

GROUP CAPITAL



**ENVIRONMENTAL MANAGEMENT
PROGRAMME FOR THE CONSTRUCTION
WORKS AT PHILIPPI SUBSTATION TO
ACCOMMODATE THE 400kV GIS**

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**J Geeringh (Pr Sci Nat)
Senior Consultant Environmental Management
GC: Land development**

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1. SCOPE

The scope of this Environmental Management Plan (EMPr) is to give environmental management guidelines, to the Contractor doing the construction work, in fulfilment of Eskom environmental requirements. This document is part of the contract and supplementary to Eskom's technical specifications. **The recommendations and constraints, as set out in this EMPr are enforceable under the general conditions of contract.**

The EMPr has a long-term objective to ensure that:

- 1) Environmental Management considerations are implemented from the design phase of the project;
- 2) The Contractor is able to and shall include any costs of compliance with this EMPr into the tender price;
- 3) Precautions against environmental damage and claims arising from such damage are taken timeously;
- 4) The completion date of the contract is not delayed due to environmental non-conformances and problems with the Grid staff, Communities or Regulatory Authorities arising during the course of the project execution; and
- 5) The asset created conforms to environmental standards as required by the Eskom Environmental Policy.

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

1. To adhere to the Eskom Environmental Policy at all times.
2. Ensure environmental requirements stipulated in the EMPr are implemented.
3. Resolve problems and claims arising from construction damage immediately to ensure a smooth flow of operations.
4. To preserve the environment by limiting destructive actions on site.

The Project Manager and Contractor must take into consideration that this EMPr will be implemented and amended as required for the duration of the contract. The management of the environment changes over time and therefore this document shall be updated where necessary to ensure environmental management is implemented during all phases of the project. All environmental management requirements for the operational phase arising from the implementation of the project must be identified and the Grid must be informed of such requirements.

Responsibility Matrix.

Function	Name + Tel	Responsibility
Eskom Project Manager (PM)		Overall management of project and EMPr implementation.
Eskom Contract Manager (CM)		Contract management.
Eskom Site Supervisor (SS)		Site supervision.
Appointed Environmental Control Officer (ECO)		Implementation of EMPr and liaison between Eskom, Contractor and the Grid. (MAY BE THE ESKOM SITE SUPERVISOR)
Contractor (C)		Implementation and compliance with recommendations and conditions of the EMPr,
Eskom GC: Land Development Environmental Advisor	John Geeringh 083 632 7663	Environmental advice

2. INTRODUCTION

Construction works for upgrading or expansion of an existing facility is regulated by legislation under section 28 of the National Environment Management Act (NEMA), 107 of 1998, as amended which requires environmental duty of care. It is thus imperative that precautions are taken to ensure that environmental damage is minimised during construction. This will take a concerted effort from Eskom and the Contractor and detailed planning is of the utmost importance. All works to be performed under this EMPr is located within the Transmission property boundaries at Philippi substation.

The Environmental Control Officer (ECO) shall convey the contents of this EMPr to the Contractor site staff and discuss the contents in detail with the Eskom Project Manager and Contractor at a pre-construction meeting. This formal induction training shall be done with all main and sub-contractors. Record of the training date, people whom attended and discussion points shall be kept by the ECO.

Good relations with the Grid staff must be established and sustained. This will help in the solving of problems and the prevention thereof. Lines of communication should always be open to ensure proper and timeous reaction to complaints. The contact numbers of the ECO and / or Eskom Site Supervisor shall be made available to the Grid staff. The reputation of both the Contractor and Eskom is at stake and should be the drive for everybody involved to perform in excellence.

During the construction period the ECO shall monitor the Works, to measure compliance with the requirements of the EMPr. The Grid Environmental Advisor shall inspect the Works upon completion of the contract. If satisfied the Works shall be taken over by the Grid.

3. DESCRIPTION OF THE PROJECT

3.1. SUBSTATION

The substation where the work will be performed is Philippi substation. Grid Planning requires the expansion of the substation to accommodate the existing 400kV power lines and the future Erica 1 400kV power line.

High level Scope at Philippi Substation:

Upgrade Philippi Substation as follows:

- Establish a 400 kV busbar to accommodate the existing Acacia 1 and 2 400 kV lines, the future Erica 1 400 kV line and the existing Philippi 400/132 kV transformers.
- Install a third 500 MVA transformer and 3 x 15 mH transformer MV FCLRs. The new 132kV feeder bay will be established, equipped and commissioned; the extension will include the drainage system and oil spill containment measures.

3.2. PROJECT EXECUTION AREA

Construction activities are limited to the area as demarcated by Eskom and shown on the site plans within the Eskom owned property at Philippi MTS. Any area outside Eskom owned property, required to facilitate access, construction camps or material storage areas, shall be negotiated with the affected Landowner and written agreements shall be obtained. If required environmental authorisation shall be obtained for any listed activity in terms of the Regulations, 2014, which may be triggered by activities outside the demarcated area.

Should water be required from sources other than Eskom supply, a written agreement shall be reached between the Contractor and the water owner in the presence of Eskom / ECO. **Should the Contractor be required to use water from a source administered by the Department of Water and**

Sanitation (DWS), the required Water Use License (WUL) shall be obtained from DWS. Strict control shall be maintained and the ECO shall regularly inspect the abstraction point and methods used.

For the planned Works, the Works area shall be demarcated clearly to prevent unauthorised people from wandering onto site and getting injured. All activities shall be limited to the demarcated area and the Contractor workforce shall refrain from venturing outside this area.

No work shall commence until the Project Manager ensured that all pre-construction requirements in the EMPr are fulfilled before the Contractor occupies the site. The Grid shall be kept informed of all developments on construction at all times. All the requirements from the Grid must be considered during the construction phase to ensure smooth transition and handover at project completion.

3.3. SITE ESTABLISHMENT

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

Where Eskom facilities are available the Contractor shall make use of such facilities where it is viable and negotiated with the Grid. The Contractor shall inform all site staff to make use of supplied ablution facilities and under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities. One toilet shall be installed for every 20 members of the workforce, with a minimum of 2 required notwithstanding the number of workers on site.

The Contractor shall supply waste collection bins where such is not available and all solid waste collected shall be disposed of at a registered waste dump.

A certificate of disposal shall be obtained by the Contractor and kept on file. **Where a registered waste site is not available close to the construction site, the Contractor shall provide a method statement with regard to waste management.** The disposal of waste shall be in accordance with all relevant legislation. **Under no circumstances may solid waste be burned on site unless a suitable, permitted incinerator is available.**

3.4. WORKSHOP AND EQUIPMENT STORAGE AREAS

Where possible and practical all maintenance of vehicles and equipment shall take place in a demarcated workshop area. During servicing of vehicles or equipment, a suitable drip tray shall be used to prevent spills onto the soil, especially where emergency repairs are done 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. A **certificate of disposal** shall be obtained by the Contractor and kept on file.

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

3.4.1 The following shall apply to hazardous substance spills:

- All contaminated soil / yard stone shall be removed and be placed in containers and not be stored longer than 90 days.
- Smaller spills can be treated on site with appropriate spill treatment substances and apparatus.
- A Contractor shall be used for the removal and disposal of contaminated soil to a registered waste site.
- All spills of hazardous substances must be reported to the ECO.

3.5. STORAGE AREAS OF HAZARDOUS SUBSTANCES

All hazardous substances shall be stored in suitable containers and storage areas shall be bunded at 110% of capacity. This includes all carbon substances like fuel and oil as well as herbicides and battery acid. 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 3.4.1 for actions after spills).

When Transformer oil is delivered to site for the Transformer, oil shall be kept in containers on moveable trailers, to prevent the triggering of the listed activity for construction of a storage facility for hazardous substances, which will require environmental authorisation.

4. PHYSICAL ISSUES AND THEIR CONTROL

4.1. SUBSTATION TERRAIN AREA

The works will be carried out on the existing terrace and no additional terracing or expansion works is required. Yardstone must be removed and retained and after foundation installation replaced back to cover the exposed terrace.

4.2. NATURAL DRAINAGE'S

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 and a WUL or GA shall be obtained prior to commencement of any works. 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.

4.3. ACCESS ROADS TO THE SITE

Planning of access routes to the site for construction purposes shall be done in conjunction between the Contractor, Eskom and the Grid staff. All agreements reached should be documented and no verbal agreements should be made. The Contractor shall properly mark all access roads. Roads not to be used shall be marked with a "**NO ENTRY**" sign. Existing access roads should be used where possible to limit the requirement for new access roads which may require environmental authorisation.

Where new access roads are constructed, this must be done according to relevant design specifications and environmental authorisation if required. 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. 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.

All required measures shall be taken to rehabilitate damaged areas in accordance with design specifications.

4.4. CONSTRUCTION RUBBLE DISPOSAL

The Contractor shall dispose of all excess material from site in an appropriate manner and at an appropriate landfill site. All packaging material shall be removed from site and disposed of and not burned on site.

No material shall be left on site that may cause injury or risk thereof. 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 properly disposed of. Concrete trucks shall not be washed on site after depositing concrete into foundations. Any spilled concrete shall be cleaned up immediately.

4.5. SITE CLEARING

Vegetation clearing to allow for site establishment as well as construction purposes will not be required.

4.6. FENCING REQUIREMENTS

PERMANENT FENCING TO BE INSTALLED MUST CONFORM TO ESKOM DESIGN STANDARDS

The site shall be fenced to prevent any loss or injury to persons or livestock during the construction phase.

4.7. FIRE PREVENTION

No open fires shall be allowed on site under any circumstance. All FOOD PREPARATION shall be done 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. The contact number of the local fire fighting department must be displayed on site.

4.8. NOISE POLLUTION

The Contractor shall ensure that noise levels remain within acceptable limits as prescribed in terms of the Health Act and OHS Act. This applies especially after working hours and during the night.

4.9. CLAIMS FOR DAMAGES

The ECO / Eskom Site Supervisor shall keep a photographic record of any damage to areas outside the demarcated site area. The date, time of damage, type of damage and reason for the damage shall be recorded in full to ensure the responsible party is held liable. All claims for compensation emanating from damage should be directed to the ECO for appraisal and be reported to Eskom Legal Department. The Contractor shall be held liable for all unnecessary damage to the environment. **A register shall be kept of all complaints from surrounding Landowners, Grid staff or Community members. All complaints / claims shall be handled immediately to ensure timeous rectification / payment for damages by the responsible party.**

4.10. REHABILITATION

All damaged areas shall be rehabilitated upon completion of the contract in accordance with design specifications. Other methods of rehabilitating disturbed sites may also be used at the discretion of the Project Manager to comply with the requirements of the EMPr.

4.11. MATERIAL STORAGE AREAS

Specifications require the protection of Eskom supplied material on site, especially conductor drums. This normally requires that a firebreak be created around a material storage area. Once construction has been completed on site and all excess material has been removed, the material storage area shall be rehabilitated. If the area was badly damaged, re-seeding shall be done and fencing in of the area shall be considered if livestock will subsequently have access to such an area. For seeding the same provisions as in 4.10 shall apply.

4.12. BATCHING PLANTS

Should a batching plant have to be established, the sites shall be negotiated with the Landowner / Grid staff depending on the location. The site must be designed to contain water runoff and cement residues and for proper storage of cement. The site design must not trigger the requirement for an environmental authorisation. The site shall be cleared of all foreign material upon completion of the contract. The area shall be rehabilitated to its natural state. Any spilled concrete shall be removed and soil compacted during construction shall be ripped, levelled and re-vegetated.

4.13. OLD EQUIPMENT

All old equipment removed during the project shall be stored in such a way as to prevent pollution of the environment. Oil containing equipment shall be stored to prevent leaking or be stored on drip trays should such equipment already be leaking. All scrap steel shall be stacked neatly and any disused and broken insulators shall be stored in containers.

Once material has been scrapped and the contract has been placed for removal, the Contractor shall ensure that any equipment containing pollution causing substances is removed in such a way as to prevent spillage and pollution of the environment. The Contractor shall also be equipped to contain and clean up any pollution causing spills. Disposal of unusable material shall

be at a registered waste disposal site and a certificate of disposal shall be obtained and copied to Eskom.

4.14. TRANSPORT OF EQUIPMENT

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. Trucks leaking carbon substances will not be allowed on site. Drip trays must be available and be used to ensure no leaking of carbon substances during operations on site. Oil filled equipment 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.

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.

4.15. INSTALLATION OF GIS EQUIPMENT

All Gas Insulated Switchgear (GIS) Equipment must be installed by a qualified supplier according to the manufacturer's specifications, material safety data sheets and the Eskom Specification for Gas Insulated Switchgear (GIS) and associated auxiliary equipment (240-50807380). All other personnel on site must be informed with regards to the safe storage and handling and risks associated with the SF₆ gas to be used during the installation and subsequent maintenance of the GIS plant. All requirements of the Hazardous Substances Act with regard to SF₆ must be adhered to. The necessary warning and information signage must be displayed on site during construction, at the storage area of the gas and where else it may be required.

5. SOCIAL ISSUES AND THEIR CONTROL

5.1. SANITATION

The Contractor shall install mobile chemical toilets on site. Staff shall be sensitised to the fact that they should use these facilities at all times. No indiscriminate excretion or urinating on site shall be allowed. Ablution facilities shall be within 100m from workplaces but not closer than 100m from any natural water bodies. There should be enough toilets available to accommodate the workforce (minimum requirement 1: 20 workers or 2 toilets on site where the workforce is more than 20). Toilets shall be serviced regularly and the ECO shall inspect toilets to ensure compliance to health standards.

5.2. PREVENTION OF DISEASE

The Contractor workforce shall be sensitised regarding sexually transmitted diseases, especially HIV and Aids, in accordance with Eskom policies and the HIV awareness campaign.

5.3. INTERACTION WITH AFFECTED PARTIES

The success of any project depends mainly on the good relations with the affected Landowner, Communities and Grid staff. It is therefore required that the ECO and the Contractor establish good relations with all the affected parties at the substation site.

All negotiations for any reason shall be between the ECO, the affected parties and the Contractor. **NO** verbal agreements shall be made. All agreements shall be recorded in writing and all parties shall co-sign the documentation.

The affected parties shall always be kept informed about any changes to the construction programme should they be involved. If the ECO is not on site the Contractor should keep the affected parties informed. The contact numbers of the Contractor and the ECO shall be made available to the affected parties.

This will ensure open channels of communication and prompt response to queries and claims.

All contact with the affected parties shall be courteous at all times. The rights of any affected parties shall be respected at all times.

5.4. LITTERING CONTROL

Littering by the workforce of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite (See also 3.3). Adequate waste collection bins shall be placed on site and regularly maintained to prevent overflow and spilling. All waste shall be collected and properly disposed of as per the waste management plan and NEMWA requirements. Waste shall be separated on site for recycling purposes.

5.5 DUST POLLUTION

The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the Landowner, neighbouring Communities or Grid staff at the substation. Watering of cleared areas and temporary access roads is recommended, as this is normally the greatest cause of dust pollution. Speed limits must be implemented, especially on private dirt roads leading to the site. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor.

5.6. AESTHETICS

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 can be done by use of shade cloth or corrugated fencing.

6. BIOLOGICAL ISSUES AND THEIR CONTROL

6.1. FAUNA

The Contractor shall under no circumstances interfere with domesticated or wild animals at or near the site without the Landowner or Community members being present. This includes the moving of livestock where they interfere with construction activities. No poaching shall be tolerated under any circumstances. Animal dens close to the site and works areas must be marked as no-go areas.

6.2. FLORA

Protected or endangered species may occur on or near the construction site. Special care should be taken not to damage or remove any such species unless absolutely necessary. Permits for removal must be obtained **from DAFF** should such species be affected. All plants not interfering with the operation of the substation shall be left undisturbed, clearly marked and indicated on the site plan. **Collection of firewood is strictly prohibited** (refer also 4.5).

6.3. HERBICIDE USE

Herbicide use shall only be allowed with the approval of Eskom and according to contract specifications. It will not be required for this project.

7. CULTURAL ISSUES AND THEIR CONTROL

7.1. HERITAGE SITES

There is no known heritage material on the proposed construction site. Should any heritage artefacts be uncovered during construction, their existence shall be reported to the ECO immediately. Such areas shall be marked as no go areas. Artefacts shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits shall be obtained from the South African Heritage Resources Association (SAHRA) or the relevant Provincial Heritage Agency if any heritage material are to be destroyed or altered.

7.2. GRAVES

There are no known graves on the proposed construction site. Should any graves be found during construction such sites shall be clearly marked and treated as a no-go area. No destruction of any site shall be allowed. Should it be necessary to remove any graves, the necessary procedures shall be followed and permits obtained.

7.3. FARMHOUSES / BUILDINGS

If construction activities are 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, Grid staff or nearby Communities.

7.4. INFRASTRUCTURE

No interruptions other than those negotiated shall be allowed to any essential services. Damage to infrastructure shall not be tolerated and any damage shall be rectified immediately by the Contractor. 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 affected parties. The position of all pipelines and irrigation lines in the vicinity of the site must be identified and clearly marked and protected. Where required such lines shall be deviated.

8. REQUIREMENTS DURING CONSTRUCTION PERIOD

1. Proper and continuous liaison between Eskom, the Contractor and affected parties to ensure everyone is informed at all times.
2. The affected parties and Grid staff shall be informed of the starting date of construction as well as the phases in which the construction shall take place.
3. The Contractor must adhere to all conditions of contract including the requirements of the EMPr and Grid special conditions.
4. Proper planning of the construction process to allow for disruptions due to rain and very wet conditions.
5. Where existing private roads are in a bad state of repair, such roads' condition shall be documented before they are used for construction purposes. If necessary repairs should be done to prevent damage to equipment and plant.
6. All manmade structures shall be protected against damage at all times and any damage shall be rectified immediately.
7. The Contractor shall ensure that all damaged areas are rehabilitated to the satisfaction of Eskom and that any outstanding claims are settled.
8. Proper documentation and record keeping of all complaints and actions taken.
9. Regular site inspections and good control over the construction process throughout the construction period.
10. Appointment of an Environmental Control Officer on behalf of the Project Manager to implement the requirements of this EMPr.

9. SITE SPECIFIC PROBLEM AREAS

There are no known site specific problems at the proposed construction site as it falls inside Eskom owned property.

9.1. ESTIMATED QUANTITIES FOR SPECIAL WORKS ON THE SITE

There are no special works required for this project. Normal material requirement quantities are included in the contract and are not included here.

10. METHOD STATEMENTS FOR THE CONTRACT

The Contractor shall supply the following method statements to the Project Manager before works on that aspect start:

10.1 Method statement for camp site establishment

10.2 Method statement for vegetation clearing if required

10.3 Method statement for waste management (all types of waste)

10.4 Method statement for rehabilitation of disturbed areas

10.5 Method statement for water management

10.6 Method statement for environmental incident management (fire, spills, etc)

All agreements regarding **extra works for environmental compliance** shall be in writing and well documented. Work shall only commence upon approval by the Eskom Project Manager. The ECO shall ensure that all works are in accordance with method statements and contract specifications.

11. SITE DOCUMENTATION / MONITORING / REPORTING

The standard Eskom site documentation shall be used to keep records on site. All documents shall be kept on site and be available for monitoring purposes. Site inspections by an Environmental Audit Team may require access to this documentation for auditing purposes. The documentation shall be signed by all parties to ensure that such documents are legal. Regular monitoring of site works by the ECO is imperative to ensure that all problems

encountered are solved punctually and amicably. When the ECO is not available, the Contract Manager / Site Supervisor shall keep abreast of all works to ensure no problems arise.

Regular monthly environmental compliance reports shall be forwarded to the Project Manager with all information relating to environmental matters. The following matters must be reported on a monthly basis by the ECO:

1. Complaints received from affected parties and actions taken.
2. Environmental incidents, such as oil spills, etc. and actions taken.
3. Incidents possibly leading to litigation and any legal contraventions.
4. Environmental damage that needs specialised rehabilitation measures to be taken.

The following documentation shall be kept on site by the ECO:

1. Site dairy.
2. Complaints register.
3. Records of all remediation / rehabilitation activities.
4. Copies of monthly reports to the **Project Manager** for auditing purposes.
5. Copy of the Environmental Management Programme.
6. Minutes of site meetings including discussions on environmental issues.
7. Major incident register.
8. Minor event register.
9. Register of audits.

12. APPENDICES

1. SITE DRAWINGS (To be supplied by the Project Manager)
2. ESKOM SPECIFICATIONS (To be supplied by the Project Manager)

REFERENCES

Conservation of Agricultural Resources Act, Act 43 of 1983.

Eskom Specification for Gas Insulated Switchgear (GIS) and associated auxiliary equipment (240-50807380).

Fencing Act, Act 31 of 1963.

Hazardous Substances Act, 15 of 1973.

Health Act, Act 63 of 1977.

National Environmental Management Act, Act 107 of 1998.

NEM: Waste Act, Act 59 of 2008.

National Heritage Resources Act, Act 25 of 1999.

National Water Act, Act 36 of 1998.

Occupational Health and Safety Act, Act 85 of 1993

ENVIRONMENTAL MANAGEMENT PROGRAMME

[illegible]

Delivery of Control panels	Heavy vehicle dust	Yes	Low	OHS Act	Licensed drivers & operators to obey	Appointed contractor	TBA	TBA
Off-loading of Control panels	Material storage			National Road Act	all road & local bylaws			
	Off loading materials			NEMA Acts	Correct loading & securing of equipment			
	Crane vehicle				Crane operator to be accredited			
					Prevention of oil leaks	Appointed contractor	TBA	TBA
Building & civils works								
Remove existing yard stone & stockpile	Heavy vehicle dust	Yes	Low	OHS Act	Prevention of oil leaks	Appointed contractor	TBA	TBA
	Yard stone storage			HV Regs	Separated materials	ECO		
	Oil spills				Dust management			
Excavate foundations	Heavy vehicle dust	Yes	Low	OHS Act	Prevention of oil leaks	Appointed contractor	TBA	TBA
	Workers with hand tools			HV Regs	PPE to be used			
	Oil spills				Spread spoil evenly			
					Dust management			
Construct GIS building	Building materials	Yes	Med to High	OHS Act	PPE to be used	Appointed contractor	TBA	TBA
	Concrete and plaster			Hazardous Substances Act	Dust management			
	Workers with hand tools			Eskom specification for gas insulated switchgear and auxiliary equipment (240-50807380)	Concrete spill management			
	SF ₆ Gas cylinders				Rubble and refuse management			
					Safe storage and handling of SF ₆ gas			
Excavate earthmat & cable trenches	Heavy vehicle dust	Yes	Low	OHS Act	Prevention of oil leaks	Appointed contractor	TBA	TBA
	Workers with hand tools			HV Regs	PPE to be used			
	Oil spills				Spread spoil evenly			
					Dust management			
Mixing concrete	Concrete dust	Yes	Low	OHS Act	PPE to be used	Appointed contractor	TBA	TBA
	Cement bags			National Water Act	Litter management	ECO		
				NEMA Acts	Water management			
Cast blinding layer	Concrete spills	Yes	Low	OHS Act	Spills to be prevented and cleared	Appointed contractor	TBA	TBA
				NEMA				
Construct Cable trenches	Concrete spills	Yes	Low	OHS Act	Spills to be prevented and cleared	Appointed contractor	TBA	TBA
				NEMA				
Place copper earthing	Copper offcuts	Yes	Low	OHS Act	Collect off cuts for recycling	Appointed contractor	TBA	TBA
				HV Regs				

Backfill foundation & trenches	Compacting machinery Workers with hand tools	Yes	Low	OHS Act HV Regs	Prevention of oil leaks Use of PPE Dust management Water management	Appointed contractor	TBA	TBA
Install yard stone	Heavy machinery dust Oil leaks Workers with rakes	Yes	Low	OHS Act HV Regs	Prevention of oil leaks Use of PPE Dust management	Appointed contractor	TBA	TBA
Final inspection	Site inspection	No	None	OHS Act HV Regs NEMA Acts	Site to be cleared of litter and rubble	Project Manager Grid Representative Site supervisor Appointed contractor ECO	TBA	TBA
Take over works	Take Over/ Hand Over	No	None	Relevant site documentation	Site accepted from Contractor & Handed over to Grid Representative	Project Manager Grid Representative Site supervisor Appointed contractor ECO	TBA	TBA

Structural steel works						
Place steelwork on foundations	Steel offcuts	Yes	Low	OHS Act HV Regs	All off cuts collected for recycling Management of used cutting disks Prevention of oil leaks	Appointed contractor TBA
	Crane vehicle					
Connect earthing to steelwork	Welding, brazing	Yes	Low	OHS Act HV Regs	Management of used brazing rods	Appointed contractor TBA
Final inspection	Site inspection	No	None	OHS Act HV Regs	Site to be cleared of litter and rubble	Project Manager Grid Representative Site supervisor Appointed contractor ECO
Take over works	Take Over/ Hand Over	No	None	Relevant site documentation	Site accepted from Contractor & Handed over to Grid Representative	Project Manager Grid Representative Site supervisor Appointed contractor ECO
Equipment installation						
(Circuit Breakers, Current Transformers, Isolators, Surge Arresters, Voltage Transformers, Earth Switches)						
Install Circuit Breaker	Heavy vehicle dust Circuit Breakers	Yes	Low	OHS Act HV Regs	Crane operators to be licenced in accordance with OHS Act	Appointed contractor TBA
	Oil leaks			NEMA Acts	No damage to surrounding infrastructure	
	Crane vehicle			National Water Act	All personnel to be suitably accredited	
					Prevention of oil leaks	
Install CT's, VT's & CVT's	Heavy vehicle dust Crane vehicle	Yes	Low	OHS Act HV Regs	Crane operators to be licenced in accordance with OHS Act	Appointed contractor TBA
					No damage to surrounding infrastructure	
					All personnel to be suitably accredited to	
					Prevention of oil leaks	
Install Isolators, Insulators & SA's	Heavy vehicles Isolators	Yes	Low	OHS Act HV Regs	Crane operators to be licenced in accordance with OHS Act	Appointed contractor TBA
	Crane vehicle				Prevention of oil leaks	
Install Earth Switch	Heavy vehicles Earth Switches	Yes	Low	OHS Act HV Regs	Crane operators to be licenced in	Appointed contractor TBA
	Crane vehicle				All personnel to be suitably accredited to perform the duties	Appointed contractor TBA
					Prevention of oil leaks	

Install control & protection panels	Protection panels	Yes	Very low	OHS Act HV Regs	All personnel to be suitably accredited to perform the duties Redundant cable collected for recycling	Appointed contractor	TBA	TBA
Final Inspection	Site inspection	No	None	OHS Act HV Regs	Site to be cleared of litter and rubble	Project Manager Grid Environ Advisor Site supervisor Appointed contractor ECO	TBA	TBA
Take over works	Take Over/ Hand Over	No	None	Relevant site documentation	Site accepted from Contractor & Handed over to Grid Representative	Project Manager Grid Environ Advisor Site supervisor Appointed contractor ECO	TBA	TBA
Stringing & Cabling								
(Cables, clamps, string sets, conductor, tubes, light fittings, labels, other accessories)								
Install cables, clamps, conductor, tubes, labels, light fittings, accessories	Cables, clamps, conductor, tubes, labels, accessories	Yes	Very low	OHS Act HV Regs	Crane operators to be licenced in accordance with OHS Act No damage to surrounding infrastructure All personnel to be suitably accredited to perform the duties All cable off cuts collected for recycling	Appointed contractor	TBA	TBA
Measure, cut conductors/cable to size & fit clamps	Hand tools Conductor/Cable off cuts	Yes	Low	OHS Act HV Regs	Cable off cuts collected for re-cycling Safe use of hand tools	Appointed contractor	TBA	TBA
Terminate new conductors & clamps onto equipment	Crane trucks Engine & hydraulic oil	Yes	Low	National Water Act OHS Act HV Regs	Adequate oil drip trays & clean-up kits to be available on site. All crane operators to be accredited Prevention of oil leaks	Appointed contractor	TBA	TBA
Scrapping & recycling of cabling	Scrap cabling	Yes	Medium	OHS Act NEMA Acts	Safe scrapping and recycling of scrap material & cables.	Appointed contractor	TBA	TBA
Final Inspection	Site inspection	No	None	OHS Act HV Regs	Site to be cleared of litter and rubble	Project Manager Grid Environ Advisor Site supervisor Appointed contractor ECO	TBA	TBA

Take over works	Take Over/ Hand Over	No	None	Relevant site documentation	Site accepted from Contractor & Handed over to Grid Representative	Project Manager	TBA	TBA
						Grid Environ Advisor		
						Site supervisor		
						Appointed contractor		
						ECO		

Testing & Commissioning (All equipment testing, earthing system, system integration)							
Commissioning of CB	Circuit Breakers	Yes	Very low	OHS Act HV Regs	Safe working procedures	Appointed contractor	TBA
Commissioning of CT's VT's & CVT's	CT's, VT's	Yes	Very low	OHS Act HV Regs	Safe working procedures	Appointed contractor	TBA
Commissioning of Isolators	Isolators	Yes	Very low	OHS Act HV Regs	Safe working procedures	Appointed contractor	TBA
Commissioning of Earth Switches	Earth Switches	Yes	Very low	OHS Act HV Regs	Safe working procedures	Appointed contractor	TBA
Testing & commissioning control & protection panels	Testing	No	None	OHS Act Work procedures	Safe working practices	Appointed contractor	TBA
Testing & commissioning overall system integration	Testing	No	None	OHS Act Work procedures	Safe working practices	Appointed contractor	TBA
Final inspection	Site inspection	No	None	OHS Act HV Regs	Site to be cleared of litter and rubble	Project Manager Grid Environ Advisor	TBA
						Site supervisor	
						Appointed contractor	
						ECO	
Take over works	Take Over/ Hand Over	No	None	Relevant site documentation	Site accepted from Contractor & Handed over to Grid Representative	Project Manager	TBA
						Grid Environ Advisor	
						Site supervisor	
						Appointed contractor	
						ECO	

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 CONSTRUCTION, REFURBISHMENT OR UPGRADING 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.
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

REVISION DATE: 10 MAY 2012

GROUP CAPITAL LAND DEVELOPMENT HAND OVER CHECKLIST

PROJECT NAME: PHILIPPI SUBSTATION EXPANSION
DATE OF HANDOVER: 9/4/2018

Items	YES/ NO/None	Comments
1) Environmental Approvals		
1.1 Environmental Authorization (EA) and conditions from EIA	None	
1.2 EMPr Approval	None	
1.3 Delineation of Roles and Responsibilities Report	EMP	Roles and responsibilities identified in EMPr
1.4 Notice of commencement of Construction	None	
1.5 LD Permits Spreadsheet (status)	None	
2) Landowner Schedule and special conditions	None	
3) Co – ordinate list	None	
4) Statutory applications / Approvals		
➤ National Roads	None	
➤ Provincial Roads	None	
➤ Telkom	None	
➤ Transnet Freight Rail	None	
➤ Transnet Pipelines	None	
➤ Department of Mining (Mineral rights approvals)	None	
➤ Department of Water & Environment (Water & Wetlands crossing approvals)	None	
➤ SAAF/DCA	None	
➤ Other	None	
5) Locality Sketch/Site Plan	None	
6) Signed Profiles by the project team	None	
7) Pre-construction Rights Audit report	None	
8) Identified project risks	EMP	ENV risks identified in EMPr
9) Handover Presentation	None	
10) Minutes of Handover session (to be provided after H/O meeting).	None	

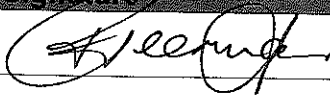
REVISION DATE: 10 MAY 2012

CONSTRUCTION LETTER: N/A

APPOINTMENT OF ECO:

LAND DEVELOPMENT PROJECT TEAM SIGNATORIES

PREPARED BY:

Name	Signature
Environmental Advisor: J Geeringh	
Negotiator: N/A	
Investigation & audit manager: N/A	


SUPPORTED BY

Name	Signature
Chief Land Surveyor: N/A	

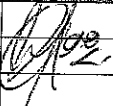
HANDED OVER BY:

Name	Signature
Programme Manager: N/A	

AUTHORIZED:

Name	Signature & Date
Land Development SNR Manager: AMOS MBOWENI	 09/04/2018

SUBMITTED TO:

Name	Signature & Date
DCO & CED Project Manager M. GOOSSEN	 9/4/2018

PHILIPPI SUBSTATION EXPANSION