
Eskom Romansrivier - Ceres 66/132kV Double Circuit Powerline

Appendix E – Environmental Management Programme

Report Prepared for

Eskom Holdings SOC Limited

SRK Project Number 509264/1 – Appendix E



Report Prepared by

 **srk** consulting

September 2017

Eskom Romansrivier - Ceres 66/132 kV Double Circuit Powerline

Environmental Management Programme

Eskom Holdings SOC Limited

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September 2017

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Profile and Expertise of EAPs

SRK Consulting (South Africa) Pty Ltd (SRK) has been appointed by Eskom Holdings SOC Limited (Eskom) as the independent consultants to undertake the Basic Assessment (BA) process required in terms of the National Environmental Management Act 107 of 1998 (NEMA).

SRK Consulting was established in 1974 and comprises over 1 300 professional staff worldwide, offering wide-ranging expertise in the natural resources and environmental sectors. SRK's Cape Town environmental department has a proven track record of managing large, complex environmental and engineering projects in the Western Cape, Africa and internationally. SRK has rigorous quality assurance standards and is ISO 9001 certified.

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Statement of SRK Independence

Neither SRK nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK.

SRK has no beneficial interest in the outcome of the assessment which is capable of affecting its independence.

Disclaimer

The opinions expressed in this report have been based on the information supplied to SRK by Eskom. SRK has exercised all due care in reviewing the supplied information, but conclusions from the review are reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may

arise after the date of this Report, about which SRK had no prior knowledge nor had the opportunity to evaluate.

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Acronyms and Abbreviations

BA	Basic Assessment
BEE	Black Economic Empowerment
CBA	Critical Biodiversity Area
CESA	Critical Ecological Support Areas
CR	Contractor's Environmental Representative
DEA	Department of Environmental Affairs
DR	Divisional Road
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
Eskom	Eskom Holdings SOC Limited, Western Operating Unit: Distribution Division
GN	Government Notice
HWC	Heritage Western Cape
KV	Kilo Volt
MMP	Maintenance Management Plan
MSDS	Material Safety Data Sheets
MVA	Mega Volt Amp
NEMA	National Environmental Management Act 107 of 1998 as amended
OESA	Other Ecological Support Areas
PC	Project Coordinator
PM	Project Manager
SRK	SRK Consulting (South Africa) (Pty) Ltd

Glossary

Activity	An activity or operation carried out as part of the construction or operation of the power plant
Aspect	An action, event, product or service, occurring as a component or result of an activity, which interacts with the existing environment (or which results in impacts to it)
Black Economic Empowerment (BEE)	BEE is a racially selective programme launched by the South African government to redress the inequalities of Apartheid by giving certain previously disadvantaged groups of South African citizens economic privileges.
Community	Those people who may be impacted upon by the construction and operation of the project. This includes neighbouring landowners, local communities and other occasional users of the area.
Contractor	Any company appointed by the Proponent to undertake construction or related activities on site, and will include the main Contractor, as well as any Sub-Contractors.
Construction Phase	The stage of project development comprising site preparation as well as all construction activities associated with the development.
Contaminated water	Water contaminated by activities on site, e.g. concrete water and run-off from plant / personnel wash areas.
Design Phase	The stage during which detailed layout and development plans are prepared, including the drafting of contract documents for construction.
Environment	The external circumstances, conditions and influences that surround and affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.
Environmental Authorisation	The authorisation by a competent authority of a listed activity or specified activity in terms of NEMA.
Environmental Impact Assessment	A process of evaluating the environmental and socio-economic consequences of a proposed course of action or project
Environmental Management Measures	Requirements or specifications for environmental management, as presented in the EMP, some of which are based on the mitigation measures identified in the EIA Report (in this case the BAR).
Hazardous substance	A substance (including materials and waste) that can have a deleterious (harmful) effect on the environment and those substances declared hazardous substances in terms of the Hazardous Substances Act 15 of 1973.
Impact	A change to the existing environment, either adverse or beneficial, that is directly or indirectly due to the development of the project and its associated activities.
Method Statement	A mandatory written submission by the Contractor to the ERP setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity.
Mitigation Measures	Actions identified in the BAR to manage (avoid, minimise or optimise) potential environmental impacts which may result from the development.

Operational Phase	The stage of the works (including maintenance) following the Construction Phase, during which the development will function or be used as anticipated in the Environmental Authorisation.
Performance indicator	A measurable indicator of the outcome of environmental management, used to assess the success with which mitigation measures have been implemented. Often captures the results of several different monitoring activities.
Phase	A defined period during the life of the project, e.g. the Construction and Operations Phases.
Proponent	The person or organisation implementing the project.
Resources	The personnel, financial, equipment and technical requirements necessary for the successful completion of mitigation measures and for monitoring activities.
Schedule	The schedule or deadline for completion of each mitigation measure, which are recorded to ensure that mitigation measures are implemented in good time and in the correct sequence.
Solid waste	All solid waste including construction debris, chemical waste, broken / redundant equipment, oil filters, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).
Sub-Contractors	A Sub-Contractor is any individual or Contractor appointed by the main Contractor, to undertake a specific task on site.

1 Introduction

1.1 Background

Eskom Holdings SOC Limited, Western Cape Operating Unit: Distribution Division (Eskom) propose to construct a new double circuit powerline (132kV and 66kV) to replace an existing partially burnt 66 kV wood pole line from the Romansrivier substation to the Ceres substation in the Witzenberg Municipality, Western Cape (the project - see **Error! Reference source not found.**).

SRK Consulting (South Africa) Pty Ltd (SRK) was appointed by Eskom to undertake the Basic Assessment (BA) process for the project, which is required in terms of the National Environmental Management Act 107 of 1998 (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R982, as amended by GN R326). The BA Report contains a detailed description of the project and its impacts.

NEMA requires that an Environmental Management Programme (EMPr) be submitted along with the BA Report to demonstrate how environmental management and mitigation measures will be implemented. In addition to this requirement, Eskom will trigger the following activities listed in NEMA during ongoing maintenance of the powerline and access roads (including bridges):

1. Listing Notice 1, Activity 19: the infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from (i) a watercourse;
2. Listing Notice 1, Activity 27: the clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation; and
3. Listing Notice 3, Activity 12: the clearance of an area of 300 square metres or more of indigenous vegetation.

Eskom can undertake these activities during maintenance without the need for Environmental Authorisation (EA) if they are conducted in terms of an approved Maintenance and Management Programme (MMP). This document is intended to meet the requirements of an MMP and, through its approval, authorise Eskom to conduct ongoing maintenance in terms of the maintenance specifications in this document without the need for EA.

The mitigation measures, which were identified during the BA process, apply to the following phases of the development process:

- **The Design Phase:** These measures relate to the detailed layout, planning and design of the powerline, and will largely be implemented by the planning and development team, prior to the commencement of any physical on site activities. These mitigation measures are presented in Section 2.
- **The Construction Phase:** These mitigation measures are applicable during site preparation and construction on the site of the proposed project and must be implemented by the relevant contractors and sub-contractors. These mitigation measures are presented in Section 3.
- **The Operational Phase (the MMP):** These mitigation measures are applicable during the long-term maintenance of the powerline and access roads and must be implemented by Eskom. These mitigation measures are presented in Section **Error! Reference source not found.**

Note: The EMPr will be submitted to the Department of Environmental Affairs (DEA) for approval along with the BA Report. Once an environmental authorisation has been issued by DEA, this document may need to be updated to ensure that all relevant conditions of authorisation are adequately captured.

1.2 Content of the EMPr and MMP

The EIA Regulations, 2014 (Government Notice (GN) R 982, as amended by GN R326) prescribe the required content in an EMPr. These requirements and the sections of this EMPr in which they are addressed, are summarised in Table 1-1.

Table 1-1: Content of the EMPr as prescribed by the EIA Regulations, 2014

GN 982 Annexure 1 (1) Ref.:	Item	Section Ref.:
(a) (i)	Details of the person who prepared the EMPr	Page i
(a) (ii)	Expertise of that person to prepare an EMPr	Page i
(b)	A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	1.3
(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;	Figure 1-1 and Appendix A
(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 through the environmental impact assessment process for all phases of the development including-	Table 1-3
(d)(i)	Planning and design;	
(d)(ii)	Pre-construction activities;	
(d)(iii)	Construction activities	
(d)(iv)	Rehabilitation of the environment after construction and where applicable post closure; and	
(d)(v)	Where relevant, operation activities;	
(f)	A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to-	Table 2-1, Table 3-2, and Table 4-1
(f)(i)	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	
f(ii)	Comply with any prescribed environmental management standards or practices;	
f(iii)	Comply with any applicable provisions of the Act regarding closure, where applicable; and	
f(iv)	Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	
(g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	3.2
(h)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	3.2.2
(i)	An indication of the persons who will be responsible for the implementation of the impact management actions;	Table 2-1, Table 3-2, and Table 4-1
(j)	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Table 2-1, Table 3-2, and Table 4-1

GN 982 Annexure 1 (1) Ref.:	Item	Section Ref.:
(k)	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f)	3.2
(l)	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	3.2.2
(m)	An environmental awareness plan describing the manner in which-	Table 3-2, and Table 4-1
(m)(i)	The applicant intends to inform his or her employees of any environmental risk which may result from their work; and	
(m)(ii)	Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	
(n)	Any specific information that may be required by the competent authority.	Appendix A

As well as the requirements of an EMPr specified in the EIA Regulations, 2014, the local Department of Environmental Affairs and Development Planning (DEA&DP) have specified the required content of an MMP. These requirements and the sections of this EMPr in which they are addressed, are summarised in Table 1-2.

Table 1-2: Content of an MMP

Item	Section Ref.:
Personal details of the applicant	1.1
Project description/introduction	1.3
Relevant legislation	1.1
Description of the site	1.4
Description of maintenance activities	4
Roles and responsibilities during maintenance	4.1
Environmental monitoring or auditing during maintenance	Table 4-1

1.3 Project Description

The Witzenberg substation is currently supplied by one 132 kV¹ single circuit powerline. This line runs over the Witzenberg Mountain Range from the Romansrivier substation. Three 66kV feeders out of the Witzenberg substation supply the Ceres, Gydo and Slangboom substations from where Eskom's customers draw their electricity.

A 66 kV powerline runs from Romansrivier to Witzenberg via Ceres. A portion of this line between Romansrivier and Ceres burnt down, cutting supply from Romansrivier to Ceres and Witzenberg, reducing the reliability of supply to the area (i.e. the only supply to Witzenberg is the 132 kV line from Romansrivier to Witzenberg, and the only supply to Ceres is from the remaining portion of the 66 kV line from Witzenberg to Ceres).

Since the fire on the 66 kV line between Romansrivier and Ceres, the Ceres substation has been supplied by the 66 kV line from the Witzenberg substation (and consequently, by the 132 kV line between the Romansrivier and Witzenberg substations) only. Therefore, both the Ceres and the Witzenberg substations are solely dependent on the 132 kV line between Romansrivier and Witzenberg. Eskom would be unable to supply the dependent network (i.e. the towns of Prince Alfred Hamlet and Ceres) for several months should a fault occur on this line (i.e. until the line is repaired²).

¹ kilovolt is equal to 1 000 volts

² Repairs to this line would take an excessive amount of time as the pylons are old and no designs (or spares) are available for this infrastructure).

Eskom therefore propose to construct a new double circuit powerline (132kV and 66kV) from the Romansrivier substation to the Ceres substation (see Figure 1-1). This line would provide 132 kV supply to Ceres and replace the partially burnt 66 kV line between Romansrivier and Ceres, and Ceres and secure supply to the Ceres and Witzenberg substations.

In a future phase of work, Eskom proposes to replace the 66 kV line running between the Ceres and Witzenburg substations with a double circuit 132 / 66 kV line.

The project consists of the following key components:

- Installation of a 80 MVA 132/66/11kV transformer at the Romansrivier substation to supply the new 132 kV line to Ceres;
- Installation of 132 kV and 66 kV feeder³ bays at Romansrivier substation and a 66kV feeder bay at Ceres substation;
- Construction of a double circuit distribution powerline (132kV and 66kV) on 68 pylon structures between Romansrivier and Ceres substations in the Breede River Valley / Michell's Pass (~20km);
- Construction of new access roads, including bridges and other watercourse crossings;
- Upgrading of various existing (access) roads.
- Stringing conductors;
- Decommissioning the existing 66 kV line between the Romansrivier and Ceres substations;
- Periodic and emergency repairs to pylons;
- Restranging of conductors;
- Trimming and clearing of vegetation to maintain line clearance and access; and
- Clearing of debris from bridges and other watercourse crossings.

Based on the preliminary draft design, the proposed powerline will be installed on 68 pylon structures between the Romansrivier and Ceres substations and will be approximately 20 km long (see Figure 1-1).

Foundations of pylons will be approximately 4.5 m deep. It is anticipated that there will be a disturbance footprint of approximately 225 m² per pylon, including an excavation footprint, soil stockpile and laydown area at each site.

Where necessary, gabions will be installed at the foundations of pylons to reduce erosion from stormwater at these structures.

Eskom will make use of existing access roads wherever possible during construction and maintenance activities. Where new access is required along the powerline route, single lane access tracks will be utilised.

A number of watercourses will be crossed by new access roads. Conceptual designs of these crossings have been selected based on the nature of the watercourses, ecological considerations and technical constraints.

³ A feeder is a powerline transferring power from the substation to the transformers

Remaining wooden poles and conductors of the existing (burnt) 66 kV line running between Romansrivier and Ceres will be dismantled and removed following the Construction Phase of the new powerline.

Following the completion of the Construction Phase, the powerline will be commissioned into operation. No physical operational activities are anticipated other than ongoing maintenance of the line and access roads (see Section **Error! Reference source not found.**

A more detailed project description is provided in Section 3 of the BA Report (SRK Consulting Report No: 509264/01, September 2017).

1.4 Site Description

The project is located in the Ceres basin / valley (also known as the Warm Bokkeveld Valley) surrounded by mountains of the Cape Fold Belt (see **Error! Reference source not found.**). The valley is accessed through mountain passes (Michell's Pass from Cape Town, Theronsberg Pass from Touws River and Gydo Pass from Citrusdal). The fertile Ceres Valley is known for producing deciduous fruits but is also an attractive tourist destination for outdoor activities.

The main economic activity of the region is agriculture.

The site extends from the Romansrivier substation in Romansrivier (in the magisterial district of Tulbach) to Ceres through Michell's Pass and includes numerous farms and other properties. The proposed route follows an existing 132 kV powerline servitude northwards from the Romansrivier substation until it veers eastwards up the Breede River Valley through Michell's Pass (R46) towards Ceres (see Figure 1-1).

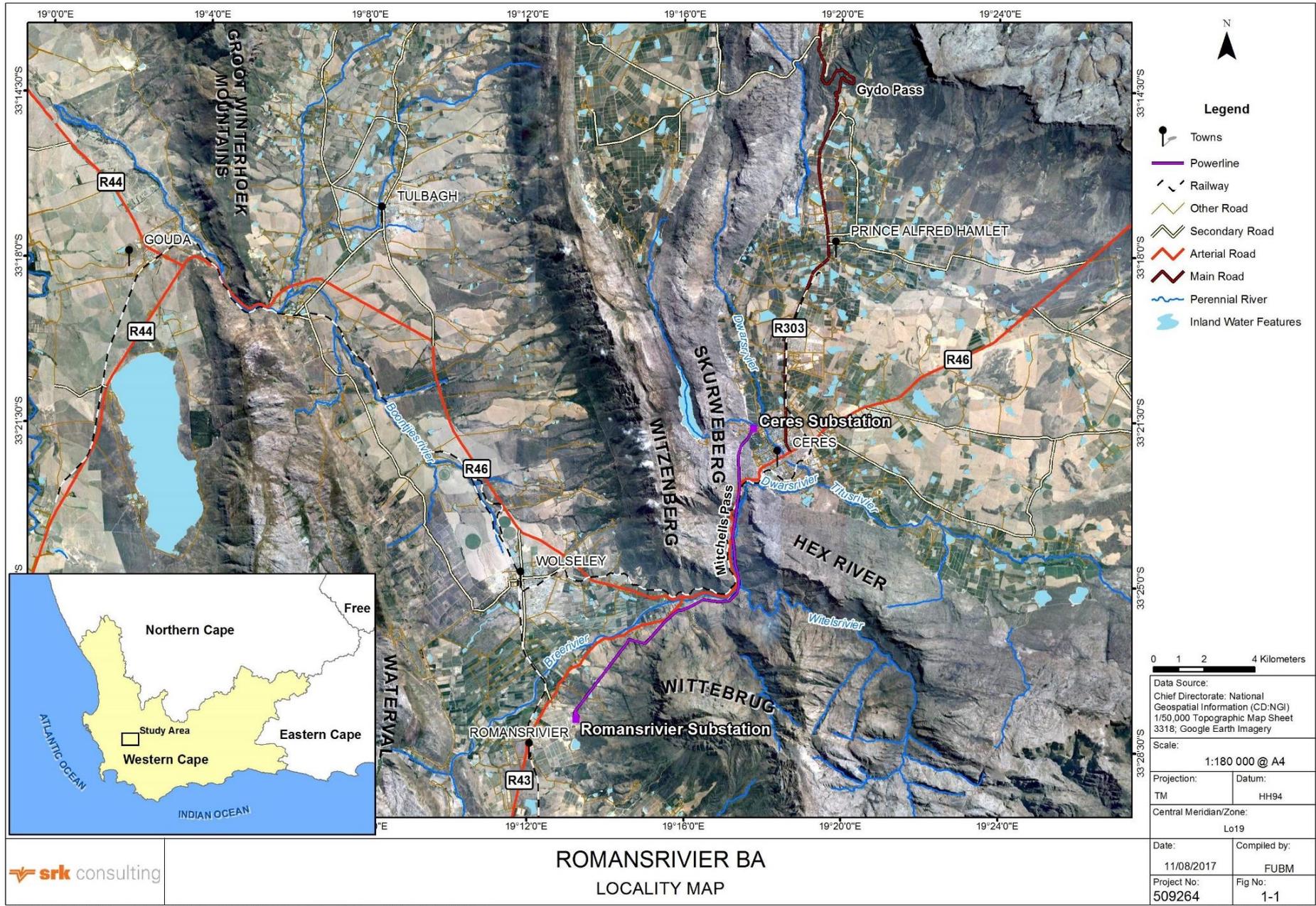
The powerline route spans six different vegetation types (or terrestrial habitat units): Winterhoek Sandstone Fynbos, Ceres Shale Renosterveld, North Hex Sandstone Fynbos, Breede Shale Fynbos, Breede Alluvium Fynbos and Northern Inland Shale band Vegetation. Two of these are listed as threatened due to historical loss of habitat: Breede Alluvium Fynbos (endangered) and Ceres Shale Renosterveld (vulnerable). All other vegetation types in the study area are listed as least threatened.

Nearly 50 000 m² (~5 ha) of vegetation will be cleared during construction of the project, and more than half (~3.6 ha) of this clearing will be required for access roads. Of this clearing only 800 m² will take place in endangered (400 m²) or vulnerable (400 m²) vegetation types.

In terms of freshwater ecology, the project would cross, be located in, or be in the vicinity of:

- A number of near-pristine watercourses and seeps in the Ceres area that have been evaluated⁴ as Critical Ecological Support Areas (CESAs) and located in a Critical Biodiversity Area (CBA), and which drain into the Koekedou River to the north;
- The Dwars / Breede River;
- The Tierhokkloof River;
- Numerous non-perennial streams and seeps that drain into the Dwars / Breede River in Michell's Pass valley that have been evaluated as Other Ecological Support Areas (OESAs); and
- At least five watercourses south of the confluence of the Witels River with the Dwars River that have been mapped as CBA wetlands and are sensitive to disturbance.

⁴ Western Cape Spatial Biodiversity Plan, 2017



ROMANSRIVIER BA
LOCALITY MAP

Path: G:\New Proj\509264_RomansrivierBA\GIS\ISPROJ\MXD\509264_Fig1-1_RomansrivierBA_LocalityMap_A4L_11082017.mxd

1.5 Potential Impacts

A summary of the potential impacts of the proposed project identified and assessed in the BAR are presented in Table 1-3.

Table 1-3: Potential impacts of the proposed project

Impact	Description	Impact Status
Construction Phase		
Air Quality	Nuisance from reduced air quality	Negative
Noise	Nuisance from excessive noise	Negative
Terrestrial Ecology	Loss of vegetation	Negative
	Loss of floral Species of Conservation Concern (SCC)	Negative
	Loss of faunal SCC	Negative
	Avifaunal displacement	Negative
Freshwater Ecology	Degradation of freshwater habitats	Negative
Heritage	Loss of historical built environment	Negative
Socio-economic	Increased employment, income and skills development	Positive
Visual	Altered sense of place and visual intrusion	Negative
Operational Phase		
Terrestrial Ecology	Loss of vegetation	Negative
	Avifaunal mortalities from electrocution and collision with powerlines	Negative
Freshwater Ecology	Degradation of freshwater ecosystems	Negative
Socio-economic	Economic growth	Positive
	Tourism	Negative
Heritage	Loss of historical built environment	Negative
Visual	Altered sense of place and visual intrusion	Negative

1.6 Site Specific Environmental Management Measures

Due to the sensitivity and complexity of the receiving environment, certain site-specific (and in some cases intensive) mitigation measures have been stipulated for highly sensitive environmental attributes of the site, **and are therefore critical to mitigate impacts assessed in the BAR.**

Site specific mitigation measures are listed in Appendix A.

These measures **must be implemented**, monitored and reported on, in conjunction with general management measures for the project specified in the proceeding sections of this EMP.

2 Measures Applicable to the Detailed Design Phase

2.1 Roles and Responsibilities

The key role players during the Design Phase of the project are:

- Eskom (the proponent); and
- Engineers responsible for the design of the powerline, roads and bridges.

Their roles and responsibilities during the detailed Design Phase with respect to the implementation of the EMPr are outlined below.

Eskom:

- Ensure that the engineering/design team is aware of and takes into consideration all relevant measures in the EMPr; and
- Confirm that all relevant environmental management measures in the EMPr have been incorporated into the project design on completion of the Design Phase.

Engineers:

- Take cognisance of all relevant measures in the EMPr and ensure integration thereof in the detailed design of infrastructure and final placement of pylons; and
- Reference the environmental management measures applicable to the Construction (Section 3) and Operations (Section 4) Phases of the project in all documents that will be applicable to future phases of the project (e.g. tender documents).

2.2 Environmental Management Measures

The environmental management and mitigation measures that must be implemented during the Design Phase, as well as responsibilities and timelines for the implementation of these measures and monitoring thereof, are laid out in Table 2-1: Environmental management and mitigation measures that must be implemented during the Design Phase

Aspect	ID	Mitigation measure / Procedure	Responsible Party	Implementation Timeframe	Monitoring Method and Performance Indicator
Authorisations	1.	Ensure that all required licences, permits and agreements have been obtained before the start of construction.	• Eskom	• Before construction activities commence	• Check required licences, permits and authorisations
General	2.	Apply site specific Design Phase mitigation measures as specified in Appendix A of the EMPr.	• Eskom	• Before construction activities commence	• Check site specific mitigation measures implemented
Environmental Compliance	3.	Finalise the EMPr (if required) to include all conditions of authorisation imposed by DEA and DWS, recommendations of specialists for the final design (see 13 below), and any other permitting authorities.	• Eskom	• Once project authorised	• Check amended EMPr with all licence / permit conditions
	4.	Include the EMPr in all tender documents to ensure that sufficient resources are allocated to environmental management by the Contractor.	• Eskom	• Prior to call for tenders	• Check tender documents and contract

Aspect	ID	Mitigation measure / Procedure	Responsible Party	Implementation Timeframe	Monitoring Method and Performance Indicator
	5.	Plan and make adequate financial provision for rehabilitation and restoration activities and clearly allocate timing and responsibility for environmental rehabilitation.	• Eskom	• Before construction commences	• Check availability of plan
Final Design of Infrastructure	6.	Include design measures that allow for the spread of surface and subsurface flows across the full width of the watercourse at all road sections through seeps	• Eskom	• Before construction commences	• Check final design
	7.	Design low-level crossings through seeps that allow overtopping even during small floods (e.g. 1:2 year Return Interval (RI) events) and for the ongoing seepage and low flow through the structure.	• Eskom	• Before construction commences	• Check final design
	8.	Surface crossings through seeps with rock (preferably, as this would facilitate the percolation of water through the structure in low flow conditions) or concrete.	• Eskom	• Before construction commences	• Check final design
	9.	Include stormwater dissipation structures at the bank-edge of watercourse crossings and access roads.	• Eskom	• Before construction commences	• Check final design
	10.	Get written sign-off of final designs of all watercourse crossings from a freshwater ecologist.	• Eskom	• Before construction commences	• Check written sign-off of final design
	11.	Construct terrace walls using materials that blend in with the surroundings (e.g. sandstone stone-packing, riverstone gabions) where necessary.	• Eskom	• During construction	• Check final design
	12.	Install the lattice structure type in the Michell's Pass Valley and mountainous area above Ceres.	• Eskom	• During construction	• Check final design
	13.	Get written sign-off of the final design and layout of pylons and access roads from the terrestrial (including botanical, faunal and avifaunal), freshwater, visual and archaeological specialists, confirming impact ratings as presented in the BAR and the need for additional site-specific mitigation (if necessary).	• Eskom	• Before construction commences	• Check written sign-off of final design
Site Access and Road Demarcation	14.	Include appropriate measures in design (including signage) to ensure vehicles do not exceed the speed limit (30 km/h on unconsolidated roads) and remain on demarcated roads and agreed access routes at all times.	• Design engineers	• During detailed design	• Check final design
Final Infrastructure Placement	15.	Use existing access roads as far as possible.	• Eskom	• During detailed design	• Check final design
	16.	Get freshwater ecology, botanical, avifaunal and heritage specialist sign-off of any changes to the final infrastructure plan (layout or structures) as presented in the BAR.	• Eskom	• During detailed design	• Check specialist sign off
	17.	Include any additional mitigation measures for changes to the final infrastructure plan as identified by specialists in the EMPr.	• Eskom	• Before construction commences	• Check amended EMPr
Stormwater Management	18.	Include the erosion control and abatement structures in final designs of pylon foundations and access roads.	• Design engineers	• During detailed design	• Check final design
Employment	19.	Set targets for the use of local labour based on the needs of the proponent and the availability of existing skills and people that are willing to undergo training.	• Eskom	• Prior to the call for tenders	• Check record of employment profiles and target calculations
	20.	Specify labour-intensive rather than capital-intensive work methods wherever possible.	• Eskom	• Prior to the call for tenders	• Check call for tenders
	21.	Ensure that Contractors from outside the local area that tender for work meet the required targets for local employment.	• Eskom	• During tender evaluation	• Check call for tenders

Aspect	ID	Mitigation measure / Procedure	Responsible Party	Implementation Timeframe	Monitoring Method and Performance Indicator
Landowner Consultation	22.	Inform all landowners (and reserve management) of the starting date of construction as well as phases in which construction will take place.	<ul style="list-style-type: none"> • Eskom 	<ul style="list-style-type: none"> • Before construction commences 	<ul style="list-style-type: none"> • Check records of landowner consultation
	23.	Establish and agree maintenance responsibilities with landowners of all access roads.	<ul style="list-style-type: none"> • Eskom 	<ul style="list-style-type: none"> • Before construction commences 	<ul style="list-style-type: none"> • Check agreements with landowners
Employment and Procurement	24.	Comply with the provisions outlined in the Eskom Commercial Supply Chain Procedure.	<ul style="list-style-type: none"> • Eskom 	<ul style="list-style-type: none"> • Award of contracts 	<ul style="list-style-type: none"> • Check that the provisions outlined in the Eskom Commercial Supply Chain Procedure have been complied with during contractor appointments

below.

Table 2-1: Environmental management and mitigation measures that must be implemented during the Design Phase

Aspect	ID	Mitigation measure / Procedure	Responsible Party	Implementation Timeframe	Monitoring Method and Performance Indicator
Authorisations	25.	Ensure that all required licences, permits and agreements have been obtained before the start of construction.	• Eskom	• Before construction activities commence	• Check required licences, permits and authorisations
General	26.	Apply site specific Design Phase mitigation measures as specified in Appendix A of the EMPr.	• Eskom	• Before construction activities commence	• Check site specific mitigation measures implemented
Environmental Compliance	27.	Finalise the EMPr (if required) to include all conditions of authorisation imposed by DEA and DWS, recommendations of specialists for the final design (see 13 below), and any other permitting authorities.	• Eskom	• Once project authorised	• Check amended EMPr with all licence / permit conditions
	28.	Include the EMPr in all tender documents to ensure that sufficient resources are allocated to environmental management by the Contractor.	• Eskom	• Prior to call for tenders	• Check tender documents and contract
	29.	Plan and make adequate financial provision for rehabilitation and restoration activities and clearly allocate timing and responsibility for environmental rehabilitation.	• Eskom	• Before construction commences	• Check availability of plan
Final Design of Infrastructure	30.	Include design measures that allow for the spread of surface and subsurface flows across the full width of the watercourse at all road sections through seeps	• Eskom	• Before construction commences	• Check final design
	31.	Design low-level crossings through seeps that allow overtopping even during small floods (e.g. 1:2 year Return Interval (RI) events) and for the ongoing seepage and low flow through the structure.	• Eskom	• Before construction commences	• Check final design
	32.	Surface crossings through seeps with rock (preferably, as this would facilitate the percolation of water through the structure in low flow conditions) or concrete.	• Eskom	• Before construction commences	• Check final design
	33.	Include stormwater dissipation structures at the bank-edge of watercourse crossings and access roads.	• Eskom	• Before construction commences	• Check final design
	34.	Get written sign-off of final designs of all watercourse crossings from a freshwater ecologist.	• Eskom	• Before construction commences	• Check written sign-off of final design
	35.	Construct terrace walls using materials that blend in with the surroundings (e.g. sandstone stone-packing, riverstone gabions) where necessary.	• Eskom	• During construction	• Check final design
	36.	Install the lattice structure type in the Michell's Pass Valley and mountainous area above Ceres.	• Eskom	• During construction	• Check final design
Site Access and Road Demarcation	37.	Get written sign-off of the final design and layout of pylons and access roads from the terrestrial (including botanical, faunal and avifaunal), freshwater, visual and archaeological specialists, confirming impact ratings as presented in the BAR and the need for additional site-specific mitigation (if necessary).	• Eskom	• Before construction commences	• Check written sign-off of final design
	38.	Include appropriate measures in design (including signage) to ensure vehicles do not exceed the speed limit (30 km/h on unconsolidated roads) and remain on demarcated roads and agreed access routes at all times.	• Design engineers	• During detailed design	• Check final design
Final Infrastructure Placement	39.	Use existing access roads as far as possible.	• Eskom	• During detailed design	• Check final design
	40.	Get freshwater ecology, botanical, avifaunal and heritage specialist sign-off of any changes to the final infrastructure plan (layout or structures) as presented in the BAR.	• Eskom	• During detailed design	• Check specialist sign off

Aspect	ID	Mitigation measure / Procedure	Responsible Party	Implementation Timeframe	Monitoring Method and Performance Indicator
	41.	Include any additional mitigation measures for changes to the final infrastructure plan as identified by specialists in the EMPr.	• Eskom	• Before construction commences	• Check amended EMPr
Stormwater Management	42.	Include the erosion control and abatement structures in final designs of pylon foundations and access roads.	• Design engineers	• During detailed design	• Check final design
Employment	43.	Set targets for the use of local labour based on the needs of the proponent and the availability of existing skills and people that are willing to undergo training.	• Eskom	• Prior to the call for tenders	• Check record of employment profiles and target calculations
	44.	Specify labour-intensive rather than capital-intensive work methods wherever possible.	• Eskom	• Prior to the call for tenders	• Check call for tenders
	45.	Ensure that Contractors from outside the local area that tender for work meet the required targets for local employment.	• Eskom	• During tender evaluation	• Check call for tenders
Landowner Consultation	46.	Inform all landowners (and reserve management) of the starting date of construction as well as phases in which construction will take place.	• Eskom	• Before construction commences	• Check records of landowner consultation
	47.	Establish and agree maintenance responsibilities with landowners of all access roads.	• Eskom	• Before construction commences	• Check agreements with landowners
Employment and Procurement	48.	Comply with the provisions outlined in the Eskom Commercial Supply Chain Procedure.	• Eskom	• Award of contracts	• Check that the provisions outlined in the Eskom Commercial Supply Chain Procedure have been complied with during contractor appointments

3 Measures Applicable to the Construction Phase

3.1 Roles and Responsibilities

The key role players during the Construction Phase of the Project are anticipated as follows:

- Eskom (the proponent);
- Project Engineer (PE), who will ensure that all environmental requirements and considerations are incorporated in the final design;
- Project Coordinator (PC), who will oversee the activities of the contractors on site;
- Contractor(s) responsible for the construction of the powerline and access roads;
- Any sub-contractors hired by Contractors; and
- Environmental Control Officer (ECO).

The anticipated Construction Phase organogram is presented in Figure 3-1 below and shows the proposed lines of communication during this phase. All instructions relating to the EMPr will be given to the Contractor via the ECO or PC. The Contractor will report issues of concern to the PC and ECO, who in turn will engage the proponent. The ECO will report to the PC and Eskom.

Eskom will retain responsibility for ensuring that the Contractor fully implements the provisions of the EMPr.

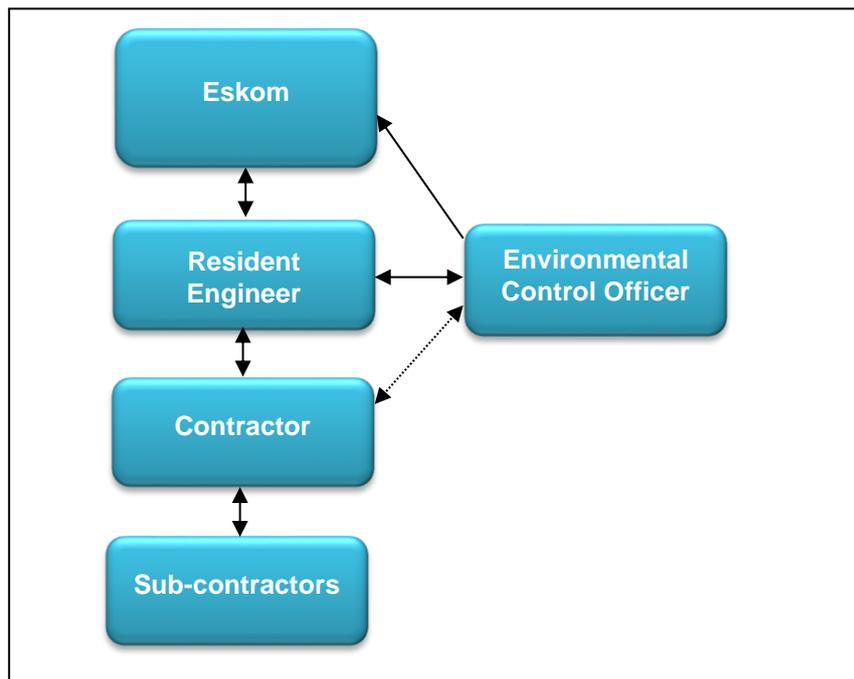


Figure 3-1: Construction Phase Reporting Structure

Key roles and responsibilities during the Construction Phase with respect to the implementation of the EMPr are outlined below.

Eskom:

Eskom has overall responsibility for management of the project. In terms of environmental management, the proponent will:

- Appoint suitably experienced Engineers who will be responsible for the overall management of activities on site during the Construction Phase;
- Appoint a suitably qualified, independent ECO to monitor compliance with the EMPr for the duration of the Construction Phase;
- Ensure that the Engineers are aware of the requirements of the EMPr and implement the EMPr measures into designs;
- Ensure that the Project Coordinator and Programme Manager are aware of the requirements of the EMPr, implement the EMPr and monitor the Contractor's activities on site;
- Ensure that Contractors are aware of and contractually bound to the provisions of this EMPr by including the relevant environmental management requirements in the tender and contract documents, as appropriate;
- Ensure that Contractors remedy non-compliance with the EMPr or unforeseen environmental damage timeously and to the satisfaction of the ECO and authorities

Project Engineer:

Eskom will designate a suitable RE who will be responsible for ensuring that all environmental requirements and considerations are incorporated in the final design.

Project Coordinator:

Eskom will designate a suitable PC who will be responsible for overseeing activities of Contractors during the Construction Phase. The PC shall:

- Ensure that Contractors are duly informed of the EMPr and associated responsibilities and implications of this EMPr prior to commencement of construction;
- Monitor Contractors' activities (together with the ECO) with regard to the requirements outlined in the EMPr;
- Relay all instructions from the ECO to Contractors and ensure that these are fully understood and implemented;
- Report any environmental emergencies/concerns to the ECO immediately;
- Act as a point of contact for local residents and community members; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the ECO and relevant authorities (where necessary).

Contractors:

Contractors will each be required to appoint or designate a Contractor's Environmental Representative (CR) who will assume responsibility for the Contractor's environmental management requirements on site and be the point of contact between the Contractor and the ECO. Each CR shall:

- Ensure that all activities on site are undertaken in accordance with the EMPr;
- Monitor the Contractor's activities (together with the ECO) with regard to the requirements outlined in the EMPr;
- Ensure that all employees and sub-contractors comply with the EMPr;
- Immediately notify the ECO of any non-compliance with the EMPr, or any other issues of environmental concern; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the ECO.

Contractors have a duty to demonstrate respect and care for the environment. Contractors will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the EMPr, environmental regulations and relevant legislation.

Sub-contractors:

All Sub-contractors will be required to:

- Ensure that all employees are duly informed of the EMPr and associated responsibilities and implications of this EMPr prior to commencement of construction;
- Ensure that all activities on site are undertaken in accordance with the EMPr;
- Monitor employees' activities (together with the ECO) with regard to the requirements outlined in the EMPr;
- Immediately notify the ECO of any non-compliance with the EMPr, or any other issues of environmental concern; and
- Ensure that non-compliance is remedied timeously and to the satisfaction of the ECO.

Each Sub-contractor has a duty to demonstrate respect and care for the environment. Sub-contractors will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the EMPr, environmental regulations and relevant legislation, resulting from their presence on site.

Environmental Control Officer:

The ECO shall be a suitably qualified/experienced independent environmental professional or professional firm, appointed by the proponent, for the duration of the Construction Phase of the project. The ECO shall:

- Request Method Statements from Contractors prior to the start of relevant construction activities, where required, and approve these (as appropriate) without causing undue delay;
- Monitor, review and verify compliance with the EMPr, EA, WUL and any other environmental permit/ approval by Contractors, as well as any sub-contractors and specialist contractors;
- Undertake site inspections at least twice a month (or more often during works at more sensitive sections of the route, as specified in this EMPr) to determine compliance with the EMPr, EA, WUL and any other environmental permit/ approval;
- Identify areas of non-compliance and recommend corrective actions (measures) to rectify them in consultation with Eskom, the RE and the applicable Contractor, as required;
- Compile a checklist highlighting areas of non-compliance following each ECO inspection;
- Ensure follow-up and resolution of all non-compliances;
- Provide feedback for continual improvement in environmental performance;
- Respond to changes in project implementation or unanticipated site activities which are not addressed in the EMPr, and which could potentially have environmental impacts, and advise Eskom, the RE and Contractor as required;

3.2 Compliance and Monitoring

3.2.1 Method Statements

A Method Statement is a document setting out specific details regarding the plant, materials, labour and method the Contractor proposes using to carry out certain activities, usually activities that may have a detrimental effect on the environment. It is submitted by the Contractor to the ECO.

The purpose of a Method Statement is for the Contractor to provide additional details regarding the proposed methodology for certain activities, and for the ECO to confirm that these meet the requirements of the EMPr and acceptable environmental practice. This allows the EMPr to be less prescriptive and affords the Contractor a certain amount of flexibility or to amend stipulations in the EMPr, if approved by the ECO. It also provides a reference point to detect deviations from the agreed approach to an activity.

Each Method Statement will address environmental management aspects relevant to the activity and will typically provide detailed descriptions of items including, but not necessarily limited to:

- Nature, timing and location of activities;
- Procedural requirements and steps;
- Management responsibilities;

- Material and equipment requirements;
- Transportation of equipment to and from site;
- Method for moving equipment/material while on site;
- How and where material will be stored;
- Emergency response approaches, particularly related to spill containment and clean-up;
- Response to compliance/non-conformance with the requirements of the EMPr; and
- Any other information deemed necessary by the ECO.

The following list provides examples of Method Statements that may be requested from the Contractor:

- Construction site establishment;
- Environmental awareness course preparation;
- Material and equipment storage and delivery;
- Fuel storage, dispensing and fuel spills;
- Waste management;
- Management of contaminated water;
- Erosion and stormwater control;
- Bridge construction;
- Cement batching; and
- Any others requested by the ECO.

The Method Statements will be submitted by the Contractor to the ECO no less than **7 days** prior to the intended date of commencement of an activity (or as otherwise agreed with the ECO). The ECO shall approve / reject the Method Statement within **2 days**. An activity for which a Method Statement has been requested shall not commence until the ECO has approved of such method and once approved, the Contractor shall abide by the relevant Method Statement. A pro forma Method Statement is attached in Appendix B, although a suitable Method Statement format can be agreed between the ECO and Contractor.

3.2.2 Environmental Records and Reports

Environmental records and reports required during the Construction Phase are listed in Table 3-1.

Table 3-1: Reports required during Construction

Report	Frequency	From	To
Environmental Checklist	Weekly	CR	ECO and Eskom
Environmental Compliance Report	Twice a month / following each inspection	ECO	PC and Eskom
Site Closure Audit	End of Contract	ECO	PC and Eskom

Environmental Checklist

Each CR will undertake weekly site inspections to check on the implementation of the EMPr, EA, WUL and any other environmental permit/ approval by the Contractor and complete a brief report/checklist after the inspection. The completed checklists shall be submitted to the ECO at the end of each inspection. This checklist should be discussed between the CR and the ECO during the initial site inspection, and agreement reached on the preferred format and content.

Environmental Compliance Report

The ECO will prepare Environmental Compliance Reports following each site inspection, detailing any environmental issues, non-compliance and corrective actions to be implemented. These reports will be based on the ECO's observations and the weekly Environmental Checklists. Environmental Compliance Reports will be submitted to the PC and Eskom and a full record will be kept by the ECO, for submission to the Local Authority and/or DEA on request.

When more frequent site visits are undertaken by the ECO, the frequency of progress reports will increase accordingly to allow for timeous reporting of environmental issues and actions required.

Photographic Records

If the ECO identifies any areas of concern, the ECO will request photographic records, which must be submitted by the Contractor for record purposes. The ECO shall also keep photographic records of all construction activities and areas of concern during site inspections.

Construction Site Closure Audit

The ECO will undertake a final site closure audit on completion of the Construction Phase. The purpose of this is to confirm compliance with all site closure requirements identified by the ECO, and that the site has been left in an environmentally suitable condition. If outstanding environmental requirements are observed during this inspection, a further inspection must be carried out to confirm compliance. The Site Closure Audit Report will be submitted to the PC and Eskom for record purposes, and to DEA if requested.

3.2.3 Corrective Action

Corrective action is a critical component of the implementation–review–corrective action–implementation cycle and it is through corrective action that continuous improvement can be achieved. Where repeated non-compliance is recorded, procedures may need to be altered accordingly to avoid the need for repeated corrective action.

If environmental compliance monitoring by the CR and ECO indicates non-conformance with the EMP or approved Method Statements, the PC will formally notify the Contractor through a Corrective Action Request. The Corrective Action Request documents:

- The nature of the non-conformance/environmental damage;
- The actions or outcomes required to correct the situation; and
- The date by which each corrective or preventive action must be completed.

Upon receipt of the Corrective Action Request, the Contractor will be required to produce a Corrective Action Plan (or similar plan), which will detail how the required actions will be implemented. The Corrective Action Plan must be submitted to the ECO for approval prior to implementation. Once it has been approved, the corrective action must be carried out within the time limits stipulated in the Corrective Action Request. Additional monitoring by the CR and ECO will then be required to confirm the success or failure of the corrective action.

3.3 Environmental Management Measures

The environmental management and mitigation measures that must be implemented during the Construction Phase, as well as responsibilities and timelines for the implementation of these measures and monitoring thereof, are laid out in Table 3-2: Environmental management and mitigation measures that must be implemented during the Construction Phase

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method and Performance Indicators
General	1.	Apply site specific Construction Phase mitigation measures as specified in Appendix A of the EMPr.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check site specific mitigation implemented
	2.	Update the Operational Phase EMPr with lessons learnt during construction in consultation with the DEA (if better practices are identified during this phase)	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Following construction 	<ul style="list-style-type: none"> Check updated MMP
Community Complaints	3.	Maintain a complaints register and respond to complaints that are made.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check complaints register
	4.	Include the following information in the complaints register: <ul style="list-style-type: none"> Complainant name and contact details; Date complaint was lodged; Person who recorded the complaint; Nature of the complaint; Actions taken to investigate the complaint and outcome of the investigation; Action taken to remedy the situation; and Date on which feedback was provided to complainant. 	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check complaints register
Site Establishment	5.	Appoint an independent ECO to oversee construction activities.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Before construction activities commence 	<ul style="list-style-type: none"> Check appointment
	6.	Inform landowners before construction activities move onto their property.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check correspondence with landowners
	7.	Locate all construction camps in transformed areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check location of construction camps
	8.	Submit a method statement for construction camp establishment (including proposed location/s and layout) for approval by the ECO at least two weeks prior to the start of establishment of each camp.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Prior to the establishment of each construction camp 	<ul style="list-style-type: none"> Check availability of approved method statements
	9.	Fence construction camps.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check construction camps fenced
	10.	Consolidate the footprint of construction camps to a functional minimum.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check construction camps footprints
	11.	Demarcate construction footprints and restrict access beyond these areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Before construction commences at each section of the line 	<ul style="list-style-type: none"> Check no-go areas demarcated
Ablutions	12.	Provide ablation facilities (i.e. chemical toilets) at construction camps and active work areas for staff at a ratio of at least 1 toilet per 25 workers.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that ablation facilities provided at the minimum ratio
	13.	Locate ablation facilities at least 100 m from the edge of any watercourse (or in consultation with the ECO where this is not possible).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check ablation facilities more than 100m from any watercourse

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method and Performance Indicators
	14.	Secure all temporary / portable toilets to the ground to prevent them toppling due to wind or any other cause.	• Contractors	• Throughout construction	• Check that portable toilets are secure
	15.	Maintain toilets in a hygienic state (i.e. provide toilet dispensers, clean toilets and service regularly).	• Contractor	• Throughout construction	• Check toilets are maintained in a hygienic state
	16.	Empty toilets before long weekends and builders' holidays.	• Contractor	• Throughout construction	• Check toilets are emptied
	17.	Prevent spillages when the toilets are cleaned or emptied.	• Contractor	• Throughout construction	• Check for evidence of portable toilet chemical spills
Fire Protection	18.	Prohibit fires on site.	• Contractor	• Throughout construction	• Check for evidence of fires
	19.	Notify local Fire Protection Agency (FPA) of construction activities.	• Contractor	• Throughout construction	• Check record of correspondence
	20.	Provide sufficient fire-fighting equipment at the construction camp and all work areas.	• Contractor	• Throughout construction	• Check equipment is available
	21.	Equip all fuel stores and waste storage areas with fire extinguishers.	• Contractor	• Throughout construction	• Check equipment is available
	22.	Ensure that all personnel are aware of firefighting equipment and how it is operated.	• Contractor	• Throughout construction	• Check induction material
	23.	Maintain firefighting equipment.	• Contractor	• Throughout construction	• Check records of servicing
Safety and Security	24.	Establish emergency procedures (in relation to fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc.).	• Contractor	• Before construction activities commence	• Check emergency procedures
	25.	Display emergency procedures conspicuously at all appropriate locations.	• Contractor	• Throughout construction	• Check emergency procedures displayed
	26.	Advise the ECO of any emergencies on site, together with a record of action taken	• Contractor	• Throughout construction	• Check record of incidents
	27.	Demarcate any areas which may pose a safety risk (including hazardous substances, deep excavations etc.).	• Contractor	• Throughout construction	• Check that safety risks are demarcated
	28.	Store all construction material and equipment in locked containers within the construction camp.	• Contractor	• Throughout construction	• Check materials stores are secured
	29.	Secure construction camps and restrict unauthorized access to fuels and any other hazardous substances.	• Contractor	• Throughout construction	• Check construction camp is secured
Environmental Awareness Training	30.	Provide environmental awareness training for construction activities.	• Contractors	• Throughout construction	• Check records of environmental awareness training provided
	31.	Maintain a record of awareness training provided.	• Contractor	• Throughout construction	• Check records of environmental awareness training provided

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method and Performance Indicators
	32.	<p>Include the following aspects in the environmental awareness plan and onsite inductions:</p> <ul style="list-style-type: none"> • Environmentally sensitive and no-go areas; • Potential impact of construction on the environment; • Waste and wastewater management; • Key and site specific measures in the EMPr relevant to the site and worker's activities; • Emergency preparedness and response procedures; • Water conservation; • Sanitation; and • Incident reporting. 	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Start of construction and when new staff come onto site 	<ul style="list-style-type: none"> • Check environmental awareness training plan
	33.	Use the EMPr and BAR to inform the content of awareness training.	<ul style="list-style-type: none"> • Contractors 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Check training material
	34.	Tailor environmental awareness training to the area currently under construction (e.g. no-go areas, potential impact on the environment, key and site specific EMPr measures, etc.).	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Start of construction in new area 	<ul style="list-style-type: none"> • Check updated environmental awareness training plan
Hazardous Materials Management	35.	Design and construct impermeable hazardous material storage facilities with a minimum bund containment capacity equal to 110% of the largest container.	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Construction camp establishment 	<ul style="list-style-type: none"> • Check hazardous material storage facilities
	36.	Locate hazardous material storage facilities as far as practically possible from watercourses (no closer than 100 m).	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Check location of hazardous material storage facilities
	37.	Place potential contaminants (including cement) on impervious surfaces.	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Check storage of hazardous substances takes place on impermeable surfaces
	38.	Develop (or adapt and implement) procedures for the safe transport, handling and storage of potential pollutants.	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Start of construction 	<ul style="list-style-type: none"> • Check procedures for the safe transport, handling and storage of potential pollutants
	39.	Implement procedures for the safe transport, handling and storage of potential pollutants.	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Check implementation of procedures for the safe transport, handling and storage of potential pollutants
	40.	Avoid unnecessary use and transport of hazardous substances.	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Check use and transport of hazardous substances and incidences of spills
	41.	Keep Material Safety Data Sheets (MSDS) for all hazardous materials on site and ensure that they are available for reference by staff responsible for handling and storage of materials.	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Check MSDS available for all hazardous substances on site
	42.	Maintain vehicles and machinery to prevent leaks of hydrocarbon materials.	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Check evidence of leaks • Check inspection / maintenance records
	43.	Repair minor leaks to vehicles and equipment immediately as these are identified.	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • Throughout construction 	<ul style="list-style-type: none"> • Check evidence of leaks • Check inspection /maintenance records

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method and Performance Indicators
Refuelling and Maintenance	44.	Establish dedicated impermeable areas for vehicle refuelling and maintenance at construction camps at least 50m from any watercourse.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of construction 	<ul style="list-style-type: none"> Check refuelling areas established
	45.	Favour refuelling and maintenance of vehicles and equipment in dedicated areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> None
	46.	Conduct on-site refuelling and emergency repairs if absolutely essential with appropriate impermeable ground cover (e.g. use drip trays) further than 50m from any watercourse.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check on-site refuelling and emergency repairs take place more than 50 m from any watercourse
Response to Environmental Pollution	47.	Immediately stop any activity causing environmental pollution, e.g. leaks and spillages.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that no activities cause environmental pollution on site
	48.	Clean up any spills immediately, through containment and removal of free product and appropriate disposal as hazardous waste / remediation of contaminated soils.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that spills have been addressed as specified
	49.	Provide appropriate quantities of bioremediation products to address spills that do occur.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that appropriate quantities of bioremediation products are available
	50.	Provide spill containment and clean-up equipment in all areas where refuelling and / or maintenance activities will take place.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that spill containment and clean-up equipment is available
	51.	Repair faulty equipment as soon as possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check maintenance records
	52.	Implement mitigation to prevent reoccurrences of environmental pollution (e.g. additional bunding).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check responses to spills that have taken place
	53.	Notify Eskom and the relevant authorities (DEA) within one day of a major environmental pollution event.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check evidence of correspondence between Eskom and authorities
Waste Management	54.	Submit a Method Statement for waste management (including hazardous waste)	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of construction 	<ul style="list-style-type: none"> Check availability of approved Method Statement
	55.	Aim to minimise waste through reducing and re-using (packaging) material.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check records of recycling Check waste for presence of reusable materials
	56.	Establish separate weather and vermin proof stores for a) general and b) hazardous waste at construction camps and mark these clearly.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Construction camp establishment 	<ul style="list-style-type: none"> Check separate waste storage areas
	57.	Bund hazardous waste stores.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Construction camp establishment 	<ul style="list-style-type: none"> Check hazardous waste storage areas bunded
	58.	Provide separate weather and vermin proof bins for a) general and b) hazardous waste at active work areas and mark these clearly.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check bins available in active work areas
	59.	Store recyclable waste separately and deliver to suitable facilities or arrange for collection.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check records of recycling
	60.	Clean-up and dispose of any material spilled from trucks during transport to or from the site.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check spills cleaned

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	61.	Dispose waste regularly to appropriate licensed waste disposal facilities.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check waste disposal receipts
	62.	Prevent littering by construction staff at work sites and construction camps.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check presence of litter
	63.	Do not allow any burning or burying of waste on site.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check no waste burnt or buried on site
Cement Work Management	64.	Favour Ready-Mix over on-site cement batching.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that Ready-Mix use is favoured wherever possible
	65.	Prohibit on-site cleaning of Ready-Mix truck delivery chutes.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of on-site cleaning of Ready-Mix truck delivery chutes
	66.	Batch cement in impermeable bunded areas outside of any watercourses and within the boundaries of the development footprint or construction camp only (where unavoidable)	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check cement batching areas bunded outside of any watercourses
	67.	Physically remove any remains of concrete, either solid, or liquid, immediately after batching activities and dispose at licensed disposal facilities.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of any remains of concrete
	68.	Place empty cement bags in bins and dispose at licensed disposal facilities.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check empty cement bags placed in bins Check waste receipts
Effluent Management	69.	Install appropriate pollution control facilities to prevent discharge of water containing polluting matter or suspended materials into watercourses or water bodies (e.g. the installation of silt fences).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check pollution control measures installed at areas where effluent is generated or stored
	70.	Clean vehicles and equipment in dedicated impermeable areas only.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check vehicles and equipment cleaned in appropriate areas only
	71.	Collect effluent from refuelling, and vehicle and equipment cleaning areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check effluent collected from refuelling, and vehicle and equipment cleaning areas.
	72.	Collect and strictly control runoff from the concrete batching areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check effluent from cement batching controlled and collected
	73.	Dispose of effluent from bunded, refuelling, cleaning and cement batching areas off-site at licensed disposal facilities.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check waste receipts Check for evidence of on-site disposal
	74.	Dispose of contaminated stormwater (e.g. from bunded areas) at licensed disposal facilities.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check waste receipts Check for evidence of on-site disposal
Stormwater Management	75.	Install cut-off trenches with silt traps around work areas within 50 m of any watercourse where wet-season work is permissible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check cut-off trenches installed at active work areas during the wet season (May-Sept)
	76.	Use berms and stormwater drainage systems to prevent surface run-off from entering site excavations where necessary.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check build-up of runoff in excavations
	77.	Stabilize exposed slopes within 30 m of any watercourse as soon as these are created (e.g. at stockpiles and cut and fill areas) to prevent sedimentation.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that exposed slopes within 30m of any watercourse are stabilised

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method and Performance Indicators
	78.	Divert (uncontaminated) runoff into natural drainage lines and provide erosion control in these areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of erosion Check for evidence of contaminated runoff (e.g. sedimentation)
Erosion Control	79.	Stabilize exposed slopes within 30 m of any watercourse as soon as these are created (e.g. at stockpiles and cut and fill areas) to prevent sedimentation.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that exposed slopes within 30m of any watercourse are stabilised
	80.	Close and rehabilitate erosion gullies as they form.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of erosion gullies Check that erosion gullies are closed and rehabilitated
	81.	Install silt fences and erosion prevention measures in areas sensitive to erosion.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check silt fences and erosion prevention measures are installed in areas sensitive to erosion
	82.	Avoid clearing of vegetation until absolutely necessary.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check areas are not cleared prematurely
Water Conservation	83.	Minimise the use of potable water as far as practically possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of water wastage
	84.	Reuse and recycle water wherever possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that water is recycled and reused where possible
Topsoil Conservation and Management	85.	Limit the extent of construction and lay down areas as far as possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances / vegetation clearing
	86.	Harvest topsoil (up to a maximum of 30 cm depth) where opportunities arise (e.g. from the footprints of new access roads).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of construction in new area 	<ul style="list-style-type: none"> Check that topsoil is harvested
	87.	Stockpile topsoil prior to the commencement of construction activities (stockpile no higher than 2m) and conserve topsoil for rehabilitation.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of construction in new area 	<ul style="list-style-type: none"> Check that topsoil stockpiles are below 2m in height and protected from wind and water erosion
	88.	Replace harvested topsoil in areas that are to be rehabilitated as soon as sections of the works are completed (i.e. not only following the completion of all works).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Completion of construction in each area 	<ul style="list-style-type: none"> Check that topsoil is replaced
Protection of Flora	89.	Appoint a suitably qualified botanist to conduct a spring season search and rescue for floral SCC (focusing on geophytes) in areas specified in Error! Reference source not found.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Prior to clearing in each area During spring 	<ul style="list-style-type: none"> Check records of search and rescue
	90.	Limit the project footprint to what is absolutely essential.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances / vegetation clearing
	91.	Assemble pylons off-site where possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> During pylon assembly 	<ul style="list-style-type: none"> None
	92.	Designate areas outside the development footprint as no-go areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	93.	Restrict access to no-go areas by construction personal.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	94.	Restrict the movement of vehicles to new and existing access roads only.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances from vehicles
	95.	Ensure that no vegetation is removed or disturbed beyond the approved construction and access footprint.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances / vegetation clearing

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method and Performance Indicators
	96.	Stockpile all materials in disturbed areas or in areas approved by the ECO.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check stockpiles located in disturbed areas or in areas approved by ECO in writing
	97.	Dispose of excess or blast material in disturbed areas at least 20m from any watercourse.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that excess and blast material is disposed of in disturbed areas
	98.	Get ECO approval of laydown areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of construction in new area 	<ul style="list-style-type: none"> Check written approval from ECO in place
Protection of Fauna	99.	Educate construction staff of the sensitivity and possible presence of rare tortoise species.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check environmental awareness training material
	100	Photograph and record the location of any tortoise found on site, dead or alive.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check records of tortoise finds on site
	101	Report the tortoise find to CapeNature and the ECO.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check reports to the ECO and CapeNature
	102	Move live tortoise specimens the shortest distance possible away from the disturbance footprint.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> None
	103	Apply no-fire policy on site.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of fires
	104	Apply a no-poaching policy on site.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of faunal mortalities
	105	Avoid fauna when driving on site (especially tortoises).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of faunal mortalities
	106	Safely remove and relocate any fauna that may be physically harmed by construction activities.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> None
	107	Check pits and excavations regularly for animals that may have fallen in.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of faunal mortalities
Protection of Watercourses	108	Limit the project footprint to what is absolutely essential.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	109	Locate lay-down areas at least 20 m from all watercourses (or if this is not possible, in consultation with the ECO).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of construction in new area 	<ul style="list-style-type: none"> Check laydown areas are at least 20m from all watercourses or approved by ECO
	110	Designate areas outside the development footprint as no-go areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	111	Restrict access to no-go areas by construction personal.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	112	Restrict the movement of vehicles to new and existing access roads only.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances from vehicles
	113	Construct new watercourse crossings and upgrade existing watercourse crossings during the dry season (Oct-Apr) only (and as specified in Error! Reference source not found.).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> During construction of watercourses 	<ul style="list-style-type: none"> Check that construction of watercourse crossings takes place in the dry season
	114	Select vehicle access routes adjacent to watercourse crossings with the input of a freshwater ecologist and botanist prior to construction.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Prior to construction of watercourse crossings 	<ul style="list-style-type: none"> Check written approval of access routes adjacent to watercourse crossings from freshwater ecologist
	115	Remove blast material from watercourses and dispose at least 20 m from any watercourse in disturbed areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that blast material is removed from watercourses
	116	Undertake vegetation clearing by hand in watercourses.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of mechanical vegetation clearing in watercourses

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method and Performance Indicators
	117	String conductors by hand through watercourses.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> During conductor stringing 	<ul style="list-style-type: none"> Check for evidence of mechanical stringing in watercourses
	118	Remove cuttings of alien vegetation from the site.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Following the clearing of alien vegetation 	<ul style="list-style-type: none"> Check that cuttings of alien vegetation have been removed from the site
	119	Apply herbicides to cleared stands of alien plants to prevent re-sprouting.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Following the clearing of alien vegetation 	<ul style="list-style-type: none"> Check records of herbicide applications
	120	Rehabilitate affected areas concurrently with construction, rather than undertaking all rehabilitation at the end of the contract period.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> End of construction in each area 	<ul style="list-style-type: none"> Check that rehabilitation takes place concurrently with construction
	121	Revegetate using locally indigenous plant species and harvested topsoil.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> End of construction in each area 	<ul style="list-style-type: none"> Check that rehabilitation takes place with locally indigenous plant species and harvested topsoil
Dust Management	122	Implement dust suppression measures on exposed surfaces (e.g. by dampening, covering or applying chemical containment products).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that dust suppression measures are in place
	123	"Pre-water" areas earmarked for disturbance and material that is to be moved, if possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> None
	124	Limit clearing of vegetation to the construction footprint.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	125	Avoid clearing of vegetation until absolutely necessary.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check areas are not cleared prematurely
	126	Avoid handling and transport of materials which may generate dust under high wind conditions or when a visible dust plume is present.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for complaints about dust from road users
	127	Cover trucks transporting loose material to or from site with tarpaulins, plastic or canvas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that trucks transporting loose material are covered
	128	Locate stockpiles in sheltered areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that stockpiles are located in sheltered areas
	129	Minimise the size and slope of stockpiles (maximum slope of 1:3).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that stockpiles slopes are less steep than 1:3
	130	Cover stockpiles when not in active use.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that stockpiles are covered when not in active use
	131	Limit vehicle speeds to 30 km/h on all unsurfaced access tracks.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for complaints about dust
	132	Sweep roads at site entrance and exit points where there is a visible accumulation of loose material.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that roads at site entrances are well maintained
	133	Investigate and respond to complaints about dust and take appropriate corrective action.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence that complaints about dust have been responded to Check that additional mitigation measures are applied to prevent reoccurrences
Noise Management	134	Limit construction activities to Mondays to Saturdays between the hours of 07h00 and 18h00, or in accordance with relevant municipal bylaws, if applicable.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for complaints about noise

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	135	Limit particularly noisy operations (including blasting) to Mondays to Fridays between the hours of 08h00 and 17h00.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for complaints about noise
	136	Notify the community of the proposed blasting schedule by way of notice boards near the blasting site and in the local press.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Prior to blasting activities 	<ul style="list-style-type: none"> Check for evidence of community notices
	137	Maintain construction equipment and vehicles in good working order to prevent unnecessary noise.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check vehicle and equipment maintenance records
	138	Limit vehicle speeds to 30 km/h on all unsurfaced access tracks.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for complaints about noise
	139	Investigate and respond to complaints about excessive noise and take appropriate corrective action.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence that complaints about noise have been responded to Check that additional mitigation measures are applied to prevent reoccurrences
Traffic Management	140	Stagger deliveries if possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for complaints from other road users
	141	Arrange for the delivery of materials outside of "rush hours" if possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for complaints from other road users
	142	Use appropriate road signage, in accordance with the South African Traffic Safety Manual, providing flagmen, barriers etc. at the various access points.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that road signage is in place
	143	Ensure that large construction vehicles are suitably marked and visible to other road users and pedestrians.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that large construction vehicles are suitably marked and visible
	144	Ensure that all safety measures are observed and that drivers comply with the rules of the road.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for complaints from other road users
	145	Investigate and respond to complaints about traffic.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence that complaints about traffic have been responded to Check that additional mitigation measures are applied to prevent reoccurrences
Protection of Archaeological and Paleontological Resources	146	Empower staff to stop works on (chance) discovery of artefacts at the site.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> None
	147	Report the presence of graves or human remains, fragments of fossil bone, ostrich egg and stone fragments to HWC.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check reports of chance finds Check reports to HWC
	148	Obtain a permit for the removal of artefacts from the site if any are discovered during construction.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check permits in place
Visual Mitigation	149	Do not install lights on pylons.	<ul style="list-style-type: none"> Eskom Contractor 	<ul style="list-style-type: none"> Throughout 	<ul style="list-style-type: none"> Check no lights installed on pylons
	150	Prune large indigenous trees and shrubs rather than clearing vegetation completely, where possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check that pruning (and not clearing) has taken place where practical
	151	Consolidate the footprint of the construction camp to a functional minimum.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Construction camp establishment 	<ul style="list-style-type: none"> Check that construction camps are consolidated as far as possible

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method and Performance Indicators
	152	Screen construction camps with materials that blend into the surrounding area, where necessary and possible.	• Contractor	• Construction camp establishment	• Check that construction camps are screened
	153	Rehabilitate disturbed areas incrementally and as soon as possible, not necessarily waiting until completion of the Construction Phase.	• Contractor	• End of construction in each area	• Check that rehabilitation takes place concurrently with construction
Employment and Procurement	154	Purchase goods (materials) and services from local sources wherever possible.	• Contractor	• Throughout construction	• Check records of local employment
Temporary Site Closure (more than 5 days)	155	Remove equipment from active work areas.	• Contractor	• Temporary site closure	• Check equipment removed from active work areas
	156	Secure construction camps and provide 24-hour security where necessary.	• Contractor	• Temporary site closure	• Check construction camps secured
	157	Make fire extinguishers accessible to security staff at construction camps.	• Contractor	• Temporary site closure	• Check fire extinguishers available
	158	Ventilate hazardous substance stores.	• Contractor	• Temporary site closure	• Check that hazardous substance stores are ventilated
	159	Display emergency procedures and contact details.	• Contractor	• Temporary site closure	• Check that emergency procedures and contact details are displayed
	160	Implement dust mitigation (e.g. cover stockpiles).	• Contractor	• Temporary site closure	• Check that dust mitigation is in place
	161	Secure structures vulnerable to high winds.	• Contractor	• Temporary site closure	• Check that structures vulnerable to high winds are secured
	162	Empty and secure portable toilets.	• Contractor	• Temporary site closure	• Check the portable toilets are emptied and secured
	163	Empty and secure waste stores.	• Contractor	• Temporary site closure	• Check the waste stores are emptied and secured
Closure and Rehabilitation	164	Remove all construction equipment, vehicles, waste and surplus materials, site office facilities, temporary fencing and other items from the site.	• Contractor	• Site closure	• Check all equipment and materials removed from site
	165	Clean up and remove any spills and contaminated soil in the appropriate manner.	• Contractor	• Site closure	• Check contaminated areas addressed
	166	Do not bury discarded materials on site or on any other land not designated for this purpose.	• Contractor	• Site closure	• Check for evidence of burying on site
	167	Rehabilitate each site by revegetating cleared areas, and ripping and revegetating compacted areas.	• Contractor	• Site closure	• Check that all areas (other than access roads) are rehabilitated
	168	Rehabilitate areas that have not been rehabilitated concurrently with construction.	• Contractor	• Site closure	• Check that all areas (other than access roads) are rehabilitated
	169	Use harvested topsoil for rehabilitation.	• Contractor	• Site closure	• Check that harvested topsoil is used for rehabilitation

Table 3-2: Environmental management and mitigation measures that must be implemented during the Construction Phase

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
General	170.	Apply site specific Construction Phase mitigation measures as specified in Appendix A of the EMPr.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check site specific mitigation implemented
	171.	Update the Operational Phase EMPr with lessons learnt during construction in consultation with the DEA (if better practices are identified during this phase)	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Following construction 	<ul style="list-style-type: none"> Check updated MMP
Community Complaints	172.	Maintain a complaints register and respond to complaints that are made.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check complaints register
	173.	Include the following information in the complaints register: <ul style="list-style-type: none"> Complainant name and contact details; Date complaint was lodged; Person who recorded the complaint; Nature of the complaint; Actions taken to investigate the complaint and outcome of the investigation; Action taken to remedy the situation; and Date on which feedback was provided to complainant. 	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check complaints register
Site Establishment	174.	Appoint an independent ECO to oversee construction activities.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Before construction activities commence 	<ul style="list-style-type: none"> Check appointment
	175.	Inform landowners before construction activities move onto their property.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check correspondence with landowners
	176.	Locate all construction camps in transformed areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check location of construction camps
	177.	Submit a method statement for construction camp establishment (including proposed location/s and layout) for approval by the ECO at least two weeks prior to the start of establishment of each camp.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Prior to the establishment of each construction camp 	<ul style="list-style-type: none"> Check availability of approved method statements
	178.	Fence construction camps.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check construction camps fenced
	179.	Consolidate the footprint of construction camps to a functional minimum.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check construction camps footprints
	180.	Demarcate construction footprints and restrict access beyond these areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Before construction commences at each section of the line 	<ul style="list-style-type: none"> Check no-go areas demarcated

⁵ Unless otherwise indicated, monitoring will be undertaken by the ECO, supported by the authorities where the requirement is specifically stipulated in a licence or permit.

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
Ablutions	181.	Provide ablation facilities (i.e. chemical toilets) at construction camps and active work areas for staff at a ratio of at least 1 toilet per 25 workers.	• Contractor	• Throughout construction	• Check that ablation facilities provided at the minimum ratio
	182.	Locate ablation facilities at least 100 m from the edge of any watercourse (or in consultation with the ECO where this is not possible).	• Contractor	• Throughout construction	• Check ablation facilities more than 100m from any watercourse
	183.	Secure all temporary / portable toilets to the ground to prevent them toppling due to wind or any other cause.	• Contractors	• Throughout construction	• Check that portable toilets are secure
	184.	Maintain toilets in a hygienic state (i.e. provide toilet dispensers, clean toilets and service regularly).	• Contractor	• Throughout construction	• Check toilets are maintained in a hygienic state
	185.	Empty toilets before long weekends and builders' holidays.	• Contractor	• Throughout construction	• Check toilets are emptied
	186.	Prevent spillages when the toilets are cleaned or emptied.	• Contractor	• Throughout construction	• Check for evidence of portable toilet chemical spills
Fire Protection	187.	Prohibit fires on site.	• Contractor	• Throughout construction	• Check for evidence of fires
	188.	Notify local Fire Protection Agency (FPA) of construction activities.	• Contractor	• Throughout construction	• Check record of correspondence
	189.	Provide sufficient fire-fighting equipment at the construction camp and all work areas.	• Contractor	• Throughout construction	• Check equipment is available
	190.	Equip all fuel stores and waste storage areas with fire extinguishers.	• Contractor	• Throughout construction	• Check equipment is available
	191.	Ensure that all personnel are aware of firefighting equipment and how it is operated.	• Contractor	• Throughout construction	• Check induction material
	192.	Maintain firefighting equipment.	• Contractor	• Throughout construction	• Check records of servicing
Safety and Security	193.	Establish emergency procedures (in relation to fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc.).	• Contractor	• Before construction activities commence	• Check emergency procedures
	194.	Display emergency procedures conspicuously at all appropriate locations.	• Contractor	• Throughout construction	• Check emergency procedures displayed
	195.	Advise the ECO of any emergencies on site, together with a record of action taken	• Contractor	• Throughout construction	• Check record of incidents
	196.	Demarcate any areas which may pose a safety risk (including hazardous substances, deep excavations etc.).	• Contractor	• Throughout construction	• Check that safety risks are demarcated
	197.	Store all construction material and equipment in locked containers within the construction camp.	• Contractor	• Throughout construction	• Check materials stores are secured
	198.	Secure construction camps and restrict unauthorized access to fuels and any other hazardous substances.	• Contractor	• Throughout construction	• Check construction camp is secured
	199.	Provide environmental awareness training for construction activities.	• Contractors	• Throughout construction	• Check records of environmental awareness training provided

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
Environmental Awareness Training	200.	Maintain a record of awareness training provided.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check records of environmental awareness training provided
	201.	Include the following aspects in the environmental awareness plan and onsite inductions: <ul style="list-style-type: none"> Environmentally sensitive and no-go areas; Potential impact of construction on the environment; Waste and wastewater management; Key and site specific measures in the EMPr relevant to the site and worker's activities; Emergency preparedness and response procedures; Water conservation; Sanitation; and Incident reporting. 	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of construction and when new staff come onto site 	<ul style="list-style-type: none"> Check environmental awareness training plan
	202.	Use the EMPr and BAR to inform the content of awareness training.	<ul style="list-style-type: none"> Contractors 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check training material
	203.	Tailor environmental awareness training to the area currently under construction (e.g. no-go areas, potential impact on the environment, key and site specific EMPr measures, etc.).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of construction in new area 	<ul style="list-style-type: none"> Check updated environmental awareness training plan
Hazardous Materials Management	204.	Design and construct impermeable hazardous material storage facilities with a minimum bund containment capacity equal to 110% of the largest container.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Construction camp establishment 	<ul style="list-style-type: none"> Check hazardous material storage facilities
	205.	Locate hazardous material storage facilities as far as practically possible from watercourses (no closer than 100 m).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check location of hazardous material storage facilities
	206.	Place potential contaminants (including cement) on impervious surfaces.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check storage of hazardous substances takes place on impermeable surfaces
	207.	Develop (or adapt and implement) procedures for the safe transport, handling and storage of potential pollutants.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of construction 	<ul style="list-style-type: none"> Check procedures for the safe transport, handling and storage of potential pollutants
	208.	Implement procedures for the safe transport, handling and storage of potential pollutants.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check implementation of procedures for the safe transport, handling and storage of potential pollutants
	209.	Avoid unnecessary use and transport of hazardous substances.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check use and transport of hazardous substances and incidences of spills
	210.	Keep Material Safety Data Sheets (MSDS) for all hazardous materials on site and ensure that they are available for reference by staff responsible for handling and storage of materials.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check MSDS available for all hazardous substances on site

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
	211.	Maintain vehicles and machinery to prevent leaks of hydrocarbon materials.	• Contractor	• Throughout construction	• Check evidence of leaks • Check inspection / maintenance records
	212.	Repair minor leaks to vehicles and equipment immediately as these are identified.	• Contractor	• Throughout construction	• Check evidence of leaks • Check inspection / maintenance records
Refuelling and Maintenance	213.	Establish dedicated impermeable areas for vehicle refuelling and maintenance at construction camps at least 50m from any watercourse.	• Contractor	• Start of construction	• Check refuelling areas established
	214.	Favour refuelling and maintenance of vehicles and equipment in dedicated areas.	• Contractor	• Throughout construction	• None
	215.	Conduct on-site refuelling and emergency repairs if absolutely essential with appropriate impermeable ground cover (e.g. use drip trays) further than 50m from any watercourse.	• Contractor	• Throughout construction	• Check on-site refuelling and emergency repairs take place more than 50 m from any watercourse
Response to Environmental Pollution	216.	Immediately stop any activity causing environmental pollution, e.g. leaks and spillages.	• Contractor	• Throughout construction	• Check that no activities cause environmental pollution on site
	217.	Clean up any spills immediately, through containment and removal of free product and appropriate disposal as hazardous waste / remediation of contaminated soils.	• Contractor	• Throughout construction	• Check that spills have been addressed as specified
	218.	Provide appropriate quantities of bioremediation products to address spills that do occur.	• Contractor	• Throughout construction	• Check that appropriate quantities of bioremediation products are available
	219.	Provide spill containment and clean-up equipment in all areas where refuelling and / or maintenance activities will take place.	• Contractor	• Throughout construction	• Check that spill containment and clean-up equipment is available
	220.	Repair faulty equipment as soon as possible.	• Contractor	• Throughout construction	• Check maintenance records
	221.	Implement mitigation to prevent reoccurrences of environmental pollution (e.g. additional bunding).	• Contractor	• Throughout construction	• Check responses to spills that have taken place
	222.	Notify Eskom and the relevant authorities (DEA) within one day of a major environmental pollution event.	• Eskom	• Throughout construction	• Check evidence of correspondence between Eskom and authorities
Waste Management	223.	Submit a Method Statement for waste management (including hazardous waste)	• Contractor	• Start of construction	• Check availability of approved Method Statement
	224.	Aim to minimise waste through reducing and re-using (packaging) material.	• Contractor	• Throughout construction	• Check records of recycling • Check waste for presence of reusable materials
	225.	Establish separate weather and vermin proof stores for a) general and b) hazardous waste at construction camps and mark these clearly.	• Contractor	• Construction camp establishment	• Check separate waste storage areas
	226.	Bund hazardous waste stores.	• Contractor	• Construction camp establishment	• Check hazardous waste storage areas banded

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
	227.	Provide separate weather and vermin proof bins for a) general and b) hazardous waste at active work areas and mark these clearly.	• Contractor	• Throughout construction	• Check bins available in active work areas
	228.	Store recyclable waste separately and deliver to suitable facilities or arrange for collection.	• Contractor	• Throughout construction	• Check records of recycling
	229.	Clean-up and dispose of any material spilled from trucks during transport to or from the site.	• Contractor	• Throughout construction	• Check spills cleaned
	230.	Dispose waste regularly to appropriate licensed waste disposal facilities.	• Contractor	• Throughout construction	• Check waste disposal receipts
	231.	Prevent littering by construction staff at work sites and construction camps.	• Contractor	• Throughout construction	• Check presence of litter
	232.	Do not allow any burning or burying of waste on site.	• Contractor	• Throughout construction	• Check no waste burnt or buried on site
Cement Work Management	233.	Favour Ready-Mix over on-site cement batching.	• Contractor	• Throughout construction	• Check that Ready-Mix use is favoured wherever possible
	234.	Prohibit on-site cleaning of Ready-Mix truck delivery chutes.	• Contractor	• Throughout construction	• Check for evidence of on-site cleaning of Ready-Mix truck delivery chutes
	235.	Batch cement in impermeable bunded areas outside of any watercourses and within the boundaries of the development footprint or construction camp only (where unavoidable)	• Contractor	• Throughout construction	• Check cement batching areas bunded outside of any watercourses
	236.	Physically remove any remains of concrete, either solid, or liquid, immediately after batching activities and dispose at licensed disposal facilities.	• Contractor	• Throughout construction	• Check for evidence of any remains of concrete
	237.	Place empty cement bags in bins and dispose at licensed disposal facilities.	• Contractor	• Throughout construction	• Check empty cement bags placed in bins • Check waste receipts
Effluent Management	238.	Install appropriate pollution control facilities to prevent discharge of water containing polluting matter or suspended materials into watercourses or water bodies (e.g. the installation of silt fences).	• Contractor	• Throughout construction	• Check pollution control measures installed at areas where effluent is generated or stored
	239.	Clean vehicles and equipment in dedicated impermeable areas only.	• Contractor	• Throughout construction	• Check vehicles and equipment cleaned in appropriate areas only
	240.	Collect effluent from refuelling, and vehicle and equipment cleaning areas.	• Contractor	• Throughout construction	• Check effluent collected from refuelling, and vehicle and equipment cleaning areas.
	241.	Collect and strictly control runoff from the concrete batching areas.	• Contractor	• Throughout construction	• Check effluent from cement batching controlled and collected
	242.	Dispose of effluent from bunded, refuelling, cleaning and cement batching areas off-site at licensed disposal facilities.	• Contractor	• Throughout construction	• Check waste receipts • Check for evidence of on-site disposal

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
	243.	Dispose of contaminated stormwater (e.g. from bunded areas) at licensed disposal facilities.	• Contractor	• Throughout construction	<ul style="list-style-type: none"> • Check waste receipts • Check for evidence of on-site disposal
Stormwater Management	244.	Install cut-off trenches with silt traps around work areas within 50 m of any watercourse where wet-season work is permissible.	• Contractor	• Throughout construction	• Check cut-off trenches installed at active work areas during the wet season (May-Sept)
	245.	Use berms and stormwater drainage systems to prevent surface run-off from entering site excavations where necessary.	• Contractor	• Throughout construction	• Check build-up of runoff in excavations
	246.	Stabilize exposed slopes within 30 m of any watercourse as soon as these are created (e.g. at stockpiles and cut and fill areas) to prevent sedimentation.	• Contractor	• Throughout construction	• Check that exposed slopes within 30m of any watercourse are stabilised
	247.	Divert (uncontaminated) runoff into natural drainage lines and provide erosion control in these areas.	• Contractor	• Throughout construction	<ul style="list-style-type: none"> • Check for evidence of erosion • Check for evidence of contaminated runoff (e.g. sedimentation)
Erosion Control	248.	Stabilize exposed slopes within 30 m of any watercourse as soon as these are created (e.g. at stockpiles and cut and fill areas) to prevent sedimentation.	• Contractor	• Throughout construction	• Check that exposed slopes within 30m of any watercourse are stabilised
	249.	Close and rehabilitate erosion gullies as they form.	• Contractor	• Throughout construction	<ul style="list-style-type: none"> • Check for evidence of erosion gullies • Check that erosion gullies are closed and rehabilitated
	250.	Install silt fences and erosion prevention measures in areas sensitive to erosion.	• Contractor	• Throughout construction	• Check silt fences and erosion prevention measures are installed in areas sensitive to erosion
	251.	Avoid clearing of vegetation until absolutely necessary.	• Contractor	• Throughout construction	• Check areas are not cleared prematurely
Water Conservation	252.	Minimise the use of potable water as far as practically possible.	• Contractor	• Throughout construction	• Check for evidence of water wastage
	253.	Reuse and recycle water wherever possible.	• Contractor	• Throughout construction	• Check that water is recycled and reused where possible
Topsoil Conservation and Management	254.	Limit the extent of construction and lay down areas as far as possible.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances / vegetation clearing
	255.	Harvest topsoil (up to a maximum of 30 cm depth) where opportunities arise (e.g. from the footprints of new access roads).	• Contractor	• Start of construction in new area	• Check that topsoil is harvested
	256.	Stockpile topsoil prior to the commencement of construction activities (stockpile no higher than 2m) and conserve topsoil for rehabilitation.	• Contractor	• Start of construction in new area	• Check that topsoil stockpiles are below 2m in height and protected from wind and water erosion
	257.	Replace harvested topsoil in areas that are to be rehabilitated as soon as sections of the works are completed (i.e. not only following the completion of all works).	• Contractor	• Completion of construction in each area	• Check that topsoil is replaced

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
Protection of Flora	258.	Appoint a suitably qualified botanist to conduct a spring season search and rescue for floral SCC (focusing on geophytes) in areas specified in Error! Reference source not found.	• Contractor	<ul style="list-style-type: none"> • Prior to clearing in each area • During spring 	• Check records of search and rescue
	259.	Limit the project footprint to what is absolutely essential.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances / vegetation clearing
	260.	Assemble pylons off-site where possible.	• Contractor	• During pylon assembly	• None
	261.	Designate areas outside the development footprint as no-go areas.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances
	262.	Restrict access to no-go areas by construction personal.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances
	263.	Restrict the movement of vehicles to new and existing access roads only.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances from vehicles
	264.	Ensure that no vegetation is removed or disturbed beyond the approved construction and access footprint.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances / vegetation clearing
	265.	Stockpile all materials in disturbed areas or in areas approved by the ECO.	• Contractor	• Throughout construction	• Check stockpiles located in disturbed areas or in areas approved by ECO in writing
	266.	Dispose of excess or blast material in disturbed areas at least 20m from any watercourse.	• Contractor	• Throughout construction	• Check that excess and blast material is disposed of in disturbed areas
	267.	Get ECO approval of laydown areas.	• Contractor	• Start of construction in new area	• Check written approval from ECO in place
Protection of Fauna	268.	Educate construction staff of the sensitivity and possible presence of rare tortoise species.	• Contractor	• Throughout construction	• Check environmental awareness training material
	269.	Photograph and record the location of any tortoise found on site, dead or alive.	• Contractor	• Throughout construction	• Check records of tortoise finds on site
	270.	Report the tortoise find to CapeNature and the ECO.	• Contractor	• Throughout construction	• Check reports to the ECO and CapeNature
	271.	Move live tortoise specimens the shortest distance possible away from the disturbance footprint.	• Contractor	• Throughout construction	• None
	272.	Apply no-fire policy on site.	• Contractor	• Throughout construction	• Check for evidence of fires
	273.	Apply a no-poaching policy on site.	• Contractor	• Throughout construction	• Check for evidence of faunal mortalities
	274.	Avoid fauna when driving on site (especially tortoises).	• Contractor	• Throughout construction	• Check for evidence of faunal mortalities
	275.	Safely remove and relocate any fauna that may be physically harmed by construction activities.	• Contractor	• Throughout construction	• None
	276.	Check pits and excavations regularly for animals that may have fallen in.	• Contractor	• Throughout construction	• Check for evidence of faunal mortalities

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
Protection of Watercourses	277.	Limit the project footprint to what is absolutely essential.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances
	278.	Locate lay-down areas at least 20 m from all watercourses (or if this is not possible, in consultation with the ECO).	• Contractor	• Start of construction in new area	• Check laydown areas are at least 20m from all watercourses or approved by ECO
	279.	Designate areas outside the development footprint as no-go areas.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances
	280.	Restrict access to no-go areas by construction personal.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances
	281.	Restrict the movement of vehicles to new and existing access roads only.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances from vehicles
	282.	Construct new watercourse crossings and upgrade existing watercourse crossings during the dry season (Oct-Apr) only (and as specified in Error! Reference source not found.).	• Contractor	• During construction of watercourses	• Check that construction of watercourse crossings takes place in the dry season
	283.	Select vehicle access routes adjacent to watercourse crossings with the input of a freshwater ecologist and botanist prior to construction.	• Eskom	• Prior to construction of watercourse crossings	• Check written approval of access routes adjacent to watercourse crossings from freshwater ecologist
	284.	Remove blast material from watercourses and dispose at least 20 m from any watercourse in disturbed areas.	• Contractor	• Throughout construction	• Check that blast material is removed from watercourses
	285.	Undertake vegetation clearing by hand in watercourses.	• Contractor	• Throughout construction	• Check for evidence of mechanical vegetation clearing in watercourses
	286.	String conductors by hand through watercourses.	• Contractor	• During conductor stringing	• Check for evidence of mechanical stringing in watercourses
	287.	Remove cuttings of alien vegetation from the site.	• Contractor	• Following the clearing of alien vegetation	• Check that cuttings of alien vegetation have been removed from the site
	288.	Apply herbicides to cleared stands of alien plants to prevent re-sprouting.	• Contractor	• Following the clearing of alien vegetation	• Check records of herbicide applications
	289.	Rehabilitate affected areas concurrently with construction, rather than undertaking all rehabilitation at the end of the contract period.	• Contractor	• End of construction in each area	• Check that rehabilitation takes place concurrently with construction
	290.	Revegetate using locally indigenous plant species and harvested topsoil.	• Contractor	• End of construction in each area	• Check that rehabilitation takes place with locally indigenous plant species and harvested topsoil
Dust Management	291.	Implement dust suppression measures on exposed surfaces (e.g. by dampening, covering or applying chemical containment products).	• Contractor	• Throughout construction	• Check that dust suppression measures are in place
	292.	"Pre-water" areas earmarked for disturbance and material that is to be moved, if possible.	• Contractor	• Throughout construction	• None
	293.	Limit clearing of vegetation to the construction footprint.	• Contractor	• Throughout construction	• Check for evidence of offsite disturbances

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
	294.	Avoid clearing of vegetation until absolutely necessary.	• Contractor	• Throughout construction	• Check areas are not cleared prematurely
	295.	Avoid handling and transport of materials which may generate dust under high wind conditions or when a visible dust plume is present.	• Contractor	• Throughout construction	• Check for complaints about dust from road users
	296.	Cover trucks transporting loose material to or from site with tarpaulins, plastic or canvas.	• Contractor	• Throughout construction	• Check that trucks transporting loose material are covered
	297.	Locate stockpiles in sheltered areas.	• Contractor	• Throughout construction	• Check that stockpiles are located in sheltered areas
	298.	Minimise the size and slope of stockpiles (maximum slope of 1:3).	• Contractor	• Throughout construction	• Check that stockpiles slopes are less steep than 1:3
	299.	Cover stockpiles when not in active use.	• Contractor	• Throughout construction	• Check that stockpiles are covered when not in active use
	300.	Limit vehicle speeds to 30 km/h on all unsurfaced access tracks.	• Contractor	• Throughout construction	• Check for complaints about dust
	301.	Sweep roads at site entrance and exit points where there is a visible accumulation of loose material.	• Contractor	• Throughout construction	• Check that roads at site entrances are well maintained
	302.	Investigate and respond to complaints about dust and take appropriate corrective action.	• Contractor	• Throughout construction	<ul style="list-style-type: none"> • Check for evidence that complaints about dust have been responded to • Check that additional mitigation measures are applied to prevent reoccurrences
Noise Management	303.	Limit construction activities to Mondays to Saturdays between the hours of 07h00 and 18h00, or in accordance with relevant municipal bylaws, if applicable.	• Contractor	• Throughout construction	• Check for complaints about noise
	304.	Limit particularly noisy operations (including blasting) to Mondays to Fridays between the hours of 08h00 and 17h00.	• Contractor	• Throughout construction	• Check for complaints about noise
	305.	Notify the community of the proposed blasting schedule by way of notice boards near the blasting site and in the local press.	• Contractor	• Prior to blasting activities	• Check for evidence of community notices
	306.	Maintain construction equipment and vehicles in good working order to prevent unnecessary noise.	• Contractor	• Throughout construction	• Check vehicle and equipment maintenance records
	307.	Limit vehicle speeds to 30 km/h on all unsurfaced access tracks.	• Contractor	• Throughout construction	• Check for complaints about noise
	308.	Investigate and respond to complaints about excessive noise and take appropriate corrective action.	• Contractor	• Throughout construction	<ul style="list-style-type: none"> • Check for evidence that complaints about noise have been responded to • Check that additional mitigation measures are applied to prevent reoccurrences
	309.	Stagger deliveries if possible.	• Contractor	• Throughout construction	• Check for complaints from other road users

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
Traffic Management	310.	Arrange for the delivery of materials outside of “rush hours” if possible.	• Contractor	• Throughout construction	• Check for complaints from other road users
	311.	Use appropriate road signage, in accordance with the South African Traffic Safety Manual, providing flagmen, barriers etc. at the various access points.	• Contractor	• Throughout construction	• Check that road signage is in place
	312.	Ensure that large construction vehicles are suitably marked and visible to other road users and pedestrians.	• Contractor	• Throughout construction	• Check that large construction vehicles are suitably marked and visible
	313.	Ensure that all safety measures are observed and that drivers comply with the rules of the road.	• Contractor	• Throughout construction	• Check for complaints from other road users
	314.	Investigate and respond to complaints about traffic.	• Contractor	• Throughout construction	• Check for evidence that complaints about traffic have been responded to • Check that additional mitigation measures are applied to prevent reoccurrences
Protection of Archaeological and Paleontological Resources	315.	Empower staff to stop works on (chance) discovery of artefacts at the site.	• Contractor	• Throughout construction	• None
	316.	Report the presence of graves or human remains, fragments of fossil bone, ostrich egg and stone fragments to HWC.	• Contractor	• Throughout construction	• Check reports of chance finds • Check reports to HWC
	317.	Obtain a permit for the removal of artefacts from the site if any are discovered during construction.	• Contractor	• Throughout construction	• Check permits in place
Visual Mitigation	318.	Do not install lights on pylons.	• Eskom • Contractor	• Throughout	• Check no lights installed on pylons
	319.	Prune large indigenous trees and shrubs rather than clearing vegetation completely, where possible.	• Contractor	• Throughout construction	• Check that pruning (and not clearing) has taken place where practical
	320.	Consolidate the footprint of the construction camp to a functional minimum.	• Contractor	• Construction camp establishment	• Check that construction camps are consolidated as far as possible
	321.	Screen construction camps with materials that blend into the surrounding area, where necessary and possible.	• Contractor	• Construction camp establishment	• Check that construction camps are screened
	322.	Rehabilitate disturbed areas incrementally and as soon as possible, not necessarily waiting until completion of the Construction Phase.	• Contractor	• End of construction in each area	• Check that rehabilitation takes place concurrently with construction
Employment and Procurement	323.	Purchase goods (materials) and services from local sources wherever possible.	• Contractor	• Throughout construction	• Check records of local employment
Temporary Site Closure (more than 5 days)	324.	Remove equipment from active work areas.	• Contractor	• Temporary site closure	• Check equipment removed from active work areas
	325.	Secure construction camps and provide 24-hour security where necessary.	• Contractor	• Temporary site closure	• Check construction camps secured
	326.	Make fire extinguishers accessible to security staff at construction camps.	• Contractor	• Temporary site closure	• Check fire extinguishers available

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁵ and Performance Indicators
	327.	Ventilate hazardous substance stores.	• Contractor	• Temporary site closure	• Check that hazardous substance stores are ventilated
	328.	Display emergency procedures and contact details.	• Contractor	• Temporary site closure	• Check that emergency procedures and contact details are displayed
	329.	Implement dust mitigation (e.g. cover stockpiles).	• Contractor	• Temporary site closure	• Check that dust mitigation is in place
	330.	Secure structures vulnerable to high winds.	• Contractor	• Temporary site closure	• Check that structures vulnerable to high winds are secured
	331.	Empty and secure portable toilets.	• Contractor	• Temporary site closure	• Check the portable toilets are emptied and secured
	332.	Empty and secure waste stores.	• Contractor	• Temporary site closure	• Check the waste stores are emptied and secured
Closure and Rehabilitation	333.	Remove all construction equipment, vehicles, waste and surplus materials, site office facilities, temporary fencing and other items from the site.	• Contractor	• Site closure	• Check all equipment and materials removed from site
	334.	Clean up and remove any spills and contaminated soil in the appropriate manner.	• Contractor	• Site closure	• Check contaminated areas addressed
	335.	Do not bury discarded materials on site or on any other land not designated for this purpose.	• Contractor	• Site closure	• Check for evidence of burying on site
	336.	Rehabilitate each site by revegetating cleared areas, and ripping and revegetating compacted areas.	• Contractor	• Site closure	• Check that all areas (other than access roads) are rehabilitated
	337.	Rehabilitate areas that have not been rehabilitated concurrently with construction.	• Contractor	• Site closure	• Check that all areas (other than access roads) are rehabilitated
	338.	Use harvested topsoil for rehabilitation.	• Contractor	• Site closure	• Check that harvested topsoil is used for rehabilitation

4 Maintenance and Management Programme

The objective of MMP is to provide environmental management measures for the ongoing maintenance of the powerline and access roads, and emergency repairs.

Maintenance activities will include:

- Decommissioning the existing 66 kV line between the Romansriver and Ceres substations;
- Periodic and emergency repairs to pylons;
- Restrunging of conductors;
- Trimming and clearing of vegetation to maintain line clearance and access; and
- Clearing of debris from bridges and other watercourse crossings.

Eskom may trigger activities listed in NEMA during ongoing maintenance of the powerline and access roads (including bridges) associated with:

- Moving soil, sand, shells, shell grit, pebbles or rock in a watercourse; and
- Clearing indigenous vegetation.

Eskom can undertake these activities during maintenance without the need for Environmental Authorisation (EA) in terms of this MMP (once approved).

4.1 Roles and Responsibilities

The key role players during ongoing maintenance are:

- Eskom (the proponent); and
- Contractors responsible for maintenance.

Key roles and responsibilities during maintenance with respect to the implementation of the EMP are outlined below.

Eskom

- Ensure that all contractors executing work for Eskom for the project are aware of the requirements of the EMP;
- Appoint a suitably qualified and experienced staff member to review the environmental performance of contractors;
- Ensure that those responsible for the long term maintenance of the infrastructure are aware of the requirements of this MMP; and
- Implement and manage a programme of adequate infrastructure and servitude maintenance.

Contractors:

- Comply with the applicable environmental commitments, procedures, restrictions and guidance specified in the MMP;
- Ensure that copies of the MMP are available on site;
- Ensure that all personnel on site, (including any sub-contractors and their staff) are familiar with and understand the requirements of the MMP relevant to their activities; and
- Ensure that any problems and non-conformances are remedied in a timely manner, to the satisfaction of the relevant management personnel at Eskom.

4.2 Method Statements

If a Contractor is appointed to undertake maintenance, a Method Statement may be requested from the Contractor. The Method Statement will be submitted by the Contractor to Eskom not less than **14 days** prior to the intended date of commencement of maintenance. Eskom shall approve / reject the Method Statement within **2 days**. An activity covered by a Method Statement shall not commence until Eskom has approved of such method and once approved, the Contractor shall abide by the relevant Method Statement. A pro forma Method Statement is attached in Appendix B, although a suitable Method Statement format can be agreed between Eskom and Contractor.

4.3 Environmental Management Measures

The environmental management and mitigation measures that must be implemented during maintenance, as well as responsibilities and timelines for the implementation of these measures, are laid out in Table 4-1 below.

Table 4-1: Environmental management and mitigation measures that must be implemented during ongoing maintenance

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁶ and Performance Indicators
General	1.	Apply site specific Operations Phase mitigation measures as specified in Appendix A of the EMPr.	<ul style="list-style-type: none"> Contractor Eskom 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check site specific mitigation implemented
	2.	Define (in the MMP) and use helicopter landing locations and laydown areas established during construction for ongoing maintenance	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Following construction 	<ul style="list-style-type: none"> Check updated MMP
	3.	Update the Operational Phase EMPr with lessons learnt during operations in consultation with the DEA (if better practices are identified during this phase).	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check updated MMP
Compliance Monitoring	4.	Audit compliance with the MMP.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Once every two years 	<ul style="list-style-type: none"> Check record of audit
	5.	Record and retain the audit results.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Once every two years 	<ul style="list-style-type: none"> Check record of audit
	6.	Appoint a suitably qualified Eskom staff member to periodically inspect and report on compliance with the MMP during or following physical maintenance activities.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> At least once every six months 	<ul style="list-style-type: none"> Check compliance reports
	7.	Increase the frequency of compliance inspections if significant non-conformances are reported.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Following non-conformances 	<ul style="list-style-type: none"> Check frequency of compliance inspections
Community Complaints	8.	Respond to complaints that are made.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check record of correspondence
Landowner Consultation	9.	Inform landowners before maintenance activities take place on their property.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check correspondence with landowners
Ablutions	10.	Provide ablation facilities (i.e. chemical toilets) at active work areas for staff at a ratio of 1 toilet per 15 workers (absolute minimum 1:25) <i>where maintenance will take place at any one site for more than 5 days</i>	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check that ablation facilities provided at the minimum ratio
	11.	Locate portable toilets at least 100 m from the edge of any watercourse.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check ablation facilities more than 100m from any watercourse
	12.	Secure portable toilets to the ground to prevent them toppling due to wind or any other cause.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check that portable toilets are secure
	13.	Maintain toilets in a hygienic state (i.e. provide toilet dispensers, clean toilets and service regularly).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check toilets are maintained in a hygienic state
	14.	Empty toilets before long weekends and builders' holidays.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check toilets are emptied
	15.	Prevent spillages when the toilets are cleaned or emptied.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of portable toilet chemical spills

⁶ Unless otherwise indicated, monitoring will be undertaken by a suitably qualified employee of Eskom, supported by the authorities where the requirement is specifically stipulated in a licence or permit.

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁶ and Performance Indicators
Fire Protection	16.	Prohibit fires on site.	• Contractor	• Throughout operations	• Check for evidence of fires
	17.	Provide sufficient fire-fighting equipment to maintenance teams.	• Contractor	• Throughout operations	• Check equipment is available
Safety and Security	18.	Implement established emergency procedures when necessary (in relation to fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc.).	• Contractor	• Throughout operations	• Check emergency procedures • Check records of responses to emergencies
Environmental Awareness Training	19.	Provide environmental awareness training for maintenance staff.	• Contractors	• Throughout operations	• Check records of environmental awareness training provided
	20.	Tailor environmental awareness training maintenance activities and impacts (e.g. no-go areas, potential impact on the environment, key and site specific EMP measures, etc.).	• Contractor	• Start of maintenance in new area	• Check records of environmental awareness training provided
Hazardous Materials Management	21.	Place potential contaminants (including cement) on impervious surfaces.	• Contractor	• Throughout operations	• Check storage of hazardous substances takes place on impermeable surfaces
	22.	Implement procedures for the safe transport, handling and storage of potential pollutants.	• Contractor	• Throughout operations	• Check implementation of procedures for the safe transport, handling and storage of potential pollutants
	23.	Avoid unnecessary use and transport of hazardous substances.	• Contractor	• Throughout operations	• Check use and transport of hazardous substances and incidences of spills
	24.	Keep Material Safety Data Sheets (MSDS) for all hazardous materials on site.	• Contractor	• Throughout operations	• Check MSDS available for all hazardous substances on site
	25.	Maintain vehicles and machinery to prevent leaks of hydrocarbon materials.	• Contractor	• Throughout operations	• Check evidence of leaks
	26.	Remove faulty equipment (leaking) from site immediately	• Contractor	• Throughout operations	• Check evidence of leaks • Check no faulty equipment on site
Refuelling and Maintenance	27.	Conduct on-site refuelling and emergency repairs (if absolutely) essential with appropriate impermeable ground cover (e.g. use drip trays) further than 50m from any watercourse.	• Contractor	• Throughout operations	• Check on-site refuelling and emergency repairs take place more than 50 m from any watercourse
Response to Environmental Pollution	28.	Immediately stop any activity causing environmental pollution, e.g. leaks and spillages.	• Contractor	• Throughout operations	• Check that no activities cause environmental pollution on site
	29.	Clean up any spills immediately, through containment and removal of free product and appropriate disposal as hazardous waste / remediation of contaminated soils.	• Contractor	• Throughout operations	• Check that spills have been addressed as specified
	30.	Notify Eskom and the relevant authorities (DEA) within one day of a major environmental pollution event.	• Eskom	• Throughout operations	• Check evidence of correspondence between Eskom and authorities
Waste Management	31.	Provide separate weather and vermin proof bins for a) general and b) hazardous waste at active work areas and mark these clearly.	• Contractor	• Throughout operations	• Check bins available in active work areas

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁶ and Performance Indicators
	32.	Dispose waste regularly to appropriate licensed waste disposal facilities.	• Contractor	• Throughout operations	• Check waste disposal receipts
	33.	Prevent littering by staff at work sites.	• Contractor	• Throughout operations	• Check presence of litter
	34.	Do not allow any burning or burying of waste on site.	• Contractor	• Throughout operations	• Check no waste burnt or buried on site
Cement Work Management	35.	Batch cement (if unavoidable) in impermeable bunded areas outside of any watercourses and within the disturbance footprint created during construction	• Contractor	• Throughout operations	• Check cement batching areas bunded outside of any watercourses
	36.	Collect and strictly control runoff from the concrete batching areas.	• Contractor	• Throughout operations	• Check effluent from cement batching controlled and collected
	37.	Physically remove any remains of concrete, either solid, or liquid, immediately after batching activities and dispose at licensed disposal facilities.	• Contractor	• Throughout operations	• Check for evidence of any remains of concrete
	38.	Place empty cement bags in bins and dispose at licensed disposal facilities.	• Contractor	• Throughout operations	• Check empty cement bags placed in bins • Check waste receipts
Effluent Management	39.	Install appropriate pollution control facilities to prevent discharge of water containing polluting matter or suspended materials into watercourses or water bodies (e.g. the installation of silt fences).	• Contractor	• Throughout operations	• Check pollution control measures installed at areas where effluent is generated or stored
	40.	Do not clean vehicles and equipment on site.	• Contractor	• Throughout operations	• Check vehicles and equipment cleaned in appropriate areas only
	41.	Dispose of contaminated stormwater (e.g. from bunded areas) at licensed disposal facilities.	• Contractor	• Throughout operations	• Check waste receipts • Check for evidence of on-site disposal
Stormwater Management	42.	Install cut-off trenches with silt traps around work areas within 50 m of any watercourse where wet-season work is permissible	• Contractor	• Throughout operations	• Check cut-off trenches installed at active work areas during the wet season (May-Sept)
	43.	Use berms and stormwater drainage systems to prevent surface run-off from entering site excavations where necessary.	• Contractor	• Throughout operations	• Check build-up of runoff in excavations
Erosion Control	44.	Inspect watercourses annually during routine maintenance and report on evidence of erosion at bridges and watercourse crossings.	• Eskom	• Once a year	• Check work instructions
	45.	Respond to reports of erosion by closing gullies and reshaping and revegetating river and wetland banks.	• Eskom • Contractor	• Throughout operations	• Check for evidence of erosion gullies • Check that erosion gullies are closed and rehabilitated
	46.	Stabilize exposed slopes within 30 m of any watercourse as soon as these are created (e.g. at stockpiles and cut and fill areas) to prevent sedimentation.	• Contractor	• Throughout operations	• Check that exposed slopes within 30m of any watercourse are stabilised
Water Conservation	47.	Minimise the use of potable water as far as practically possible.	• Contractor	• Throughout operations	• Check for evidence of water wastage

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁶ and Performance Indicators
	48.	Reuse and recycle water wherever possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check that water is recycled and reused where possible
Topsoil Conservation and Management	49.	Harvest topsoil (up to a maximum of 30 cm depth) where opportunities arise (e.g. from the footprints of new access roads).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of maintenance in new area 	<ul style="list-style-type: none"> Check that topsoil is harvested
	50.	Replace harvested topsoil in disturbed areas	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Completion of maintenance in each area 	<ul style="list-style-type: none"> Check that topsoil is replaced
Protection of Flora	51.	Limit vegetation clearance, pruning and the footprint of maintenance activities to what is absolutely essential.	<ul style="list-style-type: none"> Contractor Eskom 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for unnecessary disturbances
	52.	Favour vegetation pruning over clearing.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for unnecessary disturbances
	53.	Inspect access roads annually during routine maintenance and report on the presence or absence of invasive alien plant species.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Once a year 	<ul style="list-style-type: none"> Check work instructions Check reports from inspections
	54.	Respond to reports of the presence of alien plant species through eradication and the application of herbicides in the Eskom servitude, where appropriate.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> When the presence of alien vegetation is reported 	<ul style="list-style-type: none"> Check records of alien plant species control
	55.	Remove cuttings of alien vegetation from the site.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check evidence of cuttings left on site
	56.	Restrict laydown areas for maintenance and repair work to areas disturbed during construction of the project.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	57.	Designate areas outside the previous construction footprint as no-go areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	58.	Restrict the movement of vehicles to access roads only.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances from vehicles
	59.	Dismantle existing 66 kV wood pylons with hand-held machinery where vehicle access does not exist and remove from site on foot.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> During decom. of old 66 kV line 	<ul style="list-style-type: none"> Check for evidence of vehicle disturbances at old wooden structures
	60.	Stockpile materials in disturbed areas if required.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check stockpiles located in disturbed areas
Protection of Fauna	61.	Do not harm, catch or kill birds or animals by any means, including poisoning, trapping, shooting or setting of snares.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of faunal mortalities
	62.	Avoid fauna when driving on site (especially tortoises).	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of faunal mortalities
	63.	Maintain (or replace as necessary) Bird Flight Diverters	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check that Bird Flight Diverters are maintained
	64.	Inspect the powerline periodically for bird mortalities, and install additional mitigation measures at any identified mortality hot-spots.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check records of inspections

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁶ and Performance Indicators
Protection of Watercourses	65.	Remove sediment and other debris from bridges, culverts and access roads periodically	<ul style="list-style-type: none"> Contractor Eskom 	<ul style="list-style-type: none"> At least once every two years 	<ul style="list-style-type: none"> Check work instructions / contracts Check debris cleared
	66.	Limit maintenance footprints to what are absolutely essential.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	67.	Locate lay-down areas at least 20 m from all watercourses or within disturbance footprints created during construction, if required.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Start of maintenance in new area 	<ul style="list-style-type: none"> Check laydown areas are at least 20m from all watercourses
	68.	Designate areas outside the previous construction footprint as no-go areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances
	69.	Restrict the movement of vehicles to access roads only.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of offsite disturbances from vehicles
	70.	Maintain watercourse crossings during the dry season (Oct-Apr) unless absolutely unavoidable.	<ul style="list-style-type: none"> Contractor Eskom 	<ul style="list-style-type: none"> During maintenance of crossings 	<ul style="list-style-type: none"> Check that maintenance of watercourse crossings takes place in the dry season
	71.	Undertake vegetation clearing by hand in watercourses.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence of mechanical vegetation clearing in watercourses
	72.	String conductors by hand through watercourses.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> During conductor restringing 	<ul style="list-style-type: none"> Check for evidence of mechanical stringing in watercourses
	73.	Remove cuttings of alien vegetation from the site.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Following the clearing of alien vegetation 	<ul style="list-style-type: none"> Check that cuttings of alien vegetation have been removed from the site
	74.	Apply herbicides to cleared stands of alien plants to prevent re-sprouting.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Following the clearing of alien vegetation 	<ul style="list-style-type: none"> Check records of herbicide applications
	75.	Revegetate disturbances caused during maintenance using locally indigenous plant species and harvested topsoil.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> End of maintenance in each area 	<ul style="list-style-type: none"> Check that rehabilitation takes place with locally indigenous plant species and harvested topsoil
Dust Management	76.	Limit vehicle speeds to 30 km/h on all unsurfaced access tracks.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for complaints about dust
	77.	Cover trucks transporting loose material to or from site with tarpaulins, plastic or canvas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check that trucks transporting loose material are covered
	78.	Locate stockpiles in sheltered areas.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check that stockpiles are located in sheltered areas
	79.	Investigate and respond to complaints about dust and take appropriate corrective action.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence that complaints about dust have been responded to Check that additional mitigation measures are applied to prevent reoccurrences
Noise Management	80.	Investigate and respond to complaints about excessive noise and take appropriate corrective action.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout construction 	<ul style="list-style-type: none"> Check for evidence that complaints about noise have been responded to Check that additional mitigation measures are applied to prevent reoccurrences

Aspect	ID	Mitigation measure / Procedure	Responsible	Implementation Timeframe	Monitoring Method ⁶ and Performance Indicators
Traffic Management	81.	Use appropriate road signage, in accordance with the South African Traffic Safety Manual, providing flagmen, barriers etc. when necessary.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check that road signage is in place when necessary
	82.	Ensure that all safety measures are observed and that drivers comply with the rules of the road.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for complaints from other road users
	83.	Investigate and respond to complaints about traffic.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check for evidence that complaints about traffic have been responded to Check that additional mitigation measures are applied to prevent reoccurrences
Protection of Archaeological and Paleontological Resources	84.	Report the presence of graves or human remains, fragments of fossil bone, ostrich egg and stone fragments to HWC.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check reports of chance finds Check reports to HWC
	85.	Obtain a permit for the removal of artefacts from the site if any are discovered during maintenance.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check permits in place
Visual Mitigation	86.	Decommission the remaining 66 kV wood pole powerline.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Within two years of the commencement of operations 	<ul style="list-style-type: none"> Check that remaining 66 kV powerline is decommissioned
	87.	Prohibit the installation of lights on pylons.	<ul style="list-style-type: none"> Eskom 	<ul style="list-style-type: none"> Throughout 	<ul style="list-style-type: none"> Check no lights installed on pylons
	88.	Prune large indigenous trees and shrubs rather than clearing vegetation completely.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check that pruning (and not clearing) has taken place where practical
Employment and Procurement	89.	Purchase goods (materials) and services from local sources wherever possible.	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> Throughout operations 	<ul style="list-style-type: none"> Check records of local employment

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Matthew Law
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Chris Dalgliesh
SRK Partner

Appendix A:

Site Specific Mitigation

Appendix A: Essential site-specific mitigation

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
1.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
2.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
3.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
4.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
5.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
6.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
7.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location 	<ul style="list-style-type: none"> None
8.	<ul style="list-style-type: none"> Select suspension bridge design for the existing road crossings between positions 8 and 12 Locate concrete support blocks for the suspension bridge on the top of the bank and not in the channel Provide a distance of at least 1m on either side of the channel before the support blocks are placed (i.e. the bridge would cross the whole channel) Raise support blocks at least 200mm off the natural ground surface. Include a slight ramp to allow vehicles onto the structure without churning the ground further. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Undertake works (driving, excavation and cement work) in the dry season only (~October – ~April) Avoid seep and buffer with laydown area (refer to FWE impact assessment) Define areas from 5m upslope (east) of and north of pole 8 as no-go areas and demarcate the boundary to this area Rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist. 	<ul style="list-style-type: none"> Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP Avoid seep and buffer with laydown area (refer to FWE impact assessment) Define areas from 5m upslope (east) of and north of pole 8 as no-go areas
9.	<ul style="list-style-type: none"> Select suspension bridge design for the existing road crossings between positions 8 and 12 Locate concrete support blocks for the suspension bridge on the top of the bank and not in the channel Provide a distance of at least 1m on either side of the channel before the support blocks are placed (i.e. the bridge would cross the whole channel) Raise support blocks at least 200mm off the natural ground surface. Include a slight ramp to allow vehicles onto the structure without churning the ground further. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Undertake works (driving, excavation and cement work) in the dry season only (~October – ~April) Avoid seep and buffer with laydown area (refer to FWE impact assessment) Mark conductor span from 9-10 with bird flappers 	<ul style="list-style-type: none"> Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP Access position by helicopter or foot during the wet season (May-Sept) Avoid seep and buffer with laydown area (refer to FWE impact assessment) Maintain bird flappers

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
10.	<ul style="list-style-type: none"> • Select suspension bridge design for the existing road crossings between positions 8 and 12 • Locate concrete support blocks for the suspension bridge on the top of the bank and not in the channel • Provide a distance of at least 1m on either side of the channel before the support blocks are placed (i.e. the bridge would cross the whole channel) • Raise support blocks at least 200mm off the natural ground surface. • Include a slight ramp to allow vehicles onto the structure without churning the ground further. 	<ul style="list-style-type: none"> • Undertake works (driving, excavation and cement work) in the dry season only (~October – ~April) • Avoid seep and buffer with laydown area (refer to FWE impact assessment) • Mark conductor span from 10-11 with bird flappers 	<ul style="list-style-type: none"> • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Access position by helicopter or foot during the wet season (May-Sept) • Avoid seep and buffer with laydown area (refer to FWE impact assessment) • Maintain bird flappers
11.	<ul style="list-style-type: none"> • Select suspension bridge design for the existing road crossings between positions 8 and 12 • Locate concrete support blocks for the suspension bridge on the top of the bank and not in the channel • Provide a distance of at least 1m on either side of the channel before the support blocks are placed (i.e. the bridge would cross the whole channel) • Raise support blocks at least 200mm off the natural ground surface. • Include a slight ramp to allow vehicles onto the structure without churning the ground further. 	<ul style="list-style-type: none"> • Undertake works (driving, excavation and cement work) in the dry season only (~October – ~April) • Avoid seep and buffer with laydown area (refer to FWE impact assessment) • Use the degraded area just north of the dam as the laydown • Mark conductor span from 10-11 with bird flappers • Use the degraded area just north of the dam, where access roads converge, as a laydown area 	<ul style="list-style-type: none"> • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Access position by helicopter or foot during the wet season (May-Sept) • Avoid seep and buffer with laydown area (refer to FWE impact assessment) • Maintain bird flappers
12.	<ul style="list-style-type: none"> • Select suspension bridge design for the crossing between positions 8 and 12 off the existing track • Locate concrete support blocks for the suspension bridge on the top of the bank and not in the channel • Provide a distance of at least 1m on either side of the channel before the support blocks are placed (i.e. the bridge would cross the whole channel) • Raise support blocks at least 200mm off the natural ground surface. • Include a slight ramp to allow vehicles onto the structure without churning the ground further. 	<ul style="list-style-type: none"> • Undertake works (driving, excavation and cement work) in the dry season only (~October – ~April) • Avoid seep and buffer with laydown area (refer to FWE impact assessment) 	<ul style="list-style-type: none"> • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Access position by helicopter or foot during the wet season (May-Sept) • Avoid seep and buffer with laydown area (refer to FWE impact assessment)

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
13.	<ul style="list-style-type: none"> Do not access position 13 directly from position 12 Avoid the mapped wetland adjacent to position 13 including a 20m setback Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Undertake works (driving, excavation and cement work) in the dry season only (~October – ~April) Avoid seep and buffer with laydown area (refer to FWE impact assessment) Access site from the north (and not from position 12 over eroding watercourses) Define the mapped wetland adjacent to position 13 including a 20m setback as a no go area, and demarcate (peg) this area (refer to FWE impact assessment) Prune vegetation and string conductors by hand Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP Access position by helicopter or foot during the wet season (May-Sept) Avoid seep and buffer with laydown area (refer to FWE impact assessment) Access site from the north (and not from position 12 over eroding watercourses) Define the mapped wetland adjacent to position 13 including a 20m setback as a no go area Prune vegetation and string conductors by hand Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control
14.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Clear vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control
15.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control
16.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control
17.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control
18.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
19.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control
20.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control
21.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control
22.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control Mark conductor span between 22 and 23 with bird flappers 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control
23.	<ul style="list-style-type: none"> Access site from the existing road to the east only. Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control Mark conductor span between 23 and 25 with bird flappers Reinstate local topography to ensure that no additional erosion channels form 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control Maintain bird flappers
24.	<ul style="list-style-type: none"> Removed 	<ul style="list-style-type: none"> Removed 	<ul style="list-style-type: none"> Removed
25.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control Mark conductor span between 25 and 26 with bird flappers 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control Maintain bird flappers

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
26.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control Mark conductor span between 25 and 26 with bird flappers 	<ul style="list-style-type: none"> Prune vegetation and string conductors by hand. Ensure laydown areas are not within the buffer of any watercourse (refer to FWE impact assessment) Pay particular attention to erosion prevention and control Maintain bird flappers
27.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Pay particular attention to erosion prevention and control
28.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Pay particular attention to erosion prevention and control
29.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Pay particular attention to erosion prevention and control
30.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Pay particular attention to erosion prevention and control
31.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Pay particular attention to erosion prevention and control
32.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Pay particular attention to erosion prevention and control
33.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Pay particular attention to erosion prevention and control
34.	<ul style="list-style-type: none"> Select a pipe culvert or similar crossing for minor watercourses. 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Pay particular attention to erosion prevention and control 	<ul style="list-style-type: none"> Pay particular attention to erosion prevention and control Prune the pipe culvert regularly

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
35.	<ul style="list-style-type: none"> Select the existing upper track between poles 35 and 36 for access, rather than the lower track abutting the river edge 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank Treat the river bank as a no-go area Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction 	<ul style="list-style-type: none"> Treat the river bank as a no-go area
36.	<ul style="list-style-type: none"> Select the existing upper track between poles 35 and 36 for access, rather than the lower track abutting the river edge 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Construct the access road to in the dry season only (~October – ~April) Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank Treat the river bank as a no-go area Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction 	<ul style="list-style-type: none"> Treat the river bank as a no-go area

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
37.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location • Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) • Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank • Treat the river bank as a no-go area • Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction 	<ul style="list-style-type: none"> • Treat the river bank as a no-go area
38.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location • Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) • Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank • Treat the river bank as a no-go area • Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction 	<ul style="list-style-type: none"> • Treat the river bank as a no-go area

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
<p>39.</p>	<ul style="list-style-type: none"> • Consider moving the location of the bridge between positions 39 and 40 further downstream where the river banks are less steep • Include multiple culverts that allow for a spread of flow across the <u>full channel</u> at the bridge between positions 39 and 40 • Ensure 1:2 year flood events overtop the bridge between positions 39 and 40 • Include measures that prevent runoff from the approach roads into the river • Get signoff of final bridge design and access track layout from a freshwater ecologist 	<ul style="list-style-type: none"> • Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location • Undertake works in the dry season only (~October – ~April) • Clear sediment from the watercourse crossing between positions 39 and 40 regularly • Pay particular attention to the control of runoff from cement batching activities (and undertake batching outside of the watercourse) • Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) • Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank • Treat the river bank as a no-go area • Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction • Mark conductor span between 39 and 40 with bird flappers 	<ul style="list-style-type: none"> • Clear sediment and woody debris by hand from the watercourse crossing between positions 39 and 40 regularly • Place cleared sediment and woody debris within the watercourse downstream, of the bridge • Pay particular attention to the control of runoff from cement batching activities (and undertake batching outside of the watercourse) • Treat the river bank as a no-go area • Maintain bird flappers

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
40.	<ul style="list-style-type: none"> • Consider moving the location of the bridge between positions 39 and 40 further downstream where the river banks are less steep • Include multiple culverts that allow for a spread of flow across the <u>full channel</u> at the bridge between positions 39 and 40 • Ensure 1:2 year flood events overtop the bridge between positions 39 and 40 • Include measures that prevent runoff from the approach roads into the river • Get signoff of final bridge design and access track layout from a freshwater ecologist 	<ul style="list-style-type: none"> • Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location • Undertake works in the dry season only (~October – ~April) • Clear sediment from the watercourse crossing between positions 39 and 40 regularly • Pay particular attention to the control of runoff from cement batching activities (and undertake batching outside of the watercourse) • Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) • Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank • Treat the river bank as a no-go area • Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction • Mark conductor span between 39 and 40 with bird flappers 	<ul style="list-style-type: none"> • Clear sediment from the watercourse crossing between positions 39 and 40 regularly • Pay particular attention to the control of runoff from cement batching activities (and undertake batching outside of the watercourse) • Treat the river bank as a no-go area • Maintain bird flappers

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
41.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank Treat the river bank as a no-go area Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction 	<ul style="list-style-type: none"> Treat the river bank as a no-go area
42.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank Treat the river bank as a no-go area Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction Mark conductor span between 42 and 43 with bird flappers 	<ul style="list-style-type: none"> Treat the river bank as a no-go area Maintain bird flappers
43.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Mark conductor span between 43 and 44 with bird flappers 	<ul style="list-style-type: none"> Maintain bird flappers

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
44.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location • Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) • Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank • Treat the river bank as a no-go area • Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction • Mark conductor span between 43 and 44 with bird flappers 	<ul style="list-style-type: none"> • Treat the river bank as a no-go area • Maintain bird flappers
45.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) • Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank • Treat the river bank as a no-go area • Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction • Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction 	<ul style="list-style-type: none"> • Treat the river bank as a no-go area

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
46.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank Treat the river bank as a no-go area Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction 	<ul style="list-style-type: none"> Treat the river bank as a no-go area
47.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank Treat the river bank as a no-go area Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction 	<ul style="list-style-type: none"> Treat the river bank as a no-go area

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
48.	<ul style="list-style-type: none"> Ensure attenuation and spread of water flowing in the seep between positions 48 and 49 in the design and implementation of the access road crossing here (packed rocks at ground level would be ideal) 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Cut into the slope where track widening is required closer than 10m from the top of the bank (i.e. not towards the river) Remove excavated / blasted rock to disturbed areas at least 20 m from the river bank Treat the river bank as a no-go area Rehabilitate areas vulnerable to erosion by reshaping the bank and replanting Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of access road construction Appoint a freshwater ecologist to assess river bank condition and recommend additional mitigation and / or rehabilitation requirements at the conclusion of pylon construction 	<ul style="list-style-type: none"> Clear sediment and woody debris by hand from the watercourse crossing between positions 48 and 49 regularly Place cleared sediment and woody debris within the watercourse downstream, of the bridge Treat the river bank as a no-go area
49.	<ul style="list-style-type: none"> Ensure attenuation and spread of water flowing in the seep between positions 48 and 49 in the design and implementation of the access road crossing here (packed rocks at ground level would be ideal. Include multiple culverts that allow for a spread of flow across the <u>full channel</u> at the bridge between positions 49 and 50 Ensure 1:2 year flood events overtop the bridge between positions 49 and 50 Include measures that prevent runoff from the approach roads into the river Get signoff of final bridge design from a freshwater ecologist 	<ul style="list-style-type: none"> Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location Undertake works in the dry season only (~October – ~April) Clear sediment from the watercourse crossing between positions 48 and 49 regularly Pay particular attention to the control of runoff from cement batching activities (and undertake batching outside of the watercourse) Treat the river bank as a no-go area 	<ul style="list-style-type: none"> Clear sediment and woody debris from the watercourse crossing between positions 48 and 49, and 49 and 50 regularly Place cleared sediment and woody debris within the watercourse downstream, of the bridge Reshape the river where the bank is destabilised / disturbed during construction to a freshwater ecologist's specifications Pay particular attention to the control of runoff from cement batching activities (and undertake batching outside of the watercourse) Treat the river bank as a no-go area

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
50.	<ul style="list-style-type: none"> • Include multiple culverts that allow for a spread of flow across the <u>full channel</u> at the bridge between positions 49 and 50 • Ensure 1:2 year flood events overtop the bridge between positions 49 and 50 • Include measures that prevent runoff from the approach roads into the river • Use gabion baskets to stabilise banks are supported – • Design the approach road to ensure that it includes measures to dissipate runoff so that the gabions are not undermined and the culvert/ bank interface is not eroded from road runoff or from river flows • Get signoff of final bridge design from a freshwater ecologist • Ensure attenuation and spread of water flowing in the seep between positions 50 and 51 in the design and implementation of the access road crossing here (packed rocks at ground level would be ideal) 	<ul style="list-style-type: none"> • Appoint a botanist to undertake a search and rescue of the construction and access road footprint for floral SCC and to replant these species in a suitable location • Undertake works in the dry season only (~October – ~April) • Ensure attenuation and spread of water flowing in the seep between positions 50 and 51 • Pay particular attention to the control of runoff from cement batching activities (and undertake batching outside of the watercourse) • Treat the river bank as a no-go area • Cement mixing / batching to be on areas with temporary removable bunding, outside of any watercourse, and managed to minimize spillage into natural areas. • Where the river bank is destabilised / disturbed during construction, it should be reshaped and/or replanted to a freshwater ecologist's specifications 	<ul style="list-style-type: none"> • Clear sediment from the crossing between positions 49 and 50 regularly • Ensure attenuation and spread of water flowing in the seep between positions 50 and 51 • Reshape the river where the bank is destabilised / disturbed during construction to a freshwater ecologist's specifications • Pay particular attention to the control of runoff from cement batching activities (and undertake batching outside of the watercourse) • Treat the river bank as a no-go area
51.	<ul style="list-style-type: none"> • Ensure attenuation and spread of water flowing in the seep between positions 50 and 51 in the design and implementation of the access road crossing here (packed rocks at ground level would be ideal) • Get sign off of the final design of the crossing from a freshwater ecologist 	<ul style="list-style-type: none"> • Construct between December and April only (outside of Verreaux's Eagles breeding season) • Ensure attenuation and spread of water flowing in the seep between positions 50 and 51 	<ul style="list-style-type: none"> • Ensure attenuation and spread of water flowing in the seep between positions 50 and 51
52.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Construct between December and April only (outside of Verreaux's Eagles breeding season) 	<ul style="list-style-type: none"> • None
53.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Construct between December and April only (outside of Verreaux's Eagles breeding season) 	<ul style="list-style-type: none"> • Treat the river bank as a no-go area
54.	<ul style="list-style-type: none"> • Avoid the channel south of this position during access road alignment (or install a culvert crossing here) 	<ul style="list-style-type: none"> • Construct between December and April only (outside of Verreaux's Eagles breeding season) 	<ul style="list-style-type: none"> • Treat the river bank as a no-go area • Clear the culvert regularly (if this design is selected)
55.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Construct between December and April only (outside of Verreaux's Eagles breeding season) 	<ul style="list-style-type: none"> • None
56.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None
57.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Select construction and laydown areas at pylon 57 in consultation with an archaeologist. • Appoint an archaeologist to monitor construction activities at pylon 57 twice during construction. • Limit, demarcate and control the construction footprint to prevent damage to remnants of the Old Bain Road. • Reinstate the existing vehicle barrier to the remnant of the Old Bain road near pylon 57. 	<ul style="list-style-type: none"> • Protect remnants of Old Bain road during maintenance activities

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
58.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None
59.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Access site by helicopter or foot Undertake works in the dry season only (~October – ~April) Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas Pay particular attention to the control of runoff from cement batching activities Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist Limit, demarcate and control helicopter landing and laydown areas Fence off construction footprints and restrict access outside these areas Prevent blasting from altering the direction or alignment of flow in the watercourses Remove blasted rock from watercourses Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist Prohibit fires 	<ul style="list-style-type: none"> Access site by helicopter or foot Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP Prune (as opposed to remove) vegetation Pay particular attention to the control of runoff from cement batching activities Use established helicopter landing and laydown areas Restrict access outside of work areas Fence off and rehabilitate areas disturbed by maintenance activities Prohibit fires
60.	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Access site by helicopter or foot Undertake works in the dry season only (~October – ~April) Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas Pay particular attention to the control of runoff from cement batching activities Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist Limit, demarcate and control helicopter landing and laydown areas Fence off construction footprints and restrict access outside these areas Prevent blasting from altering the direction or alignment of flow in the watercourses Remove blasted rock from watercourses Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist Prohibit fires 	<ul style="list-style-type: none"> Access site by helicopter or foot Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP Prune (as opposed to remove) vegetation Pay particular attention to the control of runoff from cement batching activities Use established helicopter landing and laydown areas Restrict access outside of work areas Fence off and rehabilitate areas disturbed by maintenance activities Prohibit fires

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
61.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Access site by helicopter or foot • Undertake works in the dry season only (~October – ~April) • Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas • Pay particular attention to the control of runoff from cement batching activities • Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist • Limit, demarcate and control helicopter landing and laydown areas • Fence off construction footprints and restrict access outside these areas • Prevent blasting from altering the direction or alignment of flow in the watercourses • Remove blasted rock from watercourses • Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist • Prohibit fires 	<ul style="list-style-type: none"> • Access site by helicopter or foot • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Prune (as opposed to remove) vegetation • Pay particular attention to the control of runoff from cement batching activities • Use established helicopter landing and laydown areas • Restrict access outside of work areas • Fence off and rehabilitate areas disturbed by maintenance activities • Prohibit fires
62.	<ul style="list-style-type: none"> • Ensure pylon straddles watercourse (and foundations are not located within the stream channel) 	<ul style="list-style-type: none"> • Access site by helicopter or foot • Undertake works in the dry season only (~October – ~April) • Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas • Pay particular attention to the control of runoff from cement batching activities • Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist • Limit, demarcate and control helicopter landing and laydown areas • Fence off construction footprints and restrict access outside these areas • Prevent blasting from altering the direction or alignment of flow in the watercourses • Remove blasted rock from watercourses • Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist • Prohibit fires 	<ul style="list-style-type: none"> • Access site by helicopter or foot • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Prune (as opposed to remove) vegetation • Pay particular attention to the control of runoff from cement batching activities • Use established helicopter landing and laydown areas • Restrict access outside of work areas • Fence off and rehabilitate areas disturbed by maintenance activities • Prohibit fires

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
63.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Access site by helicopter or foot • Undertake works in the dry season only (~October – ~April) • Select a footpath between position 63 and 64 that avoids the seep in consultation with a freshwater ecologist • Demarcate the footpath and prevent foot traffic outside of this defined route. • Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas • Pay particular attention to the control of runoff from cement batching activities • Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist • Limit, demarcate and control helicopter landing and laydown areas • Fence off construction footprints and restrict access outside these areas • Prevent blasting from altering the direction or alignment of flow in the watercourses • Remove blasted rock from watercourses • Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist • Prohibit fires 	<ul style="list-style-type: none"> • Access site by helicopter or foot • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Prune (as opposed to remove) vegetation • Pay particular attention to the control of runoff from cement batching activities • Use established helicopter landing and laydown areas • Restrict access outside of work areas • Fence off and rehabilitate areas disturbed by maintenance activities • Prohibit fires

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
64.	<ul style="list-style-type: none"> • Locate concrete support blocks for the suspension bridge on the top of the bank and not in the channel • Use pre-cast components for the suspension bridge • Provide a distance of at least 1m on either side of the channel before the support blocks are placed (i.e. the bridge would cross the whole channel) • Raise support blocks at least 200mm off the natural ground surface. • Include a slight ramp to allow vehicles onto the structure without churning the ground further. • Consider a circular access route to positions 64 and 65 to eliminate vehicle turning requirements 	<ul style="list-style-type: none"> • Undertake works in the dry season only (~October – ~April) • Use pre-cast components for the suspension bridge • Select access tracks to the suspension bridge that avoids seep in consultation with a freshwater ecologist • Demarcate access tracks to the suspension bridge prior to vegetation pruning or clearing • Select a footpath between position 63 and 64 that avoids seep in consultation with a freshwater ecologist • Demarcate (peg) the footpath and prevent foot traffic outside of this defined route. • Define areas for the turning of trucks / vehicles • Demarcate areas for the turning of trucks / vehicles • Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas • Prune or remove vegetation by hand • Pay particular attention to the control of runoff from cement batching activities • Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist • Limit, demarcate and control helicopter landing and laydown areas • Fence off construction footprints and restrict access outside these areas • Prevent blasting from altering the direction or alignment of flow in the watercourses • Remove blasted rock from watercourses • Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist • Prohibit fires 	<ul style="list-style-type: none"> • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Suspend vehicle access and remove the suspension bridge if the bridge triggers erosion • Access position by helicopter during the wet season (May-Sept) • Prune (as opposed to remove) vegetation • Pay particular attention to the control of runoff from cement batching activities • Use established helicopter landing and laydown areas • Restrict access outside of work areas • Fence off and rehabilitate areas disturbed by maintenance activities • Prohibit fires

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
65.	<ul style="list-style-type: none"> • Locate concrete support blocks for the suspension bridge on the top of the bank and not in the channel • Provide a distance of at least 1m on either side of the channel before the support blocks are placed (i.e. the bridge would cross the whole channel) • Raise support blocks at least 200mm off the natural ground surface. • Include a slight ramp to allow vehicles onto the structure without churning the ground further. • Define a vehicle turning area to minimise extent of vegetation disturbed 	<ul style="list-style-type: none"> • Undertake works in the dry season only (~October – ~April) • Use pre-cast components for the suspension bridge • Select access tracks to the suspension bridge that avoids seep in consultation with a freshwater ecologist • Demarcate access tracks to the suspension bridge prior to vegetation pruning or clearing • Select a footpath between position 63 and 64 that avoids seep in consultation with a freshwater ecologist • Demarcate the footpath and prevent foot traffic outside of this defined route. • Define areas for the turning of trucks / vehicles • Demarcate areas for the turning of trucks / vehicles • Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas • Prune or remove vegetation by hand • Pay particular attention to the control of runoff from cement batching activities • Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist • Limit, demarcate and control helicopter landing and laydown areas • Fence off construction footprints and restrict access outside these areas • Prevent blasting from altering the direction or alignment of flow in the watercourses • Remove blasted rock from watercourses • Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist • Prohibit fires 	<ul style="list-style-type: none"> • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Suspend vehicle access and remove the suspension bridge if the bridge triggers erosion. • Access position by helicopter during the wet season (May-Sept) • Prune (as opposed to remove) vegetation • Pay particular attention to the control of runoff from cement batching activities • Use established helicopter landing and laydown areas • Restrict access outside of work areas • Fence off and rehabilitate areas disturbed by maintenance activities • Prohibit fires

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
66.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Access site by helicopter or foot • Undertake works in the dry season only (~October – ~April) • Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas • Pay particular attention to the control of runoff from cement batching activities • Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist • Limit, demarcate and control helicopter landing and laydown areas • Fence off construction footprints and restrict access outside these areas • Prevent blasting from altering the direction or alignment of flow in the watercourses • Remove blasted rock from watercourses • Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist • Prohibit fires 	<ul style="list-style-type: none"> • Access site by helicopter or foot • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Prune (as opposed to remove) vegetation • Pay particular attention to the control of runoff from cement batching activities • Use established helicopter landing and laydown areas • Restrict access outside of work areas • Fence off and rehabilitate areas disturbed by maintenance activities • Prohibit fires
67.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas • Pay particular attention to the control of runoff from cement batching activities • Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist • Limit, demarcate and control helicopter landing and laydown areas • Fence off construction footprints and restrict access outside these areas • Prevent blasting from altering the direction or alignment of flow in the watercourses • Remove blasted rock from watercourses • Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist • Prohibit fires 	<ul style="list-style-type: none"> • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Access position by helicopter during the wet season (May-Sept) • Prune (as opposed to remove) vegetation • Pay particular attention to the control of runoff from cement batching activities • Use established helicopter landing and laydown areas • Restrict access outside of work areas • Fence off and rehabilitate areas disturbed by maintenance activities • Prohibit fires

Pylon ID	Design Phase Mitigation	Construction Phase Mitigation	Operations Phase Mitigation
68.	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Undertake works in the dry season only (~October – ~April) • Prune (as opposed to remove) vegetation unless absolutely unavoidable in isolated areas • Pay particular attention to the control of runoff from cement batching activities • Select helicopter landing and laydown areas in consultation with a botanist and freshwater ecologist • Limit, demarcate and control helicopter landing and laydown areas • Fence off construction footprints and restrict access outside these areas • Prevent blasting from altering the direction or alignment of flow in the watercourses • Remove blasted rock from watercourses • Fence off and rehabilitate areas disturbed by construction activities in consultation with a freshwater ecologist and botanist • Prohibit fires 	<ul style="list-style-type: none"> • Appoint a suitably qualified or experienced Eskom staff member to oversee compliance of the works with the MMP • Access position by helicopter during the wet season (May-Sept) • Prune (as opposed to remove) vegetation • Pay particular attention to the control of runoff from cement batching activities • Use established helicopter landing and laydown areas • Restrict access outside of work areas • Fence off and rehabilitate areas disturbed by maintenance activities • Prohibit fires

Appendix B:

Method Statement Pro Forma

METHOD STATEMENT PRO FORMA

CONTRACT:.....

DATE:.....

PROPOSED ACTIVITY (give title of method statement):

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works):

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

--

START AND END DATE OF WORKS FOR WHICH METHOD STATEMENT IS REQUIRED:

Start Date:

End Date:

--

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much detail as possible, including annotated maps and plans where possible):

Note: please attach extra pages if more space is required

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