



ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE ST BARNADS VILLAGE ELECTRIFICATION PROJECT WITHIN MATATIELE LOCAL MUNICIPALITY IN EASTERN CAPE

A PROJECT FOR MATATIELE LOCAL MUNICIPALITY

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Tel: 082 495 2176

Fax: (0) 86 723 4520

Email: info@gedezar.co.za

64 Paige Place, 2 Portsmouth Road, Pinetown, 3600

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Andile Mnyandu

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Glossary of Terms

ACCIDENT:

A road vehicle accident.

CONTRACTOR:

Companies appointed on behalf of the Client to undertake activities, as well as their sub-contractors and suppliers.

CONSTRUCTION PROJECT MANAGEMENT TEAM:

The team consists of a Project Manager as well as a Safety, Health and Environmental officer.

DEGRADATION

The lowering of the quality of the environment through human activities e.g. river degradation, soil degradation.

EMERGENCY:

An undesired event that results in a significant environmental impact and requires the notification of the relevant statutory body such as a local or provincial authority.

ENVIRONMENT:

In terms of the National Environmental Management Act (NEMA) (No 107 of 1998)(as amended), "Environment" means the surroundings within which humans exist and that are made up of:

- (i) the land, water and atmosphere of the earth;
- (ii) micro-organisms, plants and animal life;
- (iii) any part or combination of (i) of (ii) and the interrelationships among and between them; and
- (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

ENVIRONMENTAL CONTROL OFFICER:

An individual nominated through the Client to be present on site to act on behalf of the Client in matters concerning the implementation and day to

day monitoring of the EMP and conditions stipulated by the authorities.

ENVIRONMENTAL IMPACT:

A change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services.

ENVIRONMENTAL MANAGEMENT PROGRAMME:

A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive environmental impacts and limiting or preventing negative environmental impacts are implemented during the life-cycle of the project.

GENERAL WASTE:

General waste means waste that does not pose an immediate hazard or threat to health or to the environment, and includes -

- (a) domestic waste;
- (b) building and demolition waste;
- (c) business waste; and
- (d) inert waste.

GENERAL WASTE LANDFILL SITE:

A waste disposal site that is designed, managed and permitted to allow for the disposal of general waste.

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.

INCIDENT:

An undesired event which may result in a significant environmental impact but can be managed through internal response.

MITIGATION:

Measures designed to avoid, reduce or remedy adverse impacts.

PRINCIPAL AGENT:

The principal agent is appointed by the Client to oversee the overall project management and the management of the professional project team.

RECOVERY:

The controlled extraction of a material or the retrieval of energy from waste to produce a product.

RE-USE:

To utilise articles from the waste stream again for a similar or a different purpose without changing the form of properties of the articles.

RECYCLE:

A process where waste is reclaimed for further use, this involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material.

WASTE:

Waste means any substance, whether or not that substance can be reduced, re-used, recycled and recovered -

- (a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of;
- (b) which the generator has no further use of for the purposes of production;
- (c) that must be treated or disposed of; or
- (d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but—
 - (i) a by-product is not considered waste; and
 - (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste.

WASTE DISPOSAL FACILITY:

Waste disposal facility means any site or premise used for the accumulation of waste with the purpose

of disposing of that waste at that site or on that premises.

WORKFORCE:

The entire project team including people employed by the Principal Agent or the Contractor, persons involved in activities related to the project, or person present at or visiting the construction area, including permanent contactors and casual labour.

Acronyms

DAEA	Department of Agriculture, Environmental Affairs
DAFF	Department of Agriculture, Fisheries & Forestry
DWA	Department of Water Affairs
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
ECPHRA	Eastern Cape Provincial Heritage Resources Authority
ECO	Environmental Control Officer
EMPr	Environmental Management Programme
NEMA	National Environmental Management Act (No 107 of 1998)
NEMAQA	National Environmental Management Air Quality Act (No 39 of 2004)
NEMWA	National Environmental Management Waste Act (No 59 of 2008)
NHRA	National Heritage Resources Act No.25 of 1999
PPE	Personal Protective Equipment
SANS	South African National Standard
TBA	To Be Announced

1 INTRODUCTION

1.1 Project Background

Matatiele Local Municipality proposes to construct a 22kV line in the St Barnads Village within Matatiele Local Municipality in the Eastern Cape. This Environmental Management Programme (EMPr) has been prepared to provide specific environmental guidance for Planning, Construction and Operational phase of the proposed St Barnads Village Electrification. The project scope includes approximately 5km of 22kV 3 phase Fox link line from T- off TTS8 and extension of approximately 5km of NB 46 22kV line to connect St Barnads Village.

1.2 Purpose of the Environmental Management Programme

In terms of The Constitution of the Republic of South Africa (Act No. 108 of 1996) everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The needs of the environment as well as affected parties should thus be integrated into overall project management. The Environmental Management Programme (EMPr) ensures that management of maintenance activities meets the requirements of existing environmental legislation and good environmental practice in terms of international norms and practice.

The Constitution is underpinned by the suite of Specific Environmental Management Acts (SEMAs) – including the National Environmental Management Act (Act No. 107 of 1998, NEMA), National Environmental Management Waste Act (Act No. 59 of 2008, NEM:WA), National Environmental Management Air Quality Act (Act No. 39 of 2004, NEM:AQA), National Environmental Management Biodiversity Act (Act No. 10 of 2004, NEM:BA), National Environmental Management Protected Area Act (Act No. 57 of 2003, NEM:PAA), as well as the National Water Act (Act No. 36 of 1998, NWA) – which combined serve to control all relevant facets of the environment so as to ensure that Section 24 of the Constitution is ensured.

The EMPr is developed in terms of the SEMAs and ensures that construction activities meet the requirements of existing environmental legislation and good environmental practice in terms of local and international standards and guidelines. This is achieved by identifying those construction activities for the proposed development that may have a negative impact on the environment; outlining the mitigation measures that will need to be taken and the steps necessary for their implementation and describing the reporting system to be undertaken during construction.

It is noted that protection of the environment is enshrined in the Duty of Care requirement of the NEMA (as amended), which thus means that it is the duty of all landowners and users to ensure that the activities they carry out on a site do not cause detriment to the environmental facets thereof. The EMPr thus functions as a programme which can be monitored and audited that will allow the Developer the ability to ensure that all that operate on the site do so in an environmentally safe manner. It is also structured in such a way that the conditions may be linked to a standard construction contract. It is essential that the EMPr requirements be carefully studied, understood, implemented, and adhered to at all time. Each action within the EMPr is supported by the priority of when the specific action will need to be implemented.

1.3 The EMPr as a “live” document

The approach adopted for this EMPr is derived from the Deming Cycle (Figure 1), a cycle of continuous improvement that entails the reiterative actions of plan, do, check, act, and critically to then return to the planning phase.

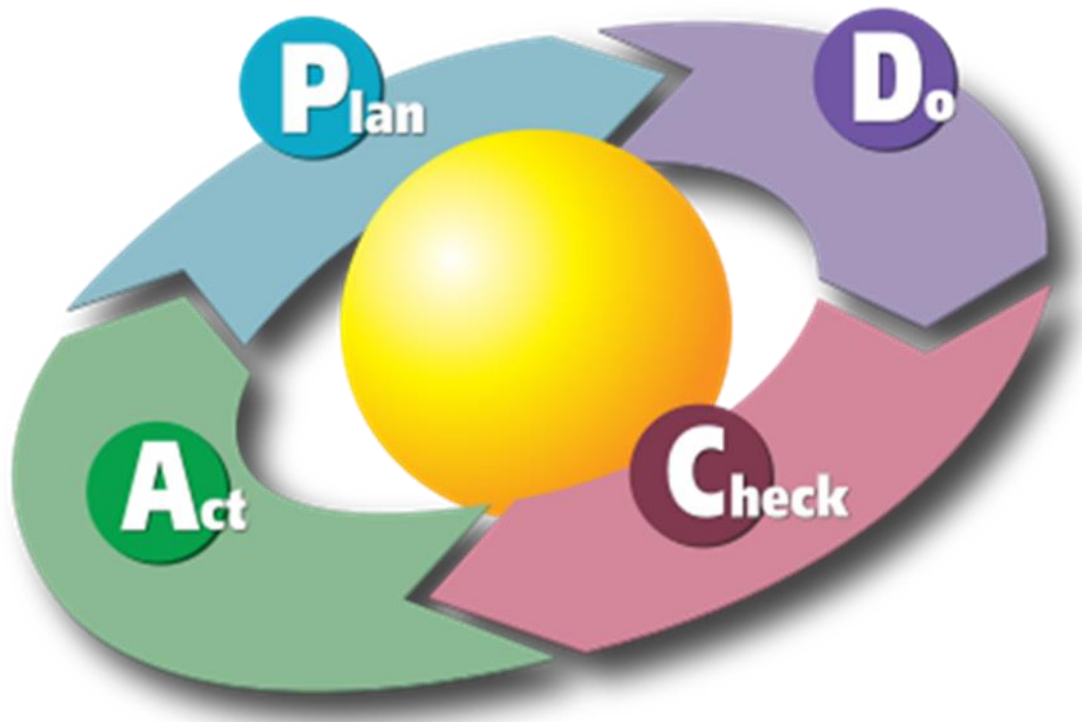


Figure 1: Deming Cycle of Continuing Improvement

1.3.1 Plan

Project-specific planning for the proposed project involves consideration of the legal triggers, the specifics of the proposed development, and the nature of the receiving environment. This provides a starting point for targeted environmental management objectives. Environmental performance indicators are then determined with measurable targets prescribed to monitor the environmental performance of the project. Achieving the targets depends on compliance with this EMPr and the legislative requirements that underpin it.

1.3.2 Do

Throughout the development’s life-span, the developer will be required to develop and maintain a Quality Management System – designed to ensure that best management practices are implemented in day-to-day management. Such a QMS should at least include the following information:

- Location and extent of associated infrastructure;
- Associated activities, such as the transportation of people and equipment;
- Resources and experience required (staffing);
- Materials and equipment to be used;
- Management actions;
- Human resources used;
- Construction-monitoring activities;
- Emergency / disaster incident and reaction procedures; and
- Rehabilitation procedures for the impacted environment.

These topics will be cross-linked into the contracts related to the development of the project.

1.3.3 Check

A system of assessing monitoring results has been developed to check the environmental management performance. Continuous assessment facilitates proactive management of the environmental issues. Mitigation measures can then be successfully implemented on an ongoing basis to keep environmental indicators within their target thresholds. Moreover, the assessment system also enables the assessment of the efficacy of the EMPr. Regular auditing of environmental performance is prescribed to prove and preserve accountability.

1.3.4 Act

The assessments and monitoring of the results and findings of the regular audits must be documented within a reporting system. Precautionary mitigation measures and corrective actions will be prescribed and instructions will be given in order to implement these in the field. The findings of monitoring and auditing programmes can also be used to update the EMPr. Although the EMPr is a project-specific document, it is dynamic and should be updated regularly to address the changing circumstances of the scheme.

1.4 Scope of the Environmental Management Programme

The primary objective of the EMPr is to bring into effect and action the measures of mitigation for the environmental impacts which emerge from the environmental assessment undertaken and provide an actionable and auditable tool which can be used to ensure the project is undertaken in an environmentally responsible manner. This EMPr is to be implemented by Matatiele Local Municipality as well as any employee, contractor, agent or sub-contractor appointed to act on behalf of the Matatiele Local Municipality in the execution of the project, in order to ensure environmental compliance on site.

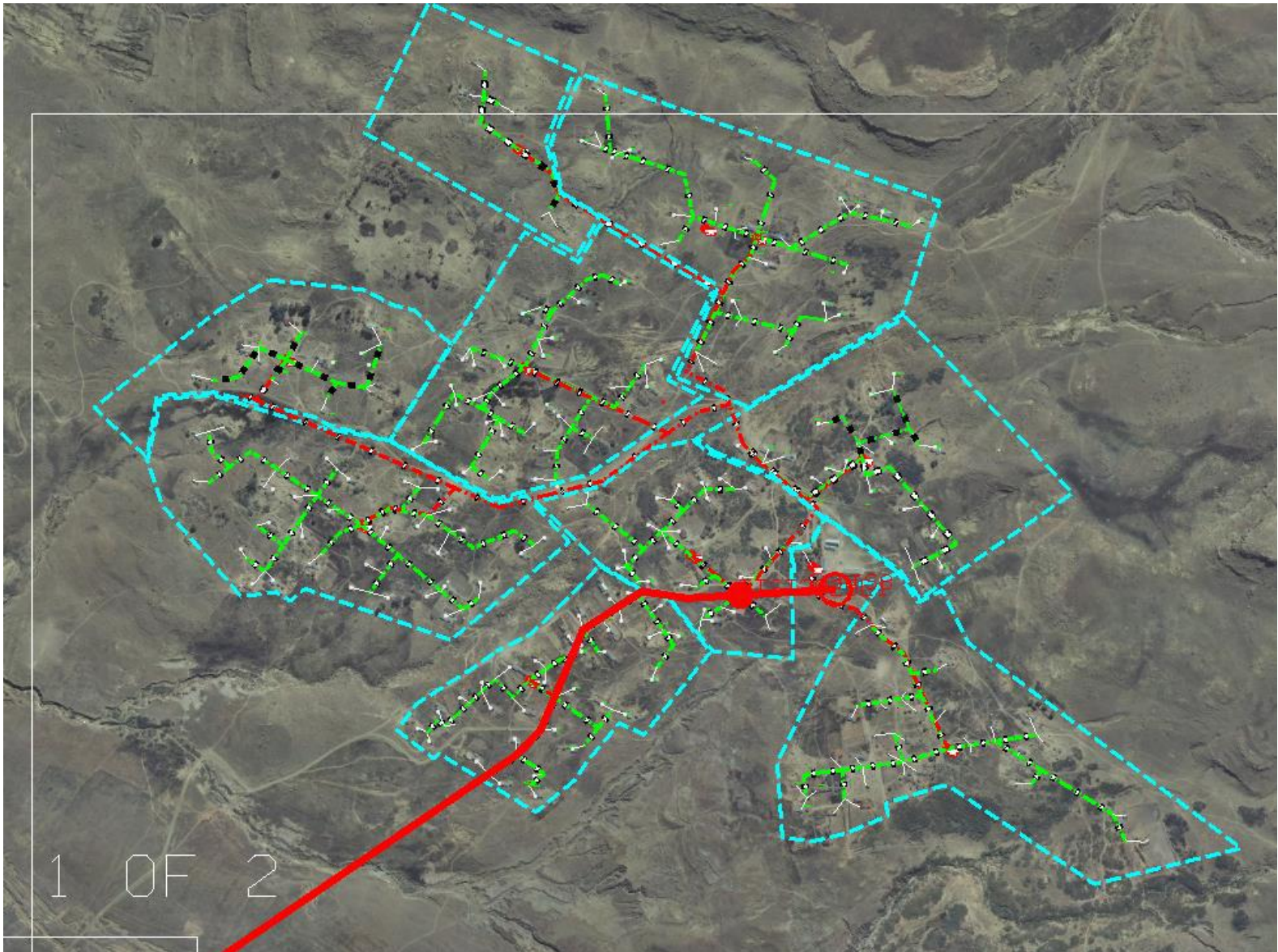
The specifications outlined in this EMPr are thus applicable to all activities undertaken by Matatiele Local Municipality as well as appointed contractors and all persons involved in the execution of the works including sub-contractors, the workforce, suppliers and volunteers for the duration of construction, operation and future maintenance.

An EMPr is focused on sound environmental management practices, which will be undertaken to minimise adverse impacts on the environment through the lifetime of a development. In addition, an EMPr identifies what measures will be in place or will be done to manage any incidents and emergencies that may occur during operation of the Electrification line.

As such the EMPr provides specifications that must be adhered to, in order to minimise adverse environmental impacts associated with the operations of the Electrification line.

An Environmental Code of Conduct has also been developed that provides a simplified set of rules that should be adhered to by all persons involved with the project at all times. This is to be displayed at strategic points to ensure constant environmental awareness.

In order to ensure a holistic approach to the management of environmental impacts during the construction and operation of the proposed St Barnads Village Electrification, this EMPr sets out the methods by which proper environmental controls are to be implemented by the Contractor and all other parties involved.



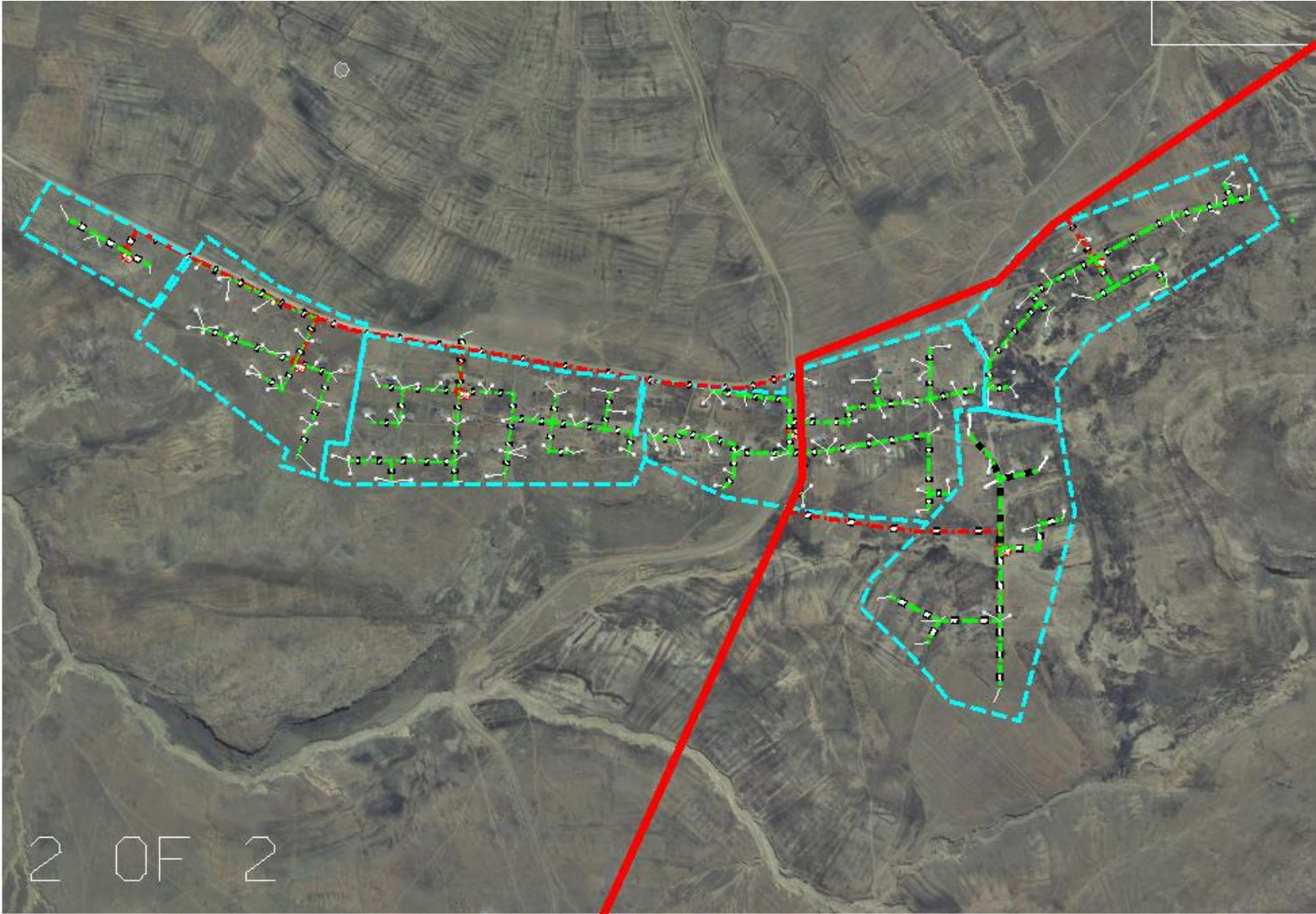


Figure 2: Network Overview

1.5 Structure of the Environmental Management Programme

The EMPr provides proposed mitigation and management measures for the following phases of the project (refer to Table 1)

Table 1: Different Phases of the Project Life Cycle

PHASE	DESCRIPTION
Pre-Construction	This section will provide guidelines on pre-construction activities including site establishment and clearance; environmental induction and training and awareness; site access and health and safety.
Construction	This section will provide guidelines on construction methods and considerations.
Rehabilitation	This section of the EMPr provides management principles for the rehabilitation phase post construction of the St Barnads Village Electrification. This will include best practice, procedures and responsibilities as required for various associated activities.

1.6 Objectives of the Environmental Management Programme

The Environmental Management Programme (EMPr) has the following objectives:

- To provide a brief description of the proposed project, including the location and objectives as well as the need for the proposed project.
- Ensuring compliance with regulatory authority stipulations and guidelines which may be local, provincial, national and/or international.
- To outline functions and responsibilities of responsible persons.
- To state standards and guidelines, which are required to be achieved in terms of environmental legislation.
- To outline mitigation measures and environmental specifications which are required to be implemented for all phases of the project in order to minimise the extent of environmental impacts, and to manage environmental impacts associated with the proposed project.
- To identify measures that could optimize beneficial impacts.
- To prevent long-term or permanent environmental degradation.
- To establish a method of monitoring and auditing environmental management practices during all phases of development.
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project.
- Ensure that the safety recommendations are complied with.
- Propose mechanisms for monitoring compliance with the EMPr and reporting thereon.
- Specify time periods within which the measures contemplated in the draft environmental management programme must be implemented, where appropriate.
- To provide an environmental awareness plan.
- Provide rational and practical environmental conditions / requirements to:
 - Minimise disturbance of the natural environment;
 - Ensure water resource protection;
 - Prevent or minimise all forms of pollution;
 - Protect indigenous flora and fauna;
 - Prevent soil and sand erosion and facilitate the re-vegetation of affected areas;
 - Maintenance of newly re-vegetated areas;
 - Restrict noise disturbance;
- Ensure compliance with all applicable laws, regulations, standards and guidelines for the protection of the environment (specifically the coastal and marine environment); and
- Adopt the best practical means available to prevent or minimise adverse environmental impacts.
- Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of waste.

- Train the Developer, its employees and contractors with regard to their environmental obligations.

2 LEGAL REQUIREMENTS

Construction of the St Barnads Village Electrification must be according to the best industry practices. This EMPr, which will form an integral part of the contract documents, informs the contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The Contractor should note that obligations imposed by the approved EMPr are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail.

It is expected that the contractor is conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract. Some of the environmental legislation applicable to the construction and operation of the St Barnads Village Electrification include, but are not limited to, the following environmental legislation: -

Table 2: List of legislation pertaining to the environment

Legislation	Sections	Relates to
The Constitution (No 108 of 1996)	Chapter 2	Bill of Rights.
	Section 24	Environmental rights.
National Environmental Management Act (No 107 of 1998 [as amended])	Section 2	Defines the strategic environmental management goals and objectives of the government. Applies through-out the Republic to the actions of all organs of state that may significantly affect the environment.
	Section 24	Provides for the prohibition, restriction and control of activities which are likely to have a detrimental effect on the environment.
	Section 28	The developer has a general duty to care for the environment and to institute such measures as may be needed to demonstrate such care.
National Environmental Management: Waste Act (No 59 of 2008)		Provides for specific waste management measures and the remediation of contaminated land.
Environment Conservation Act (No 73 of 1989) and regulations	Sections 19 and 19A	Prevention of littering by employees and sub-contractors during construction and the maintenance phases of the proposed project.
National Heritage Resources Act (No 25 of 1999) and	Section 34	No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

Legislation	Sections	Relates to
regulations	Section 35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site.
	Section 36	No person may, without a permit issued by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.
	Section 38	This section provides for Heritage Impact Assessments (HIAs), which are not already covered under the ECA. Where they are covered under the ECA the provincial heritage resources authorities must be notified of a proposed project and must be consulted during the HIA process. The Heritage Impact Assessment (HIA) will be approved by the authorising body of the provincial directorate of environmental affairs, which is required to take the provincial heritage resources authorities' comments into account prior to making a decision on the HIA.
National Environmental Management: Air Quality Act (No 39 of 2004)	Section 32	Control of dust.
	Section 34	Control of noise.
	Section 35	Control of offensive odours.
Occupational Health and Safety Act (No 85 of 1993)	Section 8	General duties of employers to their employees.
	Section 9	General duties of employers and self-employed persons to persons other than their employees.
National Water Act (No 36 of 1998) and regulations	Section 19	Prevention and remedying the effects of pollution.
	Section 20	Control of emergency incidents.
	Section 21 (a)	Abstraction of water.
Minerals and Petroleum Resources Development Act (No 28 of 2002)	Section 22	Application for a mining right.
	Section 39	Environmental management programme and environmental management plan.
National Environmental Management Biodiversity Act (Act No. 10 of 2004)		Provide for the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources.

Legislation	Sections	Relates to
National Forests Act (No 84 of 1998) and Regulations	Section 7	No person may cut, disturb, damage or destroy any indigenous, living tree in a natural forest, except in terms of a licence issued under section 7(4) or section 23; or an exemption from the provisions of this subsection published by the Minister in the Gazette.
	Sections 12-16	These sections deal with protected trees, with the Minister having the power to declare a particular tree, a group of trees, a particular woodland, or trees belonging to a certain species, to be a protected tree, group of trees, woodland or species. In terms of section 15, no person may cut, disturb, damage, destroy or remove any protected tree; or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister.
Hazardous Substances Act (No 15 of 1973) and regulations		Provides for the definition, classification, use, operation, modification, disposal or dumping of hazardous substances.
National Road Traffic Act (No 93 of 1996)		Road safety.
SANS 10103 (Noise Regulations)		The measurement and rating of environmental noise with respect to annoyance and to speech communication.
KZN Nature Conservation Ordinance (15 of 1974)		Sensitive species are protected under this Ordinance and must be considered.

3 MANAGEMENT AND MONITORING PROCEDURES

3.1 Project Structure

Below Gives an Indication of the Organisational and Team Structure for the Project.

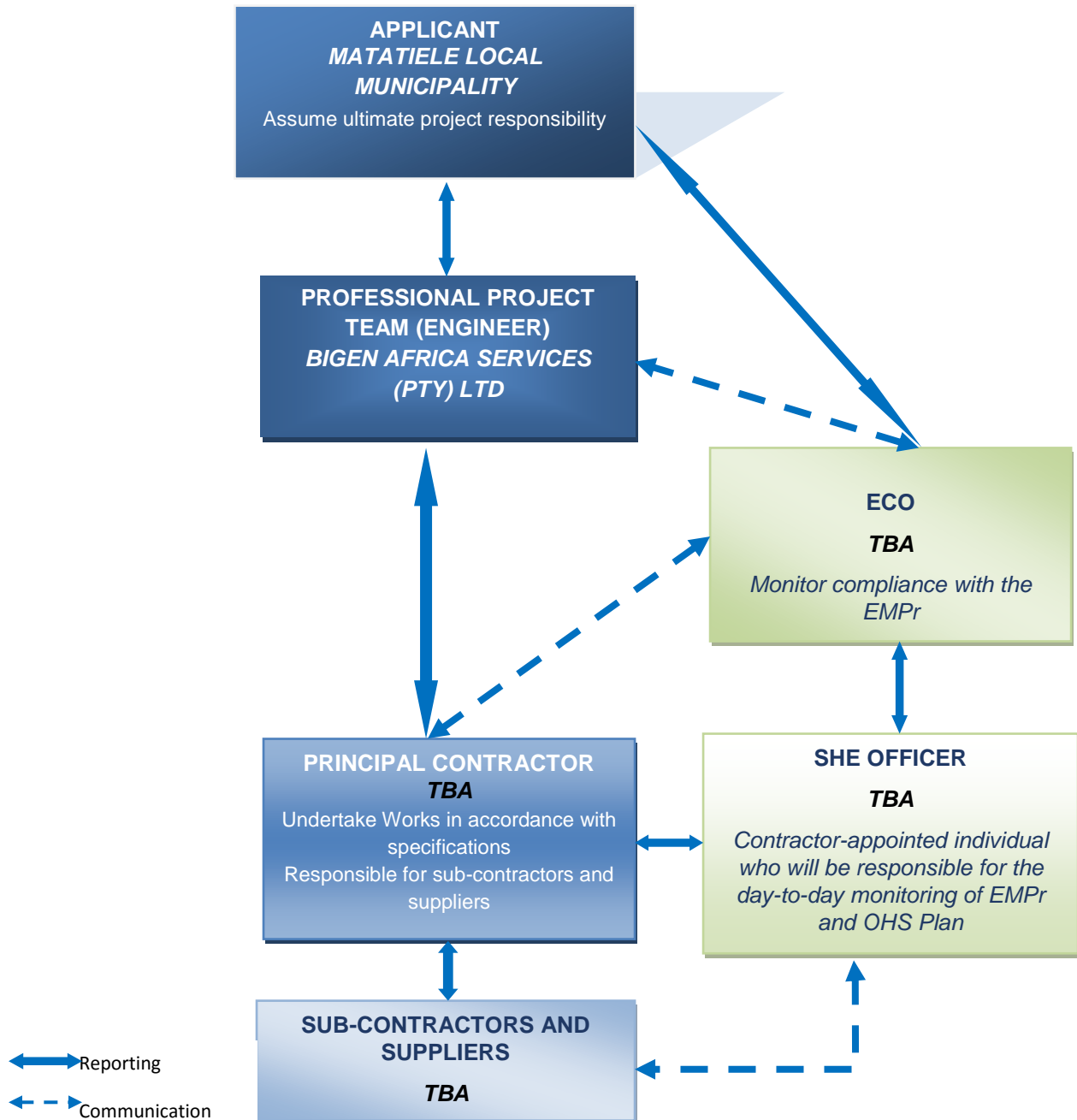


Figure 3: Organisational Structure and Responsibilities

DEVELOPER

The Developer is ultimately responsible for ensuring compliance with the environmental specification and upholding 100% compliance with all National, Provincial and local legislation that relates to management of this environment.

The Developer will:

- Arrange information meetings for or consults with I&AP's about the impending construction activities;
- May on the recommendation of the Engineer and / or Environmental Officer order the Contractor to suspend any or all works on site if the Contractor or his Sub-Contractor / Supplier fails to comply with the said specifications; and
- Maintain a register of complaints and queries by members of the public at the site office.

ENGINEER

The Engineer will:

- Enforce the environmental specification on site;
- Monitor compliance with the requirements of the specification;
- Assess the Contractor's environmental performance in consultation with the Environmental Officer from which a brief monthly statement of environmental performance is drawn up for record purposes and to be reported to project meetings; and
- Ensure the documentation, in conjunction with the Contractor, the state of the site prior to construction activities commencing. This documentation will be in the form of photographs or video record.

PRINCIPAL CONTRACTOR (INCLUDING SUB-CONTRACTORS)

The Contractor is required to:

- Be fully conversant with conditions of EMPr;
- Provide information on previous environmental management experience and company environmental policy in terms of the relevant forms contained in the Contract Document.
- Supply method statements timeously for all activities requiring special attention as specified and / or requested by the Developer, Environmental Officer and/or Engineer during the duration of the Contract.
- Be conversant with the requirements of this environmental specification/ EMPr. Brief all his/ her staff about the requirements of the environmental specification;
- Comply with requirements of the Environmental Officer in terms of this specification and the project specification, as applicable, within the time period specified.
- Ensure any Sub-Contractors/Suppliers who are utilized within the context of the contract comply with the environmental requirements of the project, in terms of the specifications. The Contractor will be held responsible for non-compliance on their behalf.
- Bear the cost of any delays, with no extension of time granted, should he or his Sub-Contractors / Suppliers contravene the said specifications such that the Engineer orders a suspension of work. The suspension will be enforced until such time as the offending party(ies), procedure, or equipment is corrected.
- Bear the costs of any damages / compensation resulting from non-adherence to the said specifications or written site instructions.
- Comply with all applicable legislation.
- Ensure that he informs the Engineer timeously of any foreseeable activities which will require input from the Environmental Officer.
- The Contractor will conduct all activities in a manner that minimizes disturbance to the natural environment as well as directly affected residents and the public in general.

SAFETY, HEALTH AND ENVIRONMENTAL (SHE) OFFICER

The Safety, Health and Environmental Officer will:

- Be fully conversant with the EMPr;
- Be fully conversant with all relevant environmental legislation applicable to the project, and ensure compliance with them;
- Compilation of Method Statements together with the Principal Contractor that will specify how potential environmental impacts in line with the requirements of the EMPr will be managed, and, where relevant environmental best practice and how they will practically ensure that the objectives of the EMPr are achieved;
- Convey the contents of this EMPr to the construction site staff and discuss the contents in detail with the Contractor;
- Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMPr;
- Take appropriate action if the specifications contained in the EMPr are not followed;
- Monitor and verify that environmental impacts are kept to a minimum, as far as possible;
- Order the removal from the construction site of any person(s) and/or equipment in contravention of the specifications of the EMPr;
- Report any non-compliance or remedial measures that need to be applied to the appropriate environmental authorities, in line with the requirements of the EMPr;
- Submitting a report at each site meeting which will document all incidents that have occurred during the period before the site meeting;
- Ensuring that the list of transgressions issued by the ECO is available on request; and
- Maintain an environmental register which keeps a record of all incidents which occur on the site during construction. These incidents include:
 - Public involvement / complaints.
 - Health and safety incidents.
 - Incidents involving hazardous materials stored on site.
 - Non-compliance incidents.

3.2 Reporting Procedures

3.2.1 Documentation

The following documentation must be kept on site in order to record compliance with the EMPr:

An Environmental File which includes:

- Copy of the EMPr;
- Copy of all other licences/permits;
- Environmental Policy of the Main Contractor;
- Environmental Method statements compiled by the Contractor;
- Non-conformance Reports;
- Environmental register, which shall include:
 - Communications Register – including records of Complaints, and, minutes and attendance registers of all environmental meetings.
 - Monitoring Results – including environmental monitoring reports, register of audits, non-conformance reports.
- Waste manifests;
- Waste Documentation such as Sewerage Disposal Receipts;
- Material Safety Data Sheets for all hazardous substances;

3.2.2 Method Statements

It is a statutory requirement to ensure the wellbeing of employees and the environment. To allow the mitigation measures in this document to be implemented, task-specific method statements should be developed for each set of tasks.

A Method Statement details how and when a process will be carried out, detailing possible dangers/risks, and the methods of control required.

- Material Bunding;
- Construction site and office/yard establishment;
- Cement mixing / concrete batching / bentonite mixing;
- Contaminated water;
- Dust;
- Environmental monitoring;
- Erosion control;
- Fire, hazardous and/or poisonous substances;
- Fuels and fuel spills (may form part of the item above);
- Storage, handling and decanting of diesel (may form part of the item above);
- Personnel, public and animal safety;
- Rehabilitation of modified environment(s);
- Solid and liquid waste management;
- Sources of materials (including MSDSs);
- Top-soil management;
- Stormwater Management; and
- Wash areas.

4 DETAILED ENVIRONMENTAL MANAGEMENT PROGRAMME

It is clear that a development project of this nature of St Barnads Village Electrification may influence the biophysical and social environments. However, with the appropriate mitigation measures and management actions, it is possible to reduce the significance of the impacts. The purpose of this EMPr is to provide management measures that must be implemented by Developer and the contractors to ensure that the impacts of the proposed construction of St Barnads Village Electrification line are minimised. This will take a concerted effort from the Contractor and proper planning is of the utmost importance.

The intention of this document is to function as a stand-alone document, which can be used as a management tool on site during the construction and operational phase of the St Barnads Village Electrification.

Therefore, the onus is on all parties to conform to these EMPr conditions and the provision of Eskom's Environmental Management Systems (EMS) at all times.

4.1.1 Project Execution Area

Good relations with landowners in particular with community leader, needs to be established and maintained throughout the project. This will help in solving problems and the prevention thereof. Lines of communication between landowners and the Contractor must always be open to ensure proper and timely reaction to complaints.

4.1.2 Environmental Monitoring and Auditing

The developer must appoint the ECO to undertake environmental compliance audits once a month and submit a monthly report to Matatiele Local Municipality and Eskom detailing the level of compliance by the Contractor.

4.1.3 Site Documentation

The standard Eskom site documentation shall be used to keep records on site. All documents shall be kept on site and be readily available for monitoring and auditing purposes.

The following documentation shall be kept on site:

1. Written records of all the access agreements and physical access plans;
2. Complaints register;
3. Site daily diary;
4. Records of all remediation / rehabilitation activities;
5. Copy of the Construction Environmental Management Programme;
6. Environmental Incident Log; and

7. Monthly ECO audit reports;

4.1.4 Contractor environmental method statements

All Method Statements including those which may be required as ad hoc or emergency construction method statements must be submitted to the Engineer for approval prior to the commencement of the activity. Method statements for the following activities must be submitted to the Engineer for approval before construction commences. These include inter alia:

- Solid waste management;
- Construction lay down areas;
- Workshop and maintenance/cleaning of plant;
- Cement and concrete batching;
- Dust control;
- Hydrocarbon and emergency spills procedures;
- Diesel tanks and refuelling procedures;
- Sourcing, excavating, transporting and dumping of fill and spoil material;
- Topsoil management;
- Fire;
- Rehabilitation of crew camp and other disturbed areas;
- Ablution facilities;
- Waste water management;
- Storage of hazardous materials; and
- River crossings.

To simplify the EMPr requirements, each aspect related to the EMPr has been addressed in the table below. Each action within the EMPr is supported by the priority of when the specific action will need to be implemented. Each of these aspects is briefly described below for ease of reference.

4.1.5 Environmental Aspect

This section highlights the various aspects associated with the project i.e. the Developer / Contractor's activities that will interact with the environment.

4.1.6 Environmental Measures and Action Plans

This section indicates the actions required to either prevent and/or minimise the potential impacts on the environment that is associated with the project.

4.1.7 Responsibility

This section indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr.

5 PRE-CONSTRUCTION PHASE

5.1 Tender Document

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ The Developer must ensure that this EMPr forms part of any contractual agreements with a contractor(s) and sub-contractors for the execution of the proposed project. The contractor must make adequate provision in their budgets for the implementation of the EMPr. ▪ The Principal Contractor (including sub-contractors and suppliers) must comply with the relevant provisions of the EMPr, applicable environmental legislation, by-laws and associated regulations promulgated in terms of these laws. 	Developer	Once-off

5.2 Engineering Design

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Ensure the planning undertaken by engineers appointed takes cognisance of the responsibility to preserve the natural environment. ▪ Ensure that as far as possible, lines are routed to avoid sensitive environments. ▪ Ensure that as far as possible, lines are routed to avoid high-lying areas and ridgelines. ▪ Ensure that as far as possible, pole structures are sited to avoid areas of inappropriate geological or soil structure. ▪ Ensure that as far as possible, lines are routed to avoid placing pole structures within 32m of drainage lines, within wetlands or on river banks. ▪ No vehicle tracks may be designed for slopes steeper than 1:6, where practical. ▪ Appropriate and effective storm water management plans, especially for the access tracks beneath or associated with the power lines, must be included into the final engineering design. ▪ Planning of access routes must be done in conjunction with the Contractor, Developer and the Landowner. All agreements reached shall be documented in writing and no verbal agreements should be made. The condition of existing access / private roads to be used shall be documented with photographs. ▪ Newly constructed access roads must be adequately maintained so as to minimise dust, erosion or undue surface damage. 	Developer	Once-off

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Appropriate stormwater routing and attenuation must be implemented to avoid onsite erosion and downstream sedimentation. ▪ No vegetation beyond Electrification line centre line corridor (NOT the reserve, only the corridor directly below the Electrification line) should be damaged or removed ▪ All graves identified should be protected and conserved: ▪ A proper fence is to be built around all graves 5 metres away from the perimeter of the graves, including entry gates to allow visitors ▪ No development is allowed within 10-15 metres from the fence line surrounding the graves ▪ A Municipality and community representative should walk through the finalised route to point out any graves that may have not been identified already and the outcome of the consultation should be sent to SAHRA Burial Grounds and Graves Unit. 	Developer	Once-off

5.3 Appointment of Contractor

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ The Contractor must make adequate provision in their budgets for the implementation of the EMPr. ▪ The Principal Contractor (including sub-contractors and suppliers) must comply with the relevant provisions of the EMPr, applicable environmental legislation, by-laws and associated regulations promulgated in terms of these laws. ▪ Tender documents should include statements to include the use of local communities. 	Developer	Once-off

5.4 Preparation of Method Statements

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Method Statements must be submitted by the Contractor to the SHE Officer and must be adhered to by the Contractor. These relate to water and stormwater management requirements, solid waste management requirements, fuel storage and filling and dispensing of fuel (diesel and petrol), hydrocarbon spills, contaminated water treatment, the storage of hazardous materials, standard emergency procedures, and biohazard control. ▪ The ECO will monitor the implementation of the Statements. All copies of the statements and plans must be submitted to the appointed ECO. 	Contractor	Once-off

5.5 Appointment of ECO

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ An Independent ECO must be appointed at the developers cost to monitor the implementation of the EMPr. ▪ The nomination of the ECO must be given, in writing, at least fourteen days before the start of any work, clearly setting out reasons for the nomination, and with sufficient detail to enable the developer to make a decision. ▪ Monthly monitoring of activities to ensure compliance with the EMPr ▪ Ensuring environmental awareness among members of the workforce. ▪ Ensuring that the contractor/s and members of the construction workforce are aware of the requirements of the EMPr. ▪ Implementing preventative and corrective actions in accordance with the requirements of the EMPr and outcomes of environmental audits. ▪ Reporting of environmental incidents that may occur on site in accordance with the requirements of the EMPr and environmental legislation. 	Developer & ECO	Once-off

5.6 Environmental Training and Awareness

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Construction staff must be adequately educated by the ECO, and the SHE Officer, as to the provisions included in the EMPr and general environmentally friendly practice.		

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<p>The EMPr forms part of the formal site induction for all contractors, sub-contractors and casual labourers, preferably in their native language. The induction training will, as a minimum, include the following:</p> <ul style="list-style-type: none"> ▪ the importance of conformance with all environmental policies; ▪ the environmental impacts, actual or potential, of their work activities; ▪ the environmental benefits of improved personal performance; ▪ their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Consultant's environmental management systems, including emergency preparedness and response requirements; and ▪ the mitigation measures required to be implemented when carrying out their work activities. <p>▪ All contractors, sub-contractors and casual labourers must acknowledge their understanding of the EMPr and environmental responsibilities by signing an induction attendance record.</p> <p>▪ The Contractor is expected to have "tool box" talks. These talks must be in accordance with the risks and trends associated with the project. Proof of these talks must be kept on site.</p>	ECO & SHE Officer	Once-off / Weekly

5.7 Ecological Planning for the receiving environment

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Prior to construction and vegetation clearance a suitably qualified ecologist/zoologist should closely examine the proposed construction areas (Electrification Servitude) for the presence of any animal burrows (including spiders and scorpions), rocky outcrops, logs, stumps and other debris and relocate any affected animals to appropriate habitat away from the Electrification. 	Developer	Once-off

6 CONSTRUCTION PHASE

6.1 Structure Positions

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Disturbance of topsoil where structures are positioned with severe slopes shall be minimised at all costs. At any structure sites where conventional foundations are installed, the Contractor shall remove the topsoil separately and store it for later use during rehabilitation of such structure sites. ▪ Contractors must, in consultation with the ECO, demarcate the footprint within which contractor work is to be confirmed where structures are located near wet areas, slopes, ecologically sensitive areas as determined by the ECO. The location and method for stockpiling of any material must be in consultation with the ECO to ensure material is not stockpiled in drainage lines. During backfilling operations, the Contractor shall take care not to dump the topsoil in the bottom of the foundation and then put spoil on top of that. ▪ Re-seeding shall be done on disturbed areas as directed by the ECO. In accordance with the Conservation of Agricultural Resources Act, No 43 of 1983, slopes in excess of 2% must be contoured and slopes in excess of 12% must be terraced. Other methods of rehabilitation of structure sites may also be used at the discretion of the Environmental Control Officer, e.g. stone pitching, logging, etc. Contour banks shall be spaced according to the slope on structure sites. The type of soil shall also be taken into consideration. 	<p>Contractor / Engineer</p>	<p>On-going</p>

6.2 Health and Safety

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ The Contractor must adhere to the prescriptions of the relevant health and safety legislation and standards. The Contractor must familiarise himself and his employees with the contents of the aforementioned legislation. ▪ First Aid contents must be on hand at all times. ▪ The Contractor must implement adequate and mandatory safety precautions relating to all aspects of the deconstruction. Such safety measures and work procedures/instructions must be communicated to construction workers. 	<p>Contractor / SHE Officer</p>	<p>On-going</p>

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ The wearing of Personal Protective Equipment (PPE) on site is mandatory for all personnel and construction team members. Minimum requirements must include the wearing of an approved safety helmet, safety boots, safety eyewear, safety reflective jackets and dust masks, ear plugs, etc where appropriate. ▪ PPE signs must be erected on site at the areas where it is required and the integrity and availability of the signs must be maintained. ▪ No one must be allowed on site unless they are wearing approved safety equipment. ▪ Casual visitors must be required to sign a register at the security checkpoint and undergo a site induction by the SHE Officer. The responsible person must then be contacted before the visitor is allowed access to site. No unauthorised visitors are to be allowed on site. ▪ Workers' right to refuse work in unsafe conditions must be respected. ▪ All personnel must be trained in basic site safety procedures. ▪ The Contractor must design, test/exercise appropriate emergency preparedness programmes (plans, schedules, procedures and methods) for addressing environmental accidents, incidents and events such as spills of fuel, oil or lubricants; fires etc. ▪ The Client and/or client's agent will carry out regular audits on the principal contractor at least once per month. Similarly, principal contractors must be responsible for carrying out regular audits on their contractors at least once per month. The results must be tabled for action and discussed at the Health and Safety Committee meetings or the site meetings, as appropriate. ▪ The principal contractor must provide evidence by means of a procedure or chart that he is fully aware of the "hierarchy" of incidents that can occur e.g. unsafe situations, near misses, first aid box injuries, medical cases, disabling injuries etc. He must keep an incident register of all such incidents, investigate and apply corrective action where required. The client also reserves the right to stop any unsafe work and request incident statistics from the principal contractor. 	Contractor	Once-off

6.3 Site Establishment

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Prior to the establishment of the site camp / office, the Contractor will produce a 	Contractor	Once-off

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<p>site layout plan showing the positions of all equipment storage, waste stockpiling, fuel storage areas and other infrastructure for approval of the ECO and SHE Officer.</p> <ul style="list-style-type: none"> ▪ The construction area must be clearly demarcated on the layout plan, and all other areas must be considered no-go areas for the construction personnel. ▪ Adequate signage must be placed in the area where construction will take place informing the public of the activities taking place. ▪ The Contractor must take responsibility for the site to conform to all contractual aspects and environmental standards applicable. ▪ The Contractor must provide adequate refuse bins that must be cleaned / emptied and the waste removed from site on a regular basis. ▪ The construction camp must be kept in an orderly state at all times. ▪ Vegetation removed for the site establishment is to be kept to a minimum. No trees are to be removed, if possible, with the exception of alien weeds and invader plants. ▪ The construction camp is to be located a minimum horizontal distance of 100 m from any watercourse, above the 1:100 year flood line and away from the wetland habitats on site. ▪ The Contractor must ensure that drainage on the camp site is such to prevent standing water and/or sheet erosion from taking place. 		

6.4 Ablution/ Sanitation

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ A minimum of one chemical toilet must be provided per 10 persons. ▪ An SDC is to be obtained and kept on site. ▪ The chemical toilets must be strategically placed (easily accessible to workers, preferably no more than a 100 m from the work face) and will not be situated within any watercourse. ▪ Chemical toilets must be secure, clean and functional throughout the maintenance period. ▪ All ablution activities must take place in these facilities, and the waste material must be stored and disposed of at the registered waste disposal site or collected by a suitable waste contractor on a regular basis. ▪ The Contractor must ensure that toilets are cleaned or emptied regularly and that no spillage occurs during routine maintenance. ▪ All temporary/portable toilets must be secured to the ground to prevent them from toppling due to wind or any other cause. ▪ Unauthorised dumping / spilling of waste from toilets into the environment and burying of waste are strictly prohibited. 	Contractor	Daily

6.5 Access

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ The construction site camp must have strict access control to reduce the risks associated with vehicular transportation and pedestrian accessing the site camp. ▪ Watercourses and steep gradients must be avoided as much as possible. ▪ No vehicles must drive onto the wetland or other sensitive sites and no-go areas. ▪ All no-go areas must be indicated as such with warning signs in all relevant languages. ▪ Adequate drainage and erosion protection in the form of cut-off berms or trenches must be provided around the sites and where necessary. 	Contractor	On-going

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6.6 Fires

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ No open fires or uncontrolled fires will be permitted on site. ▪ Fire fighting measures such as fire extinguishers must be located on site. ▪ The workforce must be made aware of fire prevention and fire fighting measures. 	Contractor	Daily

6.7 Vehicle Maintenance Yard

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Heavy machinery and construction vehicles are to be stored in a vehicle maintenance yard which must be illustrated on the construction camp layout map. ▪ A dedicated maintenance area must be demarcated with an impermeable surface leading to an oil-water separator. No vehicle may be extensively repaired in any place other than in the dedicated maintenance yard. ▪ Washing of vehicles is prohibited on site or at the Construction Camp and Vehicle Maintenance Yard. 	Contractor	Once-off / On-going

6.8 General and Hazardous Substances and Materials

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Storage areas must not be within any watercourses or within 100 m of any drainage lines. ▪ Storage areas must be designated, demarcated and fenced. ▪ Storage areas should be secure, under lock and key, so as to minimise the risk of crime. ▪ Fire prevention facilities must be present at all storage facilities. ▪ Proper storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used must be provided to prevent the migration of spillage into the ground and groundwater regime around the storage area(s). These pollution prevention measures for storage should include a bund wall high enough to contain at least 110% of any stored volume. Such a facility must be on an impervious surface. The storage area must be securely fenced and all hazardous substances such as fuel, oils, chemicals, etc., must be stored 	Contractor / SHE Officer	Daily

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<p>therein. Drip trays, a thin concrete slab or a facility with PVC lining, must be installed in such storage areas with a view to prevent soil and water pollution.</p> <ul style="list-style-type: none"> ▪ Any water that collects in the bund must not be allowed to stand and must be removed immediately. ▪ All fuel storage tanks and associated facilities must be designed and installed in accordance with the relevant oil industry standards, SANS codes and other relevant requirements. ▪ Symbolic safety signs depicting “No Smoking”, “No Naked Flames” and “Danger” are to be prominently displayed in and around the fuel storage area. ▪ The capacity of the tank must be clearly displayed and the product contained within the tank clearly identified. ▪ Only empty and externally clean tanks may be stored on the bare ground. All empty and externally dirty tanks must be sealed and stored in an area where the ground has been protected. ▪ If fuel is dispensed from 200 litre drums, the proper dispensing equipment must be used. ▪ The drum must not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage tank must be stored in a waterproof container when not in use. ▪ All waste fuel and chemical contaminated rags must be stored in leak-proof containers and disposed of at an approved hazardous waste site. ▪ Storage sites will be provided with bunds to contain any spilled liquids and materials. These storage facilities (including any tanks) must be on an impermeable surface that is protected from the ingress of stormwater from surrounding areas in order to ensure that accidental spillage does not pollute local soil or water resources. ▪ Material Safety Data Sheets (MSDSs) must be readily available on site for all chemicals and hazardous substances to be used on site. Where possible the available, MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or spillages. ▪ Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures. ▪ A suitable Waste Disposal Contractor must be employed to remove waste oil. 		

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<p>These wastes must only be disposed of at licensed landfill sites designed to handle hazardous waste. Appropriate weigh bills must be provided for all hazardous waste being disposed of.</p> <ul style="list-style-type: none"> ▪ The Contractor must ensure that his staff are made aware of the health risks associated with any hazardous substances used and has been provided with the appropriate protective clothing/equipment in case of spillages or accidents and have received the necessary training. ▪ Cement / concrete must not be mixed directly on the ground. Dagga boards, mixing trays and impermeable sumps must be used at all mixing and supply points. Unused cement bags are to be stored so as not to be effected by rain or runoff events. ▪ The washing of concrete trucks on site is prohibited. ▪ Used cement bags must be stored in weatherproof containers to prevent windblown cement dust and water contamination. Used cement bags must be disposed of on a regular basis via the solid waste management system, and must not be used for any other purpose. ▪ All visible remains of excess concrete must be physically removed on completion of the plaster or concrete pour section and disposed of. Washing the remains into the ground is not acceptable as groundwater contamination could occur. ▪ No paint products may be disposed of on site. ▪ Storage areas must not be within any watercourses or within 100 m of any drainage lines. ▪ The Contractor must maintain a record of the sourcing of all materials used during construction. The Mineral and Petroleum Resources Act must be complied with. 		

6.9 Spills, Incidents and Pollution Control

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ A Spill Contingency Plan must be developed and any spillage, which may occur, must be investigated and immediate action must be taken according to the requirements of the Spill Contingency Plan. This must also be reported to the ECO and SHE Officer. ▪ In the case of a spill of hydrocarbons or chemicals in the Construction camp or on 		

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<p>the construction site/ bunding area, the spill should be contained and cleaned up and the material together with any contaminated soil collected and disposed of as hazardous waste to minimize pollution risk and reduce bunding capacity.</p> <p>Should a pollution incident occur on site the Contractor must:</p> <ul style="list-style-type: none"> ▪ Implement reasonable measures immediately to contain and minimise the impacts of the incident; ▪ Notify all persons whose health may be affected by the incident; ▪ Undertake clean up procedures immediately; ▪ Notify the Contractor of the incident immediately who will advise the employee as to the measures that should be implemented; ▪ Record the incident in the Environmental Incident Register; and ▪ Implement measures to prevent similar incidents from occurring in the future. <ul style="list-style-type: none"> ▪ Concrete mixing must be confined to as few areas as possible and ad hoc mixing is to be avoided. Areas where concrete was mixed must be cleaned up after use. Concrete mixing is to be undertaken on an impervious surface. ▪ Soil and construction material stockpiles are to be bermed to prevent leachate and polluted runoff. ▪ In the event of a spoil incident, the Emergency Response Plan developed must be followed. 	<p align="center">Contractor / SHE Officer</p>	<p align="center">On-going</p>

6.10 Heritage

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ If an artefact on site is uncovered, work in the immediate vicinity must be stopped immediately. ▪ The contractor must take reasonable precautions to prevent any person from removing or damaging any such article and must immediately, upon discovery thereof, inform the Construction Engineer of such discovery which in turn must contact a registered archaeologist and EC SAHRA. ▪ Work may only resume once clearance is given in writing by the archaeologist and EC SAHRA. 	<p align="center">Contractor</p>	<p align="center">On-going</p>

6.11 Noise

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Neighbouring landowners must be notified about construction activities in three days before construction start. ▪ All construction vehicles and equipment are to be kept in good repair and must be fitted with standard silencers prior to construction. ▪ Where possible, stationary noisy equipment (for example compressors, generators etc. must be encapsulated in acoustic covers, screens or sheds. Portable acoustic shields must be used in the case where noisy equipment is not stationary (for example drills, angle grinders, chipping hammers). ▪ Construction activities, and particularly the noisy ones, are to be contained to reasonable hours (between 08h00 and 17h00 only). ▪ Machines in intermittent use must be shut down in the intervening periods between work or throttled down to a minimum. ▪ In general, operations must meet the noise standard requirements of the Occupational Health and Safety Act (Act No 85 of 1993). ▪ Construction staff working in areas where the 8-hour ambient noise levels exceed 75 dBA must wear ear protection equipment. ▪ Noise levels must be kept within acceptable limits. No pure tone sirens or hooters may be utilised except where required in terms of SANS standards or in emergencies. ▪ Noisy operations must be combined so that they occur where possible at the same time. ▪ Noise from labourers must be controlled. ▪ Noise suppression measures must be applied to all construction equipment. Construction equipment must be kept in good working order and where appropriate fitted with silencers which are kept in good working order. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or machinery from site. ▪ The Contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. Where possible labour must be transported to and from the site by the Contractor or his sub-contractors by the contractors own transport. 	<p>Contractor</p>	<p>Daily</p>

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Neighbours are to be given at least three days warning prior to any blasting, piling or other 'noisy' activities. 		

6.12 Air Quality

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<p>Pollution Management and Odour Control:</p> <ul style="list-style-type: none"> ▪ Any oil containing equipment or containers must be managed in a manner to avoid oil exposure to atmosphere to limit evaporation of volatiles to atmosphere. ▪ Odours from chemical toilets and waste must be managed. Removal and disposal of litter and debris must be undertaken during periods of high ventilation. Chemical toilets must be cleared and cleaned at least weekly. ▪ No fires are to be allowed on site. ▪ Vehicles must be maintained to avoid excessive emissions and smoke. Similarly equipment must be serviced. 	Contractor	Daily
<p>Dust Control:</p> <ul style="list-style-type: none"> ▪ Road sweeping. ▪ Chemical dust suppression of disturbed areas to reduce the amount of dust which can be lifted by the wheels of trucks. ▪ Wet suppression to the roads using a light spray. ▪ The washing down of the wheels of trucks before they exit only paved road surfaces. ▪ Water for dust suppression must not be sourced from the any other watercourse on site. ▪ Dust liberated to atmosphere should not reduce the visibility for private vehicles making use of the road passing by the site. ▪ All construction vehicles and equipment are to be kept in good condition. ▪ Speed limits of a maximum of 40 km/h are to be implemented on site and enforced by the Contractor. 	Contractor / SHE Officer / ECO	Daily
<ul style="list-style-type: none"> ▪ Shade cloth fencing is to be used to reduce dust aggravation. 		
<ul style="list-style-type: none"> ▪ Construction activities are to be contained to reasonable hours during the day (between 07h00 and 17h00) avoiding periods of sunrise and sunset. 		
<ul style="list-style-type: none"> ▪ In areas where there is a large potential for dust liberation (high wind days) wet 		

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
suppression using a light spray should be applied to the areas in question.		
<ul style="list-style-type: none"> ▪ A dust suppression register as well as a complaints register needs to be kept. ▪ All complaints received need to be investigated with remedial action taken communicated to the affected party within 14 days. 		

6.13 Spoil, Topsoil and Erosion

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
Topsoil: <ul style="list-style-type: none"> ▪ The Contractor must strip and stockpile all soil within the work area for subsequent use at a later stage. ▪ Topsoil removed must be stockpiled in a designated area and should not exceed 1 m in height. ▪ Stockpiles must be located outside of the 32 m wetland buffer. Stockpiles must be protected from wind and rain with the use of tarpaulins where necessary. The Engineer is to use his discretion. ▪ Topsoil must be kept separate from overburden and must not be used for infilling. ▪ Weeds must be eradicated from topsoil prior to spoiling. ▪ The Contractor must exercise suitable precautions with the storage, handling and transport of all materials that could adversely affect the environment. If pollution of any surface or groundwater occurs, it must immediately be reported to this Department and appropriate mitigation measures must be employed. ▪ Any erosion channels developed during the construction period or during the vegetation establishment period should be backfilled and compacted, and the areas restored to a proper condition. The Contractor should ensure that cleared areas are effectively stabilised to prevent and control erosion. This is especially pertinent within steep hillslopes which are situated on a shallow soil layer. Extensive gully erosion is evident around the entire area. ▪ Soil removed from the new road reserve is to be appropriately stored for later use in back-filling. Sub-soil and topsoil (the top +/- 30-50 cm of the soil) should be stored separately. 	Contractor / Engineer	On-going

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Spoil: ▪ Litter and general waste is to be removed from the soil and spoiling before stockpiling. ▪ Slopes must not exceed a vertical: horizontal ratio of 1:3. 	Contractor	Daily
<p>Soil erosion on site must be prevented at all times, i.e. pre, during and post construction activities. Suitable erosion control measures must be implemented in areas sensitive to erosion such as near water supply points and edges of slopes. These measures must include:</p> <ul style="list-style-type: none"> ▪ Phased construction activities must take place to ensure the removal of vegetation, only as it becomes necessary for work to proceed. This enables erosion and sedimentation to be minimised and centralised in relatively small areas easier to control and to stabilize. Topsoil storage must be as brief as possible and storage must occur in a bunded area away from watercourses as described above. ▪ Vegetative Cover – vegetation reinforces soil and holds it in place thereby reducing erosion. Temporary or permanent vegetation must be planted on all bare soil immediately after any ground disturbance. The prompt rehabilitation of exposed soil areas with indigenous vegetation will ensure that soil is protected from the elements. The unnecessary removal of vegetation especially on steep areas must be prevented. Taking necessary precautions in terms of design and construction and earthworks, cuts and fills must be taken. Soil stockpiles must be vegetated or covered to reduce soil loss as a result of wind or water to prevent erosion and sedimentation. Disturbed areas must be rehabilitated as soon as possible. ▪ Seeding, anchored mulch, wool binders or erosion control fabrics must be used to provide surface protection and stabilisation until vegetation is established. ▪ The suitable use of sand bags or Hessian sheets must be used to stabilise bare soil. ▪ The suitable use of geo-textiles, turf blankets or mats must be used as slope protection for exposed slopes. ▪ Proper drainage controls such as culverts and cut-off trenches must be used to ensure proper management of surface water runoff to prevent erosion and sedimentation. ▪ Construction vehicles must remain on designated demarcated areas. 	Contractor	Daily

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ Work areas must be clearly defined and demarcated to avoid unnecessary disturbance of areas outside the maintenance area. ▪ Constant cognisance of the inherent high erosion risk potential of all soils and sites on the property must be taken and appropriate control and preventative measure put in place. 		

6.14 Waste Management

6.14.1 General waste

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<p>General waste produced on site includes:</p> <ul style="list-style-type: none"> ▪ Office waste (e.g. food, waste, paper, plastic); ▪ Operational waste (clean steel, wood, glass); and ▪ General domestic waste (food, cardboards, paper, bottles, tins). <ul style="list-style-type: none"> ▪ An adequate number of general waste receptacles, including bins must be arranged around the Construction Camp, on site to collect all domestic refuse, and to minimise littering. ▪ Bins must be clearly marked and lined for efficient control and safe disposal of waste. ▪ Different waste bins, for different waste streams must be provided to ensure correct waste separation. ▪ A fenced area must be allocated for waste sorting and disposal on the site. ▪ General waste produced on site is to be collected in skips for disposal at a landfill site. Hazardous waste in not to be mixed or combined with general waste earmarked for disposal at the municipal landfill site. ▪ No general waste is to be disposed of at the spoil area. ▪ Under no circumstances is waste to be burnt or buried on site. The excavation and use of rubbish pits on site is forbidden. ▪ Waste bins must be cleaned out on a regular basis to prevent any windblown waste and/or visual disturbance. ▪ All general waste must be removed from the construction areas on a daily basis and disposed of in suitable waste receptacles at the Construction Camp. ▪ The Contractor must ensure that all general waste is disposed of at an 	Contractor	Daily

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
appropriately licensed waste disposal facility. Through exploring practical means for reducing, reusing and recycling waste generated in undertaking the activity, the Contractor must dispose of the minimum amount of waste possible.		

6.14.2 Hazardous Waste

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<p>Hazardous waste produced on site includes:</p> <ul style="list-style-type: none"> ▪ Oil and other lubricants, diesel, paints, solvent; ▪ Containers that contained chemicals, oils or greases; and ▪ Equipment, steel, other material (rags), soils, gravel and water contaminated by hazardous substances (oil, fuel, grease or chemicals). 	Contractor	Daily
<ul style="list-style-type: none"> ▪ Hazardous waste is to be disposed of at a Permitted Hazardous Waste Landfill Site. The ECO must identify an approved waste disposal site at the inception of the project. 		
<ul style="list-style-type: none"> ▪ Hazardous waste bins must be clearly marked, stored in a contained area (or have a drip tray) and covered (either stored under a roof or the top of the container must be covered with a lid). 		
<ul style="list-style-type: none"> ▪ A hazardous waste disposal certificate must be obtained from the waste removal company as evidence of correct disposal. 		

6.14.3 Wastewater

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ All wastewater generated at the proposed development must be disposed of in a suitable manner so as not to cause any surface or subsurface water pollution or health hazard. Waste water including cement-contaminated water must not enter any water course and must be managed by the site manager to ensure that the existing water resources on and off site are not polluted by activities emanating from the above development. ▪ Used oil and wastewater must be disposed of to a ROSE registered facility. An SDC is to be obtained by the Contractor. 	Contractor	Daily

6.15 Watercourse and Wetland Management

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ No clearing or infilling of the wetland is permitted. ▪ Water for construction purposes can only be sourced from the location licenced as per the WUL and the daily amount of water abstracted must be recorded in a register by the Contractor and kept in the Site Environmental File equipment laydown or storage areas must be located within 50 m of any watercourse and/or within the 1:100 year floodline. No soil stockpile areas must be located within 32 m of any watercourse. ▪ Under no circumstances may any of the construction workers or staff access the wetland. All staff must be informed of this requirement. ▪ No stockpiling of construction materials or spoil material or any construction activities whatsoever are allowed to take place within this fenced off area. ▪ It is not permitted under any circumstances that stormwater from the site be allowed to drain toward the wetland. ▪ It is vitally important that any stormwater discharging in the direction of the wetland is dissipated and diverted to avoid gully erosion or any negative impact on the hydrological functioning of the wetland. ▪ The temporary access roads must be strictly one-way and be a maximum width of 3 m. No vehicle turning areas must be located within 32 m of any watercourse. 	Contractor / Engineer	On-going

6.16 Eroded Areas and Donga Crossings

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ No clearing or infilling of the wetland is permitted. ▪ Crossing of dongas and eroded areas shall be thoroughly planned ▪ Water diversion berms shall be installed in consultation with ECO at donga crossings to ensure runoff water on the servitude does not run into dongas and cause an erosion hazard. ▪ Strict control of the footprint must be implemented especially near eroded areas and donga crossings. ▪ Areas of exposed erodible soil in the course of construction operations shall be 	Contractor / Engineer	On-going

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ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
shaped to permit storm runoff with minimum erosion. ▪ Temporary berms, slope drains, diversion mounds and sedimentation basins shall be required where possibilities for water pollution exist and permanent erosion controls are not completed or operative. Silt fences shall be required to prevent sediment from entering wetlands or open water		

7 Rehabilitation

ACTIONS AND CONTROLS	RESPONSIBILITY	MONITORING FREQUENCY
<ul style="list-style-type: none"> ▪ All structures comprising the construction affected areas are to be removed from the site and surrounding areas. ▪ The area that previously housed the construction materials is to be checked for spills of substances such as oil, paint, diesel, etc. and these must be cleaned up. ▪ All hardened surfaces within the construction affected area must be ripped, all imported materials removed, and the area must be top soiled and re-grassed accordingly with indigenous species. ▪ The Contractor must arrange the cancellation of any temporary services. ▪ All residual stockpiles must be removed to spoil or spread on-site as directed by the Developer and/ or Engineer. ▪ All leftover building materials must be returned to the depot or removed from the site. ▪ The Contractor must repair any damage that the construction works has caused to neighbouring properties. ▪ Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the Developer. ▪ The site and surrounding areas is to be cleared of all litter. ▪ Surfaces are to be checked for waste products from activities such as concreting. 	Contractor	Post-Construction

ANNEXURE A

ENVIRONMENTAL CLOSURE CHECKLIST

TO BE COMPLETED AT PROJECT CLOSURE BY PROJECT MANAGEMENT AND ATTACHED TO CLOSURE CERTIFICATE (A complete copy must also be sent to Environmental Management)

PROJECT NAME:

.....

BRIEF PROJECT DESCRIPTION:

.....

.....

		N/A	YES	NO
1.	Did you obtain a copy of an EIA Report or DESD Report from Land Development (Environmental Management Section)?			
2.	Did you obtain a copy of an Environmental Management Programme (EMP) from Environmental Management Section, Contracts Department?			
3.	Has the EMP been included in the contract specification?			
4.	Have you given copies to the bush clearing contractor (If applicable) and explained the content of the EMP?			
5.	Have you given copies to the Construction contractor (If applicable) and explained the contents of the EMP?			
6.	Have the above signed and understood the EMP?			
7.	Was any part of the EMP not followed? If yes, please specify.			
8.	Was any part of the EMP not practical to follow? If yes, please specify.			

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9.	Were any environmental problems encountered during bush clearing and / or construction phase? What were these problems?.....			
10.	Were these problems addressed? What action was taken to address the environmental problems? 			
11.	Did you report these problems to Environmental Management Section?			
12.	Have you ensured that Field Services is aware of and have a copy of the EMP for this project including all specific environmental information on the project.			

General comments:

.....

Signed by: (Project manager/co-ordinator): Date:

(Clerk of Works): Date:

Copy of completed checklist to be placed in Closure File of all projects & another forwarded to Environmental Management Section.



(ESKOM SOUTHERN REGION)

1) LOCATION OF SPILL:

2) DATE & TIME OF SPILL:

3) HOW LONG BEFORE DISCOVERED:

4) DESCRIPTION OF INCIDENT:

4.1) CONTAMINATED AREA :

4.2) VOLUME SPILT: RECOVERED:

5) SPILL DUE TO:

6) STEPS TAKEN:

7) INITIAL CONTAINMENT:

8) RECOVERY:

9) CLEAN UP:

10) BIOREMEDIATION:

11) REPORTED TO (NAME & CONTACT NO):

11.1) ESKOM:

11.2) DEPT.WATER AFFAIRS:

11.3) LOCAL AUTHORITY:

11.4) OTHER:

12)REMARKS:

.....
.....
.....

SIGNATURE:DATE:

8 ENVIRONMENTAL CODE OF CONDUCT

One of the objectives of the EMP is to ensure that all the workforce, contractors, sub-contractors and construction staff have an understanding of environmental issues and potential impacts on site activities. This environmental code of conduct provides the basic rules that should be strictly adhered to. It is the responsibility of the ECO to ensure that each contractor, sub-contractor and workforce understand and adhere to the Code of Conduct.

ENVIRONMENTAL CODE OF CONDUCT

ALL PERSONS ARE OBLIGED TO KEEP TO THE RULES OF THIS CODE OF CONDUCT

You must study and keep to the rules – ignorance, negligence, recklessness or a general lack of commitment will not be tolerated!

ENVIRONMENTAL RULES

- Preventing Pollution
- Littering will not be tolerated.
- Put all waste in the correct waste containers provided.
- Use the toilet facilities provided.
- Immediately report to your supervisor when you spill, or notice a hazardous substance being spilled or when you see a vehicle, piece of machinery or container that is leaking fuel, oil or other hazardous substances.
- Do not Trespass
- Never climb over any fence or trespass on private property. You are not allowed to enter neighbouring properties.
- Maintaining the Character and Visual Quality of the Area
- Never deface, draw or cut lettering or any other markings on trees, rocks or buildings in the area.
- Digging, excavation and the erection of any permanent or semi-permanent structures of any kind are prohibited.
- If you spot any litter lying around – please pick it up and throw it in the correct waste container.
- Fire Control
- Make sure you are familiar with fire fighting procedures.
- Make sure you are aware of the locations of all fire fighting equipment.
- No fires are allowed outside the confines of the Construction Camp.
- No burning of waste is allowed.
- Caring for Plants and Animals
- Strictly leave all animals alone – never tease, catch or set devices to trap or kill any animal.
- Never damage, chop down or remove any tree or shrub (unless you are instructed to do so).
- Use commercially bought firewood.

