equipment planned for the site that contains PCBs (Poly Chloro-Biphenyls). However, old equipment removed from the site may contain PCBs and the Contractor will need to follow the requirements of Eskom Corporate Directive ESKADAAO3 REV 1.

The Contractor shall ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of an accident and shall supply a method statement to that effect.

Table 9.18: Summary checklist of reasonable measures mitigating Impacts associated with Sensitive Electrical Equipment/Assets and relevant performance criteria

Impact	Mitigation measure	Performance criteria
• Damage to equipment in handling • Damage to equipment in storage prior to installation • Damage to equipment during installation • Removal of old equipment from site. • Additional identified impact/s?	• Eskom competent to supervise offloading • Eskom competent to ensure safe storage • Eskom competent to supervise installation • Check for PCBs and hazardous substances	• All equipment delivered to site intact • No spillage of hazardous substances • No litigation due to environmental pollution • Safe transport of equipment

9.19.1. Golden Rules

- **Sensitive Electrical Equipment/Assets are Eskom's property**
  - Unless instructed in writing, the contractor shall have nothing to do with Sensitive Electrical Equipment/Assets
- **Keep Sensitive Electrical Equipment/Assets Safe**

9.19.2. Monitoring

Eskom shall check its sensitive equipment stored on site and report any damage caused by mishandling at delivery, vandalism and curiosity during storage and breakage due to lack of experience during installation/erection.

9.20. INDUCTION AND TRAINING

It is generally agreed that personnel who are afforded training perform their tasks better and this is a prerequisite for compliance to the Environmental Management Programme.

All site personnel are to undergo a full induction covering the contents of this document and primarily delivered by the ECO and Construction Site Manager.

The Contractor is to ensure that all site personnel are trained to fulfil their operational responsibilities. The ECO will check for proof of this requirement. In the case of training in:

- Basic Fire-fighting,
- Herbicide use, and
- Vegetation identification etc.,

There may be a necessity for training on the job. If this is the case then the Contractor must factor this into his training budget. The services of accredited trainers are to be engaged – preferably local, for on site training. Similarly, adult basic education and life skills training costs need to be taken into account by the contractor. Spotters for archaeological artefacts should undergo an induction by registered SAHRA representatives.

Table 9.19: **Summary checklist of reasonable measures mitigating Impacts associated with Induction and relevant performance criteria**

Impact	Mitigation measure	Performance criteria
• No training = risk of non-compliance • Additional identified impact/s?	• All site personnel to receive a full induction on the contents of this document • Unskilled individuals will be up-skilled • Basic Life Skills will be taught throughout the duration of the project	• Proof of certification of personnel and operators • Accredited trainer • Proof of ABET, FAMSA & Basic Life Skills programme and implementation for the duration of the project

9.20.1. Golden Rules

- **All site personnel will undergo and induction and sign their receipt thereof**

9.20.2. Monitoring

Contractor Site Manager to supply proof on request of signed documentation proving existing and new staff have been operationally trained and have received an induction covering comprehensively the contents of this document

10. METHOD STATEMENTS FOR THE CONTRACT

The Contractor shall supply method statements for all works required as stated throughout this document **as per specific contract requirement**. All agreements regarding **extra works for environmental compliance** shall be in writing and well documented. Work shall only commence upon approval by Eskom.

The ECO shall ensure that all works are in accordance with method statements and contract specifications.

11. LEGAL & CLIENT GUIDELINE REGISTER

- Conservation of Agricultural Resources Act, Act 43 of 1983 and amendments
- Corporate directive for the management of PCB, ESKADAAO3 REV 1
- Environmental Impact Report
- Eskom Environmental Policy, ESKPBAAD6 REV 6
- Eskom Environmental Management Procedure, ESKPVAAZ1 REV 1
- Eskom Guidelines for Herbicide Use, TRR/S91/032
- Environment Conservation Act, Act 73 of 1989 and amendments
- National Environment Management Act, Act 107 of 1998
- Fencing Act, Act 31 of 1963 and amendments
- Forest Act, Act 122 of 1984 and amendments
- Hazardous Substances Act, 15 of 1973 and amendments
- Herbicide Management, ESKPBAAD4 REV 0
- Record of Authorisation – DEAT
- Standard passive fire protection for oil-filled equipment in High Voltage yards, TRMASAAQ8 REV4
- Standard for management of PCB, ESKASAAC2 REV1
- National Heritage Resources Act no. 25 of 1999

12. DEFINITIONS

Alternative: A possible course of action, in place of another, that would meet the same purpose and need defined by the development proposal. Alternatives considered in the EIA process can include location and/or routing alternatives, layout alternatives, process and/or design alternatives, scheduling alternatives or input alternatives.

Auditing: A systematic, documented, periodic and objective evaluation of how well the environmental management plan is performing with the aim of helping to safeguard the environment by: facilitating management control which would include meeting regulatory requirements.

Corrective (or remedial) Action: Response required addressing an environmental problem that is in conflict with the requirements of the EMP. The need for corrective action may be determined through monitoring, audits or management review.

Environmental Impact Assessment (EIA): An EIA refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of a proposed development. The EIA includes an evaluation of alternatives; recommendations for appropriate management actions for minimising or avoiding negative impacts and for enhancing positive impacts; as well as proposed monitoring measures.

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

Environmental Management System: Environmental Management Systems (EMS) provide guidance on how to manage the environmental impacts of activities, products and services. They detail the organisational structure, responsibilities, practices, procedures, processes and resources for environmental management. The ISO14001 EMS standard has been developed by the International Standards Organisation.

Environmental Policy Statement: Statement of intent and principles in relation to overall environmental performance, providing a framework for the setting of objectives and targets.

Exploration: This stage involves collection of data on geology, tests on coal thickness, rock character and flow capacity to accurately predict production potential. Core drilling, development of Strat wells and 5-spot wells is part of this process.

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

Key performance indicator: Quantifiable measure that reflect critical success factor

Management actions: Actions to mitigate negative impacts or enhance positive impacts associated with a proposed project.

Mitigation Measures: These are the management measures a defined in terms of objectives and targets

13. APPENDICES

13.1. PRO FORMA REQUIRING CONTRACTOR AND ESKOM PROJECT MANAGER SIGNATURES

13.2. MAPS AND FIGURES

Location Map
Line Options
Vegetation Map
Heritage Map

13.3. ECOLOGY SPECIALIST REPORT

13.4. AVIFAUNA SPECIALIST REPORT

13.5. HERITAGE SPECIALIST REPORT

APPENDIX 13.1: PRO FORMA REQUIRING CONTRACTOR AND ESKOM PROJECT MANAGER SIGNATURES

PRO FORMA TO BE SIGNED BY THE CONTRACTOR AND ESKOM PROJECT MANAGER

CONTRACT NAME: _____
CONTRACT NUMBER: _____

ENVIRONMENTAL COMPLIANCE

I_____ ON BEHALF OF _____(C)
I _____ ON BEHALF OF ESKOM

DECLARE AS FOLLOWS:

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

SIGNED: _____ DATE: _____
CONTRACTOR

SIGNED: _____ DATE: _____
ESKOM

APPENDIX 13.2 – SITE DRAWINGS

Location Map
Line Options
Vegetation Map
Heritage Map

APPENDIX 13.3 – ECOLOGY SPECIALIST REPORT

APPENDIX 13.4 – AVIFAUNA SPECIALIST REPORT

APPENDIX 13.5 – HERITAGE SPECIALIST REPORT