Appendix G

EMPR

Eskom Holdings SOC (Ltd)

KOMATI POWER STATION SOLAR PV FACILITY, BESS AND ASSOCIATED INFRASTRUCTURE, MPUMALANGA PROVINCE

Environmental and Social Management Programme

APRIL 2024

PUBLIC

Eskom Holdings SOC (Ltd)

KOMATI POWER STATION SOLAR PV FACILITY, BESS AND ASSOCIATED INFRASTRUCTURE, MPUMALANGA PROVINCE

Environmental and Social Management Programme

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Eskom Holdings SOC (Ltd)

KOMATI POWER STATION SOLAR PV FACILITY, BESS AND ASSOCIATED INFRASTRUCTURE, MPUMALANGA PROVINCE

Environmental and Social Management Programme

WSP

Building 1, Maxwell Office Park
Magwa Crescent West, Waterfall City
Midrand, 1685
South Africa

Phone: +27 11 254 4800

WSP.com

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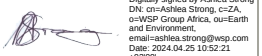
Signature	-	-	 Digitally signed by Ashlea Strong DN: cn=Ashlea Strong, c=ZA, o=WSP Group Africa, ou=Earth and Environment, email=ashlea.strong@wsp.com Date: 2024.04.25 10:52:21 +02'00'	
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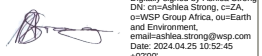
Signature	-	-	 Digitally signed by Ashlea Strong DN: cn=Ashlea Strong, c=ZA, o=WSP Group Africa, ou=Earth and Environment, email=ashlea.strong@wsp.com Date: 2024.04.25 10:52:45 +02'00'	
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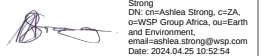
Signature	-	-	 Digitally signed by Ashlea Strong DN: cn=Ashlea Strong, c=ZA, o=WSP Group Africa, ou=Earth and Environment, email=ashlea.strong@wsp.com Date: 2024.04.25 10:52:54 +02'00'	
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OHPL GENERIC EMPR

GLOSSARY

Abbreviation	Definition
AIS	Alien Invasive Species
BA	Basic assessment
BESS	Battery Energy Storage System
CBA	Critical Biodiversity Area
CFP	chance find procedure
DFFE	Department of Forestry, Fisheries and Environment
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	environmental control officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EJETP	Eskom Just Energy Transition Project
EMPr	Environmental Management Programme
EO	Environmental Officer
EPC	Engineering, Procurement, and Construction
EPRP	Emergency Preparedness Response Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Programme
Eskom	Eskom Holdings SOC (Ltd)
HV	High Voltage
IEP	Integrated Energy Plan
MPRDA	Mineral and Petroleum Resources Development Act (No. 28 of 2002)
MSDS	Material safety data sheets
MVA	megavolt Amperes

Abbreviation	Definition
NEMA	National Environmental Management Act (Act 107 of 1998)
NHRA	National Heritage Resources Act, Act 25 of 1999
O&M	Operations and Maintenance
OHPL	overhead power line
OHSA	Occupational Health and Safety Act (No. 85 of 1993)
PPE	Personal Protective Equipment
PV	Photovoltaics
REDZ	Renewable Energy Development Zone
S&EIA	Scoping and Environmental Impact Assessment
SABS	South African Bureau of Standards
SACAA	South African Civil Aviation Authority
SAHRA	South African Heritage Resources Agency
SALA	Subdivision of Agricultural Land Act
SANBI	South African National Biodiversity Institute
SANRAL	South African National Roads Agency
SANS	South African National Standards
SARPs	Standards and Recommended Practices
SAWS	South African Weather Service
SEF	Solar Photovoltaics Energy Facility
VAC	Visual Absorption Capacity
WMP	Waste Management Plan
WSP	WSP Group Africa (Pty) Ltd

1 INTRODUCTION

WSP Group Africa (Pty) Ltd (WSP) has been appointed by Eskom Holdings SOC (Ltd) (Eskom) to undertake an Environmental and Social Impact Assessment (ESIA) to meet the requirements of both the World Bank Group (WBG) Environmental and Social Framework (ESF) and the Environmental Impact Assessment (EIA) requirements under the National Environmental Management Act (Act 107 of 1998) (NEMA), for the proposed 100 megawatt (MW) Solar Photovoltaics (PV) Energy (an additional 50MW PV on the ashing facility in Phase II to be confirmed following decommissioning and rehabilitation activities), 150 MW Battery Energy Storage System (BESS); up to 70 MW Wind Energy Facilities (WEF) and ancillary infrastructure at the Komati Power Station located in the Mpumalanga Province, South Africa.

Component B (This project) is one of several initiatives in which Eskom proposes to establish a solar energy generating facility which will include the installation of a 100 MW Solar PV energy facility (an additional 50MW PV on the Ash Dam facility in Phase II to be confirmed following decommissioning and rehabilitation activities), as well as a 150MW BESS facilities, and a WEF which will include the installation of approximately 7 turbines with a total of up to 70 MW generating capacity.

This report is specific to the 100 MW Solar PV and BESS Facility of Component B.

In order for the proposed project to proceed, it will require an Environmental Authorisation (EA) from the Department of Forestry, Fisheries and Environment (DFFE). This Environmental and Social Management Programme (ESMP) is for the proposed Komati Solar PV and BESS Facility and is derived from the ESIA and supporting specialist studies..

1.1 BACKGROUND INFORMATION

Eskom is a South African utility that generates, transmits and distributes electricity and supplies approximately 95% of the country's electricity. Eskom’s 2035 strategy encompasses the journey that Eskom intends to take in response to the changing energy environment and the impact this has towards a sustainable power utility. This strategy is necessitated by the challenges that Eskom faces as a business as well as the global and local shifts occurring in the energy sector particularly with respect to environmental and climate change challenges, difficulties in accessing financing and changes to the macro industry environment significantly altering the energy supply industry. The road to 2035, includes the shutting down of a number of coal-fired power stations, repurposing and repowering, delivering new clean generation projects, expanding the Transmission grid, and rolling out micro grid solutions.

Several power stations are reaching the end-of-life. These stations will go into extended cold reserve and are most likely to be fully decommissioned in the future. Eskom is considering a shutdown, dismantling and repurposing of some of its fleet as it reaches its end-of-life. Over the next decade, more than half of the coal-fired power stations will be shut down, including Komati Power Station. While this will result in a lower impact on the environment, the shutdown of power stations will potentially lead to negative social impacts. The EJETP is aimed at, as far as possible, ensuring that the transition to cleaner technologies and the closure of power stations is carried out in a just way. The repurposing and repowering of Komati Power Station to utilise renewable energy is part of the EJETP. Komati Power Station reached its end-of-life in October 2022.

Component B (This project) is one of several initiatives in which Eskom proposes to establish a solar energy generating facility which will include the installation of a 100 MW Solar PV energy facility (an additional 50MW PV on the Ash Dam facility in Phase II to be confirmed following decommissioning and rehabilitation activities), as well as a 150MW BESS facilities, and a WEF which will include the installation of approximately 7 turbines with a total of up to 70 MW generating capacity.

This report is specific to the 100 MW Solar PV and BESS Facility of Component B.

Component C is centred around three key pillars: (a) Transition support for Komati Permanent Workers, Suppliers and Contract Workers; (b) Community Development; and (c) Stakeholder engagement.

Eskom will develop and execute this renewable energy project. Eskom has requested the independent consultant to ensure that the Project is carried out in accordance with the World Bank (WB) Environmental and Social Standards (ESSs), in a manner that is acceptable to the World Bank.

The EJETP aligns to international and national requirements to address climate change and move toward the use of cleaner technologies for the supply of electricity. EJETP's vision focuses on achieving "Net Zero" carbon emissions by 2050, with an increase in sustainable jobs. Some of the additional benefits of moving towards lower carbon technologies, is the positive impact on air quality and water usage, the potential to create new exciting jobs, and a greater preservation of biodiversity in South Africa.

1.2 LOCATION OF THE PROPOSED PROJECT

The Komati Power Station is situated about 37km from Middelburg, 43km from Bethal and 40km from Witbank in Ward 4, Portion 0 of Farm Komati Power Station 56-IS in the Steve Tshwete Local Municipality located within the Nkangala District Municipality in the Mpumalanga Province. The SEF, BESS facilities and ancillary infrastructure will be located on Eskom owned land, as indicated in **Table 1-1**. The locality of the facilities is illustrated in **Figure 1-1**.

Table 1-1 –Affected Farm Portions

Farm Name	21 Digit Surveyor General Code of Each Cadastral Land Parcel	Property Owner
Portion 0 of Farm Komati Power Station 56-IS	T0IS00000000005600000	Eskom Holdings SOC Ltd

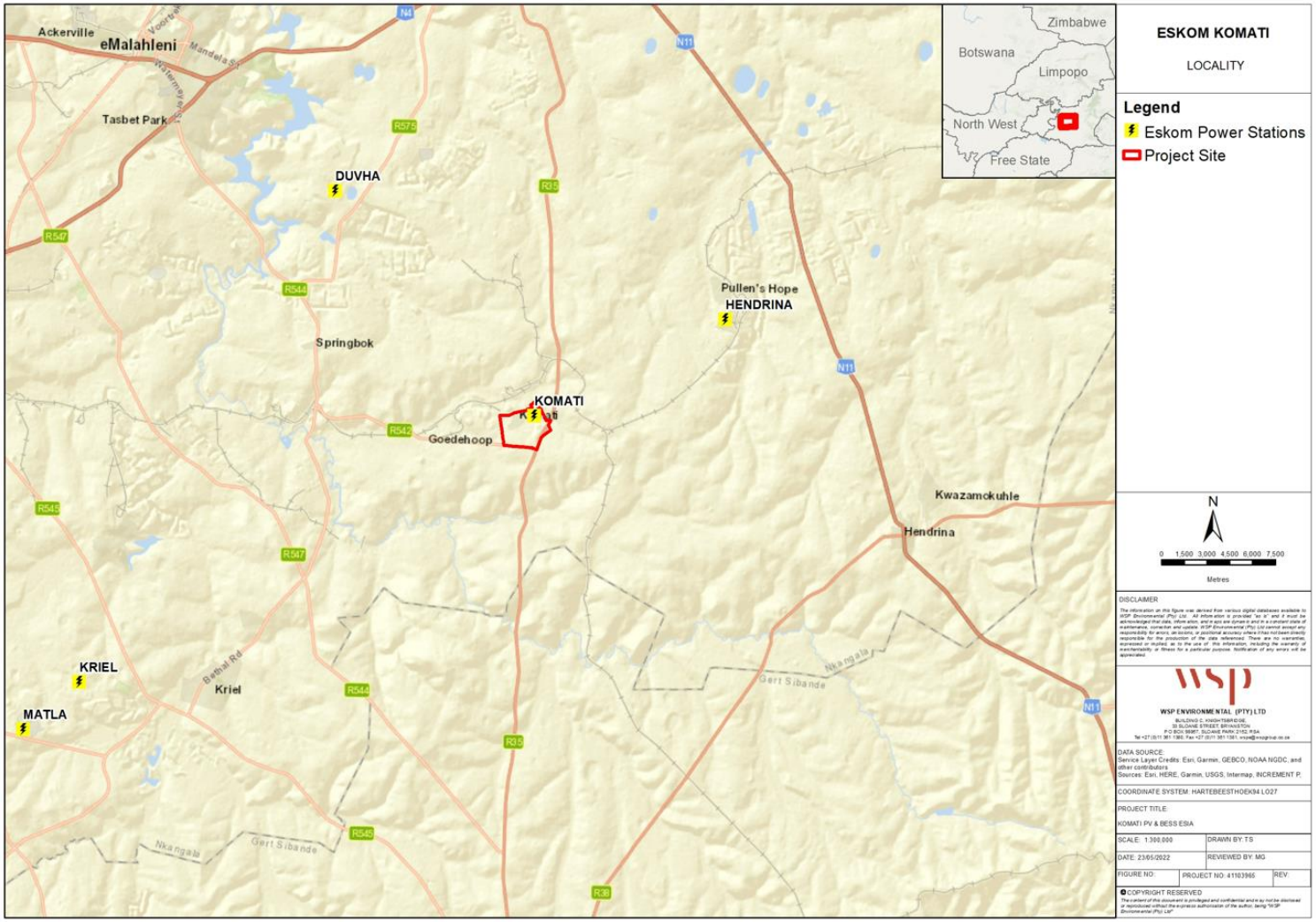

Figure 1-1 – Regional locality map

1.3 DETAILS OF KEY ROLE PLAYERS

1.3.1 PROJECT PROPONENT

Eskom is the project proponent with regards to this project for the construction and operation of the SEF, BESS and ancillary infrastructure. **Table 1-2** provides the relevant details of the project proponent.

Table 1-2 – Details of Project Proponent

Proponent:	**Eskom Holdings SOC (Ltd)**
Contact Person	Deidre Herbst
Postal Address	PO Box 1091, Johannesburg
Telephone	011 800 3501
Email	Deidre.Herbst@eskom.co.za

1.3.2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

WSP was appointed in the role of Independent Environmental Assessment Practitioner (EAP) to undertake the S&EIA process and the ESIA for the proposed project. **Table 1-3** details the relevant contact details of the EAP.

Table 1-3 – Details of the EAP

EAP:	**WSP Group Africa (Pty) Ltd**
Contact Person:	Ashlea Strong
Physical Address:	Building C, Knightsbridge, 33 Sloane Street, Bryanston, Johannesburg
Postal Address:	P.O. Box 98867, Sloane Park 2151, Johannesburg
Telephone:	011 361 1392
Fax:	011 361 1301
Email:	Ashlea.Strong@wsp.com
EAP Qualifications:	▪ Masters in Environmental Management, University of the Free State ▪ B Tech, Nature Conservation, Technikon SA ▪ National Diploma in Nature Conservation, Technikon SA
EAPASA Registration Number:	EAPASA (2019/1005)

1.4 SCOPE AND OBJECTIVES OF ESMP

An ESMP is defined as “an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented or mitigated, and that the positive benefits of the projects are enhanced.”

This document is the ESMP for the Komati SEF and BESS Facility project. It is used as a guideline for the management of the construction, operational and decommissioning phases of the project. It is derived from the ESIA and supporting specialist studies.

This ESMP has been compiled in accordance with Appendix 4 of GNR 982, in compliance with section 24N of NEMA, and the WBG ESS.

To facilitate compliance to the ESMP by appointed contractors and sub-contractors, it is required that all onsite personnel are aware of the requirements of the ESMP as well as the prescribed penalties should a non-conformance be identified during the construction, operation and decommissioning activities.

Further to the above, appointed contractors and sub-contractors will also be required to comply with all relevant legislation and standards.

1.4.1 ESMP OBJECTIVES

The ESMP has the following objectives:

- Identify mitigation measures and environmental specifications which are required to be implemented for the planning, construction and rehabilitation, operation, and decommissioning phases of the project in order to manage and minimise the extent of potential environmental impacts associated with the facility;
- Ensure that all the phases of the proposed project do not result in undue or reasonably avoidable adverse environmental impacts, and ensure that any potential environmental benefits are enhanced;
- Identify entities responsible for the implementation of the measures and outline functions and responsibilities;
- Create management structures that address the concerns and complaints of interested and affected parties (I&APs) with regards to the proposed project;
- Propose mechanisms and frequency for monitoring compliance, and preventing long-term or permanent environmental degradation; Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment;
- Train onsite personnel with regard to their environmental obligations; and
- Facilitate appropriate and proactive responses to unforeseen events or changes in project implementation that was not considered in the S&EIA process.

1.4.2 ENVIRONMENTAL AND SOCIAL OBJECTIVES AND TARGETS

To facilitate compliance to the ESMP, Komati Solar PV and BESS Facility must comply with all relevant legislation and standards and make all personnel aware of the requirements of the ESMP, as well as the prescribed penalties should a non-conformance be identified during the different phases of the proposed Project.

It is recommended that environmental and social objectives (as outlined in this document) be emphasised as minimum requirements. Objectives include:

- Encourage good management practices through planning and commitment to environmental and social issues;
- Provide rational and practical environmental guidelines to:
  - Minimise disturbance of the natural environment;
  - Minimise fugitive emissions;
  - Minimise impact of added traffic into the area;
  - Ensure surface and groundwater resource protection;
  - Prevent or minimise all forms of pollution;
  - Protect indigenous flora and fauna;
  - Prevent soil erosion;
  - Promote sustainable use of resources;
  - Minimise the loss of employment;
  - Manage the impact of population influx;
- Adopt the best practical means available to prevent or minimise adverse environmental and social impacts;
- Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment and surrounding community;
- Promote the reduction, reuse, recycling and recovery of waste;
- Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of waste;
- Describe environmental controls required to identify and mitigate impacts on the environment;
- Define how the management of the environment is reported and performance evaluated; and
- Train onsite personnel with regard to their environmental obligations.

1.4.3 COMPONENT C ESMP

Activities that will be supported under Component C's include among others: Agriculture (farming and gardens): Agrivoltaics project including; Training centres for welding, solar and wind turbine technical training, and community development training; Assembly of containerized microgrids; The establishment of an Early Childhood Development centre; Digital hubs and digital connection of communities; Upgrade/ expansion of sport and recreation facilities; Community support programs centres, health services, etc; Purchasing of land for the agricultural activities); Employment of labour, minor civil works, Renovation/construction associated with the digital hub; Catering services for employees working in projects and Renewable energy recycling facilities.

The Component C ESMP covers only three sub-projects to be implemented by ESKOM including (1) the Agri-voltaic Plant, (2) Microgrid Assembly Line, and (3) Komati Training Facility which will take place within the existing KPS footprint. All other sub-projects to be established under Component C will be covered under separate ESMPs. An ESMP sets out the mitigation measures, monitoring requirements and implementation arrangements to minimize environmental and social risks and impacts. This includes compliance with South African law, the World Bank Environmental and Social Framework of (2018), EJETP legal documents, as well as ESKOM own Health, Environment and Quality (SHEQ) Policy requirements. This ESMP shall be implemented by Just Energy Transition Office (JETO), while it will also form part of contractual agreements established between JETO and

all contractors or service providers appointed on the three sub-projects on the Komati site. It is a dynamic document that will be updated as and when required.

1.5 STRUCTURE OF THE ESMP

A hard copy of the ESMP must always be in the site office and made available to officials at request.

The ESMP is structured as follows:

- Section 2 describes the environmental and social policies and commitments in South Africa.
- Section 3 describes the project description and project activities associated with the Komati SEF and BESS Facility.
- Section 4 describes the environmental sensitivities of the proposed project.
- Section 5 describes the policy, legal and regulatory framework.
- Section 6 sets out the management procedures and administrative requirements.
- Section 7 includes the generic environmental controls.
- Section 8 includes site specific environmental controls.
- Section 9 includes the Management Plans applicable to this project.

1.6 APPLICABLE DOCUMENTATION

The following documents are to be read in conjunction with the ESMP:

- Environmental and Social Impact Assessment (ESIA) Report for the Proposed Komati SEF and BESS Facility;
- Generic Environmental Management Programme (EMPr) for the development and expansion of substation infrastructure for the transmission and distribution of electricity (**Appendix A**);
- Generic EMPr for the development and expansion for overhead electricity transmission and distribution infrastructure (**Appendix B**); and
- EA issued by the DFFE in terms of the NEMA (once issued).

2 ENVIRONMENTAL POLICIES AND COMMITMENTS

2.1 SAFETY, HEALTH AND ENVIRONMENTAL POLICY

Eskom shall implement a Safety, Health and Environmental (SHE) Policy declaration that sets the framework for an integrated management system for the Construction, Operation and Decommissioning of the Komati SEF and BESS Facility. All visitors, contractors and employees are required to comply with the requirements of the policy declaration.

Eskom management and staff shall fully subscribe to the SHE policy declaration and shall demonstrate commitment to the policy by:

- Developing and implementing an integrated management system that will comply with the requirements of the National Occupational Health and Safety Act (No. 85 of 1993) (OHSA) and the relevant regulations under the Act are applicable to the proposed project. This includes the Construction Regulations promulgated in 2014 under Section 43 of the Act, ISO 14001 Environmental Management Systems and ISO 45001:2018 Occupational health and safety management systems;
- Subjecting itself to third party audits conducted by an internationally recognised certification body as part of their drive towards continual improvement;
- Accepting and complying with Corporate Governance requirements, South African SHE - related legislation, all Financing obligations (including WB) and any appropriate, recognised, industry codes of practice;
- Influencing suppliers and contractors to conform as a minimum to the South African SHE - related legislation and to respect and adhere to the Eskom codes of practice;
- Sharing and communicating relevant information about safety, health and environmental performance with interested and affected parties, employees and authorities in an open and transparent manner, and making this declaration available by displaying it in all office buildings and in the induction training;
- Minimising risks associated with its activities which may impact on the health and safety of its employees, communities and the environment;
- Enhancing the general awareness of its employees and contractors to ensure understanding of all the SHE risks and impacts associated with their work activities;
- Preventing pollution, accidents, injuries and ill health through setting and reviewing objectives and programmes;
- Responding effectively to safety, health and environmental emergencies;
- Providing appropriate resources to implement the above commitments; and
- Reviewing such a declaration of intent on an acceptable basis or as and when required by Eskom SHE Governance structure.

2.2 COMMUNITY ENGAGEMENT PRINCIPLES

Eskom's community engagement principles are centred on:

- Community involvement and ownership;
- Strengthen community leadership;
- Targeted impacts-driven interventions;
- Addressing key community priorities;

- Strategic research informed interventions;
- Monitoring and evaluation; and
- Building capacity through partnership.

2.3 COMPLIANCE WITH LEGISLATION AND BEST INDUSTRY STANDARDS

The Komati SEF and BESS Facility project has committed to comply with international guidelines and standards (the Equator Principles, WBG Environmental and Social Standards (ESS), including the WBG environmental, Health and Safety guidelines (general and sector specific), and other applicable international and regional guidelines) where these are more rigorous or detailed than South African national standards or where South African standards do not exist.

2.4 MITIGATION HIERARCHY

The first priority of environmental management is always to prevent adverse impacts, thereafter management measures with other objectives are considered. Environmental management measures can be varied and the measures themselves can have a variety of objectives.

Primary objectives of mitigation measures for adverse environmental impacts are presented in **Table 2-1**.

Table 2-1 - Primary objectives of mitigation measures for adverse environmental impacts

Avoidance	▪ Avoiding activities that could result in adverse impacts. ▪ Avoiding resources or areas considered as sensitive.
Prevention	▪ Preventing the occurrence of negative environmental impacts and / or ▪ Preventing such an occurrence having negative environmental impacts.
Preservation	▪ Preventing any future actions that might adversely affect an environmental resource. ▪ Typically achieved by extending legal protection to selected resources beyond the immediate needs of the project.
Minimisation	▪ Limiting or reducing the degree, extent, magnitude or duration of adverse impacts. ▪ This can be achieved by scaling down, relocating, redesigning elements of a project.
Rehabilitation	▪ Repairing or enhancing affected resources, such as natural habitats or water sources, particularly when previous development has resulted in significant resource degradation.
Restoration	▪ Restoring affected resources to an earlier (and possibly more stable and productive) state, typically 'background / pristine' condition.
Compensation	▪ Creation, enhancement or protection of the same type of resource at another suitable and acceptable location, compensating for lost resources.

3 PROJECT DESCRIPTION

This section provides a description of the project infrastructure, timeframes and activities. It must be noted that the design of the SEF and BESS are still in the conceptual phase and will be finalised at a later stage after the appointment of the Engineering, Procurement, and Construction (EPC) Contractor.

The layout presented in **Figure 3-1** has been optimised based on the findings of the terrestrial and aquatic specialist studies. The layout now excludes the CBA area located within Solar Site B and excludes the Seep 1 wetland (including 33m buffer) located within the Solar P Site A.

3.1 PROJECT INFRASTRUCTURE

The proposed project layout is indicated in **Figure 3-1** and will comprise of the following key components:

- Solar Energy Facility;
- Grid Connection (i.e. powerlines);
- Site Substation and BESS; and
- Ancillary infrastructure.

These items are summarised in **Table 3-1** and discussed in more detail below. The SEF is intended to evacuate power to the grid. Part of the design development will be to determine the best option to charge the BESS, either with grid power or power generated from PV.

Table 3-1 – Key Project Infrastructure

Infrastructure	Description	
Solar Energy Facility	Solar modules will be elevated above the ground, and will be mounted on either fixed tilt systems or tracking system	
	Solar Farm A:	
	Extent	115ha (1 150 000m^2)
	AC Capacity	Up to 70 MW
	DC Capacity	Up to 84 MW
	Solar Farm B:	
	Extent	21ha (210 000m^2)
	AC Capacity	Up to 30 MW
	DC Capacity	Up to 36 MW

Infrastructure	Description	
Overhead Powerline	The 132kV OHPL will follow the route of the existing powerlines and connect to the existing Komati High Voltage Yard	
	New access roads or tracks may be required to provide access to sections of the powerline route, if the existing access roads are insufficient. Access roads will be mostly a two-track gravel road under the OHPL in order to access pylons for construction and maintenance purposes.	
	OHPL corridor Footprint:	58ha (580 000^2)
	Servitude:	Between 36m and 40m (26ha)
Site Substation including O&M Building	Each of the Solar Sites will be equipped with collector substations Infrastructure associated with the substations includes: ▪ Operations and Maintenance (O&M) buildings housing the control and communication equipment ▪ Site substations and collector substations	
	Solar Site Substation A	
	Capacity:	132kV
	Footprint:	0.5ha (5 000m^2)
	Solar Site Substation B	
	Capacity:	132kV
	Footprint:	0.5ha (5 000m^2)
BESS	Lithium Battery Technologies, such as Lithium Iron Phosphate, Lithium Nickel Manganese Cobalt oxides or Vanadium Redox flow technologies are being considered	
	Three BESS Facilities	
	Capacity:	150 MW with four hours standby time
	Footprint:	3 ha (30 000m^2)
Associated infrastructure	**Temporary laydown area**	
	Footprint includes temporary laydown areas; Temporary concrete batching plant; Construction camps and temporary laydown areas	

Infrastructure	Description	
	Footprint:	8ha (80 000m^2)

3.1.1 SOLAR ENERGY FACILITY

The total site area for PV installation is approximately 200-250 hectares to allow for the construction of a PV facility with an AC capacity of up to 100 MW. Solar PV modules which convert solar radiation directly into electricity, will occupy a space of up to a total of approximately 720,000 m^2. The solar PV modules will be elevated above the ground, and will be mounted on either fixed tilt systems or tracking systems (comprised of galvanised steel and aluminium). The Solar PV modules will be placed in rows in such a way that there is allowance for a perimeter road and security fencing along the boundaries, and O&M access roads in between the PV module rows. **Table 3-2** provides a high-level project summary of the proposed Facilities.

Table 3-2 – High-level Project Summary – Renewable Energy Facilities

	Solar Site A	Solar Site B
Extent	115 Ha	25 Ha
AC Capacity	70 MW	30 MW

3.1.2 GRID CONNECTION

The Solar Facilities will be allocated a point of connection to the Komati 275 kV High Voltage (HV) yard. Each of the Solar Sites will be equipped with collector substations that will the route the power output to the point of connection via a medium voltage OHPL or underground cabling. The method and final route to the points of connection will form part of the final designs. The existing Komati points of connections will be used with the existing infrastructure to connect to the Komati 275kV HV yard. The existing power evacuation infrastructure consist of step up transformers (140 megavolt Amperes (MVA)), surge arrestors, transmission lines, HV breakers and links to the 275kV busbar.

3.1.2.1 Servitude

The registered servitude will likely between 36m and 40m. The length of the transmission will be determined during the design stage. The servitude area will be approximately 26ha. The servitude is required to ensure safe construction, maintenance and operation of the powerline.

3.1.2.2 Substations

On site substations will be established within the extent of the Solar Site A and Solar Site B. The site itself is very homogenous and there are no significant features in the immediate vicinity of the substation location that might be affected by the development. The following infrastructure is proposed but will be confirmed during the design stage:

- O&M buildings housing the control and communication equipment;
- All the access road infrastructure within the substation sites; and
- Site substations and collector substations to consolidate and distribute power to the connection points.

3.1.2.3 Site Access

The project area and surrounding areas are already easily accessible due to existing access roads. New access roads or tracks may be required to provide access to sections of the powerline route. Access roads will be mostly a two-track gravel road under the OHPL in order to access pylons for construction and maintenance purposes. The width of the access roads will be determined during the design phase.

3.1.3 BESS

Eskom proposes to establish three BESS facilities with the existing footprint of the Komati Power Station.

The BESS footprints will range from 2 ha up to 6 ha, depending on design and optimisation of the site and technology selected. The BESS capacity is envisaged to be 150 MW with four hours standby time.

It is proposed that Lithium Battery Technologies, such as Lithium Iron Phosphate, Lithium Nickel Manganese Cobalt oxides or Vanadium Redox flow technologies will be considered as the preferred battery technology however the specific technology will only be determined following EPC procurement. The main components of the BESS include the batteries, power conversion system and transformer which will all be stored in various rows of containers. The BESS components will arrive on site pre-assembled.

3.1.4 ANCILLARY INFRASTRUCTURE

The additional ancillary infrastructure will be confirmed once the Conceptual Design is complete, however, it is anticipated that the following will be applicable:

- Access roads;
- Perimeter roads;
- Below ground electrical cables;
- Above ground overhead lines;
- Meteorological Station;
- O&M Building including control room, server room, security equipment room, offices, boardroom, kitchen, and ablution facilities);
- Spares Warehouse and Workshop;
- Hazardous Chemical Store;
- Security Building;
- Parking areas and roads;
- Temporary laydown areas;
- Temporary concrete batching plant
- Construction camps and temporary laydown areas; and
- Onsite substations.

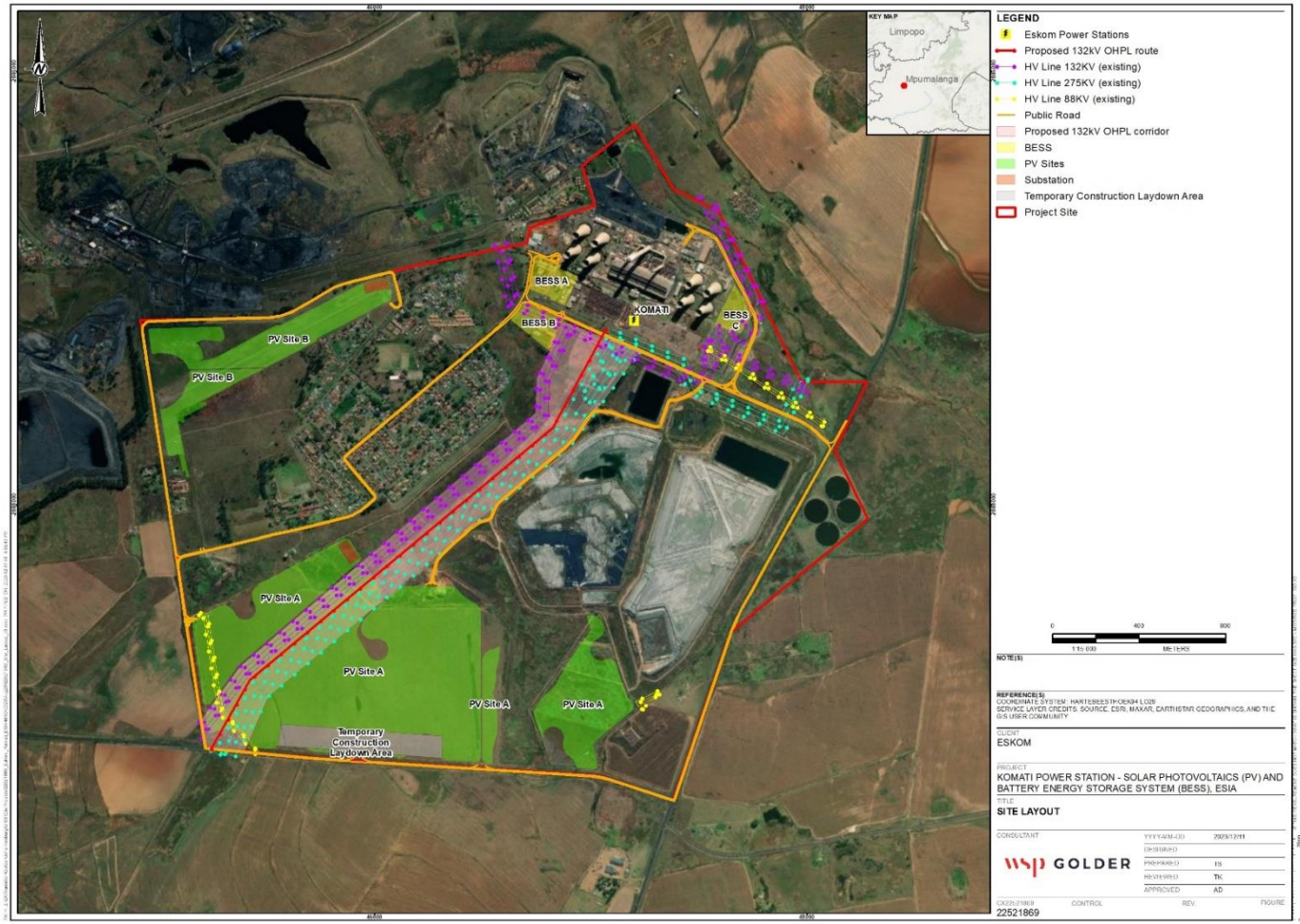

Figure 3-1 – Komati SEF and BESS Layout Map

3.2 SOLAR PV GENERATION PROCESS

South Africa experiences some of the highest levels of solar radiation in the world between 4.5 and 6.5kWh/m^2/day) and therefore, possesses considerable solar resource potential for solar power generation.

In terms of large-scale grid connected applications the most commonly used technology utilised in South Africa is PV installations and is described in some detail in the following section.

It must be noted that this project is specific to solar power generation through the use of solar PV technology only.

3.2.1 PV AND MOUNTING SYSTEM

Internationally, solar PV is the fastest-growing power generation technology. Approximately 139 GW was added to the installed capacity globally in 2020, increasing the installed capacity by 18% from the previous year. The total capacity from PVs was 760 GW globally, producing approximately 3% of the world's electricity. In South Africa the solar PV installed capacity in 2020 grew by 37% compared to the previous year's value. As much as 3.6 GW of PV is planned to be installed by 2026, with approximately 1.48 GW already installed as recorded in 2019.

Large-scale or utility-scale PV systems are designed for the supply of commercial power into the electricity grid. Large-scale PV plants differ from the smaller units and other decentralised solar power applications because they supply power at the utility level, rather than to local users.

PV cells are made from semi-conductor materials that are able to release electrons when exposed to solar radiation. This is called the photo-electric effect. Several PV cells are grouped together through conductors to make up one module. Modules can be connected together to produce power in large quantities. In PV technology, the power conversion source is via PV modules that convert light directly to electricity.

Solar panels produce direct current (DC) electricity; therefore, PV systems require conversion equipment to convert this power to alternating current (AC), that can be fed into the electricity grid. This conversion is done by inverters. **Figure 3-2** provides an illustration of the main components of a solar PV power plant.

The solar PV panels can be mounted in various ways to ensure the maximum exposure to sunlight. The two main mounting systems that form part of a PV facility are either single axis tracking or fixed axis mounting structures. In the fixed axis mounting structures, the panels are installed and set to face north and does not move to follow the sun. With tracking systems, the panels track the sun and thereby ensure maximum exposure to the sunlight. Both mounting systems are considered for this project.

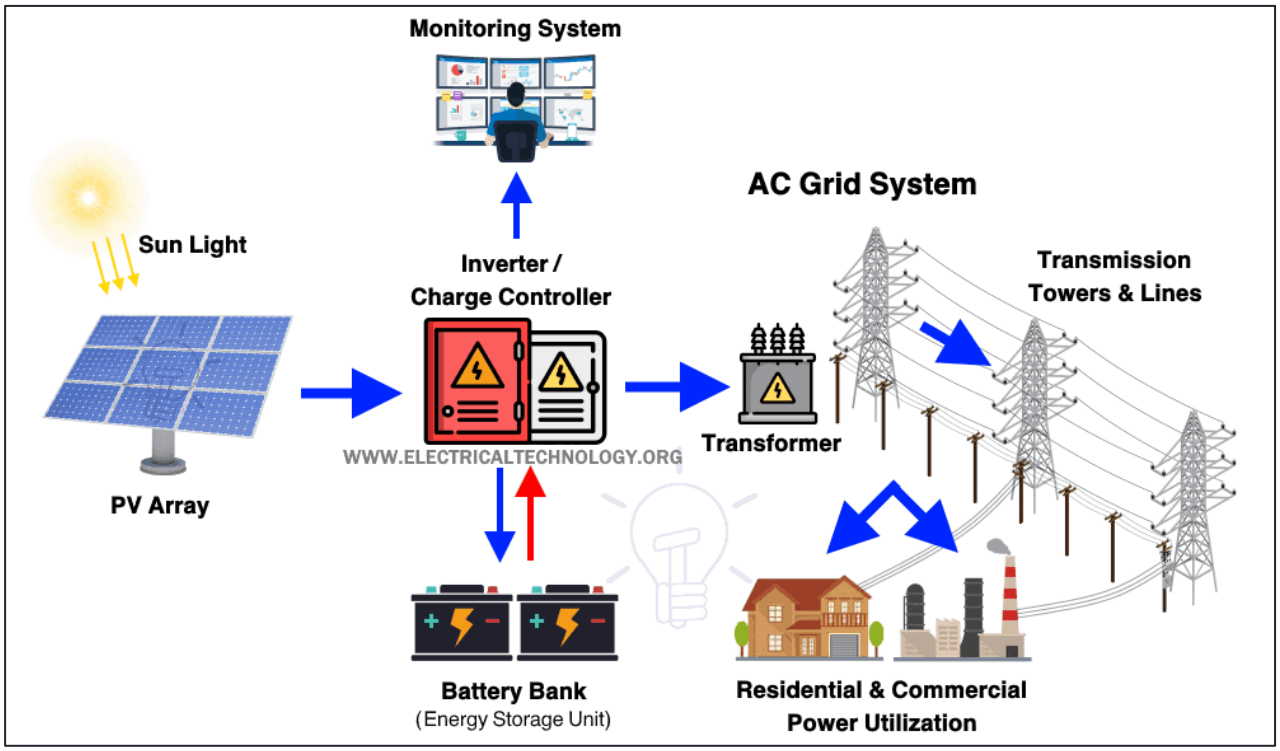

Figure 3-2 - Main components of a Solar PV Plant

Source: *www.electricaltechnology.org/2021/07/solar-power-plant.html*

3.3 BESS TECHNOLOGY

The Komati PV Facility project includes the development of a BESS. There is a growing need for renewable energy technologies, such as solar and wind, to be able to supply a reliable source of electricity to the grid. Energy storage systems capture surplus energy during times of high production/low demand and store it for use during times of low production/high demand. While not a new technology, energy storage is rapidly gaining traction as a way to provide a stable and consistent supply of renewable energy to the grid. The energy storage system of most interest to power producers is the BESS, as these facilities can be designed and constructed to be a standalone facility, charging and discharging from the electrical grid when the demand requires. Furthermore, BESS facilities can be integrated into renewable energy projects.

Being able to store excess energy is also a financial benefit to renewable energy producers. Instead of having to curtail production, at the request of the grid or utility, that curtailment can be stored. When production later goes down, that stored energy is available for sale to fill in the gaps.

3.3.1 BATTERY TYPES

The Proposed Project will utilize either of two BESS technology options; Lithium-ion batteries; or Vanadium Redox Flow Batteries (VRFB), and the different technology types are discussed below.

3.3.2 DESIGN OF THE LITHIUM-ION BATTERY FACILITY

In this design, the BESS will be made up of several liquid cooled Lithium-Ion batteries, due to them being a mature and safe technology with regard to being modular and easy to install and due to their

technical characteristics, will work well as energy storage systems for solar facilities, as well as supporting grid stability.

The liquid cooled Lithium-Ion batteries consists of multiple battery cells that are assembled together to form modules. Each cell contains a positive electrode and a negative electrode. The BESS will comprise of multiple battery units or modules housed in shipping containers and/or an applicable housing structure which is delivered pre-assembled to the project site. Containers are usually raised slightly off the ground and layout out is rows. They can be stacked if required although this may increase the risk of events in one container spreading to another container.

Supplementary infrastructure and equipment may include substations, power cables, transformers, power converters, substation buildings & offices, HV/MV switch gear, inverters and temperature control equipment that may be positioned between the battery containers. The images in **Figure 3-3** are typical BESS installations. **Figure 3-4** and **Figure 3-5** show typical battery modules in the BESS facility.

Figure 3-3 – Images of Typical BESS Systems

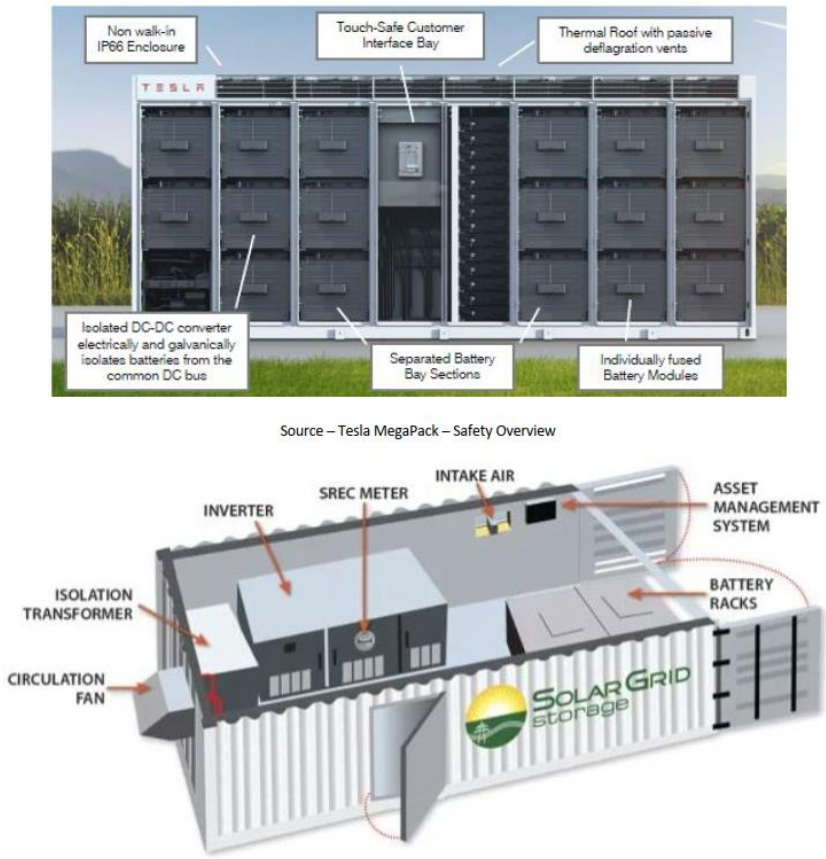

Figure 3-4 – Typical Battery Modules in a BESS with the Separated Sections

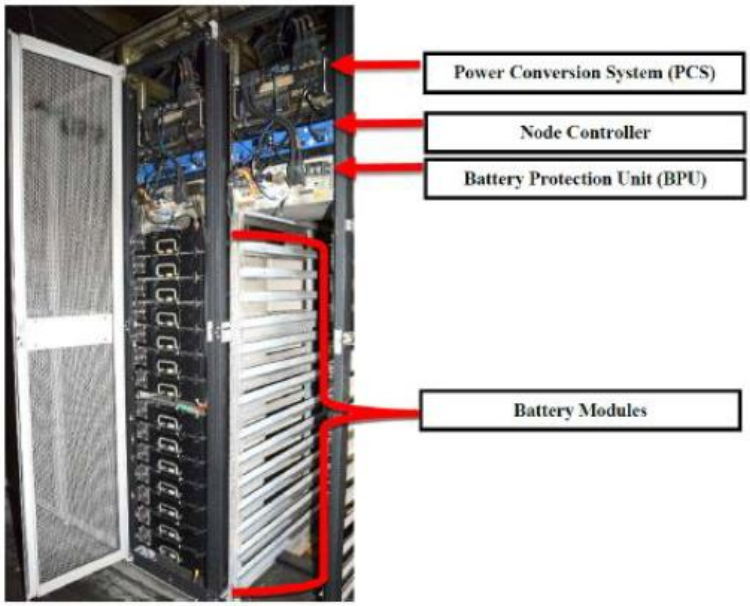

Figure 3-5 - Typical Battery Modules in a BESS with the Power Conversion Systems in the Batteries

3.3.3 DESIGN OF THE VANADIUM REDOX FLOW BATTERIES

In this design, VRFB's are a type of rechargeable battery that utilise a Vanadium electrolyte solution. They are unique in that they use Vanadium ions in different oxidation states (V2+ and V3+ for the negative electrode, V4+ and V5+ for the positive electrode) to store and release electrical energy. A single VRFB unit (**Figure 3-6**) comprises of a number of VRFB stacks, back cooler, flame arrestor, gas barriers, switch cabinets, pre-pressure tanks, electrolyte pumps and electrolyte tanks, additionally associated auxiliary transformers and an HV substation will be required.

The heart of a VRFB is the stack (**Figure 3-7**), which consists of multiple cells stacked on top of each other. Each cell consists of a positive and negative electrode compartment, separated by an ion exchange membrane. The positive and negative electrodes are made of carbon-based materials coated with a catalyst to facilitate the reaction with the vanadium ions.

When the VRFB is in use, the electrolyte solution is pumped from the storage tanks (**Figure 3-8**) through the stack, where the chemical reactions take place, producing electricity. The size of the stack and the number of cells depends on the desired capacity and power output of the battery.

One of the advantages of VRFBs is their scalability, as their capacity can be easily increased or decreased by simply adding or removing electrolyte solution. They also have a long cycle life and are able to maintain their capacity over many charge-discharge cycles.

Another advantage of VRFB stacks is their ability to operate at a constant voltage, which simplifies the power electronics required for the battery system. Additionally, because the chemical reactions take place outside the stack, there is no risk of cross-contamination between the electrolyte solutions, which improves the longevity and reliability of the battery.

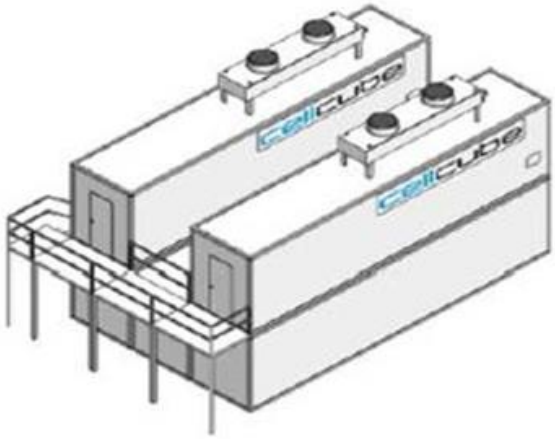

Figure 3-6 - A VRFB unit

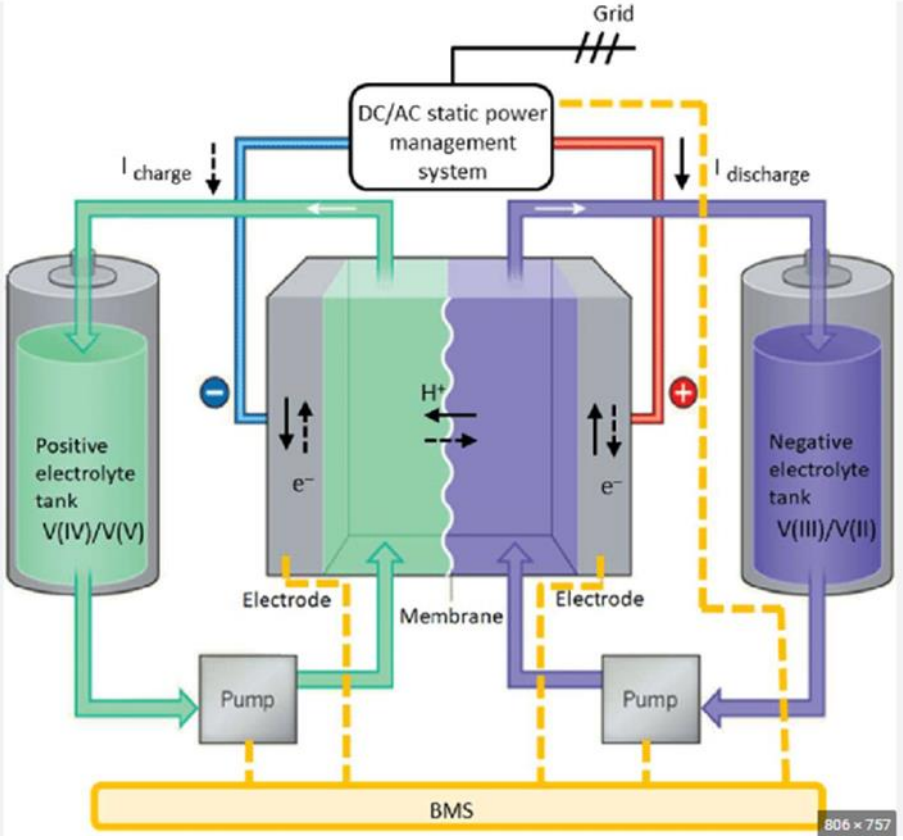

Figure 3-7 – VRFB stack

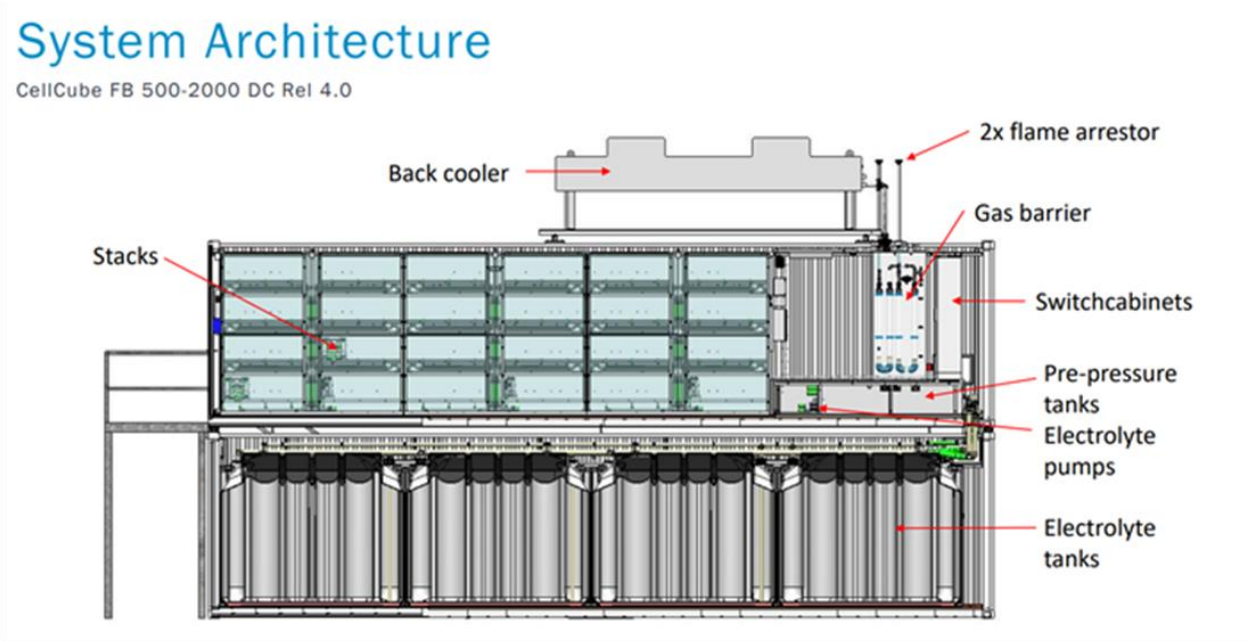

Figure 3-8 - Cross section of a VRFB unit indicating the stacks and electrolyte tanks

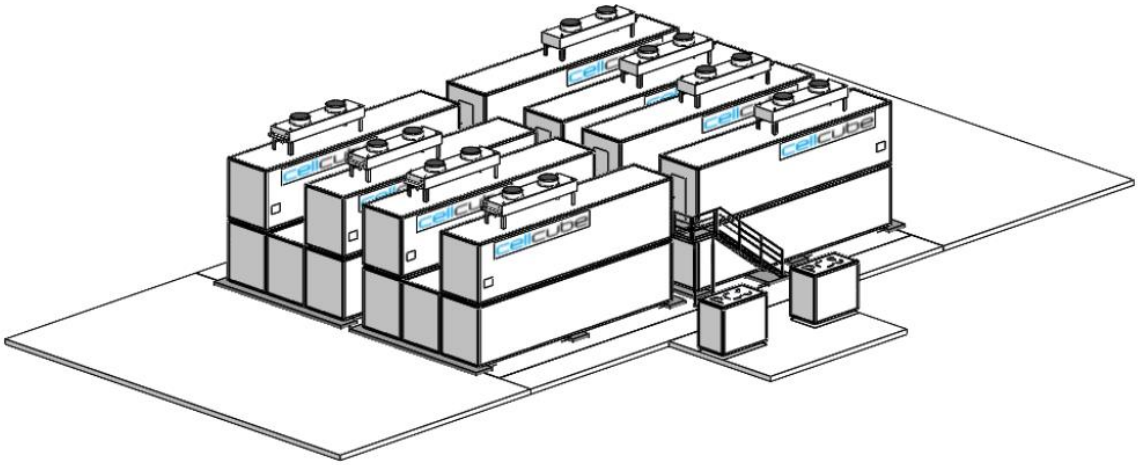

Figure 3-9 - Conceptual VRFB Facility Layout

3.3.4 COMPLIANCE WITH LOCAL AND INTERNATIONAL STANDARDS

The cells, modules, racks and the complete facility will be compliant with all local laws and regulations and health and safety requirements governing such battery facilities. Over and above that they will comply with international standards such as UN 38.3 (Transportation Testing for Lithium Batteries), UL 1642 (Standard for Safety – Lithium-ion Batteries) and IEC 62619 (Secondary cells and batteries containing alkaline or other non-acid electrolytes Safety requirements for secondary lithium cells and batteries, for use in industrial applications). Furthermore, the battery facility will also comply with standards such as UL 1973 (Batteries for Use in Stationary Applications) and IEC 62619-2017 including thermal runaway non-propagation and safety zone region operation limits and a failure mode analysis. The design will be compliant with UL 9540 (Energy Storage Systems and Equipment): this standard defines the safety requirements for battery installation in industrial and grid connected applications.

The stacks, electrolyte tanks, electrical and electronic components, and the complete VRFB facility will be compliant with all local laws and regulations and health and safety requirements governing such battery facilities.

3.4 PROJECT TIMEFRAMES

The project is currently in the conceptual design phase. The preliminary project timeframes are indicated in **Table 3-3**. It must be noted the timeframes above are preliminary and will be refined as the project progresses. This project has been applied for EA to DFFE based on conceptual designs. Upon completion of the final designs, the ESMP will need to be updated and submitted to the public for a 30 day review process and the DFFE for approval. Construction cannot commence without the approval of the Final ESMP.

Table 3-3 – Preliminary Timeframes

Activity	Timeframe
EPC Procurement and Contract Award	September 2023

Activity	Timeframe
Finalised Designs	March 2024
Approval of Final ESMP	May 2024
Construction	September 2024 – September 2026
Operation	December 2026
Decommissioning	~ 2046

3.5 PROJECT ACTIVITIES

The proposed project can be divided into the following project activities:

- Construction Activities;
- Operational Activities; and
- Decommissioning Activities.

3.5.1 GENERAL CONSTRUCTION ACTIVITIES

The construction process will follow industry standard methods and techniques. The following activities will be undertaken during the construction phase:

- Establishment of the site including access roads, internal roads, site preparation; construction laydown areas and construction camps;
- Transport of components and equipment to site;
- Excavations and earthworks including levelling the ground and laying down foundations;
- The erection of PV panels and other related infrastructure;
- Construction of substation and inverters;
- Construction of site substations and BESS;
- Establishment of ancillary infrastructure; and
- Rehabilitation of the site after the completion of all construction activities.

Key activities associated with the construction phase are described in **Table 3-4**.

Table 3-4 – Construction Activities

Activity	Description
Establishment access and internal roads	Internal gravel roads will be developed. The roads will be approximately 8m wide and may require widening to ensure that it is suitable for use.
Site preparation and establishment	Site establishment will include clearing of vegetation and any bulk earthworks that may be required. The temporary laydown area will be constructed, including establishment of the construction camp (temporary offices, storage containers, concrete batching plant etc). The site laydown areas are expected to occur within the footprint of Site A and Site B. Site establishment will also entail the installation and/or connection of services (sanitation, electricity etc).
Transport of components and equipment to site	All construction material (i.e. PV support structure materials), machinery and equipment (i.e. graders, excavators, trucks, cement mixers etc.) will be transported to site utilising the national, regional and local road network. Large components

Activity	Description
	(such as substation transformers) may be defined as abnormal loads in terms of the Road Traffic Act (No. 29 of 1989). In such cases a permit may be required for the transportation of these loads on public roads.
Establishment of a laydown area on site	Construction materials, machinery and equipment will be kept at relevant laydown and/or storage areas. A laydown area of approximately 2ha has been proposed for this project. The laydown area will also be utilised for the assembly of the PV panels. The laydown area will limit potential environmental impacts associated with the construction phase by limiting the extent of the activities to one designated area.
Erection of PV Panels	The PV panels will be arranged in arrays. The frames will be fixed onto vertical posts that will be driven into ground utilising the relevant foundation method identified during the geotechnical studies, including potentially employing concrete foundations for the panel frames. PV panels will have a maximum height of 5m.
Construction of substation and inverters	The facility output voltage will be stepped up from medium voltage to high voltage in the transformer. The medium voltage cables will be run underground in the facility (except where a technical assessment suggest that overhead lines are applicable) to a common point before being fed to the onsite substation.
Establishment of ancillary infrastructure	Ancillary infrastructure will include a workshop, storage areas, office and a temporary laydown area for contractor's equipment.
Rehabilitation	Once all construction is completed on site and all equipment and machinery has been removed from the site, the site will be rehabilitated.

3.5.2 OPERATIONAL PHASE

The proposed SEF is anticipated to have a minimum operational lifespan of 20 years. The facility will operate 7 days a week. While the project is self-sufficient, maintenance and monitoring activities will be required. Potable water requirements for permanent staff will be limited. During the operational phase there will be little to no Project-related movement along the servitudes as activities are limited to management of waste, maintaining the servitude (including maintenance of access roads and cutting back or pruning of vegetation to ensure that vegetation does not affect the SEF), inspection of the SEF, BESS and substation infrastructure and repairs when required. Limited impact is expected during operation since there will not be any intrusive work done outside of maintenance in the event that major damage occurs to site infrastructure.

The key activities associated with the operational phase are described in further detail in **Table 3-5**.

Table 3-5 – Operational Activities

Activity	Description
Cleaning and Maintenance	During the operational phase cleaning and maintenance will be required. These activities include: ▪ Carrying out visual inspections, repairs and servicing of PV Panels, Wind Turbines, overhead lines, and BESS Facilities and other ancillary infrastructure; ▪ Conducting verifications of the PV and Wind system operations;

Activity	Description
	▪ Cleaning of solar cells and PV panels on an ad hoc basis using water from the Komati Power Station Water Treatment Plant. Dry cleaning may be used if suitable solar panels are acquired when the specific brands are procured; ▪ Regular maintenance of all thermal-based components; ▪ Servicing of all equipment; and ▪ Testing and upkeep of circuits.
Waste Management	All waste generated either from servicing or equipment or due to damaged infrastructure will be disposed of correctly. Disposal methods for Solar Panels, Wind Turbines and BESS facilities are still being investigated and will be further developed at the appointment of the Engineering and Procurement Contractor. All other hazardous waste will be disposed of correctly at a licenced facility.

3.5.3 DECOMMISSIONING PHASE

Following the initial 20-year operational period of the SEF, the continued economic viability will be investigated. If the facility is still deemed viable, the life of the facility will be extended. The facility will only be decommissioned once it is no longer economically viable. If a decision is made to completely decommission the facility, this will be subject to a separate authorisation and impact assessment process, all the components will be disassembled, reused and recycled or disposed.

The decommissioning phase will include activities similar to that of the construction phase and is indicated in **Table 3-6**. The site would be returned to its current use i.e., agriculture after decommissioning activities have been completed.

Table 3-6 – Decommissioning Activities

Activity	Description
Site preparation and establishment for decommissioning activities	Site establishment will include clearing of vegetation and any bulk earthworks that may be required. The temporary laydown area will be constructed, including establishment of the construction camp (temporary offices, storage containers, concrete batching plant etc). The site laydown areas are expected to occur within the footprint of Site A and Site B. Site establishment will also entail the installation and/or connection of services (sanitation, electricity etc).
Establishment of a laydown area on site	Construction materials, machinery and equipment will be kept at relevant laydown and/or storage areas. A laydown area of approximately 2ha has been proposed for this project. The laydown area will limit potential environmental impacts associated with the construction phase by limiting the extent of the activities to one designated area.
Removal of Infrastructure	All infrastructure no longer required will be removed from site and disposed of appropriately. Disposal methods for Solar Panels and BESS facilities are still being investigated. All other hazardous waste will be disposed of correctly at a licenced facility.
Rehabilitation	Once all decommissioning activities have been completed on site and all equipment and machinery has been removed from the site, the site will be rehabilitated. Rehabilitation will be based on the proposed future land use at the time. If there is no

Activity	Description
	future land use, the rehabilitation will be based on returning the land to its current land use (i.e. agriculture).

4 ENVIRONMENTAL SENSITIVITY

4.1 ENVIRONMENTAL SENSITIVITIES

A summary of the specialist sensitivity verification are detailed in **Table 4-1** below..

Table 4-1 – Assessment Protocols and Site Sensitivity Verifications

Specialist Assessment	Specialist Sensitivity Verification
Agricultural Impact Assessment	The areas of the site underlain by arable soils (Shortlands) and those that have been cultivated have been considered medium sensitivity areas. The areas of the site underlain by the uncultivated Valsrivier soils, the Sepane soils and the grassland areas were considered low sensitivity areas and the areas underlain by Witbank soils were considered very low sensitivity areas.
Landscape/Visual Impact Assessment	Medium Sensitivity
Archaeological and Cultural Heritage Impact Assessment	Low Sensitivity
Palaeontology Impact Assessment	Very High Sensitivity
Terrestrial Biodiversity Impact Assessment	This very high sensitivity rating, however, is only partly supported by the findings of this study. Most of the LSA is either modified or disturbed and therefore is not of very high sensitivity. Only the area of Mixed *Themeda triandra* Grassland, most of which is designated as CBA Optimal, is rated as having a High ecological importance.
Aquatic Biodiversity Impact Assessment	Medium Sensitivity
Civil Aviation Assessment	Low Sensitivity
Defence Assessment	The Department of Defence has been included on the project stakeholder database. No comment has been received to date.
RFI Assessment	The proposed development area is not located within any Astronomy Advantage Area and is therefore considered to be of low sensitivity. The SAWS and relevant telecommunications stakeholders have been included on the project stakeholder database. No comment has been received to date.
Geotechnical Assessment	-
Socio Economic Assessment	-
Plant Species Assessment	Medium Sensitivity
Animal Species Assessment	Medium Sensitivity
Avifauna Assessment	Low Sensitivity

4.2 SENSITIVITY MAPPING

A preliminary consolidated environmental sensitivity map (**Figure 4-1**) has been compiled based on the sensitivities and buffers outlined in the following specialist studies:

- Air Quality Assessment:
  - Sensitive receptors within a 10 km radius of the proposed project
- Noise Assessment:
  - Sensitive receptors within a 5 km radius of the proposed project
- Visual Assessment:
  - High and Medium visual sensitive receptors
- Surface Water Assessment:
  - Rivers
- Terrestrial Plant and Animal Assessment:
  - CBAs
  - High Ecological Importance Areas
- Aquatic Biodiversity Assessment:
  - Wetlands

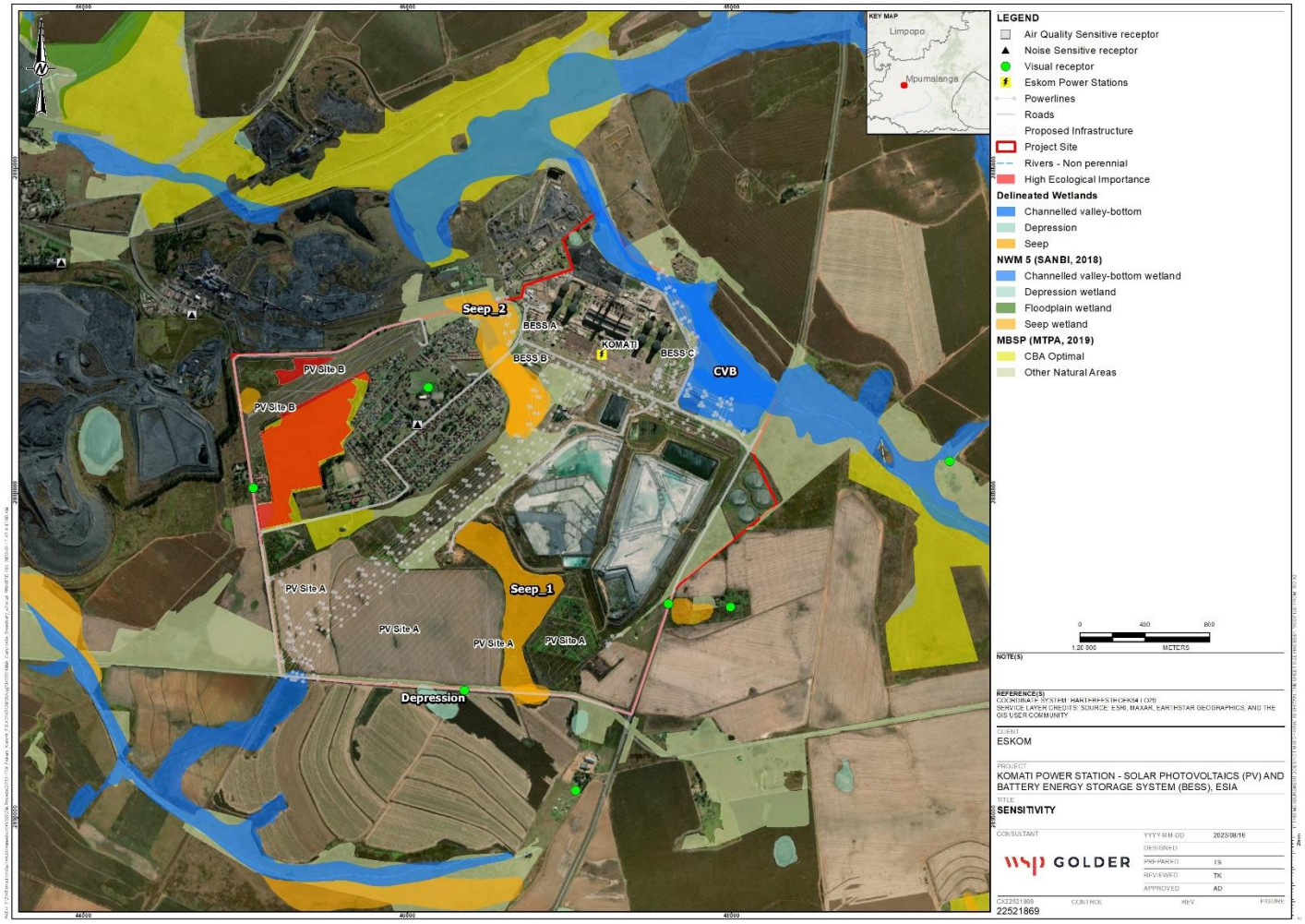

Figure 4-1 – Site layout overlain onto a Consolidated Sensitivity Map

4.3 IMPACT ASSESSMENT OUTCOMES

A summary of the identified impacts and corresponding significance ratings for the proposed Komati SEF and BESS Facility is indicated in **Table 4-2** below. With the implementation of the mitigation measures prescribed by the specialists, the impacts are rated as Moderate to Very Low.

Table 4-2 – Impact Summary

Aspect	Impact Description	Phase	Character	Without Mitigation		With Mitigation	
Surface water	Stormwater Runoff	C	(-)	20	Low	12	Very Low
	Erosion	C	(-)	36	Moderate	12	Very Low
	Flooding	O	(-)	18	Low	12	Very Low
	Stormwater Runoff	O	(-)	20	Low	12	Very Low
	Erosion	O	(-)	36	Moderate	12	Very Low
	Stormwater Runoff	D	(-)	20	Low	12	Very Low
Groundwater	Hydrocarbon Spills	C	(-)	24	Low	12	Very Low
	Leachate/spills	C	(-)	24	Low	12	Very Low
	Spoil from excavated trenches	C	(-)	24	Low	12	Very Low
	Reduced recharge due to increase in hardstanding footprint	O	(-)	33	Moderate	20	Low
	Localised artificial recharge due to washing of solar panels	O	(-)	30	Low	12	Very Low
	Reduced leachate from contaminated soils	C	(+)	33	Moderate	36	Moderate
	Localised leachate from equipment	O	(-)	39	Moderate	22	Low
	Localised increased leachate from contaminated soils due to following washing of solar panels	O	(-)	39	Moderate	22	Low
	Hydrocarbon Spills	D	(-)	24	Low	12	Very Low
	Leachate from equipment no longer in use	D	(-)	39	Moderate	30	Low

Aspect	Impact Description	Phase	Character	Without Mitigation		With Mitigation	
Soils and Agricultural Potential	Loss of soil	C	(-)	60	Moderate	22	Low
	Erosion and sedimentation	C	(-)	60	Moderate	30	Low
	Loss of Agricultural Land	C	(-)	60	Moderate	30	Low
	Soil contamination	C	(-)	70	High	22	Low
	Loss of soil	O	(-)	45	Moderate	9	Very Low
	Erosion and sedimentation	O	(-)	50	Moderate	18	Low
	Loss of Agricultural Land	O	(-)	50	Moderate	30	Low
	Soil contamination	O	(-)	60	Moderate	30	Low
	Loss of soil	D	(-)	27	Low	9	Very Low
	Erosion and sedimentation	D	(-)	55	Moderate	20	Low
	Loss of Agricultural Land	D	(-)	9	Very Low	9	Very Low
	Soil contamination	D	(-)	22	Low	18	Low
Terrestrial Animal Species	Loss and disturbance of natural habitat - Mixed *Themeda triandra* Grassland	C	(-)	85	Very High	36	Moderate
	Loss and disturbance of natural habitat - Moist Mixed Grassland	C	(-)	70	High	27	Low
	Establishment and spread of alien invasive species	C	(-)	44	Moderate	12	Very Low
	Direct mortality, injuring and disturbance of fauna	C	(-)	48	Moderate	14	Very Low
	Loss of fauna species of conservation concern	C	(-)	51	Moderate	24	Low
	Establishment and spread of alien invasive species	O	(-)	44	Moderate	12	Very Low

Aspect	Impact Description	Phase	Character	Without Mitigation		With Mitigation	
	Establishment and spread of alien invasive species	D	(-)	44	Moderate	12	Very Low
Terrestrial Plant Species	Loss and disturbance of natural habitat - Mixed *Themeda triandra* Grassland	C	(-)	85	Very High	48	Moderate
	Loss and disturbance of natural habitat - Moist Mixed Grassland	C	(-)	70	High	30	Moderate
	Establishment and spread of alien invasive species	C	(-)	44	Moderate	12	Very Low
	Loss of flora SCC	C	(-)	68	High	24	Low
	Establishment and spread of alien invasive species	O	(-)	44	Moderate	12	Very Low
	Establishment and spread of alien invasive species	D	(-)	44	Moderate	12	Very Low
Aquatic Biodiversity	Loss of wetland habitat	C	(-)	75	High	N/A	
	Changes in wetland health/functioning	C	(-)	44	Moderate	24	Low
	Contamination of riparian systems	C	(-)	40	Moderate	10	Very Low
	Wetland soil erosion	C	(-)	44	Moderate	24	Low
	Spread of AIS	C	(-)	48	Moderate	12	Very Low
	Changes in the extent and condition of ecosystems supplying ecosystem services	C	(-)	52	Moderate	16	Low
	Spread of AIS	O	(-)	48	Moderate	10	Very Low
	Wetland soil erosion	O	(-)	55	Moderate	21	Low
	Water quality deterioration and contamination of wetland soils	O	(-)	48	Moderate	10	Very Low

Aspect	Impact Description	Phase	Character	Without Mitigation		With Mitigation	
Avifauna	Habitat loss, displacement, and disturbance of avifauna	C	(-)	36	Moderate	27	Low
	Habitat loss, displacement, and disturbance of avifauna	O	(-)	27	Low	27	Low
Traffic	Impact of construction vehicles on roads and access roads	C	(-)	28	Low	28	Low
	Transportation activities during operations	O	(-)	28	Low	28	Low
	Impact of construction vehicles on roads and access roads	D	(-)	28	Low	28	Low
Visual	Impact of visual effect on sensitive visual receptors in close proximity (within 1km)	C	(-)	64	High	36	Moderate
	Impact of visual impact on observers (residents and visitors) in close proximity (within 1km)	O	(-)	72	High	42	Moderate
	Impact of visual effect of the proposed PV facility within 1- 3km radius	O	(-)	45	Moderate	26	Low
	Impact of visual effect of the proposed PV facility within 3- 6km radius	O	(-)	24	Low	20	Low
	Impact of visual effect of the proposed PV facility within the greater area (beyond 6km radius)	O	(-)	18	Low	9	Very Low
	Impact of operational, safety and security lighting of the facility at night during the operational phase	O	(-)	39	Moderate	22	Low
	Impact of solar glint and glare as a visual distraction and possible air/road travel hazard	O	(-)	54	Moderate	42	Moderate

Aspect	Impact Description	Phase	Character	Without Mitigation		With Mitigation	
	Impact of solar glint and glare on static ground-based receptors (residents of homesteads) in close proximity (within 1km)	O	(-)	64	High	42	Moderate
	Impact of ancillary infrastructure during the operational phase	O	(-)	24	Low	24	Low
	Impact of sense of place during the operational phase (Indirect Impact)	O	(-)	26	Low	26	Low
	Visual impact of construction activities on sensitive visual receptors in close proximity (within 1km)	D	(-)	52	Moderate	33	Moderate
Heritage	Impact to known cultural heritage sites	C	(-)	12	Very Low	12	Very Low
Palaeontology	Destruction of fossil heritage	C	(-)	85	Very High	33	Moderate
Social	Economic Impact	C	(+)	14	Very Low	45	Moderate
	Employment	C	(+)	20	Low	56	Moderate
	Population influx	C	(-)	33	Moderate	14	Very Low
	Vulnerable Groups	C	(+)	9	Very Low	24	Low
	Low Carbon Generation	O	(+)	20	Low	56	Moderate
	Employment Opportunities	O	(+)	30	Low	68	High
	Loss of employment	D	(-)	45	Moderate	27	Low
	Reduced community investment	D	(-)	39	Moderate	27	Low
	Ancillary infrastructure	D	(-)	48	Moderate	16	Low

5 POLICY, LEGAL AND ADMINISRATIVE FRAMEWORK

5.1 NATIONAL LEGAL AND REGULATORY FRAMEWORK

The South African regulatory framework establishes well-defined requirements and standards for environmental and social management of industrial and civil infrastructure developments. Different authorities at both national and regional levels carry out environmental protection functions. The applicable legislation and policies are shown in **Table 5-1**.

Table 5-1 – Applicable National Legislation

Legislation	Description of Legislation and applicability
The Constitution of South Africa (No. 108 of 1996)	The Constitution cannot manage environmental resources as a stand-alone piece of legislation hence additional legislation has been promulgated in order to manage the various spheres of both the social and natural environment. Each promulgated Act and associated Regulations are designed to focus on various industries or components of the environment to ensure that the objectives of the Constitution are effectively implemented and upheld in an on-going basis throughout the country. In terms of Section 7, a positive obligation is placed on the State to give effect to the environmental rights.
National Environmental Management Act (No. 107 of 1998)	In terms of Section 24(2) of the NEMA, the Minister may identify activities, which may not commence without prior authorisation. The Minister thus published GNR 983 (as amended) (Listing Notice 1), GNR 984 (as amended) (Listing Notice 2) and GNR 985 (as amended) (Listing Notice 3) listing activities that may not commence prior to authorisation. The regulations outlining the procedures required for environmental authorisation (EA) are published in the EIA Regulations of 2014 (GNR 982) (as amended). Listing Notice 1 identifies activities that require a basic assessment (BA) process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 2 identifies activities that require an S&EIR process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity. WSP undertook a legal review of the listed activities according to the proposed project description to conclude that the activities listed in in this section are considered applicable to the development: An S&EIR process must be followed. An EA is required and has been applied for with the DFFE as the CA (DFFE Reference: 14/12/16/3/3/2/2298).
Listing Notice 1: GNR 983	**Activity 11(i)** The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts **Description**

Legislation	Description of Legislation and applicability
	The Komati Solar PV facility will require more than 33 kilovolt (kV) but less than 275 kV Powerline boards (to evacuate power to the grid) and to the BESS facilities. The transmission lines are outside of the urban edge.
	Activity 12(ii) The development of - (ii) infrastructure or structures with a physical footprint of 100 square metres or more; (a) within a watercourse; **Description:** Internal access roads will be required for access to the Facility. The physical footprint of internal access roads and electrical cabling required to connect the various components of the Facilities will either traverse the delineated watercourses on site, or be located within 32m of the outer extent of the delineated watercourses on site. The access roads will fall within the solar PV development areas.
	Activity 14 The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres. **Description:** The proposed BESS facilities will potentially result in the handling of between 80 and 500 cubic metres of dangerous goods. This activity will only be applicable in the event that the BESS facilities are assembled on site. This is currently unknown. The Facility will also require storage and handling of dangerous goods, including fuel, cement and chemical storage onsite, that will be greater than 80m^3 but not exceeding 500m^3.
	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 a watercourse. **Description:** The proposed infrastructure, with specific reference to access roads and the grid infrastructure, will require the removal of soil more than 10 cubic metres from a watercourse.
	Activity 24 (ii) The development of a road— (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres. **Description:**

Legislation	Description of Legislation and applicability
	The proposed access roads for the Solar facility will be 8 metres wide.
Listing Notice 2: GNR 983	**Activity 1** The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs — (a) within an urban area. **Description:** Eskom is proposing the establishment of a solar electricity generating facility and ancillary infrastructure as part of its repurposing programme for Komati Power Station. The plan is to install 100 MW of Solar PV and 150 MW of BESS.
	Activity 15(ii) The clearance of an area of 20 hectares or more of indigenous vegetation. **Description:** The total extent of the proposed solar generating facilities is 140 ha and will require the clearance of indigenous vegetation of more than 20ha.
Listing Notice 3: GNR 985	**Activity 4** The development of a road wider than 4 metres with a reserve less than 13,5 metres. f. Mpumalanga i. Outside urban areas (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans. **Description:** The proposed access roads for the Solar facility will potentially be less than 13.5 metres wide within a critical biodiversity area (CBA).
	Activity 10 The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. f. Mpumalanga i. Outside urban areas (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans. **Description:** The proposed BESS facilities will potentially result in the handling of between 80 and 500 cubic metres of dangerous goods. This activity will

Legislation	Description of Legislation and applicability
	only be applicable in the event that the BESS facilities are assembled on site. This is currently unknown. The Facility will also require storage and handling of dangerous goods, including fuel, cement and chemical storage onsite, that will be greater than 80m^3 but not exceeding 500m^3.
	Activity 12 The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. f. Mpumalanga ii. Within critical biodiversity areas identified in bioregional plans. **Description:** The total footprint to be cleared is 140 ha. and will require the clearance of indigenous vegetation of more than 200 000m^2.
Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes (GNR 320, 20 March 2020 and GNR 1150, 30 October 2020)	The protocols provide the criteria for specialist assessment and minimum report content requirements for impacts for various environmental themes for activities requiring environmental authorisation. The protocols replace the requirements of Appendix 6 of the EIA Regulations, 2014, as amended. The assessment and reporting requirements of the protocols are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (screening tool). The following environmental themes were applicable to the Komati Solar PV and BESS project: ▪ Agricultural Theme ▪ Animal Species Theme ▪ Aquatic Biodiversity Theme ▪ Archaeological and Cultural Heritage Theme ▪ Avian Theme ▪ Civil Aviation (Solar PV) Theme ▪ Defence Theme ▪ Landscape (Solar) Theme ▪ Palaeontology Theme ▪ Plant Species Theme ▪ Radio Frequency Interference (RFI) Theme ▪ Terrestrial Biodiversity Theme
National Environmental Management: Waste Act (59 of 2008) (NEM:WA)	This Act provides for regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation. The Act also provides for the licensing and control of waste management activities through GNR. 921 (2013): List of Waste Management Activities that Have, or are Likely to Have, a Detrimental Effect on the Environment. The proposed project does not constitute a Listed Activity requiring a Waste Management Licence as defined in GNR 921.

Legislation	Description of Legislation and applicability
	Reasonable measures for the prevention of pollution and good international industry practice have been included as mitigation and management measures in the ESMP.
National Environmental Management: Waste Act (59 of 2008) (NEM:WA) – Part 8	The Contaminated Land Assessment covers the soil and groundwater requirement anticipated in the context of Part 8 of the National Environmental Management: Waste Act (NEM: WA) and will be undertaken in general accordance with the requirements of the South African Framework for the Management of Contaminated Land (May 2010). **Regulations Regarding Extended Producer Responsibility (Government Notice 43879)** The purpose of these Regulations is- (1) to provide the framework for the development, implementation, monitoring and evaluation of extended producer responsibility schemes by producers in terms of Section 18 of the Act; (2) to ensure the effective and efficient management of the identified end-of-life products; and(3) to encourage and enable the implementation of the circular economy initiatives. Responsibility for the SEF and BESS will belong to the developer. At the end-of-life, the developer will be responsible for removing and disposing of the infrastructure. Whilst broadly complying with Part 8 of the NEM: WA, the contaminated land report does not constitute a Site Assessment Report as described thereunder. The objective of the preliminary contamination assessment is to provide a review of available existing information and present the findings of the contemporary works. The aim of this report is therefore to: ▪ Establish the environmental setting/s of the relevant development areas at Komati Power Station based on a review of existing information in conjunction with site reconnaissance, targeted intrusive investigations and laboratory analysis of selected samples; ▪ Prepare a Conceptual Site Model (CSM) utilising the supplementary information to conceptualise the hydrological, geological and hydrogeological conditions in respect to possible contamination concerns; ▪ Interpret the significance of recorded contamination impacts in broad accordance with Part 8 of the NEM:WA to ascertain the requirement for additional works and/or remediation.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) was promulgated in June 2004 within the framework of NEMA to provide for the management and conservation of national biodiversity. The NEMBA's primary aims are for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources. In addition, the NEMBA provides for the establishment and functions of a South African National Biodiversity Institute (SANBI).

Legislation	Description of Legislation and applicability
	SANBI was established by the NEMBA with the primary purpose of reporting on the status of the country's biodiversity and conservation status of all listed threatened or protected species and ecosystems. The Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA) Regulations with regards to alien and invasive species (AIS) have been superseded by the National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) –AIS Regulations which became law on 1 October 2014. Specific management measures for the control of alien and invasive plants have been included in the ESMP.
National Environmental Management Protected Areas Act (No. 57 of 2003)	The purpose of the National Environmental Management Protected Areas Act (No. 57 of 2003) (NEMPAA) is to, inter alia, provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. To this end, it provides for the declaration and management of various types of protected areas. *Section 50(5) of NEMPAA states that "no development, construction or farming may be permitted in a nature reserve or world heritage site without the prior written approval of the management authority."* According to the National Parks Area Expansion Strategy (NPAES), there are no areas within the study area that have been identified as priority areas for inclusion in future protected areas. The study area is therefore outside the NPAES focus area.
The National Water Act (No. 36 of 1998)	The National Water Act, 1998 (Act No. 36 of 1998) (NWA) provides the framework to protect water resources against over exploitation and to ensure that there is water for social and economic development, human needs and to meet the needs of the aquatic environment. The Act defines water source to include watercourses, surface water, estuary or aquifer. A watercourse is defined in the Act as a river or spring, a natural channel in which water flows regularly or intermittently, a wetland, lake or dam into which or from which water flows, and any collection of water that the Minister may declare a watercourse. Section 21 of the Act outlines a number of categories that require a water user to apply for a Water Use Licence (WUL) and Section 22 requires water users to apply for a General Authorisation GA with the DWS if they are under certain thresholds or meet certain criteria. The list of water uses applicable to the proposed Project include: (c) Impeding or diverting the flow of water in a watercourse; (i) Altering the bed, banks, course or characteristics of a watercourse; The DWS will make the final decision on water uses that are applicable to the project through a pre-application meeting after which a WUL Application as determined by the risk assessment will be undertaken in compliance with procedural regulations published by the DWS within General Notice 267 (GN267). These regulations specify required information per water use and the reporting structure of required supporting technical information.

Legislation	Description of Legislation and applicability
The National Heritage Resources Act (No. 25 of 1999)	The National Heritage Resource Act (Act No. 25 of 1999) (NHRA) serves to protect national and provincial heritage resources across South Africa. The NHRA provides for the protection of all archaeological and palaeontological sites, the conservation and care of cemeteries and graves by the SAHRA, and lists activities that require any person who intends to undertake to notify the responsible heritage resources agency and furnish details regarding the location, nature, and extent of the proposed development. Part 2 of the NHRA details specific activities that require a Heritage Impact Assessment that will need to be approved by SAHRA. Parts of Section 35, 36 and 38 apply to the proposed project, principally: ▪ Section 35 (4) - No person may, without a permit issued by the responsible heritage resources authority- ▪ destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite; ▪ destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite. ▪ Section 38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as- ▪ any development or other activity which will change the character of a site— (i) exceeding 5 000m^2 in extent, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. In terms of Section 38(8), approval from the heritage authority is not required if an evaluation of the impact of such development on heritage resources is required in terms of any other legislation (such as NEMA), provided that the consenting authority ensures that the evaluation of impacts fulfils the requirements of the relevant heritage resources authority in terms of Section 38(3) and any comments and recommendations of the relevant resources authority with regard to such development have been taken into account prior to the granting of the consent. However, should heritage resources of significance be affected by the proposed project, a permit is required to be obtained prior to disturbing or destroying such resources as per the requirements of Section 48 of the NHRA, and the SAHRA Permit Regulations (GN R668). A Heritage Assessment has been carried out by a suitably qualified specialist.
Mineral and Petroleum Resources Development Act (No. 28 of 2002)	The aim of the Mineral and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA) is to make provision for equitable access to and sustainable development of the nation's mineral and petroleum resources. Section 53(1) of the MPRDA provides that any person who intends to use the surface of any land in any way that may be contrary to any object of the MPRDA, or which is likely to impede any such object, must apply to the Minister of Mineral Resources (the Minister) for approval. Section 53 of the MPRDA provides a mechanism for ensuring that, inter alia, the mining of mineral resources is not detrimentally affected through the use of the surface of land and which may, for example, result in the sterilisation of a mineral resource.

Legislation	Description of Legislation and applicability
Noise Control Regulations in terms of the Environmental Conservation, 1989 (Act 73 of 1989)	In South Africa, environmental noise control has been in place for three decades, beginning in the 1980s with codes of practice issued by the South African National Standards (formerly the South African Bureau of Standards, SABS) to address noise pollution in various sectors of the country. Under the previous generation of environmental legislation, specifically the Environmental Conservation Act 73 of 1989 (ECA), provisions were made to control noise from a National level in the form of the Noise Control Regulations (GNR 154 of January 1992). In later years, the ECA was replaced by NEMA as amended. The National Environmental Management: Air Quality Act 39 of 2004 (NEMAQA) was published in line with NEMA and contains noise control provisions under Section 34: *(1) The minister may prescribe essential national standards –* *(a) for the control of noise, either in general or by specific machinery or activities or in specified places or areas; or* *(b) for determining –* *(i) a definition of noise; and* *(ii) the maximum levels of noise.* *(2) When controlling noise, the provincial and local spheres of government are bound by any prescribed national standards.* Under NEMAQA, the Noise Control Regulations were updated and are to be applied to all provinces in South Africa. The Noise Control Regulations give all the responsibilities of enforcement to the Local Provincial Authority, where location specific by-laws can be created and applied to the locations with approval of Provincial Government. Where province-specific regulations have not been promulgated, acoustic impact assessments must follow the Noise Control Regulations. Furthermore, NEMAQA prescribes that the Minister must publish maximum allowable noise levels for different districts and national noise standards. These have not yet been accomplished and as a result all monitoring and assessments are done in accordance with the South African National Standards (SANS) 10103:2008 and 10328:2008.
Conservation of Agricultural Resources Act (No. 43 of 1983)	The CARA provides for the implementation of control measures for soil conservation works as well as alien and invasive plant species in and outside of urban areas. In terms of the amendments to the regulations under the CARA, landowners are legally responsible for the control of alien species on their properties. Various Acts administered by the DFFE and the DWS, as well as other laws (including local by-laws), spell out the fines, terms of imprisonment and other penalties for contravening the law. Although no fines have yet been placed against landowners who do not remove invasive species, the authorities may clear their land of invasive alien plants and other alien species entirely at the landowners' cost and risk. The CARA Regulations with regards to alien and invasive species have been superseded by NEMBA AIS Regulations which became law on 1 October 2014.

Legislation	Description of Legislation and applicability
Civil Aviation Act (No. 13 of 2009)	Civil aviation in South Africa is governed by the Civil Aviation Act (Act 13 of 2009). This Act provides for the establishment of a stand-alone authority mandated with controlling, promoting, regulating, supporting, developing, enforcing and continuously improving levels of safety and security throughout the civil aviation industry. This mandate is fulfilled by South African Civil Aviation Authority (SACAA) as an agency of the Department of Transport. SACAA achieves the objectives set out in the Act by complying with the Standards and Recommended Practices of the International Civil Aviation Organisation, while considering the local context when issuing the South African Civil Aviation Regulations. As of the 1st of May 2021, ATNS has been appointed as the new Obstacle application Service Provider for Windfarms and later Solar Plants. Their responsibility would pertain to the assessments, maintenance, and all other related matters in respect to Windfarms and in due time Power Plant assessments. The DFFE Screening Tool Report identified Civil Aviation as having medium sensitivity for the proposed project, and no major or other types of civil aviation aerodromes. ATNS and SACAA will be included on the project stakeholder database. They will be informed of the proposed Project, and comment will be sought from these authorities as applicable.
Occupational Health and Safety Act (No. 85 of 1993)	The National Occupational Health and Safety Act (No. 85 of 1993) (OHSA) and the relevant regulations under the Act are applicable to the proposed project. This includes the Construction Regulations promulgated in 2014 under Section 43 of the Act. Adherence to South Africa's OHSA and its relevant Regulations is essential.
National Energy Act (No. 34 of 2008)	The National Energy Act aims to ensure that diverse energy resources are available, in sustainable quantitates, and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, taking into account environmental management requirements and interactions amongst economic sectors. The main objectives of the Act are to: ▪ Ensure uninterrupted supply of energy to the Republic; ▪ Promote diversity of supply of energy and its sources; ▪ Facilitate effective management of energy demand and its conservation; ▪ Promote energy research; ▪ Promote appropriate standards and specifications for the equipment, systems and processes used for producing, supplying and consuming energy; ▪ Ensure collection of data and information relating to energy supply, transportation and demand; ▪ Provide for optimal supply, transformation, transportation, storage and demand of energy that are planned, organised and implemented in accordance with a balanced consideration of security of supply, economics, consumer protection and a sustainable development; ▪ Provide for certain safety, health and environment matters that pertain to energy; ▪ Facilitate energy access for improvement of the quality of life of the people of Republic;

Legislation	Description of Legislation and applicability
	▪ Commercialise energy-related technologies; ▪ Ensure effective planning for energy supply, transportation, and consumption; and ▪ Contribute to sustainable development of South Africa's economy. In terms of the act, the Minister of Energy is mandated to develop and, on an annual basis, review and publish the Integrated Energy Plan (IEP) in the Government Gazette. The IEP analyses current energy consumption trends within different sectors of the economy (i.e. agriculture, commerce, industry, residential and transport) and uses this to project future energy requirements, based on different scenarios. The IEP and the Integrated Resource Plan are intended to be updated periodically to remain relevant. The framework is intended to create a balance between energy demand and resource availability so as to provide low-cost electricity for social and economic development, while taking into account health, safety and environmental parameters.
Electricity Regulation Act (No. 4 of 2006)	The Electricity Regulation Act (No. 4 of 2006) aims to: ▪ Achieve the efficient, effective, sustainable and orderly development and operation of electricity supply infrastructure in South Africa; ▪ Ensure that the interests and needs of present and future electricity customers and end users are safeguarded and met, having regard to the governance, efficiency. effectiveness and long-term sustainability of the electricity supply industry within the broader context of economic energy regulation in the Republic: ▪ Facilitate investment in the electricity supply industry; ▪ Facilitate universal access to electricity; ▪ Promote the use of diverse energy sources and energy efficiency; ▪ Promote competitiveness and customer and end user choice; and ▪ Facilitate a fair balance between the interests of customers and end users, licensees, investors in the electricity supply industry and the public. The Act establishes a National Energy Regulator as the custodian and enforcer of the National Electricity Regulatory Framework. The Act also provides for licenses and registration as the manner in which generation, transmission, distribution, trading and the import and export of electricity are regulated.
National Economic Development and Labour Council Act, 1994 (Act No. 35 of 1994)	The National Economic Development and Labour Council Act (NEDLAC) aims to provide for the establishment of a national economic, development and labour council; to repeal certain provisions of the Labour Relations Act, 1959; and to provide for matters connected therewith. NEDLAC has published four codes of good practice: ▪ Picketing; ▪ The handling of sexual harassment cases; ▪ Dismissals based on operational requirements; and ▪ Key aspects of HIV/AIDS and employment. The following Eskom's governance documents are applicable to the above: ▪ Disciplinary Code Standard (32-1112); ▪ Disciplinary Procedure (32-1113); ▪ Grievance Procedure (32-1114);

Legislation	Description of Legislation and applicability
	▪ Management of Sickness Absence Procedure (240-102796274)
Basic Conditions of Employment Act No. 75 of 1997	The purpose of the Basic Conditions of Employment Act is to give effect to the right to fair labour practices, as referred to in Section 23 (1) of the Constitution, by establishing and providing for the regulation of basic conditions of employment.
Labour Relations Act 66 of 1995	The purpose of the Labour Relations Act 66 of 1995 is to give effect to the public international law obligations of the Republic relating to labour relations; to amend and repeal certain laws relating to labour relations; and. to provide for incidental matters. The construction activities will require contractors for completion. A safe working environment and fair contractual agreements must be in place. The operational phase will have permanent employees for day-to-day activities as well as contractors who will all need a safe working environment and fair contractual agreements. Recommendations are provided concerning development of a detailed Human Resources (HR) and Occupational Health and Safety (OHS) system by the developer and its partners, in line with the requirements of the act and applicable WB ESS; as the Project moves towards implementation. The ESMP will incorporate the requirements for compliance with local and international Labour and Working legislation, WB ESS 2 and good practice on the part of the contractors.
Employment Equity Act 55 of 1998	The purpose of the Employment Equity Act 55 of 1998 is to remove discrimination, implement affirmative action and to promote equity, equality, opportunity, remuneration and development for all employees in the workplace. The construction activities will require contractors for completion. A safe working environment and fair contractual agreements must be in place. The operational phase will have permanent employees for day-to-day activities as well as contractors who will all need a safe working environment and fair contractual agreements. Recommendations are provided concerning development of a detailed HR and OHS system by the developer and its partners, in line with the requirements of the act and applicable WB ESSs; as the Project moves towards implementation. The ESMP will incorporate the requirements for compliance with local and international Labour and Working legislation, WB ESS 2 and good practice on the part of the contractors.
Promotion of Equality and Prevention of Unfair Discrimination Act 4 of 2000	The Promotion of Equality and Prevention of Unfair Discrimination Act, 2000 (or the Equality Act, Act No. 4 of 2000) is a comprehensive South African anti-discrimination law. It prohibits unfair discrimination by the government and by private organisations and individuals and forbids hate speech and harassment. The construction activities will require contractors for completion. A safe working environment and fair contractual agreements must be in place. The operational phase will have permanent employees for day-to-day activities

Legislation	Description of Legislation and applicability
	as well as contractors who will all need a safe working environment and fair contractual agreements. Recommendations are provided concerning development of a detailed HR and OHS system by the developer and its partners, in line with the requirements of the act and applicable WB ESSs; as the Project moves towards implementation. The ESMP will incorporate the requirements for compliance with local and international Labour and Working legislation, WB ESS 2 and good practice on the part of the contractors.
Promotion of Access to Information Act 2000	The Promotion of Access to Information Act 2 of 2000 intends: to give effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights; and. to provide for matters connected therewith. The construction activities will require contractors for completion. A safe working environment and fair contractual agreements must be in place. The operational phase will have permanent employees for day-to-day activities as well as contractors who will all need a safe working environment and fair contractual agreements. Recommendations are provided concerning development of a detailed HR and OHS system by the developer and its partners, in line with the requirements of the act and applicable WB ESSs; as the Project moves towards implementation. The ESMP will incorporate the requirements for compliance with local and international Labour and Working legislation, WB ESS 2 and good practice on the part of the contractors.
Protection, Promotion, Development and Management of Indigenous Knowledge Act 6 of 2019	The Protection, Promotion, Development and Management of Indigenous Knowledge Act 6 of 2019 aims to provide for the management of rights of indigenous knowledge communities and encourage the use of indigenous knowledge in the development of socially and economically applicable products and services. Urban-Econ is undertaking a Stakeholder Engagement Process whereby the local community is informed of the project and can provide input and suggestions as the project develops.
Protection of Personal Information Act 4 of 2013	The Protection of Personal Information Act (Act 4 of 2013) (POPIA) aims to: ▪ To promote the protection of personal information processed by public and private bodies; ▪ To introduce certain conditions so as to establish minimum requirements for the processing of personal information; ▪ To provide for the establishment of an Information Regulator to exercise certain powers and to perform certain duties and functions in terms of this Act and the Promotion of Access to Information Act, 2000; ▪ To provide for the issuing of codes of conduct; ▪ To provide for the rights of persons regarding unsolicited electronic communications and automated decision making; ▪ To regulate the flow of personal information across the borders of the Republic; and

Legislation	Description of Legislation and applicability
	▪ To provide for matters connected therewith. The stakeholder engagement process has been undertaken in consideration with POPIA. All personal information has been redacted from documents made publicly. Furthermore, a disclaimer has been included on all stakeholder documents, as follows: *WSP will be processing certain personal information about you as an interested and affected party (I & AP) for purposes of enabling your registration as an I & AP and for purposes of storing your details on our database, if you consent for us to do so. WSP uses these details to contact you about other projects in the future. WSP will always process your personal information in accordance with the Protection of Personal Information Act 4 of 2013. You are entitled to exercise your rights as a data subject and let us know if you wish to be deregistered as an I & AP or if you no longer want your contact details to be included on our database.*
Just Transition	Eskom has a Just Energy Transition Office which was established in 2020. According to Eskom "Transition" describes the gradual movement towards lower carbon technologies, while "Just" qualifies that this transition will not negatively impact society, jobs and livelihoods. It is therefore important that the planning for the repurposing/repowering of Komati Power Station adhere to the principles of a just transition. South Africa has had a long and critical engagement with just transitions. This includes the early development of labour movement policies in 2011 and the inclusion of just transitions in the National Development Plan (NDP) in 2012. More recently, a commitment to a just transition was incorporated into the 2016 Nationally Determined Contributions that was aligned with the Paris Agreement and followed by a national consultation process on just transitions to inform the revision of NDP in 2019. As of 2020, the Presidential Climate Commission (PCC) drives the clarification and implementation of a just transiiton. To underline the importance of a Just Transition on national level PCC has been established by the President of the Republic of South Africa to advise on the country's climate change response and pathways to a low-carbon climate-resilient economy and society. The PCC is a multi-stakeholder body with the aim to build social consensus around the complex and challenging decisions required to successfully navigate the climate transition, which includes the phasing out of coal fired power stations. The PCC's mandate emanates from the Presidential Jobs Summit held in 2018, and one of the first tasks of the PCC is to understand the impacts of climate change on jobs, both positive and negative. The PCC need to ensure that the transition is socially just and that the needs of vulnerable groups are addressed.

5.1.1 GENERIC EMPR RELEVANT TO AN APPLICATION FOR SUBSTATION AND OVERHEAD ELECTRICITY TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE

NEMA requires that an EMPr be submitted where a EIR has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation. The content of an EMPr must either contain the information set out in Appendix 4 of the EIA Regulations, 2014, as amended, or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice, that a generic EMPr is relevant to an application for EA, that generic

EMPr must be applied by all parties involved in the EA process, including, but not limited to, the applicant and the CA.

GN 435 of 22 March 2019 identified a generic EMPr relevant to applications for substations and overhead electricity transmission and distribution infrastructure which require authorisation in terms of Section 42(2) of NEMA. Applications for overhead electricity transmission and distribution infrastructure that trigger Activity 11 of Listing Notice 1 or Activity 9 of Listing Notice 2 and any other listed or specified activities must use the generic EMPr.

The objective of the generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of overhead electricity transmission and distribution infrastructure and the development or expansion of substation infrastructure for the transmission and distribution of electricity. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.

Both the generic EMPr for substations as well as the generic EMPr for transmission lines have been used as a basis for this EMPr. The Generic EMPr for the Development and Expansion of Substation Infrastructure for the Transmission and Distribution of Electricity is attached as **Appendix A** and the Generic EMPr for the Development and Expansion for Overhead Electricity Transmission and Distribution Infrastructure is attached as **Appendix B**.

5.2 INTERNATIONAL ENVIRONMENTAL AND SOCIAL STANDARDS

5.2.1 WORLD BANK ENVIRONMENTAL AND SOCIAL FRAMEWORK

The Environmental and Social Framework (ESF) became effective on October 1, 2018 and applies to all Investment Policy Financing (IPF) projects initiated after this date. It makes important advances in areas such as labour, non-discrimination, climate change mitigation and adaptation, biodiversity, community health and safety, and stakeholder engagement – including expanding the role of public participation and grievance mechanisms. The ESF enhances the World Bank Group's (WBG's) commitment to sustainable development through ten Environmental and Social Standards (ESS) that are designed to support Borrowers' environmental and social (E&S) risk management. This Project is being considered for funding from the World Bank. The ten ESS are outlined in **Table 5-2**.

Table 5-2 – Environmental and Social Standards applicable to the project

Standard	Reference	Applicability
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	ESS 1 sets out the Borrower's responsibilities for assessing, managing and monitoring environmental and social risks and impacts associated with each stage of a project supported by the Bank through IPF, in order to achieve environmental and social outcomes consistent with the ESSs. The following objectives are applicable: ▪ To identify, evaluate and manage the environment and social risks and impacts of	This document is the ESIA being undertaken for this project. The impact assessment comprehensively assesses the key environmental and social impacts and complies with the requirements of the South African EIA Regulations. In addition, an ESMP has been complied (This report).

Standard	Reference	Applicability
	the project in a manner consistent with the ESSs. ▪ To adopt a mitigation hierarchy approach to: • a) Anticipate and avoid risks and impacts; • b) Where avoidance is not possible, minimize or reduce risks and impacts to acceptable levels; • c) Once risks and impacts have been minimized or reduced, mitigate; and • d) Where significant residual impacts remain, compensate for or offset them, where technically and financially feasible. ▪ To adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities resulting from the project. ▪ To utilize national environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate. ▪ To promote improved environmental and social performance, in ways which recognize and enhance Borrower capacity	
ESS 2: Labour and Working Conditions	ESS 2 recognizes the importance of employment creation and income generation in the pursuit of poverty reduction and inclusive economic growth. Borrowers can promote sound worker-management relationships and enhance the development benefits of a project by treating workers in the project fairly and providing safe and healthy working conditions. The following objectives are applicable: ▪ To promote safety and health at work. ▪ To promote the fair treatment, non-discrimination and equal opportunity of project workers. ▪ To protect project workers, including vulnerable workers such as women, persons with disabilities, children (of working age, in accordance with this ESS) and migrant workers, contracted workers, community workers and primary supply workers, as appropriate. ▪ To prevent the use of all forms of forced labour and child labour. ▪ To support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law.	The construction activities will require contractors for completion. A safe working environment and fair contractual agreements must be in place. The operational phase will have permanent employees for day-to-day activities as well as contractors who will all need a safe working environment and fair contractual agreements. Whilst ESS 2 will be applicable to the Project, it is not intended to be addressed in detail at the ESIA stage. Recommendations are provided concerning development of a detailed HR and OHS system by the developer and its partners as the Project moves towards implementation. The ESMP compiled does incorporate the requirements for compliance with local and international Labour and Working

Standard	Reference	Applicability
	▪ To provide project workers with accessible means to raise workplace concerns.	legislation and good practice on the part of the contractors.
ESS 3: Resource Efficiency and Pollution Prevention and Management	ESS 3 recognizes that economic activity and urbanization often generate pollution to air, water, and land, and consume finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels. This ESS sets out the requirements to address resource efficiency and pollution prevention and management throughout the project life-cycle. The following objectives are applicable: ▪ To promote the sustainable use of resources, including energy, water and raw materials. ▪ To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities. ▪ To avoid or minimize project-related emissions of short and long-lived climate pollutants. ▪ To avoid or minimize generation of hazardous and non-hazardous waste. ▪ To minimize and manage the risks and impacts associated with pesticide use.	ESS 3 related impacts, such as the management of construction waste, hazardous substances, and stormwater are assessed in **Section 8.4**. There are no material resource efficiency issues associated with the Project. The ESMP includes general resource efficiency measures. The project is not GHG emissions intensive and a climate resilience study or a GHG emissions-related assessment is not deemed necessary for a project of this nature. However, the proposed project seeks to facilitate resource efficiency and pollution prevention by contributing to the South African green economy. Dust air pollution in the construction phase has been addressed in the ESMP. The Project will not result in the release of industrial effluents. Potential pollution associated with sanitary wastewater is low and mitigation measures are included in the ESMP. The waste generation profile of the project is not complex. Waste mitigation and management measures are included in ESMP. Hazardous materials are not a key issue; small quantities of construction materials (oil, grease, diesel fuel etc.) are the only wastes expected to be associated with the project. The ESMP takes these anticipated hazardous materials into account and recommend relevant mitigation and management measures.

Standard	Reference	Applicability
ESS 4: Community Health and Safety	ESS 4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable. The following objective are applicable: ■ To anticipate and avoid adverse impacts on the health and safety of project-affected communities during the project life cycle from both routine and non-routine circumstances. ■ To promote quality and safety, and considerations relating to climate change, in the design and construction of infrastructure, including dams. ■ To avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials. ■ To have in place effective measures to address emergency events. ■ To ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.	The requirements included in ESS 4 is addressed in the ESIA process and included in the ESMP. During the construction phase there will be an increase in vehicular traffic along public roads, largely due to the need for importation of construction material. Pedestrian and road safety risks will be qualitatively evaluated in the EIA process and the clients' standard safety and security measures, as well as potential additional measures recommended by WSP, will be detailed in the ESMP.
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	The main objectives of ESS 5 are to: ■ To avoid involuntary resettlement or, when unavoidable, minimize involuntary resettlement by exploring project design alternatives. ■ To avoid forced eviction. ■ To mitigate unavoidable adverse social and economic impacts from land acquisition or restrictions on land use by: • (a) providing timely compensation for loss of assets at replacement cost and • (b) assisting displaced persons in their efforts to improve, or at least restore, their livelihoods and living standards, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher. ■ To improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure. ■ To conceive and execute resettlement activities as sustainable development programs, providing sufficient investment resources to enable displaced persons to benefit directly from the project, as the nature of the project may warrant.	ESS 5 is not applicable to the proposed project as no physical or economic displacement or livelihood restoration will be required. The proposed project is located on Eskom owned land.

Standard	Reference	Applicability
	▪ To ensure that resettlement activities are planned and implemented with appropriate disclosure of information, meaningful consultation, and the informed participation of those affected.	
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	ESS 6 recognizes that protecting and conserving biodiversity and sustainably managing living natural resources are fundamental to sustainable development and it recognizes the importance of maintaining core ecological functions of habitats, including forests, and the biodiversity they support. ESS 6 also addresses sustainable management of primary production and harvesting of living natural resources, and recognizes the need to consider the livelihood of project-affected parties, including Indigenous Peoples, whose access to, or use of, biodiversity or living natural resources may be affected by a project. The following objectives are applicable: ▪ To protect and conserve biodiversity and habitats. ▪ To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity. ▪ To promote the sustainable management of living natural resources. ▪ To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.	A Plant and Biodiversity Impact Assessment has been undertaken. The methodologies for the specialist assessments include a combination of literature review, in-field surveys and sensitivity mapping. This substantively complies with the ESS 6 general requirements for scoping and baseline assessment for determination of biodiversity and ecosystem services issues. The determination of habitat sensitivity was undertaken within the legal and best practice reference framework for South Africa. The prevalence of invasive alien species has been determined, and mitigation and management measures are included in the ESMP.
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities;	ESS 7 ensures that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities. ESS 7 is also meant to avoid adverse impacts of projects on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts. The following objective are applicable: ▪ To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods of Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities.	As per the international instruments under the United Nations (UN) Human Rights Conventions, no indigenous peoples are present within the study area. The Project does not involve displacement. ESS 7 will not be triggered.

Standard	Reference	Applicability
	▪ To avoid adverse impacts of projects on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts. ▪ To promote sustainable development benefits and opportunities for Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities in a manner that is accessible, culturally appropriate and inclusive. ▪ To improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation with the Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities affected by a project throughout the project's life cycle. ▪ To obtain the Free, Prior, and Informed Consent (FPIC) of affected Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities in the three circumstances described in this ESS. ▪ To recognize, respect and preserve the culture, knowledge, and practices of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, and to provide them with an opportunity to adapt to changing conditions in a manner and in a timeframe acceptable to them.	
ESS 8: Cultural Heritage	ESS 8 recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present and future. ESS 8 sets out measures designed to protect cultural heritage throughout the project life cycle. The following objective are applicable: ▪ To protect cultural heritage from the adverse impacts of project activities and support its preservation. ▪ To address cultural heritage as an integral aspect of sustainable development. ▪ To promote meaningful consultation with stakeholders regarding cultural heritage. ▪ To promote the equitable sharing of benefits from the use of cultural heritage.	A Heritage Assessment has been compiled by a suitably qualified specialist. A Chance Find Procedure has been included in the ESMP in Section 8.14 (**Appendix G**).
ESS 9: Financial Intermediaries	ESS9 recognizes that strong domestic capital and financial markets and access to finance are important for economic development, growth and poverty reduction. The Bank is committed to supporting sustainable financial sector	ESS 9 is not applicable to this project.

Standard	Reference	Applicability
	development and enhancing the role of domestic capital and financial markets. The following objectives are applicable: ▪ To set out how the Financial Intermediaries (FI) will assess and manage environmental and social risks and impacts associated with the subprojects it finances. ▪ To promote good environmental and social management practices in the subprojects the FI finances. ▪ To promote good environmental and sound human resources management within the FI.	
ESS 10: Stakeholder Engagement and Information Disclosure	ESS 10 recognizes the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation. The following objectives are applicable: ▪ To establish a systematic approach to stakeholder engagement that will help Borrowers identify stakeholders and build and maintain a constructive relationship with them, in particular project-affected parties. ▪ To assess the level of stakeholder interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance. ▪ To promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life cycle on issues that could potentially affect them. ▪ To ensure that appropriate project information on environmental and social risks and impacts is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner and format. ▪ To provide project-affected parties with accessible and inclusive means to raise issues and grievances, and allow Borrowers to respond to and manage such grievances.	The S&EIR process that was undertaken includes an extensive stakeholder engagement process which complies with the South African EIA Regulations. The process includes consultations with local communities, nearby businesses, and a range of government sector stakeholders (state owned enterprises, national, provincial and local departments). The stakeholder engagement process solicits interest from potentially interested parties through the placement of site notices and newspaper advertisements as well as written and telephonic communication. The Technical Note: "Public Consultations and Stakeholder Engagement in WB-supported operations when there are constraints on conducting public meetings", March 2020, was used as guidance in the stakeholder engagement process.

5.2.2 WORLD BANK GROUP ENVIRONMENTAL HEALTH AND SAFETY GUIDELINES

In support of the Performance Standards, the WBG has published Environmental Health and Safety (EHS) Guidelines. The EHS Guidelines are technical reference documents with general and

industry-specific examples of Good International Industry Practice. They are designed to assist managers and decision makers with relevant industry background and technical information. This information supports actions aimed at avoiding, minimising, and controlling EHS impacts during the construction, operation, and decommissioning phase of a project or facility. The EHS Guidelines serve as a technical reference source to support the implementation of the World Bank Environmental and Social Standards, particularly in those aspects related to the occupational health and safety aspects contained in ESS 2 – Labour and working conditions, ESS 3 Resource Efficiency and Pollution Prevention and Management, as well as ESS4: Community Health and Safety.

Where host country regulations differ from the levels and measures presented in the EHS Guidelines, projects seeking international funding may be expected to achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, a full and detailed justification for any proposed alternatives is required.

The following WBG EHS Guidelines have been generally consulted during the preparation of the ESIA in order to aid the identification of EHS aspects applicable to the project:

- *Electric Power Transmission and Distribution (2007)* - information relevant to power transmission between a generation facility and a substation located within an electricity grid, in addition to power distribution from a substation to consumers located in residential, commercial, and industrial areas
- *General EHS Guidelines* – this includes a section on a range of environmental, occupational health and safety, community health and safety, and construction activities that would apply to the project. The guideline also contains recommended guidelines adopted form the World Health Organisation (WHO) for ambient air and water quality, which are referred to in the relevant impact assessment sections in the ESIA report.

6 MANAGEMENT PROCEDURES AND ADMINISTRATIVE REQUIREMENTS

6.1 ORGANISATIONAL STRUCTURE AND RESPONSIBILITIES

Formal responsibilities are necessary to ensure that key management measures/procedures are executed. The holder of the EA (Eskom) is ultimately responsible for the implementation of the ESMP. Responsibilities may be deferred to a third-party, however ultimate liability sits with the holder of the EA. Eskom (the Project Company) (via the appointed EPC contractor/contractor/principal contractor), will be responsible for the overall control of the project site during the pre-construction, construction, operation, decommissioning and rehabilitation phases of the project. Eskom's responsibilities (via the appointed EPC contractor/contractor/principal contractor) will include the following:

- Appointing an independent environmental control officer (ECO) for the duration of the Contract during construction and as specified by the DFFE during operation;
- Being fully familiar with the ESIA Report, EA conditions and the ESMP;
- Applying for an amendment of the EA from the DFFE as and when required in line with the prevailing legislation
- The overall implementation of the ESMP;
- Ensuring compliance, by all parties, and the imposition of penalties for noncompliance;
- Implementing corrective and preventive actions, where required;
- Ensuring that any other necessary permits or licences are obtained and complied with;
- Preventing pollution and actions that will harm or may cause harm to the environment;
- Notifying the DFFE within 30 days that construction activity will commence;
- Notifying the DFFE in writing within 24 hours if any condition in the EA cannot be or is not adhered to; and
- Notifying the DFFE 14 days prior to commencement of the operational phase.

Table 6-1 provides a high-level outline of the various roles and responsibilities of the project

Table 6-1 – Roles and Responsibilities

Designation	Roles and Responsibilities
DFFE	▪ Is the designated authority responsible for authorising the ESMP and has overall responsibility for ensuring that Eskom complies with the ESMP, and any conditions listed in the EA. ▪ Shall also be responsible for approving any significant amendments that may be required to the ESMP. ▪ May further perform random site inspections to check compliance with the ESMP.
Project Manager/Engineer/Site Engineer	▪ Ensure that Eskom and the relevant contractor/s are aware of all specifications, legal constraints pertaining to the project during construction, specifically with regards to the environment. ▪ Ensure that all stipulations within the ESMP and conditions of the environmental authorisation are communicated and adhered to by Eskom and its contractor(s).

Designation	Roles and Responsibilities
	▪ Monitor the implementation of the ESMP and conditions of the environmental authorisation throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes. ▪ Be fully conversant with the EIR for the project, the conditions of environmental authorisation and all relevant environmental legislation.
Site Manager (EPC Contractor)	▪ Be fully conversant with the EIR, the conditions of environmental authorisation and the ESMP. ▪ Approve method statements. ▪ Provide support to the ECO. ▪ Be fully conversant with all relevant environmental legislation and ensure compliance thereof. ▪ Have overall responsibility for the implementation of the ESMP and conditions of the environmental authorisation ▪ Ensure that audits are conducted to ensure compliance to the ESMP and conditions of the environmental authorisation. ▪ Liaise with the Project Manager or his delegate, the ECO and others on matters concerning the environment ▪ Prevent actions that will harm or may cause harm to the environment, and take steps to prevent pollution and unnecessary degradation onsite. ▪ Confine construction activities to demarcated areas.
Environmental Officer (EO) (EPC Contractor)	The EO must be appointed by the Contractor and is responsible for managing the day-to-day onsite implementation of the ESMP, and for the compilation of weekly environmental monitoring reports during construction. During the operational phase environmental monitoring reports may be as specified by the DFFE (such as annually) by the external EO or ECO. In addition, the EO must act as liaison and advisor on all environmental and related issues, seek advice from the ECO when necessary, and ensure that any complaints received from I&APs are duly processed and addressed and that conflicts are resolved in an acceptable manner and timely manner. The EO shall be a full time dedicated member of the Contractor's team and must be approved by Eskom (Project Company). The following qualifications, qualities and experience are recommended for the individual appointed as the EO: ▪ A relevant environmental diploma or degree in natural sciences, as well as a minimum of three years' experience in construction site monitoring, excluding health and safety; ▪ A level-headed and firm person with above-average communication and negotiating skills. The ability to handle and address conflict management situations will be an advantage; and ▪ Relevant experience in environmental site management and ESMP compliance monitoring. The EO's responsibilities include, but not limited to: ▪ Monitoring, on a daily basis, environmental specifications on site and compliance with the conditions of the EA, environmental legislation and ESMP; ▪ Keeping a register of compliance / non-compliance with the environmental specifications; ▪ Identifying and assessing previously unforeseen, actual or potential impacts on the environment;

Designation	Roles and Responsibilities
	▪ Ensuring that a brief weekly environmental monitoring report is submitted to the ECO; ▪ Conducting site inspections during the defects liability period, and bringing any environmental concerns to the attention of the ECO and Contractor; ▪ Advising the Contractor on the rectification of any pollution, contamination or damage to the construction site, rights of way and adjacent land; ▪ Attending site meetings (scheduled and ad hoc); ▪ Presenting the environmental awareness training course to all staff, Contractors and Sub contractors, and monitoring the environmental awareness training for all new personnel on-site, as undertaken by the Contractor; ▪ Ensuring that a copy of the EA and the latest version of the ESMP are available on site at all times, and maintaining a records-keeping system of all compliance and environmental documentation; ▪ Ensuring that the Contractor is made aware of all applicable changes to the ESMP that are approved by the DEA; ▪ Assisting the Contractor in drafting environmental method statements and/or the Environmental Policy where such knowledge/expertise is lacking; ▪ Undertaking daily environmental monitoring to ensure the Contractor's activities do not impact upon the receiving environment. Such monitoring shall include dust, noise and water monitoring; and ▪ Maintaining the following on site: • A weekly site diary. • A non-conformance register (NCR). • An I&AP communications register, and • A register of audits. • Records of all communication received in relation to compliance actions. The EO will remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is handed over to the Operator.
Independent ECO	A suitably qualified ECO must be appointed by Eskom to monitor the project compliance with the ESMP and conditions of the environmental authorisation on a monthly basis during construction. During the operational phase environmental monitoring may be undertaken as specified by the DFFE (such as annually) by this external ECO. Proof of external ECO appointment must be maintained onsite. Responsibilities of the ECO include: ▪ Be fully conversant with the EIR, the conditions of environmental authorisation and the ESMP; ▪ Be fully conversant with all relevant environmental legislation and ensure compliance thereof; ▪ Approve method statements; ▪ Remain employed until the completion of the construction activities; and ▪ Report to the Project Manager, including all findings identified onsite. In addition, the ECO will: ▪ Undertake independent monthly inspections of the site and surrounding areas in order to audit compliance with the ESMP and conditions of the environmental authorisation; ▪ Take appropriate action if the specifications contained in the ESMP and conditions of the environmental authorisation are not followed;

Designation	Roles and Responsibilities
	▪ Monitor and verify that environmental impacts are kept to a minimum, as far as possible; and ▪ Ensure that activities onsite comply with all relevant environmental legislation.
Contractors, Staff and Service Providers	▪ Appointment of a SHE Officer, ▪ Prepare Method Statements as per the ESMP, and ensure all activities are conducted as per the approved Method Statements. ▪ Regular on-site auditing to assess performance against the requirements of this ESMP. ▪ Completion of the appropriate training requirements as specified in the training program. ▪ Implementation and maintenance of environmental management controls as set out in the project's environmental management documentation.

Refer to: Table 1 (Part A, Section 3) of the Generic EMPr for the development and expansion of substation infrastructure for the transmission and distribution of electricity, attached as Appendix A and Table 1 (Part A, Section 3) of the Generic EMPr for the development of overhead transmission and distribution infrastructure, attached as Appendix B.

6.2 ENVIRONMENTAL AND SOCIAL AWARENESS PLAN

Legislation requires that Eskom (via the appointed EPC contractor/contractor/principal contractor) must develop an environmental and social awareness plan that describes the manner in which Eskom intends to inform employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. In recognition of the need to protect our environment, environmental management should not only be seen as a legal obligation but also as a moral obligation.

It is important to ensure that all relevant personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental degradation and harm.

To achieve effective environmental management, it is important that employees, contractors (including subcontractors) are aware of the responsibilities in terms of the relevant environmental legislation and the contents of the ESMP, conditions of the environmental authorisation.

Eskom will provide appropriate resources to facilitate social and environmental awareness training during the construction, operational and decommissioning phases of the project. Eskom will require that all managers associated with the project adhere to the mitigation/management measures detailed in the ESMP and identify, evaluate, and minimise risks to the social, physical and biophysical environments. This will be implemented by educating employees in social and environmental matters and responsibilities relating to performance of their assigned tasks. Furthermore, employees will be entrusted to maintain the necessary level of environmental performance for their activities. Contractors, and their associated sub-contractors, will also need to demonstrate compliance to mitigation/ management measures included in the ESMP.

The following methodology described must be used to implement and ensure environmental and social awareness and competence:

6.2.1 INTERNAL COMMUNICATION

Internal Communication of environmental issues to ensure environmental awareness will be achieved by using any combination of the following means:

- Meetings;
- Memos;
- Notice boards;
- Briefs;
- Reports;
- Monthly themes;
- Daily operational bulletins;
- Newsletter;
- E-mail;
- Telephone; and
- Induction training.

6.2.2 STANDARD MEETINGS

The following standard meetings will be held at specific times to ensure that environmental and social awareness; potential problems; complaints etc. are heard and addressed proactively:

- Safety, Health and Environmental Meetings will be held monthly by the Senior Management;
- Safety, Health and Environmental Meetings will be held weekly (during construction) and monthly (during operation) by the relevant personnel, environmental and social issues will form part of the agenda;
- Communication between all personnel and Senior Management will be facilitated through the appropriate reporting lines, or by using complaint and incident forms.

6.2.3 ENVIRONMENTAL AND SOCIAL TALK TOPICS

Monthly environmental and social talk topics must be compiled and distributed/shared to relevant personnel and must be displayed on appropriate notice boards or shared by whatever means established on site. As a minimum, the following topics must be considered during the course of the construction phase:

- Code of conduct;
- Grievance mechanism;
- Interacting with local communities;
- Water Quality;
- Water Use and Consumption;
- Air Quality i.e. dust;
- Power Consumption and Energy Efficiency;
- Waste Management;
- Fauna and Flora;
- Emergency Procedures;
- Incidents Reporting;
- Systems;
- Noise;
- Heritage Impacts;

- Landowner Etiquette;
- Speed Limits;
- Health Risks (such as HIV/ Aids); and
- General Awareness (e.g. World Environment Day, National Arbour Day).

6.2.4 GENERAL COMMUNICATIONS

Communication to the community, government, landowners, neighbouring farmers, environmental groups, non-government organisations and other stakeholders will be communicated to ensure environmental and social awareness by means of the following:

- Fax or E-mail;
- Telephone; or
- Formal meetings.

6.2.5 TRAINING

It is important to ensure that all personnel, contractors and their sub-contractors have the appropriate level of Safety, Health and Environmental awareness and competence to ensure continued environmental due diligence and on-going minimisation of environmental harm. As a minimum environmental training must include the following:

- Employees must have a basic understanding of the key environmental features of the site and the surrounding environment.
- Employees will be thoroughly familiar with the requirements of the ESMP and the environmental specifications as they apply to the project.
- Employees must undergo training for the operation and maintenance activities associated with project and have a basic knowledge of the potential environmental impacts that could occur and how they can be minimised and mitigated.
- Awareness of any other environmental matters, which are deemed to be necessary by the Environmental Officer.
- Training must include the environment, health and safety as well as basic HIV/AIDS education.

The following facets to training form part of this Environmental and Social Awareness Plan:

- **Induction:** Environmental and social awareness training will be given at induction when personnel join the company and/or return from leave. Induction training will also be given to visitors entering the site. Induction training will include, inter alia:
  - A discussion on the environment concept, what does it comprise of and how do we interact with it;
  - A description on the components and phases of the specific renewable power generation facility;
  - A general account of how the facility and its associated activities can affect the environment, giving rise to what are called environmental impacts;
  - A discussion on what staff can do in order to help prevent the negative environmental impacts from degrading the environment i.e. environmental impact management.
- **Job Specific Training:** Job specific training programmes will be developed as and when required. The programs will be based on the significant environmental and social aspects/ impacts that are identified during regular audits and site inspections. Supervisory staff will be

equipped with the necessary knowledge and information to guide their employees on environmental and social aspects applicable to performing a specific task.

- **Competency Training:** The Environmental Officer will be responsible for the environmental and social competency and awareness training of Middle Management and supervisors. This training will be performed both on a one-on-one basis and through workshops and presentations. Competence and the effectiveness of training and development initiatives will be determined through the following methods:

  - Trend analysis of incidents reported; and
  - Analysis of work areas during visits and audits.

  The process to declare competency of personnel is documented in the ISO9001:2000 procedure. This plan will be amended periodically in light of operational changes, learning experienced during its implementation and other activities that can affect the risk profiles.

- **Training Records**: Training can be done either in a written or verbal format but will be in an appropriate format for the receiving audience. Persons having received training must indicate in writing that they have indeed attended a training session and have been notified in detail of the contents and requirements of the ESMP. The attendance registers must be kept on file.

To ensure accountable and demonstrated implementation of the ESMP, a number of reporting systems, documentation controls and compliance mechanisms must be in place. **Table 6-2** indicates the minimum requirements as set out in the generic EMPrs for the development of overhead transmission and distribution infrastructure and for the development and expansion of substation infrastructure for the transmission and distribution of electricity.

Table 6-2 - Documentation Reporting and Compliance Requirements as per the generic EMPrs

Aspect	Refer to Generic EMPr (Part A)
Document control/Filing system	Section 4.1
Documentation to be available	Section 4.2
Weekly Environmental Checklist	Section 4.3
Environmental site meetings	Section 4.4
Required Method Statements	Section 4.5
Environmental Incident Log (Diary)	Section 4.6
Non-compliance	Section 4.7
Corrective action records	Section 4.8
Photographic record	Section 4.9
Complaints register	Section 4.10
Claims for damages	Section 4.11

Interactions with affected parties	Section 4.12
Environmental audits	Section 4.13
Final environmental audits	Section 4.14

Refer to: Part A, Section 4 of the Generic EMPr for the development and expansion of substation infrastructure for the transmission and distribution of electricity, attached as Appendix A and for the Development and Expansion for Overhead Electricity Transmission and Distribution Infrastructure attached as Appendix B.

6.3 MONITORING

The EPC contractor EO will monitor the day-to-day site activities on an ongoing basis and will produce weekly monitoring reports during construction. The independent, external ECO will undertake monthly audits to ensure compliance with the ESMP and conditions of the environmental authorisation during the construction activities and will report to the Site Manager should any non-compliance be identified or corrective action deemed necessary.

During the operational phase, Eskom (via the appointed EPC contractor/contractor/principal contractor) will establish, implement and maintain a procedure to monitor and measure, on a regular basis, the key characteristics of the operations that may have a significant environmental impact. The procedure shall include the documenting of information to monitor performance, applicable operational controls and conformity with the operation's environmental objectives and targets.

Eskom will ensure that all instruments and devices used for the measurement or monitoring are calibrated and appropriately operated and maintained. Calibration records must be kept on site or in close proximity to the equipment for ease of availability.

All the conditions outlined in the ESMP (**Section 7**) will be subject to required internal day-to-day monitoring and external compliance monitoring. Where required, any specific additional monitoring has been outlined in the ESMP (**Section 7**).

6.4 NON-CONFORMANCE AND CORRECTIVE ACTION

The auditing of the construction and operational activities may identify non-conformances to the ESMP and conditions of the EA. Non-conformances may also be identified through incidents, emergencies or complaints recorded. In order to correct non-conformances, the source must be determined, and corrective actions must be identified and implemented.

6.4.1 COMPLIANCE WITH THE ESMP AND CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION

- A copy of the ESMP and conditions of the environmental authorisation will be available onsite at all times for the duration of the construction and operational activities;
- All persons employed by a contractor or their sub-contractors will abide by the requirements of the ESMP and conditions of the environmental authorisation;
- Any members of the workforce found to be in breach of any of the specifications contained within the ESMP and conditions of the environmental authorisation may be ordered by the Site Manager to leave the site. A contractor will not direct a person to undertake any activity which would place

them in contravention of the specifications contained within the ESMP and conditions of the environmental authorisation;
- Should a contractor be in breach of any of the specifications contained in the ESMP and conditions of the environmental authorisation, the Site Manager will, in writing, instruct the contractor responsible for the incident of non-compliance regarding corrective and/or remedial action required, specify a timeframe for implementation of these actions, implement a penalty and/or indicate that work will be suspended should non-compliance continue;
- Should non-compliance continue, further written notification will be forwarded to the contractor responsible for the incident of non-compliance outlining the required corrective and/or remedial action, the timeframe for implementation, penalties and/or work will be suspended as specified previously; and
- Departmental officials will be given access to the property referred to in the ESIA and ESMP for the purpose of assessing and/or monitoring compliance with the ESMP and conditions of the environmental authorisation, at all reasonable times.

6.4.2 DUTY OF CARE

Under Section 28 of the NEMA, all personnel involved with the construction and operational activities onsite will be responsible for implementing measures to prevent pollution or degradation of the environment from occurring, continuing or recurring. Failure to comply with the above conditions is a breach of the duty of care. If such harm is unavoidable, steps must be taken to minimise and rectify such pollution or degradation of the environment.

6.5 DOCUMENTATION AND REPORTING

The following documentation must be kept onsite in order to record compliance with the ESMP and conditions of the environmental authorisation:

- Record of complaints; and
- Record of emergencies and incidents.

The contractor will be required to report on the following:

- Safety, Health and Environmental incidents involving contractor/ employees and/or the public;
- Safety, Health and Environmental complaints and correspondence received from the public; and
- Incidents that cause harm or may cause harm to the environment.

The above records will form an integral part of the ECO's reports and records thereof maintained for the duration of the project. These records will be kept with the ESMP and conditions of the EA, and will be made available for scrutiny if so requested by the Site Manager or his delegate and the ECO.

The contractor will ensure that the following information is recorded for all environmental complaints/incidents/emergencies:

- Date of complaint/incident/emergency;
- Location of complaint/incident/emergency;
- Nature of complaint/incident/emergency;
- Causes of complaint/incident/emergency;
- Party/parties responsible for causing complaint/incident/emergency;
- Immediate actions undertaken to stop/reduce/contain the causes of the complaint/incident/emergency;

- Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint/incident/emergency;
- Timeframes and the parties responsible for the implementation of the corrective or remedial actions;
- Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented; and
- Copies of all correspondence received regarding complaints/incidents/emergency.

6.6 PUBLIC COMPLAINTS

The Contractor shall keep a Complaints Register on site to allow the general public to document any comments on or complaints regarding the activities of the site.

The Complaints Register must:

- Have numbered pages – any missing pages must be accounted for by the Contractor;
- Be tabled during monthly site meetings;
- Be made available to the SE/Contract Manager, the ECO, the Project Company, and/or any authority at any time if requested; and
- Include a section for the documentation of the action taken to address the complaint.

All complaints must be investigated, responded to, and recorded in the Complaints Register within 28 calendar days.

6.7 CONTINGENCY AND DECOMMISSIONING PLANNING

Eskom shall undertake and submit full decommissioning proposals at least 2 years in advance of decommissioning, in accordance with the requirements of Eskom's Framework Decommissioning and Rehabilitation Plan (yet to be developed).

6.7.1 DECOMMISSIONING PRINCIPLES

There is no single 'across the board' principle that will best fit all facilities to be decommissioned. All options should thus be kept open for thorough case-by-case analysis. To deliver the most responsible solutions, each facility should be considered on its own merits. In this respect, no single infrastructure component need set a precedent for any other, although opportunities for generic approaches should be followed, where appropriate. For each defence component of the project, the investigation into decommissioning must follow the precautionary principle, be risk based and cost effective.

The following broad decommissioning principles apply:

- Carefully consider long term social and environmental liability of all proposed development actions during the lifespan of the project and, where feasible, implement alternatives that minimise long term risks.
- Follow an incremental approach to decommissioning by minimising the project footprint during the project lifespan and by decommissioning and rehabilitating all areas which are no longer required for the project at the time. This provides the benefit that decommissioned facilities can be monitored over an extended period while the company still has operational capacity on site to manage any deficiencies in the closure process.

- Review current legislation that may influence decision - making at the time of decommissioning, together with best international practices of the energy and gas sectors. Where applicable, use existing supporting ESMPs such as the Waste Management Plan to manage aspects of decommissioning.
- Maximise efforts to assist local communities to build capacity throughout the life of the project so as to reduce the impact of job losses on decommissioning and the termination of Eskom's contribution to development in the area. Efforts should include, wherever possible, the re-deployment of local Eskom personnel to other operations (held by the proponent).
- Systematically shut down the operating processes in a manner which minimises risks to project personnel, the environment and the surrounding community, both during and post-decommissioning.
- Provide early warning to stakeholders who are likely to be affected by the decommissioning.

6.7.2 SOCIO-ECONOMIC CONSIDERATIONS

The following positive employment and economic benefits are expected during the life of the project:

- Creation of significant direct and indirect employment during the life of the facility.
- Stimulation of local business.
- Community investment and development.
- Decreased social vulnerability and increased household income due to employment.

The closure of the project will present socio-economic challenges for the local community. For example, loss of direct and indirect business and work opportunities due to the closure of operations may lead to increased unemployment and secondary negative socio-economic impacts. Most of the impacts will be related to the closure of the Komati SEF and BESS Facility, since few direct jobs are associated with the operational phase of the project.

Nevertheless, at the time of closure, Eskom shall consider the potential effects resulting from the project decommissioning and shall work closely with local communities to:

- Ensure that employees are fully informed about decommissioning and how it will affect them well before the project finally closes.
- Assisting employees in seeking alternative employment at other power plants or related facilities.
- Training and education of employees to equip them with skills that could benefit them in other industries.
- Build community capacity to manage opportunities and impacts arising from the decommissioning and post-decommissioning phase of the project.
- Ensure that land is not used for agricultural purpose before soil analysis is conducted.
- Community access to the area should be restricted until clearance is granted by competent authority.
- Ensure that used equipment are not disposed or handed over to the community before health issues are assessed.
- Provide training to transfer project-learned skills to alternative and secondary industries tailored to respond to a market economy.
- The client should develop exit strategies for all its community development initiatives.
- Apply the measures in the Influx Management Plan to ensure that any sudden in-migration of job-seekers during the decommissioning phase is managed accordingly.

- As with the construction phase, there will be an increase in heavy vehicles and trucks visiting the site, therefore the following traffic measures will need to be in place in order to safeguard local communities and other road users in the area:
    - Indicate areas where heavy vehicles will be expected with adequate signage and points men with flagging;
    - Clearly indicate pedestrian crossings (if necessary, with adequate signage and points men with flagging;
    - Educate drivers on potential areas of high pedestrian and cyclist activity and reduce speeds in these areas to appropriately low speeds; and
    - Educate community on dangers of heavy vehicles and trucks new to their area.

6.7.3 TRANSFER OF RESPONSIBILITY FOR EQUIPMENT AND INFRASTRUCTURE LEFT FOR COMMUNITY USE

South African authorities and communities may request that some equipment or infrastructure is left in place for community use. The following general requirements shall apply:

- Before ripping and rehabilitating roads, consult with local, district and regional Government to determine whether they could be useful if left in place, while taking into consideration the ecological risk of induced impacts (unsustainable resource harvesting). If roads are to be left open, the transfer of the responsibility of maintaining them shall be considered - any conflicts between local, district and provincial interests regarding the maintenance of the roads must be resolved by the competent Government authorities.
- Consider the feasibility of transferring other fixed assets with beneficial re-use to third parties. Where practical, safe and useful options exist, which are agreed to by the parties, formally transfer responsibility (for maintenance and legal compliance) of specifically defined remaining infrastructure and equipment to identified third parties. Verify that the recipient of any infrastructure is properly instructed in the safe operating methods and appropriate maintenance of the equipment or infrastructure. If the recipient cannot demonstrate competence to safely manage the infrastructure, then it shall be removed or the necessary training shall be provided to ensure that it is safely managed.
- Obtain the approval of the relevant regulatory authorities and potentially affected community leaders before a decision is made to leave any equipment or infrastructure on site for third party use. Provision shall be made to ensure that this infrastructure or equipment does not create a safety hazard. Agreement will need to be reached and documented in such cases for these parties to take over liability for the equipment / infrastructure.

6.7.4 RECYCLING AND REUSE OF MATERIALS AND WASTES

The following general requirements apply:

- Dismantle equipment and materials that are not to be left in situ;
- Identify suitable recycling options for the equipment and materials that are dismantled, in line with best management principles of the waste hierarchy. Contract with an accredited recycling contractor for removal of all recycled waste. Recycling and reuse of materials is to be maximised to the greatest extent possible, subject to safety and contamination considerations. All management of decommissioned infrastructure earmarked for recycling or re-use shall be done in accordance with the most recent updates of Eskom's Waste Management Plan, South African

Waste Management legislation, considerations to the requirements in WB ESS3, and any other relevant regulations applicable at the time. Materials for which separation and recycling is a requirement are:

- Paper or cardboard;
- Plastic;
- Glass;
- Metals;
- Textiles;
- Rubber (tyres);
- Timber;
- Electrical cables;
- Electronic equipment;
- Scrap wood;

- Maintain a detailed manifest of all recycled and reused materials and equipment, including auditable chain of custody information.
- As far as reasonably practical, and subject to considerations about safety and pollution, provide local people with first choice concerning acquisition of recyclable or reusable materials and infrastructure, non-polluting waste (such as uncontaminated timber), parts and equipment.

6.7.5 CONTAMINATED LAND MANAGEMENT AND NON-RECYCLABLE WASTE

Significant areas of contamination are not expected at closure other than any spillages associated with decommissioning itself.

6.7.6 POST DECOMMISSIONING LIABILITY

Although highly unlikely, any residual liability arising from or in connection with decommissioning will remain with Eskom in perpetuity. The Company will remain responsible for complying with any conditions attached to the Authority's approval of the Decommissioning and Rehabilitation programme; provided, however, that such residual liability will not extend to any damages and losses arising out of acts or omissions from a third party. A "third party" will include but not be limited to new owners, operators or licensees. In no event will the Company be held liable for losses or damages caused by third parties other than itself.

7 GENERIC ENVIRONMENTAL CONTROLS

This section refers to construction related activities that are common to the development of the substations associated with Komati Solar PV and BESS Facility as defined within the pre-approved generic EMPrs. For each activity, a set of prescribed environmental controls and associated management actions have been identified. Contractors shall implement these controls as a minimum requirement for mitigating the impact of particular construction related activities.

These control measures are defined within Part B: Section 1 of the pre-approved generic EMPrs (attached as **Appendix A** and **Appendix B**). The format of a general environmental control is shown below, see **Table 7-1**. The boxes shaded in green are predefined and represent minimum standards for the management of that particular aspect. The Contractor will be required to adhere to all impact management actions (where applicable to the construction related activity) for the Project. The boxes shaded in red assign responsibility for the implementation and monitoring of the impact management actions. This implementation and monitoring information is project specific and shall be completed by the Contractor prior to commencement of construction.

Table 7-1 – Format of a general environmental control illustrating aspects which are predefined versus those which still need to be completed by the contractor

Management Objective:	Predefined as part of Generic EMPr					
Management Outcome:	Predefined as part of Generic EMPr					
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Predefined as part of Generic EMPr	To be completed by Contractor	To be completed by Contractor	To be completed by Contractor	To be completed by Contractor	To be completed by Contractor	To be completed by Contractor

The completed template must be signed and dated on each page by both the contractor and the holder of the EA prior to commencement of the activity. The method statements must prepared and agreed to by the holder of the EA, prior to commencement, and must be appended to the template. Each method statement must also be duly signed and dated on each page by the contactor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

The construction related activities addressed within Part B: Section 1 of the pre-approved generic EMPrs are as follows:

Table 7-2 - Activities and management measures as per generic EMPr (Part B: Section 1)

Activity	Refer to Generic EMPr for the development and expansion of substation infrastructure, attached as Appendix D (Part B: Section 1)	Refer to Generic EMPr for the development of overhead transmission and distribution infrastructure, attached as Appendix B (Part B: Section 1)
Environmental awareness training	5.1	5.1
Site Establishment development	5.2	5.2
Access restricted areas	5.3	5.3
Access roads	5.4	5.4
Fencing and Gate installation	5.5	5.5
Water Supply Management	5.6	5.6
Storm and wastewater management	5.7	5.7
Solid and hazardous waste management	5.8	5.8
Protection of watercourses and estuaries	5.9	5.9
Vegetation clearing	5.10	5.10
Protection of fauna	5.11	5.11
Protection of heritage resources	5.12	5.12
Safety of the public	5.13	5.13
Sanitation	5.14	5.14
Prevention of disease	5.15	5.15
Emergency procedures	5.16	5.16
Hazardous substances	5.17	5.17
Workshop, equipment maintenance and storage	5.18	5.18
Batching plants	5.19	5.19
Dust emissions	5.20	5.20

Activity	Refer to Generic EMPr for the development and expansion of substation infrastructure, attached as Appendix D (Part B: Section 1)	Refer to Generic EMPr for the development of overhead transmission and distribution infrastructure, attached as Appendix B (Part B: Section 1)
Blasting	5.21	5.21
Noise	5.22	5.22
Fire prevention	5.23	5.23
Stockpiling and stockpile areas	5.24	5.24
Finalising tower positions	Not applicable to a Solar PV facility	5.25
Civil works	5.25	5.25
Excavation (and Installation) of foundations	5.26	5.26
Installation of foundations, cable trenching and drainage systems	5.27	5.27
Assembly and erecting towers	Not applicable to a Solar PV facility	5.27
Installation of equipment (circuit breakers, current Transformers, Isolators, Insulators, surge arresters, voltage transformers, earth switches)	5.28	5.28
Stringing (and cabling)	5.30	5.28
Testing and Commissioning (all equipment testing, earthing system, system integration)	5.31	5.31
Socio-economic	5.32	5.29
Temporary closure of site	5.33	5.30
Dismantling of old equipment	5.34	5.34
Landscaping and rehabilitation	5.35	5.31

Refer to: Part B – Section 1 of the Generic EMPr for the development and expansion of substation infrastructure for the transmission and distribution of electricity, attached as Appendix A and Part B – Section 1 of the Generic EMPr for the development of overhead transmission and distribution infrastructure, attached as Appendix B.

8 SITE SPECIFIC ENVIRONMENTAL CONTROLS

The ESMP contains guidelines, operating procedures, rehabilitation and pollution control requirements which will be binding to the onsite personnel working for, or on behalf of Komati Solar PV and BESS Facility. It is essential that the ESMP be carefully studied, understood, implemented and adhered to at all times.

In instances where the method statements provided by the contractor conflict with the ESMP, such conflicts will be discussed between the Site Manager, ECO and contractor and if unresolved the ESMP will take precedent.

The ESMP identifies various actions which are undertaken throughout the construction and operational phases of the Komati Solar PV and BESS Facility. Not every action will be required during the entire course of activities. Therefore, the actions identified in the ESMP have been given priority timeframes for proposed implementation. The columns in the structure of the ESMP have been described **Table 8-1** below.

Table 8-1 – Structure of ESMP

Column	Description
Activity/Aspect	Highlights the various activities/aspects associated with the project i.e. the contractors' activities that will interact with the environment.
Impact Management Outcome	The desired outcomes from effectively minimising negative impacts and/or enhancing positive impacts.
Impact Management Actions/Measures	Indicates the actions required to prevent and /or minimise the potential impacts on the environment that are associated with the project.
Indicator and Compliance Management	Items that will assist with determining compliance against management actions.
Responsibility	Indicates the party responsible for implementing the environmental measures and action plans laid out in the ESMP. Please note that the Site Manager will have authority to stop works if/as necessary.
Priority Timeframe	Indicates when the actions for the specific aspect must be implemented and/or monitored.

Table 8-2 – Contractor laydown area and site access: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
CONTRACTOR LAYDOWN AREA AND SITE ACCESS			
Impact Management Outcome: ▪ To implement measures to minimise impacts on the environment from the initiation of construction activities through planning, careful site access route selection and implementation of mitigation measures.			
Indicator and Compliance Mechanism: ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Close-out on incidents. ▪ Monitoring and audit reports. ▪ Inductions training and register. ▪ Environmental awareness programme/toolbox talks.			
Project Initiation of Construction Activities	Appoint an EO to manage and verify compliance with the EA and ESMP.	▪ Project Manager ▪ EO ▪ Contractor (Site Manager)	▪ Construction ▪ Decommissioning
	The development footprint must be demarcated to ensure that only the demarcated areas are impacted upon. The no-go areas identified must be demarcated before the construction or decommissioning commences. This includes all wetlands and the associated buffers, and any high sensitivity areas as indicated in Figure 4-1. Label these areas as environmentally sensitive areas, keep out.		
	All personnel and contractors to undergo Environmental Awareness Training, including awareness of the surrounding area and wetlands to inform importance of these areas and their conservation. A signed register of attendance must be kept for proof.		▪ Construction ▪ Operation
	Site clearing must be limited to the footprint of the infrastructure requirements.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Locate firefighting measures at laydown areas and vehicles, such as fire extinguishers, and make personnel aware of fire prevention and firefighting measures.		▪ Construction
	Firefighting equipment must be securely placed and inspected monthly.		
	Engage with community to bring awareness to the project and construction activities that will be undertaken.	▪ Eskom	▪ Pre-Construction
	Share Grievance Mechanism with community and procedure to follow should any grievances arise		

Table 8-3 – Vehicle, Equipment and Machinery Management: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
VEHICLE, EQUIPMENT AND MACHINERY MANAGEMENT			
Impact Management Outcome: ▪ To implement measures to minimise impacts on the environment from poorly maintained equipment, machinery and vehicles onsite.			
Indicator and Compliance Mechanism: ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Close-out on incidents. ▪ Monitoring and audit reports. ▪ Transport route delineation. ▪ Daily equipment, machinery and vehicle checklists. ▪ Incident classification and reporting procedure.			
Operation of Equipment, Machinery and Vehicles	Ensure that the equipment, machinery and vehicles are adequately maintained so as to: ▪ Reduce the potential for spillages of oil, diesel, fuel or hydraulic fluid. ▪ Ensure road-worthiness. ▪ Reduce emissions. Evidence of such maintenance must be recorded and maintained onsite for verification.	▪ EO ▪ Contractor	▪ Construction ▪ Operation ▪ Decommissioning
	The movement of vehicles into and out of the site must be managed to ensure the impact on public areas is minimised, such as ensuring that abnormal loads are moved outside of peak traffic hours, and reasonable measures are taken to ensure that public and staff safety is managed adequately		

Table 8-4 – Fuel and Chemical Management: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
FUEL AND CHEMICAL MANAGEMENT			
Impact Management Outcome: ▪ To ensure the correct storage, handling and disposal of fuels and chemicals in order to prevent impacts to the surrounding environment.			
Indicator and Compliance Mechanism: ▪ Maintenance records. ▪ Safe disposal certificates (if applicable) ▪ Material safety data sheets (MSDS). ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Chemicals management procedure (to be developed). ▪ Monitoring and audit reports. ▪ Training records.			
Fuel and Chemical Management	Provide secure storage for fuel, oil, chemicals and other hazardous materials. Securely fence and lock the storage areas to accommodate all hazardous substances such as fuel, oils and chemicals. The storage area must be roofed and the floor must be an impermeable surface and suitably bunded as per the requirements outlined in SANS 10089-1 (2008). If storage capacity triggers licencing, those must be acquired.	▪ EO ▪ Contractor	▪ Construction ▪ Operation
	Indicate the location of the fuel and chemical storage area on the layout plans.		
	Label all liquids (chemicals and hydrocarbons) stored onsite for easy identification. MSDS for onsite chemicals, hydrocarbon materials and hazardous substances must be readily available. MSDS must include mitigation measures to ameliorate potential environmental impacts which may result from a spill, incorporating health and safety mitigation measures.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	A spill management plan must be in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.		
	No servicing of equipment on site unless necessary. All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers for safe disposal.		
	In cases where a surface leak occurs during loading and off-loading activities, the spill material will be cleaned using a spill kit.		
	Leaking equipment and vehicles must be repaired immediately or be removed from project area to facilitate repair		
Health and Safety	Display “no smoking” and “no naked flame” signs in and around the project area, as well as near the hazardous material store.	▪ EO ▪ Contractor	▪ Construction ▪ Operation
	Strategically place the correct types of fire extinguishers onsite and near the hazardous material store. Train key personnel on basic firefighting skills		
	Frequently inspect and maintain containment facilities and retain records onsite.		

Table 8-5 – Waste Management: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
WASTE MANAGEMENT			
Impact Management Outcome: ▪ To ensure the correct handling, storage, transportation and disposal of general waste and hazardous waste.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Waste Management Plan (WMP). ▪ Relevant SANS Codes of Practice. ▪ Waste manifests and safety disposal certificates (all waste streams). ▪ Emergency preparedness and response procedure. ▪ Incident classification and reporting management procedure (to be developed). ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Monitoring and audit reports.			
General Waste Management	General waste generated as a result of construction and operational activities must be managed in accordance with a WMP (to be developed).	▪ EO ▪ Contractor	▪ Construction ▪ Operation ▪ Decommissioning
	Train and inform all onsite personnel regarding general waste minimisation, management and disposal as per the WMP.		
	Prohibit littering, burning and burying of waste onsite.		
	Place an adequate number of labelled or colour coded general waste bins around the laydown area and at the construction sites during construction activities in order to minimise littering. The bins must be removed from the site on a regular basis for disposal at a registered or licensed disposal facility.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site.		
	Refuse bins shall be emptied daily (or as required) and secured.		
	Temporary storage of domestic waste shall be in covered waste skips.		
	Maximum domestic waste storage period shall be 10 days.		
	Retain records such as waybills and waste manifests associated with waste removal, transportation and disposal (safe disposal certificates).		
	Prohibit the mixing of general waste with hazardous waste. Should general waste be mixed with hazardous waste, it will be considered hazardous waste. There should be waste segregation (e.g. electronic equipment, chemicals, oil contaminated rags, paper, plastic) and management on the site.		
	Recover, recycle and reuse waste of general waste as far as possible.		
Hazardous Waste Management	Hazardous waste generated as a result of construction, operational and decommissioning activities must be managed in accordance with a WMP.	▪ ECO ▪ EO ▪ Contractor	▪ Construction ▪ Operation ▪ Decommissioning
	The WMP must include a procedure for handling spillages.		
	Strict use and management of all hazardous materials used on site.		
	Strict management of potential sources of pollution (e.g. litter, hydrocarbons from vehicles & machinery, cement during construction, etc.) within demarcated / bunded areas		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Train and inform all onsite personnel regarding hazardous waste minimisation, management and disposal as per the WMP.		
	A designated and appropriately demarcated and covered hazardous waste storage area must be established on a hard standing area.		
	Ensure that all hazardous wastes temporarily stored on site are stored in a covered skip and are placed on a hard standing		
	Clean areas where hazardous waste spills have occurred and dispose of the hazardous material appropriately. Key personnel must be trained on handling spillages.		
	Retain records of appropriate safety disposal certificates associated with hazardous waste removal, transportation and disposal.		
	An emergency preparedness and response plan is to be developed by the contractor/operator for any hazardous waste being removed, transported and disposed of offsite.		
	Ensure that waste manifest documentation (as per the Waste Classification and Management Regulations – GNR 634) is prepared and maintained for the generation, transportation and disposal of waste.		
	All spills should be reported to the authorities as per the emergency preparedness and response frequencies / specifications.		

Table 8-6 – Health and Safety: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
HEALTH AND SAFETY			
Impact Management Outcome: ▪ To ensure communication with members of the public to promote safety awareness. ▪ To prevent public access to construction sites and storage areas. ▪ To ensure safety for all onsite personnel.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Monitoring and audit reports. ▪ Incident classification and reporting management procedure (to be developed). ▪ PPE Register. ▪ Occupational health and safety plan (to be developed). ▪ Health and safety protocol (to be developed).			
Health and Safety	The construction phase will be managed according to all the requirements of the Occupational Health and Safety Act 85 of 1993 specifically the Construction Regulations.	▪ Site Manager ▪ Contractor ▪ EO ▪ Eskom OHS Office ▪ Contractor OHS Representative	▪ Construction ▪ Operation
	All onsite personnel are required to undergo induction training and regular toolbox talks in order to raise awareness of the conditions contained herein.		
	Development and implementation of an occupational health and safety plan and Safety Health Environment Risk & Quality (SHERQ) policy	▪ Contractor/Operator ▪ Site Manager ▪ Eskom OHS Office ▪ Contractor OHS Representative	▪ Construction ▪ Operation

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	A Hazard Identification (HAZID) Study and an Electrical Hazard and Operability Study is required to be conducted prior to design finalisation to identify safety hazards and operability issues and optimize the design accordingly.	▪ EO	▪ Pre-Construction
	The appointed contractor will be responsible for the development of a comprehensive health and safety protocol which must be adhered to.	▪ Contractor ▪ Eskom OHS Office ▪ Contractor OHS Representative	▪ Construction
	Emergency response plan to be in place prior to beginning construction and to include aspects such as appointment of emergency controller, provision of first aid, first responder contact numbers.		
	Provide and wear appropriate PPE onsite.	▪ Contractor/Operator ▪ Site Manager	▪ Construction ▪ Operation ▪
	All normal procedures for working at heights, hot work permits, confined space entry, cordon off excavations etc to be in place before construction begins		
	All necessary good hygiene practices to be in place, e.g. provision of toilets, eating areas, infectious disease controls.	▪ Site Manager ▪ Contractor ▪ EO ▪ Eskom OHS Office ▪ Contractor OHS Representative	▪ Construction ▪ Operation ▪
	Policies and practice for dealing with known vectors of disease such as Aids, TB, COVID 19 and others.		
	Prior to construction determine the dangerous species in the area and what responses are needed to bites/exposure/attacks.		
	Train all onsite personnel handling chemical or hazardous substances in the use of such substances and the environmental, health and safety consequences of incidents.		
	Outside work must be stopped during thunderstorms. Lighting conductors may be required for the final installation, to be confirmed during design phase.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
Facility emergencies	Emergency response plan for full operation and maintenance phase to be in place prior to beginning commissioning and to include aspects such as: ▪ appointment of emergency controller, ▪ emergency isolation systems for electricity, ▪ emergency isolation and containment systems for electrolyte, ▪ provision of PPE for hazardous materials response, ▪ provision of emergency facilities for staff at the main office building, ▪ provision of first aid facilities, ▪ first responder contact numbers etc	▪ Operator	▪ Operation
	A detailed risk assessment of all normal operating and maintenance activities on site to be compiled, and form the basis of operating instructions, prior to commencing commissioning.	▪ Operator	▪ Operation
	MSDSs must be made available for all chemicals and substances on site	▪ Site Manager ▪ Contractor ▪ Operator ▪ EO	▪ Construction ▪ Operation
Fire risk	Full Process Safety Management system with all elements to be implemented to highest international best practice levels.	▪ Site Manager ▪ Contractor ▪ Operator ▪ EO ▪ Contractor OHS Representative	▪ Construction ▪ Operation
	Suitable fire-fighting equipment on site near source of fuel, e.g. diesel tank, generators, mess, workshops etc		
	Safety integrity level rating of equipment (failure probably) with suitable redundancy if required.		
	Ensure regular testing of emergency alarm systems are undertaken.		
	Emergency Response plan in compliance with SANS 1514 to be compiled, e.g. plan from transport and construction phase to be extended to operational phase to		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	include the hazards of the systems containing large quantities of highly hazardous chemicals.		
Public Safety	Restrict public access by employing full time security for the site.	▪ Site Manager ▪ EO	▪ Construction ▪ Operation
BESS	Except during shipping, ideally the units should not be stored any closer to each other than they would be in the final installation so that propagation is prevented, i.e. laydown area needs to be considered.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	Handling protocols to be provided by battery supplier.		
	End of Life plan needs to be in place before any battery containers enter the country as there may be damaged battery units from day one.	▪ Operator	▪ Operation
	Operating manuals to be provided including start-up, shut-down, steady state, monitoring requirements.		
	Maintenance manuals with make safe, decontamination and repair procedures.		
	Proposed maintenance schedules daily, weekly, monthly, annual etc.		
	Provided portable equipment for calibration and for testing/verification of defective equipment.		
	There needs to be careful thought given to procedures to be adopted before entering into the BESS or a container under normal circumstances (confined space) but particularly after a BMS shut down where there may be flammable or toxic gases present, a fire etc.		
Decommissioning of facility	End of Life shutdown procedure including a risk assessment of the specific activities involved.	▪ Operator ▪ EO	▪ Decommissioning

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Re-purpose the equipment with associated environmental impact considered.		
	Disposal according to local regulations and other international directives.		
	Operator should seek the opinion from a waste consultant on how to correctly dispose of hazardous waste.		

Table 8-7 – Water Management: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
WATER MANAGEMENT			
Impact Management Outcome: ▪ To implement measures to prevent the contamination on surface and groundwater resources. ▪ To prevent erosion.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ WMP (to be developed). ▪ Water Use Licence (or General Authorisation as applicable). ▪ Incident classification and reporting management procedure (to be developed). ▪ Environmental awareness programme/toolbox talks. ▪ SWMP (to be developed).			
Surface Water Management	For stockpiles and foundation excavations, it is recommended to place diversion berms or silt fences on the upslope and downslope, respectively. Any topsoil cleared for the development of the PV Plant footprints and hardstand areas should be stockpiled for the decommissioning and rehabilitation of the facility. If possible,	▪ Site Manager ▪ Contractor	▪ Construction

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	the stockpiles should have gentle slopes of 1 in 5 or less to promote revegetation and limit erosion. The stockpile should be bunded until revegetation occurs. Although the gentle slopes require a larger surface area for the stockpile, this approach is considered the lower-impact option as it minimises erosion while disturbing a larger surface area.		
	Construct pollution control systems such as bunded areas, and runoff control systems such as diversion berms and water collection areas such as the process water/evaporation dam first, before undertaking any other activities.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction ▪ Decommissioning
	Construct berms down-gradient of construction areas to collect dirty runoff. Allow silt to settle, examine for contamination with oil and/or hydraulic fluids. Remove contaminated material monthly for remediation or appropriate disposal in accordance with prevailing legislation. Clean silt can be used during re-vegetation of bare areas.		
	If in-field refuelling is done from a tanker, it should be done in a designated dirty area and a spill kit and clean-up team must be available on site.	▪ Site Manager ▪ Contractor	
	Provision of adequate sanitation facilities in the form of chemical toilets that are serviced regularly.		
	Place drip trays under vehicles when parked.	▪ Site Manager ▪ Contractor	▪ Construction ▪ Operation ▪ Decommissioning
	Service vehicles in a workshop, not in the field.		
	Spillages should be cleaned up immediately and contaminated soil must either be remediated in situ or disposed of at an appropriately licensed landfill site.		
	Potentially contaminating wastes (empty containers for paint, solvents, chemicals, etc.) and cement should be stored in bunded areas until removed by a reputable contractor for disposal at an appropriately licensed site.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Providing environmental awareness training for workers on site.	▪ Site Manager ▪ Contractor ▪ EO	
	Remove settled silt from runoff control berms regularly, examine for contamination with oil and/or hydraulic fluids. Subject contaminated material to remediation or appropriate disposal in accordance with prevailing legislation. Clean silt can be used during re-vegetation of bare areas.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation
	Maintenance of any abstraction pumps to prevent spills.	▪ Operator	
	Maintenance of the BESS to ensure optimal functionality and prevent fire risks.		
	Maintenance and quality control of firefighting equipment and systems.		
	Mitigations for spillage or leakages will include bunded areas to store chemicals and/or fuel, containerisation of the BESS and cleaning up spills as soon as they occur.		
Groundwater Management	Ensure appropriate management of excavations especially where these are required within areas proximal to residential dwellings of Komati.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	Spoil recovered from trenches in the areas where contamination has been identified should be assessed and the spoil disposed in an appropriate manner.		
	All equipment that has the potential to leach contamination to the environment should be stored on hard standing and in a bunded area (e.g., Fuel storage, soaps, greases, transformers etc.).	▪ Site Manager ▪ Contractor	▪ Construction ▪ Operation
	Vehicles should be routinely inspected, and maintenance carried out to reduce likelihood of spillages.	▪ Site Manager ▪ Contractor	▪ Construction ▪ Decommissioning
	Transfer of fuels and parking of vehicles should be on hard standing.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Spill kits should be used to clean up spills when they occur.		
	Site monitoring to monitor existing plumes from historical operations should continue as required by the site WUL.	▪ Operator	▪ Operation
	Redundant equipment must be demolished and removed to an appropriate waste facility.	▪ Site Manager ▪ Contractor ▪ EO	▪ Decommissioning
Potable Water Management	Onsite staff are to be provided with an appropriate potable water supply, safe and healthy sanitary facilities and protection against exposure to environmentally dangerous or unhealthy situations or conditions.	▪ Contractor/Operator ▪ EO	▪ Construction ▪ Operation
	Appropriate ablution facilities should be provided for construction workers during construction and on-site staff during the operation of the facility. These must be situated outside of any delineated watercourses and wetlands.		
	Onsite staff must be made aware and encouraged to use water sparingly such that there is no water wastage.		

Table 8-8 – Air quality: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
AIR QUALITY			
Impact Management Outcome: ▪ To ensure that impacts to air quality of the surrounding environment are minimised.			
Indicator and Compliance Mechanism: ▪ Complaints register. ▪ Incident reporting system. ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Incident classification and reporting management procedure (to be developed). ▪ Equipment, machinery and vehicle maintenance.			
Dust Management	Before the commencement of any site works and during the operation, as much vegetation as possible must be retained, including patches and strips to minimise dust.	▪ EO ▪ Contractor	▪ Construction ▪ Operation
	Activities with high dust-causing potential, such as grading and moving of soil, must not be carried out in sensitive areas (as indicated in **Figure 4-1**) during adverse wind conditions.		▪ Construction
	All stockpiles (if any) must be restricted to designated areas and may not exceed a height of two (2) metres;		
	Earth-moving works have the potential to generate large amounts of dust. Pre-planning of earth-moving works can reduce dust emissions by limiting the time the site is exposed. Options for dust control can include the following: ▪ Plan earth-moving works so that they are completed just prior to the time they are needed		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	▪ Observe weather conditions and do not commence or continue earth moving works if conditions are unsuitable e.g., under conditions of strong winds ▪ Reduce off-site hauling via balanced cut and fill operations ▪ Pre-water areas to be disturbed		
	Cover and/or maintain appropriate freeboard on trucks hauling any loose material that could produce dust when travelling. Minimise transfer points.		
	Re-vegetate disturbed areas as soon as possible to prevent excessive dust from occurring.		
	Once construction is complete, initiate rehabilitation (e.g. re-vegetation) procedures to reduce wind speed across exposed surfaces.		
	Dampen exposed soil to suppress dust if required. Use watering sprays on materials to be loaded and during loading.		
	Where possible, minimise speed limits, vehicle weights and the number of vehicles using unpaved roads.		

Table 8-9 – Noise: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
NOISE			
Impact Management Outcome: ▪ To ensure that noise impacts to the surrounding environment are minimal or mitigated.			
Indicator and Compliance Mechanism: ▪ Complaints register. ▪ Incident reporting system. ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Incident classification and reporting management procedure (to be developed). ▪ Equipment, machinery and vehicle maintenance.			
Noise	Fit equipment, machinery and vehicles generating excessive noise with appropriate noise abatement measures and undergo regular maintenance to ensure optimum efficiency during operation	▪ EO ▪ Contractor/Operator	▪ Construction ▪ Operation
	Noise generating activities should be placed away from noise sensitive receptors as indicated in **Figure 4-1**.		
	Provide a complaints register to report any excessive noise incidents. Manage all complaints as per the Incident Classification and Reporting Management Procedure		
	Regular maintenance of equipment to reduce the generation of additional unwanted noise		
	Avoid noisy activities at night-time and outside of normal weekend working hours where possible.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Due to rural nature of site, construction is unlikely to continue at after sunset, however if required to work afterhours, notices should be put up informing the public accordingly.		
	Employees / contractors are to be provided with appropriate hearing protection when undertaking noisy activities.	▪ EO ▪ Contractor/Operator	▪ Construction ▪ Operation
	Employees to be provided with hearing protection if working near equipment that exceeds the noise limits.	▪ EO ▪ Contractor/Operator	▪ Construction ▪ Operation

Table 8-10 – Soil, Land Use and Agriculture: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
SOIL, LAND USE AND AGRICULUTURE			
Impact Management Outcome: ▪ To prevent any disturbance, erosion or contamination of soil resources.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ WMP (to be developed). ▪ Incident classification and reporting management procedure (to be developed). ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Monitoring and audit reports. ▪ Stormwater Management Plan (SWMP) (to be developed).			
Loss of Soil	Soils must only be stripped when they are dry.	▪ Site Manager ▪ Contractor	▪ Construction
	All stripping and stockpiling should be undertaken according to the guidelines below: ▪ Demarcate the area to be stripped clearly, so that the contractor does not strip beyond the demarcated boundary. ▪ The stripped soil should be relocated by truck along set removal paths. ▪ The area to be stripped requires storm water management and the in-flow of water should be prevented with suitable structures. ▪ Prepare the haul routes prior to stripping. Stripping should not be undertaken in wet conditions	▪ Site Manager ▪ Contractor ▪ EO	
	Strip and stockpile all useable soil material.		▪ Construction

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Soil stockpiles should be kept low (below 3m tall).	▪ Site Manager ▪ Contractor ▪ EO ▪	▪ Decommissioning
	Irrespective of where soil is stockpiled, it should be vegetated as soon as possible to protect against erosion, discourage weeds and maintain active soil microbes.		
	Soils can be ripped to make them more suitable for cultivation post-decommissioning.		
	Onsite vehicle routes must be limited on site by demarcating traffic areas and limiting vehicle access.	▪ Site Manager ▪ Contractor	
Erosion and Sedimentation	Existing roads should be used and regraded instead of creating new roads wherever possible.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	During periods of strong winds, stockpiles that have not yet been vegetated should be covered with appropriate material		
	Limit earthworks and vehicle movement to demarcated paths and areas.	▪ Site Manager ▪ Contractor	▪ Construction ▪ Decommissioning
	Limit the duration of construction activities, especially those involving earthworks / excavations.	▪ Site Manager ▪ Contractor ▪ EO	
	Access roads associated with the development should have gradients or surface treatment to limit erosion, and road drainage systems should be accounted for.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction ▪ Operation ▪ Decommissioning
	Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces and soil stockpiles should be re-vegetated or stabilised as soon as is practically possible.	▪ Site Manager ▪ Contractor	▪ Construction ▪ Operation

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Phase-specific storm water management plans should be designed for the site and adhered to.	▪ EO	
Soil Contamination	On-site vehicles should be well-maintained,	▪ Site Manager ▪ Contractor	▪ Construction ▪ Decommissioning
	Drip trays should be placed under parked vehicles;		
	On-site pollutants/hazardous materials should be contained in a bunded area and on an impermeable surface;		
	Ensure proper control of dangerous substances entering the site		
	Adequate disposal facilities must be provided.		

Table 8-11 – Aquatic Biodiversity: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
AQUATIC BIODIVERSITY			
Impact Management Outcome: ▪ Prevent the unnecessary destruction of, and fragmentation of the aquatic biodiversity of the area. ▪ No excess aquatic habitat withing the area ▪ Prevent contamination of wetlands			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Incident classification and reporting management procedure (to be developed). ▪ Environmental awareness programme/toolbox talks. ▪ Monitoring and audit reports.			
Vegetation Management	Vegetation clearing should be restricted to the proposed project footprints only, with no clearing permitted outside of these areas.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	The extent of disturbance should be limited by restricting all construction activities to the servitude as far as practically possible.		
Sensitive Areas	Locate all stockpiles, laydown areas and temporary construction infrastructure at least 50 m from the edge of delineated wetlands.		
	Ideally construction activities within wetlands should take place in winter (during the dry season).		
	Where summer construction is unavoidable, temporary diversions of the streams might be required.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Areas of undisturbed, natural grassland and wetland habitat should be avoided to the extent possible.		
	Areas of direct loss that cannot be avoided must be addressed via additional conservation actions/offsets as required.		
	A loss/disturbance buffer zone of at least 100 m should be maintained between the maximum extent of construction works and the outer boundary of wetlands and riparian zones.		
	Wetland/river crossings should be constructed utilizing designs that ensure that hydrological integrity of the affected wetlands is preserved, and natural flow regimes are maintained (i.e. no impoundment upstream of crossings, or flow concentration downstream of crossings.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction ▪ Operation
	To prevent loss of natural habitat in wetlands beyond the direct disturbance footprint, prior to any vegetation clearing, the development footprints should be clearly marked out with flagging tape/posts in the field.		
Stormwater Management	Diffuse distribution of clean stormwater runoff around the PV and BESS foundations and road crossing to affected downslope wetland systems	▪ Site Manager ▪ Contractor ▪ Developer	▪ Construction
Erosion	Install erosion prevention measures prior to the onset of construction activities. Measures should include low berms on approach and departure slopes to crossings to prevent flow concentration, sediment barriers along the lower edge of bare soil areas, placement of hay bales around the within wetland construction areas, and re-vegetation of disturbed areas as soon as possible.	▪ Site Manager ▪ Contractor ▪ Developer	▪ Construction
Alien and Invasive Species Management	An alien and invasive species management plan should be developed for the Project, which includes details of strategies and procedures that must be implemented on site to control the spread of alien and invasive species. A	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction ▪ Operation

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	combined approach using both chemical and mechanical control methods, with periodic follow-up treatments informed by regular monitoring, is recommended.		
Monitoring	Monitoring of wetland health to be conducted within one year of completion of construction, to measure any changes to the baseline status and ensure that recommended mitigation measures are sufficient to address any significant impacts.	▪ Operator	▪ Operation
	Follow up monitoring of wetland health PES/EIS every three years throughout the operating period.		

Table 8-12 – Terrestrial Plant Species: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
TERRESTRIAL PLANT SPECIES			
Impact Management Outcome: ▪ To minimise impact to the vegetation community ▪ To minimise impact to plant SCC			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Environmental awareness programme/toolbox talks. ▪ Monitoring and audit reports.			
Vegetation Management	As much of the proposed Project infrastructure as possible should be located on areas of modified habitat;	▪ Site Manager ▪ Contractor ▪ Developer ▪ EO	▪ Construction
	All vegetation clearing for the Project should be restricted to the proposed Project footprints only, with no clearing permitted outside of these areas;	▪ Site Manager ▪ Contractor ▪ EO	
	The footprints to be cleared of vegetation should be clearly demarcated prior to construction to prevent unnecessary clearing outside of these areas. No heavy vehicles should travel beyond the marked works zone;		
	Temporary facilities associated with construction, such as contractor site offices, portable toilets, storage and laydown areas, should be located on land that is currently transformed or developed;	▪ Site Manager ▪ Contractor ▪ Developer ▪ EO	

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Removed topsoil should be stockpiled and used to rehabilitate all non-operational disturbed areas.	▪ Site Manager ▪ Contractor ▪ EO	
	A comprehensive rehabilitation/ landscaping protocol should be developed and implemented to stabilise and revegetate all non-operational sites that have been disturbed by construction.		
Alien Vegetation Management	Implement an Alien Invasive Plant control and eradication plan that focuses on controlling and eradicating all AIS occurring throughout all project phases.	▪ Site Manager ▪ Contractor ▪ Developer ▪ EO	▪ Construction ▪ Operation ▪ Decommissioning
Plant rescue and rehabilitation	Surveys of each development footprint should be conducted to identify and record the number of flora SCC that require rescue and relocation;	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	Based on the findings of the SCC survey, application(s) for rescue and relocation permits should be submitted to the relevant authority.		
	No vegetation clearing or rescue and relocation operations should be allowed until the correct permits have been obtained.	▪ Site Manager ▪ Contractor ▪ Developer ▪ EO	
	Rescued plants should be relocated to an adjacent area of similar natural habitat, and correctly cared for after relocation until such a time as out-planting has been deemed successful.		

Table 8-13 – Terrestrial Animal Species: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
TERRESTRIAL ANIMAL SPECIES			
Impact Management Outcome: ▪ Prevent the loss of the faunal community			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Incident classification and reporting management procedure (to be developed). ▪ Environmental awareness programme/toolbox talks. ▪ Adhere to sensitivity map criteria ▪ Monitoring and audit reports.			
Vegetation Management	As much of the proposed Project infrastructure as possible should be located on areas of modified habitat;	▪ Site Manager ▪ Contractor ▪ Developer ▪ EO	▪ Construction ▪ Operation
	All vegetation clearing for the Project should be restricted to the proposed Project footprints only, with no clearing permitted outside of these areas;	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction ▪ Operation
	The footprints to be cleared of vegetation should be clearly demarcated prior to construction to prevent unnecessary clearing outside of these areas. No heavy vehicles should travel beyond the marked works zone;	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction ▪ Operation

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Temporary facilities associated with construction, such as contractor site offices, portable toilets, storage and laydown areas, should be located on land that is currently transformed or developed;	▪ Site Manager ▪ Contractor ▪ Developer ▪ EO	▪ Construction ▪ Operation
	Removed topsoil should be stockpiled and used to rehabilitate all non-operational disturbed areas.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction ▪ Operation
	A comprehensive rehabilitation/ landscaping protocol should be developed and implemented to stabilise and revegetate all non-operational sites that have been disturbed by construction.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction ▪ Operation
	The loss of natural habitat, particularly CBA Optimal land, is an impact that cannot be fully mitigated through standard mitigation and rehabilitation measures. A biodiversity offset strategy should therefore be developed and implemented for the proposed Project.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction ▪ Operation
Alien Vegetation Management	Implement an Alien Invasive Plant control and eradication plan that focuses on controlling and eradicating all AIS occurring throughout all project phases.	▪ Site Manager ▪ Contractor ▪ Developer ▪ EO	▪ Construction ▪ Operation ▪ Decommissioning
Fauna Management	An ECO should be on-site during vegetation clearing to monitor and manage any wildlife-human interactions. The ECO should be trained in inter alia, snake handling and basic fauna identification;	▪ EO	▪ Construction ▪ Operation
	Any fauna species trapped in construction areas, should be safely and correctly relocated to an adjacent area of natural habitat;		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	A low-speed limit (recommended 20-40 km/h) should be enforced on site to reduce wildlife collisions;	▪ Site Manager ▪ Contractor ▪ EO	
	The handling, poisoning and killing of on-site fauna by workers and contractors must be strictly prohibited;		
	The rules and regulations concerning all wildlife should be communicated to workers and contractors through on-site signage and awareness training (induction);		
	An incidence register should be maintained throughout all phases of the Project detailing any wildlife mortalities/injuries caused by on-site activities. The register should be used to identify additional biodiversity management requirements;		
	As required, active dust suppressions should be implemented on-site to limit dust-related disturbances to fauna.		
Avifauna	Limit destruction of habitat during construction phase strictly to the development footprint	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	All building waste produced during construction should be removed and disposed of at an official waste management facility.		
	Any liquid or chemical spills should be dealt with immediately to avoid contamination of the environment on site.		
	Where trenches or holes are required to be dug, these are to be filled shortly afterwards. These open holes serve as potential pit-fall traps for fledgling birds and should not be left open for extended periods of time.		
	Nesting sites and/or sensitive microhabitats should be avoided where possible, especially during the peak summer breeding seasons.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	An environmental induction prior to construction for all staff and contractors to explain that no animals are to be harmed or hunted, and that all necessary process to limit littering, chemical pollution, fires are implemented on site.		
	Low speed limits should be adhered to on site, to avoid collisions with avifauna, especially nocturnal species (e.g. owls, nightjars, and thick-knees) that actively hunt and inhabit the roads after dark.		

Table 8-14 – Archaeological and Cultural Heritage: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
ARCHAEOLOGICAL AND CULTURAL HERITAGE			
Impact Management Outcome: ▪ To ensure that sites/artefacts of heritage value are identified and protected.			
Indicator and Compliance Mechanism: ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Incident classification and reporting management procedure (to be developed). ▪ Monitoring and audit reports.			
Chance Finds	If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments and charcoal/ash concentrations) found during construction activities, the finds must be reported and the Chance Find Protocol must be implemented (**Section 9.13.1**).	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	If any graves are uncovered during construction activities, the archaeologist must be called in to inspect the finds and/or the police find them to be heritage graves, mitigation may be necessary and the SAHRA Burial Grounds and Graves (BGG) Unit must be contacted for processes to follow.	▪ Site Manager ▪ Contractor ▪ EO ▪ Archaeologist	
Cultural Site	Keep the construction duration as short as possible.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	Ensure that the smallest area possible is cleared for construction.		
	Ensure that any areas not required during operation are rehabilitated.		
	Ensure that all maintenance activities remain within the approved footprint.	▪ Operator	▪ Operation

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Ensure that night time light pollution is minimised.		
	Keep the decommissioning duration as short as possible.	▪ Site Manager ▪ Contractor ▪ EO	▪ Decommissioning
	Ensure that the site is fully rehabilitated after the facility has been removed.		

Table 8-15 – Palaeontology: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
PALAEONTOLOGY			
Impact Management Outcome: ▪ To ensure that palaeontological material is identified and protected.			
Indicator and Compliance Mechanism: ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Incident classification and reporting management procedure (to be developed). ▪ Monitoring and audit reports.			
Chance Finds	If any palaeontological material is exposed during digging, excavating, drilling or blasting Implement the finds must be reported and the Chance Find Protocol must be implemented (**Section 8.14.1**).	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction

Table 8-16 – Traffic: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
TRAFFIC			
Impact Management Outcome: ▪ To ensure that the traffic impacts of the project are mitigated and managed.			
Indicator and Compliance Mechanism: ▪ Induction training and records. ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Monitoring and audit reports. ▪ Incident classification and reporting management procedure (to be developed). ▪ PPE Register. ▪ Occupational health and safety plan (to be developed). ▪ Health and safety protocol (to be developed). ▪ Traffic and transportation management plan			
Signage and Notifications	Preparation of a Traffic Management Plan	▪ Contractor	▪ Construction
	Post relevant road signage along affected routes.	▪ Site Manager ▪ Contractor ▪ EO	
	The developer shall ensure that the contractor erects temporary signs warning motorists of construction vehicles on the approaches to the access road.	▪ Contractor ▪ Developer ▪ EO	
Dust Emissions	Reduce travel speed for construction vehicles on the gravel road to reduce dust	▪ Contractor	▪ Construction
	Dust suppression of the roads in the immediate vicinity of the site where feasible		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
Vehicle Management	Ensure all vehicles are roadworthy, visible, adequately marked, and operated by an appropriately licenced operator.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
Road Management	Ensure that the roads are left in the same or better condition, post-construction. Photographic records of road conditions must be gathered prior to construction	▪ Contractor	▪ Construction
	The developer shall ensure that the condition of the roads impacted by construction of the development is left in a similar or better state once the construction phase is complete.	▪ Contractor ▪ Developer	
	The contractor must ensure that workers obey the national traffic rules.		
	The developer shall ensure that the contractor provides the necessary driver training to key personnel to minimise the potential of incidents on the public road network.	▪ Developer	
Permits	A permit must be obtained from the relevant authority for any abnormal loads transported.	▪ Site Manager ▪ Contractor ▪ EO ▪ Operator	▪ Construction ▪ Operation ▪ Decommissioning

Table 8-17 – Visual: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
VISUAL			
Impact Management Outcome: ▪ To ensure that the changes to the landscape character of the area are mitigated to minimise the negative impact.			
Indicator and Compliance Mechanism: ▪ Health, safety, environmental and community incident and complaints management system register. ▪ Incident classification and reporting management procedure (to be developed). ▪ Monitoring and audit reports.			
Dust Suppression	Reduce and control construction dust using approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
Housekeeping	Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed of regularly at licensed waste facilities.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	Restrict construction activities to daylight hours whenever possible in order to reduce lighting impacts.	▪ Site Manager ▪ Contractor	
	Maintain the general appearance of the facility as a whole.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation
	Remove infrastructure not required for the post-decommissioning use of the site.	▪ Site Manager ▪ Contractor	▪ Decommissioning

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
		▪ Developer	
Layout	Plan the placement of laydown areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) where possible.	▪ Site Manager ▪ Contractor ▪ Developer ▪ EO	▪ Construction
	Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.	▪ Site Manager ▪ Contractor ▪ EO	
Rehabilitation	Rehabilitate all disturbed areas immediately after the completion of construction works.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
Vegetation Management	Ensure that vegetation is not unnecessarily removed during the construction period.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction
	Retain and maintain natural vegetation in all areas outside of the development footprint, but within the project site.	▪ Site Manager ▪ Contractor ▪ EO	▪ Construction Operation
	Retain/re-establish and maintain natural vegetation (if present) immediately adjacent to the development footprint, where possible.	▪ Site Manager ▪ Contractor ▪ EO	▪ Operation
	Retain/re-establish and maintain natural vegetation in all areas outside of the development footprint/servitude, but within the project site		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
Design	Adjust tilt angles of the panels if glint and glare issues become evident, where possible.	▪ Developer	▪ Operation
	Use anti-reflective panels and dull polishing on structures, where possible and industry standard.		
Lighting	Limit mounting heights of lighting fixtures, or alternatively use foot-lights or bollard level lights.	▪ Developer	▪ Operation
	Make use of down-lighters, or shielded fixtures.		
	Make use of Low-Pressure Sodium lighting or other types of low impact lighting.		
	Make use of minimum lumen or wattage in fixtures.		
	Make use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes.		
	Shield the sources of light by physical barriers (walls, vegetation, or the structure itself).		
Planning	Consult adjacent landowners (if present) in order to inform them of the development and to identify any (valid) visual impact concerns.	▪ Developer	▪ Operation
	If specific sensitive visual receptors are identified during operation, investigate screening at the receptor site, where possible.		
	Investigate the potential to screen affected receptor sites (if applicable and located within 1km of the facility) with planted vegetation cover.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Recommended that a Glint and Glare Assessment be undertaken if the airstrip noted on PV Site B will be retained and used during the operational phase of the development.		
Monitoring	Monitor rehabilitated areas post-decommissioning and implement remedial actions as required	▪ Operator	▪ Decommissioning
Rehabilitation	Rehabilitate all areas as per the rehabilitation plan undertaken. Consult an ecologist regarding rehabilitation specifications.	▪ Operator	▪ Decommissioning

Table 8-18 – Socio-Economic: ESMP Mitigation and Management Measures

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
SOCIO-ECONOMIC			
Impact Management Outcome: ■ To ensure that the negative socio-economic impacts are mitigated and managed. ■ To ensure that the positive socio-economic impacts are enhanced.			
Indicator and Compliance Mechanism: ■ Induction training and records. ■ Health, safety, environmental and community incident and complaints management system register. ■ Monitoring and audit reports. ■ Incident classification and reporting management procedure (to be developed). ■ PPE Register. ■ Occupational health and safety plan (to be developed). ■ Health and safety protocol (to be developed). ■ Employment records and community engagement local enterprise development records.			
Community / Population Influx	A community awareness campaign to be implemented in the surrounding communities to sensitise community members to traffic safety risks, communicable disease awareness (such as HIV/AIDs or TB), and access to the Grievance Mechanism	■ Eskom OHS Office ■ Site Manager ■ Contractor ■ Developer	■ Construction
	As part of onboarding workers, training should be provided on preventing GBV SEA and SH and included in the code of conduct for all employees.		
	A SEA/SH risk assessment for the Project and the SEA/SH Action Plan should be prepared if the risk is high.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Eskom should establish a grievance redress mechanism that allows for the addressing of SEA and SH matters. The grievance mechanism should allow for anonymous lodging of SEA and SH grievances. Ensuring that victims can report confidentially and without fear of retaliation		
	Victims of SEA and SH will be referred to organisations which can provide support. If the incidents are Project related the Project will pay for any counselling or other support the victim might need		
	The Komati Power Station Component C Projects Environmental and Social Management Plan contains a Code of Conduct that states that all employees should ot engage in any illegal or unwanted sexual behaviour.		
	Eskom must engage with communities using a dedicated community liaison officer for the community to access and lodge complaints.		
	The area should be fenced off to prevent trespassing and increase security in the Project area should be provided to regulate access to the site and prevent informal settlements.		
	Local employment should be a priority for the construction contractor. Training programmes must be implemented to enable local participants in employment opportunities.	▪ Site Manager ▪ Contractor	
	No recruitment should occur at the Project gate to prevent informal settlements around the Project site.		
	Increased security in the Project area should be provided to regulate access to the site and prevent informal settlements.		
	A detailed influx management plan should be developed or implemented and include the possible use of temporary labour camps if required.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	The Project should work with the local municipality to prevent the formation of informal settlements.		
	Four months' notice must be provided to the commercial farmer currently renting the property that whereon which the project is proposed to be established, informing them of the expiry of the lease.	▪ Eskom OHS Office	▪ Pre-Construction
Social / Vulnerable Groups / GBV	Eskom should support development initiatives for communities in the Project area, including: ▪ Assisting vulnerable households to access social service assistance networks. ▪ Providing skills training and capacity building to enable the vulnerable to start their own business or obtain better jobs. ▪ Ensure the project supports equal employment opportunities ▪ The project must assist vulnerable households to access benefits from the project by providing vulnerable groups equal access to employment and the Component C projects. ▪ The Project must provide women with a safe place to work. ▪ Instances related to SH/SE and GBV perpetrated by the Project workforce must be dealt with immediately by instating disciplinary procedures. ▪ The Project must be designed to enable those with disabilities can access the Project infrastructure should they need to do so by including design features such as ramps, wider doorways, passages and features for the visually impaired.	▪ Developer	▪ Construction ▪ Construction
	Principal Engineer should employ appropriate subcontractors as per Eskom's local procurement polices	▪ Site Manager ▪ Contractor ▪ Developer	▪ Construction
	Recruitment policies must ensure preference for residents. Additionally, a monitoring system should be implemented to assess local employment levels. A local skills database should be developed and updated regularly to maximise the uptake of local labour.		

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Accommodation needed for contractors should favour local guesthouses and hotels.		
	Engage local and regional government concerning the decommissioning phase.		▪ Decommissioning
Design	Adjust tilt angles of the panels if glint and glare issues become evident on sensitive receptors, where possible.	▪ Developer	▪ Operation
	If specific sensitive visual receptors are identified during operation, investigate screening at the receptor site, where possible.		
	The use of sun-tracking arrays must be considered.		
	Use anti-reflective panels and dull polishing on structures, where possible and apply the industry standard.		
Employment[1]	Recruitment policies must ensure preference for residents. Additionally, a monitoring system should be implemented to assess local employment levels. A local skills database should be developed and updated regularly to maximise the uptake of local labour.	▪ Eskom OHS Office ▪ Site Manager ▪ Contractor ▪ Developer	▪ Construction
	A detailed HR and OHS system by the Project developer and its partners as the Project moves towards implementation will be developed.		

[1] The activities that form part of the Component C projects are covered in the Komati Component C Environmental and Management Plan and will create an estimated 790 job opportunities. These jobs will offset some of the negative impacts resulting from the closure of Komati power station. The Component C projects are not relevant to the Komati Solar PV project.

Activity/Aspect	Impact Management Actions/Measures	Responsible Person	Priority Timeframe
	Labour and contract conditions compliance with national legislation will be monitored by the EPC contractor and department of labour.		
	Employees should be allowed the opportunity to participate in mentorship programmes to further their development.	▪ Operator	▪ Operation
	Labour and contract conditions compliance with national legislation will be monitored by the EPC contractor and department of labour.		
	Timely and adequate consultation with employees dependent on the Project for employment.	▪ Developer	▪ Decommissioning
	Training and educating employees to equip them with skills that could benefit them in other industries.		
Decommissioning	Eskom shall develop exit strategies for all its community development initiatives.	▪ Developer	▪ Decommissioning

9 MANAGEMENT PLANS

The plans included below provide an indication of the requirements that must be followed on the proposed construction and operation of the Komati Solar PV and BESS Facility. The aspects included below should be considered when preparing the site specific management plans. It must be noted that these plans are a basis of what must be included in the site-specific plans and must be updated accordingly. The plans can also be updated at any stage depending on any changes that may occur on the site.

The following specific plans have been compiled:

- Emergency Response Plan (ERP);
- Waste Management Plan (WMP);
- Hazardous Substance Management Plan;
- Fire Management Plan;
- Alien Vegetation Management Plan;
- Botanical Search and Rescue Plan;
- Rehabilitation and Landscape Management Plan;
- Stormwater and Wash Water Management Plan;
- Erosion Management Plan;
- Traffic, Transportation and Road Management Plan;
- Fauna Management Plan;
- Soil Management Plan;
- Heritage and Palaeontological Management Plan;
- Grievance Mechanism;
- HIV/AIDS Management Plan;
- Open Space Management Plan;
- Watercourse and Wetland Management Plan; and
- Site Clearing Plan..

9.1 EMERGENCY PREPAREDNESS AND RESPONSE PLAN

Appropriate resources must be provided to respond to accidental and emergency situations for operations and activities during construction and operation phases. The procedures will include plans for addressing training, resources, responsibilities, communication and all other aspects required to effectively respond to emergencies associated with their respective hazards.

This ERP is intended as a practical working document for the proposed Komati Solar PV and BESS Facility. The purpose of this document is to provide the basic guidelines on how to respond to potential emergency situations that may arise during project activities. These potential emergency situations include medical emergencies and fires.

All activities associated with the project will require site-specific emergency response plans to mitigate impacts, which meet or exceed all applicable regulations.

The objectives of this plan are as follows:

- Protect the communities and the environment through the development of emergency response strategies and capabilities.

- Set out the framework for hazard identification in order to define procedures for response to the situations including the development of contingency measures.
- Structure a process for rapid and efficient response to and manage emergency situations during the construction and operational phases of the project.
- Assign responsibilities for responding to emergency situations.

The EPRP must take the incident procedures referred to in Section 30 of the NEMA and WBG ESS2 requirements into account.

9.1.1 ROLES AND RESPONSIBILITIES

With respect to this plan, Komati Solar PV and BESS Facility (via the appointed EPC contractor/contractor/ principal contractor) has the responsibility to:

- Provide emergency response services (such as first aid and firefighting representative) and to structure and coordinate emergency response procedures for the project.
- Ensure that specific emergency responsibilities allocated to them are organised and undertaken.
- Ensure that employees and contractor third parties are trained and aware of all required emergency procedures.

9.1.2 EMERGENCY COMMUNICATIONS AND COORDINATION PLAN

In an emergency situation where there is an immediate threat to communities, personnel or the environment, the Project Manager will be notified immediately. The Project Manager will dispatch the Emergency Response Coordinator (or suitably tasked person) who will determine the appropriate plan of action depending on the severity of the emergency, the people affected, and the need to evacuate.

If there is a developing emergency or unusual situation, where an emergency is not imminent, but could occur if no action is taken, the Project Manager (or if the Project Manager is absent the HSE Officer) is to be informed immediately. Once the emergency or unusual situation has been managed, the correct incident/near miss must be reported to the General Manager.

If an emergency situation poses a direct threat to communities in the area, the Environmental Officer and/or Social Officer will advise persons in the vicinity of the emergency to evacuate due to the potential risk. The appropriate government authorities will immediately be notified of such an emergency evacuation. The Emergency Response Coordinator (or suitably tasked person) will be tasked with responding to the potential risk. Should the emergency situation be such that it can be managed by Komati Solar PV and BESS Facility, equipment and personnel will be deployed to the maximum extent necessary, so as to prevent/minimise potential risks.

9.1.3 RESPONSE TO INCIDENTS

An incident is any occurrence that has caused, or has the potential to cause, a negative impact on people, the environment or property (or a combination thereof). It also includes any significant departure from standard operating procedures. The incident procedure must be developed in accordance with Eskom and the WBG's incident report protocols. The reporting and investigation of all potential and actual incidents that could have a detrimental impact on human health, the natural environment or property is required so that remedial and preventive steps can be taken to reduce the potential or actual impacts because of all such incidents.

The actions resulting from any formal or informal investigations will be used to update the ESMP.

9.1.4 BUDGET FOR EMERGENCY RESPONSE

Costs for emergency response system and management will be included in the capital expenditure budget for the construction phase and operational budget for the operational and decommissioning phases of the project.

9.1.5 VERIFICATION

An environmental emergency response system will be developed for the execution of emergency drills that will include the following, inter alia:

- Fire Drills
- Emergency Evacuation Drills
- Medical and Environmental Drills.

Reporting and monitoring requirements for the plan will include:

- Monthly inspections and audits
- Quarterly reporting of list of accidents/ incidents that were reported immediately upon occurrence
- Reporting at the time of the incident and monthly spill reporting developed by the Environmental and Quality, Health and Safety departments
- Bi-annual emergency response drills
- Annual reporting on training

Emergency response drills and reporting will be maintained by the Project Manager/HSE Officer and will provide information regarding required revisions to training or the emergency response actions. Each incident reported will be reviewed and investigated upon occurring. Actions will be identified where possible to improve the site's overall response to emergencies. Updates/revisions that are necessary to protect worker or community health and safety will be implemented immediately after approval by the Eskom. On a bi-annual basis, Key Performance Indicators (KPIs) will be compared against past-performance and analysed for trends to determine if there are areas for improvement. Changes because of the trend analysis and identified areas for improvement will be implemented following the project's change management system as required.

9.2 WASTE MANAGEMENT PLAN

9.2.1 WASTE HIERARCHY

A waste is any solid, liquid or contained gaseous material that is being discarded by, disposal, recycling, burning or incineration. Waste management options for a particular waste need to be considered according to the Waste Management Hierarchy (**Figure 9-1**) which reflects the relative sustainability of each of the options. One of the key principles underlying the waste management hierarchy is to ensure that waste is dealt with as high up the waste hierarchy as possible. Since all waste disposal options have some impact on the environment, the only way to avoid impact is not to produce waste in the first place, and waste reduction is therefore at the top of the hierarchy. Re-use, followed by recovery techniques (recycling, composting and generating energy from waste) follow, while disposal to landfill or by incineration (the worst options) are at the bottom of the hierarchy.

In deciding on the most appropriate disposal route, both environmental and economic costs and benefits need to be considered. This decision must be reached taking into account all the costs and impacts associated with waste disposal, including those associated with the movement of waste.

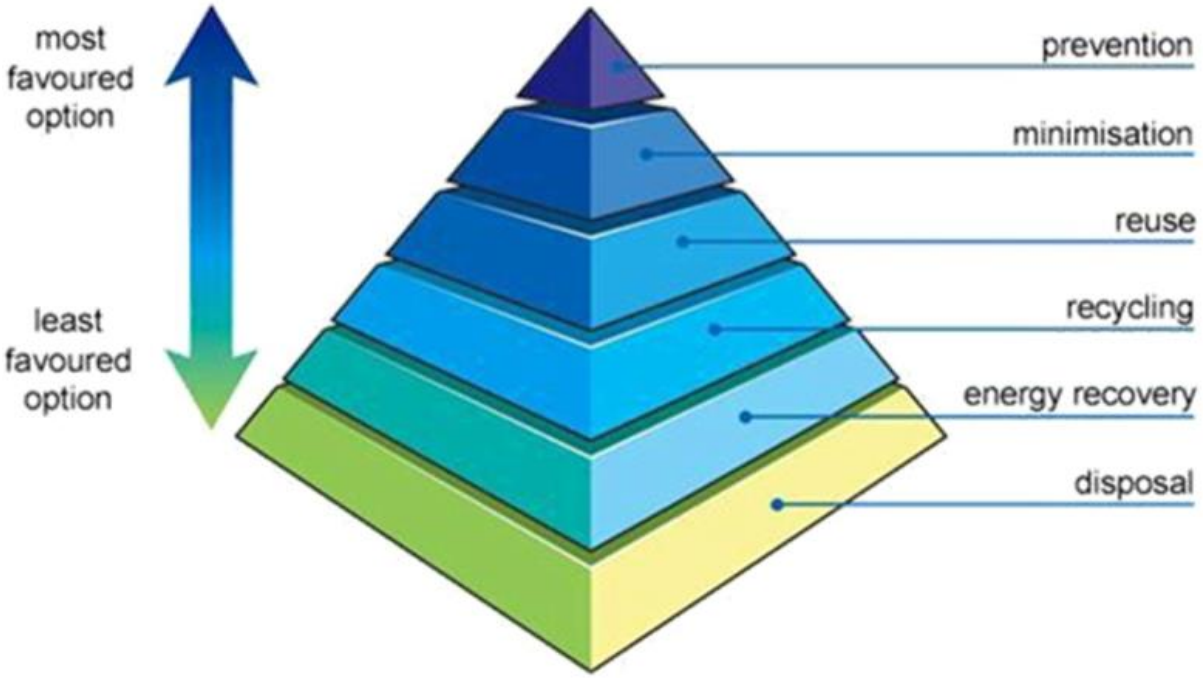

Figure 9-1 – Waste Hierarchy

9.2.2 PROJECT STAGES

The purpose of this section is to assess the construction, operational processes of the proposed Komati Solar PV and BESS Facility in order to identify short comings, like raw materials procurement, infrastructure, employee training, health and safety, transportation, storage, compliance with legislative requirements, emergency preparedness and waste streams arising from an operation and its related activities, as well as the current waste management practices per waste stream. The assessment serves as the baseline against which any problem areas or gaps in waste management practises, process technology and environmental authorisations are identified and against which future performance objectives, activities and targets can be set.

The project stages are described below with the waste generation and management methods described in the corresponding tables below them including:

- Details on how waste will be managed during the construction and operational phases taking into consideration the waste management hierarchy;
- Details of the procedure for the separation of non-recyclable and recyclable waste;
- Details of the management of non-recyclable waste i.e. how waste will be stored on site during construction and operational phases, including the frequency for the removal of waste from the site and an indication of the landfill site where it will be disposed;
- Details for the management of recyclable waste e.g. the type of waste materials that will be recycled on site and the details pertaining to the offloading, sorting, handling, storage and collection procedures for the waste types (e.g. compaction and bailing, breaking of glass etc.); and
- The frequency for the removal of waste from the proposed development to where it will be finally managed must be included.

Waste Management at the project site will be undertaken in line with the ESMP to consider the correct disposal of general and hazardous waste generated on the project. **Table 9-1** describes the different waste products that the proposed project will produce, as well as the various options to dispose of them. Waste will mainly be generated during the construction phase. During operation, contractors are only on the site for limited amount of time as and when maintenance is required.

Table 9-1 - Waste Management Options

Waste	Type of Waste	Management Options
Hydrocarbons (Contaminated soil)	Hazardous	Fuel and oil spillages can be a source of contamination of water sources and the soil. Management options include: ▪ Using spill kits to clean any spillages; ▪ Ensure storage facilities are maintained and meet industry regulations; ▪ Transportation and storage of fuel must be regulated and correctly managed according to the ESMP; ▪ Waste generated must be taken to the contractor laydown area at the end of each day; ▪ Co-ordinate waste removal with the removal of waste from the contractor laydown area; and ▪ All hazardous waste is to be disposed of at a registered hazardous landfill (safe disposal certificates must be obtained).
Contaminated Personal Protective Equipment (PPE)	Hazardous	PPE can be contaminated during handling of hydrocarbons. Management options include: ▪ Store contaminated PPE in hazardous waste skips at the project area; ▪ Waste generated along must be taken to the contractor laydown area at the end of each day; ▪ Co-ordinate waste removal with the removal of waste from the contractor laydown area; and ▪ Ensure contaminated Personal Protective Equipment (PPE) is disposed of at a registered hazardous landfill (safe disposal certificates must be obtained).
Solar Panels and BESS Components	Hazardous	During operation, solar panels and BESS facilities can get damaged resulting in hazardous waste. Disposal methods for Solar Panels and BESS facilities are still being investigated and will be further developed at the appointment of the Engineering and Procurement Contractor. However current industry practice indicates that materials from the Solar PV Panels and BESS Facilities are treated as hazardous waste. All hazardous waste from these components that can be disposed of, will be disposed of correctly at a licenced facility.
General waste	General	General waste (inorganic matter) can be disposed of as per normal and form part of the municipal waste management system. Management options include: ▪ Ensure waste is stored securely in refuse bins; ▪ Waste generated along must be taken to the contractor laydown area at the end of each day; and

		▪ Co-ordinate waste removal with the general removal of waste from the contractor laydown area.
Food waste	General	Food waste is generated as site personnel take their meals on the construction site. Management options include: ▪ Store any waste and packaging into a labelled food waste bin; ▪ Waste generated along must be taken to the contractor laydown area at the end of each day; ▪ Co-ordinate waste removal with the removal of waste from the contractor laydown area; and ▪ Co-ordinate waste removal with the general removal of waste.

9.3 HAZARDOUS SUBSTANCES MANAGEMENT PLAN

Hazardous substances are chemicals or materials that can cause acute or chronic harm to health, be it humans or the environment. The key potential sources of impact related to the management of hazardous chemical substances (HCS) and fuel during construction relate to the risk of accidental release of hydrocarbons to the environment, accidental exposure to workers, and fire and explosion risks.

Potential impacts associated with these risks, if poorly managed, include:

- Impact to soil and/or groundwater, which may result in degradation of the resource and requirement for remedial action;
- Impacts on pastoralist livelihoods due to contamination of pasture or water resources and consequent impacts to their, health, livelihood and animals;
- Impacts on human health & safety due to either direct exposure or through fire/explosion;
- Gas emissions associated with the combustion of fuel, are mainly compounds of nitrogen, carbon including very small traces of sulphur and particulate matter; and
- Fugitive emissions from HCS & fuel storage.

The purpose of this Hazardous Substances Management Plan (HSMP) is to provide a framework for the management of hazardous substances onsite during the construction and operation of the Komati Solar PV and BESS Facility:

- Ensure the handling and storage of hazardous substances are in accordance with relevant standards;
- To ensure that the storage and handling of chemicals and hydrocarbons on-site does not cause pollution to the environment or harm to persons;
- To ensure that the storage and maintenance of machinery onsite does not cause pollution of the environment or harm to persons.

9.3.1 HAZARDOUS SUBSTANCES MANAGEMENT PROCEDURE

A plan for managing the transportation, delivery, storage and handling of hazardous substances onsite is detailed below. A method statement detailing the specific storage and handling practices during construction must be prepared by the Contractor prior to the commencement of construction.

REGISTER OF HAZARDOUS SUBSTANCES

Contractors shall establish inventories or registers of hazardous substances on site. The inventory is to be updated when new hazardous substances are introduced to the workplace or the use of

existing hazardous substances is discontinued. Both the chemicals' register and the MSDSs must be readily available at a central location or near where the chemicals are being stored or used.

MSDS

It is standard practice that an MSDS is provided by the manufacturer or supplier of all hazardous substances. An MSDS is required for all chemicals and substances on site. These MSDSs are to be made available to all parties affected by the use or storage of the chemical. MSDSs are the key to communicating hazards and safe handling practices for chemicals. In addition, MSDS information is to be made available to all employees.

DELIVERIES

Transport of all hazardous substances must be in accordance with the relevant legislation and regulations. Contractors are responsible for identifying and securing any necessary permits for any proposed bulk fuel storage arrangements. The supplier will fill contractors fuel tanks; fuelling is the responsibility of the licensed contractor who will be supervised by the storage/work area supervisor. No 'black-market' or 'grey-import' fuels shall be used. All fuels purchased must be legitimate and subject to required duties and taxes.

Prior to fuel transfer the operator will verify that: all fuel transfer hoses have been connected properly and couplings are tight; transfer hoses are not obviously damaged; fuel transfer personnel are familiar with procedures; for fuelling stations, personnel are located at both the fuel truck and fuel transfer tank(s) and have the ability to shut off fuel flow manually; a means of communication has been established between the two people transferring fuel; and a high liquid level shutoff device can be substituted for the person at the delivery tank, in which case operation of the shutoff will be verified each time it is used; The fuel contractor will clean up and report any accidents or spills immediately to the project ESHS team.

ENVIRONMENT AND OCCUPATIONAL HEALTH AND SAFETY

The following requirements are additional to any applicable requirements established in other management plans such as the Occupational Health & Safety Management Plan:

- Storage facilities will have the applicable MSDS available;
- Smoking will be strictly prohibited from any areas where fuel loading operations take place;
- Appropriate signage will be used to identify potential spill risks;
- Any accidental damage to containment structures will be inspected immediately and appropriate repairs undertaken. The extent of damage will be reported in writing to the site manager as well as remedial repairs effected together with the date of repairs and any follow up inspection. Any release of fuels or other substance will be cleaned up;
- All used fuel / oil products will be collected in tanks marked "Waste Oil"; and
- All hydrocarbon associated wastes will be managed in line with the Waste Management Plan.

MATERIALS STORAGE

- All temporary hydrocarbon storage will be situated above ground. There will be no buried storage tanks permitted.
- All chemicals, fuels and other hazardous materials are to be stored in designated and bunded areas, where the bunded area is impermeable and is impervious to the stored substance as per the requirements of SABS 089:1999 Part 1. The bunded area will contain 110% volume of the largest container stored.

- Bunds and service area platforms to be cleaned and maintained regularly.
- SABS approved Spill kits must be made available on-site for the clean-up of spills and leaks of contaminants. The relevant construction crew members must be trained in their use.
- Keep a record of all hazardous substances stored on site. Clearly label all the containers storing hazardous waste.
- The storage of flammable and combustible liquids such as oils will be in designated areas which are appropriately bunded, and stored in compliance with MSDS files and applicable regulations and safety instructions.
- Chemical and hydrocarbon storage facilities shall be covered to prevent rainfall ingress into secondary containment units and well-ventilated
- Any storage and disposal permits/approvals which may be required must be obtained, and the conditions attached to such permits and approvals will be compiled with.
- An effective monitoring system must be put in place to detect any leakage or spillage of all hazardous substances during their transportation, handling, installation and storage.

SPILL AND LEAK MANAGEMENT AND PREVENTION

- In the event of a major spill or leak of contaminants, the relevant authorities must be informed. The relevant construction crew members must be trained in their use.
- Spilled cement must be cleaned up immediately and, stored as hazardous waste and disposed of at a suitably licensed hazardous waste disposal facility.
- Routine servicing and maintenance of vehicles must not be undertaken onsite (except for emergencies). If repairs of vehicles must take place, an appropriate drip tray must be used to contain any fuel or oils.
- Any water that collects in bunds must not be allowed to stand. Should the water be contaminated, it is to be removed and treated prior to discharge, or disposed of as hazardous waste. Clean stormwater contained within the bunds may be reused.
- No chemicals must be stored or vehicle maintenance undertaken within 100m of wetlands or drainage lines.
- Construction machinery must be stored in an appropriately sealed area. If machinery cannot be stored in a sealed area then a drip tray must be used to prevent spillage from any leaks.
- As far as practicable, all equipment servicing / maintenance shall be undertaken within designated workshop areas.
- All generators on site, including generators that are not in use must be located in a bunded area or on a drip tray.
- Bunded areas and drip trays must be maintained on a regular basis.
- Diesel generators and water pumps shall be located in secondary containment areas or shall be self-contained to prevent loss of fuels and oils;
- Precautions must be in place to limit the possibility of oil and other toxic liquids from entering the soil or clean stormwater system.
- Upon completion of construction, the area must be cleared of potentially polluting materials.
- Emergency response planning will be managed via the Emergency Preparedness and Response Plan.

9.3.2 OPERATIONAL PHASE

During the operational phase of the project limited hazardous substances and chemicals will be stored onsite. During maintenance activities, contractors will need to produce a method statement

detailing the specific storage and handling practices. The following measures need to be implemented onsite during the operational phase of the project.

- Hazardous substances must be stored in sealed containers within a clearly demarcated designated area.
- Care must be taken to ensure that spillage of oils and other hazardous substances are limited during maintenance. Handling of these materials must take place within an appropriately sealed and bunded area.
- Should any accidental spillage take place, it must be cleaned up according to specified standards regarding bioremediation.
- The storage of flammable and combustible liquids such as oils will be in designated areas which are appropriately bunded, and stored in compliance with MSDS files and applicable regulations and safety instructions.
- Used oils and chemicals:
- Appropriate disposal must be arranged with a licensed facility in consultation with the administering authority;
- Waste must be stored and handled according to the relevant legislation and regulations.

9.3.3 INSPECTION, MONITORING AND TRAINING

Fuel storage areas must be inspected regularly to ensure bund stability, integrity, and function.

The contents of the Hazardous Substances Management Plan must be communicated to the staff through the induction training. On the job training can also be undertaken through the use of Environmental Toolbox Talks. All training must be undertaken as outlined in the relevant Training Procedure.

Examples of Toolbox Talks include:

- Storage of hazardous substances
- Working with hazardous substances
- Management of hazardous waste
- Spill Prevention

9.4 FIRE MANAGEMENT PLAN

The purpose of this plan is to address firefighting requirements throughout the construction of the project and to preserve and protect human life as well as tangible goods and equipment in the event of a fire.

Mitigation and management measures include, but are not limited to the following:

- All construction camps shall be provided with portable fire extinguishing equipment, in accordance with all relevant legislation and must be readily accessible.
- The Contractor shall take specific measures to prevent the spread of veld fires, caused by activities at the campsites. These measures must include appropriate instruction of employees about fire risks and designated smoking areas.
- Fire prevention facilities must be present at all storage facilities. No open fires shall be allowed on site under any circumstance. No cooking on open fires shall be done onsite to prevent runaway fires.

- The Contractor shall have operational fire-fighting equipment available on site at all times. The level of firefighting equipment must be assessed and evaluated through a typical risk assessment process.
- Emergency numbers for local police and fire department etc. must be placed in a prominent area.
- Firefighting equipment must be placed in prominent positions across the site where it is easily accessible. This includes fire extinguishers, a fire blanket as well as a water tank.
- All construction staff must be trained in fire hazard control and firefighting techniques. Translators are to be used where necessary.
- All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances.
- Smoking must only be conducted in demarcated areas.
- Firefighting equipment must be regularly maintained by a suitable service provider.

9.5 ALIEN VEGETATION MANAGEMENT PLAN

The purpose of this Plan is to provide a framework for the management of alien and invasive plant species during the construction and operation of the project, which in turn serves to manage open spaces, as required. The broad objectives of the plan include the following:

- Ensure alien plants do not become dominant in parts or the whole site through the control and management of alien and invasive species presence, dispersal and encroachment.
- Managing and maintaining the ecosystem in a near-natural state and restoring and/or rehabilitating the ecosystems to such a state.
- Develop and implement a monitoring and eradication programme for alien and invasive species.
- Promote the natural re-establishment and planting of indigenous species in order to retard erosion and alien plant invasion.

Mitigation and management measures include, but are not limited to the following:

- Monitor for early detection, to find species when they first appear on site. This should be as per the frequency specified in the management plan, and should be conducted by an experienced botanist. Early detection should provide a list of species and locations where they have been detected. Summer (vegetation maximum growth period) is usually the most appropriate time, but monitoring can be adaptable, depending on local conditions.
- Monitor for the effect of management actions on target species, which provides information on the effectiveness of management actions. Such monitoring depends on the management actions taking place. It should take place after each management action.
- Monitor for the effect of management actions on non-target species and habitats.
- Stockpiles must be kept clear of weeds and alien vegetation growth by regular weeding.
- Alien vegetation and the spread of exotic species on the site will need to be controlled.
- The contractor must be responsible for implementing a programme of weed control (particularly in areas where soil has been disturbed); and grassing of any remaining stockpiles to prevent weed invasion.
- Herbicide use shall only be allowed according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only suitable herbicides shall be used.

- The use of pesticides and herbicides on the site must be discouraged as these can impact on important pollinator species of indigenous vegetation. Use of these should only be permitted where absolutely necessary.
- Correct rehabilitation with locally indigenous species.
- Monitoring programme to ensure that rehabilitation efforts are successful to ensure that risks such as erosion, spread of exotic species and the edge effect are avoided.
- Constant maintenance of the area to ensure re-colonisation of floral species.
- Ensure regular removal of alien species, which may otherwise jeopardise the proliferation of indigenous species.

9.6 BOTANICAL SEARCH AND RESCUE PLAN

The purpose of the plant rescue and protection plan is to implement avoidance and mitigation measures, in addition to the mitigation measures included in the EMPr to reduce the impact of the development of the project on listed and protected plant species and their habitats, and to provide guidance on search and rescue of species of conservation concern.

Mitigation and management measures include, but are not limited to the following:

- The location of all transplanted rescued plants must be recorded, along with the identity of the plant.
- The health / vigour of each transplanted individual should be monitored as per the frequency and duration specified in the management plan.
- As a scientific control, an equal number of non-transplanted individuals of the same species, within similar habitats, should be monitored in the same way as the transplanted specimens. This will provide comparative data on the survival of wild populations relative to transplanted plants.
- If populations of threatened plant species are found to occur on site, annual monitoring of population health should take place. This should be appropriate to the species concerned.
- Vegetation clearing must only commence after a walk down has been conducted by a suitably qualified person and the necessary permits obtained.
- Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared.
- Vegetation removal must be limited to the construction site and must be removed only as it becomes necessary rather than removing all the vegetation throughout the site at once.
- Materials must not be delivered to the site prematurely which could result in additional areas being cleared or affected.
- No vegetation to be used for firewood.
- Gathering of firewood, fruit, medicinal plants, or any other natural material onsite or in areas adjacent to the site is prohibited unless with prior approval of the ECO.
- Construction site office and laydown areas must be clearly demarcated and no encroachment must occur beyond demarcated areas.
- All natural areas impacted during construction must be rehabilitated with locally indigenous plant species or grassed accordingly.
- The use of pesticides and herbicides on the site must be discouraged as these can impact on important pollinator species of indigenous vegetation. Use of these should only be permitted where absolutely necessary.
- Soil stockpiles must not become contaminated with oil, diesel, petrol, garbage or any other material, which may inhibit the later growth of vegetation in the soil. Spillage can result in a loss of soil functionality thus limiting the re-establishment of flora.

- It is a legal requirement to obtain permits for specimens or protected species that will be lost due to construction of the project.
- A detailed pre-construction walk-through survey will be required during a favourable season where possible, to locate any individuals of protected plants, as well as for any populations of threatened plant species. This survey must cover the footprint of all approved infrastructure, including internal access roads and substations. The best season is early to late Summer if possible, taking administrative processes into account, but will be influenced by recent rainfall and vegetation growth.
- It is possible that some plants lost to the development can be rescued and planted in appropriate places in rehabilitation areas, but the description and appropriateness of such measures must be included in a Plant Rescue Plan. Any such measures will reduce the irreplaceable loss of resources as well as the cumulative effect. Note that Search and Rescue is only appropriate for some species and that a high mortality rate can be expected from individuals of species that are not appropriate to transplant.
- Prior to construction commencing, a Plant Rescue Plan must be compiled to be approved by the appropriate authorities as part of the EMPr approval.
- For any plants that are transplanted, annual monitoring should take place to assess survival. This should be undertaken as per the frequency specified in the management plan and be undertaken by a qualified botanist. The monitoring programme must be designed prior to translocation of plants and should include control sites (areas not disturbed by the project) to evaluate mortality relative to wild populations.
- No collecting or poaching of any plant species.

Rescued plants

- The location of all transplanted rescued plants must be recorded, along with the identity of the plant.
- The health / vigour of each transplanted individual should be monitored as per the frequency and duration specified in the management plan.
- As a scientific control, an equal number of non-transplanted individuals of the same species, within similar habitats, should be monitored in the same way as the transplanted specimens. This will provide comparative data on the survival of wild populations relative to transplanted plants.

Threatened species

- If populations of threatened plant species are found to occur on site, annual monitoring of population health should take place. This should be appropriate to the species concerned.

For permitting purposes, the following flora survey is required prior to construction activities taking place:

- Detailed floristic walk-through survey of all footprint areas in order to document composition, especially of protected species. It is suggested this be undertaken after an appropriate time-period after rainfall, where possible, to allow emergence of any species of potential concern. The survey must also cover all footprint areas, including final road alignments. Renewable energy projects similar to the one assessed here tend to have high fluidity in terms of layout and technology, due to the current rapid evolution of the technology, which allows more efficient deployment of infrastructure. However, this means that “final” layouts regularly change. The walk-through survey:

- Must assess the footprint that will be constructed – if this changes then the new footprint areas must be subject to a walk-through survey in full.
- Must be undertaken in the correct season, if possible, taking administrative processes into account.
- Must be adequately resourced to ensure it is done properly.
- Must be undertaken by a competent botanist.

9.7 REHABILITATION AND LANDSCAPE MANAGEMENT PLAN

The purpose of the rehabilitation plan is to ensure that areas cleared or impacted during construction activities are rehabilitated with a plant cover that reduces the risk or erosion from these areas as well as restores some ecosystem function. The purpose of the rehabilitation plan for the site can be summarised as follows:

- Achieve long-term stabilisation of all disturbed areas to minimise erosion potential.
- Re-vegetate all disturbed areas with suitable local/indigenous plant species or grass/crop.
- Minimise visual impact of disturbed areas.
- Ensure that disturbed areas are safe for future uses.

Mitigation and management measures include, but are not limited to the following:

- Rehabilitation Plan must be compiled by an approved ecologist prior to the start of construction and decommissioning.
- All management actions associated with rehabilitation must be recorded after each management action has taken place.
- All rehabilitated areas should be monitored to assess vegetation recovery. This should be for a minimum of three years after post-construction rehabilitation but depends on the assessed trajectory of rehabilitation (whether it is following a favourable progression of vegetation establishment or not – this depends on the total vegetation cover present, and the proportion that consists of perennial growth of desired species). For each monitoring site, an equivalent comparative site in adjacent undisturbed vegetation should be similarly monitored. Monitoring data collection should include the following:
    - total vegetation cover and height, as well as for each major growth form;
    - species composition, including relative dominance;
    - soil stability and/or development of erosion features;
    - representative photographs should be taken at each monitoring period.
- Monitoring of rehabilitated areas should take place at the frequency and for the duration determined in the rehabilitation plan, or until vegetation stability has been achieved.
- Re-vegetation must aim to accelerate the natural succession processes so that the plant community develops in the desired way, i.e. promote rapid vegetation establishment.
- Re-vegetation of disturbed surfaces must occur immediately after construction activities are completed. This must be done through seeding with suitable crop or locally indigenous species typical of the representative botanical unit.
- Re-vegetation of the disturbed site is aimed at approximating as near as possible the existing vegetative conditions prevailing prior to construction.
- Seeds from surrounding seed banks can be used for re-seeding.

- Rehabilitation must be executed in such a manner that surface run-off will not cause erosion of disturbed areas.
- Planting of indigenous tree species in areas not to be cultivated or built on must be encouraged.
- Habitat destruction must be limited to what is absolutely necessary for the construction of the infrastructure, including the construction of new roads. In this respect, the recommendations from the Biodiversity Assessment must be applied strictly. Personnel must be adequately briefed on the need to restrict habitat destruction, and must be restricted to the actual construction area.
- Monitoring programme to ensure that rehabilitation efforts are successful to ensure that risks such as erosion, spread of exotic species and the edge effect are avoided.

9.8 STORMWATER AND WASH WATER MANAGEMENT PLAN

The main principles in stormwater management include:

- Confine or divert any unpolluted water to a 'clean' water system, and polluted water to a 'dirty' water system;
- 'Clean' and 'dirty' water systems must be designed and constructed to prevent cross-contamination between the 'clean' and 'dirty' water systems; and
- Appropriate maintenance and management of storm water related infrastructure.

The proposed water systems or infrastructure are to be designed to prevent any potential contamination of natural water resources in the area.

As per Best Practice Guideline – G1: Stormwater Management (DWAF, 2006) and GN 704 the SWMP for the site will seek to achieve certain objectives based on a philosophy of protecting the receiving environment from hydrological impacts.

- Clean and dirty water should be separated, and it should be ensured that all stormwater structures are designed to keep dirty and clean water separate and can accommodate a defined precipitation event;
- The clean water catchment area should be maximized, and clean water should be routed to a natural watercourse with minimal damage to that watercourse in terms of quantity and frequency of discharge;
- Dirty areas should be minimized, and runoff from these areas contained and neither treated to an acceptable quality to discharge to the environment or removed from the site for disposal; and
- Natural watercourses and the environment should be protected from contamination by dirty areas by ensuring that the dirty water cannot enter the clean water system by spillage or seepage.

In addition to these aims, the following project specific objectives for this SWMP were developed based on the site-specific characteristics:

- Stormwater should be directed such that no water flows in an uncontrolled manner that may jeopardise the safety of personnel or infrastructure, or such that is a nuisance;
- Protection of the soils by preventing erosion is also a key requirement of the SWMP;
- Minimise modification of the natural topography of the area and avoid any modification of the natural watercourses as far as possible;
- Do not impede surface or subsurface water flows unless unavoidable;
- Include a monitoring and inspection system for spills, leaks and erosion and commit to remediation where needed;
- Review and improve the SWMP regularly;

- Ensure no infrastructure, except road crossings, are built within the watercourses; and
- Do not build infrastructure, in particular infrastructure containing potential pollutants, within 100 m of natural drainage lines.

9.8.1 DELINEATION OF CLEAN AND DIRTY AREAS

The development area is divided into clean and dirty areas as follows:

Dirty areas:

- The workshop where oils and lubricants may be stored and used;
- A chemical storage area will be constructed for the operational phase of the project, which will include proper containment and bunding for all chemicals stored on site;
- Transformers at the substation, as these will contain oil;
- The conservancy tanks, as this will contain sewage; and,
- Vehicle wash bay that has a hard standing surface on which vehicles are washed, generating dirt water which drains to a sump.

Clean areas are deemed to be all areas on the site outside of those stated above as dirty areas.

National Norms and Standards for the Storage of Waste (Notice 926 of 29 November 2012, Department of Environmental Affairs, national Environmental Management: Waste Act 2008, Act No. 29 of 2008). The specification, which will apply to the development area, reads as follows: "*bunds having a capacity which can contain at least 110% of the maximum content of the waste storage facility. Where more than one container or tank is stored, the bund must be capable of storing at least 110% of the largest tank or 25% of the total storage capacity, whichever is greater (in the case of drums the tray or bund size must be at least 25% of total storage capacity)*."

Bunded areas should be sized and sealed to ensure spilled contaminants cannot leak out of the bunded areas.

9.8.2 CONSTRUCTION PHASE

Construction activities could result to erosion from de-vegetated areas, leading to runoff carrying a high silt load and contaminants such as fuel, hydraulic fluids, degreasers, chemicals, and cement. However, due to the gentle slope, sandy soil nature, and low rainfall with high evaporation in the area, limited runoff is expected except for exceptionally high rainfall events. The potential surface water impacts during the construction phase have been evaluated as moderate to low in significance. To further minimise these potential impacts to a very low significance, the following measures are recommended:

- Construct pollution control systems such as bunded areas, and runoff control systems such as diversion berms and water collection areas such as the process water/evaporation dam first, before undertaking any other activities;
- Construct berms down-gradient of construction areas to collect dirty runoff. Allow silt to settle, examine for contamination with oil and/or hydraulic fluids. Remove contaminated material monthly for remediation or appropriate disposal in accordance with prevailing legislation. Clean silt can be used during re-vegetation of bare areas;
- Place drip trays under vehicles when parked;
- Service vehicles in a workshop, not in the field;

- If in-field refuelling is done from a tanker, it should be done in a designated dirty area and a spill kit and clean-up team must be available on site;
- Spillages should be cleaned up immediately and contaminated soil must either be remediated in situ or disposed of at an appropriately licensed landfill site;
- Potentially contaminating wastes (empty containers for paint, solvents, chemicals, etc.) and cement should be stored in bunded areas until removed by a reputable contractor for disposal at an appropriately licensed site;
- Provision of adequate sanitation facilities in the form of chemical toilets that are serviced regularly; and
- Providing environmental awareness training for workers on site.

9.8.3 OPERATION PHASE

Once operational, the 100 MW Solar Photovoltaics (PV) Energy Facility (SEF), 150 MW Battery Energy Storage System (BESS), and associated infrastructure installation will have a minor impact on water demand, which will be positive. However, during the operational phase, there is a possibility of increased spillage of fuels, lubricants, and other chemicals from the BESS. The installation and operation of the PV plants will result in the creation of relatively small impervious areas (e.g., buildings, roads, and the surfaces of the PV panels). These areas will not have a significant enough footprint to greatly affect the overall infiltration rate on-site. Vehicular movement between the solar panels may disturb the sandy soil surface, but it will not significantly reduce the infiltration rate due to the natural resistance of sandy soils to compaction.

Therefore, localised runoff from these small footprints, with sufficient spaces in for vehicular access for cleaning and maintenance, is unlikely to accumulate and cause erosion or migrate off-site.

The potential surface water impact during the construction phase has been evaluated as moderate to low in significance. To further minimise the potential impact to a very low level of significance, the following measures are recommended:

- Remove settled silt from runoff control berms regularly, examine for contamination with oil and/or hydraulic fluids. Subject contaminated material to remediation or appropriate disposal in accordance with prevailing legislation. Clean silt can be used during re-vegetation of bare areas.
- Place drip trays under vehicles when parked.
- Service vehicles in a workshop, not in the field.
- Spillages should be cleaned up immediately and contaminated soil must either be remediated in situ or disposed of at an appropriately licensed landfill site.
- Potentially contaminating wastes (empty containers for paint, solvents, chemicals, etc.) and cement should be stored in bunded areas until removed by a reputable contractor for disposal at an appropriately licensed site.
- Provide environmental awareness training for workers on site.
- Clean-up of spills as soon as they occur.
- Maintenance of any abstraction pumps to prevent spills.
- Maintenance of the BESS to ensure optimal functionality and prevent fire risks.
- Maintenance and quality control of firefighting equipment and systems.
- Mitigations for spillage or leakages will include bunded areas to store chemicals and/or fuel, containerisation of the BESS and cleaning up spills as soon as they occur.

9.8.4 DECOMMISSIONING PHASE

The decommissioning phase will have a shorter duration compared to the construction and operational phases. As indicated in Table 5-1 above, the potential impacts and recommended remediation measures are similar. To minimise the assessed impacts low to very low significance, it is recommended that the demolition of containment systems, such as the bunded areas, be carried out after removing all other structures.

9.9 EROSION MANAGEMENT PLAN

Exposed and unprotected soils are the main cause of erosion in most situations. Therefore, this erosion management plan and the revegetation and rehabilitation plan are closely linked to one another and should not operate independently but should rather be seen as complementary activities within the broader environmental management of the site and should therefore be managed together. This Erosion Management Plan addresses the management and mitigation of potential impacts relating to soil erosion, including:

- Material stockpiled for long periods (2 weeks) must be retained in a bermed area.
- Stockpiles not used in three (3) months after stripping must be covered with hessian or a similar material to prevent dust and erosion.
- Sensitive areas need to be identified prior to construction so that the necessary precautions can be implemented.
- Any vegetation clearance must be phased to ensure that the minimum area of soil is exposed to potential erosion at any one time.
- Areas to be cleared must be clearly demarcated and this footprint strictly maintained.
- Silt fences and erosion control measures must be implemented in areas where these risks are more prevalent.
- Wind screening and stormwater control must be undertaken to prevent soil loss from the site.
- Other erosion control measures that can be implemented are as follows:
    - Brush packing with cleared vegetation
    - Mulch or chip packing
    - Planting of vegetation
    - Hydroseeding / hand sowing
- All erosion control mechanisms need to be regularly maintained.
- Seeding of topsoil and subsoil stockpiles to prevent wind and water erosion of soil surfaces.
- Re-vegetation of disturbed surfaces must occur immediately after construction activities are completed. This must be done through seeding with indigenous grasses.
- No impediment to the natural water flow other than approved erosion control works is permitted.
- To prevent stormwater damage, the increase in stormwater run-off resulting from construction activities must be estimated and the drainage system assessed accordingly.

9.9.1 MONITORING

The site must be monitored continuously during construction and operation in order to determine any indications of erosion. If any erosion features are recorded as a result of the activities on-site the Environmental Officer (during construction) or Site Manager (during operation) must:

- Assess the significance of the situation.

- Take photographs of the soil degradation.
- Determine the cause of the soil erosion.
- Inform the contractor/operator that rehabilitation must take place and that the contractor/operator is to implement a rehabilitation method statement and management plan.
- Monitor that the contractor/operator is taking action to stop the erosion and assist them where needed.
- Report and monitor the progress of the rehabilitation weekly and record all the findings in a site register.
- All actions with regards to the incidents must be reported on a monthly compliance report which will be submitted to the Competent Authority (during construction) and kept on file for consideration during the annual audits (during construction and operation).

The Contractor (in consultation with an appropriate specialist) must:

- Select a system/mechanism to treat the erosion.
- Design and implement the appropriate system/mechanism.
- Monitor the area to ensure that the system functions like it should. If the system fails, the method must be adapted or adjusted to ensure the accelerated erosion is controlled.
- Continue monitoring until the area has been stabilised.

9.10 TRAFFIC,TRANSPORTATION AND ROAD MANAGEMENT PLAN

The purpose of a Traffic and Transportation Management Plan is to address regulatory compliance, traffic management practices, and protection measures to help reduce impacts related to transportation and the construction of temporary and long-term access within the vicinity of the project site. The objectives of this plan include the following:

- To ensure compliance with all legislation regulating traffic and transportation within South Africa National, Provincial, Local and associated guidelines.
- To avoid incidents and accidents while vehicles are being driven and while transporting personnel, materials, and equipment to and from the project site.
- To raise greater safety awareness in each driver and to ensure the compliance of all safe driving provisions for all the vehicles.
- To raise awareness to ensure drivers respect and follow traffic regulations.
- To avoid the deterioration of access roads and the pollution that can be created due to noise and emissions produced by equipment, machinery, and vehicles.

Mitigation and management measures include, but are not limited to the following:

- All vehicles used during the transport of materials and in the construction activities are required to be roadworthy per the National Road Traffic Act (NRTA) and display all pertinent certificates as required.
- All vehicles travelling to and from the site shall adhere to all laws imposed by the law enforcement agencies, and shall comply with any requests made by the law enforcement officials.
- For each convoy of abnormal vehicles/loads a designated safety officer shall be nominated. All abnormal vehicles and loads to be transported are required to have a valid permit before any trip is begun.

- The route must be assessed to determine if any structures or vegetation need to be temporarily or permanently relocated so as to avoid damage to the load as well as public and private property during the trips.
- A designated transport coordination manager must be appointed to oversee and manage the traffic safety officers. Additionally, the designated transport coordination manager must inform and keep up-to-date the interested and affected parties of all the activities taking place that may have a direct impact on them.
- A traffic safety officer shall be nominated to make all the necessary arrangements to maintain the required traffic measures for the duration of the project as outlined in the "Standard Specifications for Road and Bridge Works for State Road Authorities,' 1998 edition. The safety officer shall liaise daily with the transportation coordination manager to keep them apprised of the state of all the traffic arrangements.
- All construction vehicles that are entering the site shall also be available via radio or telephone communication to the transport coordination manager. So that in the event of an emergency, all vehicles can be accounted for.
- All vehicles shall comply with the posted speed limits on public roads as well as the speed limits within the development. For additional speed limits that are imposed on the construction traffic, refer to the South African Road Traffic Signs Manual (SARTSM), Volume 2, June 1999 for the restrictions.
- All construction traffic shall comply with the legal load requirements as outlined in the National Road Traffic Act and National Road Traffic Regulations.
- Construction traffic entering the site along public roads must be limited to times when peak hour traffic can be avoided. The peak traffic occurs during 7h00 to 8h30, and 16h00 to 17h30.
- The South African Road Traffic Signs Manual (SARTSM), Volume 2, June 1999 is to be used for all traffic during the construction activities of the proposed project.
- During periods of high construction traffic entering and exiting the site, it is recommended that flagmen help direct the traffic. This will enable the safe movement of construction and public traffic at the entrance and reduce the number of potential conflicts.

9.11 FAUNA MANAGEMENT PLAN

The purpose of this fauna management plan is to protect species, habitats and eco-system services, ensuring no net reduction to any critically endangered / endangered species and no net loss of any critical habitats whilst minimising disturbance to other species and habitats to the extent practicable. This plan provides a strategy to control potential impacts on fauna during the construction and operation of the Komati Solar PV and BESS Facility.

9.11.1 MANAGING IMPACT ON FAUNA

SNAKE FIND AND HANDLING:

During construction, especially clearing of vegetation, it is likely that snakes will be encountered onsite. The following steps need to be undertaken in the event of a snake onsite:

- All work in that area is to cease;
- The site foreman/ site supervisor is to be notified;
- Snake handling will be undertaken by suitably trained and certified onsite personnel. The site supervisor or foreman needs to contact the relevant onsite personnel, who will safely remove and release the snake at a suitable habitat.

The following measures need to be communicated to all staff to ensure both human and snake safety:

- Under no circumstances may any site staff handle snakes without the proper snake handling training.
- All staff are to be provided with the correct PPE (e.g. snake gaiters and safety boots) to limit the potential for snake bites.
- Signage identifying the service provider appointed for snake handling must be erected around site. It is recommended that an individual onsite undergoes snake handling training to ensure that if an emergency arises it can be dealt with immediately.
- Intentional harming of snakes is prohibited onsite.

MAMMALS AND REPTILES

During the construction phase of the project the following mitigation measures need to be implemented and adhered to at all times to ensure that the impacts to fauna is managed and mitigated where possible.

WALK DOWN PRIOR TO CONSTRUCTION

Prior to the start of any construction or associated activities in areas of potential biodiversity concern, the Contractors will carry out a walk-though over the area accompanied by the ECO. The objective is to identify any sensitive habitats including potential for species of conservation interest (i.e. to consider the presence of any rare species of fauna, but establish possible risk of snake bites; inspect tree cavities for bats, etc.) that may be directly or indirectly affected by the proposed works.

Any important and significant habitats must be suitably demarcated and made a no-go area.

LIMIT THE DEVELOPMENT FOOTPRINT

- The development area must be clearly defined and marked off accordingly. All No- Go areas must be demarcated and warning signs prohibiting access erected.
- Areas to be cleared must be clearly marked in the field to eliminate unnecessary clearing/ disturbance.

LIMIT DISTURBANCE

- The extent of clearing and disturbance to the native vegetation must be kept to a minimum so that the impact on fauna and their habitats is restricted.
- Where roads pass right next to major water bodies provisions must be made for the fauna such as toads to pass under the roads by using culverts or something similar.
- Vehicles to adhere to speed limits at all times.
- The intentional harming and killing of animals will be prohibited through on-site supervision and worksite rules.
- Any litter onsite needs to be cleaned up immediately to prevent it being blown into the environment surrounding the development site.

INSPECTIONS AND MONITORING

- The following inspections and monitoring need to be undertaken during the construction phase:
- Observation of vegetation clearing activities by the Environmental Control Officer (ECO).
- Recording faunal fatalities to monitor success of relocation efforts.
- Regular monitoring of construction activities by the designated onsite personnel and the ECO.

- The ESHS team will collate details and investigate all Project-related wildlife complaints and incidents including instances of unauthorised hunting, poaching, bush trade, disturbance of breeding sites and injuries / fatalities. Corrective actions will be instigated where needed to avoid recurrence.

TRAINING

The contents of the Fauna Management Plan must be communicated to the staff through the induction training. On the job training can also be undertaken through the use of Environmental Toolbox Talks. All training must be undertaken as outlined in the relevant Training Procedures

Examples of Toolbox Talks include:

- Snakes bites
- Snake handling
- No-Go areas
- Encountering fauna onsite
- Poaching

9.12 SOIL MANAGEMENT PLAN

Some of the most significant impacts on soil properties occur as a result of activities associated with construction. Construction activity can have adverse impacts on soil in a number of ways by:

- Covering soil with impermeable materials, effectively sealing it and resulting in significant detrimental impacts on soils' physical, chemical and biological properties, including drainage characteristics.
- Contaminating soil as a result of accidental spillage or the use of chemicals.
- Over-compacting soil through the use of heavy machinery or the storage of construction materials.
- Reducing soil quality, for example by mixing topsoil with subsoil.
- Wasting soil by mixing it with construction waste or contaminated materials, which then have to be treated before reuse or even disposed of at landfill as a last resort.

Careful management of topsoil and subsoil is an important aspect of sustainable use of materials that are being stripped. Without a proper Soil Resource Plan there is the risk of losing, damaging or contaminating valuable soil resources. The purpose of this Soil Management Plan is to outline principles for soil management to ensure the integrity of the resource during and post-construction. This plan must be read together with the Emergency Response Plan in order to minimise the risk of contamination of soils.

9.12.1 PRINCIPLES FOR SOIL MANAGEMENT

THE CORRECT HANDLING OF TOPSOIL

- Before beginning work on site, topsoil must be stripped from all areas that will be disturbed by construction activities. Appropriate equipment must be used and appropriate work practices must be implemented for soil stripping as mishandling soil can have an adverse effect on its properties.
- Topsoil must be stripped in the driest condition possible.
- Topsoil must be retained on site in order to be used in site rehabilitation. The correct handling of the topsoil layer is in most cases the key to rehabilitation success.

- It is important that the correct depth of topsoil is excavated in order to ensure good plant growth. If excavation is too shallow, then an important growth medium for new seedlings could be lost. If excavation is too deep, this could lead to the dilution of the seed and nutrient rich topsoil with deeper sterile soil.
- Topsoil and subsoil layers must never be mixed. The mixture of topsoil with the deeper sterile soil hinders the germination of seeds which are buried too deep in the soil layer. Mixture of soil layers also leads to the dilution of nutrient levels which are at highest concentration within the topsoil, resulting in lower levels of nutrients available for new seedlings.
- To enable soil to be reused on site at a later stage, it needs to be stored in temporary stockpiles to minimise any damage or loss of function. Stockpiles must not be higher than 2m. Alternatively, topsoil berms can be created on the site boundaries. There are a number of important considerations when creating stockpiles - including soil erosion, pollution to watercourses and the risk of flooding. These will be affected by the size, height and method of forming stockpiles, and how they are protected and maintained.
- Topsoil must be stored separately from other soil in heaps until construction in an area is complete.
- The duration of topsoil storage must be minimised as far as possible. Storing topsoil for long periods leads to seed bank depletion following germination during storage, and anoxic conditions develop inside large stockpile heaps.
- All stockpiles must be positioned away from drainage lines.
- Sediment fencing must be erected downslope of all stockpiles to intercept any sediment and upslope runoff must be diverted away from stockpiles.

STRIPPING OF SUBSOIL

- The following protocols must be followed when stripping subsoil:
- On many sites subsoil will not need to be stripped but merely protected from damage. However, on other sites it might need to be temporarily removed. Where subsoil is required to be stripped, this must be undertaken before commencement of construction from all areas that are to be disturbed by construction activities or driven over by vehicles.
- Subsoil stripping depths depend on the correct identification of the sub-soil types on an ad-hoc basis, where no formal survey data exists.
- Subsoil must be stripped in the driest condition possible.
- To enable soil to be reused on site at a later stage, it needs to be stored in temporary stockpiles to minimise any damage or loss of function. There are a number of important considerations when creating stockpiles - including soil erosion, pollution to watercourses and the risk of flooding. These will be affected by the size, height and method of forming stockpiles, and how they are protected and maintained.
- All stockpiles must be positioned away from drainage lines.
- Sediment fencing must be erected downslope of all stockpiles to intercept any sediment and upslope runoff must be diverted away from stockpiles.

9.13 HERITAGE AND PALAEONTOLOGICAL MANAGEMENT PLAN

The purpose of this document is to provide a response guideline should archaeological sites, palaeontological sites or graves become exposed during ground altering activities within the Komati Solar PV and BESS Facility project area. Heritage resources are protected in terms of the NHRA.

9.13.1 CHANCE FIND PROCEDURE

The following procedural guidelines must be considered in the event that previously unknown heritage resources are exposed or found during the construction of the Komati Solar PV and BESS Facility project area. This chance find procedure (CFP) must be read in conjunction with the EA, the EMPr, EIR and the final layout archaeological ground-truthing report.

The Contractor or other person discovering a potentially significant site or artefact will initiate the following actions:

- Once alerted to fossil occurrence(s): alert site foreman, stop work in area immediately, safeguard site with security tape / fence / sand bags if necessary.
- Record key data while fossil remains are still in situ:
  - Accurate geographic location – describe and mark on site map / 1: 50 000 map / satellite image / aerial photo
  - Context – describe position of fossils within stratigraphy (rock layering), depth below surface
  - Photograph fossil(s) in situ with scale, from different angles, including images showing context (e.g. rock layering)
- If feasible to leave fossils in situ:
  - Alert Heritage Resources Agency and project palaeontologist (if any) who will advise on any necessary mitigation
  - Ensure fossil site remains safeguarded until clearance is given by the Heritage Resources Agency for work to resume
- If not feasible to leave fossils in situ (emergency procedure only):
  - Carefully remove fossils, as far as possible still enclosed within the original sedimentary matrix (e.g. entire block of fossiliferous rock)
  - Photograph fossils against a plain, level background, with scale
  - Carefully wrap fossils in several layers of newspaper / tissue paper / plastic bags
  - Safeguard fossils together with locality and collection data (including collector and date) in a box in a safe place for examination by a palaeontologist
  - Alert Heritage Resources Agency and project palaeontologist (if any) who will advise on any necessary mitigation
- If required by Heritage Resources Agency, ensure that a suitably-qualified specialist palaeontologist is appointed as soon as possible by the developer.
- Implement any further mitigation measures proposed by the palaeontologist and Heritage Resources Agency;
- The Specialist Palaeontologist must undertake the following:
  - Apply for Fossil Collection Permit Record / submit Work Plan to relevant Heritage Resources Agency.
  - Describe and judiciously sample fossil remains together with relevant contextual data (stratigraphy / sedimentology / taphonomy).
  - Ensure that fossils are curated in an approved repository (e.g. museum / university / Council for Geoscience collection) together with full collection data.
  - Submit Palaeontological Mitigation report to Heritage Resources Agency.

- Adhere to best international practice for palaeontological fieldwork and Heritage Resources Agency minimum standards.
- With reference to the mitigation work noted above, a qualified archaeologist must be appointed to undertake the work in terms of the permit applied for as noted above;
- If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;

- If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA DAU (Natasha Higgitt 021 202 8660/ nhiggitt@sahra.org.za) must be alerted as per section 35(3) of the NHRA. Non-compliance with this section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
- If unmarked human burials are uncovered, the SAHRA DAU (Natasha Higgitt 021 202 8660/ nhiggitt@sahra.org.za) must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with this section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule.

9.13.2 TRAINING, INSPECTION AND MONITORING

Since it is not practical to have a regular monitoring presence over the construction period by either an archaeologist or palaeontologist, environmental awareness training must be conducted by the EO for all contractors and subcontractors. The training must include, as a minimum, the following:

- Identifying potential features of heritage significance;
- Procedures for dealing with heritage resources discovered on site;
- Applicable Legislation pertaining to the protection of heritage resources; and
- The importance of protecting heritage resources.
- The contents of the Heritage Management Plan must be communicated to the staff through the induction training. On the job training can also be undertaken through the use of Environmental Toolbox Talks.

9.14 GRIEVANCE MECHANISM

9.14.1 GRIEVANCE MECHANISM - EXTERNAL

A grievance mechanism is a tool used to address affected communities' concerns and complaints and is an important pillar of the stakeholder engagement process, since it creates opportunities for companies and communities to identify problems and discover solutions together. The Project proponent can benefit from understanding community concerns and complaints and addressing them through all stages of project development.

Where it is anticipated that a new project will involve ongoing risk and adverse impacts on surrounding communities, the project proponent is required to establish a grievance mechanism to receive and facilitate resolution of the affected communities' concerns and complaints about the proponent's environmental and social performance. The grievance mechanism should be scaled to risks and adverse impacts of the project, address concerns promptly, use an understandable and

transparent process that is culturally appropriate and readily accessible to all segments of the affected communities, and do so at no cost to communities and without retribution. The mechanism should not impede access to judicial and administrative remedies.

This Grievance Mechanism has been developed to receive and facilitate grievances and provide a solution to these concerns and grievances. The aim of the grievance mechanism is to ensure that grievances or concerns raised by local landowners, staff and or communities are addressed in a manner that:

- Provides accessible avenues for all internal and external stakeholders to contact management of the facility;
- Provides a predictable, transparent, and credible process to all parties, resulting in outcomes that are seen as fair, effective, lasting and dealt with in a timely manner;
- Builds trust as an integral component of staff and broader community relations activities; and
- Enables more systematic identification of issues and trends affecting a project, facilitating corrective action and pre-emptive engagement.

The aim of this Grievance Mechanism is to address grievances in a manner that does not require a potentially costly and time-consuming legal process. This grievance mechanism also ensures alignment with local and international best practices in human resources development and stakeholder engagement.

OBJECTIVES

The objectives of the grievance mechanism include:

- To be respectful of complainant culture, values, traditions and views;
- To resolve grievances at the local level and in a timely manner;
- To identify the root causes of grievances and address systemic issues;
- To provide a process that is dialogue based, with the complainant and the Proponent cooperating in the investigation, discussion, resolution and announcement of the grievance and result;
- To ensure fair, equitable and consistent outcomes to resolve grievances;
- To enhance and continuously improve the ability of the Proponent to fairly address community concerns.

SCOPE AND RESPONSIBLE PARTIES

A grievance mechanism is primarily for the community to raise relevant concerns about the Project / Proponent's activities and is to be implemented throughout the life cycle of the Project (i.e. throughout assessment, construction, and implementation phases).

WSP will only be involved in the stakeholder engagement and grievance management process for the assessment phase. The Project proponent and the Contractor will be responsible for implementation of the grievance mechanism throughout the construction phase.

GRIEVANCE REDRESS PROCEDURE

This grievance mechanism sets out the following steps to be taken to resolve grievances.

- **Register grievance**

    1. A grievance can be submitted in a written letter, e-mail, fax, or raised verbally in person or via telephone.

2. Grievances raised during the assessment process are to be submitted to the EAP via the details provided as per the stakeholder engagement notifications. The EAP will notify the Proponent of the grievance.
3. Grievances raised during the implementation process are to be submitted to the Proponent / Contractor via the relevant details, which are to be made available to registered stakeholders prior to commencement of onsite activities, as well as via site notice boards.
4. In the event that a complaint is raised verbally, the responsible person must obtain the approval of the complainant as to the documented complaint (by way of signature of the Receipt of Grievance Form). Should the complainant have literacy issues, the responsible person may request that a third party (friend / relative of complainant) is available to verify / approve the contents of the documented complaint to the satisfaction of the complainant.
5. The submission should include the nature of the grievance, the date when it occurred and the name and contact details of the complainant.
6. Grievances will be accepted anonymously or through a third party (e.g. unions, NGOs, local authorities, community representatives, etc.).
7. Individuals have the right to request that their name be kept confidential throughout the grievance process.
8. As men and women may communicate their grievances differently, and also have different types of grievances, the complainant may request that their grievance is processed by a female / male representative. In the event that such a request is made, the Proponent, as far as reasonably practicable, will accommodate this request.

- **Within a Week (7 days) of receiving the grievance the Proponent will:**

1. Enter the grievance into the Proponent's records that track grievances;
2. Assess the grievance according to specific criteria and if necessary, develop an appropriate approach for the particular grievance;
3. Provide a written acknowledgement of the grievance including the name of the responsible person to contact about progress, an explanation of the steps that will be taken to investigate, discuss and resolve the grievance, and an anticipated timetable for processing the grievance.

- **Processing the Grievance:**

The responsible person will:

1. Identify the parties involved;
2. Clarify issues and concerns raised by the grievance through direct dialogue;
3. Classify the grievance in terms of seriousness according to the gravity of the allegation, the potential impact on an individual's or a group's welfare and safety, or the public profile of the issue;
4. Convene a staff group with expertise relative to the grievance;
5. Determine the method for resolving the grievance – the most common approaches, not excluding others, will be:

- The Proponent proposes a solution;
- The Proponent and aggrieved party decide together the solution;
- The Proponent and aggrieved party defer to a third party for mediation / arbitration.

6. Gather views of other stakeholders, including those of the Proponent and if necessary, an agreed neutral technical opinion;
7. Determine initial options that parties have considered and explore various approaches for settlement;
8. Conduct the process as agreed;
9. Close the grievances by signing the Complaint Close-Out Form (i.e. that the grievance has been resolved satisfactory to both parties).
10. The Proponent may "close" the grievance even if the complainant is not satisfied with the outcome. This option can be pursued by the Proponent in the case that the complainant is unable to substantiate a grievance, or if there is an obvious speculative or fraudulent attempt. In such situations, the Proponent's efforts to investigate the grievance and to arrive at a conclusion will be well documented and the complainant advised of the situation. The Proponent (or contractors working for the Proponent) will not dismiss grievances based on a cursory review and close them in their grievance record unless the complainant has been notified and had the opportunity to provide supplementary information / evidence;
11. Keep a record that tracks the progress and communications for each grievance.

- **Processing Timeline**

1. The Proponent will aim to bring the grievance to a resolution within 30 days of receiving the grievance. The grievance shall be acknowledged within 7 days by the responsible person, and responded to within 30 days. If the matter takes longer than 30 days to resolve, the complainant will be informed through dialogue and in writing, of the reason for the delay, any advances or difficulties encountered and the anticipated new resolution date.

RECOURSE

If the complainant is not satisfied with the outcome of the grievance process the aggrieved party has the right to address the grievance via the judicial system.

MANAGING, TRACKING, RECORDING GRIEVANCES – INTERNALLY

In terms of managing grievances the Proponent will:

- Appoint a senior manager to oversee the Grievance Mechanism. Another member of staff will be appointed to carry out the day-to-day work in this area and involve specialist staff and external parties, where required, who may need to be consulted to resolve a grievance.
- Maintain a register of grievances. All activities, including registration of the grievance and the progress through to outcome will be recorded.
- Ensure that grievances and resolutions are communicated internally to all staff through monthly reports.
- Launch the Grievance Mechanism and regularly remind communities that it is available to use.

Contractors are expected to follow this Grievance Procedure. Contractor shall be proactive and available to participate in the grievance resolution processes. Contractor participation is intended to allow for specific contractor grievances to be addressed efficiently.

Contractors shall ensure that all individual contractor employees are aware of the Grievance Procedure.

Contractors will receive any grievance from an individual or community and notify the Proponent thereof immediately.

Contractors shall not make any direct agreements or resolution with local communities without prior coordination of such actions with the Proponent.

The Contractor's community relations team (or equivalent) will attend all coordination meetings requested by the Proponent, as required. The contractor community relations management (or equivalent) will report to the Proponent's management team on a regular basis – in regards to social incidents and community relations issues. The Proponent, or their representative, will conduct regular audits on contractors to ascertain compliance with this Grievance Procedure.

9.14.2 GRIEVANCE MECHANISM - INTERNAL

The Proponent will establish a Grievance Mechanism that will set out the process for workers to communicate their grievances. The grievance mechanism will be available to workers of the Proponent, Contractors and subcontractors.

A Code of Conduct will set out practice measures that the construction workers will have to adhere to, to ensure a positive relationship is built and maintained with the landowners and local communities.

9.15 HIV/AIDS MANAGEMENT PLAN

The HIV/AIDS management plan will be compiled in the event that the project is identified as a preferred bidder as part of the REIPPPP (or a suitable private off-take agreement is concluded).

The measures must be implemented on site during the construction and operational phases:

- Promote a non-discriminatory and supportive environment for people affected by HIV & AIDS.
- HIV-positive employees must be protected against unfair discrimination, victimisation or harassment.
- Sensitive issues surround HIV & AIDS and it is important to handle matters in a discreet and private manner
- Promote awareness and education programmes to inform employees about HIV & AIDS which will enable them to protect themselves and others against infection by HIV.
- Involve employees and their representatives in the planning and implementation of awareness and counselling programmes, especially as peer educators and counsellors.

9.16 OPEN SPACE MANAGEMENT PLAN

Open space management measures include, but are not limited to the following:

- A buffer zone must be established in areas where construction will not take place to ensure that construction activities do not extend into these areas.
- Vehicle movement must be restricted to authorised access roads.

- Before construction begins, all areas to be developed must be clearly demarcated.
- All construction camps are to be fenced off in such a manner that unlawful entry is prevented and access is controlled.
- Signage shall be erected at all access points in compliance with all applicable occupational health and safety requirements. All access points to the construction camp must be controlled by a guard or otherwise monitored, to prevent unlawful access.
- The contractor and ECO must ensure compliance with conditions described in the EA.
- Records of compliance/ non-compliance with the conditions of the authorisation must be kept and be available on request.
- Records of all environmental incidents must be maintained and a copy of these records be made available to provincial department on request throughout the project execution.
- All construction equipment must be stored within the construction camp.
- An area for the storage of hazardous materials must be established that conforms to the relevant safety requirements and that provides for spillage prevention and containment
- The Contractor must provide sufficient ablution facilities, in the form of portable / VIP toilets, at the construction camps, and shall conform to all relevant health and safety standards and codes. A sufficient number of toilets shall be provided to accommodate the number of personnel working in the area.
- No fires will be allowed
- The Contractor shall take specific measures to prevent the spread of veld fires, caused by activities at the campsites. These measures may include appropriate instruction of employees about fire risks and the construction of firebreaks around the site perimeter.
- Environmental awareness training for construction staff, concerning the prevention of accidental spillage of hazardous chemicals and oil; pollution of water resources (both surface and groundwater), air pollution and litter control and identification of archaeological artefacts.
- Staff must be educated as to the need to refrain from indiscriminate waste disposal and/or pollution of local soil and water resources and receive the necessary safety training.

9.17 WATERCOURSE AND WETLAND MANAGEMENT PLAN

Mitigation measures that are designed to avoid and minimise the loss and degradation of the wetland habitat and function on the site are summarised in the sections that follow.

9.17.1 IDENTIFICATION OF AREAS TO BE AVOIDED (INCLUDING BUFFERS)

- Areas of undisturbed, natural grassland and wetland habitat should be avoided to the extent possible. Such areas should be marked as' no go areas'
- Areas of direct loss (i.e Seep_1) that cannot be avoided must be addressed via additional conservation actions/ wetland offsets required.
- A loss/disturbance buffer zone of at least 100 m should be maintained between the maximum extent of construction works and the outer boundary of wetlands and riparian zones.

9.17.2 MINIMISATION

- To prevent loss of natural habitat in wetlands beyond the direct disturbance footprint, prior to any vegetation clearing, the development footprints should be clearly marked out with flagging tape/posts in the field.

- Vegetation clearing should be restricted to the proposed project footprints only, with no clearing permitted outside of these areas.
- The extent of disturbance should be limited by restricting all construction activities to the servitude as far as practically possible.
- Locate all stockpiles, laydown areas and temporary construction infrastructure at least 50 m from the edge of delineated wetlands.
- Wetland/river crossings should be constructed utilizing designs that ensure that hydrological integrity of the affected wetlands is preserved, and natural flow regimes are maintained (i.e. no impoundment upstream of crossings, or flow concentration downstream of crossings.
- Ideally construction activities within wetlands should take place in winter (during the dry season).
- Where summer construction is unavoidable, temporary diversions of the streams might be required.
- Install erosion prevention measures prior to the onset of construction activities. Measures should include low berms on approach and departure slopes to crossings to prevent flow concentration, sediment barriers along the lower edge of bare soil areas, placement of hay bales around the within wetland construction areas, and re-vegetation of disturbed areas as soon as possible.

9.17.3 MONITORING REQUIREMENTS

The following monitoring requirements are anticipated:

- Monitoring of wetland health to be conducted within one year of completion of construction, to measure any changes to the baseline status and ensure that recommended mitigation measures are sufficient to address any significant impacts.
- Follow up monitoring of wetland health PES/EIS every three years throughout the operating period.

9.18 SITE CLEARING PLAN

The purpose of this Site Clearance Plan is to prepare the contractor for clearance of the site prior to construction.

Site Establishment:

- The development footprint must be demarcated to ensure that only the demarcated areas are impacted upon. The no-go areas identified must be demarcated before the construction or decommissioning commences. This includes all wetlands and the associated buffers, and any high sensitivity areas as indicated in Figure 3-1. Label these areas as environmentally sensitive areas and keep out.
- All personnel and contractors to undergo Environmental Awareness Training, including awareness of the surrounding area and wetlands to inform importance of these areas and their conservation. A signed register of attendance must be kept for proof.

Soil and Vegetation Clearance:

- Site clearing must be limited to the footprint of the infrastructure requirements.
- The Soil Management Plan in Section 9.12 must be followed.

Fauna and Flora Management:
The following management plans must be followed:

- Alien Vegetation Management Plan (Section 9.5)
- Botanical Search and Rescue Plan (Section 9.6)
- Erosion Management Plan (Section 9.9)
- Fauna Management Plan (Section 9.11)
- Chance Find Procedure (Section 9.13.1)

10 CONCLUSION

Eskom is proposing the development of the proposed 100 MW SEF; 150 MW BESS; and ancillary infrastructure at the Komati Power Station located in the Mpumalanga Province, South Africa.

It is important to note that the ESMP and project layout are not final. Subsequent to the decision-making phase, if an EA is granted for the Komati SEF and BESS Facility, the ESMP will have to be amended to include measures as dictated by the final layout map and micro-siting, including the requirements of the EA. The amended ESMP and final layout subjected to micro-siting will be submitted to the DFFE for review and approval following detailed design.

It is therefore the opinion of the EAP that provided this project is mitigated, as per the mitigation and management measures outlined in this ESMP, the project will result in impacts that should not negatively affect the environment. It is the applicant's responsibility to ensure that this ESMP is made binding on the contractor by including the ESMP in the contract documentation. The contractor must thoroughly familiarise himself with the requirements of the ESMP and appoint an EO to oversee the implementation of the ESMP on a day-to-day basis. In addition, the applicant must appoint an external ECO to undertake monthly compliance audits during construction against the requirements of the ESMP as well as the EA.

Parties responsible for transgression of this ESMP must be held responsible for any corrective actions that may need to be undertaken. Parties responsible for environmental degradation through irresponsible behaviour/negligence must receive penalties.

In terms of NEMA, everyone (i.e. all persons engaging in any component of this project) is required to take reasonable measures to ensure that they do not pollute the environment. 'Reasonable measures' includes informing and educating employees about the environmental risks associated with their work and training them to operate in an environmentally responsible manner.

The Proponent also recognises that, in terms of NEMA, the cost to repair any environmental damage will be borne by the person responsible for the damage. Should the above-mentioned environmental guidelines and mitigation measures be adopted, it is anticipated that the negative environmental impacts of the proposed PV Facility will be mitigated adequately. The Proponent and the selected Contractor shall appoint relevant personnel, as well as an independent ECO, to monitor the site periodically throughout construction to ensure that the required environmental controls are in place and working effectively. During operation and maintenance the area specific Environmental Manager and EO, with the support of the maintenance supervisor, will monitor environmental controls.

Appendix A

SUBSTATION GENERIC EMPR

GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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INTRODUCTION

1. Background

The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) requires that an environmental management programme (EMPr) be submitted where an environmental impact assessment (EIA) has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation (EA). The content of an EMPr must either contain the information set out in Appendix 4 of the Environmental Impact Assessment Regulations, 2014, as amended (EIA Regulations) or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice that a generic EMPr is relevant to an application for EA, that generic EMPr must be applied by all parties involved in the EA process, including but not limited to the applicant and the competent authority (CA).

2. Purpose

This document constitutes a generic EMPr relevant to applications for the development or expansion of substation infrastructure for the transmission and distribution of electricity, and all listed and specified activities necessary for the realisation of such infrastructure.

3. Objective

The objective of this generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.

4. Scope

The scope of this generic EMPr applies to the development or expansion of substation infrastructure for the transmission and distribution of electricity requiring EA in terms of NEMA. This generic EMPr applies to activities requiring EA, mainly activity 11 and 47 of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014, as amended, and activity 9 of the Environmental Impact Assessment Regulations Listing Notice 2 of 2014, as amended, and all associated listed or specified activities necessary for the realization of such infrastructure.

5. Structure of this document

This document is structured in three parts with an Appendix as indicated in the table below:

Part	Section	Heading	Content
A		Provides general guidance and information and is **not legally binding**	Definitions, acronyms, roles & responsibilities and documentation and reporting.
B	1	Pre-approved generic EMPr template	Contains generally accepted impact management outcomes and impact

Part	Section	Heading	Content
			management actions required for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity, which are presented in the form of a template that has been pre-approved. The template in this section is to be completed by the contractor, with each completed page signed and dated by the holder of the EA prior to commencement of the activity. Where an impact management outcome is not relevant, the words "not applicable" can be inserted in the template under the "responsible persons" column. Once completed and signed, the template represents the EMPr for the activity approved by the CA and is legally binding. The template **is not required** to be submitted to the CA as once the generic EMPr is gazetted for implementation, it has been approved by the CA. To allow interested and affected parties access to the pre-approved EMPr template for consideration through the decision-making process, the EAP on behalf of the applicant /proponent must make the hard copy of this EMPr available at a public location and where the applicant has a website, the EMPr should also be made available on such publicly accessible website.
	2	Site specific information	Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA will comply with the pre-approved generic EMPr template contained in Part B: Section 1, and understands that the impact management outcomes and impact management actions are **legally binding**. The preliminary infrastructure layout must be finalized to inform the final EMPr that is to be submitted with the basic assessment report (BAR) or environmental impact assessment report (EIAR), ensuring that all impact management outcomes and impact management actions have been either pre-

Part	Section	Heading	Content
			approved or approved in terms of Part C. This section **must be** submitted to the CA together with the final BAR or EIAR. The information submitted to the CA will be considered to be incomplete should a signed copy of Part B: section 2 not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding.
C		Site specific sensitivities/ attributes	If any specific environmental sensitivities/ attributes are present on the site which require site specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr, to manage impacts, these specific impact management outcomes and impact management actions must be included in this section. These specific environmental attributes must be referenced spatially and impact management outcomes and impact management actions must be provided. These specific impact management outcomes and impact management actions must be presented in the format of the pre-approved EMPr template (Part B: section 1) This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if Part C is applicable to the site, it **is required** to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. Once approved, Part C forms part of the EMPr for the site and is legally binding. This section applies only **to additional** impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific development or expansion and which are not already included in Part B: section 1.
Appendix 1			Contains the method statements to be prepared prior to commencement of the activity. The method statements are **not required** to be submitted to the competent

Part	Section	Heading	Content
			authority.

6. Completion of part B: section 1: the pre-approved generic EMPr template

The template is to be completed prior to commencement of the activity, by providing the following information for each environmental impact management action:

- For implementation
  - a 'responsible person',
  - a method for implementation,
  - a timeframe for implementation
- For monitoring
  - a responsible person
  - frequency
  - evidence of compliance.

The completed template must be signed and dated by the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must be signed and dated on each page by the holder of the EA. This template once signed and dated is legally binding. The holder of the EA will remain responsible for its implementation.

7. Amendments of the impact management outcomes and impact management actions

Once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

- Amendment of the impact management outcomes: in line with the process contemplated in Regulation 37 of the EIA Regulations; and
- Amendment of the impact management actions: in line with the process contemplated in Regulation 36 of the EIA Regulations.

8. Documents to be submitted as part of part B: section 2 site specific information and declaration

Part B: Section 2 has three distinct sub-sections. The first and third sub-sections are in a template format. Sub-section two requires a map to be produced.

Sub-section 1 contains the project name, the applicant's name and contact details, the site information, which includes coordinates of the property or farm in which the proposed substation infrastructure is proposed as well as the 21-digit Surveyor General code of each cadastral land parcel and, where available, the farm name.

Sub-section 2 is to be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout using the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc.

Sensitivity maps shall identify features both within the planned working area and any known sensitive features and within 50 m from the development footprint.

Sub-section 3 is the declaration that the applicant (s)/proponent (s) or holder of the EA in the case of a change of ownership must complete which confirms that the applicant/EA holder will comply with the pre-approved 'generic EMPr' template in Section 1 and understands that the impact management outcomes and impact management actions are legally binding.

(a) Amendments to Part B: Section 2 – site specific information and declaration

Should the EA be transferred, Part B: Section 2 must be completed by the new applicant/proponent and submitted with the application for an amendment of the EA in terms of regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted as part of such an application for an amendment to an EA will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART A – GENERAL INFORMATION

1. DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA Regulations has that meaning, and unless the context requires otherwise –

"clearing" means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified;

"construction camp" is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;

"contractor" - The Contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract, are in line with the Environmental Management Programme and that Method Statements are implemented as described.

"**hazardous substance**" is a substance governed by the Hazardous Substances Act, 1973 (Act No. 15 of 1973) as well as the Hazardous Chemical and Substances Regulations, 1995;

"method statement" means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The method statement must set out the equipment, materials, labour and method(s) the Contractor proposes using to carry out an activity identified by the Project Manager when requesting the Method Statement. This must be done in such detail that the Project Manager and ECO is able to assess whether the Contractor's proposal is in accordance with this specification and/or will produce results in accordance with this specification;

The method statement must cover as a minimum applicable details with regard to:

(i) Construction procedures;
(ii) Plant, materials and equipment to be used;
(iii) Transporting the equipment to and from site;
(iv) How the plant/ material/ equipment will be moved while on site;
(v) How and where the plant/ material/ equipment will be stored;
(vi) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
(vii) Timing and location of activities;
(viii) Compliance/ non-compliance; and
(ix) Any other information deemed necessary by the Project Manager.

"slope" means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units;

"solid waste" means all solid waste, including construction debris, hazardous waste, excess cement/ concrete, wrapping materials, timber, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers);

"spoil" means excavated material which is unsuitable for use as material in the construction works or is material which is surplus to the requirements of the construction works;

"topsoil" means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility and composition of the soil;

"works" means the works to be executed in terms of the Contract

2. ACRONYMS and ABBREVIATIONS

CA	Competent Authority
cEO	Contractors Environmental Officer
dEO	Developer Environmental Officer
DPM	Developer Project Manager
DSS	Developer Site Supervisor
EAR	Environmental Audit Report
ECA	Environmental Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ERAP	Emergency Response Action Plan
EMPr	Environmental Management Programme Report
EAP	Environmental Assessment Practitioner
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act ,2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
MSDS	Material Safety Data Sheet
RI&AP's	Registered Interested and affected parties

3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION

The effective implementation of this generic EMPr is dependent on established and clear roles, responsibilities and reporting lines within an institutional framework. This section of the EMPr gives guidance to the various environmental roles and reporting lines, however, project specific requirements will ultimately determine the need for the appointment of specific person(s) to undertake specific roles and or responsibilities. As such, it must be noted that in the event that no specific person, for example, an environmental control officer (ECO) is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the ECO are undertaken.

Table 1: *Guide to roles and responsibilities for implementation of an EMPr*

Responsible Person(s)	**Role and Responsibilities**
Developer's Project Manager (DPM)	Role The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent. Responsibilities - Be fully conversant with the conditions of the EA; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); - Issuing of site instructions to the Contractor for corrective actions required; - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and - Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer Site Supervisor (DSS)	Role The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS is responsible for the day to day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr.

Responsible Person(s)	Role and Responsibilities
	Responsibilities - Ensure that all contractors identify a contractor's Environmental Officer (cEO); - Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO; - Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO; - Issuing of site instructions to the Contractor for corrective actions required; - Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Report.
Environmental Control Officer (ECO)	Role The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. The ECO provides feedback to the DSS and Project Manager regarding all environmental matters. The Contractor, cEO and dEO are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the EA and EMPr. The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &Affected Parties' (RI&AP's), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required. Responsibilities The responsibilities of the ECO will include the following: - Be aware of the findings and conclusions of all EA related to the development;

Responsible Person(s)	Role and Responsibilities
	- Be familiar with the recommendations and mitigation measures of this EMPr; - Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them; - Undertake regular and comprehensive site inspections / audits of the construction site according to the generic EMPr and applicable licenses in order to monitor compliance as required; - Educate the construction team about the management measures contained in the EMPr and environmental licenses; - Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective; - Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements; - In consultation with the Developer Site Supervisor order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and/or environmental licenses; - Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns; - Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr; - Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO); - Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc.) as well as corrective and preventive actions taken; - Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken; - Assisting in the resolution of conflicts; - Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor; - In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance; - Maintenance, update and review of the EMPr; - Communication of all modifications to the EMPr to the relevant stakeholders.

Responsible Person(s)	Role and Responsibilities
developer Environmental Officer (dEO)	Role The dEOs will report to the Project Manager and are responsible for implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and Contractor's Manager, liaising with contractors and the landowners as well as a range of environmental coordination responsibilities. Responsibilities - Be fully conversant with the EMPr; - Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ; - Confine the development site to the demarcated area; - Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO); - Assist the contractors in addressing environmental challenges on site; - Assist in incident management: - Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared; - Assist the contractor in investigating environmental incidents and compile investigation reports; - Follow-up on pre-warnings, defects, non-conformance reports; - Measure and communicate environmental performance to the Contractor; - Conduct environmental awareness training on site together with ECO and cEO; - Ensure that the necessary legal permits and / or licenses are in place and up to date; - Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;
Contractor	Role The Contractor appoints the cEO and has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that Method Statements are implemented as described. External contractors must ensure compliance with this EMPr while

Responsible Person(s)	Role and Responsibilities
	performing the onsite activities as per their contract with the Project Developer. The contractors are required, where specified, to provide Method Statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development or expansion of substation infrastructure for the transmission and distribution of electricity activities. Responsibilities - project delivery and quality control for the development services as per appointment; - employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; - ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; - attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; - ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.
contractor Environmental Officer (cEO)	Role Each Contractor affected by the EMPr should appoint a cEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the cEO shall meet the following criteria: Responsibilities - Be on site throughout the duration of the project and be dedicated to the project; - Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; - Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements; - Attend the Environmental Site Meeting;

Responsible Person(s)	Role and Responsibilities
	- Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; - Report back formally on the completion of corrective actions; - Assist the ECO in maintaining all the site documentation; - Prepare the site inspection reports and corrective action reports for submission to the ECO; - Assist the ECO with the preparing of the monthly report; and - Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company.

4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place for all substation infrastructure projects as a minimum requirement.

4.1 Document control/Filing system

The holder of the EA is solely responsible for the upkeep and management of the EMPr file. As a minimum, all documentation detailed below will be stored in the EMPr file. A hard copy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the DSS (where applicable). This duplicate file must remain current and up-to-date. The filing system must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the CA or other relevant authorities. The EMPr file will form part of any environmental audits undertaken as prescribed in the EIA Regulations.

4.2 Documentation to be available

At the outset of the project the following preliminary list of documents shall be placed in the filing system and be accessible at all times:

- Full copy of the signed EA from the CA in terms of NEMA, granting approval for the development or expansion;
- Copy of the generic and site specific EMPr as well as any amendments thereof;
- Copy of declaration of implementing generic EMPr and subsequent approval of site specific EMPr and amendments thereof;
- All method statements;
- Completed environmental checklists;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- A copy of all instructions or directives issued;
- A copy of all corrective actions signed off. The corrective actions must be filed in such a way that a clear reference is made to the non-compliance record;
- Complaints register.

4.3 Weekly Environmental Checklist

The ECOs are required to complete a Weekly Environmental Checklist, the format of which is to be agreed prior to commencement of the activity. The ECOs are required to sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the DSS on a weekly basis.

The checklists will form the basis for the Monthly Environmental Reports. Copies of all completed checklists will be attached as Annexures to the Environmental Audit Report as required in terms of the EIA Regulations.

4.4 Environmental site meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report that is distributed to

attendees. Each set of minutes must clearly record "Matters for Attention" that will be reviewed at the next meeting.

4.5 Required Method Statements

The method statement will be done in such detail that the ECOs are enabled to assess whether the contractor's proposal is in accordance with the EMPr.

The method statement must cover applicable details with regard to:

- development procedures;
- materials and equipment to be used;
- getting the equipment to and from site;
- how the equipment/ material will be moved while on site;
- how and where material will be stored;
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- timing and location of activities;
- compliance/ non-compliance with the EMPr; and
- any other information deemed necessary by the ECOs.

Unless indicated otherwise by the Project Manager, the Contractor shall provide the following method statements to the Project Manager no less than 14 days prior to the commencement date of the activity:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Batch plants;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substance's;
- Vegetation management – Protected, clearing, aliens, felling;
- Access management – Roads, gates, crossings etc.;
- Fire plan;
- Waste management – transport, storage, segregation, classification, disposal (all waste streams);
- Social interaction – complaints management, compensation claims, access to properties etc.;
- Water – use (source, abstraction and disposal), access and all related information, crossings and mitigation;
- Emergency preparedness – Spills, training, other environmental emergencies;
- Dust and noise management methodologies;
- Fauna interaction and risk management – only if the risk was identified – wildlife interaction especially on game farms; and
- Heritage and palaeontology management.

The ECOs shall monitor and ensure that the contractors perform in accordance with these method statements. Completed and agreed method statements between the holder of the EA and the contractor shall be captured in Appendix 1.

4.6 Environmental Incident Log (Diary)

The ECOs are required to maintain an up-to-date and current Environmental Incident Log (environmental diary). The Environmental Incident Log is a means to record all environmental incidents and/or all non-compliance notice would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMPr) that may be addressed immediately by the ECOs. (For example a contractor's staff member littering or a drip tray that has not been emptied);
- Any environmental impact resulting from an action or activity by a contractor in contravention of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and
- General environmental information such as road kills or injured wildlife.

The ECOs are to record all environmental incidents in the Environmental Incident Log. All incidents regardless of severity must be reported to the Developer. The Log is to be kept in the EMPr file and at a minimum the following will be recorded for each environmental incident:

- The date and time of the incident;
- Description of the incident;
- The name of the Contractor responsible;
- The incident must be listed as significant or minor;
- If the incident is listed as significant, a non-compliance notice must be issued, and recorded in the log;
- Remedial or corrective action taken to mitigate the incident; and
- Record of repeat minor offences by the same contractor or staff member.

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

A non-compliance notice will be issued to the responsible contractor by the ECOs via the DSS or Project Manager. The non-compliance notice will be issued in writing; a copy filed in the EMPr file and will at a minimum include the following:

- Time and date of the non-compliance;
- Name of the contractor responsible;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date by which the corrective action to be completed.
- The contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the development site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. The ECO should be made aware of any complaints. Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant CA for them to deal with the transgression, as it deems fit. The contractor is deemed not to have complied with the EMPr if, inter alia, There is a deviation from the environmental conditions, impact management outcomes and impact management actions activities, as approved in generic and site specific EMPr as relevant as set out in the EMPr, which deviation has, or may cause, an environmental impact.

4.8 Corrective action records

For each non-compliance notice issued, a documented corrective action must be recorded. On receiving a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions required take place within the stipulated timeframe. On completion of the corrective action the cEO is to issue a Corrective Action Report in writing to the ECOs. If satisfied that the corrective action has been completed, the ECOs are to sign-off on the Corrective Action Report, and attach the report to the non-compliance notice in the EMPr file. A corrective action is considered complete once the report has signed off by the ECOs.

4.9 Photographic record

A digital photographic record will be kept. The photographic record will be used to show before, during and post rehabilitation evidence of the project as well used in cases of damages claims if they arise. Each image must be dated and a brief description note attached.

The Contractor shall:

1. Allow the ECOs access to take photographs of all areas, activities and actions.

The ECOs shall keep an electronic database of photographic records which will include:

1. Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
2. All bunding and fencing;
3. Road conditions and road verges;
4. Condition of all farm fences;
5. Topsoil storage areas;
6. All areas to be cordoned off during construction;
7. Waste management sites;
8. Ablution facilities (inside and out);
9. Any non-conformances deemed to be "significant";
10. All completed corrective actions for non-compliances;
11. All required signage;
12. Photographic recordings of incidents;
13. All areas before, during and post rehabilitation; and
14. Include relevant photographs in the Final Environmental Audit Report.

4.10 Complaints register

The ECOs shall keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from communities, stakeholders and individuals. The Complaints Record shall:

1. Record the name and contact details of the complainant;
2. Record the time and date of the complaint;
3. Contain a detailed description of the complaint;
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
5. Contain a copy of the ECOs written response to each complaint received and keep a record of any further correspondence with the complainant. The ECO's written

response will include a description of any corrective action to be taken and must be signed by the Contractor, ECO and affected party. Where a damage claim is issued by the complainant, the ECOs shall respond as described in (**section 4.11**) below.

4.11 Claims for damages

In the event that a Claim for Damages is submitted by a community, landowner or individual, the ECOs shall:

1. Record the full detail of the complaint as described in (**section 4.10**) above;
2. The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
3. Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing report the incident to the Developer's negotiator and legal department; and
4. A formal record of the response by the ECOs to the claimant as well as the rectification of the method of making payments not amount will be recorded in the EMPr file.

4.12 Interactions with affected parties

Open, transparent and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts.

The ECOs shall:

1. Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
2. Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
3. Ensure that a complaints telephone numbers are made available to all landowners and affected parties; and
4. Ensure that contact with affected parties is courteous at all times;

4.13 Environmental audits

Internal environmental audits of the activity and implementation of the EMPr must be undertaken. The findings and outcomes included in the EMPr file and submitted to the CA at intervals as indicated in the EA.

The ECOs must prepare a monthly EAR. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting and the final report will be circulated to the Project Manager and filed in the EMPr file. At a frequency determined by the EA, the ECOs shall submit the monthly reports to the CA. At a minimum the monthly report is to cover the following:

- Weekly Environmental Checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental Monitoring;

- General environmental findings and actions; and
- Minutes of the Bi-monthly Environmental Site Meetings.

4.14 Final environmental audits

On final completion of the rehabilitation and/or requirements of the EA a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

PART B: SECTION 1: Pre-approved generic EMPr template

5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

This section provides a pre-approved generic EMPr template with aspects that are common to the development of substation infrastructure for the transmission and distribution of electricity. There is a list of aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity, and for each aspect a set of prescribed impact management outcomes and associated impact management actions have been identified. Holders of EAs are responsible to ensure the implementation of these outcomes and actions for all projects as a minimum requirement, in order to mitigate the impact of such aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity.

The template provided below is to be completed by providing the information under each heading for each environmental impact management action.

The completed template must be signed and dated on each page by both the contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as

Appendix 1. Each method statement must also be duly signed and dated on each page by the contactor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

5.1 Environmental awareness training

Impact management outcome: All onsite staff are aware and understands the individual responsibilities in terms of this EMPr.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All staff must receive environmental awareness training prior to commencement of the activities; – The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; – Refresher environmental awareness training is available as and when required; – All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr; – The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: a) Safety notifications; and b) No littering. – Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures; e) Procedures to be followed when working near or						

within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and k) Disease prevention. – A record of all environmental awareness training courses undertaken as part of the EMPr must be available; – Educate workers on the dangers of open and/or unattended fires; – A staff attendance register of all staff to have received environmental awareness training must be available. – Course material must be available and presented in appropriate languages that all staff can understand.						

5.2 Site Establishment development

Impact management outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access						

routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management; – Location of camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through; – Sites must be located where possible on previously disturbed areas; – The camp must be fenced in accordance with ***Section 5.5: Fencing and gate installation***; and – The use of existing accommodation for contractor staff, where possible, is encouraged.						

5.3 Access restricted areas

Impact management outcome: Access to restricted areas prevented.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development; – Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate; and – Unauthorised access and development related activity inside access restricted areas is prohibited.						

5.4 Access roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities; – All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition – All contractors must be made aware of all these access routes. – Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense; – Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads; – In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with ***section 4.9: photographic record***; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor; – Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands – Access roads must only be developed on a pre-planned and approved roads.						

5.5 Fencing and Gate installation

Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Use existing gates provided to gain access to all parts of the area authorised for development, where possible; – Existing and new gates to be recorded and documented in accordance with **section *4.9: photographic record***; – All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; – At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner; – Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground; – Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; – Original tension must be maintained in the fence wires; – All gates installed in electrified fencing must be re-electrified; – All demarcation fencing and barriers must be maintained in good working order for the duration of the development activities; – Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable; – Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner.						

– All fencing must be developed of high quality material bearing the SABS mark; – The use of razor wire as fencing must be avoided; – Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times; – On completion of the development phase all temporary fences are to be removed; – The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.						

5.6 Water Supply Management

Impact management outcome: Undertake responsible water usage.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis; – The Contractor must ensure the following: a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented. – Ensure water conservation is being practiced by:						

a. Minimising water use during cleaning of equipment; b. Undertaking regular audits of water systems; and c. Including a discussion on water usage and conservation during environmental awareness training. d. The use of grey water is encouraged.						

5.7 Storm and waste water management

Impact management outcome: Impacts to the environment caused by storm water and wastewater discharges during construction are avoided.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager; – All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; – Natural storm water runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO; – Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO.						

5.8 Solid and hazardous waste management

Impact management outcome: Wastes are appropriately stored, handled and safely disposed of at a recognised waste facility.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All measures regarding waste management must be undertaken using an integrated waste management approach; – Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; – A suitably positioned and clearly demarcated waste collection site must be identified and provided; – The waste collection site must be maintained in a clean and orderly manner; – Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; – Staff must be trained in waste segregation; – Bins must be emptied regularly; – General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company; – Hazardous waste must be disposed of at a registered waste disposal site; – Certificates of safe disposal for general, hazardous and recycled waste must be maintained.						

5.9 Protection of watercourses and estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

– All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities; – In the event of a spill, prompt action must be taken to clear the polluted or affected areas; – Where possible, no development equipment must traverse any seasonal or permanent wetland – No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur; – Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; – There must not be any impact on the long term morphological dynamics of watercourses or estuaries; – Existing crossing points must be favored over the creation of new crossings (including temporary access) – When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and d) Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously.						

In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows.						

5.10 Vegetation clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
General: – Indigenous vegetation which does not interfere with the development must be left undisturbed; – Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species; – Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; – Permits for removal must be obtained from the relevant CA prior to the cutting or clearing of the affected species, and they must be filed; – The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; – Trees felled due to construction must be documented and form part of the Environmental Audit Report; – Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; – Only a registered pest control operator may apply herbicides on a commercial basis and commercial						

application must be carried out under the supervision of a registered pest control operator, supervision of a registered pest control operator or is appropriately trained; – A daily register must be kept of all relevant details of herbicide usage; – No herbicides must be used in estuaries; – All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to ***Section 5.3: Access restricted areas***. Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.						

5.11 Protection of fauna

Impact management outcome: Disturbance to fauna is minimised.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present; – The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme; – Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present; – Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; – No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be						

marked as Access restricted areas; – No deliberate or intentional killing of fauna is allowed; – In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and – No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.						

5.12 Protection of heritage resources

Impact management outcome: Impact to heritage resources is minimised.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in ***Section 5.3: Access restricted areas***; – Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; – All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.						

5.13 Safety of the public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.; – All unattended open excavations must be adequately fenced or demarcated; – Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; – Ensure structures vulnerable to high winds are secured; – Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.						

5.14 Sanitation

Impact management outcome: Clean and well maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Mobile chemical toilets are installed onsite if no other ablution facilities are available; – The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; – Where mobile chemical toilets are required, the following						

must be ensured: a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; – A copy of the waste disposal certificates must be maintained.						

5.15 Prevention of disease

Impact Management outcome: All necessary precautions linked to the spread of disease are taken.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Undertake environmentally-friendly pest control in the camp area; – Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; – The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area; – Information and education relating to sexually transmitted diseases to be made available to both construction workers						

and local community, where applicable; – Free condoms must be made available to all staff on site at central points; – Medical support must be made available; – Provide access to Voluntary HIV Testing and Counselling Services.						

5.16 Emergency procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project; – The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; – All staff must be made aware of emergency procedures as part of environmental awareness training; – The relevant local authority must be made aware of a fire as soon as it starts; – In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see ***Hazardous Substances section 5.17***).						

5.17 Hazardous substances

Impact management outcome: Safe storage, handling, use and disposal of hazardous substances.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible	Method of	Timeframe for	Responsible	Frequency	Evidence of

	person	implementation	implementation	person		compliance
– The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible; – All hazardous substances must be stored in suitable containers as defined in the Method Statement; – Containers must be clearly marked to indicate contents, quantities and safety requirements; – All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; – Bunded areas to be suitably lined with a SABS approved liner; – An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis; – All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS); – All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet; – Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; – The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers; – The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory						

requirement plus an allowance for rainfall); – The floor of the bund must be sloped, draining to an oil separator; – Provision must be made for refueling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; – All empty externally dirty drums must be stored on a drip tray or within a bunded area; – No unauthorised access into the hazardous substances storage areas must be permitted; – No smoking must be allowed within the vicinity of the hazardous storage areas; – Adequate fire-fighting equipment must be made available at all hazardous storage areas; – Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used; – An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times; – The responsible operator must have the required training to make use of the spill kit in emergency situations; – An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; – In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to ***Section 5.7*** for procedures concerning ***storm and waste water management*** and ***5.8*** for ***solid and hazardous waste management.***						

5.18 Workshop, equipment maintenance and storage

Impact management outcome: Soil, surface water and groundwater contamination is minimised.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; – During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of a fire as soon as it starts; – Leaking equipment must be repaired immediately or be removed from site to facilitate repair; – Workshop areas must be monitored for oil and fuel spills; – Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available; – The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed; – Water drainage from the workshop must be contained and managed in accordance Section ***5.7: Storm and waste water management***.						

5.19 Batching plants

Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

– Concrete mixing must be carried out on an impermeable surface; – Batching plants areas must be fitted with a containment facility for the collection of cement laden water. – Dirty water from the batching plant must be contained to prevent soil and groundwater contamination – Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains; – A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; – Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility; – Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site; – Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to ***Section 5.20: Dust emissions***) – Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility; – Temporary fencing must be erected around batching plants in accordance with Section ***5.5: Fencing and gate installation***.						

5.20 Dust emissions

Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible	Method of	Timeframe for	Responsible	Frequency	Evidence of

	person	implementation	implementation	person		compliance
– Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; – Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible; – Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present; – During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level; – Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind; – Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO; – Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; – Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks; – For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.						

5.21 Blasting

Impact management outcome: Impact to the environment is minimised through a safe blasting practice.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Any blasting activity must be conducted by a suitably licensed blasting contractor; and – Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.						

5.22 Noise

Impact Management outcome: Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only; – All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; – Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers; – Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet						

the impact management outcome related to noise management.						

5.23 Fire prevention

Impact management outcome: Prevention of uncontrollable fires.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Designate smoking areas where the fire hazard could be regarded as insignificant; – Firefighting equipment must be available on all vehicles located on site; – The local Fire Protection Agency (FPA) must be informed of construction activities; – Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site; – Two way swop of contact details between ECO and FPA.						

5.24 Stockpiling and stockpile areas

Impact management outcome: Reduce erosion and sedimentation as a result of stockpiling.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, watercourses and water bodies;						

– All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; – Topsoil stockpiles must not exceed 2 m in height; – During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.); – Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.						

5.25 Civil works

Impact management outcome: Impact to the environment minimised during civil works to create the substation terrace.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where terracing is required, topsoil must be collected and retained for the purpose of re-use later to rehabilitate disturbed areas not covered by yard stone; – Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards; – Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; – These areas can be stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; – Rehabilitation of the disturbed areas must be managed in accordance with ***Section 5.35: Landscaping and rehabilitation***; – All excess spoil generated during terracing activities must be						

disposed of in an appropriate manner and at a recognised landfill site; and – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.						

5.26 Excavation of foundation, cable trenching and drainage systems

Impact management outcome: No environmental degradation occurs as a result of excavation of foundation, cable trenching and drainage systems.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a licensed landfill site, if not used for backfilling purposes; – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes; – Management of equipment for excavation purposes must be undertaken in accordance with ***Section 5.18: Workshop, equipment maintenance and storage***; and – Hazardous substances spills from equipment must be managed in accordance with ***Section 5.17: Hazardous substances***.						

5.27 Installation of foundations, cable trenching and drainage systems

Impact management outcome: No environmental degradation occurs during the installation of foundation, cable trenching and drainage system.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

– Batching of cement to be undertaken in accordance with **Section *5.19: Batching plants***; and – Residual solid waste must be disposed of in accordance with **Section *5.8: Solid waste and hazardous management***.						

5.28 Installation of equipment (circuit breakers, current Transformers, Isolators, Insulators, surge arresters, voltage transformers, earth switches)

Impact management outcome: No environmental degradation occurs as a result of installation of equipment.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Management of dust must be conducted in accordance with Section ***5. 20: Dust emissions***; – Management of equipment used for installation must be conducted in accordance with Section ***5.18: Workshop, equipment maintenance and storage***; – Management hazardous substances and any associated spills must be conducted in accordance with Section ***5.17: Hazardous substances***; and – Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid waste and hazardous management***.						

5.29 Steelwork Assembly and Erection

Impact management outcome: No environmental degradation occurs as a result of steelwork assembly and erection.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– During assembly, care must be taken to ensure that no wasted/unused materials are left on site e.g. bolts and nuts						

– Emergency repairs due to breakages of equipment must be managed in accordance with ***Section 5. 18: Workshop, equipment maintenance and storage*** and ***Section 5.16: Emergency procedures***.						

5.30 Cabling and Stringing

Impact management outcome: No environmental degradation occurs as a result of stringing.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with **Section *6.8: Solid waste and hazardous Management***; – Management of equipment used for installation shall be conducted in accordance with **Section *5.18: Workshop, equipment maintenance and storage***; – Management hazardous substances and any associated spills shall be conducted in accordance with ***Section 5.17: Hazardous substances***.						

5.31 Testing and Commissioning (all equipment testing, earthing system, system integration)

Impact management outcome: No environmental degradation occurs as a result of Testing and Commissioning.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid waste and hazardous management***.						

5.32 Socio-economic

Impact management outcome: enhanced socio-economic development.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Develop and implement communication strategies to facilitate public participation; – Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process; – Sustain continuous communication and liaison with neighboring owners and residents – Create work and training opportunities for local stakeholders; and – Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.						

5.33 Temporary closure of site

Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in ***sections 5.17: Hazardous substances and 5.18: Workshop, equipment maintenance and storage***; – Hazardous storage areas must be well ventilated; – Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service;						

– Emergency and contact details displayed must be displayed; – Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; – Night hazards such as reflectors, lighting, traffic signage etc. must have been checked; – Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; – Structures vulnerable to high winds must be secured; – Wind and dust mitigation must be implemented; – Cement and materials stores must have been secured; – Toilets must have been emptied and secured; – Refuse bins must have been emptied and secured; – Drip trays must have been emptied and secured.						

5.34 Dismantling of old equipment

Impact management outcome: Impact to the environment to be minimised during the dismantling, storage and disposal of old equipment commissioning.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment; – Oil containing equipment must be stored to prevent leaking or be stored on drip trays; – All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers; – Once material has been scrapped and the contract has been placed for removal, the disposal Contractor must						

ensure that any equipment containing pollution causing substances is dismantled and transported in such a way as to prevent spillage and pollution of the environment; – The Contractor must also be equipped to contain and clean up any pollution causing spills; and – Disposal of unusable material must be at a licensed waste disposal site.						

5.35 Landscaping and rehabilitation

Impact management outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed of to a registered waste site; – All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983 – All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; – Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition; – Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners; – Rehabilitation of access roads outside of farmland; – Indigenous species must be used for with species and/grasses to where it compliments or approximates the						

original condition; – Stockpiled topsoil must be used for rehabilitation (refer to ***Section 5.24: Stockpiling and stockpiled areas***); – Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; – Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; – Subsoil must be ripped before topsoil is placed; – The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment; – Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; – Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; – Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. – Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; e) The final product must not cause an ecological imbalance in the area						

6 ACCESS TO THE GENERIC EMPr

Once completed and signed, to allow the public access to the generic EMPr, the holder of the EA must make the EMPr available to the public in accordance with the requirements of Regulation 26(h) of the EIA Regulations.

PART B: SECTION 2

7 SITE SPECIFIC INFORMATION AND DECLARATION

7.1 Sub-section 1: contact details and description of the project

7.1.1 Details of the applicant:

Eskom Holdings SOC (Ltd) (Eskom) is the project proponent (Applicant) with regards to this application for the construction and operation of the Komati Solar PV and BESS Facility.

Proponent:	Eskom Holdings SOC (Ltd)
Contact Person:	Deidre Herbst
Postal Address	PO Box 1091, Johannesburg
Telephone:	011 800 3501
Email:	Deidre.Herbst@eskom.co.za

7.1.2 Details and expertise of the EAP:

WSP was appointed in the role of Independent EAP to undertake the S&EIA process for the proposed project. The CV of the EAP is available in Appendix A of the Site Specific EMPr. The EAP declaration of interest and undertaking is included in Appendix B of the Site Specific EMPr.

EAP	WSP Group Africa (PTY) Ltd
Company Registration:	1999/008928/07
Contact Person:	Ashlea Strong
Physical Address:	Building C, Knightsbridge, 33 Sloane Street, Bryanston, Johannesburg
Postal Address:	P.O. Box 98867, Sloane Park 2151, Johannesburg
Telephone:	011 361 1392
Fax:	011 361 1381
Email:	Ashlea.Strong@wsp.com
EAP Qualifications:	• Masters in Environmental Management, University of the Free State • B Tech, Nature Conservation, Technikon SA • National Diploma in Nature Conservation, Technikon SA

EAPASA Registration Number:	EAPASA (2019/1005)

Refer to Section 1.2 of the EMPr

7.1.3 Project name:

Komati Solar PV and BESS Facility

7.1.4 Description of the project:

Eskom Holdings (SOC) Ltd is proposing to develop a 100 MW Solar Photovoltaics (PV) Energy Facility (SEF); 150 MW Battery Energy Storage System (BESS); and associated infrastructure at the Komati Power Station located in the Mpumalanga Province, South Africa.

The proposed project will comprise the following key components:

- Solar Energy Facility;

- Grid Connection (i.e. powerlines);

- Site Substation and BESS; and

- Associated infrastructure.

The SEF is intended to evacuate power to the grid. Part of the design development will be to determine the best option to charge the BESS, either with grid power or power generated from PV.

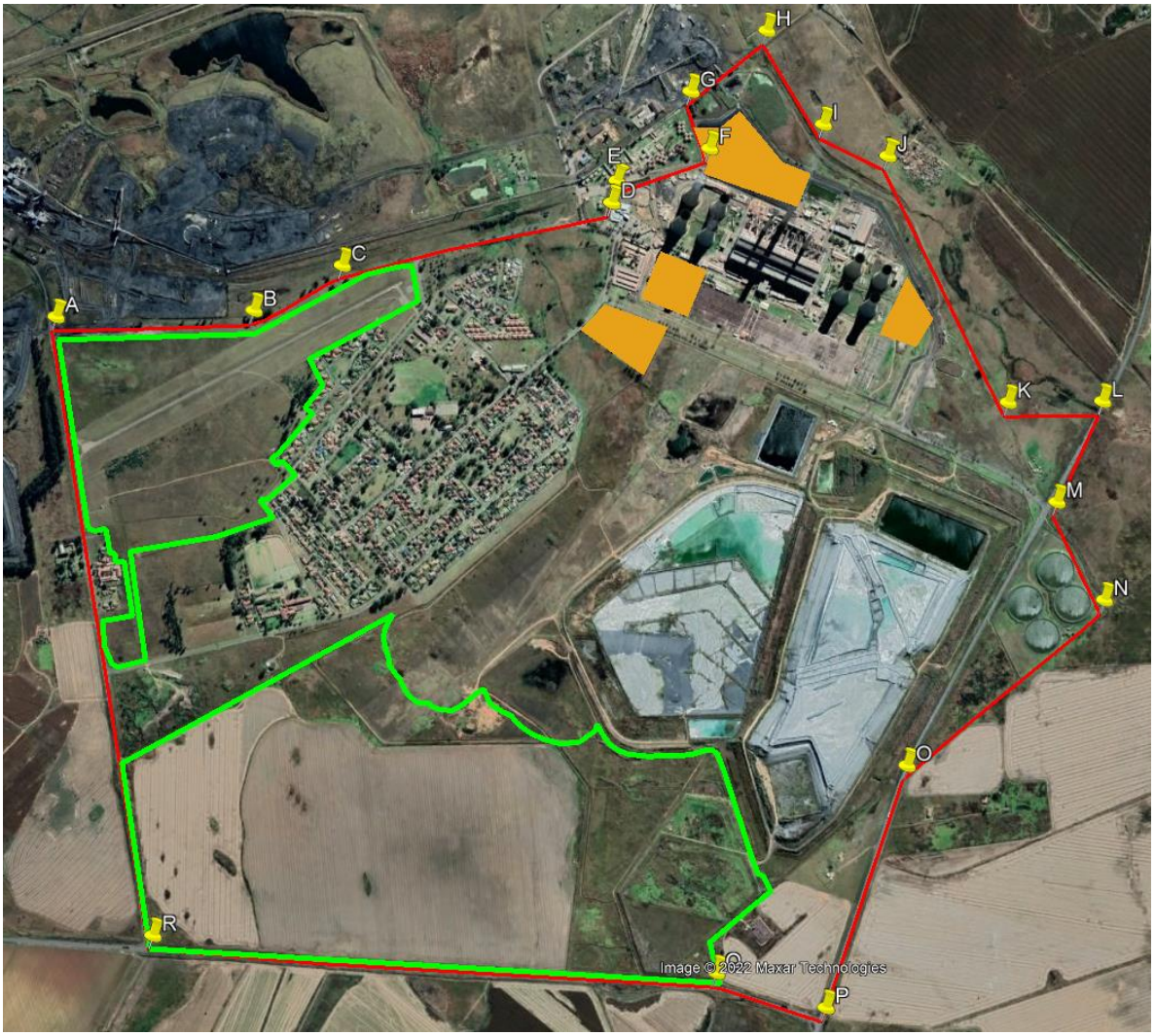
7.1.5 Project location:

The Komati Power Station is situated about 37km from Middelburg, 43km from Bethal and 40km from Witbank in Ward 4, Portion 0 of Farm Komati Power Station 56-IS in the Steve Tshwete Local Municipality located within the Nkangala District Municipality in the Mpumalanga Province. The SEF, BESS facilities and associated infrastructure will be located on Eskom owned land. The locality of the facilities is illustrated in Figure 1. The layout of the project is illustrated in Figure 2. The outer coordinates of Solar Site A and Solar Site B are indicated in Table 3. On site substations will be established within the extent of the Solar Site A and Solar Site B. The site itself is very homogenous and there are no significant features in the immediate vicinity of the substation location that might be affected by the development.

Table 1 – Komati SEF Affected Farm Portions

Farm Name	21 Digit Surveyor General Code of Each Cadastral Land Parcel
Portion 0 of Farm Komati Power Station 56-IS	T0IS00000000005600000

Table 2 – Coordinate Points of the Cadastral Land Parcel

Point	Longitude	Latitude
		
AF	22° 25' 30.549" E	31° 54' 31.383" S
A	26° 5'32.63"S	29°26'56.39"E
B	26° 5'31.98"S	29°27'19.25"E
C	26° 5'27.31"S	29°27'29.45"E
D	26° 5'20.81"S	29°28'0.56"E
E	26° 5'18.53"S	29°28'1.16"E
F	26° 5'15.18"S	29°28'11.86"E
G	26° 5'9.26"S	29°28'9.70"E
H	26° 5'2.93"S	29°28'18.46"E

Point	Longitude	Latitude
I	26° 5'12.68"S	29°28'24.99"E
J	26° 5'15.96"S	29°28'32.44"E
K	26° 5'41.52"S	29°28'46.33"E
L	26° 5'41.41"S	29°28'57.23"E
M	26° 5'51.86"S	29°28'51.96"E
N	26° 6'2.02"S	29°28'57.44"E
O	26° 6'19.20"S	29°28'34.65"E
P	26° 6'44.32"S	29°28'25.28"E
Q	26° 6'40.71"S	29°28'12.64"E
R	26° 6'36.83"S	29°27'7.56"E

Table 3 – Solar PV Facility Outer Point Coordinates

Point	Longitude	Latitude
Solar PV Site A		
		
A1	26° 6'5.31"S	29°27'30.76"E
A2	26° 6'17.89"S	29°27'5.38"E
A3	26° 6'34.41"S	29°27'8.05"E
A4	26° 6'36.69"S	29°27'15.15"E
A5	26° 6'38.86"S	29°27'55.22"E
A6	26° 6'21.30"S	29°27'56.25"E
A7	26° 6'15.50"S	29°27'52.78"E
A8	26° 6'12.67"S	29°27'48.93"E
A9	26° 6'12.40"S	29°27'40.35"E
A10	26° 6'12.76"S	29°27'36.36"E
A11	26° 6'16.81"S	29°28'10.77"E
A12	26° 6'31.14"S	29°28'1.99"E
A13	26° 6'35.00"S	29°28'3.48"E

Point	Longitude	Latitude
A14	26° 6'39.43"S	29°28'9.30"E
A15	26° 6'39.48"S	29°28'12.50"E
A16	26° 6'35.92"S	29°28'11.90"E
A17	26° 6'29.40"S	29°28'18.32"E
A18	26° 6'18.08"S	29°28'13.47"E
Solar PV Site B		
		
B1	26° 5'34.09"S	29°26'57.90"E
B2	26° 5'37.67"S	29°26'58.53"E
B3	26° 5'46.25"S	29°26'59.82"E
B4	26° 5'52.86"S	29°27'1.17"E
B5	26° 5'52.80"S	29°27'2.85"E
B6	26° 5'55.26"S	29°27'3.49"E

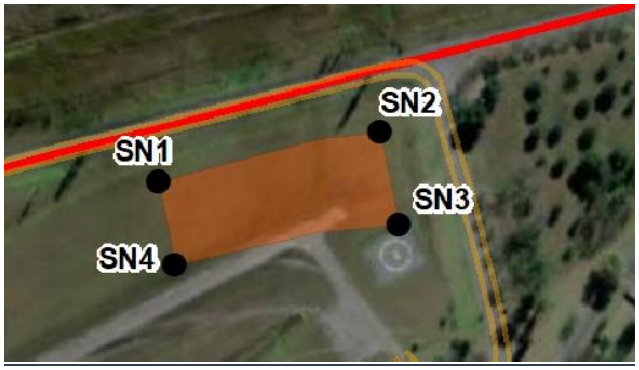
Point	Longitude	Latitude
B7	26° 5'55.20"S	29°27'3.99"E
B8	26° 5'56.16"S	29°27'4.16"E
B9	26° 5'56.11"S	29°27'4.54"E
B10	26° 5'48.30"S	29°27'2.90"E
B11	26° 5'47.14"S	29°27'3.68"E
B12	26° 5'36.17"S	29°27'25.98"E
B13	26° 5'28.92"S	29°27'38.16"E
B14	26° 5'26.51"S	29°27'37.45"E
B15	26° 5'27.14"S	29°27'32.93"E
B16	26° 5'33.32"S	29°27'19.83"E

Table 4 – BESS Outer Point Coordinates

Point	Longitude	Latitude
BESS A and BESS B		
		
A1	26° 5' 28.940" S	29° 28' 4.556" E
A2	26° 5' 29.278" S	29° 28' 4.601" E
A3	26° 5' 30.136" S	29° 28' 6.897" E
A4	26° 5' 25.806" S	29° 28' 9.032" E
A5	26° 5' 24.683" S	29° 28' 6.080" E
A6	26° 5' 24.115" S	29° 28' 6.315" E
A7	26° 5' 22.795" S	29° 28' 2.181" E
A8	26° 5' 27.799" S	29° 28' 1.020" E
B1	26° 5' 29.716" S	29° 28' 0.362" E

Point	Longitude	Latitude
B2	26° 5' 32.343" S	29° 27' 57.965" E
B3	26° 5' 37.012" S	29° 28' 4.558" E
B4	26° 5' 32.221" S	29° 28' 6.833" E
BESS C		
		
C1	26° 5' 26.976" S	29° 28' 35.163" E
C2	26° 5' 32.953" S	29° 28' 31.934" E
C3	26° 5' 34.286" S	29° 28' 36.220" E
C4	26° 5' 31.363" S	29° 28' 38.189" E

Table 5 – Substation Outer Point Coordinates

Point	Longitude	Latitude
Substation 1		
		
SN1	26° 5' 27.122" S	29° 27' 33.533" E
SN2	26° 5' 26.331" S	29° 27' 37.452" E
SN3	26° 5' 27.794" S	29° 27' 37.798" E
SN4	26° 5' 28.467" S	29° 27' 33.826" E
Substation 2		
		
SN5	26° 6' 6.286" S	29° 27' 29.397" E
SN6	26° 6' 5.502" S	29° 27' 30.884" E
SN7	26° 6' 8.140" S	29° 27' 32.908" E
SN8	26° 6' 9.042" S	29° 27' 31.369" E

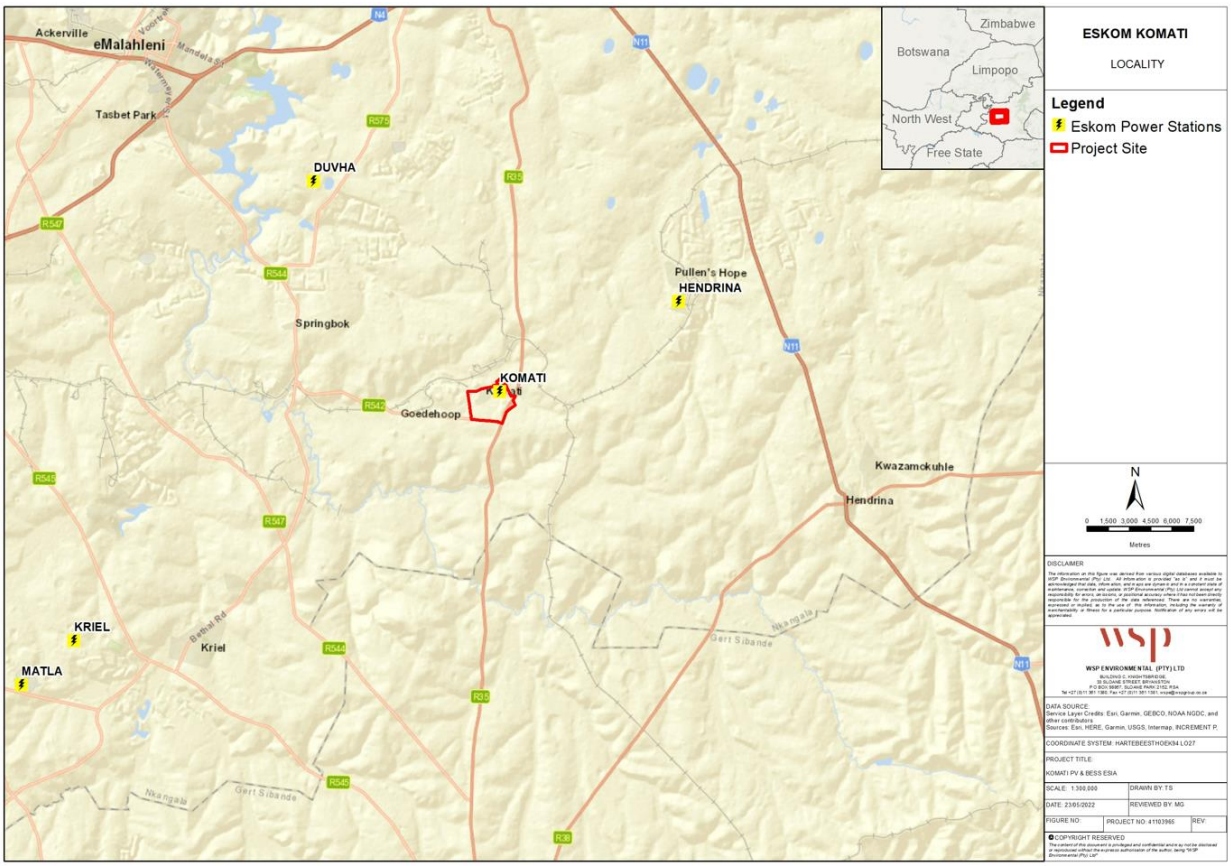


Figure 1: Regional locality map

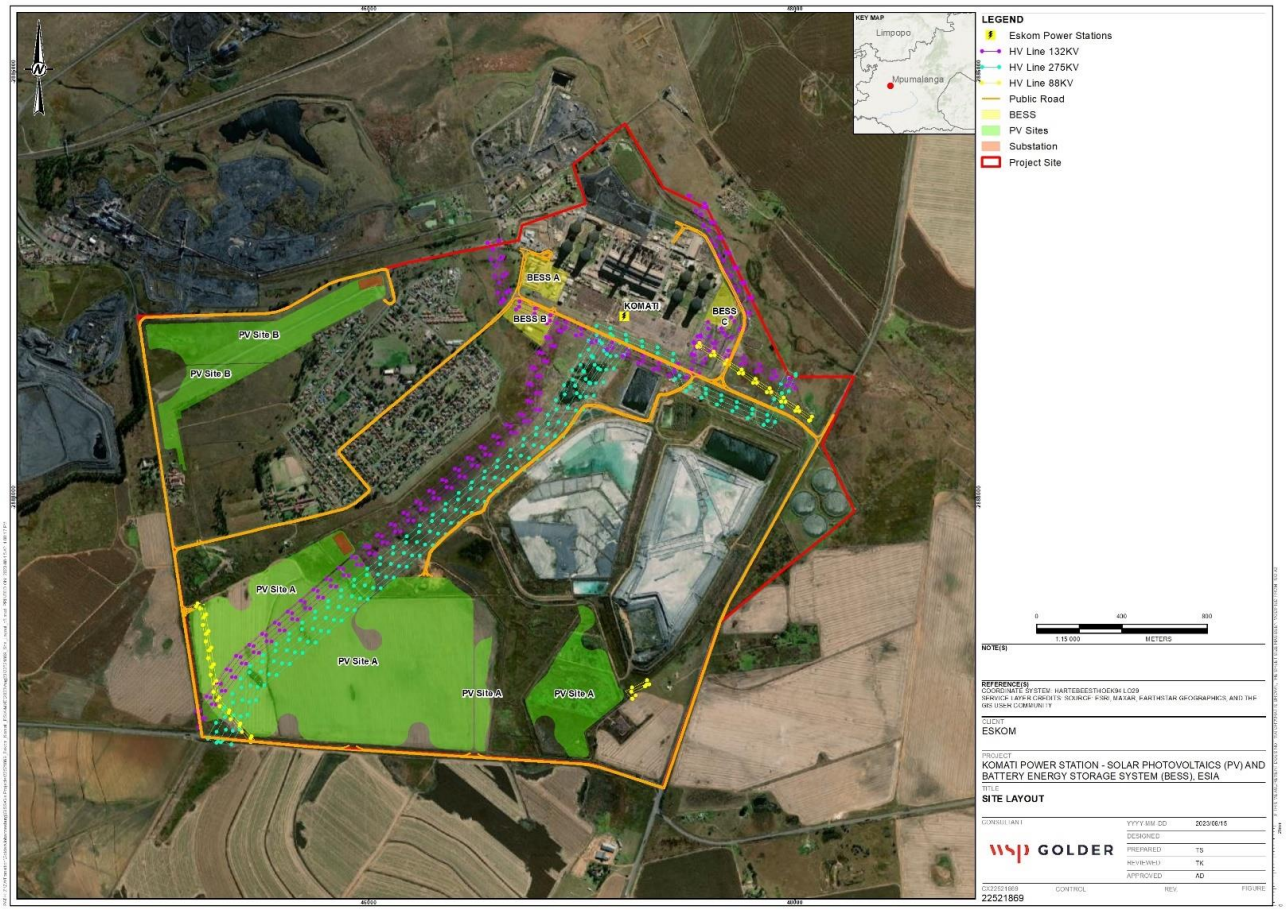


Figure 2: Komati Solar PV Facility Layout Map

7.2 Sub-section 2: Development footprint site map

This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout. The sensitivity map must be prepared from the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features within 50 m from the development footprint.

Refer to Section 3 of the EMPr

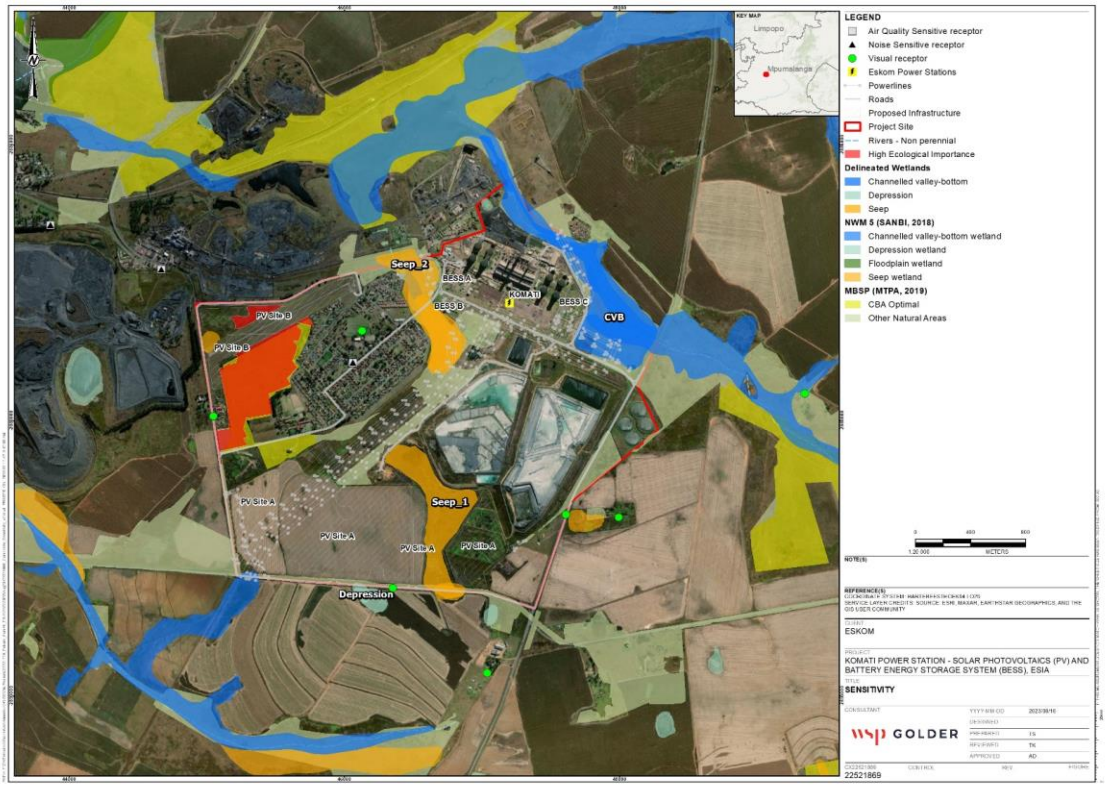


Figure 3: Site layout overlain onto a Consolidated Sensitivity Map

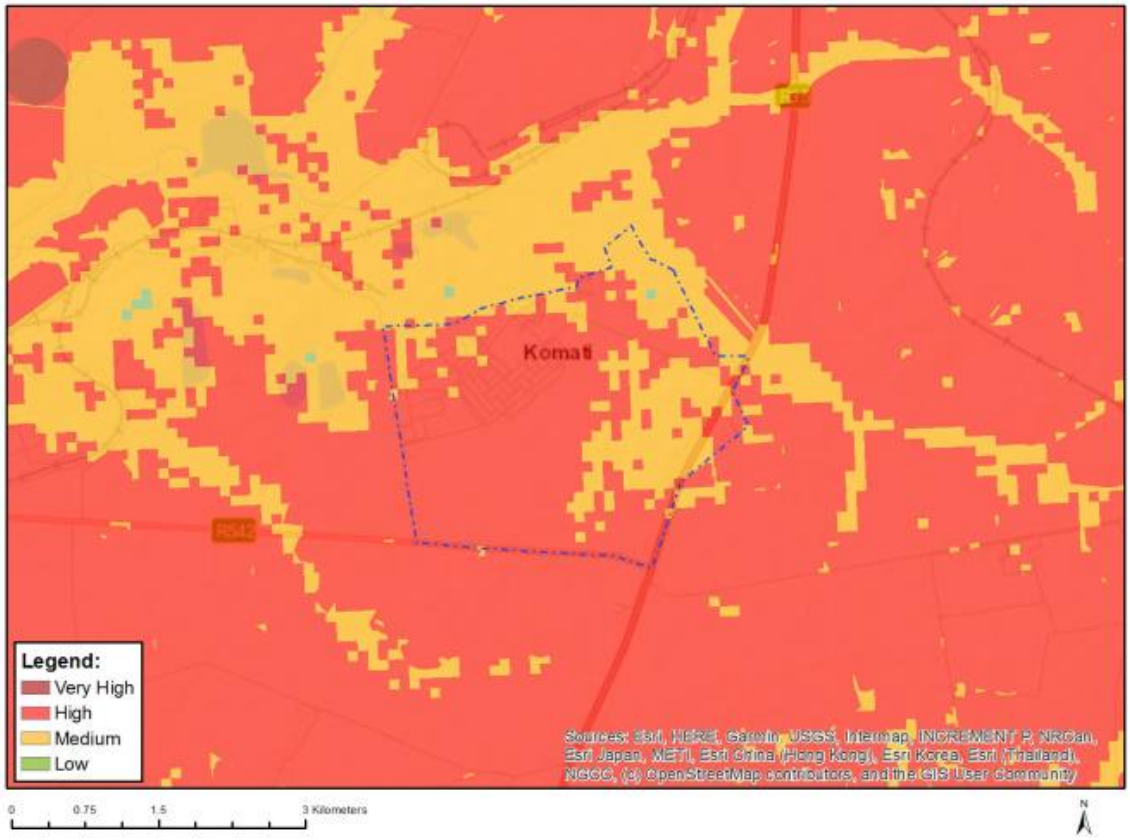


Figure 4: Map of Agriculture Sensitivity

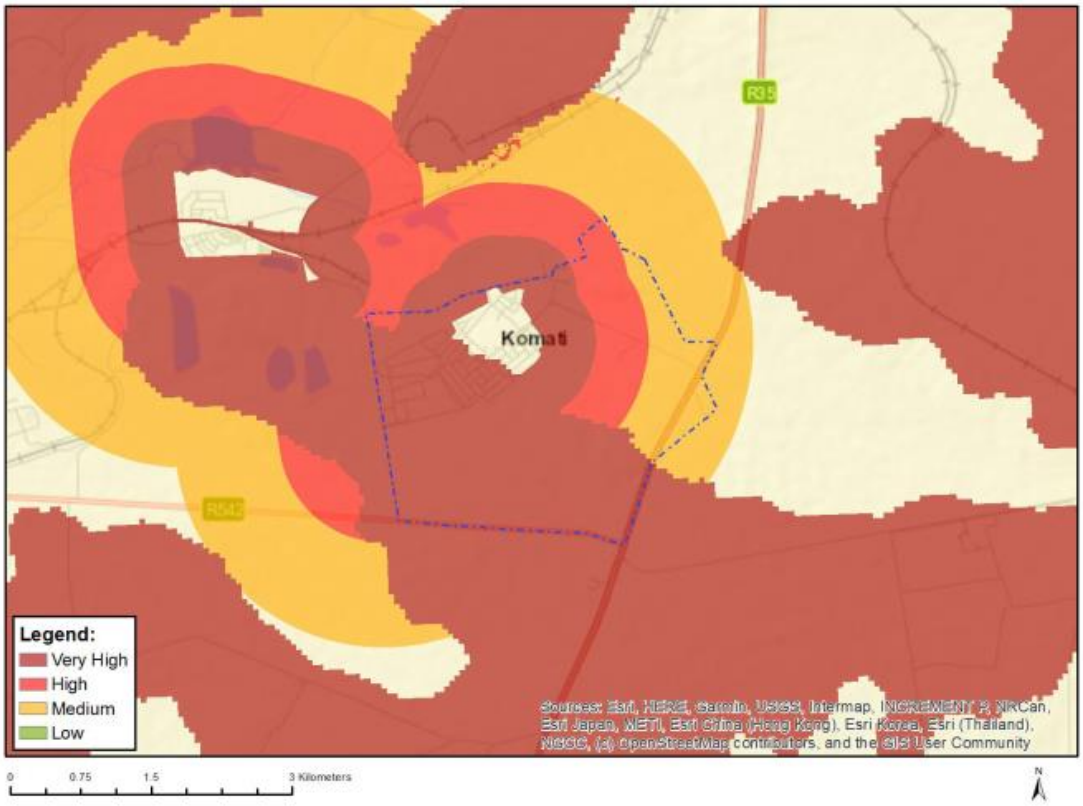


Figure 5: Map of Landscape / Visual Sensitivity

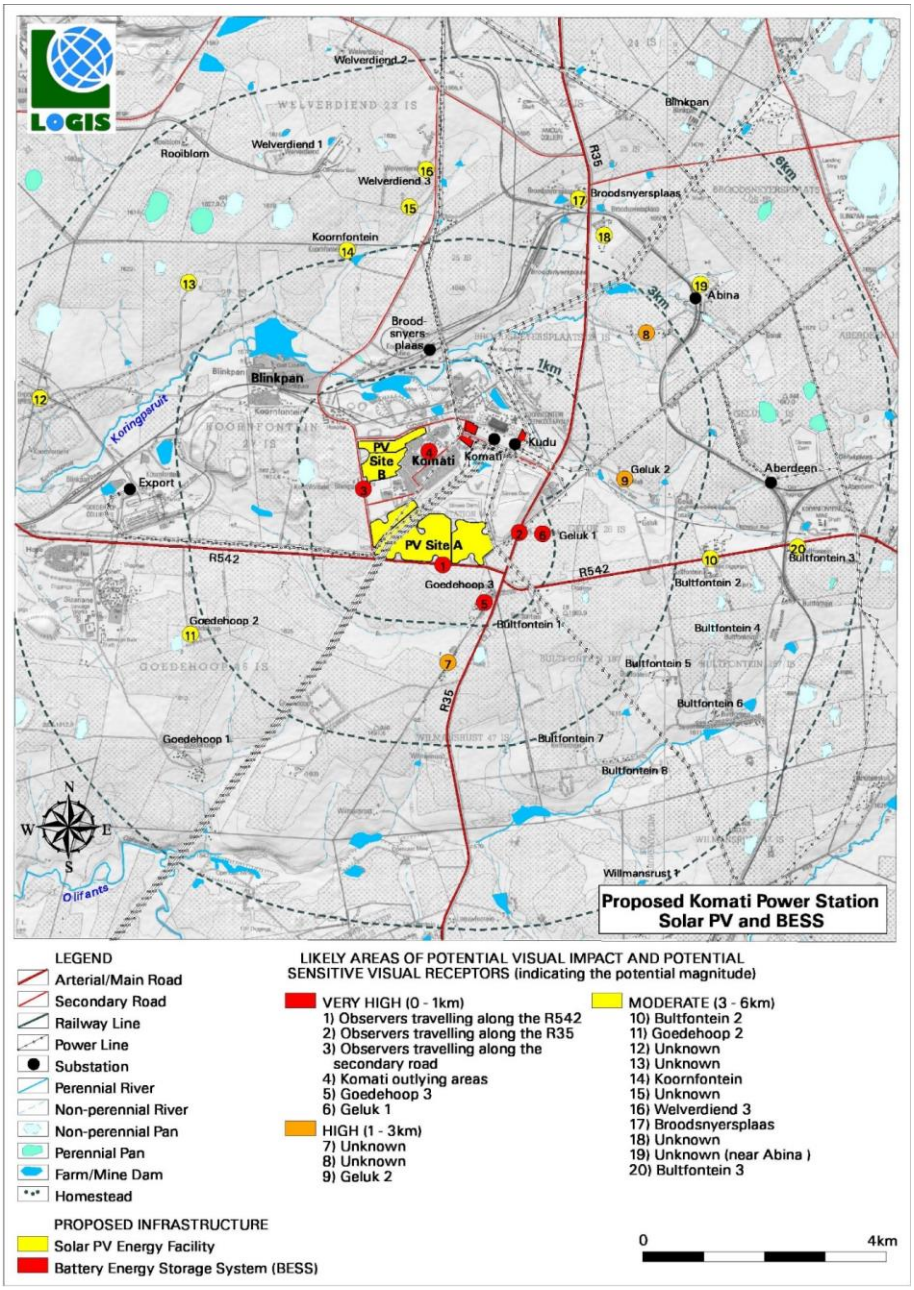


Figure 6: Visibility index illustrating the frequency of exposure of the proposed Komati Solar PV and BESS Facility

Figure 7: Map of Archaeological and Cultural Heritage Sensitivity

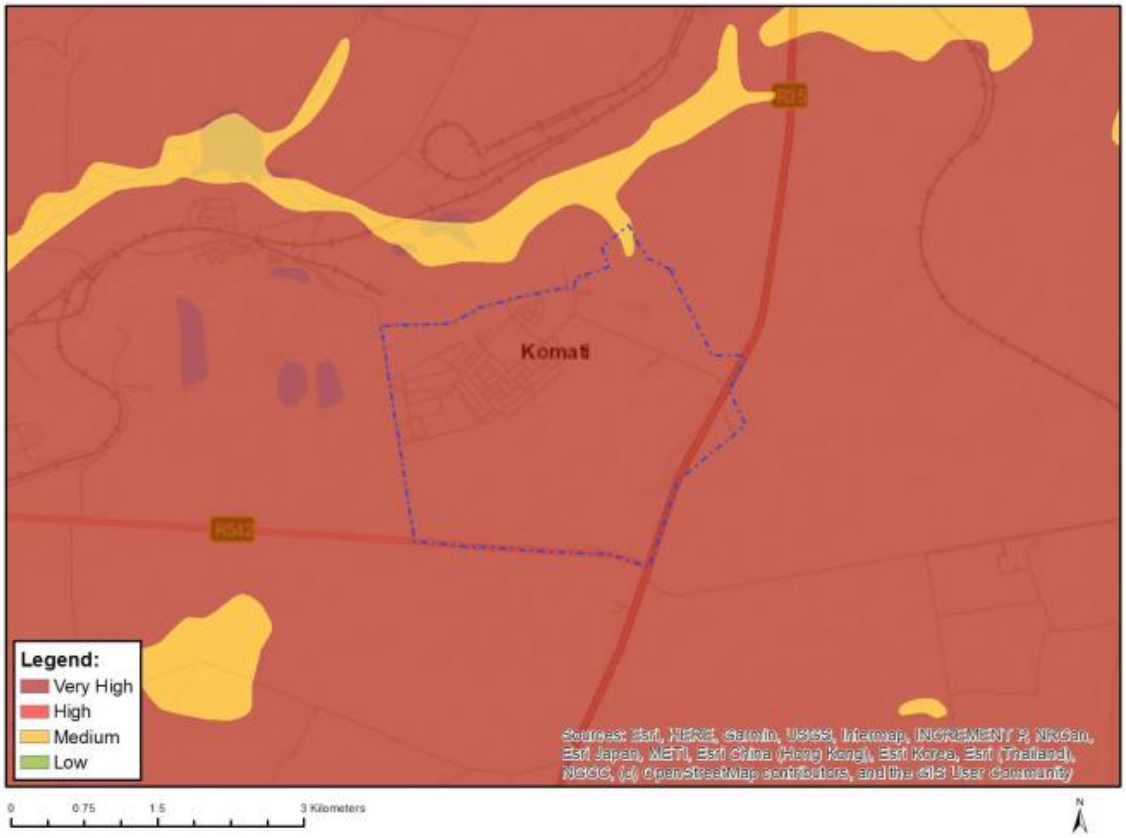


Figure 8: Map of Palaeontology Sensitivity

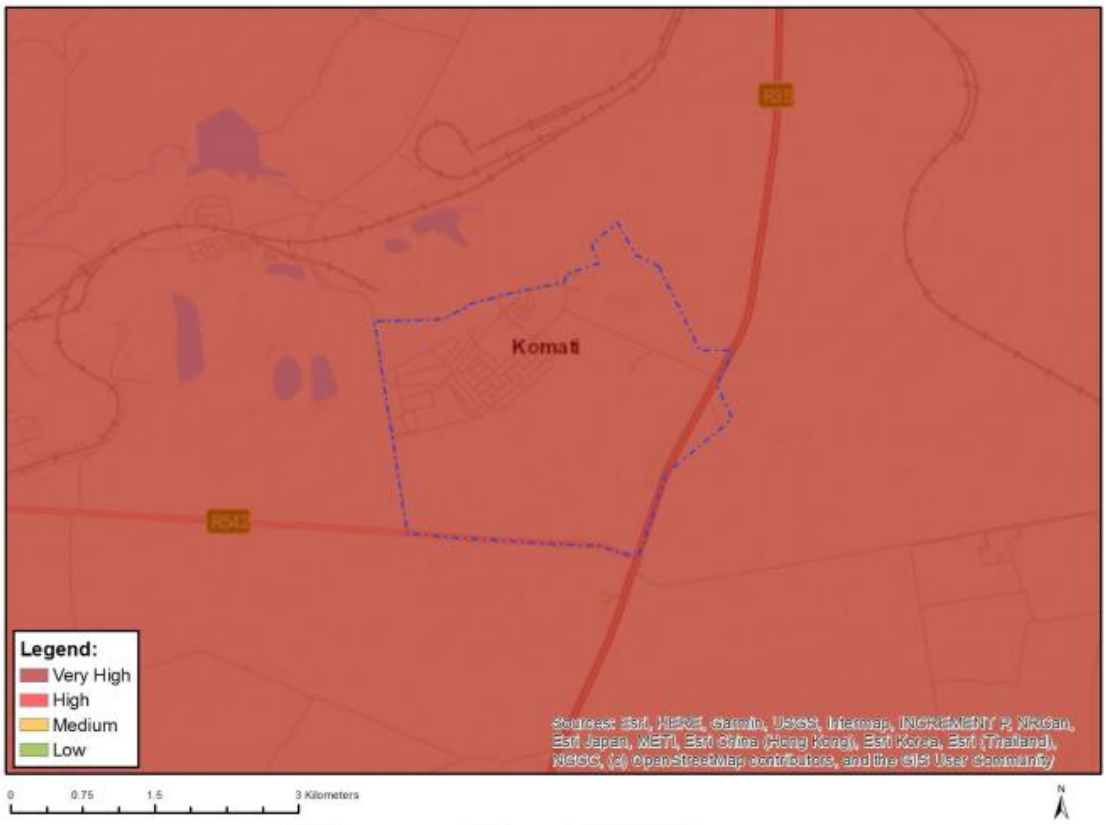


Figure 9: Map of Terrestrial Biodiversity Sensitivity

Figure 10: Map of Aquatic Biodiversity Sensitivity

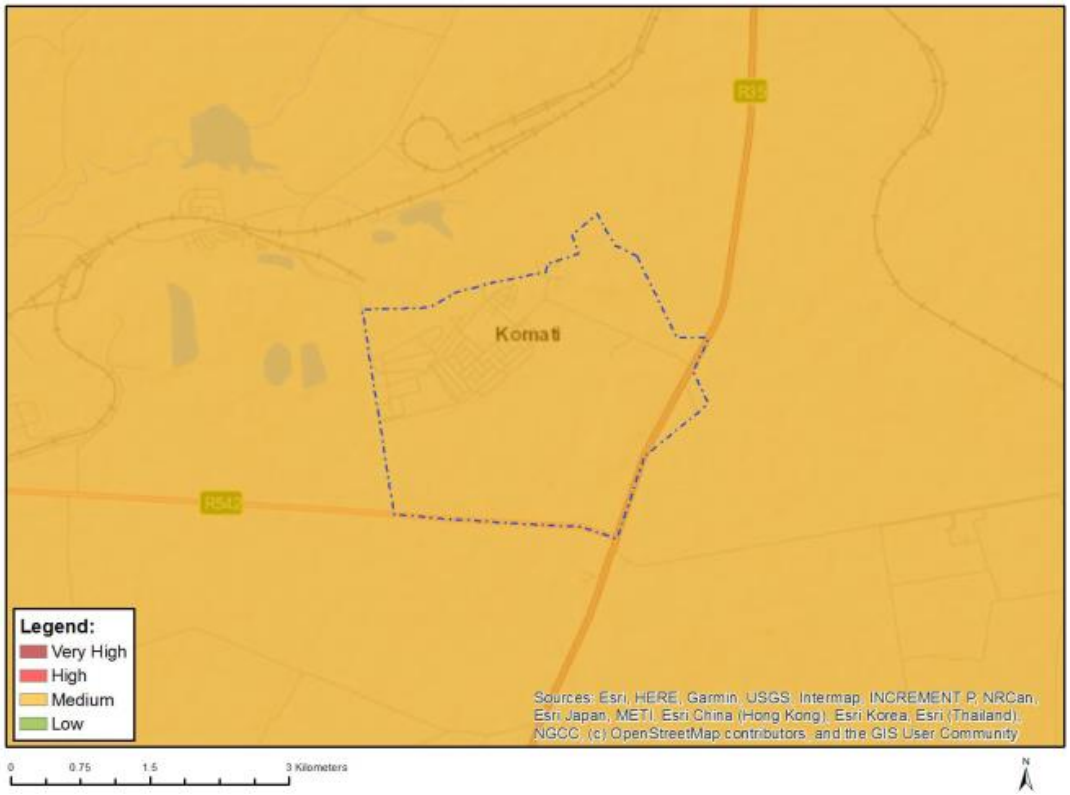


Figure 11: Map of Civil Aviation Sensitivity

Figure 12: Map of Defence Sensitivity

Figure 13: Map of RFI Sensitivity

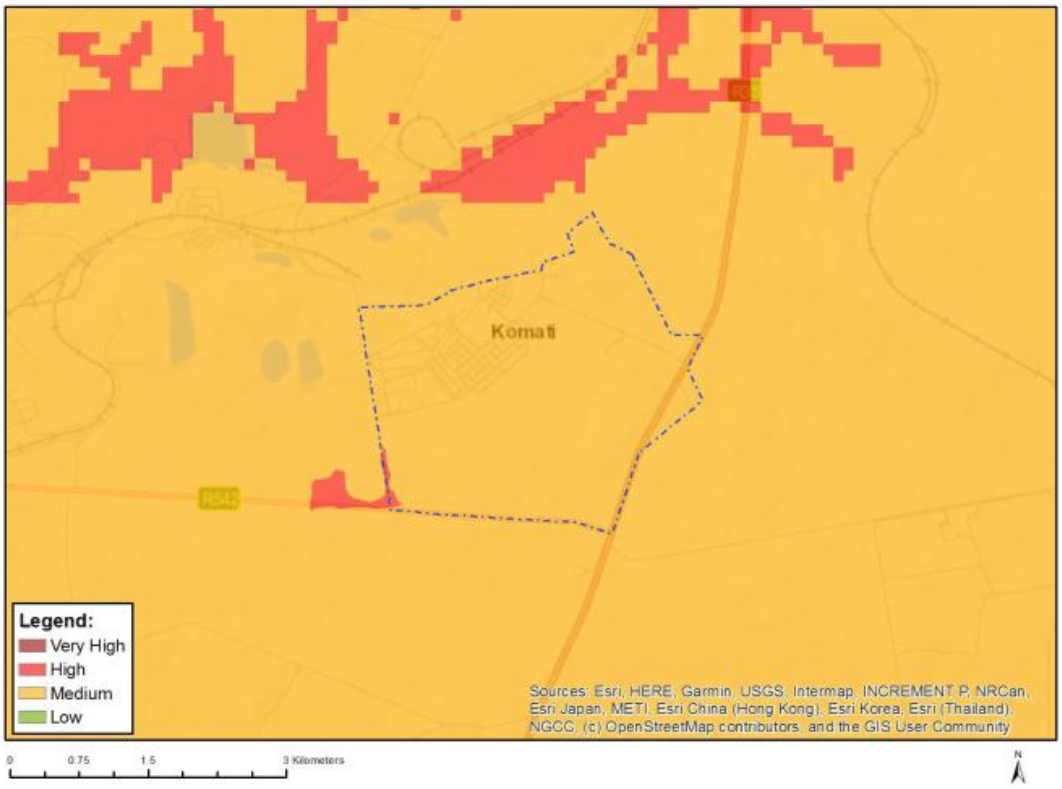


Figure 14: Map of Animal Species Sensitivity

Figure 15: Map of Plant Species Sensitivity

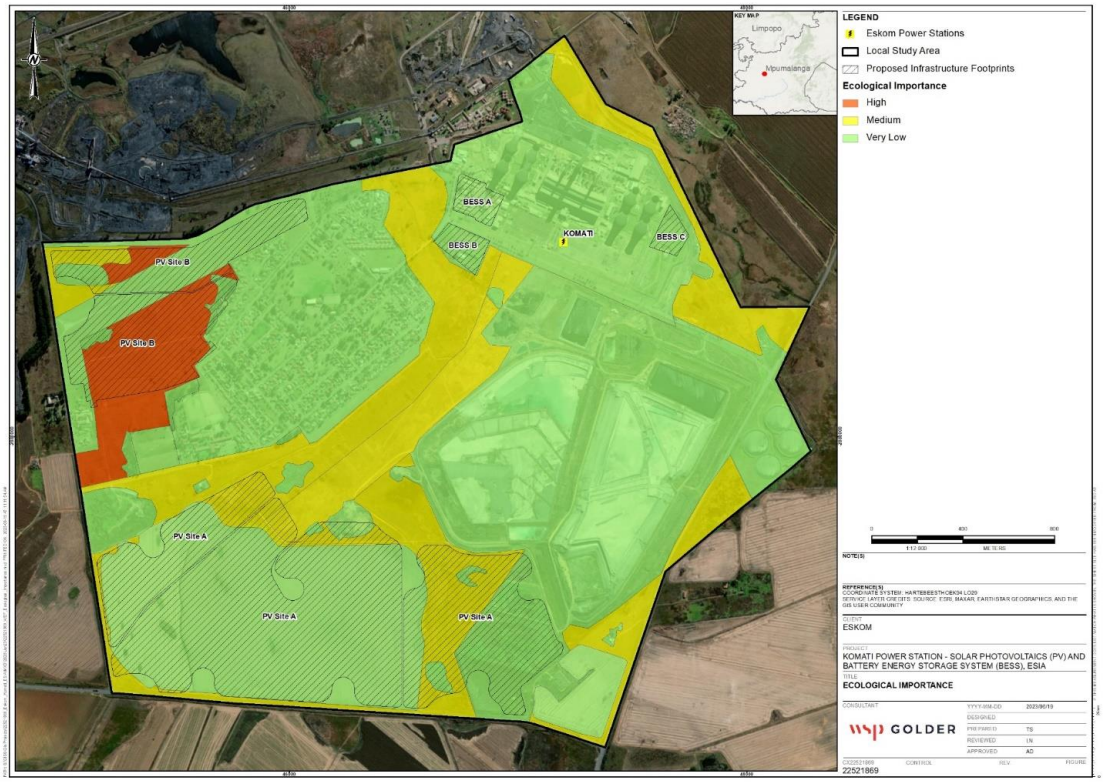


Figure 16: Ecological importance of habitat units in the local study area

7.3 Sub-section 3: Declaration

The proponent/applicant or holder of the EA affirms that he/she will abide and comply with the prescribed impact management outcomes and impact management actions as stipulated in part B: section 1 of the generic EMPr and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the EA affirms that he/she will provide written notice to the CA 14 day prior to the date on which the activity will commence of commencement of construction to facilitate compliance inspections.

Signature Proponent/applicant/ holder of EA

Date:

17 August 2023

Deidre Herbst
Representative of Eskom Holdings ltd

7.4 Sub-section 4: amendments to site specific information (Part B; section 2)

Should the EA be transferred to a new holder, Part B: Section 2 must be completed by the new holder and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted for an amendment to an environmental authorisation will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART C

8 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

If any specific environmental sensitivities/attributes are present on the site which require more specific impact management outcomes and actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and impact management actions must be included in this section. These specific management controls must be referenced spatially, and must include impact management outcomes and impact management actions. The management controls including impact management outcomes and impact management actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional impact management outcomes and impact management actions that are necessary.

If Part C is applicable to the development as authorised in the EA, it is required to be submitted to the CA together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and the name and expertise of the EAP, including the curriculum vitae are to be included. Once approved, Part C forms part of the EMPr for the site and is legally binding.

This section will **not be required** should the site contain no specific environmental sensitivities or attributes.

NOT REQUIRED
No Environmental Sensitivities Identified within the Substation Site Footprint (Refer to Figure 3)

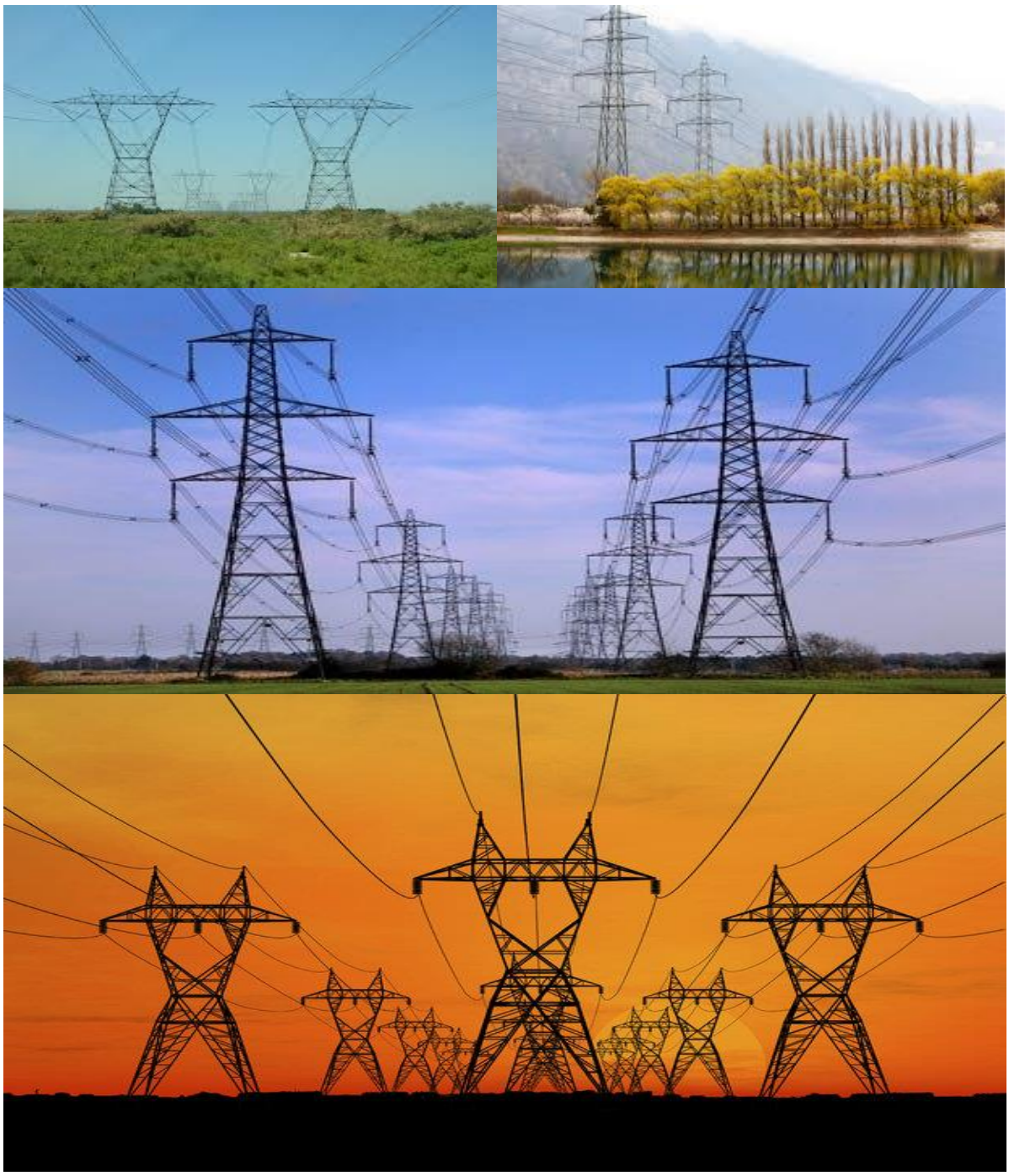
APPENDIX 1: METHOD STATEMENTS

To be prepared by the contractor prior to commencement of the activity. The method statements are **not required** to be submitted to the CA.

Appendix B

OHPL GENERIC EMPR

APPENDIX 1
GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE DEVELOPMENT AND EXPANSION FOR OVERHEAD ELECTRICITY TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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INTRODUCTION

1. Background

The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) requires that an environmental management programme (EMPr) be submitted where an environmental impact assessment (EIA) has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation (EA). The content of an EMPr must either contain the information set out in Appendix 4 of the Environmental Impact Assessment Regulations, 2014, as amended, (EIA Regulations) or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice, that a generic EMPr is relevant to an application for EA, that generic EMPr must be applied by all parties involved in the EA process, including, but not limited to, the applicant and the competent authority (CA).

2. Purpose

This document constitutes a generic EMPr relevant to applications for the development or expansion of overhead electricity transmission and distribution infrastructure, and all listed and specified activities necessary for the realisation of such infrastructure.

3. Objective

The objective of this generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of overhead electricity transmission and distribution infrastructure. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.

4. Scope

The scope of this generic EMPr applies to the development or expansion of overhead electricity transmission and distribution infrastructure requiring EA in terms of NEMA, i.e. with a capacity of 33 kilovolts or more. This generic EMPr applies to activities requiring EA, mainly activity 11 and 47 of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014, as amended, and activity 9 of the Environmental Impact Assessment Regulations Listing Notice 2 of 2014, as amended, and all associated listed or specified activities necessary for the realisation of such infrastructure.

5. Structure of this document

This document is structured in three parts with an Appendix as indicated in the table below:

Part	Section	Heading	Content
A		Provides general guidance and	Definitions, acronyms, roles & responsibilities and documentation and reporting.

Part	Section	Heading	Content
		information and is **not legally binding**	
B	1	Pre-approved generic EMPr template	Contains generally accepted impact management outcomes and impact management actions required for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of overhead electricity transmission and distribution infrastructure, which are presented in the form of a template that has been pre-approved. The template in this section is to be completed by the contractor, with each completed page signed and dated by the holder of the EA prior to commencement of the activity. Where an impact management outcome is not relevant, the words "not applicable" can be inserted in the template under the "responsible persons" column. Once completed and signed, the template represents the EMPr for the activity approved by the CA and is legally binding. The template **is not required** to be submitted to the CA as once the generic EMPr is gazetted for implementation, it has been approved by the CA. To allow interested and affected parties access to the pre-approved EMPr template for consideration through the decision-making process, the EAP on behalf of the applicant /proponent must make the hard copy of this EMPr available at a public location and where the applicant has a website, the EMPr should also be made available on such publicly accessible website.
	2	Site specific information	Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA will comply with the pre-approved generic EMPr template contained in Part B: Section 1, and understands that the impact management outcomes and impact management actions are **legally binding**. The preliminary infrastructure layout must be finalized to inform the final EMPr that is to be submitted with the basic assessment

Part	Section	Heading	Content
			report (BAR) or environmental impact assessment report (EIAR), ensuring that all impact management outcomes and actions have been either pre-approved or approved in terms of Part C. This section **must be** submitted to the CA together with the final BAR or EIAR. The information submitted to the CA will be considered to be incomplete should a signed copy of Part B: section 2 not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding.
C		Site specific sensitivities/ attributes	If any specific environmental sensitivities/ attributes are present on the site which require site specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr, to manage impacts, these specific impact management outcomes and impact management actions must be included in this section. These specific environmental attributes must be referenced spatially and impact management outcomes and impact management actions must be provided. These specific impact management outcomes and impact management actions must be presented in the format of the pre-approved EMPr template (Part B: section 1) This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if Part C is applicable to the site, it **is required** to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP, and must contain his/her name and expertise including a curriculum vitae. Once approved, Part C forms part of the EMPr for the site and is legally binding. This section applies only **to additional** impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific development or expansion and which are not

Part	Section	Heading	Content
			already included in Part B: section 1.
Appendix 1			Contains the method statements to be prepared prior to commencement of the activity. The method statements are **not required** to be submitted to the competent authority.

6. Completion of part B: section 1: the pre-approved generic EMPr template

The template is to be completed prior to commencement of the activity, by providing the following information for each environmental impact management action:

- For implementation
  - a 'responsible person',
  - a method for implementation,
  - a timeframe for implementation
- For monitoring
  - a responsible person
  - frequency
  - evidence of compliance.

The completed template must be signed and dated by the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must be signed and dated on each page by the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

7. Amendments of the impact management outcomes and impact management actions

Once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

- Amendment of the impact management outcomes: in line with the process contemplated in regulation 37 of the EIA Regulations; and
- Amendment of the impact management actions: in line with the process contemplated in regulation 36 of the EIA Regulations.

8. Documents to be submitted as part of part B: section 2 site specific information and declaration

Part B: Section 2 has three distinct sub-sections. The first and third sub-sections are in a template format. Sub-section two requires a map to be produced.

Sub-section 1 contains the project name, the applicant's name and contact details, the site information, which includes coordinates of the corridor in which the proposed overhead

electricity transmission and distribution infrastructure is proposed as well as the 21-digit Surveyor General code of each cadastral land parcel and, where available, the farm name.

Sub-section 2 is to be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout using the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. raptor nest, threatened plant species, archaeological site, etc. Sensitivity maps must identify features both within the planned working area and any known sensitive features in the surrounding landscape within 50m from the development footprint. The overhead transmission and distribution profile must be illustrated at an appropriate resolution to enable fine scale interrogation. It is recommended that <20 km of overhead transmission and distribution length is illustrated per page in A3 landscape format. Where considered appropriate, photographs of sensitive features in the context of tower positions must be used.

Sub-section 3 is the declaration that the applicant/proponent or holder of the EA in the case of a change of ownership must complete, which confirms that the applicant/EA holder will comply with the pre-approved generic EMPr template in Section 1 and understands that the impact management outcomes and actions are legally binding.

(a) Amendments to Part B: Section 2 – site specific information and declaration

Should the EA be transferred, Part B: Section 2 must be completed by the new applicant/proponent and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted as part of such an application for an amendment to an EA will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART A – GENERAL INFORMATION

1. DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA Regulations has that meaning, and unless the context requires otherwise –

"clearing" means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified;

"construction camp" is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;

"contractor" - The Contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract, are in line with the Environmental Management Programme and that Method Statements are implemented as described.

"hazardous substance" is a substance governed by the Hazardous Substances Act, 1973 (Act No. 15 of 1973) as well as the Hazardous Chemical and Substances Regulations, 1995;

"method statement" means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The method statement must set out the equipment, materials, labour and method(s) the Contractor proposes using to carry out an activity identified by the Project Manager when requesting the Method Statement. This must be done in such detail that the Project Manager and ECO is able to assess whether the Contractor's proposal is in accordance with this specification and/or will produce results in accordance with this specification;

The method statement must cover applicable details with regard to:

(i) Construction procedures;
(ii) Plant, materials and equipment to be used;
(iii) Transporting the equipment to and from site;
(iv) How the plant/ material/ equipment will be moved while on site;
(v) How and where the plant/ material/ equipment will be stored;
(vi) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
(vii) Timing and location of activities;
(viii) Compliance/ non-compliance; and
(ix) Any other information deemed necessary by the Project Manager.

"slope" means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units;

"solid waste" means all solid waste, including construction debris, hazardous waste, excess cement/ concrete, wrapping materials, timber, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers);

"spoil" means excavated material which is unsuitable for use as material in the construction works or is material which is surplus to the requirements of the construction works;

"topsoil" means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility and composition of the soil; and

"works" means the works to be executed in terms of the Contract

2. ACRONYMS and ABBREVIATIONS

CA	Competent Authority
cEO	Contractors Environmental Officer
dEO	Developer Environmental Officer
DPM	Developer Project Manager
DSS	Developer Site Supervisor
EAR	Environmental Audit Report
ECA	Environmental Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ERAP	Emergency Response Action Plan
EMPr	Environmental Management Programme Report
EAP	Environmental Assessment Practitioner
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act ,2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
MSDS	Material Safety Data Sheet
RI&AP's	Registered interested and affected parties

3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION

The effective implementation of this generic EMPr is dependent on established and clear roles, responsibilities and reporting lines within an institutional framework. This section of the EMPr gives guidance to the various environmental roles and reporting lines, however, project specific requirements will ultimately determine the need for the appointment of specific person(s) to undertake specific roles and or responsibilities. As such, it must be noted that in the event that no specific person, for example, an environmental control officer (ECO) is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the ECO are undertaken.

Table 1: *Guide to roles and responsibilities for implementation of an EMPr*

Responsible Person (s)	**Role and Responsibilities**
Developer's Project Manager (DPM)	Role The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent. Responsibilities - Be fully conversant with the conditions of the EA; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); - Issuing of site instructions to the Contractor for corrective actions required; - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and - Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer Site Supervisor (DSS)	Role The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS

Responsible Person (s)	Role and Responsibilities
	is responsible for the day to day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr. Responsibilities - Ensure that all contractors identify a contractor's Environmental Officer (cEO); - Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO; - Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO; - Issuing of site instructions to the Contractor for corrective actions required; - Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Report.
Environmental Control Officer (ECO)	Role The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. The ECO provides feedback to the DSS and Project Manager regarding all environmental matters. The Contractor, cEO and dEO are answerable to the Environmental Control Officer for non- compliance with the Performance Specifications as set out in the EA and EMPr. The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &Affected Parties' (RI&AP's), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required.

Responsible Person (s)	Role and Responsibilities
	Responsibilities The responsibilities of the ECO will include the following: - Be aware of the findings and conclusions of all EA related to the development; - Be familiar with the recommendations and mitigation measures of this EMPr; - Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them; - Undertake regular and comprehensive site inspections / audits of the construction site according to the generic EMPr and applicable licenses in order to monitor compliance as required; - Educate the construction team about the management measures contained in the EMPr and environmental licenses; - Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective; - Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements; - In consultation with the Developer Site Supervisor order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and/or environmental licenses; - Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns; - Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr; - Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO); - Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc) as well as corrective and preventive actions taken; - Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken; - Assisting in the resolution of conflicts; - Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor; - In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance; - Maintenance, update and review of the EMPr; - Communication of all modifications to the EMPr to the relevant stakeholders.

Responsible Person (s)	Role and Responsibilities
developer Environmental Officer (dEO)	Role The dEOs will report to the Project Manager and are responsible for implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and Contractor's Manager, liaising with contractors and the landowners as well as a range of environmental coordination responsibilities. Responsibilities - Be fully conversant with the EMPr; - Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ; - Confine the development site to the demarcated area; - Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO); - Assist the contractors in addressing environmental challenges on site; - Assist in incident management: - Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared; - Assist the contractor in investigating environmental incidents and compile investigation reports; - Follow-up on pre-warnings, defects, non-conformance reports; - Measure and communicate environmental performance to the Contractor; - Conduct environmental awareness training on site together with ECO and cEO; - Ensure that the necessary legal permits and / or licenses are in place and up to date; - Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;
Contractor	Role The Contractor appoints the cEO and has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that Method Statements are implemented as described. External contractors must ensure compliance with this EMPr while performing

Responsible Person (s)	Role and Responsibilities
	the onsite activities as per their contract with the Project Developer. The contractors are required, where specified, to provide Method Statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development or expansion for overhead electricity transmission and distribution infrastructure activities. Responsibilities - project delivery and quality control for the development services as per appointment; - employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; - ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; - attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; - ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.
contractor Environmental Officer (cEO)	Role Each Contractor affected by the EMPr should appoint a cEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the cEO shall meet the following criteria: Responsibilities - Be on site throughout the duration of the project and be dedicated to the project; - Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site;

Responsible Person (s)	Role and Responsibilities
	- Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements; - Attend the Environmental Site Meeting; - Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; - Report back formally on the completion of corrective actions; - Assist the ECO in maintaining all the site documentation; - Prepare the site inspection reports and corrective action reports for submission to the ECO; - Assist the ECO with the preparing of the monthly report; and - Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company.

4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place for all overhead electricity transmission and distribution infrastructure projects as a minimum requirement.

4.1 Document control/Filing system

The holder of the EA is solely responsible for the upkeep and management of the EMPr file. At a minimum, all documentation detailed below will be stored in the EMPr file. A hard copy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the DSS (where applicable). This duplicate file must remain current and up-to-date. The filing system must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the CA or other relevant authorities. The EMPr file will form part of any environmental audits undertaken as prescribed in the EIA Regulations.

4.2 Documentation to be available

At the outset of the project the following preliminary list of documents shall be placed in the filing system and be accessible at all times:

- Full copy of the signed EA from the CA in terms of NEMA, granting approval for the development or expansion;
- Copy of the generic and site specific EMPr as well as any amendments thereof;
- Copy of declaration of implementing generic EMPr and subsequent approval of site specific EMPr and amendments thereof;
- All method statements;
- Completed environmental checklists;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- A copy of all instructions or directives issued;
- A copy of all corrective actions signed off. The corrective actions must be filed in such a way that a clear reference is made to the non-compliance record;
- Complaints register.

4.3 Weekly Environmental Checklist

The ECOs are required to complete a Weekly Environmental Checklist, the format of which is to be agreed prior to commencement of the activity. The ECOs are required to sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the DSS on a weekly basis.

The checklists will form the basis for the Monthly Environmental Reports. Copies of all completed checklists will be attached as Annexures to the Environmental Audit Report as required in terms of the EIA Regulations.

4.4 Environmental site meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report that is distributed to attendees. Each set of minutes must clearly record "Matters for Attention" that will be reviewed at the next meeting.

4.5 Required Method Statements

The method statement will be done in such detail that the ECOs are enabled to assess whether the contractor's proposal is in accordance with the EMPr.

The method statement must cover applicable details with regard to:

- development procedures;
- materials and equipment to be used;
- getting the equipment to and from site;
- how the equipment/ material will be moved while on site;
- how and where material will be stored;
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- timing and location of activities;
- compliance/ non-compliance with the EMPr; and
- any other information deemed necessary by the ECOs.

Unless indicated otherwise by the Project Manager, the Contractor shall provide the following method statements to the Project Manager no less than 14 days prior to the commencement date of the activity:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Batch plants;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substance's;
- Vegetation management – Protected, clearing, aliens, felling;
- Access management – Roads, gates, crossings etc.;
- Fire plan;
- Waste management – transport, storage, segregation, classification, disposal (all waste streams);
- Social interaction – complaints management, compensation claims, access to properties etc.;
- Water – use (source, abstraction and disposal), access and all related information, crossings and mitigation;
- Emergency preparedness – Spills, training, other environmental emergencies;
- Dust and noise management methodologies;
- Fauna interaction and risk management – only if the risk was identified – wildlife interaction especially on game farms; and
- Heritage and palaeontology management.

The ECOs shall monitor and ensure that the contractors perform in accordance with these method statements. Completed and agreed method statements between the holder of the EA and the contractor shall be captured in Appendix 1.

4.6 Environmental Incident Log (Diary)

The ECOs are required to maintain an up-to-date and current Environmental Incident Log (environmental diary). The Environmental Incident Log is a means to record all environmental incidents and/or all non-compliance notice would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMPr) that may be addressed immediately by the ECOs. (For example a contractor's staff member littering or a drip tray that has not been emptied);
- Any environmental impact resulting from an action or activity by a contractor in contravention of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and
- General environmental information such as road kills or injured wildlife.

The ECOs are to record all environmental incidents in the Environmental Incident Log. All incidents regardless of severity must be reported to the Developer. The Log is to be kept in the EMPr file and at a minimum the following will be recorded for each environmental incident:

- The date and time of the incident;
- Description of the incident;
- The name of the Contractor responsible;
- The incident must be listed as significant or minor;
- If the incident is listed as significant, a non-compliance notice must be issued, and recorded in the log;
- Remedial or corrective action taken to mitigate the incident; and
- Record of repeat minor offences by the same contractor or staff member.

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

A non-compliance notice will be issued to the responsible contractor by the ECOs via the DSS or Project Manager. The non-compliance notice will be issued in writing; a copy filed in the EMPr file and will at a minimum include the following:

- Time and date of the non-compliance;
- Name of the contractor responsible;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date by which the corrective action to be completed.
- The contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the development site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. The ECO should be made aware of any complaints. Any non-compliance with the agreed procedures of the EMPr is a transgression of the

various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant CA for them to deal with the transgression, as it deems fit. The contractor is deemed not to have complied with the EMPr if, inter alia, There is a deviation from the environmental conditions, impact management outcomes and impact management actions , as approved in generic and site specific EMPr as relevant as set out in the EMPr, which deviation has, or may cause, an environmental impact.

4.8 Corrective action records

For each non-compliance notice issued, a documented corrective action must be recorded. On receiving a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions required take place within the stipulated timeframe. On completion of the corrective action the cEO is to issue a Corrective Action Report in writing to the ECOs. If satisfied that the corrective action has been completed, the ECOs are to sign-off on the Corrective Action Report, and attach the report to the non-compliance notice in the EMPr file. A corrective action is considered complete once the report has signed off by the ECOs.

4.9 Photographic record

A digital photographic record will be kept. The photographic record will be used to show before, during and post rehabilitation evidence of the project as well used in cases of damages claims if they arise. Each image must be dated and a brief description note attached.

The Contractor shall:

1. Allow the ECOs access to take photographs of all areas, activities and actions.

The ECOs shall keep an electronic database of photographic records which will include:

1. Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
2. All bunding and fencing;
3. Road conditions and road verges;
4. Condition of all farm fences;
5. Topsoil storage areas;
6. All areas to be cordoned off during construction;
7. Waste management sites;
8. Ablution facilities (inside and out);
9. Any non-conformances deemed to be "significant";
10. All completed corrective actions for non-compliances;
11. All required signage;
12. Photographic recordings of incidents;
13. All areas before, during and post rehabilitation; and
14. Include relevant photographs in the Final Environmental Audit Report.

4.10 Complaints register

The ECOs shall keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from communities, stakeholders and individuals. The Complaints Record shall:

1. Record the name and contact details of the complainant;
2. Record the time and date of the complaint;
3. Contain a detailed description of the complaint;
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
5. Contain a copy of the ECOs written response to each complaint received and keep a record of any further correspondence with the complainant. The ECO's written response will include a description of any corrective action to be taken and must be signed by the Contractor, ECO and affected party. Where a damage claim is issued by the complainant, the ECOs shall respond as described in (**section 4.11**) below.

4.11 Claims for damages

In the event that a Claim for Damages is submitted by a community, landowner or individual, the ECOs shall:

1. Record the full detail of the complaint as described in (**section 4.10**) above;
2. The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
3. Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing report the incident to the Developer's negotiator and legal department; and
4. A formal record of the response by the ECOs to the claimant as well as the rectification of the method of making payments not amount will be recorded in the EMPr file.

4.12 Interactions with affected parties

Open, transparent and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts.

The ECOs shall:

1. Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
2. Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
3. Ensure that a complaints telephone numbers are made available to all landowners and affected parties; and
4. Ensure that contact with affected parties is courteous at all times;

4.13 Environmental audits

Internal environmental audits of the activity and implementation of the EMPr must be undertaken. The findings and outcomes must be included in the EMPr file and be submitted to the CA at intervals as indicated in the EA.

An Environmental Audit Report must be prepared monthly. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting and the final report will be circulated to the Project Manager and filed in the EMPr file. At a frequency determined by the EA, the ECOs shall submit the monthly reports to the CA. At a minimum the monthly report is to cover the following:

- Weekly Environmental Checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental Monitoring;
- General environmental findings and actions; and
- Minutes of the Bi-monthly Environmental Site Meetings.

4.14 Final environmental audits

On final completion of the rehabilitation and/or requirements of the EA a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

PART B: SECTION 1: Pre-approved generic EMPr template

5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

This section provides a pre-approved generic EMPr template with aspects that are common to the development of overhead electricity transmission and distribution infrastructure. There is a list of aspects identified for the development or expansion of overhead electricity transmission and distribution infrastructure, and for each aspect a set of prescribed impact management outcomes and associated impact management actions have been identified. Holders of EAs are responsible to ensure the implementation of these outcomes and actions for all projects as a minimum requirement, in order to mitigate the impact of such aspects identified for the development or expansion of overhead electricity transmission and distribution infrastructure.

The template provided below is to be completed by providing the information under each heading for each environmental impact management action.

The completed template must be signed and dated on each page by both the contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must also be duly signed and dated on each page by the contactor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

5.1 Environmental awareness training

Impact management outcome: All onsite staff are aware and understands the individual responsibilities in terms of this EMPr.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All staff must receive environmental awareness training prior to commencement of the activities; – The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; – Refresher environmental awareness training is available as and when required; – All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr; – The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: a)Safety notifications; and b) No littering. – Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures;						

d) Emergency procedures; e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j)Fire prevention; and k) Disease prevention. – A record of all environmental awareness training courses undertaken as part of the EMPr must be available; – Educate workers on the dangers of open and/or unattended fires; – A staff attendance register of all staff to have received environmental awareness training must be available. – Course material must be available and presented in appropriate languages that all staff can understand.						

5.2 Site Establishment development

Impact management outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location						

of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management; – Location of camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through; – Sites must be located where possible on previously disturbed areas; – The camp must be fenced in accordance with ***Section 5.5: Fencing and gate installation***; and – The use of existing accommodation for contractor staff, where possible, is encouraged.						

5.3 Access restricted areas

Impact management outcome: Access to restricted areas prevented.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development; – Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted						

area, colour coding could be used if appropriate; and – Unauthorised access and development related activity inside access restricted areas is prohibited.						

5.4 Access roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Access to the servitude and tower positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area; – An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities; – The access roads to tower positions must be signposted after access has been negotiated and before the commencement of the activities; – All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition – All contractors must be made aware of all these access routes. – Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense; – Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the						

development of new roads; – In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with ***section 4.9: photographic record***; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor; – Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands – Access roads must only be developed on pre-planned and approved roads.						

5.5 Fencing and Gate installation

Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Use existing gates provided to gain access to all parts of the area authorised for development, where possible; – Existing and new gates to be recorded and documented in accordance with **section *4.9: photographic record***; – All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; – At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner;						

– Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground; – Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; – Original tension must be maintained in the fence wires; – All gates installed in electrified fencing must be re-electrified; – All demarcation fencing and barriers must be maintained in good working order for the duration of overhead transmission and distribution electricity infrastructure development activities; – Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where appropriate and would not cause harm to the sensitive flora; – Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner. – All fencing must be developed of high quality material bearing the SABS mark; – The use of razor wire as fencing must be avoided; – Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times; – On completion of the development phase all temporary fences are to be removed; – The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.						

5.6 Water Supply Management

Impact management outcome: Undertake responsible water usage.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis; – The Contractor must ensure the following: a. The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented. – Ensure water conservation is being practiced by: a. Minimising water use during cleaning of equipment; b. Undertaking regular audits of water systems; and c. Including a discussion on water usage and conservation during environmental awareness training. d. The use of grey water is encouraged.						

5.7 Storm and waste water management

Impact management outcome: Impacts to the environment caused by storm water and wastewater discharges during construction are avoided.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager; – All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; – Natural storm water runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO; – Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO.						

5.8 Solid and hazardous waste management

Impact management outcome: Waste is appropriately stored, handled and safely disposed of at a recognised waste facility.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All measures regarding waste management must be undertaken using an integrated waste management approach; – Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; – A suitably positioned and clearly demarcated waste collection site must be identified and provided; – The waste collection site must be maintained in a clean and orderly manner; – Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; – Staff must be trained in waste segregation; – Bins must be emptied regularly; – General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company; – Hazardous waste must be disposed of at a registered waste disposal site; – Certificates of safe disposal for general, hazardous and recycled waste must be maintained.						

5.9 Protection of watercourses and estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities; – In the event of a spill, prompt action must be taken to clear the polluted or affected areas; – Where possible, no development equipment must traverse any seasonal or permanent wetland – No return flow into the estuaries must be allowed and no disturbance of the Estuarine Functional Zone should occur; – Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; – There must not be any impact on the long term morphological dynamics of watercourses or estuaries; – Existing crossing points must be favored over the creation of new crossings (including temporary access) – When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse						

b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and d) Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows.						

5.10 Vegetation clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
General: – Indigenous vegetation which does not interfere with the development must be left undisturbed; – Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species; – Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing;						

– Permits for removal must be obtained from the Department of Agriculture, Forestry and Fisheries prior to the cutting or clearing of the affected species, and they must be filed; – The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; – Trees felled due to construction must be documented and form part of the Environmental Audit Report; – Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; – Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator, supervision of a registered pest control operator or is appropriately trained; – A daily register must be kept of all relevant details of herbicide usage; – No herbicides must be used in estuaries; – All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to ***Section 5.3: Access restricted areas***. **Servitude:** – Vegetation that does not grow high enough to cause interference with overhead transmission and distribution infrastructures, or cause a fire hazard to any plantation, must not be cut or trimmed unless it is growing in the road access area, and then only at the discretion of the Project Manager; – Where clearing for access purposes is essential, the maximum width to be cleared within the servitude must be in accordance to distance as agreed between the land						

owner and the EA holder – Alien invasive vegetation must be removed according to a plan (in line with relevant municipal and provincial procedures, guidelines and recommendations) and disposed of at a recognised waste disposal facility; – Vegetation must be trimmed where it is likely to intrude on the minimum vegetation clearance distance (MVCD) or will intrude on this distance before the next scheduled clearance. MVCD is determined from SANS 10280; – Debris resulting from clearing and pruning must be disposed of at a recognised waste disposal facility, unless the landowners wish to retain the cut vegetation; – In the case of the development of new overhead transmission and distribution infrastructures, a one metre "trace-line" must be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along the "trace-line". Alternative methods of stringing which limit impact to the environment must always be considered.						

5.11 Protection of fauna

Impact management outcome: Minimise disturbance to fauna.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present; – The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the						

development programme; – Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present; – Nesting sites on existing parallel lines must documented; – Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; – Bird guards and diverters must be installed on the new line as per the recommendations of the specialist; – No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas; – No deliberate or intentional killing of fauna is allowed; – In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and – No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.						

5.12 Protection of heritage resources

Impact management outcome: Minimise impact to heritage resources.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identify, demarcate and prevent impact to all known						

sensitive heritage features on site in accordance with the No-Go procedure in ***Section 5.3: Access restricted areas***; – Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; – All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.						

5.13 Safety of the public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.; – All unattended open excavations must be adequately fenced or demarcated; – Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; – Ensure structures vulnerable to high winds are secured; – Maintain an incidents and complaints register in which all						

incidents or complaints involving the public are logged.						

5.14 Sanitation

Impact management outcome: Clean and well maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Mobile chemical toilets are installed onsite if no other ablution facilities are available; – The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; – Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect						

toilets to ensure compliance to health standards; – A copy of the waste disposal certificates must be maintained.						

5.15 Prevention of disease

Impact Management outcome: All necessary precautions linked to the spread of disease are taken.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Undertake environmentally-friendly pest control in the camp area; – Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; – The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area; – Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; – Free condoms must be made available to all staff on site at central points; – Medical support must be made available; – Provide access to Voluntary HIV Testing and Counselling Services.						

5.16 Emergency procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project; – The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; – All staff must be made aware of emergency procedures as part of environmental awareness training; – The relevant local authority must be made aware of a fire as soon as it starts; – In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see ***Hazardous Substances section 5.17***).						

5.17 Hazardous substances

Impact management outcome: Safe storage, handling, use and disposal of hazardous substances.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible; – All hazardous substances must be stored in suitable						

containers as defined in the Method Statement; – Containers must be clearly marked to indicate contents, quantities and safety requirements; – All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; – Bunded areas to be suitably lined with a SABS approved liner; – An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis; – All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS); – All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet; – Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; – The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers; – The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall); – The floor of the bund must be sloped, draining to an oil separator;						

– Provision must be made for refueling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; – All empty externally dirty drums must be stored on a drip tray or within a bunded area; – No unauthorised access into the hazardous substances storage areas must be permitted; – No smoking must be allowed within the vicinity of the hazardous storage areas; – Adequate fire-fighting equipment must be made available at all hazardous storage areas; – Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used; – An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times; – The responsible operator must have the required training to make use of the spill kit in emergency situations; – An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; – In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to ***Section 5.7*** for procedures concerning ***storm and waste water management*** and ***5.8*** for ***solid and hazardous waste management.***						

5.18 Workshop, equipment maintenance and storage

Impact management outcome: Soil, surface water and groundwater contamination is minimised.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; – During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of a fire as soon as it starts; – Leaking equipment must be repaired immediately or be removed from site to facilitate repair; – Workshop areas must be monitored for oil and fuel spills; – Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available; – The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed; – Water drainage from the workshop must be contained and managed in accordance ***Section 5.7: storm and waste water management***.						

5.19 Batching plants

Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Concrete mixing must be carried out on an impermeable surface; – Batching plants areas must be fitted with a containment facility for the collection of cement laden water. – Dirty water from the batching plant must be contained to prevent soil and groundwater contamination – Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains; – A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; – Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility; – Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site; – Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to ***Section 5.20: Dust emissions***) – Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility; – Temporary fencing must be erected around batching plants						

in accordance with ***Section 5.5: Fencing and gate installation***.						

5.20 Dust emissions

Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; – Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible; – Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present; – During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level; – Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind; – Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;						

– Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; – Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks; – For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.						

5.21 Blasting

Impact management outcome: Impact to the environment is minimised through a safe blasting practice.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Any blasting activity must be conducted by a suitably licensed blasting contractor; and – Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on Site.						

5.22 Noise

Impact Management outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

– The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only; – All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; – Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers; – Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff.Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.						

5.23 Fire prevention

Impact management outcome: Prevention of uncontrollable fires.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Designate smoking areas where the fire hazard could be regarded as insignificant; – Firefighting equipment must be available on all vehicles located on site; – The local Fire Protection Agency (FPA) must be informed of construction activities; – Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site;						

– Two way swop of contact details between ECO and FPA.						

5.24 Stockpiling and stockpile areas

Impact management outcome: Erosion and sedimentation as a result of stockpiling are reduced.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, watercourses and water bodies; – All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; – Topsoil stockpiles must not exceed 2 m in height; – During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.); – Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.						

5.25 Finalising tower positions

Impact management outcome: No environmental degradation occurs as a result of the survey and pegging operations.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– No vegetation clearing must occur during survey and pegging operations; – No new access roads must be developed to facilitate access for survey and pegging purposes; – Project manager, botanical specialist and contractor to agree on final tower positions based on survey within assessed and approved areas; – The surveyor is to demarcate (peg) access roads/tracks in consultation with ECO. No deviations will be allowed without the prior written consent from the ECO.						

5.26 Excavation and Installation of foundations

Impact management outcome: No environmental degradation occurs as a result of excavation or installation of foundations.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a recognised disposal site, if not used for backfilling purposes; – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes; – Management of equipment for excavation purposes must						

be undertaken in accordance with ***Section 5.18: Workshop equipment maintenance and storage***; and – Hazardous substances spills from equipment must be managed in accordance with ***Section 5.17: Hazardous substances***. – Batching of cement to be undertaken in accordance with **Section *5.19 : Batching plants***; – Residual cement must be disposed of in accordance with **Section *5.8: Solid and hazardous waste management***.						

5.27 Assembly and erecting towers

Impact management outcome: No environmental degradation occurs as a result of assembly and erecting of towers.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Prior to erection, assembled towers and tower sections must be stored on elevated surface (suggest wooden blocks) to minimise damage to the underlying vegetation; – In sensitive areas, tower assembly must take place off-site or away from sensitive positions; – The crane used for tower assembly must be operated in a manner which minimises impact to the environment; – The number of crane trips to each site must be minimised; – Wheeled cranes must be utilised in preference to tracked cranes; – Consideration must be given to erecting towers by helicopter or by hand where it is warranted to limit the extent of environmental impact; – Access to tower positions to be undertaken in accordance						

with access requirements in specified in Section 8.4: Access Roads; – Vegetation clearance to be undertaken in accordance with general vegetation clearance requirements specified in Section 8.10: Vegetation clearing; – No levelling at tower sites must be permitted unless approved by the Development Project Manager or Developer Site Supervisor; – Topsoil must be removed separately from subsoil material and stored for later use during rehabilitation of such tower sites; – Topsoil must be stored in heaps not higher than 1m to prevent destruction of the seed bank within the topsoil; – Excavated slopes must be no greater that 1:3, but where this is unavoidable, appropriate measures must be undertaken to stabilise the slopes; – Fly rock from blasting activity must be minimised and any pieces greater than 150 mm falling beyond the Working Area, must be collected and removed; – Only existing disturbed areas are utilised as spoil areas; – Drainage is provided to control groundwater exit gradient with the spill areas such that migration of fines is kept to a minimum; – Surface water runoff is appropriately channeled through or around spoil areas; – During backfilling operations, care must be taken not to dump the topsoil at the bottom of the foundation and then put spoil on top of that; – The surface of the spoil is appropriately rehabilitated in accordance with the requirements specified in Section 5.29: Landscaping and rehabilitation;						

– The retained topsoil must be spread evenly over areas to be rehabilitated and suitably compacted to effect re-vegetation of such areas to prevent erosion as soon as construction activities on the site is complete. Spreading of topsoil must not be undertaken at the beginning of the dry season.						

5.28 Stringing

Impact management outcome: No environmental degradation occurs as a result of stringing.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Where possible, previously disturbed areas must be used for the siting of winch and tensioner stations. In all other instances, the siting of the winch and tensioner must avoid Access restricted areas and other sensitive areas; – The winch and tensioner station must be equipped with drip trays in order to contain any fuel, hydraulic fuel or oil spills and leaks; – Refueling of the winch and tensioner stations must be undertaken in accordance with Section 5.17: Hazardous substances; – In the case of the development of overhead transmission and distribution infrastructure, a one metre "trace-line" may be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along "trace-lines". Vegetation clearing must be undertaken by hand, using chainsaws and hand held implements, with vegetation being cut off at ground level. No tracked or wheeled						

mechanised equipment must be used; – Alternative methods of stringing which limit impact to the environment must always be considered e.g. by hand or by using a helicopter; – Where the stringing operation crosses a public or private road or railway line, the necessary scaffolding/ protection measures must be installed to facilitate access. If, for any reason, such access has to be closed for any period(s) during development, the persons affected must be given reasonable notice, in writing; – No services (electrical distribution lines, telephone lines, roads, railways lines, pipelines fences etc.) must be damaged because of stringing operations. Where disruption to services is unavoidable, persons affected must be given reasonable notice, in writing; – Where stringing operations cross cultivated land, damage to crops is restricted to the minimum required to conduct stringing operations, and reasonable notice (10 work days minimum), in writing, must be provided to the landowner; – Necessary scaffolding protection measures must be installed to prevent damage to the structures supporting certain high value agricultural areas such as vineyards, orchards, nurseries.						

5.29 Socio-economic

Impact management outcome: Socio-economic development is enhanced.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

– Develop and implement communication strategies to facilitate public participation; – Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process; – Sustain continuous communication and liaison with neighboring owners and residents – Create work and training opportunities for local stakeholders; and – Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers.						

5.30 Temporary closure of site

Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in ***sections 5.17: management of hazardous substances*** and ***5.18 workshop, equipment maintenance and storage***; – Hazardous storage areas must be well ventilated; – Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service; – Emergency and contact details displayed must be displayed; – Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and						

emergency personnel; – Night hazards such as reflectors, lighting, traffic signage etc. must have been checked; – Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; – Structures vulnerable to high winds must be secured; – Wind and dust mitigation must be implemented; – Cement and materials stores must have been secured; – Toilets must have been emptied and secured; – Refuse bins must have been emptied and secured; – Drip trays must have been emptied and secured.						

5.31 Landscaping and rehabilitation

Impact management outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed to a registered waste site and certificates of disposal provided; – All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983 – All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; – Berms that have been created must have a slope of 1:4 and						

be replanted with indigenous species and grasses that approximates the original condition; – Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners; – Rehabilitation of tower sites and access roads outside of farmland; – Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition; – Stockpiled topsoil must be used for rehabilitation (refer to Section ***5.24: Stockpiling and stockpiled areas***); – Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; – Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; – Subsoil must be ripped before topsoil is placed; – The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment; – Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled ; – Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; – Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. – Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture						

is carefully selected to ensure the following: a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; e) The final product must not cause an ecological imbalance in the area						

6 ACCESS TO THE GENERIC EMPr

Once completed and signed, to allow the public access to the generic EMPr, the holder of the EA must make the EMPr available to the public in accordance with the requirements of regulation 26(h) of the EIA Regulations.

PART B: SECTION 2

7 SITE SPECIFIC INFORMATION AND DECLARATION

7.1 Sub-section 1: contact details and description of the project

7.1.1 Details of the applicant:

Eskom Holdings SOC (Ltd) (Eskom) is the project proponent (Applicant) with regards to this application for the construction and operation of the Komati Solar PV and BESS Facility.

Proponent:	Eskom Holdings SOC (Ltd)
Contact Person:	Deidre Herbst
Postal Address	PO Box 1091, Johannesburg
Telephone:	011 800 3501
Email:	Deidre.Herbst@eskom.co.za

7.1.2 Details and expertise of the EAP:

WSP was appointed in the role of Independent EAP to undertake the BA process for the proposed project. The CV of the EAP is available in Appendix A of the Site Specific EMPr. The EAP declaration of interest and undertaking is included in Appendix B of the Site Specific EMPr.

EAP	WSP Group Africa (PTY) Ltd
Company Registration:	1999/008928/07
Contact Person:	Ashlea Strong
Physical Address:	Building C, Knightsbridge, 33 Sloane Street, Bryanston, Johannesburg
Postal Address:	P.O. Box 98867, Sloane Park 2151, Johannesburg
Telephone:	011 361 1392
Fax:	011 361 1381
Email:	Ashlea.Strong@wsp.com

EAP Qualifications:	• Masters in Environmental Management, University of the Free State • B Tech, Nature Conservation, Technikon SA • National Diploma in Nature Conservation, Technikon SA
EAPASA Registration Number:	EAPASA (2019/1005)

Refer to Section 1.2 of the EMPr

7.1.3 Project name:

Mura 1 Solar PV Project

7.1.4 Description of the project:

Eskom Holdings (SOC) Ltd is proposing to develop a 100 MW Solar Photovoltaics (PV) Energy Facility (SEF); 150 MW Battery Energy Storage System (BESS); and associated infrastructure at the Komati Power Station located in the Mpumalanga Province, South Africa.

The proposed project will comprise the following key components:

- Solar Energy Facility;

- Grid Connection (i.e. powerlines);

- Site Substation and BESS; and

- Associated infrastructure.

The SEF is intended to evacuate power to the grid. Part of the design development will be to determine the best option to charge the BESS, either with grid power or power generated from PV.

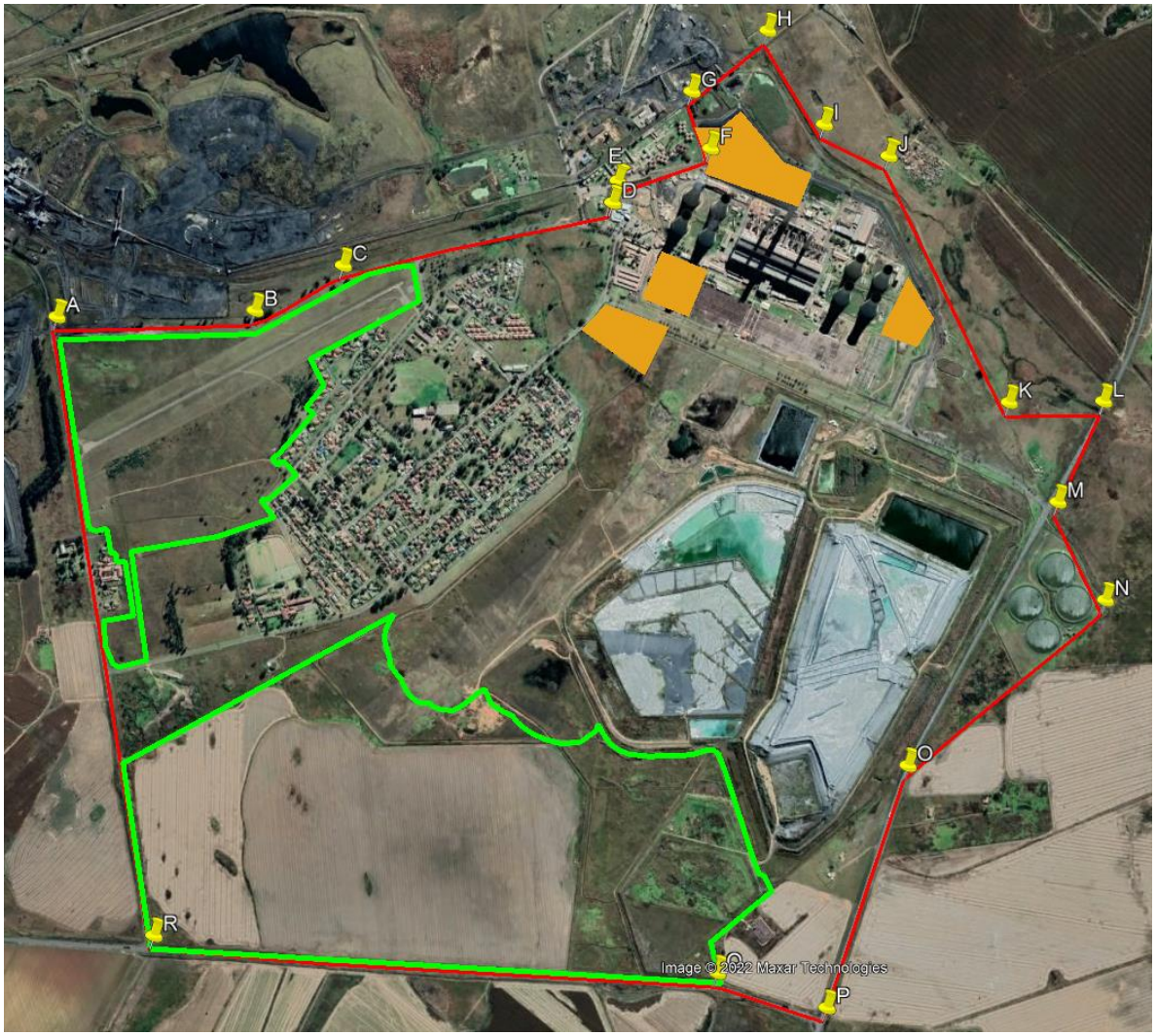
7.1.5 Project location:

The Komati Power Station is situated about 37km from Middelburg, 43km from Bethal and 40km from Witbank in Ward 4, Portion 0 of Farm Komati Power Station 56-IS in the Steve Tshwete Local Municipality located within the Nkangala District Municipality in the Mpumalanga Province. The SEF, BESS facilities and associated infrastructure will be located on Eskom owned land. The locality of the facilities is illustrated in Figure 1. The layout of the project is illustrated in Figure 2. The outer coordinates of Solar Site A and Solar Site B are indicated in Table 3.

Table 1 – Komati SEF Affected Farm Portions

Farm Name	**21 Digit Surveyor General Code of Each Cadastral Land Parcel**
Portion 0 of Farm Komati Power Station 56-IS	T0IS00000000005600000

Table 2 – Coordinate Points of the Cadastral Land Parcel

Point	Longitude	Latitude
		
AF	22° 25' 30.549" E	31° 54' 31.383" S
A	26° 5'32.63"S	29°26'56.39"E
B	26° 5'31.98"S	29°27'19.25"E
C	26° 5'27.31"S	29°27'29.45"E
D	26° 5'20.81"S	29°28'0.56"E
E	26° 5'18.53"S	29°28'1.16"E
F	26° 5'15.18"S	29°28'11.86"E
G	26° 5'9.26"S	29°28'9.70"E
H	26° 5'2.93"S	29°28'18.46"E

Point	Longitude	Latitude
I	26° 5'12.68"S	29°28'24.99"E
J	26° 5'15.96"S	29°28'32.44"E
K	26° 5'41.52"S	29°28'46.33"E
L	26° 5'41.41"S	29°28'57.23"E
M	26° 5'51.86"S	29°28'51.96"E
N	26° 6'2.02"S	29°28'57.44"E
O	26° 6'19.20"S	29°28'34.65"E
P	26° 6'44.32"S	29°28'25.28"E
Q	26° 6'40.71"S	29°28'12.64"E
R	26° 6'36.83"S	29°27'7.56"E

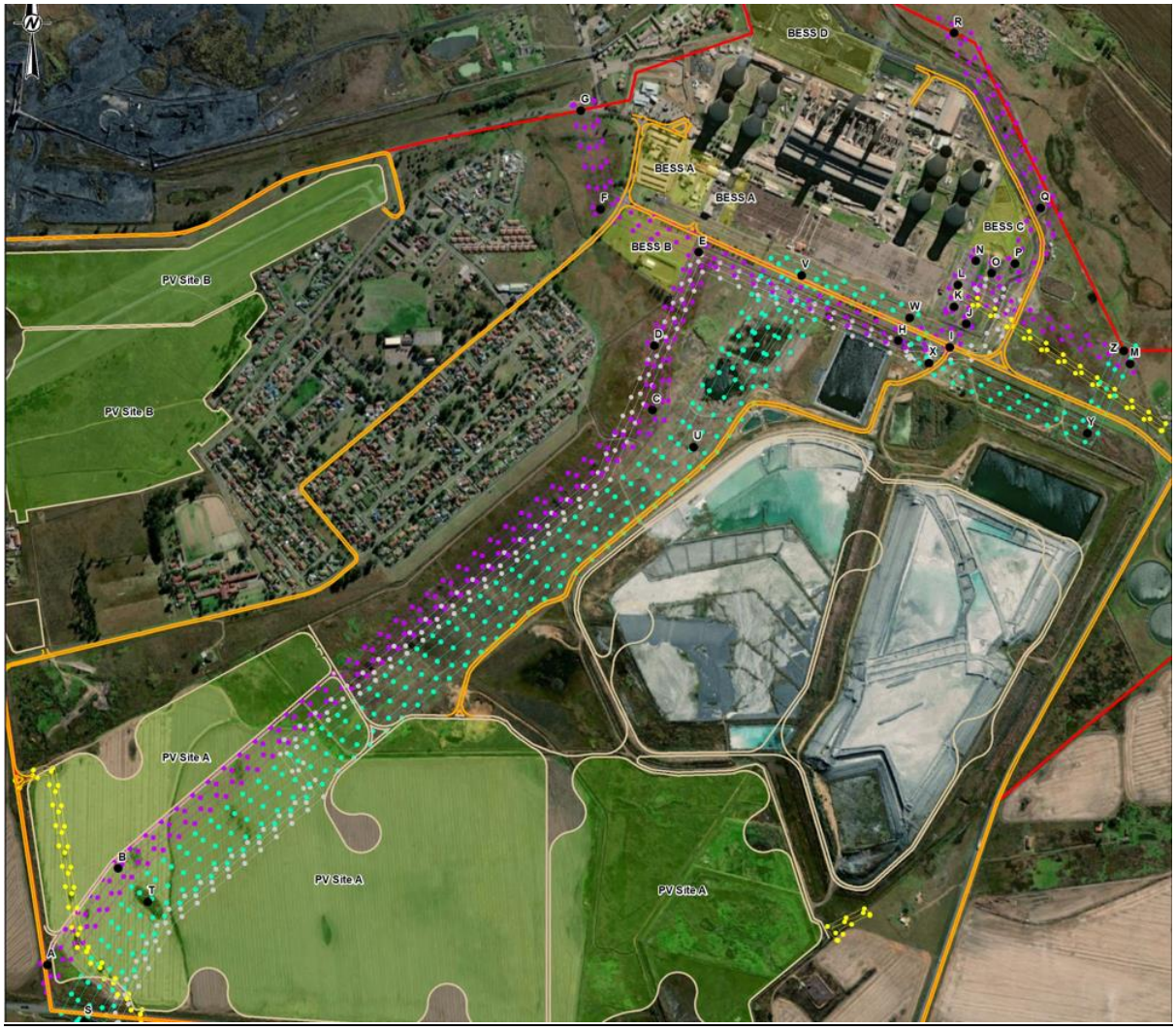
Table 3 – Solar PV Facility Outer Point Coordinates

Point	Longitude	Latitude
Solar PV Site A		
		
A1	26° 6'5.31"S	29°27'30.76"E
A2	26° 6'17.89"S	29°27'5.38"E
A3	26° 6'34.41"S	29°27'8.05"E
A4	26° 6'36.69"S	29°27'15.15"E
A5	26° 6'38.86"S	29°27'55.22"E
A6	26° 6'21.30"S	29°27'56.25"E
A7	26° 6'15.50"S	29°27'52.78"E
A8	26° 6'12.67"S	29°27'48.93"E
A9	26° 6'12.40"S	29°27'40.35"E
A10	26° 6'12.76"S	29°27'36.36"E
A11	26° 6'16.81"S	29°28'10.77"E
A12	26° 6'31.14"S	29°28'1.99"E

Point	Longitude	Latitude
A13	26° 6'35.00"S	29°28'3.48"E
A14	26° 6'39.43"S	29°28'9.30"E
A15	26° 6'39.48"S	29°28'12.50"E
A16	26° 6'35.92"S	29°28'11.90"E
A17	26° 6'29.40"S	29°28'18.32"E
A18	26° 6'18.08"S	29°28'13.47"E
Solar PV Site B		
		
B1	26° 5'34.09"S	29°26'57.90"E
B2	26° 5'37.67"S	29°26'58.53"E
B3	26° 5'46.25"S	29°26'59.82"E
B4	26° 5'52.86"S	29°27'1.17"E
B5	26° 5'52.80"S	29°27'2.85"E

Point	Longitude	Latitude
B6	26° 5'55.26"S	29°27'3.49"E
B7	26° 5'55.20"S	29°27'3.99"E
B8	26° 5'56.16"S	29°27'4.16"E
B9	26° 5'56.11"S	29°27'4.54"E
B10	26° 5'48.30"S	29°27'2.90"E
B11	26° 5'47.14"S	29°27'3.68"E
B12	26° 5'36.17"S	29°27'25.98"E
B13	26° 5'28.92"S	29°27'38.16"E
B14	26° 5'26.51"S	29°27'37.45"E
B15	26° 5'27.14"S	29°27'32.93"E
B16	26° 5'33.32"S	29°27'19.83"E

Table 4 – Powerline Bend Point Coordinates

Point	Longitude	Latitude
		
A1	26° 6' 17.802" S	29° 27' 5.348" E
A	26° 6' 32.959" S	29° 27' 7.084" E
B	26° 6' 24.899" S	29° 27' 13.580" E
C	26° 5' 46.581" S	29° 28' 2.793" E
D	26° 5' 41.212" S	29° 28' 2.948" E
E	26° 5' 33.428" S	29° 28' 7.008" E
F	26° 5' 29.880" S	29° 27' 57.943" E
G	26° 5' 21.659" S	29° 27' 56.067" E
H	26° 5' 40.725" S	29° 28' 25.472" E

Point	Longitude	Latitude
I	26° 5' 41.257" S	29° 28' 30.237" E
J	26° 5' 39.317" S	29° 28' 31.766" E
K	26° 5' 37.895" S	29° 28' 30.630" E
L	26° 5' 36.078" S	29° 28' 30.983" E
M	26° 5' 42.586" S	29° 28' 46.903" E
N	26° 5' 34.071" S	29° 28' 32.614" E
O	26° 5' 35.088" S	29° 28' 34.089" E
P	26° 5' 34.286" S	29° 28' 36.220" E
Q	26° 5' 29.651" S	29° 28' 38.580" E
R	26° 5' 15.099" S	29° 28' 30.518" E
S	26° 6' 37.674" S	29° 27' 10.522" E
T	26° 6' 27.679" S	29° 27' 16.352" E
U	26° 5' 49.659" S	29° 28' 6.596" E
V	26° 5' 35.332" S	29° 28' 16.522" E
W	26° 5' 38.833" S	29° 28' 26.527" E
X	26° 5' 42.591" S	29° 28' 28.326" E
Y	26° 5' 48.385" S	29° 28' 42.998" E
Z	26° 5' 41.518" S	29° 28' 46.324" E

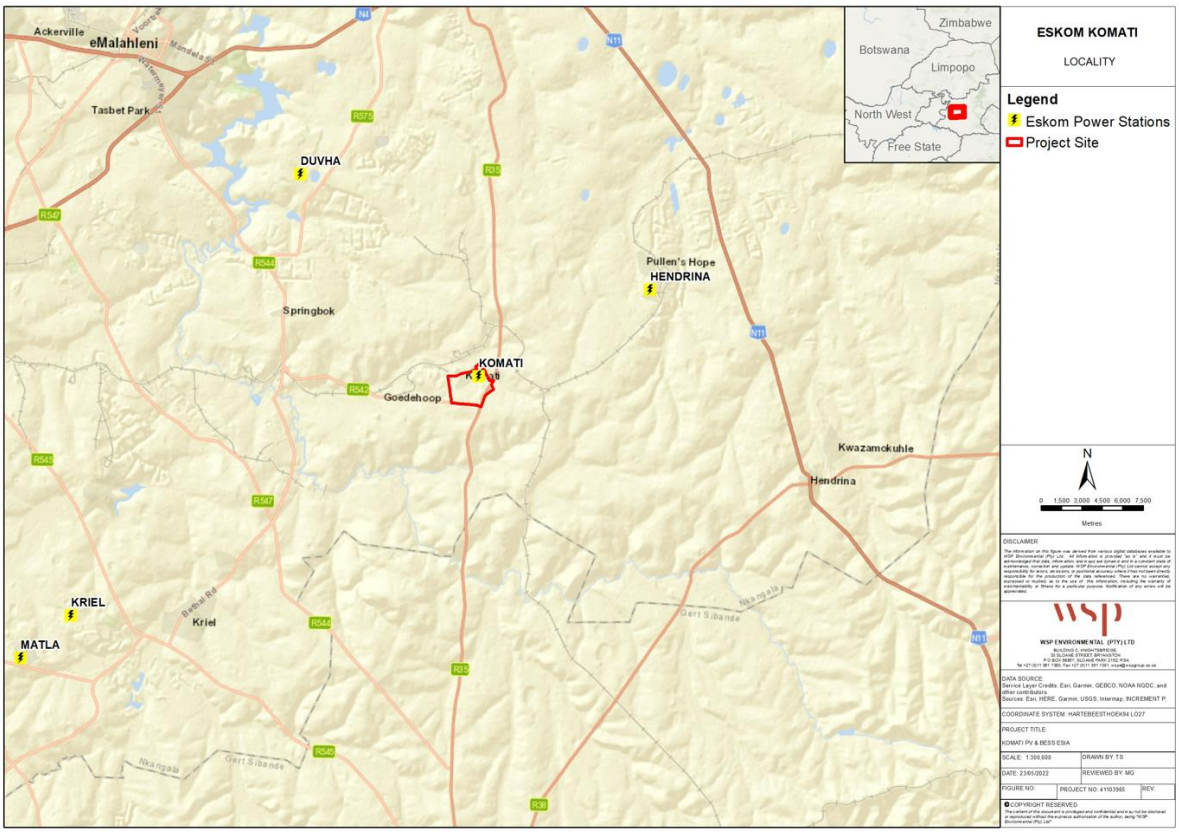


Figure 1: Regional locality map

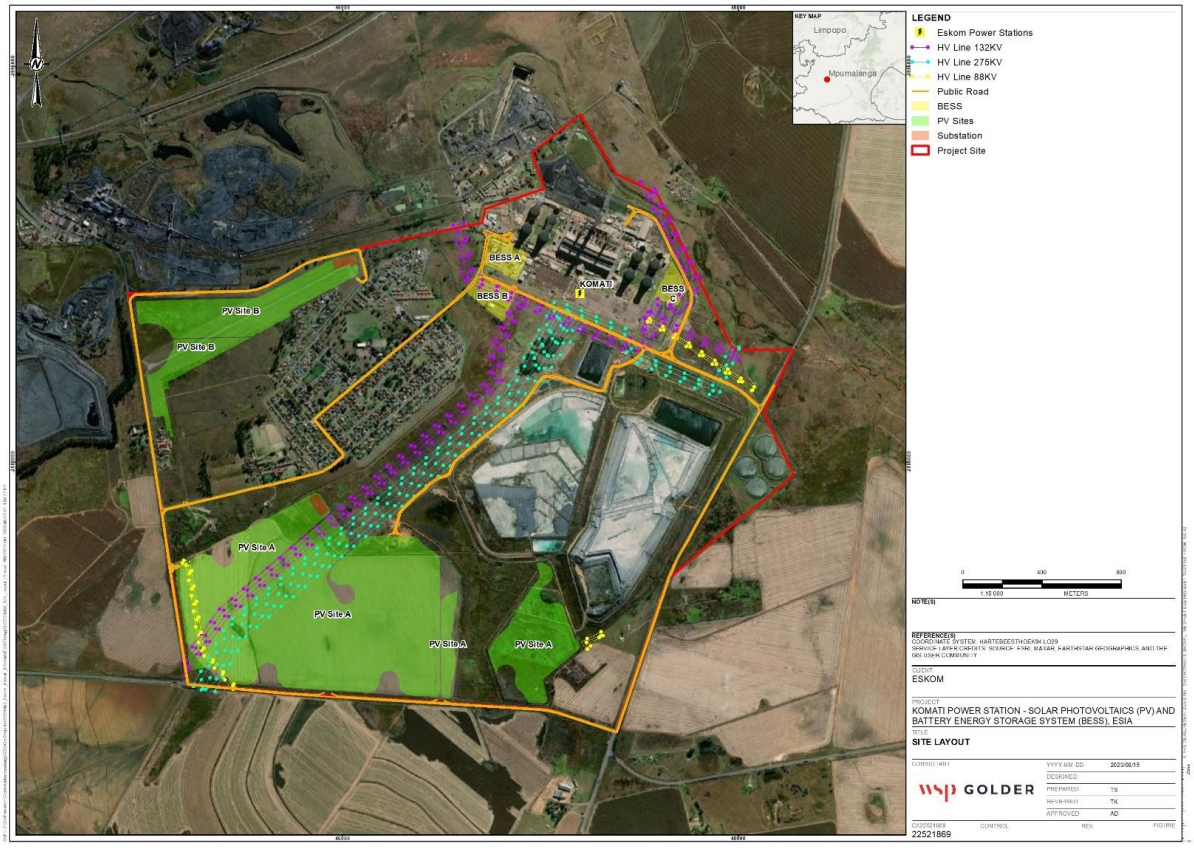


Figure 2: Komati Solar PV Facility Layout Map

7.16 Preliminary technical specification of the overhead transmission and distribution:

Refer to Section 2 of the EMPr

7.2 Sub-section 2: Development footprint site map

This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout. The sensitivity map must be prepared from the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. raptor nest, threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features in the surrounding landscape. The overhead transmission and distribution profile shall be illustrated at an appropriate resolution to enable fine scale interrogation. It is recommended that <20 km of overhead transmission and distribution length is illustrated per page in A3 landscape format. Where considered appropriate, photographs of sensitive features in the context of tower positions shall be used.

Refer to Section 3 of the EMPr

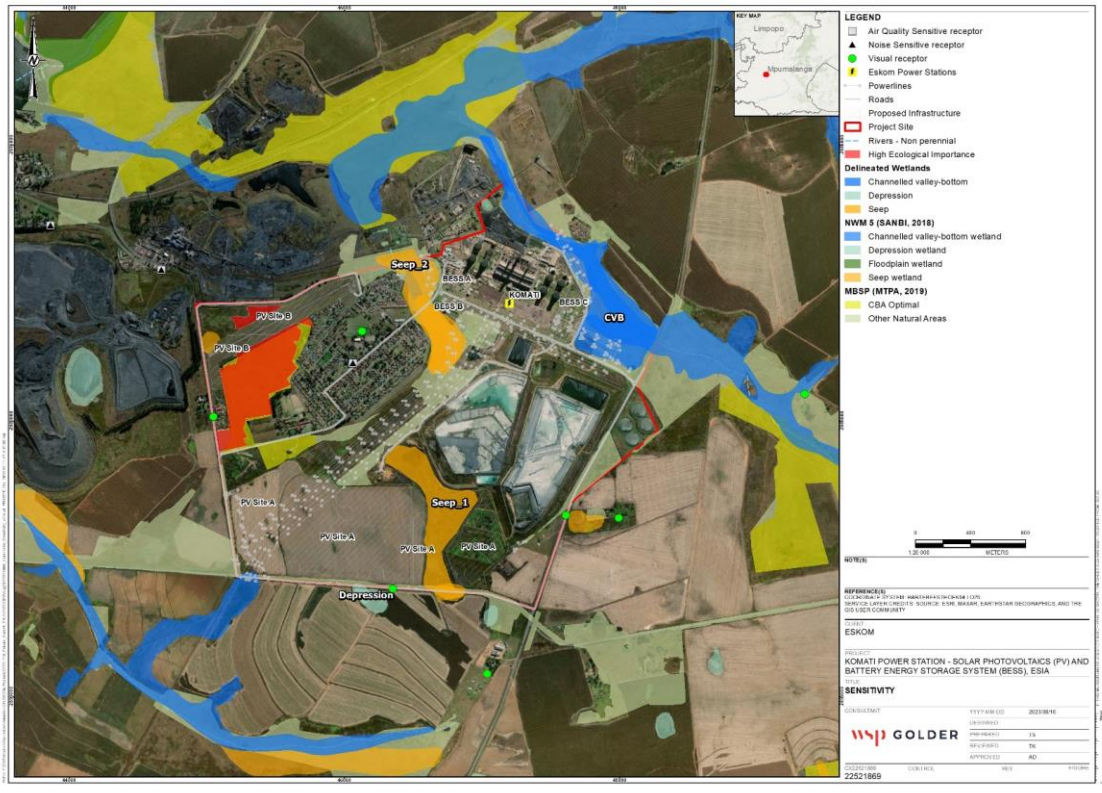


Figure 3: Site layout overlain onto a Consolidated Sensitivity Map

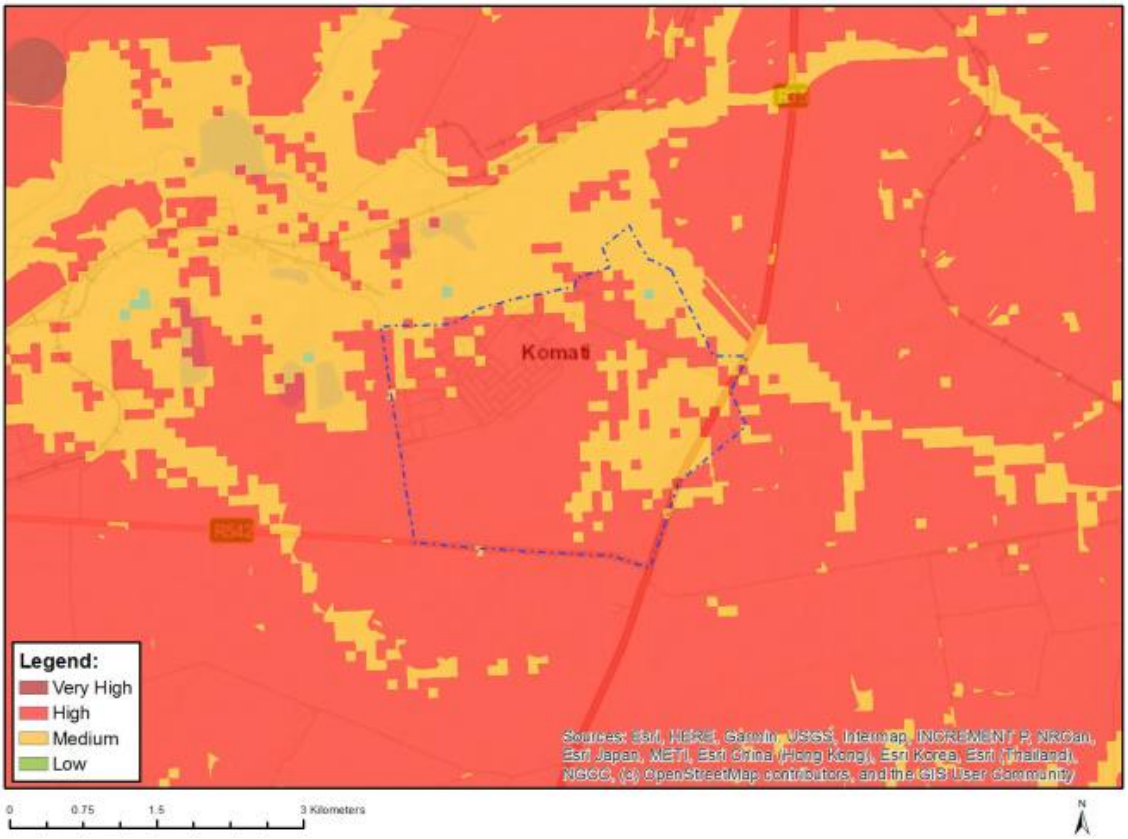


Figure 4: Map of Agriculture Sensitivity

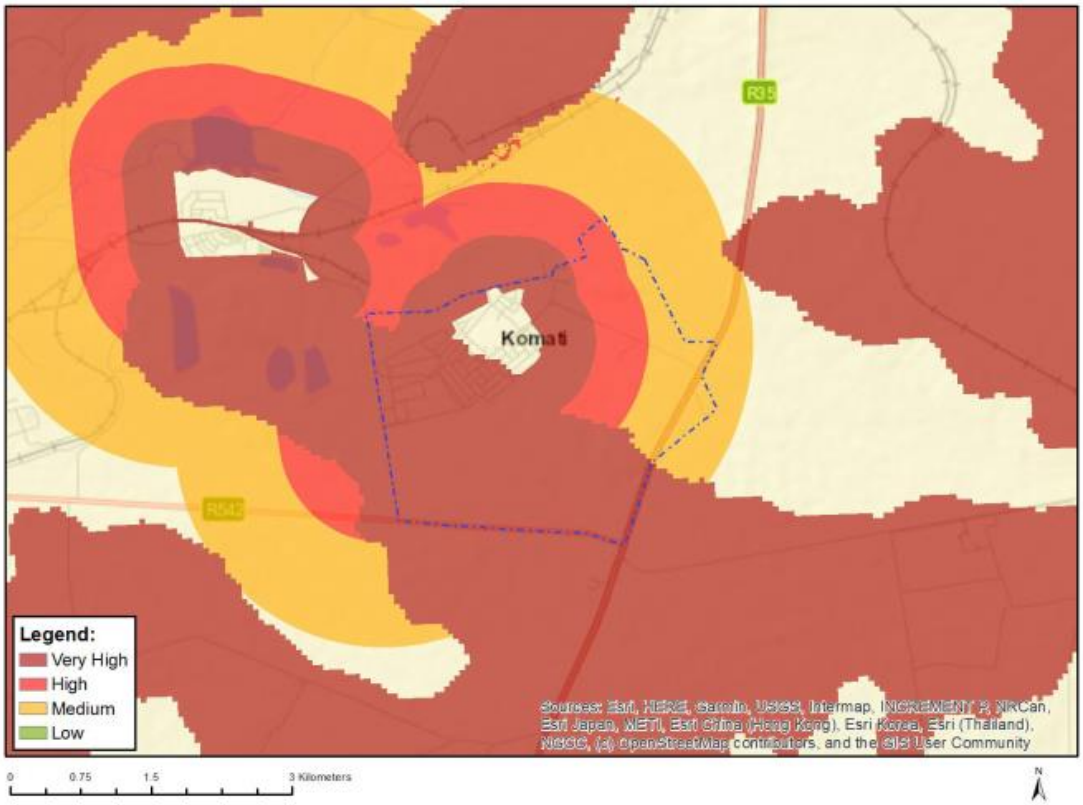


Figure 5: Map of Landscape / Visual Sensitivity

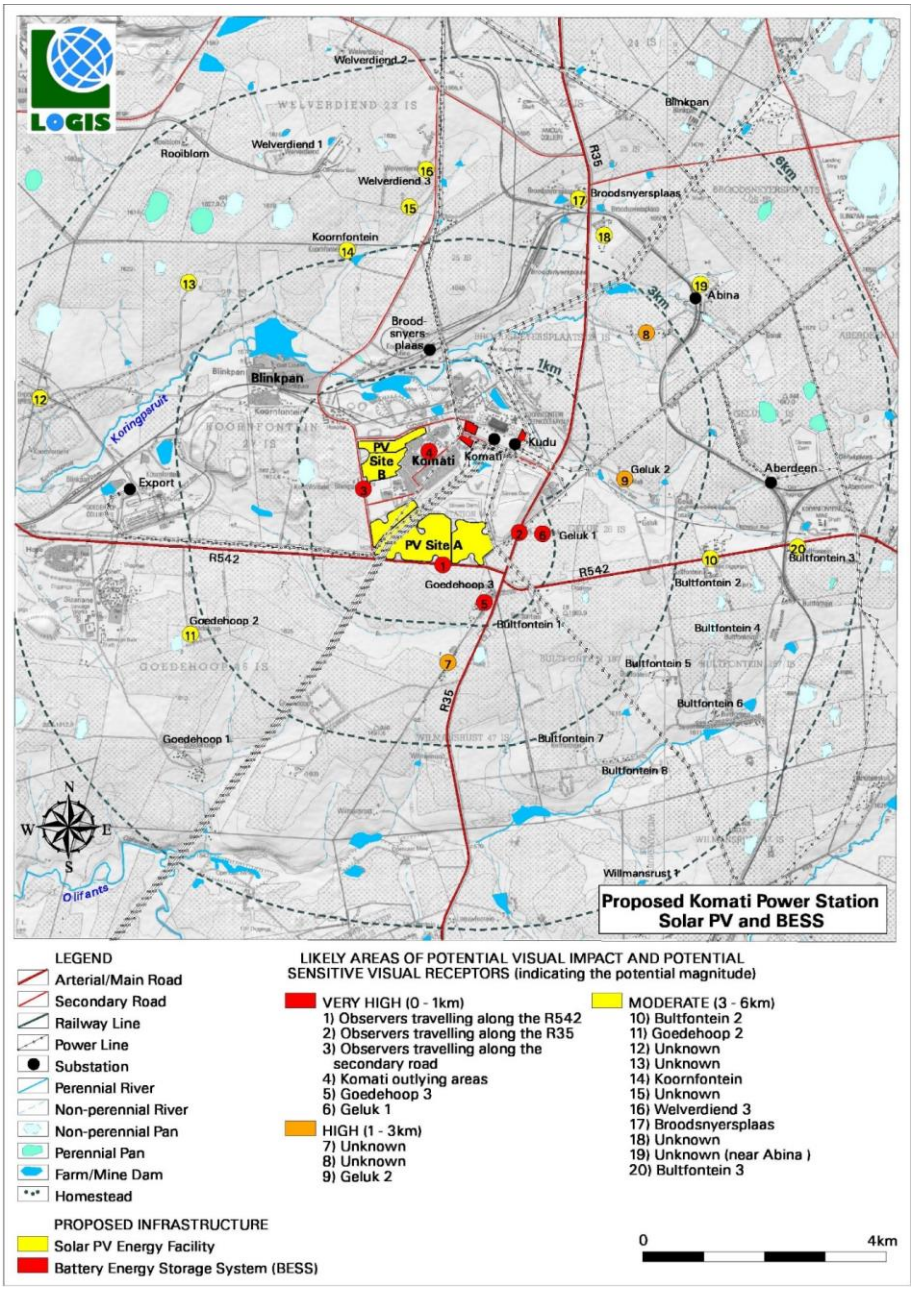


Figure 6: Visibility index illustrating the frequency of exposure of the proposed Komati Solar PV and BESS Facility

Figure 7: Map of Archaeological and Cultural Heritage Sensitivity

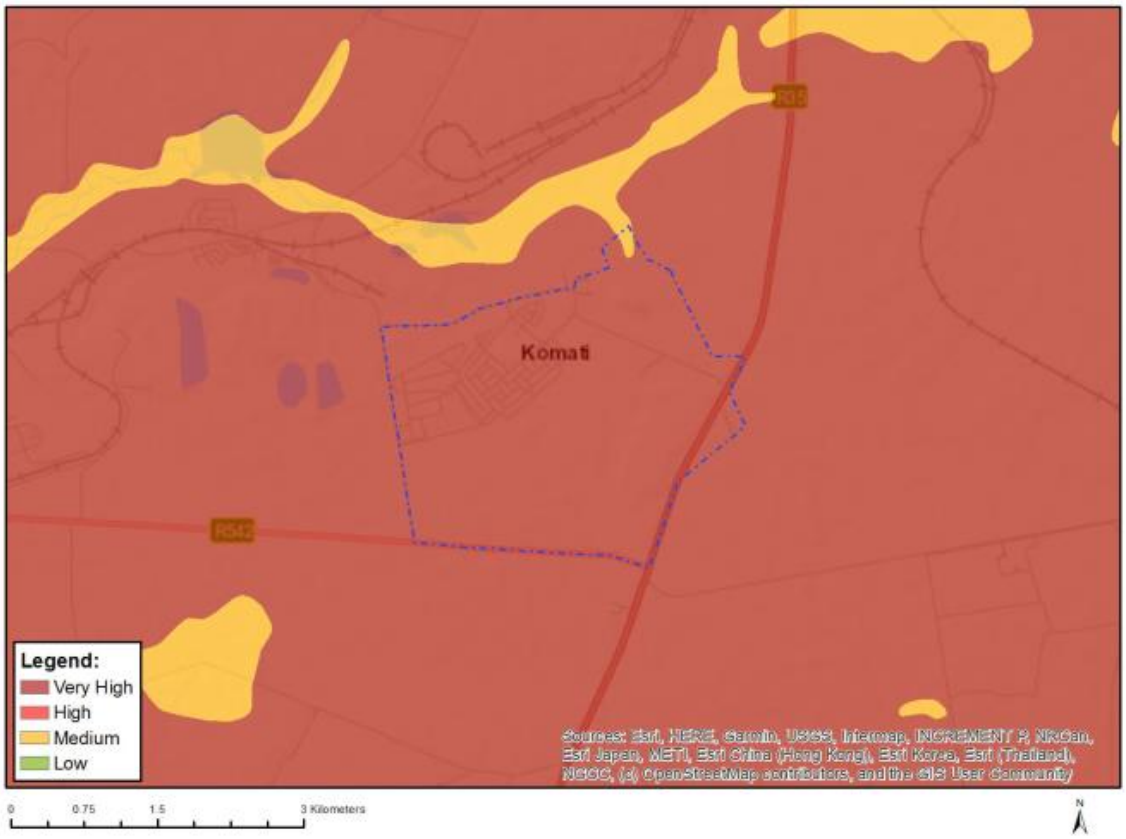


Figure 8: Map of Palaeontology Sensitivity

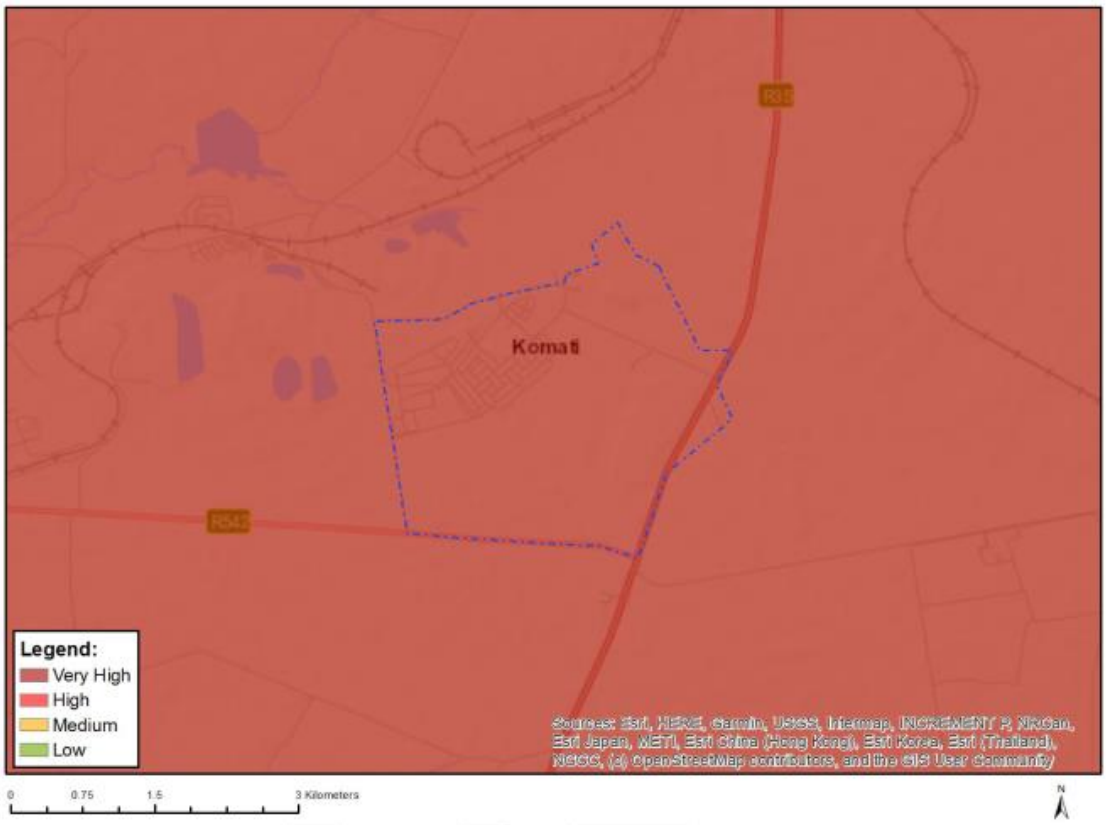


Figure 9: Map of Terrestrial Biodiversity Sensitivity

Figure 10: Map of Aquatic Biodiversity Sensitivity

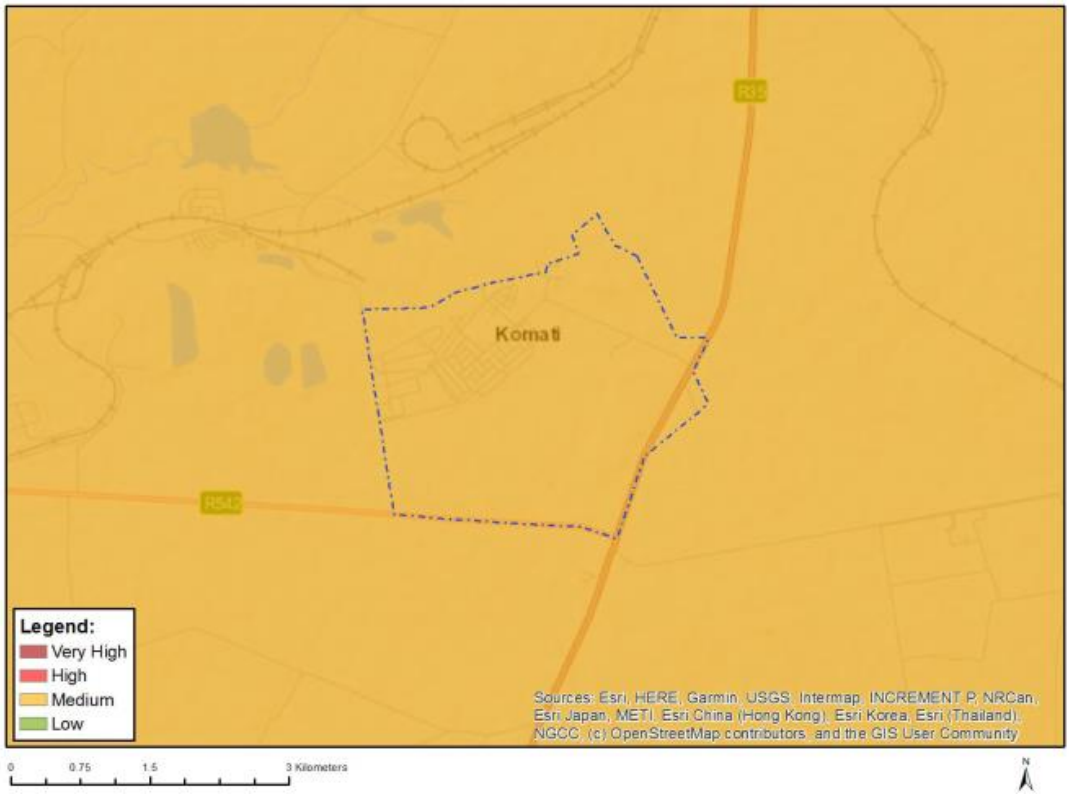


Figure 11: Map of Civil Aviation Sensitivity

Figure 12: Map of Defence Sensitivity

Figure 13: Map of RFI Sensitivity

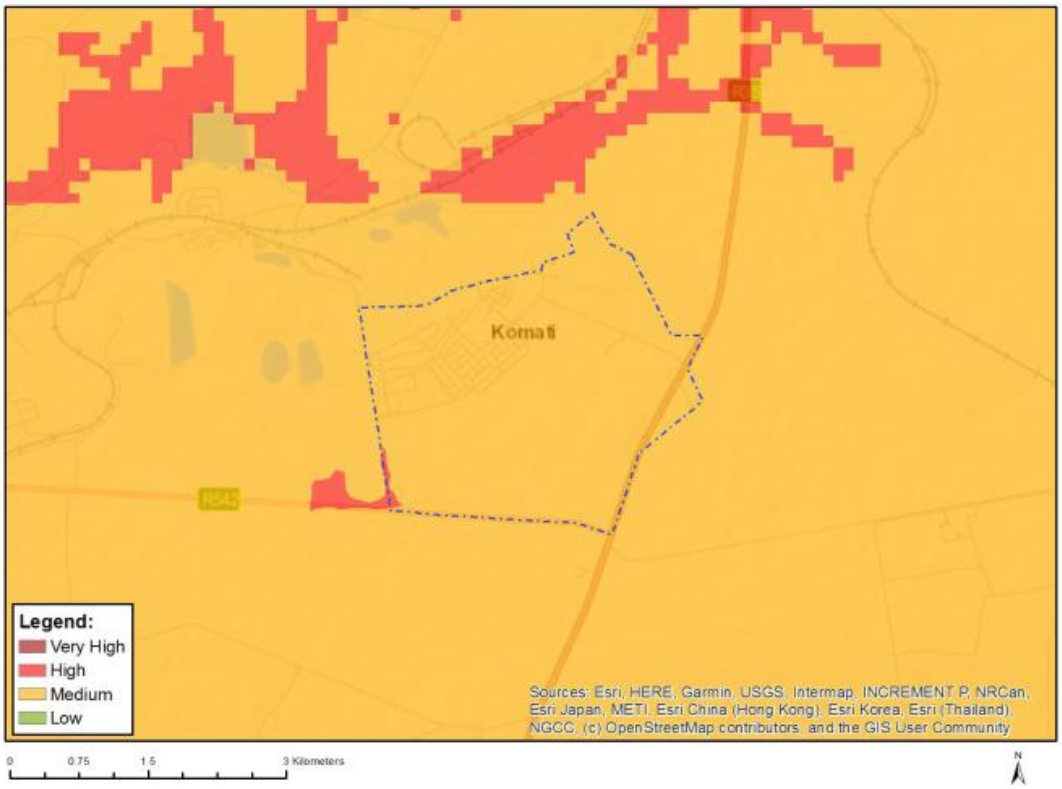


Figure 14: Map of Animal Species Sensitivity

Figure 15: Map of Plant Species Sensitivity

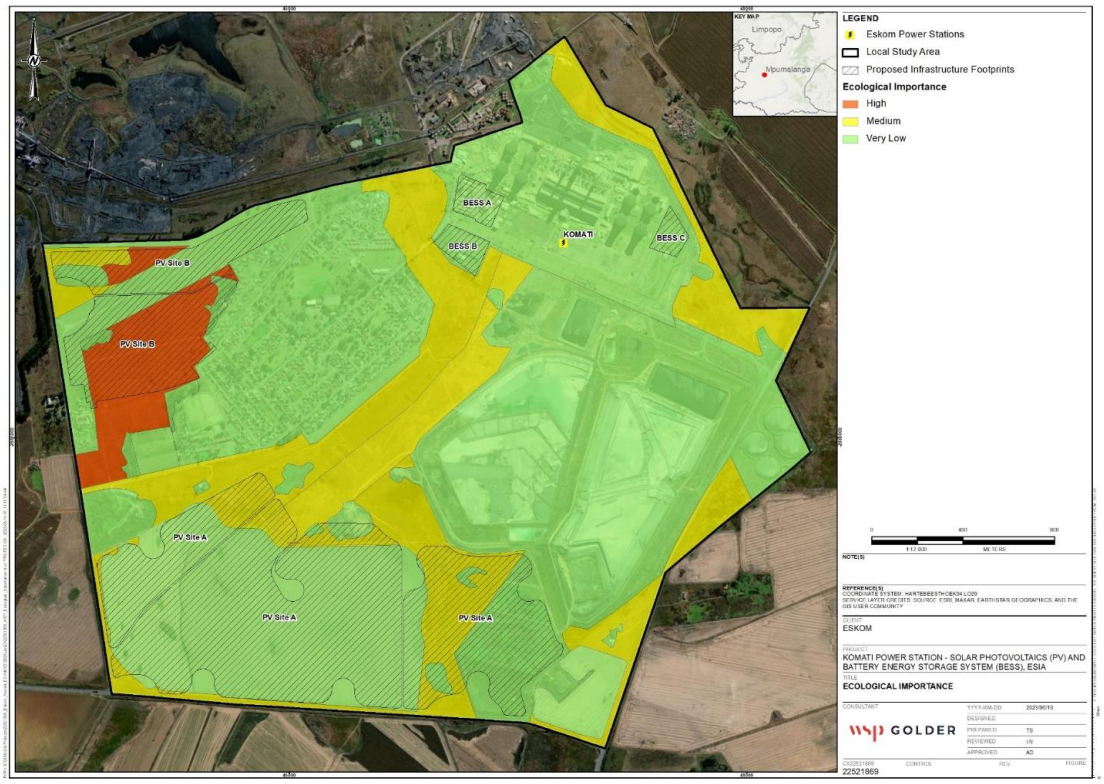


Figure 16: Ecological importance of habitat units in the local study area

7.3 Sub-section 3: Declaration

The proponent/applicant or holder of the EA affirms that he/she will abide and comply with the prescribed impact management outcomes and impact management actions as stipulated in part B: section 1 of the generic EMPr and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the EA affirms that he/she will provide written notice to the CA 14 days prior to the date on which the activity will commence of commencement of construction to facilitate compliance inspections.

17 August 2023

Signature Proponent/applicant/ holder of EA

Date:

Deidre Herbst, Eskom Holdings ltd representative

7.4 Sub-section 4: amendments to site specific information (Part B; section 2)

Should the EA be transferred to a new holder, Part B: Section 2 must be completed by the new holder and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted for an amendment to an environmental authorisation will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART C

8 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

If any specific environmental sensitivities/attributes are present on the site which require more specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and actions must be included in this section. These specific management controls must be referenced spatially, and must include impact management outcomes and impact management actions. The management controls including impact management outcomes and impact management actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional impact management outcomes and impact management actions that are necessary.

If Part C is applicable to the development as authorised in the EA, it is required to be submitted to the CA together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and the name and expertise of the EAP, including the curriculum vitae are to be included. Once approved, Part C forms part of the EMPr for the site and is legally binding.

This section will **not be required** should the site contain no specific environmental sensitivities or attributes.

The combined Sensitivity Map is indicated in Figure 16 below.

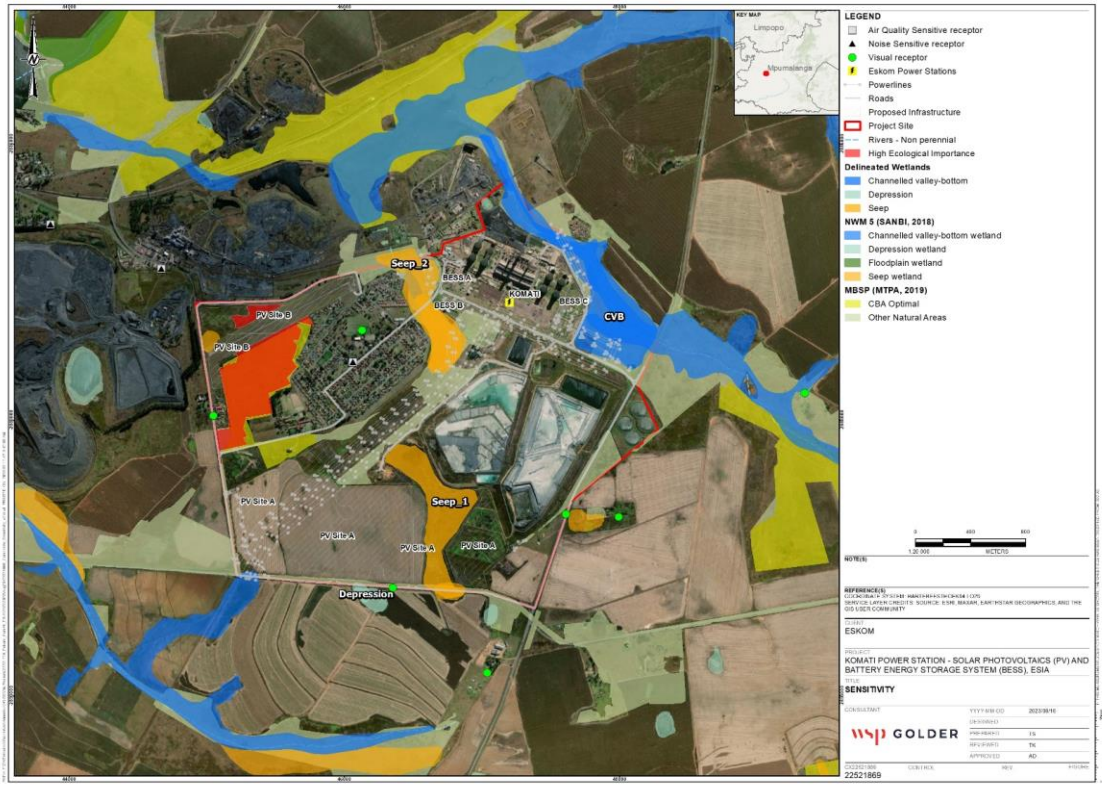


Figure 16: Site layout overlain onto a Consolidated Sensitivity Map

APPENDIX 1: METHOD STATEMENTS

To be prepared by the contractor prior to commencement of the activity. The method statements are **not required** to be submitted to the CA.

Building 1, Maxwell Office Park
Magwa Crescent West, Waterfall City
Midrand, 1685
South Africa

wsp.com