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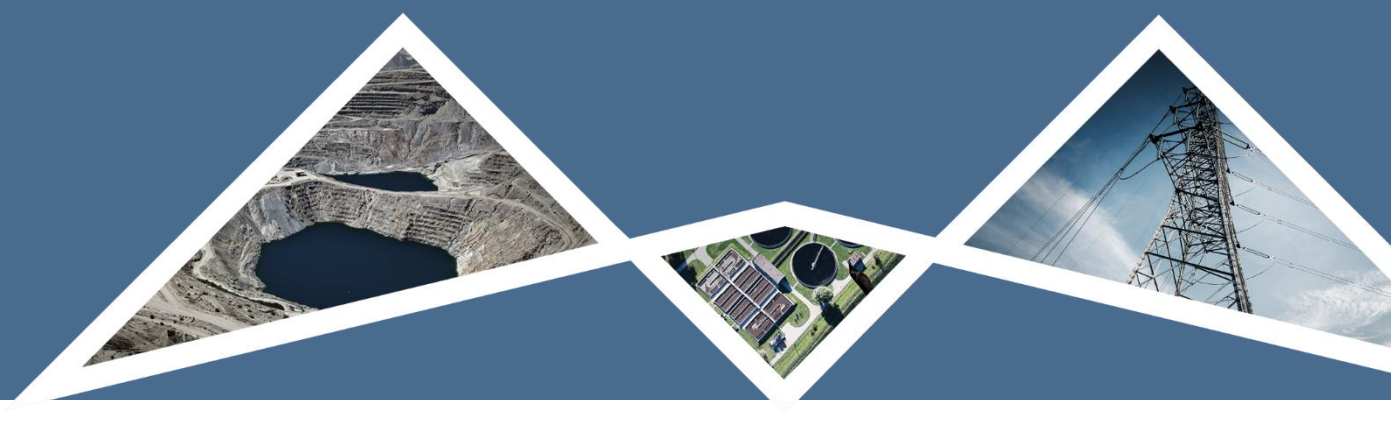
T 011 789 7170 E info@eims.co.za W www.eims.co.za

ENVIRONMENTAL MANAGEMENT PROGRAMME

GAMOHAAN SEVEN MILES 22KV POWERLINE

SEPTEMBER 2022

REFERENCE: 14/12/16/3/3/1/2625



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COMPILED:	Cheyenne Muthukarapan	Submitted electronically	2022/11/10
CHECKED:	Liam Whitlow	Submitted electronically	2022/11/10
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REVISION AND AMENDMENTS

REVISION DATE:	REV #	DESCRIPTION
2022/11/10	ORIGINAL DOCUMENT	EMPr for Public Review and Comment

Table of Contents

List of Figures

List of Tables

1 INTRODUCTION

The applicant, Eskom Holdings Soc. Ltd, Eskom Distribution – Northern Cape Operating Unit (hereafter referred to as Eskom, wishes to construct a 22kV powerline from the existing Gamohaan Substation towards Seven Miles where it will cross the Kuruman watercourse. The proposed construction of the powerline will require an Environmental Authorisation (EA) for the removal of indigenous vegetation and a General Authorisation (GA) for the crossing of the Kuruman watercourse. The proposed development will include the installation of a wooden pole of about 30cm in diameter for each pylon structure (~ 86 pylons required). A vertical drill will create a hole and the pole will be dropped in the hole by a crane. No cementing will be necessary. EIMS has been appointed by Eskom to undertake the EA and GA process for the project.

The proposed new 22kV powerline route will run from the existing Gamohaan substation along the R31 provincial road toward Kuruman town where the powerline will turn north at the Bathlaros intersection for 1,1km towards the community of Mamoratwe at which point the powerline will turn east towards Seven Miles where it will cross the Kuruman watercourse. The section of the proposed powerline that runs parallel to the R31 and then turns north towards Mamoratwe will require the surface removal of indigenous vegetation, using chainsaws and cutters, which will require an EA prior to commencement of the activity. The proposed powerline will be located on the remaining extent of the Farm Kuruman Reserve 690 (Figure 1). The proposed powerline can be divided into two sections. The Section 1 route runs parallel to R31. A preferred and alternative route for section 1 has been identified as indicated in Figure 1. Section 2 consists of only the preferred route as the route will run through an existing servitude towards the established community of Mamoratwe. The start, middle and end coordinates of the proposed powerline are:

- Start Point (Preferred): 27°22'45.905"S, 23°21'40.352"E;
- Start Point (Alternative): 27°22'45.476"S, 23°21'40.622"E;
- Middle Point (Preferred): 27°23'23.399"S, 23°22'55.254"E;
- End Point: 27°22'10.47"S, 23°24'11.682"E.

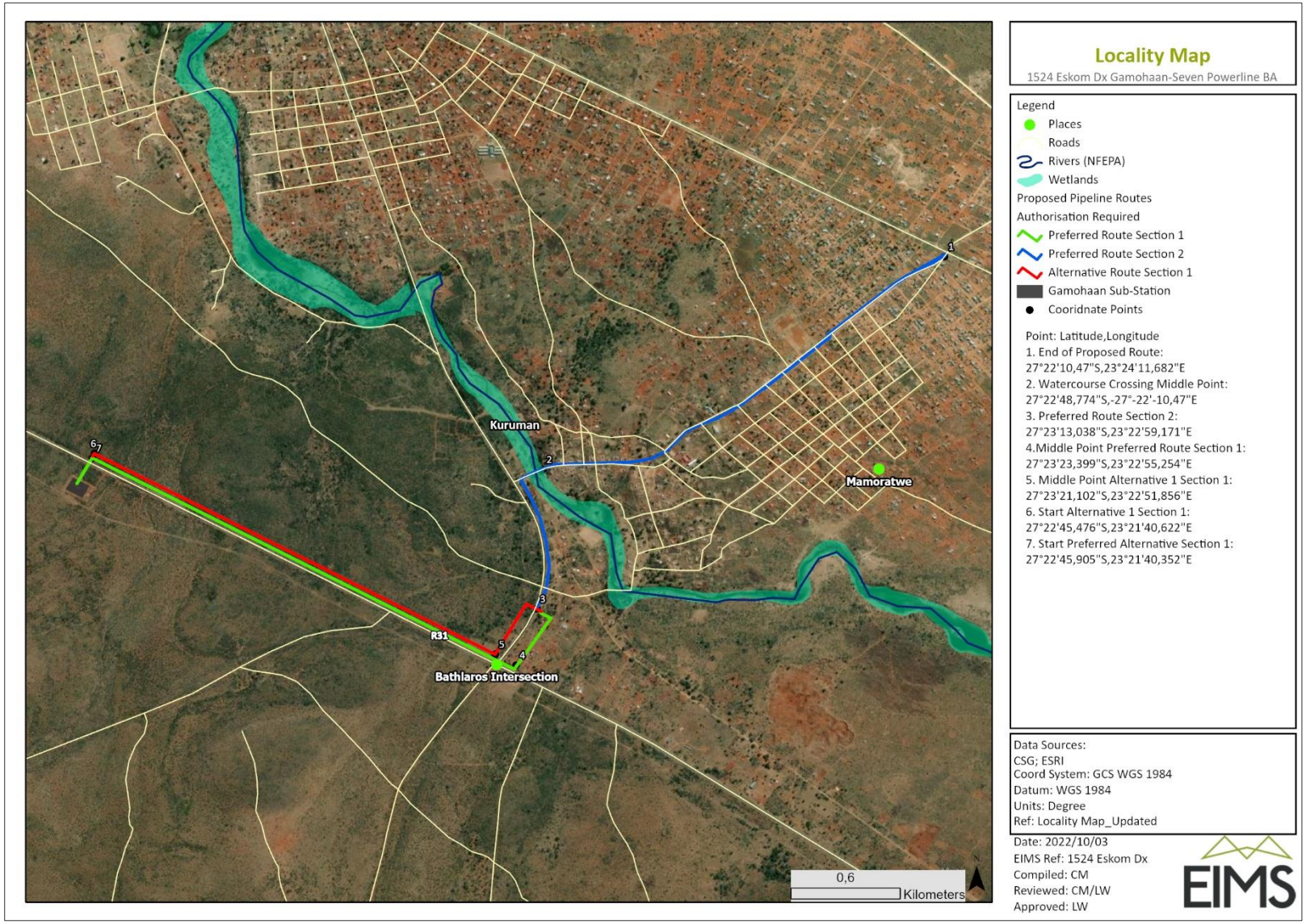

Figure 1: Locality Map of the proposed Gamohaan Seven Miles 22kV Powerline

2 SCOPE OF THIS REPORT

The purpose of the EMPr is to give effect to precautionary measures, which are to be put in place for controlling the activities that take place during the construction phase of the project. The EMPr also provides guidance to assist in ensuring compliance with relevant national legislative and regulatory requirements.

It should be noted, that the EMPr is a working document that should be updated on a regular basis, as and when necessary. Formal risk identification forms an integral part of EMPr management and assists with prioritizing and focusing the control of risks. The EMPr thus supports this on-going proactive mitigation and the duty of care to the environment. The EMPr shall therefore allow for risk minimization, rather than just ensuring legal compliance. The purpose of this EMPr is thus also to allow the user to make minor amendments to ensure continual revision and improvement of risk mitigation through the continual re-assessment of risks associated with the activity.

3 DOCUMENT STRUCTURE

This report has been compiled in accordance with the Appendix of the EIA Regulations, 2014 (Government Notice (GN) R982). A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 1 below.

Table 1: EMPr Structure

Appendix 4 Reference	Description	Section in EMPr
Appendix 4(1)(1)(a):	Details of – (i) The EAP who prepared the EMPR; and (ii) The expertise of that EAP to prepare an EMPR, including a curriculum vitae;	Section 4
Appendix 4(1)(1)(b):	A detailed description of the aspects of the activity that are covered by the EMPR as identified by the project description.	Section 5
Appendix 4(1)(1)(c):	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Section 1
Appendix 4(1)(1)(d):	A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified though the environmental impact assessment process for all phases of the development including – (i) Planning and design;	Section 14

Appendix 4 Reference	Description	Section in EMPr
	(ii) Pre-construction activities; (iii) Construction activities; and (iv) Rehabilitation of the environment after construction and where applicable post closure.	
Appendix 4(1)(1)(f):	A description of proposed impact management actions, identifying the manner in which the impact management contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to – (i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) Comply with any prescribed environmental management standards or practices; and (iii) Comply with any applicable provisions of the Act regarding closure, I the case of a closure activity.	Section 14
Appendix 4(1)(1)(g):	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 14
Appendix 4(1)(1)(h):	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 14
Appendix 4(1)(1)(i):	An indication of the persons who will be responsible for the implementation of the impact management actions;	Section 14
Appendix 4(1)(1)(j):	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 14
Appendix 4(1)(1)(k):	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 14
Appendix 4(1)(1)(l):	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 14
Appendix 4(1)(1)(m):	An environmental awareness plan describing the manner in which – (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 14 and section 12
Appendix 4(1)(1)(n):	Any specific information that may be required by the competent authority.	N/A

4 REQUIREMENTS OF AN EAP

The section below outlines the details of the EAP appointed to undertake the impact assessment and compile the associated reports. Details regarding specialist consultants and the expertise of the EAP are also provided below.

4.1 DETAILS OF EAP

EIMS was appointed by the Applicant to fulfil the role of Environmental Assessment Practitioner (EAP) to compile this report. The contact details of the EAP's who compiled the report are as follows:

Table 2: EAP Details

Name of Practitioner	Mr Liam Whitlow (Project Director/EAP)	Ms Cheyenne Muthukarapan (Project Manager/ Consultant)
Tel No.:	011 789 7170	011 789 7170
Fax No.:	086 571 9047	086 571 9047
E-mail:	liam@eims.co.za	cheyenne@eims.co.za

In terms of Regulation 13 of the EIA Regulations, 2014, an independent Environmental Assessment Practitioner (EAP), must be appointed by the applicant to manage the application. EIMS has been appointed by the Applicant as the EAP and is compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations and Section 1 of the NEMA. This includes, inter alia, the requirement that EIMS is:

- Objective and independent;
- Has expertise in conducting EIA's;
- Comply with the NEMA, the Regulations and all other applicable legislation;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

The Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the consultants that were involved in the BA process and the compilation of this report are attached as Appendix A of the BAR.

EIMS is a private and independent environmental management-consulting firm that was founded in 1993. EIMS has in excess of 28 years' experience in conducting EIAs, including many EIA's for mines and mining related projects.

Mr Liam Whitlow's professional experience, gained over more than 18 years, lies mainly with environmental impact assessments including project managing significantly large EIA's in the mining and infrastructure sectors. Liam's other experience includes ISO14001, Site Assessments, Water-use licensing, Environmental monitoring, and Environmental Management Plans. Liam's experience lies mainly within South Africa, but he has been involved in projects in both Lesotho and Botswana.

Ms Cheyenne Muthukarapan holds a Bachelor of Science degree in Environmental and Geographical Science from the University of Cape Town and an Advanced Diploma in Business Project Management from the University of Cape Town. Her expertise lies in impact assessments, public consultation/participation processes and sustainability consulting. She has participated in numerous public/stakeholder consultations in relation to environmental impacts, and the formulation of sustainable solutions to various environmental problems.

4.2 SPECIALIST CONSULTANTS

Specialist studies have been undertaken to address the key impacts that require further investigation, and these include:

- Ecological and Aquatic Assessment (undertaken by the Biodiversity Company); and
- Heritage and Palaeontological Assessment (undertaken by PGS (Pty) Ltd).

The specialist studies involved the gathering of data relevant to identifying and assessing environmental impacts that may occur as a result of the proposed project. These impacts were assessed according to pre-defined impact rating methodology. Mitigation / management measures to minimise potential negative impacts or enhance potential benefits are put forward in the BA Report. The specialist reports that informed the BA report are included in Appendix C.

5 PROJECT DESCRIPTION

The proposed project will include the construction of a 22kV powerline using wooden pole structures. Section 1 of the proposed powerline route will require the removal of natural vegetation. Where necessary, vegetation will be trimmed or cleared using chainsaws and cutters. As far as possible, the topsoil will not be disturbed during the construction process. A vertical drill will be used to drill a 2m to 3m deep hole in which the 30cm diameter wooden pole will be placed. The wooden poles will be placed in the hole using a crane. Due to the precision of the drill no cementing will be required. The erection of the wood pole structures after the structure has been assembled (the wood pole is fitted with a crossarm and 3 isolators) will take 3 days. Automatic stringing gear will be used to string the conductors between the poles. During the lifespan of the powerline on-going maintenance will be performed annually. Eskom maintenance staff and contractors employed by Eskom will undertake the maintenance works as required.

The clearance of indigenous vegetation for section 1 of the powerline will require environmental authorisation. Section 2 of the proposed powerline will cross the Kuruman watercourse and will require a general authorisation. An application for a general authorisation registration has been lodged with the Department of Human Settlements, Water and Sanitation (DHSWS). No clearance of vegetation will be required for section 2 of the powerline as the powerline will use an existing servitude running through the established community, however, several camel thorn trees will need to be trimmed or cut where necessary along the route. The placement of poles along the road for section 2 of the powerline will alternate on either side of the main road. The construction of the proposed powerline will use existing access roads therefore, no additional access routes will be required. The construction camp will either be located at the existing Gamohaan Substation, or the applicant will use an unoccupied, clear plot within the community. Table 3 outlines the activities applied for in terms of the NEMA for the proposed construction of the powerline.

Table 3: Listed and Specific Activity

Name of activity	Aerial extent of the activity	Listed Activity	Applicable listing notice	Environmental authorisation
Clearance of indigenous vegetation	The proposed activity will require the clearing of indigenous vegetation of more than 300 square metres inside a Critical Biodiversity Area 2 (CBA 2) and an Ecological Support Area. Approximately 30 000 square meters of vegetation will be impacted, where necessary for the construction of the powerline. Chainsaws and cutters will be used to trim and/or remove the vegetation. Topsoil disturbance will be limited to only where necessary. In addition, approximately 30 Camel Thorn Trees will be impacted, either through cutting or trimming, during the construction process.	X	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan G. Northern Cape: ii. Within critical biodiversity areas identified in bioregional plans.	X

6 SITE DESCRIPTION

Table 4 indicates the details of the project area for the proposed project including details on the project location as well as the distance from the proposed project area to the nearest towns.

Table 4: Project Area Description

Project Area	The proposed new 22kV powerline route will run from the existing Gamohaan substation along the R31 provincial road toward Kuruman Town where the powerline will turn north at the Bathlaros intersection for 1,1km towards the community of Mamoratwe at which point the powerline will turn east towards Seven Miles where it will cross the Kuruman watercourse.
Farm Name	The proposed linear activity will be located on portion 0 (remaining extent) of the farm Kuruman Reserve 690.
Local Municipality	Ga-Segonyana Local Municipality.
District Municipalities	John Taolo Gaetsewe District Municipality.
Distance from the nearest town	Approximately 10km of the Town Kuruman.
21 Digit Surveyor General code for affected property	C04100000000069000000

7 POTENTIAL IMPACTS IDENTIFIED

Potential impacts associated with the proposed activity at the selected site have been identified and addressed in the EMPr and are summarised in the table below:

Table 5: Positive and Negative Impacts of the Proposed Project

Impact	Positive or Negative	Phase
Destruction, loss and fragmentation of habitats (including wetlands), functional ecosystems and the vegetation community (including protected flora)	Negative	Construction
Introduction of IAP species and invasive fauna	Negative	Construction
Displacement of the indigenous faunal community (including SCC) due to habitat loss, direct mortalities, and disturbance (road collisions, noise, dust, light, vibration, and poaching)	Negative	Construction
Spilling of hazardous chemicals into the receiving environment, and the penetrating of these into sensitive habitats	Negative	Construction
Continued fragmentation and degradation of functional habitats and ecosystems (including that caused by spill events)	Negative	Operational
Continuing spread of IAP and weed species	Negative	Operational

Impact	Positive or Negative	Phase
Ongoing displacement and direct mortalities of the faunal community (including SCC) due to continued disturbance (road collisions, noise, light, dust, vibration, poaching, etc)	Negative	Operational
Increased erosion (high velocity surface run-off due to an increase in impervious surfaces, and the presence of bare land)	Negative	Operational
Bird collisions and electrocutions with newly established powerlines	Negative	Operational
Impact on heritage resources	Negative	Planning / Construction
Impact on palaeontology	Negative	Planning / Construction
Limited Job creation	Positive	Construction
Noise	Negative	Construction
Air Quality (dust)	Negative	Construction
Community Safety	Negative	Construction
Interference with existing land uses	Negative	Construction
Generation of waste	Negative	Construction
Increased capacity and flexibility to the network	Positive	Operation
Decreased strain on existing network	Positive	Operation

8 ENVIRONMENTAL MANAGEMENT APPROACH

The compilation of an EMPr for an activity which is likely to result in significant environmental impacts is typically compiled at the culmination of a thorough investigation into the receiving environment and the identification and assessment of likely environmental impacts (i.e. EIA). This EMPr forms part of a Basic Assessment process (under the provisions of the National Environmental Management Act (Act 107 of 1998) (NEMA). This EMPr aims to comply with the requirement of Appendix 4 of the EIA Regulations (GNR 982). These requirements are systematically addressed in the subsequent sections of this report. The primary objectives of the EMPr are as follows:

- To promote sustainability and describe an action programme to mitigate negative impacts as far as possible;
- To be a practical document that sets out both the goals and actions required in mitigation. Though the term “mitigation” can be broad in definition, it means in this context to “allay, moderate, palliate, temper or intensify.” Mitigation of a negative impact means that its effect is reduced. Mitigation of a positive impact means that its effect is increased or optimised; and
- To indicate responsibilities for the implementation of these action items within the EMPr.

This EMPr shall be deemed to have contractual standing on the basis that its contents and specifically objectives are a detailed expansion of the environmental risks and consequent requirements of the EA (if, and when issued). Where relevant the Applicant is responsible for delegating responsibility for compliance to designated parties (internal or external). Such delegation must be legally binding to the extent relevant.

The objectives and targets in this EMPr are further guided by the NEMA, and specifically by GNR982. Thus, the underlying principles of sustainable development are the ultimate objectives and target of this report. The EMPr has included measures to ensure the development activity complies with the following principles, as instilled in the NEMA, amongst others:

i. That the disturbance of ecosystems and loss of biological diversity are minimised and remedied;

ii. That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

iii. That waste is avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;

iv. That a risk-averse and cautious approach is applied, which considers the limits of current knowledge about the consequences of decisions and actions; and

v. That negative impacts on the environment and on people's environmental rights be anticipated, prevented and remedied.

NEMA establishes a general framework for environmental law, in part by prescribing national environmental management principles that must be applied when making decisions that may have a significant impact on the environment. These principles are briefly summarised below:

8.1 HOLISTIC PRINCIPLE

The Holistic principle, as defined by NEMA (Section 2(4) (b)) requires that environmental management must be integrated, acknowledging that all elements of the environment are linked and inter-related and it must take into account the effect of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option (defined below in Section 8.2). Holistic evaluation does not mean that a project must be looked at as a whole. It rather means that it must be accepted that there is a whole into which a project introduced. If the indications are that the project could have major adverse effects, the project must be reconsidered and where appropriate re-planned or relocated to avoid an adverse impact or to ensure a beneficial impact.

8.2 BEST PRACTICABLE ENVIRONMENTAL OPTION

When it is necessary to undertake any action with environmental impacts, the different options that could be considered for the purpose must be identified and defined. The Best Practicable Environmental Option (BPEO) is defined in NEMA as "the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term." Other guidelines typically used for environmental management in terms of other legislation include BPM which is the Best Practicable Means and BAT which is the Best Available Technology.

8.3 SUSTAINABLE DEVELOPMENT

The concept of sustainable development was introduced in the 1980's with the aim to ensure that the use of natural resources is such that our present needs are provided without compromising the ability of future generations to meet their own needs. The constitution of South Africa is built around the fact that everyone has the right to have the environment protected through reasonable legislative and other measures that secure

ecologically sustainable development. The National Environmental Principles included in the NEMA require development to be socially, environmentally and economically sustainable.

8.4 PREVENTATIVE PRINCIPLES

The preventative principle is fundamental to sustainable development and requires that the disturbance to ecosystems and the pollution, degradation of the environment and negative impacts on the environment be avoided, or, where they cannot be altogether avoided, are minimised and remedied.

8.5 THE PRECAUTIONARY PRINCIPLE

The precautionary principle requires that where there is uncertainty, based on available information, that an impact will be harmful to the environment, it is assumed, as a matter of precaution, that the said impact will be harmful to the environment until such time that it can be proven otherwise. The precautionary principle requires that decisions by the private sector, governments, institutions and individuals need to allow for and recognise conditions of uncertainty, particularly with respect to the possible environmental consequences of those decisions. In South Africa, the DHSWS (then DWAF) adopted a BPEO guideline in 1991 for water quality management and in 1994 in the Minimum Requirements document for waste management.

In terms of DWAF Minimum Requirements for the Handling and Disposal of Hazardous Waste, 1994, the precautionary principle is defined as, “Where a risk is unknown; the assumption of the worst-case situation and the making of provision for such a situation.” Here the precautionary principle assumes that a waste or an identified contaminant of a waste is “both highly hazardous and toxic until proven otherwise.”

In the context of the EIA process in South Africa, the precautionary principle also translates to a requirement to provide sound, scientifically based, information that is sufficient to provide the decision-making authority with reasonable grounds to understand the potential impacts on the environment, the extent thereof and how impacts could be mitigated. If such information is not adequate for this purpose, the relevant authority cannot be satisfied as is required and then the authority should require that further information be collected and provided.

8.6 DUTY OF CARE AND CRADLE TO GRAVE PRINCIPLE

In terms of the NEMA Section 28, “Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.”

By way of example, the principle of “duty of care” in terms of waste management emphasises the responsibility to make sure that waste is correctly stored and correctly transported, as it passes through the chain of custody to final point of disposal. This means that waste must always be stored safely and securely. The company removing and disposing of waste also holds the responsibility to hold the relevant licenses, and that waste is transported alongside the necessary paperwork.

“Cradle to Grave” refers to the responsibility a company takes for the entire life cycle of a product, service or program, from design to disposal or termination. In terms of the DWAF Minimum Requirements for the Handling and Disposal of Hazardous Waste, 1994, “any person who generates, transports, treats or disposes of waste must ensure that there is no unauthorised transfer or escape of waste from his control. Such a person must retain documentation describing both the waste and any related transactions. In this way, he retains responsibility for the waste generated or handled.” This places responsibility for a waste on the Generator and is supported by the "Cradle to Grave" principle, according to which a "manifest" accompanies each load of Hazardous Waste until it is responsibly and legally disposed. This manifest is transferred from one transporter to the next along with the load, should more than one transporter be involved. Once the waste is properly disposed of at a suitable, permitted facility, a copy of the manifest must be returned to the point of origin.” Duty of Care offers one strategy to implement sustainable development.

8.7 POLLUTER PAYS PRINCIPLE

The "polluter pays principle" holds that the person or organisation causing pollution is liable for any costs involved in cleaning it up or rehabilitating its effects. It is noted that the polluter will not always necessarily be the generator, as it is possible for responsibility for the safe handling, treatment or disposal of waste to pass from one competent contracting party to another. The polluter may therefore not be the generator but could be a disposal site operator or a transporter. Through the 'duty of care' principle, however, the generator will always be one of the parties held accountable for the pollution caused by the waste. Accordingly, the generator must be able to prove that the transferral of management of the waste was a responsible action. The polluter pays principle acceding to NEMA dictates that “the cost of remedying pollution, environmental degradation and consequent adverse effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.”

9 DUTY OF CARE RESPONSIBILITIES

Section 28 of the NEMA makes provision for duty of care, and remediation of environmental damage. The binding principles are described below:

1. Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

   (1A) Subsection (1) also applies to a significant pollution or degradation that-

   a) occurred before the commencement of this Act;

   b) arises or is likely to arise at a different time from the actual activity that caused the contamination; or

   c) arises through an act or activity of a person that results in a change to pre-existing contamination.

2. Without limiting the generality of the duty in subsection (1), the persons on whom subsection (1) imposes an obligation to take reasonable measures, include an owner of land or premises, a person in control of land or premises or a person who has a right to use the land or premises on which or in which-

   a) any activity or process is or was performed or undertaken; or

   b) any other situation exists, which causes, has caused or is likely to cause significant pollution or degradation of the environment.

3. The measures required in terms of subsection (1) may include measures to-

   a) investigate, assess and evaluate the impact on the environment;

   b) inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment;

c) cease, modify or control any act, activity or process causing the pollution or degradation;

d) contain or prevent the movement of pollutants or the cause of degradation;

e) eliminate any source of the pollution or degradation; or

f) remedy the effects of the pollution or degradation.

10 FAILURE TO COMPLY WITH ENVIRONMENTAL CONSIDERATIONS

Within the provisions of the relevant environmental legislation, there are a number of penalties for non-compliance or offences. Below a few extracts are presented for information purposes, however these must not be read in isolation and the reader is reminded that there are other Acts, or sections of Acts, that may be applicable to the relevant project:

- NEMA Section 49B(1): A person convicted of an offence in terms of section 49A(1)(a), (b), (c), (d), (e), (f) or (g) is liable to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years, or to both such fine or such imprisonment- this includes commencing with a listed activity without an EA or the non-compliance with conditions of any EA and associated EMPr;
- NEMA Section 49B(2): A person convicted of an offence in terms of section 49A(1)(i), (j) or (k) is liable to a fine not exceeding R5 million or to imprisonment for a period not exceeding 5 years, and in the case of a second or subsequent conviction to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years, and in both instances to both such fine and such imprisonment;
- NEMA Section 49B(3): A person convicted of an offence in terms of section 49A(1)(h), (l), (m), (n), (o) or (p) is liable to a fine or to imprisonment for a period not exceeding one year, or to both a fine and such imprisonment;
- NWA Section 151 (1c): No person may fail to comply with any condition attached to a permitted water use under this Act;
- NWA Section 151 (2): Any person who contravenes any provision of subsection (1) is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and, in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment;
- NEM:BA Section 102 (1): A person convicted of an offence in terms of section 101 is liable to a fine not exceeding R10 million, or an imprisonment for a period not exceeding ten years, or to both such a fine and such imprisonment;
- NEM:WA Section 68 (1): A person convicted of an offence referred to in section 67(1)(b), (c), (d), (e), (f), (i), (j), (k) or (l) or section 67(2)(a), (b), (c), (d) or (e) is liable to a fine not exceeding R5 000 000 or to imprisonment for a period not exceeding five years, or to both a fine and such imprisonment, in addition to any other penalty or award that may be imposed or made in terms of the National Environmental Management Act;
- NEM:WA Section 68 (2): A person convicted of an offence referred to in section 67(1)(b), (c), (d), (e), (f), (i), (j), (k) or (l) or section 67(2)(a), (b), (c), (d) or (e) is liable to a fine not exceeding R5 000 000 or to imprisonment for a period not exceeding five years, or to both a fine and such imprisonment, in addition to any other penalty or award that may be imposed or made in terms of the National Environmental Management Act;

- NEM:WA Section 68 (3): Any person convicted of an offence referred to in section 67(1)(m) is liable to a fine or to imprisonment for a period not exceeding six months or to both a fine and such imprisonment;
- NEM:WA Section 68 (4): A person who is convicted of an offence in terms of this Act and who persists after conviction in the act or omission that constituted the offence commits a continuing offence and is liable on conviction to a fine not exceeding R1 000 or to imprisonment for a period not exceeding 20 days, or to both such fine and such imprisonment, in respect of each day that person persists with that act or omission;

It is recommended that the EMPr should be enforced by the ECO and all workers on site should be made aware of the conditions contained with the EMPr. Non-compliances identified by the ECO should be recorded and raised with the applicant.

11 ROLES AND RESPONSIBILITIES

The applicant will be responsible for ensuring overall compliance with the provisions of the EMPr. Implementation is the key to the success of the EMPr. In order to ensure that the EMPr and its mitigation measures are implemented, roles and responsibilities need to be clearly defined and documented prior to commencement. This section serves as a guide on which party is normally responsible for certain tasks. Specific roles are designated in the specific environmental management and mitigation requirements in this EMPr.

11.1 THE PROJECT APPLICANT/PROPONENT

The applicant is the principal party (Proponent) of the project. For the purposes of this project, it is understood that the Applicant role is fulfilled by Eskom Holdings Soc. Ltd, Eskom Distribution – Northern Cape Operating Unit. The legal accountability for correct implementation of the relevant requirements of the EA and EMPr falls primarily upon the applicant and must therefore be built into all contractor's contractual agreements. The applicant's role typically includes:

- Provide for all necessary supervision during the execution of the project including appointment of key personnel to act on his/her behalf during the construction phase (e.g.: Project Manager). The key personnel will be tasked with ensuring that the various contractors/developers comply with the necessary provisions of the EA and EMPr;
- Ensure that the various contractors and applicable sub-contractors appoint a suitably qualified, competent Environmental Officer (EO) that will be responsible for among others, ensuring daily compliance with the EMPr and EA throughout the construction of the relevant project components;
- Appoint a suitably qualified, competent Environmental Control Officer (ECO) who will undertake periodic audits on the various contractors works and/or land parcels under development;
- Notify the relevant competent authority of changes in the development resulting in significant environmental impacts;
- Assess the various contractor's environmental performance during construction, in consultation with the ECO;
- Ensure compliance with regulations;
- To implement the projects as per the approved project plan;
- To ensure that implementation is conducted in an environmentally acceptable manner;
- To comply with special conditions as stipulated by surrounding landowners during the negotiation process (if any); and

- To inform and educate all employees about the environmental risks associated with the different activities that should be avoided during the construction process and lessen significant impacts to the environment.

Therefore, ultimately, the Applicant is responsible for the development and implementation of the EMPr and, where relevant, ensuring that the conditions in the EA are satisfied. Where construction activities are contracted out (e.g. to Contractors and Subcontractors), the liability associated with non-compliance still rests with the Applicant (unless otherwise agreed upon between the authorities, the Applicant and the contracting parties). The Applicant (and not the Contractor) is therefore responsible for liaising directly with the relevant authorities with respect to the preparation and implementation of the EMPr and meeting authorisation conditions.

11.2 THE PROJECT MANAGER

During the development, it is envisaged that there may be a number of contractors and sub-contractors undertaking various activities on the project. The Project Manager would oversee all contractors and sub-contractors from a project management point of view. The roles of the Project Manager typically include the following:

- The Project Manager acts on behalf of the Applicant regarding the administration of contracts to sub-contractors, etc.;
- Provides and/or approves scheduling, aspects of co-ordination and estimating;
- Ensures implementation of the project plan within cost, time and quality constraints;
- Ensures that implementation of EMPr is executed as planned; and
- Keeps the asset owner informed of progress made during the life cycle of the project.

11.3 THE ENVIRONMENTAL CONTROL OFFICER

The ECO is appointed by the Applicant. The ECO should have appropriate training and/or experience in the implementation of environmental management specifications. The ECO must preferably have a tertiary qualification in an Environmental Management or appropriate field. The ECO provides feedback to the Project Manager regarding all environmental matters. The ECO's key role is auditing the implementation of the EMPr. For the purposes of implementing the conditions contained herein, the Applicant should appoint the ECO well before the start of construction. The ECO is responsible for the auditing function as well as the clarification of environmental conditions contained in this EMPr to anyone working on the site.

The ECO roles include:

- Recommendations for review and update of the EMPr;
- Liaison between the Applicant, Contractors, authorities and other lead stakeholders on high importance environmental concerns;
- Conducting a pre-construction survey of the site prior to construction;
- Review the site induction training to ensure environmental issues receive adequate attention and important site-specific issues are included;
- Conduct environmental audits of the site/contractors including relevant documentation on a monthly basis;
- Validating the regular site inspection reports, which are to be prepared by the relevant contractor EO's;
- Maintain a record of all non-conformances and incidents to ensure that measures are put in place to remedy such;

- Maintain a public consultation register in which all complaints are recorded, as well as action taken; and
- Verification that all environmental monitoring programmes (sampling, measuring, recording etc. when specified) are carried out according to protocols and schedules.

It is important to note that where opportunity for interpretation occurs within the conditions of this EMPr, the interpretation of the ECO will take preference.

11.4 THE CONTRACTOR

The contractor is usually a third party appointed by the applicant/project manager to undertake the actual construction of the project. In some cases, the development components may also be undertaken by third party developers with their own contractors and sub-contractors. For the purposes of this section, any contractor on site (regardless of who appointed them) is referred to as the "contractor".

The relevant contractors are answerable to the Project Manager and ECO for all environmental issues associated with the project. Contractor performance will, amongst others, be assessed on health, safety and environmental management criteria. The principal contractor/s, any other contractors and sub-contractors will be required to comply with the provisions contained herein, and accordingly, the EMPr and its provisions must form part of any contractual arrangements between the applicant and contractors, and contractors and their sub-contractors, etc. The contractor must comply with the EMPr during construction and ensure that all his employees and sub-contractors appointed by him/her are familiar with the EMPr. The legal accountability for correct implementation of the relevant requirements of the EA and EMPr must be contractually bound to the appointed contractor.

The Contractors role includes:

- Provide all necessary supervision during the execution of the project;
- Appoint a suitably qualified, competent EO that will be responsible for amongst others, ensuring daily compliance with the EMPr, EA during the construction phase;
- To implement the projects as per the approved project plan;
- To ensure that implementation is conducted in an environmentally acceptable manner;
- To fulfil all obligations as per the agreed contract;
- To comply with special conditions as stipulated by surrounding Landowners during the negotiation process (if any); and
- Ensure that the Contractors staff and employees have received the appropriate environmental awareness training prior to commencing construction.

11.5 THE CONTRACTORS ENVIRONMENTAL OFFICER

The principle contractor shall appoint an Environmental Officer (EO), who is responsible for the on-site implementation of the EMPr. The Contractor must ensure that the Contractor's EO is suitably qualified and competent to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the ECO and the public. The Contractor's EO ensures that all Sub contractors working under the Contractor and sub-contractors abide by the requirements of the EMPr. The appointment of additional EO's and/or sub-contractors EO's is at the ECO's discretion. The costs related to the implementation of the EMPr will be the responsibility of the relevant Contractor/ Sub-contractor.

The Contractor's EO roles will include:

- Preparing activity based Environmental Method Statements where applicable and where required by the ECO;

- Review the contractors safe work procedures/risk assessments/induction training/DSTI's (daily safe task instruction) during the construction phase and include information relating to the relevant environmental risks and appropriate mitigation measures;
- Support the ECO in monitoring by maintaining a permanent presence on site;
- Establishing and maintaining an environmental incident register;
- Taking required corrective action within specified time frame in respect of non-conformances and environmental incidents;
- Assist in finding environmentally acceptable solutions to construction problems;
- Attendance at HSE meetings, toolbox talks and induction programmes (where relevant);
- Inspect the site as required to ensure adherence to the management actions of the EMPr on a daily basis;
- Complete a daily diary with the purpose of recording environmental issues and corrective measures on a daily basis;
- Report any complaints to the ECO to be captured in the Consultation register;
- Liaise with the construction team on issues related to implementation of, and compliance with the EMPr;
- Ensure adequate and compliant waste management; and
- Ensuring that environmental signage and barriers are correctly placed and maintained.

11.6 THE AUTHORITIES

The authorities that should be involved include the Department of Fisheries, Forestry and Environment and the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform. The authorities may be required to perform the following roles:

- Review Monitoring and Audit reports, if required;
- Review whether there is compliance by the Applicant and Contractor with the terms of the EMPr and permit/license conditions. Whenever necessary, the authorities should assist the Applicant in understanding and meeting the specified requirements; and
- The authorities may perform random controls to check compliance. In case of persistent non-compliance, the Applicant will be required to provide an action plan with corrective measures, and have it approved by the authorities.

11.7 ENVIRONMENTAL MANAGEMENT SYSTEM

The purpose of this EMPr is to ensure that the environment is properly considered during the design, construction, operations, and decommissioning, and that negative impacts are minimised or prevented, and positive impacts enhanced. At the same time the EMPr should provide a logical extension of the EIA, specialist studies, or any other technical planning and assessment documentation, to ensure that recommendations are implemented, and that the project does not deviate from the environmental profile that formed the basis of the assessment.

11.8 DOCUMENT CONTROL

A formal document control system should be established. The document control system must provide for the following requirements:

- Documents are approved for adequacy prior to use;
- Review and update documents as necessary and re-approve documents;
- Ensure that changes and the current version status of documents are identified;
- Ensure that relevant versions of applicable documents are available at points of use;
- Ensure that documents remain legible and readily identifiable;
- Ensure that documents of external origin necessary for the EMPr are identified and their distribution controlled; and
- Prevent unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

The responsibility for establishing a suitable document control system rests with the Project Manager.

11.9 RECORD KEEPING

It is essential that an official procedure for control of records be developed to ensure records required to demonstrate conformity to environmental standards are maintained. The Applicant, or the Project manager (if assigned) is therefore required to develop and maintain a procedure for the identification, storage, protection, retrieval, retention and disposal of records as part of the EMPr. Records must be legible, identifiable and traceable.

11.10 AUDITING AND REPORTING PROCEDURES

Reporting procedures must be developed at the start of the project, for conveying information from the compliance monitoring activities and to ensure that management is able to take rapid corrective action should certain thresholds be exceeded. Different reporting procedures may include:

- Inspections;
- Accidents and emergencies;
- Measuring performance indicators and interpreting and acting on the indicators;
- Records of monitoring activities to test the effectiveness of mitigation measures and impact controls, as well as for compliance auditing purposes; and
- Training programmes and evidence of appropriate levels/amount of skills/capacities created.

All monitoring and auditing must be accompanied by applicable records and evidence (e.g. delivery slips, photographic records, etc.). All reports must be retained and made available for inspection by the ECO, the Applicant and /or the Relevant Competent Authorities. All reports shall be signed by the relevant parties to ensure accountability. The Applicant must use the audit report findings to continually ensure that environmental protection measures are working effectively on site through a system of self-checking. The EMPr should be viewed as a dynamic document aimed at continual environmental performance improvement.

The following auditing and reporting shall be required throughout the construction phase:

- Pre-Construction Audit Report: The ECO must compile a pre-construction audit report (audits) which is to be submitted to the Applicant for review prior to construction. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified. Depending on the outcome of the permitting processes it may be a requirement to submit these to the relevant authorities.
- Daily Monitoring: any non-compliance identified during construction needs to be recorded and raised by the contractor EO with the contractor management/project manager for immediate attention.

- Post-Construction Audit Report: The ECO must compile a detailed post-construction audit report (audit) which is to be submitted to the Applicant for review and correction of any non-compliances. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified. Depending on the outcome of the permitting processes it may be a requirement to submit these to the relevant authorities.

11.11 RESPONDING TO NON-COMPLIANCES

Non-compliance will be identified and managed through the following four key activities including:

- Inspections of the site and activities across the site;
- Monitoring of selected environmental quality variables;
- Audits of the site and relevant documentation as well as specific activities; and
- Monitoring on a daily basis and highlighting any risks.

An environmental non-conformance and incident register must be prepared and maintained by the ECO throughout the construction phase in order to track and monitor environmental concerns, incidents, and non-conformances. The register must include details of date, location, description of the NC or Incident, applicable environmental commitment/standard, corrective action taken, adequacy of corrective action, date rectified, etc.

Non-compliance with the EMPr or any other environmental legislation, specifications or standards shall be recorded by the ECO in the non-conformance register. This register shall be maintained by the ECO and will be sent to the Applicant and Contractor on a regular basis (monthly), and the Applicant shall ensure that the responsible party takes the necessary corrective actions. Non-conformances may only be closed out in the register by the ECO upon confirmation that adequate corrective action has been taken and/or documented proof provided. The register should be utilised to measure overall environmental performance.

11.12 ENVIRONMENTAL INCIDENCES

For the purposes of this project, an environmental incident can be divided into three levels, i.e. major, medium and minor. All Major and Medium environmental incidents shall be recorded in the ECO's non-conformance and incident register. Minor incidents shall be recorded by the contractor, and by the Applicant (operational phase) in their own incident register. Definitions and examples of environmental incidents are provided in Table 6.

Table 6: Description of incidents and non-conformances for the purpose of the project

Non-Conformance	Any deviation from work standards, practices, procedures, regulations, management system performance etc. that could either directly or indirectly lead to injury or illness, property damage, damage to the workplace environment, legal transgression or a combination of these.
Major Environmental Incident	An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in widespread, long-term, irreversible significant negative impact on the environment and/or has a high risk of legal liability. A major environmental incident usually results in a significant pollution and may entail risk of public danger. Major environmental incidents usually remain an irreversible impact even with the involvement of long-term external intervention i.e. expertise, best available technology, remedial actions, excessive financial cost etc. Major environmental incidents may be required to be reported to the authorities. The ECO shall make the final decision as to whether a particular incident should be classified as a Major incident. An example of a Major environmental incident would be a significant spillage (e.g. 500 litres) of fuel into a watercourse.

Medium Environmental Incident	An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in widespread or localised, short term, reversible significant negative impact on the environment and/or has a risk of legal liability. A medium environmental incident may be reported to the authorities, can result in significant pollution or may entail risk of public danger. The impact of medium environmental incidents should be reversible within a short to medium term with or without intervention. The ECO shall make the final decision as to whether a particular incident should be classified as a Medium incident. An example of a Medium environmental incident would be a large spill of fuel (e.g. >50 litres) onto land.
Minor Environmental Incident	An incident or sequel of incidents, whether immediate or delayed, where the environmental impact is negligible immediately after occurrence and/or once-off intervention on the day of occurrence. An incident where there is unnecessary wastage of a natural resource is also classified as a minor environmental incident. An example would be leaking water pipes that result in the wastage of water. A minor environmental incident is not reportable to authorities. An example of a minor incident is day to day spills of fuel or oil onto the ground where the spill is less than five (5) litres.

The following incident reporting procedures shall apply to this project:

- All environmental incidents shall be reported to Contractor's EO, and the ECO, and shall be recorded in the contractors' respective incident registers;
- The ECO shall record the incident in the non-conformance and incident register and advise on the appropriate measures and timeframes for corrective action;
- An incident report shall be completed by the relevant party responsible for the incident for all medium and major incidents and the report shall be submitted to the Project Manager and ECO within 5 calendar days of the incident;
- The EO shall investigate all incidents and identify any required actions to prevent a recurrence of such incidents; and
- In the event of an emergency incident (unexpected sudden occurrence), including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed, the Applicant shall notify the relevant authorities in accordance with Section 30(3) of the NEMA. The Applicant shall engage the ECO who shall assess all major incidents and shall advise the Applicant when any such incident must be reported to the authorities as per the above requirement.

12 ENVIRONMENTAL AWARENESS PLAN AND TRAINING

Training and environmental awareness is an integral part of a complete EMPr. The overall aim of the training will be to ensure that all site staff are informed of their relevant requirements and obligations pertaining to the relevant authorisations, licences, permits and the approved EMPr and protection of the environment.

The applicant and contractor must ensure that all relevant employees are trained and capable of carrying out their duties in an environmentally responsible and compliant manner and are capable of complying with the relevant environmental requirements. To obtain buy-in from staff, individual employees need to be involved in:

- Identifying the relevant risk;

- Understanding the nature of risks;
- Devising risk controls; and
- Given incentive to implement the controls in terms of legal obligations.

The Applicant shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. All training must be formally recorded, and attendance registers retained. The environmental training should, as a minimum, include the following:

- General background and definition of the environment;
- The importance of compliance with all environmental policies;
- The environmental impacts, actual or potential, of their work activities;
- Compliance with mitigation measures proposed for sensitive areas;
- Their roles and responsibilities in achieving compliance with the environmental policy and procedures and with the requirement of the applicant's environmental management systems, including emergency preparedness and response requirements;
- The potential consequences (legal and/or other) of departure from specified operating procedures including fines (where applicable);
- The mitigation measures required to be implemented when carrying out their work activities; and
- All operational risks must be identified, and processes established to mitigate such risk, proactively. Thus, the applicant needs to inform the employees of any environmental risks that may result from their work, and how these risks must be dealt with in order to avoid pollution and/or degradation of the environment.

13 EMERGENCY RESPONSE PLAN

The Applicant must identify potential emergencies and develop procedures for preventing and responding to them. There are several options for dealing with high priority impacts and risks, as the paradigm has two components, probability and consequence. The design of control measures rests on understanding the cause and effect. Best practise is to intervene with the ultimate factors where feasible, rather than treat the outcomes. Emergency response therefore has the option of reducing probability or reducing the consequence while reducing the probability is the preferred option. Below are some common emergency preparedness approaches:

- Threat consequence if a risk eventuates, when the risk becomes an issue;
- Combine reducing the probability and treating the consequence;
- Offset environmental losses by investing in other assets;
- Not manage some of the risks because there are too many; and
- Make provision to manage residual impacts or issues that arise because of shortcomings in risk identification and rating, avoidance and mitigation or because a rare event has occurred.

Residual impacts are those impacts that despite reducing the probability and consequence might still occur. In these cases, parties will have to be compensated, pollution cleaned up and damage to the environment remediated.

The Applicant shall be required to implement the existing Eskom Emergency Preparedness and Response Plan during construction. The Applicant must ensure that the Emergency Preparedness and Response Plan makes provision for environmental emergencies, including, but not limited to:

- Fire Prevention;
- Fire Emergency Response;
- Spill prevention;
- Spill Response;
- Contamination of a water resource;
- Accidents to employees; and
- Use of hazardous substances and materials, etc.

The Applicant and Contractor must ensure that lists of all emergency telephone numbers/contact persons (including fire control) are kept up to date and that all numbers and names are posted at relevant locations throughout the lifespan of the project.

13.1 SPILL RESPONSE PROCEDURE

The Contractor must ensure that all employees, staff and labourers are informed and instructed regarding implementation of spill prevention measures and spill response procedures. In the event of a spill, the following general requirements shall apply, and the detailed spill procedure must cater for these requirements;

- Immediately reporting of spills by all employees and/or visitors to the relevant supervisor and EO (this requirement must be including in induction training);
- Take immediate action to contain or stop the spill where it is safe to do so;
- Contain the spill and prevent its further spread (e.g. earth berm or oil absorbent materials for spill to land or by deploying booms and/or absorbent material for a spill to water);
- Dispose of any contaminated soil or materials according to appropriate waste disposal procedure. Note: Waste from spills of hazardous materials shall be disposed of as hazardous waste at a suitably licensed waste disposal facility;
- The Contractor's EO shall record details of the spill in their respective incident registers;
- Photographic evidence shall be obtained of the spill clean-up.

In the case of large spills, the services of a specialist spill response agency shall be required, who shall advise on appropriate clean-up procedures and follow-up monitoring (if required). The incident procedures as defined in Section 11.12 shall also apply.

The Applicant must also, (as per Section 30 of the NEMA) notify the Director-General (DFFE and NDAEARDLR), South African Police Services, Provincial Environmental Authority, the Local Municipality, and any persons whose health may be affected of the nature of an incident including:

Any risks posed to public health, safety and property,

Toxicity of the substance or by products released by the incident and

Any step taken to avoid or minimise the effects of the incident on public health and the environment.

13.2 MEASURE TO CONTROL OR REMEDY ANY CAUSES

The broad measures to control or remedy any causes of pollution or environmental degradation as a result of the proposed activities taking place on the project are provided below:

- Limit the size of the area to be disturbed as far as is practically possible;
- Ensure that the environmentally sensitive areas are adequately demarcated throughout the construction phase;
- Ensure the timeous clean-up of any spills;
- Implement a waste management system for all waste streams present on site;
- Investigate any I&AP claims of pollution or contamination as a result of the project activities; and
- Rehabilitate the site in line with the recommendations of the specialist study.

14 MANAGEMENT AND MITIGATION

It is important to note that authorisation is for the construction of a 22kV powerline partially constructed in a CBA and ESA with a section crossing the Kuruman watercourse. Therefore, the mitigation measures put forward are to limit the impact of the proposed activity on the natural environment in line with the application for Environmental Authorisation for the removal of vegetation.

Table 7: Impact Management and Mitigation Measures

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
14.1 LEGAL COMPLIANCE							
A	The Applicant shall identify and comply with all relevant national, provincial and local legislation, including associated regulations and by-laws and shall establish and maintain procedures to keep track of, document and ensure compliance with environmental legislative changes.	Planning Construction Operational	Prior to construction and ongoing	Applicant	Applicant (Annually)	Ensure compliance with relevant legislation.	Up to date legal register. (Legal register) Annual Maintenance

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
14.2 EMPR COMPLIANCE							
A	This EMPr should be adhered to during the construction phase of the project.	Planning Construction	Construction	Applicant	EO (daily) Pre-construction and post construction audit report	Ensures compliance with this EMPr.	The EO should capture any non-compliance or incidents in an incident register. The EO should conduct daily site inspections during construction and report on incidents or non-compliances as per Section **11.12** of this EMPr. The ECO shall advise in writing on any required changes to the EMPr.
14.3 APPOINTMENT OF ECO							
A	The Applicant shall appoint a suitably qualified ECO. The ECO must preferably have a tertiary qualification in Environmental Management or appropriate environmental science field. The ECO should have appropriate qualification and experience in the implementation of environmental management specifications. For the purposes of implementing the conditions	Planning	Prior to construction	Applicant	Applicant (once off prior to construction)	Appoint ECO to ensure monitoring of successful implementation of the EMPr.	Confirmation that ECO has been appointed and is suitably qualified to perform the duties contained in this EMPr. (ECO appointment and CV)

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	contained in this EMPr. The Applicant shall provide the ECO with the necessary support to ensure that the environmental aspects relating to the development is adhered to. The appointment of the ECO shall remain in force until all obligations of this EMPr have been met (e.g. including conclusion of construction).						
14.4 PLANNING AND DESIGN							
B	The following permitting, licensing or authorisations have been identified: • Section 21(c) and 21(i) of the National Water Act (36 of 1998) applies for the watercourses that will be impacted by the construction of the powerline • The above-mentioned water uses may not commence without the relevant permits being issued by DWS.	Planning	Prior to construction	Applicant	EO (Once-Off)	Ensure compliance with relevant legislation	Permit acquired
14.5 SAFETY AND TRAFFIC MANAGEMENT							
A	The Applicant through the Project Manager shall ensure:	Construction	Ongoing	Project Manager Contractor	Safety Department	Ensure compliance with legal provisions of OHSA.	(safety reports) (safety audits)

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	• That reasonable measures are taken to ensure the safety of all site staff. • Provide appropriate Personal Protective Equipment (PPE) where required. • Compliance with the Occupational Health and Safety Act (Act No. 85 of 1993) and associated regulations. • That all construction vehicles using public roads are in a roadworthy condition, that they adhere to the speed limits and that their loads are secured and that all local, provincial and national regulations are adhered to. • The applicant/ contractor must ensure that regular users of the nearby roads are not unreasonably delayed due to construction activities. • That all accidents and incidents are recorded and reported to the Project Manager and EO/ECO. • The Applicant and Contractor must ensure that he/she has the contact details of the nearest emergency rooms						

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	(hospitals) to the site, of both private and public hospitals. • That-site vehicles are limited to approved access routes and areas (including turning circles and parking) on the site so as to minimise excessive environmental disturbance to the soil and vegetation, and to minimise disruption of traffic. • That visible warning signage is in place to indicate the construction activities to other road users. • That the construction vehicle speeds are reduced to a maximum of 40km/h near the construction site.						
14.6 SOCIO-ECONOMIC CONSIDERATIONS							
A	• The Project manager must ensure that a complaints register is established and maintained for the recording of public and community comments and concerns. The comments and concerns must be addressed as far as reasonable possible.	Construction	Prior to construction Ongoing during construction	Applicant/ Project manager	EO Daily	Ensure that socio-economic considerations are considered and implemented where necessary	Preparation and maintenance of a consultation register. (Daily monitoring) (Consultation register)

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
14.7 FLORA AND FAUNAL MANAGEMENT							
A	Unnecessary disturbance to flora and fauna must be prevented, this includes amongst others: • All protected flora must be clearly demarcated prior to the commencement of site clearing. If construction activities are likely to affect any protected plants, these individuals should be relocated as part of a plant search and rescue plan and a permit must be obtained before doing so. • All high sensitivity areas should be avoided, and these areas should be clearly demarcated by non-hazardous/dangerous fencing or temporary tape. Powerline support poles must not be planted within high sensitivity areas. • Laydown and construction preparation activities (such as cement mixing, temporary toilets, etc.) must be limited to the 'Low' sensitivity areas. • The clearing of vegetation must be minimized where possible. All activities	Construction	Construction phase	EO	EO (Daily) (Post construction)	Limit disturbance to flora and fauna.	Visual confirmation of compliance with EMPr conditions. Daily mentoring

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	must be restricted to within the authorised areas. It is recommended that areas to be developed be specifically and responsibly demarcated so that during the construction phase only the demarcated areas be impacted upon. • No workers or machinery is to be allowed outside of the construction areas, especially where these occur adjacent to high-sensitivity wetland habitat. • Existing access routes, especially roads, must be made use of. • Any materials may not be stored for extended periods of time and must be removed from the PAOI once the construction phase has been concluded. No permanent construction phase structures should be permitted. Construction buildings should preferably be prefabricated or constructed of re-usable/recyclable materials. No storage of vehicles or equipment will be allowed outside of the designated laydown areas. • Areas that are denuded during construction need to be re-vegetated with indigenous vegetation according to						

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	a habitat rehabilitation plan, to prevent erosion during flood and wind events and to promote the regeneration of functional habitat. This will also reduce the likelihood of encroachment by invasive alien plant species. All grazing mammals must be kept out of the areas that have recently been re-planted. • A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site. o Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use. o No servicing of equipment on site unless necessary. o All contaminated soil / yard stone shall be treated in situ or						

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	removed and be placed in containers. o Appropriately contain any generator diesel storage tanks, machinery spills (e.g., accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them from leaking and entering the environment. o Construction activities and vehicles could cause spillages of lubricants, fuels and waste material negatively affecting the functioning of the ecosystem. o All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas outside of the project area. • It must be made an offence for any staff to take/ bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of						

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	exotic or invasive species or the illegal collection of plants. • The existing Eskom fire management plan needs to be implemented to restrict the impact fire would have on the surrounding areas. • All construction waste must be removed from site at the closure of the construction phase. • New powerlines must make use of existing supportive infrastructure (i.e., bridges and cleared areas). • A qualified environmental control officer must be on site when activities begin. A site walk through is recommended by a suitably qualified ecologist prior to any activities taking place and any SCC or protected species should be noted. In situations where these species are observed and must be removed, the proponent may only do so after the required permission/permits have been obtained in accordance with national and provincial legislation. In the abovementioned situation the development and implementation of a						

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	search, rescue and recovery program is suggested for the protection of these species. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated. • Clearing and disturbance activities must be conducted in a progressive linear manner and over several days, so as to provide an easy escape route for all small mammals and herpetofauna. • The areas to be disturbed should be specifically and responsibly temporarily demarcated to prevent the movement of staff or any individual into the surrounding environments, signs must be put up to enforce this. • The duration of the activities should be minimized to as short a term as possible, to reduce the period of disturbance on fauna. • Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible						

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	disturbances to reptile species and nocturnal mammals. • No trapping, killing, or poisoning of any wildlife is to be allowed. Monitoring must take place in this regard. • All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must be enforced to ensure that road killings and erosion is limited. • Any holes/deep excavations must be dug and planted in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in, and subsequently inspected prior to backfilling. • Use environmentally friendly cleaning and dust suppressant products.						

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
B	• Access roads must be demarcated and the indiscriminate movement of construction vehicles and personnel outside of these demarcated areas must be strictly prohibited. • Regularly inspection and service of construction vehicles to ensure there are no leaks. Use bunded surfaces and drip trays within designated areas for re-fuelling vehicles. Clean up any spillages, immediately. Remove contaminated soil and dispose of it appropriately. • Construction activities must be limited to 07h00 to 17h00 during weekdays. Should there be a need to complete construction over the weekend construction hours will be negotiated with the affected community.	Planning and construction	Ongoing	Contractor and EO	EO	Disturbance of natural environment Leaks of fuel and oils are avoided	Daily monitoring
C	Vegetation Removal: • Indigenous vegetation which does not interfere with the development must be left undisturbed; • Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species;	Construction	Ongoing	EO	EO	Erosion and sedimentation of wetlands is avoided	ECO post construction audit

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	• Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; • Permits for removal must be obtained from the Department of Agriculture, Forestry and Fisheries prior to the cutting or clearing of the affected species, and they must be filed; • The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; • Trees felled due to construction must be documented and form part of the Environmental Audit Report; • Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; • No herbicides must be used in estuaries; **Servitude:** • Vegetation that does not grow high enough to cause interference with overhead transmission and distribution						

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	infrastructures, or cause a fire hazard must not be cut or trimmed unless it is growing in the road access area, and then only at the discretion of the Project Manager; • Where clearing for access purposes is essential, the maximum width to be cleared within the servitude must be in accordance to distance as agreed between the land owner and the EA holder • Vegetation must be trimmed where it is likely to intrude on the minimum vegetation clearance distance (MVCD) or will intrude on this distance before the next scheduled clearance. MVCD is determined from SANS 10280.						
E	• Alien vegetation will be managed in compliance with the Eskom standard "Monitoring, Control and Eradication Plan for Invasive Species on Eskom Land ENV16-R175. • Removal of alien and invasive species as listed by NEMBA Alien and Invasive Species Regulations (GN R598 of 2014).	Planning and construction Operations	Ongoing	Contractor and EO	EO(Weekly)	All specified alien and invasive species are removed	ECO monthly checklist/report

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	• The Contractor will be responsible for clearing and destroying any newly emerging alien invasive plants. • During operations, prevent the spread of alien invasive plants (as required in terms of the NEMBA regulations). • It is recommended that any species noted are removed by hand.						
F	Staff should be educated about the sensitivity of faunal species and measures should be put in place to deal with any species that are encountered during the construction process. The intentional killing of any animals including snakes, lizards, birds or other animals should be strictly prohibited.	Construction and Operations	Ongoing	Applicant and Contractor	EO (Weekly) EO (Monthly)	To protect fauna recorded on site	Visual assessment of site EO weekly reports ECO monthly reports Induction/Training records
H	The following road construction specific mitigation measures are provided: • The footprint area of the road and stormwater infrastructure should be kept a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas.	Construction	Ongoing	Contractor	Daily Monitoring	To protect water resources intersected by the road and minimize erosion and sedimentation	Demarcation of development footprint area Post-construction audit

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	• All construction activities and access must make use of the existing road.						
14.8 Alien Species							
A	• The footprint area of the construction should be kept to a minimum. The footprint area should be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Footprints of the roads must be kept to prescribed widths. • Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. A location specific waste management plan must be put in place to limit the presence of rodents and pests and waste must not be allowed to enter surrounding areas.	Construction	Ongoing	Contractor	EO daily monitoring	To protect water resources intersected by the road and minimize degradation of watercourses	Post-construction audit

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
14.9 SOIL MANAGEMENT AND EROSION CONTROL							
A	Soil Management and Erosion Control Measures • Only existing access routes and walking paths may be made use of. • Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events etc.	Construction	Construction phase	EO	EO daily monitoring	No loss of topsoil.	Visual confirmation of compliance with EMPr conditions.
14.10 Dust							
A	• Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes wetting of exposed soft soil surfaces • No non-environmentally friendly suppressants may be used as this could result in the pollution of water sources.	Construction	Construction phase	Applicant Contractor	EO daily monitoring	Ensure that no excessive dust or air quality impacts are perceived	Visual confirmation of compliance with EMPr conditions.
14.11 Waste Management							
A	• Waste management must be a priority and all waste must be collected and stored effectively and responsibly according to a site-specific waste	Construction	Construction (ongoing)	Applicant Contractor	EO daily monitoring	Adequate waste management	Visual confirmation of compliance with EMPr conditions.

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	management plan. Dangerous waste such as metal wires and glass must only be stored in fully sealed and secure containers, before being moved off site as soon as possible. • Litter, spills, fuels, chemical and human waste in and around the project area must be minimised and controlled according to the waste management plan. • A minimum of one toilet must be provided per 10 persons. Portable toilets must be pumped dry to ensure the system does not degrade over time and spill into the surrounding area. • The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility within every 10 days at least. • Where a registered disposal facility is not available close to the project area, the Contractor shall provide a method statement with regards to waste management. Under no circumstances						

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	may domestic waste be burned on site or buried on open pits. • Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Maximum domestic waste storage period will be 10 days.						
14.12	HAZARDOUS SUBSTANCE MANAGEMENT						
A	• All hazardous substances (e.g. fuel, grease, oil, brake fluid, hydraulic fluid) must be handled, stored and disposed of in a safe and responsible manner (in accordance with relevant MSDS) to prevent pollution of the environment or harm to people or animals. • Appropriate measures must be implemented to prevent spillage and appropriate steps must be taken to prevent pollution in the event of a spill.	Construction Operation	Ongoing	Applicant Contractor	EO Daily Monitoring	Appropriate hazardous storage to reduce potential for pollution of environment.	Visual observation that hazardous substance storage complies with EMPr requirements and relevant norms and standards.

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
14.13	POLLUTION PREVENTION						
A	• All dumping of waste material, especially bricks and contaminated materials or soils, must be prevented. • Equipment used during construction must be adequately maintained so that during operations it does not spill oil, diesel, fuel, or hydraulic fluid. • All equipment must be inspected regularly (at least weekly) to ensure that it is in good working condition, clean, and free from leaks of oil, petrol, diesel, hydraulic fluid and contaminating substances. • Avoid the use of material with pollution causing potential where possible. • Clean up any spillages (e.g. concrete, oil, fuel), immediately. Remove contaminated soil and dispose of it appropriately.	Construction Operation	Ongoing	Applicant Contractor	EO Daily Monitoring	Limit leaks and spills that can pollute the environment	Visual inspection of plant and equipment that it complies with EMPr requirements.
B	• In the case of chemical toilets, there must be a minimum of one chemical toilet provided per 10 persons.	Planning Construction	Ongoing	Applicant Contractor	Safety Department	Safe and effective sanitation that complies with legal	Visual observation that EMPr and legal requirements relating to

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	• The provision of toilets on site shall comply with the relevant construction regulations and provisions of the Occupational Health and Safety Act. • The toilets shall be of a neat construction and shall be provided with doors and locks and shall be secured to prevent them from falling over. • Toilet paper dispensers shall be provided in all toilets and toilet paper shall always be supplied. • Toilet facilities must be adequately serviced and maintained. • Toilets must be kept in a clean, neat and hygienic condition. • Chemical toilets shall be cleaned and emptied before the contractor's long weekends or public holidays.			EO	EO (Monthly)	provisions of OHSA and regulations	sewage and sanitation are met. (Safety audit reports) (ECO Monthly Audit)
C	• All reasonable measures shall be taken to ensure that no spillage occurs when chemical toilets are cleaned and emptied.	Planning Construction	Ongoing	Contractor	Safety Department EO (Weekly)	Prevent pollution of environment	Visual observation that there are no spillages from cleaning of chemical toilets. (Safety audit reports)

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	• Any accidental spillage must be reported to the EO and cleaned up immediately.				EO (Monthly)		(EO weekly checklist) (ECO Monthly Audit)
D	If the Contractor (or reputable toilet-servicing company) fails to provide and/or maintain all site sanitation facilities in a clean and hygienic condition, the ECO may request the contractor to suspend work until the requirements have been met.	Planning Construction	Ongoing	Applicant Contractor	Safety Department EO (Weekly) EO (Monthly)	Prevent pollution of environment	Visual observation that there are no spillages from cleaning of chemical toilets. (Safety audit reports) (EO weekly checklist) (ECO Monthly Audit)
E	• Disposal of sewage shall be in a safe and responsible manner and at an approved facility specifically for that purpose. • The Contractor shall retain proof of sewage removal and disposal on file for auditing purposes.	Construction	Ongoing	Contractor	Safety Department EO (Weekly) EO (Monthly)	Responsible disposal of sewage	Visual observation that there are no spillages from cleaning of chemical toilets (Safety audit reports) (Disposal records) (EO weekly checklist) (ECO Monthly Audit)

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
14.14	REHABILITATION AND MANAGEMENT						
A	• The contractor must prepare a rehabilitation plan and submit same to the ECO for review and approval as soon as possible following commencement of construction. • The requirements of this EMPr must be incorporated to the extent necessary within this plan.	Planning Construction	As soon as possible following commencement of construction.	EO	EO (Once off approval)	Compliance with approved rehabilitation plan.	(Approved rehabilitation plan) Visual observation for compliance with EMPr condition.
C	General Rehabilitation Measures: • 100 % vegetation cover should be achieved in areas that are re-vegetated, which should determine the rehabilitation period (including maintenance or establishment period). • Where compaction of soil has occurred due to heavy vehicular activity, ensure that the soil surface is loosened (scarified and ripped). • Non-indigenous or exotic species should not be used for landscaping purposes.	Rehabilitation	Upon completion of construction.	Applicant Contractor	EO daily monitoring)	Ensure that appropriate species are planted where possible post construction.	Visual observation for compliance with EMPr condition.

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
14.15	**Protection of watercourse**						
A	• All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities; • In the event of a spill, prompt action must be taken to clear the polluted or affected areas; • Where possible, no development equipment must traverse any seasonal or permanent wetland • There must not be any impact on the long term morphological dynamics of watercourses or estuaries; • Existing crossing points must be favored over the creation of new crossings (including temporary access) • When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: Water levels during the period of construction;	Construction	Upon completion of development.	Applicant Contractor t	EO (As and when necessary)	Ensuring that the watercourse is not impacted upon for the construction of the pylons within the watercourse.	Visual observation that decommissioning complies with EMPr and legal requirements. Applicant (permits / licences / authorisations in hand)

Item No.	Technical or Management Option	Phase	Timeframes	Responsible Party	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
	○ No altering of the bed, banks, course or characteristics of a watercourse ○ During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained;						

15 ADDITIONAL MEASURES

In addition to the mitigation measures provided in Section 14, it is noted that the section 1 of the proposed powerline is underlain by Asbestos Hill Subgroup. It is recommended that a health and safety risk assessment be conducted to determine if a risk exists and that, if necessary, appropriate personal protective equipment (PPE) be provided. It is noted that the Eskom SHE Department will undertake this mitigation measure.

16 REFERENCES

Mucina, L. and Rutherford, M.C., Eds. (2006) The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19, South African National Biodiversity Institute, Pretoria.