PROPOSED LELIEHOEK PV SOLAR ENERGY FACILITY NEAR DEALSVILLE, FREE STATE PROVINCE

Environmental Management Programme (EMPr)

Prepared for: Leliehoek Solar Facility (Pty) Ltd

DFFE: 14/12/16/3/3/2/728 (as amended

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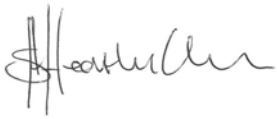

Liandra Scott-Shaw
(Project Manager)

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(Reviewer)

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ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	**Definition**
CARA	Conservation of Agricultural Resources Act (No. 43 of 1983)
CPV	Concentrated Photovoltaic
DEA	Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DFFE	Department of Forestry, Fisheries and the Environment
DoE	Department of Energy
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ECO	Environmental Control Officer
EO	Environmental Officer
GN	Government Notice
IPP	Independent Power Producers
MPRDA	Mineral and Petroleum Resources Development Act (No. 28 of 2002)
MS	Method Statement
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act, 1998 (No. 107 of 1998)
NEMAQA	National Environmental Management: Air Quality Act (No. 39 of 2004)
NEMBA	National Environmental Management: Biodiversity Act (No. 10 of 2004)
NEMPAA	National Environmental Management: Protected Areas Act (No. 57 of 2003)
NEMWA	National Environmental Management: Waste Act (No. 59 of 2008)
NFA	National Forests Act (No. 84 of 1998)
NHRA	National Heritage Resources Act (No. 25 of 1999)
NWA	National Water Act (Act No. 36 of 1998)
PV	Photovoltaic
REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
SIP	Strategic Infrastructure Project
SLR	SLR Consulting (South Africa) (Pty) Ltd
SPV	Special Purpose Vehicle

GLOSSARY

ALIEN INVASIVE PLANTS / VEGETATION: Plants that do not naturally occur in an area and is declared alien invasive pant species in terms of the National Environmental Management: Biodiversity Act, 2004. These plants may also be referred to as exotic plants, e.g. Lantana (*Lantana camara*).

CONTRACTOR: The natural or juristic person or partnership whose tender for the construction of the works has been accepted by or on behalf of the Proponent.

CONSTRUCTION ACTIVITY: A construction activity is any action taken by the Contractor, his / her subcontractors, suppliers, or personnel during the construction phase of the project.

CONSTRUCTION AREA(S): All areas used by the Contractor in order to carry out the required construction activities. This includes, all offices, accommodation facilities, testing facilities / laboratories, batching areas, storage and stockpile areas, workshops, spoiling areas, borrow pits, access roads, etc.

CONSTRUCTION CAMP: Construction camp refers to all site offices, container sites, workshops and testing facilities.

ENVIRONMENT: Environment means the surroundings withing which humans exist and that are made up of – (i) the land, water, and atmosphere of the earth; (ii) micro-organisms, plant, and animal life; (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and (iv) the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and well-being.

ENVIRONMENTAL MANAGEMENT PROGAMME: That part of the overall management process which includes organisational structure, planning activities, responsibilities, practices, procedures, processes, and resources for developing, implementing, achieving, reviewing, and maintaining the environmental policy (DRAFT ISO 14 000, 1995). In essence, it contributes a detailed programme of action prepared to ensure recommendations for the enhancing potential positive impacts and avoiding or limiting potential negative environmental impacts are implemented during the life-cycle of a project.

ERADICATION PROGRAMME: The organised clearing and rehabilitation of land infested by invasive alien species of plants.

GROUNDWATER: The water that fills the natural openings present in the rock or unconsolidated sands.

HAZARD: This means a source of or exposure to danger.

HAZARDOUS: Contains an element of risk. Dangerous or toxic to life.

HAZARDOUS SUBSTANCES: This means any substance or mixture of substances, product or material declared to be a hazardous substance under section 2(1) of the Hazardous Substance Act, 1973.

HERBICIDE: See 'Pesticide'.

HERITAGE MATERIALS: Heritage materials include, but are not limited to, meteorites, archaeological and / or paleontological remains (including fossil Shells and trace fossils); coins; indigenous and / or colonial ceramics; any articles of value or antiquity; marine Shell heaps; stone artefacts and bone remains; structures and other built features with heritage significance; rock art and rock engravings; and graves or unmarked human burials including grave goods and / or associated burial material.

MAINTENANCE: The complete upkeep, support, and protection of areas/regions/sites.

METHOD STATEMENTS: Written statements which contain details regarding construction procedures, materials (where applicable), timing, storage methods (where applicable) and sketches of proposed construction. Method Statements shall be submitted for work near environmental sensitive areas of the site. This includes environmentally sensitive aspects of the work such as cement, poisons and oil storage, treatment of wastewater, provision of ablution facilities, etc.

MITIGATION: The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action.

NO-GO AREA(S): Areas where construction activities are prohibited.

PESTICIDE: Pesticides are chemicals used by humans to kill organisms that threaten their health and well-being, pets and livestock or cause damage to crops. This includes insecticides, herbicides, fungicides, acaricides, nematicides and rodenticides.

POLLUTION: Pollution means any change in the environmental caused by – (i) substances; (ii) radioactive or other waves; or (iii) noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

REHABILITATION: To re-establish or restore to a healthy sustainable capacity or state.

SITE: The site refers to the total area where the contract will take place, as awarded to the Contractor and any other area reasonably required by the Contractor to undertake the construction activities in order to fulfil the contract.

Proposed Leliehoek PV Solar Energy Facility near Dealsville, Free State Province

1. INTRODUCTION

Leliehoek Solar Facility (Pty) Ltd is proposing to construct a 100MW commercial Photovoltaic (PV) solar power generation facility called Leliehoek which is located within 12 km from Dealesville in the Tokologo Local Municipality which is located in the Lejweleputswa District Municipality, Free state Province (Refer to Figure 1-1 and Figure 1-2).

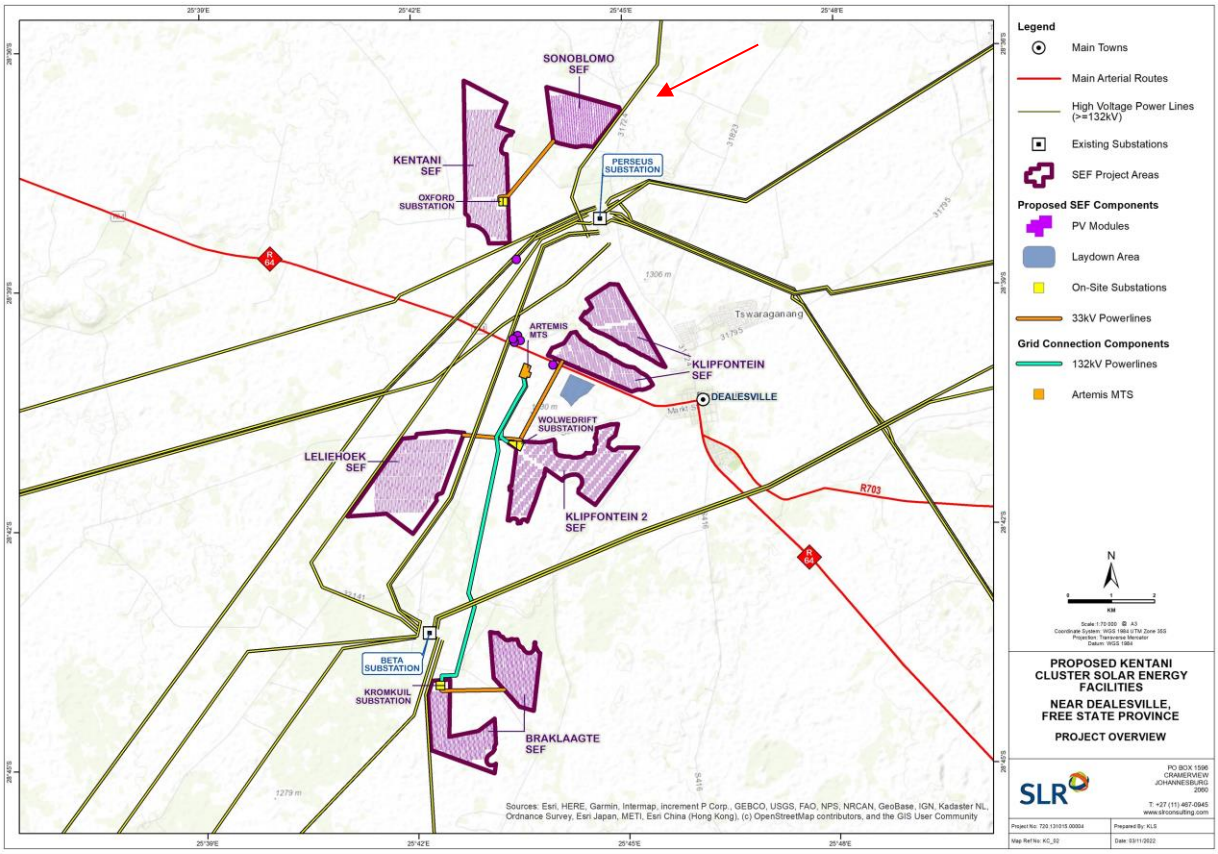

Figure 1-1:Locality map of the Proposed Kentani Cluster Solar Energy Facilities (including Leliehoek)

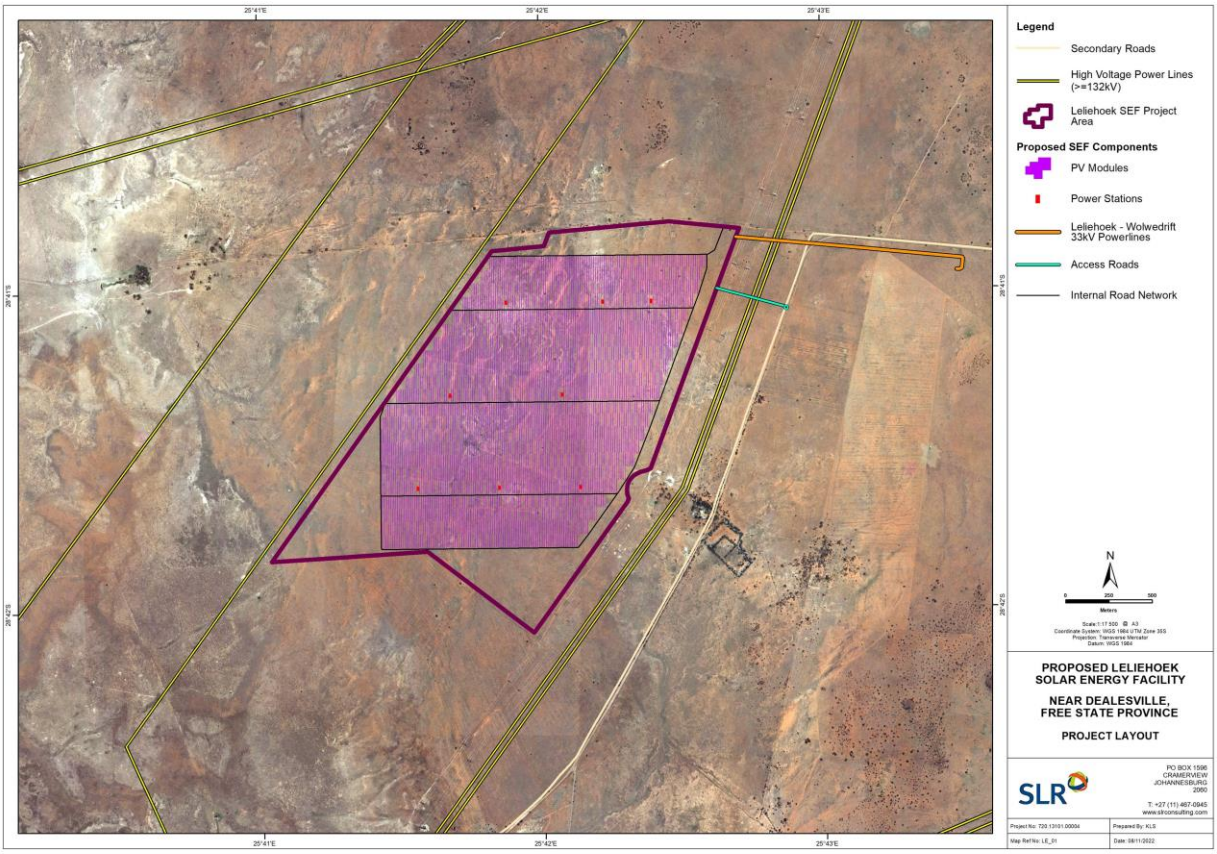

Figure 1-2: Project layout of the proposed Leliehoek Solar Energy Facility

1.1 BACKGROUND

The Leliehoek Solar Facility is one (1) of eleven (11) solar PV projects collectively known as the Kentani Cluster located near the town of Dealesville, within the Tokologo Local Municipality (Lejweleputswa District) in the Free State Province. Each solar facility within the Kentani Cluster received their own Environmental Authorisation (EA) in 2016 from the Department of Environmental Affairs (DEA) [now referred to as DFFE].

On 28 October 2021, the Minister of Mineral Resources and Energy, namely Gwede Mantashe announced the Preferred Bidders of the Round 5 Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) and six (6) of the aforementioned Solar Energy Facilities which form part of the Kentani Cluster received Preferred Bidder status. These include the following:

- Braklaagte Solar Facility (Pty) Ltd - 2009/002439/07
- Kentani Solar Facility (Pty) Ltd - 2011/135096/07
- Klipfontein Solar Facility (Pty) Ltd - 2019/486516/07 (132kV/400kV Mains Transmission Substation (MTS) 14/12/16/3/3/1/2460, as amended as part of the bid submission)
- Klipfontein 2 Solar Facility (Pty) Ltd - 2019/486451/07 (including Eksteen solar PV (14/12/16/3/3/2/717, as amended as part of the bid submission)
- **Leliehoek Solar Facility (Pty) Ltd - 2019/486551/07**
- Sonoblomo Solar Facility (Pty) Ltd - 2019/486401/07

All six (6) of the above-mentioned solar PV facilities underwent various amendment processes, as follows:

First Amendment:

- EA Validity period extension and change to the contact person

References:

- 100 MW Klipfontein Solar PV Facility EA (14/12/16/3/3/2/722/AM1 issued 26 April 2021
- 75 MW BraklaagteSolar PV Facility EA (14/12/16/3/3/2/723/AM1 issued 26 April 2021
- 100 MW Kentani Solar PV Facility EA (14/12/16/3/3/2/724/AM1 issued 21 May 2021
- 75 MW Klipfontein 2 Solar PV Facility EA (14/12/16/3/3/2/726/AM1) issued 21 April 2021
- 75 MW Eksteen Solar PV Facility EA (14/12/16/3/3/2/717/AM1 issued 17 May 2021
- 100 MW Braklaagte Solar PV Facility EA (14/12/16/3/3/2/727/1/AM1) issued 17 May 2021
- **100 MW Leliehoek Solar PV Facility EA (14/12/16/3/3/2/728/AM1 issued 12 May 2021**
- 132KV/400KV On-Site Main Transmission Substation (MTS) issued 19 April 2022

- EA correction to listed activity

References:

- 132KV/400KV On-Site Main Transmission Substation (MTS) (14/12/16/3/3/1/2460/AM1) issued 13 June 2022

Second Amendment:

- EA for project split and change to the holder of the EA

References:

- 100 MW Kentani Solar PV Facility and Associated Infrastructure EA(14/12/16/3/3/2/724/1) issued 08 June 2022
- 132kV Portion of the shared 33/132kV onsite substation for the 100 MW Kentani Solar PV Facility EA (14/12/16/3/3/2/724/2) issued 08 June 2022
- 100 MW Braklaagte Solar PV Facility and Associated Infrastructure EA (14/12/16/3/3/2/727/1) issued 08 February 2022
- 132kV Portion of the shared 33/132kV onsite substation for the 100 MW Braklaagte Solar PV Facility EA (14/12/16/3/3/2/727/2) issued 08 February 2022
- 75 MW Klipfontein 2 Solar PV Facility and Associated Infrastructure EA (14/12/16/3/3/2/726/1) issued 18 February 2022
- 132kV Portion of the shared 33/132kV onsite substation for the 75 MW Klipfontein2 Solar PV Facility EA (14/12/16/3/3/2/726/2) issued 18 February 2022
- 75 MW Eksteen Solar PV Facility EA (14/12/16/3/3/2/717/AM2) issued28 February 2022
- 75 MW BraklaagteSolar PV Facility EA (14/12/16/3/3/2/723/AM2) issued 15 March 2022
- **100 MW Leliehoek Solar PV Facility EA (14/12/16/3/3/2/728/AM2) issued 15 March 2022**
- 100 MW Klipfontein Solar PV Facility EA (14/12/16/3/3/2/722/AM2 issued 15 March 2022
- 132KV/400KV On-Site Main Transmission Substation (MTS) issued 26 July 2022

1.2 LEGAL REQUIREMENT OF THE EMPR

SLR was appointed by Leliehoek Solar Facility as the independent Environmental Assessment Practitioner (EAP) to undertake the required amendments for the authorised Leliehoek Energy Facility in terms of the National Environmental Management Act, (NEMA), 1998 (Act No. 107 of 1998) (as amended). The compilation of this Environmental Management Programme (EMPr) forms part of the requirements of the

EIA Regulations 2014 (as amended). This EMPr will be submitted to the DFFE for approval and will be updated to comply with any conditions of authorisation.

This final EMPr is prepared as a comprehensive and updated version to the following:

- original EMPr (2016), prepared by Council for Scientific and Industrial Research (CSIR) Environmental Management Services for the Leliehoek Solar Facility.

This EMPr takes into account all the aspects adopted during the life cycle of the environmental authorisation of the Leliehoek Solar facility project including the final layouts, walkthroughs and surveys undertaken prior to the commencement of construction on the project as per the conditions of the Environmental Authorisation.

The EMPr seeks to adopts all the mitigation measures and recommendations from the EMPr (2016) as prepared by CSIR and update to include all other additional measures and recommendations made by the various specialists after the final walkthrough surveys they had undertook. This EMPr will be submitted for public review and comment prior to being submitted to the Department of Forestry, Fisheries and the Environment (DFFE).

The following changes were made to the EMPr following the completion of the relevant walkthrough surveys in 2022:
(1) The project team for the compilation of the final EMPr and final layout is included in Chapter 2.
(2) The environmental sensitivity map has been updated (Figure 4-1)
(3) The tables in Chapter 6 have been updated with additional mitigation measures provided by the specialists on the project team following the walkthrough surveys in 2022 and from comments to be received by authorities and stakeholders following the commenting period on this EMPR.
(4) Chapter 6 has been updated with comments received from stakeholders.
(5) CV of EAP has been updated in Appendix A.

1.3 CONTENTS OF THE EMPR

The Construction and Operation EMPr is comprised of the following sections:

- **Chapter 1: Introduction:** This section includes the project background and describes the contents and purpose of this EMPr, as well as the aims of this EMPr.
- **Chapter 2: Expertise of the Environmental Assessment Practitioner (EAP):** This section provides information on the EAP(s) responsible for the compilation of the EMPr. This expertise of the EAP, including qualifications, experience, and professional registrations.
- **Chapter 3: Legislative Overview:** This section provides information on the relevant environmental legislation pertinent to environmental processes in South Africa.
- **Chapter 4: Proposed Activity:** This section provides a description on the proposed activities to be undertaken for the proposed PV Solar energy facility.
- **Chapter 5: Administration and regulation of environmental obligations:** This section identifies the management structure, as well as the roles and responsibilities of the various stakeholders. The procedures for environmental management and monitoring of the construction and operation phases are also presented.

- **Chapter 6: Environmental specifications:** This section includes environmental specifications relating to the construction and operation phases and associated infrastructure. It contains the specific actions and / or measures that must be taken in order to minimise and control the impact of construction and operation activities on the affected biophysical and socio-economic environment.

1.4 PURPOSE OF THE EMPR

The purpose of the EMPr is to ensure that potential impacts on the environment associated with the construction and operation phases are prevented and, where they cannot be prevented, are kept to a minimum and rehabilitated. Moreover, it is to ensure that any positive impacts associated with the project during the construction and operation phases are enhanced. The EMPr sets environmental targets for the Contractor (defined as the lead Contractor and any nominated or selected Sub-contractors) and Operator and reasonable standards against which the Contractor's and Operator's performance can be measured during the construction and operation phases, respectively.

This document will form the basis for the environmental specifications that the Contractor, in terms of the construction contract, will be obliged to adhere to during construction, as well as the Operator, in terms sale of land and binding agreements associated. This document will be included in the contract documentation for the construction phase and will thus form a binding agreement between the Contractor and the Proponent. It will also be included in in the terms of sale and will form a binding agreement between the Operator and the Proponent. This EMPr has been prepared in compliance with Appendix 4 of the EIA Regulations, 2014 (as amended), the contents of which are outlined in **Table 1-1** below.

Table 1-1: Requirements of an EMPr in terms of the EIA Regulations, 2014 (as amended).

ITEM	CONTENT OF EMPR	COMPLETED (Y) OR NOT APPLICABLE (N/A)	LOCATION IN EMPR
1 a)	*i) Details of the EAP who prepared the EMPr;*	Y	Section 2.
	ii) Details of the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Y	Section 2. Section 2 and Appendix A.
b)	*A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;*	Y	Section 2. Section 2 and Appendix A.
c)	*A map at an appropriate scale which superimposes the proposed activity, its associated infrastructure, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;*	Y	Appendix B

ITEM	CONTENT OF EMPR	COMPLETED (Y) OR NOT APPLICABLE (N/A)	LOCATION IN EMPR
d)	*A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed, and mitigated as identified through the environmental impact assessment process for all phases of the development including -*	Y	Section 6.
	i) planning and design;		
	ii) pre-construction activities;		
	iii) construction activities;		
	iv) rehabilitation of the environmental after construction and where applicable post closure; and	Y	
	v) where relevant, operation activities;		Section 6.
e)	*[Deleted by amendments to the EIA Regulations, 2014]*		
f)	*A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions -*	Y	Section 6.
	i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;		
	ii) comply with any prescribed environmental management standards or practices;		
	iii) comply with any applicable provisions of the Act regarding closure, where applicable; and		
	iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;		
g)	*The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);*	Y	Section 6.
h)	*The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);*	Y	Section 6.
i)	*An indication of the persons who will be responsible for the implementation of the impact management actions;*	Y	Section 6.
j)	*The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;*	Y	Section 6.
k)	*The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);*	Y	Section 6.

ITEM	CONTENT OF EMPR	COMPLETED (Y) OR NOT APPLICABLE (N/A)	LOCATION IN EMPR
l)	*A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;*	Y	Section 6.
m)	*An environmental awareness plan describing the manner in which -*	Y	Section 5.5.
	i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and		
	ii) risk must be dealt with in order to avoid pollution or the degradation of the environment;	Y	Section 5.5.
n)	*Any specific information that may be required by the competent authority;*	N/A	
2)	*Where a government notice gazetted by the Minister provides for a generic EMPr, such generic EMPr as indicated in such notice will apply.*	N/A	

2. EXPERTISE OF THE EAP

The details and role of the EAPs that were involved in the preparation of this EMPr are provided in Table 2-1 below. Curriculum Vitae are attached as Appendix A.

SLR has no interest in the proposed project other than fair payment for consulting services rendered as part of the environmental assessment process.

Table 2-1: Expertise of the EAP

Stuart Heather-Clark	
Responsibility	Registered EAP
Qualification	B.Sc. (Hons) Civil Engineering M.Sc. Environmental Management
Professional Registration	• Registered EAP (2019-613) • CEAPSA -Certified as an Environmental Practitioner with the Interim • Certification Board for Environmental Assessment Practitioners of South Africa (2006) • IAIAsa- Member of the International Association for Impact Assessment South Africa IAIA International- Member of the International Association for Impact Assessment
Experience in years	24 years

Experience	Stuart Heather-Clark (EAP) is a Technical Director in SLR's Environmental Management Planning and Approvals (EMPA) team in Africa. He holds a B.Sc. (Honours) in Civil Engineering and a Master's degree in Environmental Science and has 24 years of relevant experience. He has expertise in a wide range of environmental disciplines, including EIAs, EMPs, environmental planning and review and public consultation and is a registered EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA).

3. LEGISLATIVE OVERVIEW

3.1 GENERAL

The construction phase activities included as part of the EMPr are in respect of any future construction, upgrades, or expansions at the site. Construction and operation shall be according to the best industry practices, as identified in the project documents. This EMPr, which forms an integral part of the contract documents, informs the contractor and operator as to their duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The contractor should note that obligations imposed by the EMPr are legally binding in terms of this contract.

3.2 STATUTORY AND OTHER APPLICABLE LEGISLATION

The contractor and operator are deemed to have made themselves conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract. Major environmental legislation, as amended from time to time, includes but is not limited to the following:

3.2.1 The Constitution (No. 6 of 1996)

The Constitution states that everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected through reasonable legislative and other measures to prevent pollution and ecological degradation; promote conservation and ensure ecologically sustainable development and use of natural resources.

3.2.2 Conservation of Agricultural Resources Act (No. 43 of 1983) (CARA)

This act provides for control over the utilisation of the natural agricultural resources of South Africa in order to promote the conservation of soil, water sources and vegetation, as well as combating weeds and invader plants.

3.2.3 Mineral and Petroleum Resources Development Act (No. 28 of 2002) (MPRDA)

This act makes provision for equitable access to, and sustainable development of, minerals and petroleum resources.

3.2.4 National Environmental Management Act (No. 107 of 1998) (NEMA)

This act supports the Bill of Rights within the Constitution and highlights principles of sustainable development including preservation of ecosystems and biological diversity and avoidance, minimisation and remediation of pollution and environmental degradation. It also sets the stage for the control of listed

activities and the procedural requirements for authorisation thereof through the Environmental Impact Assessment Regulations, 2014. Environmental authorisation must be obtained prior to the commencement of any activities listed in the EIA Regulation Listing Notices, 2014.

3.2.5 National Environmental Management: Air Quality Act (No. 39 of 2004) (NEMAQA)

This act provides reasonable measures for the prevention of pollution and ecological degradation from activities with emissions to atmosphere; and provides for specific air quality measures; for national norms and standards regulating air quality monitoring, management, and control by all spheres of government.

3.2.6 National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEMBA)

This act makes provisions to accomplish the objectives of the United Nations' Convention on Biological Diversity. COM may be required to apply for permits to conduct certain listed activities which, together with the listed threatened or protected species, may be identified by the Minister.

Section 73 (3) of this act empowers a competent authority to direct a person to take steps to remedy any harm to biodiversity resulting from the actions of that person or as a result of occurrence of listed invasive species occurring on land on which that person is the owner.

3.2.7 National Environmental Management: Protected Areas Act (No. 57 of 2003) (NEMPAA)

This act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity, natural landscapes, and seascapes.

3.2.8 National Environmental Management: Waste Act (No. 59 of 2008) (NEMWA)

This act aims to regulate waste management practices through provision of national norms and standards, specific waste measures, licensing and control of waste activities, remediation of contaminated land as well as providing for compliance and law enforcement. It sets the stage for the control of listed waste management activities and the procedural requirements for authorisation thereof through the EIA Regulations, 2014.

3.2.9 National Forests Act (No. 84 of 1998) (NFA)

This act makes provision for promoting the sustainable management and development of forests, and for the protection of certain forests and trees for environmental, economic, educational, recreational, cultural, health and spiritual purposes.

3.2.10 National Heritage Resources Act (No. 25 of 1999) (NHRA)

This act provides for an integrated and interactive system for identification, assessment, and management of South Africa's heritage resources, and empowers civil society to nurture and conserve their heritage resources. It provides for the control of specific activities that could impact heritage resources and for the procedural requirements for authorisation thereof from the heritage authority. Importantly, the Provincial Heritage Authority, must be notified immediately if any items of cultural heritage importance are noted during construction activities.

3.2.11 National Water Act (Act No. 36 of 1998) (NWA)

This act makes provision for the protection of surface water and groundwater and their sustainable management for the prevention and remediation of the effects of pollution, as well as for the management

of emergency situations. Authorisation is required for any activity which may compromise the water resource quality objectives.

4. PROPOSED ACTIVITY

4.1 DESCRIPTION OF THE PROPOSED ACTIVITY

Leliehoek Solar Facility (Pty) Ltd proposes to construct a Solar PV energy facility near Dealsville. The proposed facility would utilise Solar technology to generate electricity that will be fed into the National Power Grid.

4.2 PROJECT COMPONENTS

The key components of the proposed Leliehoek Solar Facility, listed and discussed below, include the following:

- Solar Modules;
- Operations and maintenance (O&M) building;
- Battery storage facility;
- Electrical infrastructure (transmission and distribution lines);
- Associated infrastructure
    - Access roads;
    - Laydown areas (temporary);
    - Fencing

4.3 STUDY AREA AND ASSOCIATED ENVIRONMENTAL SENSITIVITIES

Specialists have conducted their assessment to address the potential impacts relating to the proposed development in order to ascertain the level of each identified impact, as well as mitigation measures which may be required. Specialist assessments have therefore informed the overall sensitivity of the site and the proposed layout has been superimposed with the resulting specialist sensitivities as depicted in Figure 4-1 below.

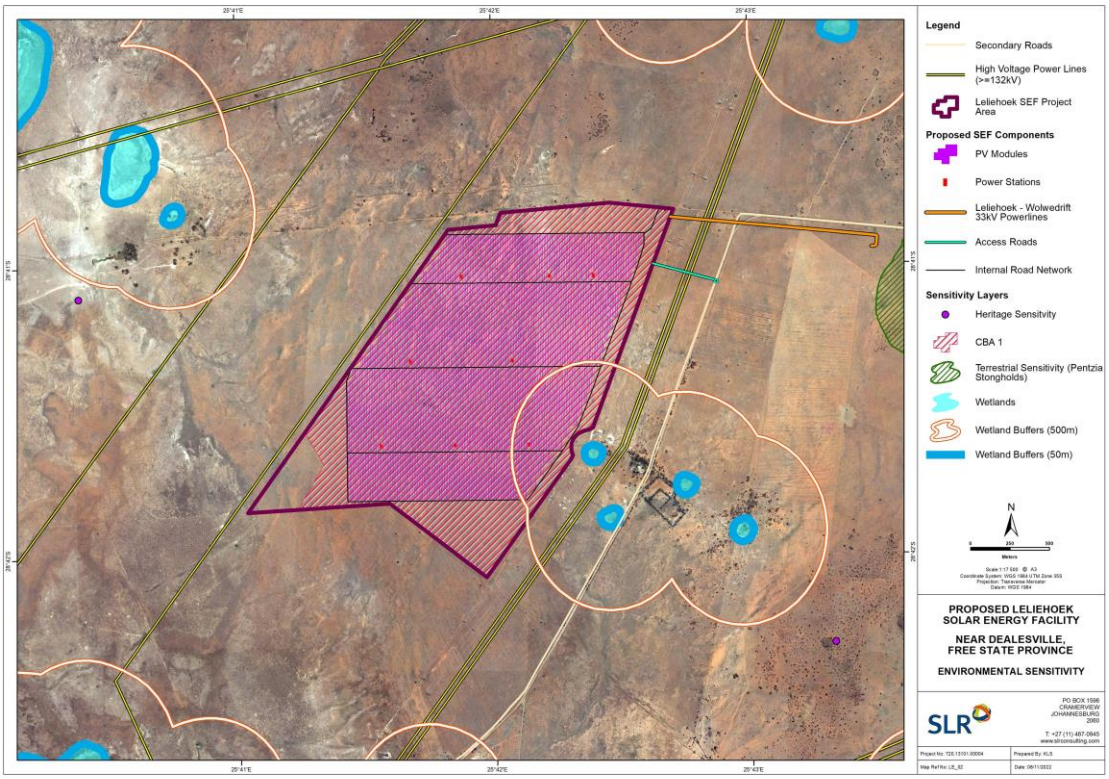

Figure 4-1: Project layout of the proposed Leliehoek Solar Energy Facility and environmental sensitivities

4.4 PROJECT PHASES

The project can be divided into three main phases:

- Construction Phase;
- Operational Phase; and
- Decommissioning Phase.

4.4.1 Construction Phase

The duration of the construction and commissioning phase of the project is estimated to be approximately 18-24 months to complete. Construction activities will include: Site preparation, including subcontractor mobilisation, erection of fencing or suitable barriers, where required to protect sensitive habitat and archaeological sites, construction of site compound and lay down areas;

- Upgrading and construction of external and internal roads, water crossings, including laying of cables;
- Site clearance;
- Laying of foundations;
- PV module delivery and installation
- Completion of internal electrical connections;

- Function testing to verify proper operation of the facility; and
- Commissioning.

4.4.2 Operational Phase

Once construction is completed and the facility becomes operational, it is expected that the facility will have a minimum life span of 20 years. Regular maintenance will be required to ensure the facility is kept in optimal working order. For the most part, day to day facility operations will be done remotely through the use of computer networks.

4.4.3 Decommissioning Phase

Should it be decided not to extend the operational lifespan of the project beyond 20 years, the project will be decommissioned. Decommissioning involves removing the solar panels and associated infrastructures and covering the concrete footings with soil to a depth sufficient for the re-growth of natural vegetation.

Whether all components of the solar facility will be removed still needs to be agreed upon with the landowner (some components may be useful for the landowner and therefore it could be decided that those remain on site). Any other supporting infrastructure no longer in use will be removed from the site and either disposed of at a registered disposal facility or recycled if possible. Since it is not currently known which disposal facilities will be available at the time of disposal (i.e. in 20 years' time), it is not possible to identify specific landfill facilities at this stage. When the time for decommissioning comes, the nearest facilities registered to receive waste and recycled material from the solar facility will be identified and utilised.

4.5 PERMIT REQUIREMENTS

4.5.1 Heritage

The protection and management of South Africa's heritage resources is controlled by the National Heritage Resources Act (NHRA), 1999 (Act No. 25 of 1999). The objective of the NHRA is to introduce an integrated system for the management of national heritage resources.

According to Section 35 (Archaeology, Palaeontology and Meteorites) and Section 38 (Heritage Resources Management) of the South African National Heritage Resources Act, palaeontological heritage impact assessments (PIAs) and archaeological impact assessments (AIAs) are required by law in the case of developments in areas underlain by potentially fossiliferous (fossil-bearing) rocks, especially where substantial bedrock excavations are envisaged, and where human settlement is known to have occurred during prehistory and the historic period. Depending on the sensitivity of the fossil and archaeological heritage, and the scale of the development concerned, the palaeontological, and archaeological impact assessment required may take the form of (a) a stand-alone desktop study, or (b) a field scoping plus desktop study leading to a consolidated report. In some cases, these studies may recommend further palaeontological and archaeological mitigation, usually at the construction phase. These recommendations would normally be endorsed by the responsible heritage management authority, South African Heritage Resources Agency (SAHRA) to whom the reports are submitted for review. Table 4-1 outlines when a permit is required depending on the sensitivity of the heritage resources.

Table 4-1: Potential Permitting requirements

Heritage Resource	Permit Requirement
Fossil, built environment and Stone Age archaeology	Permit Application Section 35 – Fossils, Built Environment Features, Shipwrecks & Stone Age Archaeology (Ref: Nhra 1999: 58)
Burial grounds and graves older than 60 years and historic burials to the South African Heritage Resources Agency (SAHRA)	Permit Application Section 36 – Burial Grounds & Graves (Ref: Nhra 1999: 60)
Heritage resources management	Permit Application Section 38 (Ref: Nhra 1999: 62)

4.5.2 Water Use

This act makes provision for the protection of surface water and groundwater and their sustainable management for the prevention and remediation of the effects of pollution, as well as for the management of emergency situations. Authorisation is required for any activity which may compromise the water resource quality objectives.

4.5.3 Protected Plants

Chapter 4 and Section 30 of the Free State Nature Conservation Ordinance Act, 1969 (Act No. 8 of 1969) prohibits any persons from removing indigenous species listed in Schedule 6 of the Act without a valid permit from the relevant authority. If any protected plant species in terms of the Act may be present within the development footprint, floral permits will be required from the relevant authority prior to the commencement of the construction phase for the removal of identified protected plant species.

5. ADMINISTRATION AND REGULATION OF ENVIRONMENTAL OBLIGATIONS

Details of the management structure for this EMPr during the construction and operation phases are presented below. All official communication and reporting lines including instructions, directives and information shall be channelled according to the management structure presented below during the construction and operation phases.

5.1 ROLES AND RESPONSIBILITIES

5.1.1 Construction Phase

The construction phase activities included as part of the EMPr are in respect of any future construction, upgrades, or expansions at the site. The implementation of this EMPr requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during the construction phase. The organisational structure during the construction phase is presented in Figure 5-1.

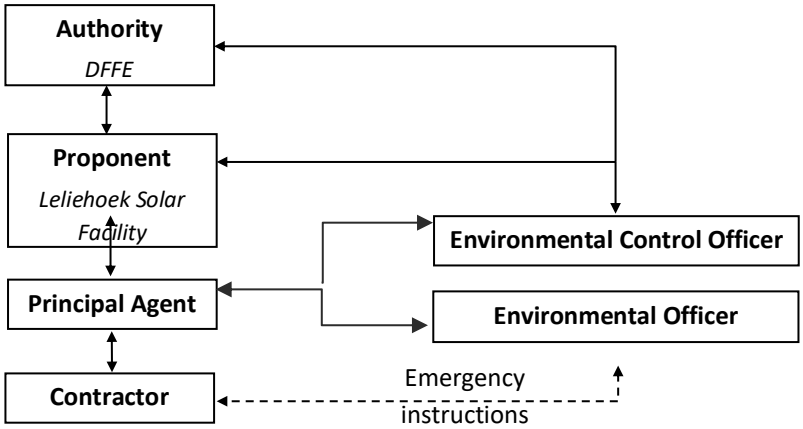

Figure 5-1: Organisational structure during the construction phase.

5.1.1.1 Authority

The Department of Forestry, Fisheries and the Environment (DFFE) is the designated authority responsible for authorising this EMPr. DFFE has overall responsibility for ensuring that Leliehoek Solar Facility complies with the conditions of its Environmental Authorisation (EA) as well as this EMPr. DFFE shall also be responsible for approving any amendments that may be required to the EMPr. In terms of Section 30 of NEMA, the DFFE is to be notified immediately should there be an incident on site where the release of a hazardous substance was unexpected, sudden, and uncontrolled, including from a major emission, fire, or explosion, that causes, has caused, or may cause significant harm to the environment, human life, or property.

5.1.1.2 Proponent

Leliehoek Solar Facility is ultimately responsible for the implementation of the EMPr and the financial cost of all environmental control measures arising from the construction phase, as the EA Holder. Leliehoek Solar Facility must ensure that any person acting on its behalf complies with the conditions / specifications contained in this EMPr.

Leliehoek Solar Facility is also responsible for the following:

- Appointment of a Principal Agent, Contractor and ECO.
- Address any site problems pertaining to the environment at the request of DFFE, the Contractor and / or ECO.
- Liaise with the project engineers to ensure that the PV Solar energy Facility is designed to meet all the specified environmental parameters and legal requirements as specified in the EMPr and Environmental Authorisation.
- Approval of method statements.
- Work stoppage in emergency situations.

5.1.1.3 Principal Agent

For the purposes of this document the “Principal Agent” refers to any person (such as the architect, engineer, or project manager) authorised by Leliehoek Solar Facility to oversee the planning, design, and construction phases of the project. Any on-site decisions regarding environmental management are ultimately the responsibility of the Principal Agent, who will report to the Proponent.

The responsibilities of the Principal Agent are to:

- Ensure that the requirements as set out in this EMPr and by the relevant Authorities are adhered to and implemented.
- Assist the ECO in ensuring that the conditions of the EMPr are being adhered to and promptly issuing instructions requested by the ECO, to the Contractor. All site instructions pertaining to environmental matters issued by the Principal Agent are to be copied to the ECO.
- Ordering the removal of person(s) and/or equipment not complying with the specifications or issuing a stop works order (as required by the ECO or otherwise).
- Issuing of penalties for transgressions of environmental site specifications.
- Providing input into the ECO's ongoing internal review of the EMPr.
- Training of contractors on environmental matters.
- Management of the contractors in terms of the EMPr.
- Review of contractor method statements.

5.1.1.4 Main Contractor

The Main Contractor shall have the following responsibilities:

- To implement all provisions of the EMPr during the construction phase. If the Contractor encounters difficulties with specifications, he / she must discuss alternative approaches with the Principal Agent and / or the ECO prior to proceeding.
- To ensure that all staff are familiar with the EMPr.
- Monitoring and verifying that the environmental impacts are kept to a minimum.
- To make personnel aware of environmental issues and to ensure that they show adequate consideration of the environmental aspects of the project.
- To prepare the required Method Statements (MS).
- To report any incidents of non-compliance with the EMPr to the Principal Agent and / or the ECO.
- To rehabilitate any sensitive environments damaged due to the Contractor's negligence. This shall be done in accordance with Leliehoek Solar Facility SA's and ECO's specifications.

Failure to comply with the EMPr may result in fines and reported non-compliance may result in the suspension of work or termination of the contract by the Principal Agent.

5.1.1.5 Environmental Officer (EO)

The Contractor shall appoint, at his / her own cost, an EO to ensure that the EMPr is implemented and ensure that all environmental specifications and EMPr requirements are met at all times. The EO shall be responsible for monitoring, reviewing, and verifying the Contractor's compliance with the EMPr.

The EO's duties in this regard shall include the following:

- Monitoring and verifying that the EMPr and MS are always adhered to and taking action is specifications are not followed.
- Monitoring and verifying that environmental impacts are kept to a minimum.
- Assisting the Contractor and ECO in finding environmentally responsible solutions to problems.
- Inspecting the site on a regular basis with regard to compliance with the EMPr.
- Completing weekly checklists detailing the above-mentioned inspections.
- Keeping a photographic record of progress on site from an environmental perspective.

- Reporting any incidents of non-compliance with the EMPr to the Principal Agent and ECO.
- Keeping a register of complaints on site and recording community comments and issues and the actions taken in response to these complaints.

5.1.1.6Environmental Control Officer (ECO)

The ECO's duties shall include the following:

- Confirming that the necessary environmental authorisations and permits, if any, have been obtained from the relevant authority(ies).
- Advising the Contractor and / or Proponent on environmental issues within defined construction areas.
- Reviewing MS.
- Undertaking regular site visits to ensure compliance with the EMPr and verifying that negative environmental impacts are kept to a minimum and positive impacts are enhanced throughout the contract.
- Completing environmental checklists during site visits.
- Keeping a photographic record of progress on site from an environmental perspective.
- Assisting the Contractor and / or the Proponent in finding environmentally acceptable solutions to construction problems.
- Recommending additional environmental protection measures should this be necessary.
- Review the register of complaints and records and dealings with any community issues or comments.
- Giving a report back on any environmental issues at site meetings.
- Prepare an environmental audit report at the conclusion of the construction phase.

The ECO shall communicate directly with the Principal Agent. If the Principal Agent does not respond the ECO shall take the matter up with Proponent.

5.1.2 Operation Phase

The implementation of this EMPr requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during the operation phase. The organisational structure during the operation phase is presented in Figure 5-2.

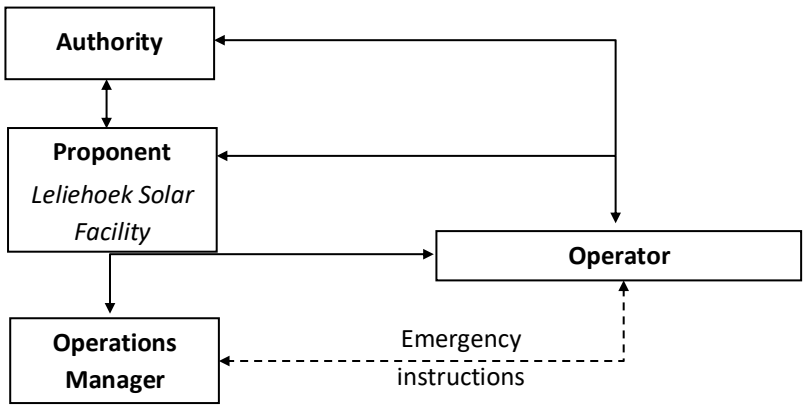

Figure 5-2: Organisational structure during the operation phase.

5.1.2.1Authority

DFFE is the designated authority responsible for authorising this EMPr. DFFE has overall responsibility for ensuring that Leliehoek Solar Facility complies with the conditions of its EA as well as this EMPr. DFFE shall also be responsible for approving any amendments that may be required to the EMPr.

5.1.2.2Proponent

The Proponent is ultimately responsible for the ensuring the implementation of the EMPr. Leliehoek Solar Facility must ensure that any person acting on its behalf complies with the conditions / specifications contained in this EMPr. Leliehoek Solar Facility shall address any site problems pertaining to the environment at the request of the Operator and Operations Manager.

Leliehoek Solar Facility shall address any site problems pertaining to the environment at the request of DFFE, the Contractor and / or ECO. The Proponent shall also ensure that all environmental authorisations and permits, if any, have been obtained from the authorities.

5.1.2.3Operator

The Operator shall ensure that its responsibilities are executed in compliance with the EMPr. Any on-site decision regarding environmental management is ultimately the responsibility of the Operator. The Operator shall appoint an Operations Manager for all day-to-day environmental management activities.
Additionally, the Operator shall have the following responsibilities:

- To ensure implementation of all provisions of the EMPr during the operation phase. If the Operator encounters difficulties with specifications, he / she must discuss alternative approaches with the Proponent and / or DFFE prior to proceeding.
- To ensure that all staff are familiar with the EMPr.
- Confirming that the environmental impacts are kept to a minimum.
- To ensure personnel are aware of environmental issues and to ensure they show adequate consideration of the environmental aspects of the project.
- To ensure the rehabilitation of any sensitive environments damaged due to the Operator's negligence.
- To address any issues at the request of DFFE and / or the public.
- To oversee the implementation of internal operations and activities.
- Appointment of various contractors e.g. landscaping, maintenance, cleaning, etc.

Failure to comply with the EMPr may result in suspension of the EA.

5.1.2.4Operations Manager

An Operations Manager shall be responsible for the following:

- To implement all provisions of the EMPr during the operation phase. If the Operations Manager encounters difficulties with specifications, he / she must discuss alternative approaches with the Operator prior to proceeding.
- To familiarise all staff with the EMPr.
- To keep negative environmental impacts to a minimum and to enhance positive impacts.
- To make personnel aware of environmental issues and to ensure they show adequate consideration of the environmental aspects of the project.
- To rehabilitate any sensitive environments damaged due to the Operator's negligence.
- To address any issues at the request of DFFE and / or the public.

- To implement internal operations and activities.
- Management of various contractors e.g. landscaping, maintenance, cleaning, etc.
- Management of various specialist undertaking bird or/and bat monitoring.
- Monitoring and undertaking all day-to-day maintenance / management activities.
- Implementing the provisions of operation-related measures in accordance with the EMPr.
- Undertaking continual internal review of the property and operations.
- Reporting any incidents of non-compliance with the EMPr to the Principal Agent and / or DFFE.
- Keeping a register of complaints on site and recording community comments and issues and the actions taken in response to these complaints.
- Keeping a register of fauna and avifauna fatalities on site.

5.2 EMPR ADMINISTRATION

Copies of this EMPr shall be kept at the site office/s during the operation phase. All senior personnel shall be required to familiarise themselves with the contents of this document. Any revisions to the EMPr document must be approved by DFFE before the revised EMPr is implemented. The Operations Manager shall be responsible for the implementation and distribution of any "approved" revisions to the EMPr during the operation phase.

5.3 INFORMATION BOARDS

The Contractor shall be responsible for erecting a general information board during the construction phase. The general information board shall, as a minimum, provide the name and contact number of the EO, to ensure that the public has access to the EO to request information and / or to lodge any complaints.

5.4 STAKEHOLDER ENGAGEMENT

Leliehoek Solar Facility should continue to engage with stakeholders throughout project construction and operation. Communication with local communities and other local stakeholders will be a key part of this engagement process and is one where Leliehoek Solar Facility and the contractor will need to work closely together during the construction period. Development of a Community Engagement Plan (CEP) is important to facilitate this communication.

The objectives of communication and liaison with local communities are the following:

- To provide residents in the vicinity of the Leliehoek Solar Facility and other interested stakeholders, with regular information on the progress of work and its implications.
- To monitor implementation of mitigation measures and the impact of construction on communities via direct monitoring and feedback from those affected in order to ensure that mitigation measures are implemented, and the mitigation objectives achieved.
- To manage any disputes between Leliehoek Solar Facility , the contractors, and local people.

5.5 METHOD STATEMENTS (MS)

The Contractor shall submit written MS to the Principal Agent and ECO for all environmentally sensitive aspects of the work during the construction phase. An MS Control Sheet, signed by the Contractor, must accompany each MS (contractor to provide). An MS shall cover applicable details with regard to:

- Construction procedures.
- Materials and equipment to be used.

- Getting 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 Specifications.
- Any other information deemed necessary by the Proponent / ECO.

An MS shall be submitted to the Principal Agent and ECO **at least five (5) days prior** to the commencement of the construction activities for which the MS is required. It should be noted that an MS must contain sufficient information and detail to enable the Principal Agent and ECO to apply their minds to the potential impacts of the works on the environment. The Contractor will also need to thoroughly understand what is required of them in order to undertake the works.

Work shall not commence until the MS have been approved by the Principal Agent. Failure to submit an MS may cause the Principal Agent to order the Contractor to suspend part or all of the works concerned until an MS has been submitted and approved. Failure to submit an MS at least five days prior to commencing the relevant activity may result in a fine. Any damage caused to the surrounding environment by work done without prior approval shall be rehabilitated at the Contractor's cost.

As a minimum the following MSs are required:

- MS for indicating the location, preparation and layout of the construction camps and laydown areas.
- MS for the containment, handling, storage, and disposal of hazardous substances.
- MS for handling accidental leaks and spills.
- MS for management of hazardous waste.
- MS for management of general waste.
- MS for management of wastewater.
- MS for dust control.
- MS for management of cement and concrete batching.
- MS for erosion and sedimentation control.
- MS for traffic accommodation and diversions.
- MS for fire prevention and control.
- Ms for solar arrays or modules component storage.
- MS for site rehabilitation.

The Principal Agent and / or the ECO shall specify any additional MS that may be required. Where relevant the MSs indicated above can be combined on agreement with the Principal Agent / ECO.

5.6 ENVIRONMENTAL AWARENESS TRAINING

Environmental awareness is defined as ‘the growth and development of awareness, understanding and consciousness toward the biophysical environment and its problems, including human interactions and effect’. It is further stated that it is ‘the educational process that deals with the human interrelationships

with the environment and that utilizes an interdisciplinary problem-solving approach with value clarification'.

As part of continual improvement in environmental management performance, environmental as well as health and safety awareness training should be provided to all employees in order to promote the effective implementation of the EMPr actions.

Prior to the commencement of any work on site, the Contractor's site management staff shall attend an environmental awareness training course presented by the ECO. The Contractor shall liaise with the ECO prior to the commencement of construction to fix a date and venue for the course. The Contractor shall provide a suitable venue with facilities and ensure that the specified employees attend the course.

The information presented at the course shall be communicated by the Contractor to the rest of his employees on the site, to any new employees coming onto site after the initial training course and to his / her suppliers as appropriate. The presentation shall be conducted, as far as is possible, in the employees' language of choice.
As a minimum, training shall include:

- Explanation of the importance of complying with the EMPr.
- Discussion of the potential environmental impacts of construction activities.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the mitigation measures that must be implemented when carrying out their activities.
- Explanation of the specifics of this EMPr and its specification (no-go areas, etc.).
- Discussion of waste awareness and provision of training to ensure proper waste management is implemented when carrying out their activities.
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

The Contractor shall keep records of all environmental training sessions, including names of attendees, dates of their attendance and the information presented to them.

5.7 MEETINGS

The ECO shall meet with the Principal Agent on a monthly basis, or more frequently as required during the initial stages of the project. The ECO shall attend scheduled construction site meetings on a monthly basis throughout the contract period.

5.8 INSPECTION PROCEDURES

The day-to-day monitoring and verification that the EMPr is being adhered to shall be undertaken by the EO. The ECO shall visit and inspect the site at least on a fortnightly basis to ensure that correct procedures are being implemented and that the Contractor is complying with the environmental specifications in the EMPr. Additional site inspections by the ECO may be needed during the initial stages of the project. The ECO shall address any queries to the Proponent. If the queries cannot be resolved at this level, they shall be referred to the Principal Agent and, if necessary, to DFFE.

5.9 RECORD OF ACTIVITIES

The EO shall keep a record of activities on site, including but not limited to meetings attended, MSs received and approved, issues arising on site, cases of non-compliance with the EMPr, penalties / fines issued, and corrective action taken to solve problems that arise, and any complaints received and how they were addressed.

The EO shall undertake photographic monitoring for the duration of the construction phase. This shall include a photographic record of all areas that will be impacted by the construction activities prior to construction activities commencing. The EO shall monitor all sensitive work environments, which may also include photographic monitoring.

5.10 FINES

A system of fines shall be implemented to ensure compliance with the EMPr. Where the Contractor inflicts non-repairable damage upon the environment or fails to comply with any of the environmental specifications of the EMPr this would constitute a breach of contract for which the Contractor may be liable to pay a fine. The Contractor is deemed not to have complied with the EMPr if, amongst others:

- There is evidence of contravention of the EMPr specifications, including any non-compliance with an approved MS.
- Construction activities take place outside the defined boundaries of the site.
- Environmental damage ensues due to negligence.
- The Contractor fails to comply with corrective or other instructions issued by the Principal Agent within a specific time period.
- The Contractor fails to respond adequately to complaints from the public.

If excessive infringement with regard to any of the above is registered, then the Principal Agent reserves the right to fine the Contractor, or in the extreme event terminate the Contractor's contract. The system of fines shall be implemented in the following way:

- Fines shall be issued per incident at the discretion of the Principal Agent.
- Fines shall be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental specifications.
- The Principal Agent shall inform the Contractor of the contravention and the amount of the fine and will deduct the amount from the Contractor's monthly Payment Certificates.
- Fines, shall be imposed by the Principal Agent on the Contractor, his staff and / or the Sub-contractors' staff for contravention of the environmental specifications. Where there are ranges, the amount shall depend on the severity and extent of the damage done to the environment.

Should a fine be issued, the Principal Agent shall, in conjunction with the ECO, identify an appropriate environmental-focussed non-profit organisation in the area to which to donate the money.

Failure by any employee of the Contractor or their sub-contractors to show adequate consideration to the environmental aspects of the contract shall be considered sufficient cause for the Principal Agent to have that employee removed from the site. The ECO may, through the Principal Agent, also order the removal of equipment that is causing continual environmental damage.

5.11 INTERNAL REVIEW AND AUDITING

The Contractor shall establish an internal review procedure to monitor the progress and implementation of the EMPr during the construction phase.

Where necessary, and upon the recommendation of the Principal Agent and / or the ECO, procedures that require modification will be changed to improve the efficiency of the EMPr. All modifications to the EMPr shall be approved by DFFE before, if possible, any changes or adjustments to the EMPr are implemented. Any changes or adjustments to the EMPr shall be registered in the daily records of the Principal Agent. Adjustment and update of the original EMPr document is not required when these ad hoc changes are made.

At the conclusion of the construction phase an environmental audit report shall be compiled and submitted to DFFE. This report shall be compiled by the ECO, in collaboration with the Principal Agent and the EO. It shall, as a minimum, outline the implementation of the EMPr during the construction phase, and highlight any problems and issues that arose during the construction period to report, on a formal basis, the lessons learned from this project.

5.12 EXTERNAL REVIEW AND AUDITING

The Proponent must, for the period during which the EA and EMPr remain valid, ensure compliance with the conditions of the EA and EMPr is audited. The environmental audit report must be prepared by an independent person, with the relevant environmental auditing expertise and be submitted to DFFE upon completion or within six months of completion of the construction phase. The environmental audit report must contain all the information required as presented in Appendix 7 of the EIA Regulations, 2014 (as amended).

The Proponent, within seven days of the submission of the environmental audit report to DFFE, must notify all interested and affected parties of the submission and make the report available to anyone on request and on a publicly accessible website (if applicable).

Access to the site must be granted and the environmental audit reports, ECO reports and other relevant documentation must be produced to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and / or monitoring compliance with the conditions contained therein.

6. ENVIRONMENTAL SPECIFICATIONS

6.1 ENVIRONMENTAL ACTIONS AND OUTCOMES APPLICABLE TO THE PLANNING / PRE-CONSTRUCTION PHASE

The planning phase activities included as part of the EMPr are in respect of any future construction, upgrades, or expansions at the site. This section is only deemed applicable to any future construction upgrades or expansions at the site.

6.1.1 Site Establishment

Impact management outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.

Table 5-1: Environmental actions and outcomes applicable to Site Establishment

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
1.	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.	Contractor	Development a method statement	Prior to construction	ECO	Once, prior to construction	Method statement which complies with the minimum requirements listed
2.	Location of construction 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.	Proponent	Place construction camps outside of sensitive areas. Appropriate Storm Water structures as informed by the Storm Water Management Plan (Appendix J)	Prior to construction	ECO	Once, prior to construction	Layout and sensitivity map indicating avoidance of sensitive areas
3.	The main contractor's camp layout shall make provision for (where applicable): • Access off the road network and visitor / staff parking facilities • Site office facilities and a structure to shelter security staff • Ablution facilities and a potable water source. Designated cooking or eating areas • Hazardous material / chemical storage and fuel storage. • Equipment cleaning areas. Waste storage and wastewater management infrastructure. • Plant parking facilities and a vehicle refuelling / maintenance area/s. • Emergency equipment storage areas including fire extinguishers and first aid kits • Laydown areas, batching plant and materials storage.	Proponent	Provide layout of construction camp with designated areas Appropriate Storm Water structures as informed by the Storm Water Management Plan (Appendix J) All waste managed according to the Waste Management Plan (Appendix C)	Prior to construction	ECO	Once, prior to construction	Layout map indicating designated areas

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
4.	Sites must be located where possible on previously disturbed areas.	Proponent	Place sites within previously disturbed areas where possible.	Prior to construction	ECO	Once, prior to construction	Layout and sensitivity map indicating avoidance of sensitive areas
5.	• Adhere to Telkom's conditions • **Mr Leonard Thikeson must be contacted at 051 – 435 7099/081 459 5420 two (2) weeks before any commencement work. Telkom should be provided with a built plan, within 30 days of completion of construction**	Project developer	Adhere to the specification provided in the letter included in the EIA report.	Pre-construction and Construction	Contractor/ECO	Once off- prior to commencement of construction	Proof of written Telkom response and consent before commencement of construction and to be kept on file for auditing

6.1.2 Access roads

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

Table 5-2: Environmental actions and outcomes applicable to Site Establishment

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
6.	Access to the servitude must be negotiated with the relevant landowner and must fall within the assessed and authorised area.	Proponent	Negotiations for access to the servitude with landowners affected by the grid connection corridor.	Prior to construction	EO	Continuous	Written and signed agreements
7.	An access agreement must be formalised and signed by the Proponent, Contractor, and landowner before commencing with the activities.	Proponent Contractor	Access agreements with the affected landowners.	Prior to construction	ECO / EO	Once, prior to construction	Written and signed agreements
8.	Maximum use of both existing servitudes and existing roads must be made to minimise further disturbance through the development of new roads.	Contractor	Existing access routes to be used must be specified and the development of new roads must be avoided	Prior to construction	ECO / EO	Continuous	Implement approved layout
9.	Access roads in flat areas must follow fence lines to avoid fragmentation of vegetated areas or croplands.	Proponent Contractor	Design access roads to follow fence lines and avoid vegetated areas.	Prior to construction	ECO	Once, prior to construction	Implement approved layout
10.	Implement strict controls over driver training, vehicle maintenance, speed restrictions, appropriate road safety signage, and vehicle loading and maintenance measures.	Proponent	Traffic Management Plan (Appendix K)	Prior to construction	ECO	Once, prior to construction	Implement Traffic management plan
11.	All necessary transportation permits will be applied for and obtained from the relevant authorities, including permits for abnormal loads.	Proponent/Contractor	Valid transport permits	Prior to construction	ECO	Once, prior to construction	Evidence of transport permits

6.1.3 Vegetation clearing

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

Table 5-3: Environmental actions and outcomes applicable to Vegetation Clearing

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
12.	Indigenous vegetation which does not interfere with the development must be left undisturbed.	Contractor and EO	Demarcate areas of indigenous vegetation to be avoided before clearance is undertaken.	Prior to construction	ECO Operation and maintenance team	Weekly, and as and when required	No unnecessary clearance of indigenous vegetation is undertaken
13.	Prior to clearing the ECO must be notified to identify and demarcate any indigenous trees or plants, nesting sites or heritage sites that require protection or translocation.	Contractor and EO	Notification of ECO. Rehabilitation Plan / Open Space Management Plan (Appendix F) Alien Plant Management Plan (Appendix G) Final Layout Map with Sensitivity overlain (Appendix B)	Prior to construction	ECO Operation and maintenance team	Weekly, and as and when required	Demarcation of indigenous trees or plants, nesting sites or heritage sites that require protection or translocation
14.	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.	Relevant specialist in consultation with the Contractor	Plant Search and Rescue Plan. (Appendix E)	Prior to construction	ECO	Weekly, and as and when required	Implementation of the Plant Search and Rescue Plan and photographic evidence and notes of the implementation of the plan (Appendix E)
15.	Permits for removal must be obtained from the conservation authority prior to the cutting or clearing of the affected species, and they must be filed.	Proponent	Undertake the permitting process to obtain he relevant permits for the removal of protected species. Permits kept on file. Translocate plant Species of Conservation Concern (SCC) within the development footprint to suitable degraded areas as part of a rehabilitation programme.	Prior to construction	ECO	Once, prior to the commencement of the construction phase and removal of the protected species	Permits on file
16.	Minimise disruption to agricultural activities and loss of agricultural land.	Relevant specialist in consultation with the Contractor	All workers will agree to the Code of Conduct and be aware that contravention of the Code could lead to dismissal. All directly affected and neighbouring farmers will be able to lodge grievances with the Proponent using the Grievance Procedure (Appendix D).	Prior to construction	ECO		Code of conduct and Grievance procedure (Appendix D)
17.	Grassland Management Manage the CBA and remaining primary grasslands within the project area to improve veld condition and biodiversity quality and functionality.	Proponent	Implement an appropriate grazing system that controls stocking rate and grazing intensity, and includes appropriate rest for the veld. Implement an appropriate fire management strategy which includes controlled burns when required, and suppressing uncontrolled burns.	Prior to construction	ECO Operation and maintenance team	As per the grazing system and fire management strategy	Photographic evidence and notes of the implementation kept on file

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
18.	Grassland Management Vaal Vet Grassland	Proponent	Ecological compensation or trade-off is appropriate to meet internationally acceptable standards. The options for biodiversity compensation for this project (and other renewable projects on surrounding farms in the area) should be determined through engagement with provincial conservation authorities and provincial and national environmental departments.	Prior to construction	ECO Operation and maintenance team	To be determined in the compensation strategy	Implementation of the compensation strategy

6.1.4 Protection of fauna

Impact management outcome: Minimise disturbance to fauna and avifauna.

Table 5-4: Environmental actions and outcomes applicable to Protection of Fauna

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
19.	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.	Proponent in consultation with the EO	Undertake a permitting process to obtain the required permits.	Prior to construction	ECO	Once, prior to the commencement of construction and as and when required	Permits for removal and/or relocation must be kept on file
20.	Permanent barriers to animal movement and habitat fragmentation.	Contractor	If the facility is to be fenced, then no electrified strands should be placed within 30cm of the ground as come species such as tortoises are susceptible to electrocution from electric fences as they do not move away when electrocuted but rather adopt defensive behaviour and are killed by repeated shocks. Alternatively, the electrified strands should be placed on the inside of the fence and not the outside	Pre-construction	ECO	Once, prior to the commencement of construction	Adequate fencing is erected and not causing interference with animals or giving barriers to animals
21.	Collision with 33kV overhead powerlines	Project Developer	The overhead cables on should be fitted with an approved anti bird collision line marking device to make cables more visible to birds in flight and reduce the likelihood of collisions. This should be done according to the Eskom Distribution and Transmission standards in terms of device spacing and other factors. The line marking device should be a dynamic (moving – bird flapper type) device. The new power line should be patrolled by ECO annually to measure any impacts on birds (through detecting collision fatalities) and to monitor the durability of the line marking devices. Where multiple devices on a span have failed they should be replaced immediately. Data should be submitted to the Eskom –EWT Strategic Partnership where it will be curated and publicly accessible.	Prior to construction	ECO	Annually, and as and when required	Photographic records and ECO report

6.1.5 Protection of heritage resources

Impact management outcome: Minimise impact to heritage resources.

Table 5-5: Environmental actions and outcomes applicable to Protection of Heritage Resources

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
22.	Identify, demarcate, and prevent impact to all known sensitive heritage features on site	Proponent and a suitably qualified specialist EO, in consultation with the Contractor and ECO	**Walkthroughs were undertaken and no sensitive heritage features are on site.** Chance Find Protocol (Appendix H)	If any heritage or fossil remains or trace fossils are discovered during any phase of construction or operation, either on the surface or exposed by excavations, the ECO in charge of this development should implement the Chance find Protocol (Appendix H) immediately. These discoveries should be protected (if possible, in situ) and the ECO must report such discovery to SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za). Suitable mitigation (e.g. recording and collection) will consequently be undertaken by a palaeontologist.			
23.	Avoid disturbance or damage to buildings and structures older than 60 years by maintaining 500m buffers around the on-site dwellings.	Contractor and ECO	Buffers must be established and clearly marked.	Prior to construction	ECO	Once, prior to the commencement of construction	Proof of avoidance of sensitive heritage features through details of avoidance and photographic records

6.1.6 Safety of the public

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

Table 5-6: Environmental actions and outcomes applicable to Protection of Heritage Resources Safety of the Public

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
24.	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.	EO in consultation with the Contractor	Emergency Preparedness, Response and Fire Management Plan (Appendix I)	Prior to construction	ECO	Once, prior to the commencement of construction and weekly during the construction phase	Compliance with the Emergency Preparedness, Response and Fire Management Plan
25.	Standard buffer zones around roads, houses, and any other structures must be observed.	DPM, Suitably Qualified Specialist and Contractor	Undertake consultation between the relevant responsible people and finalise the buffer zones.	Prior to construction	ECO	Once, prior to the commencement of construction	Observation of buffer zones

6.1.7 Hazardous substances

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Table 5-7: Environmental actions and outcomes applicable to Hazardous Substances

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
26.	All employees working with Hazard Chemical Substances (HCS) must be trained in the safe use of the substance and according to the safety data sheet.	Contractor and EO	Provide training for personnel working with HCS.	Prior to construction	ECO	Once, prior to the commencement of construction and as and when required	Record of training provided to personnel working with HCS
27.	The responsible operator must have the required training to make use of the spill kit in emergency situations.	Contractor and EO	Provide training on the use of spill kits to the relevant employees.	Prior to construction	ECO	Once, prior to the commencement of construction	Proof of training to be provided by the contractor
28.	All hazardous substances must be stored in suitable containers as defined in the Method Statement.	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
29.	Containers must be clearly marked to indicate contents, quantities and safety requirements.	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers	Pre-construction & Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements

6.1.8 Fire prevention

Impact management outcome: Prevention of uncontrollable fires.

Table 5-8: Environmental actions and outcomes applicable to Fire Prevention

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
30.	Fire breaks around the site should be constructed	ECO and Contractor	A fire management plan should be drawn up prior to construction in agreement with neighbouring land owners. This plan should clearly specify what types of behaviour would not be acceptable with appropriate sanction for transgressions. The applicants should also ensure that they join the local fire protection agency. (Appendix I)	Planning phase	ECO and Contractor	Once Off	Proof of fire management plan developed and adhered to.
31.	The battery storage facility must be located outside (i.e. well-ventilated) and include vents (where necessary and applicable in order to reduce fire, explosion or release of toxic gas risk from battery storage facility	Project Developer	Ensure compliance to this requirement	Planning phase	Project Developer	Once Off	Proof of compliance with requirements
32.	The local Fire Protection Agency (FPA) must be informed of construction activities.	EO in consultation with the ECO	Undertake formal consultation to inform the local FPA of the associated construction activities.	Prior to construction	ECO	Once, during the commencement of the Construction Phase	Proof of consultation with the FPA
33.	Designate smoking areas where the fire hazard could be regarded as insignificant;	cEO / Contractor	Identify and demarcate through signage designated smoking areas	Prior to construction	ECO	Monthly	Photographic record of designated smoking area
34.	No fires to be lit on the site	cEO / Contractor	Inform through awareness training	Prior to construction	ECO	Monthly	Proof of awareness training

6.1.9 Visual

Impact management outcome: Socio-economic development is enhanced.

Table 5-9: Environmental actions and outcomes applicable to Visual

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
35.	Construction camps will be clearly defined and limited in size to that which is essential and located as per the approved layout in accordance with the impact management actions included in Section: Site Establishment development, refer to Table 6 1.	Contractor	Development a method statement.	Prior to construction	ECO and EO	Once, prior to construction	Method statement which complies with the minimum requirements listed
36.	The substation and O&M buildings to be grouped together as far as possible to minimise the scatter of buildings across the site.	Project Developer	Development a method statement.	Prior to construction	ECO and EO	Once, prior to construction	Method statement which complies with the minimum requirements listed
37.	The design of the buildings to be compatible in scale and form with buildings of the surrounding rural area, and with the regional architecture.	Project Developer	Development a method statement.	Prior to construction	ECO and EO	Once, prior to construction	Method statement which complies with the minimum requirements listed
38.	The facility and related infrastructure must not be located on landscape features such as rock outcrops, streams and wetlands.	Project Developer	Development a method statement.	Prior to construction	ECO and EO	Once, prior to construction	Method statement which complies with the minimum requirements listed

6.1.10 Socio-economic

Impact management outcome: Socio-economic development is enhanced.

Table 5-10: Environmental actions and outcomes applicable to Socio-economic

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
39.	Develop and implement communication strategies to facilitate public participation.	EO	Identify and implement appropriate strategies for communication with the communities through consideration of the community needs.	Pre-construction	ECO	Once, prior to the commencement of construction and monthly during the construction	Communication is undertaken as per the identified strategies and no complaints are submitted regarding communication
40.	Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process.	Contractor	Development and implement a Grievance Mechanism which considers the community needs and provides procedures for conflict resolution.	Pre-construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Conflict resolution is undertaken in line with the requirements of the Grievance Mechanism. No complaints on conflict resolution are submitted by the community

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
41.	All abutting neighbours (or as required) must be notified of the proposed construction phase activities at least two weeks before they commence.	EO	Notify neighbours to inform start date of construction.	Pre-construction	ECO	Once, prior to the commencement of construction	Evidence of notifications
42.	Notify all registered I&APs and key stakeholders of the Environmental Authorisation opportunity and appeal procedure.	SLR	Notices sent to relevant parties on the stakeholder database. List of those to whom it was sent on file.	Within 5 days from the issuing of the Environmental Authorisation.	ECO	Once, prior to the commencement of construction	Evidence of notifications
43.	Notify DFFE prior to commencement of construction.	EO	Provide notification of commencement date.	14-days in advance of commencement of construction.	ECO	Once, prior to the commencement of construction	Proof of communication.
44.	Ensure that employment of local people is maximised, and procurement of local, regional and national services is maximised	Proponent	The Proponent will establish a recruitment and procurement policy which sets reasonable targets for the employment of South African and local residents /suppliers (originating from the local municipality) and promote the employment of women as a means of ensuring that gender equality is attained. Criteria will be set for prioritising, where possible, local (local municipal) residents/suppliers over regional or national people/suppliers. All contractors will be required to recruit and procure in terms of Leliehoek Solar Facility recruitment and procurement policy. The Proponent will work closely with relevant local authorities, community representatives and organisations to ensure that the use of local labour and procurement is maximised.	Prior to construction	ECO	Prior to the commencement of construction	Recruitment policy and Meeting minutes
45.	Enhance employment and procurement benefits	Proponent	The Proponent to work closely with the solar suppliers to provide the requisite training to the workers. The training provided will focus of development of local skills. Ensure that the appointed project contractors and suppliers have access to Health, Safety, Environmental and Quality training as required by the project. This will help to ensure that they have future opportunities to provide goods and services to the sector.	Prior to construction	ECO	Prior to the commencement of construction	Training material and records of training

6.2 ENVIRONMENTAL ACTIONS AND OUTCOMES APPLICABLE TO THE CONSTRUCTION PHASE.

The construction phase activities included as part of the EMPr are in respect of any future construction, upgrades, or expansions at the site. This section is only deemed applicable to any future construction upgrades or expansions at the site

6.2.1 Environmental awareness training

Impact management outcome: All onsite staff are aware and understand the individual responsibilities in terms of this EMPr.

Table 5-11: Environmental actions and outcomes applicable to Environmental awareness training.

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
46.	All staff must receive environmental awareness training prior to commencement of the activities.	ECO / EO	Environmental awareness training workshops.	Construction	ECO / EO	Monthly and as when required	Attendance register
47.	Environmental training should be undertaken in English and the second most spoken language of the project area.	ECO / EO	An interpreter should be provided as required.	Construction	ECO / EO	Monthly and as when required	Environmental awareness training material
48.	The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course.	ECO / EO	Scheduling of sufficient sessions through consultation with the ECO / EO.	Construction	ECO / EO	Monthly and as when required	Attendance register
49.	Refresher environmental awareness training is available as and when required.	ECO / EO	Refresher environmental awareness training workshops.	Construction	ECO / EO	Monthly and as when required	Attendance register
50.	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;	ECO / EO	Ensure that the EA and EMPr is readily available.	Construction	ECO / EO	Monthly and as when required	Attendance register
51.	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.	Contractor	Place appropriate posters at key locations.	Construction	ECO / EO	Monthly and as when required	Photographic record
52.	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.	ECO / EO	Environmental awareness training material	Construction	ECO / EO	Monthly and as when required	Environmental awareness training material requirements checklist

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
53.	A record of all environmental awareness training courses undertaken as part of the EMPr must be available.	ECO / EO	Filing system including all proof of training	Construction	ECO / EO	Monthly and as when required	File with environmental awareness training course material and proof of training
54.	Educate workers on the dangers of open and/or unattended fires.	ECO / EO	Environmental awareness training material	Construction	ECO / EO	Monthly and as when required	Environmental awareness training material requirements checklist
55.	A staff attendance registers of all staff to have received environmental awareness training must be available.	ECO / EO	Filing system including all proof of training	Construction	ECO / EO	Monthly and as when required	File with proof of training
56.	Course material must be available and presented in appropriate languages that all staff can understand.	ECO / EO	Environmental awareness training material in the required languages	Construction	ECO / EO	Monthly and as when required	File with proof of training in appropriate languages

6.2.2 Access restricted areas

Impact management outcome: Access to restricted areas prevented.

Table 5-12: Environmental actions and outcomes applicable to Access restricted areas

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
57.	Identification of access restricted areas is to be informed by the environmental assessment, site walk through, and any additional areas identified during development;	ECO / EO	Demarcate access restricted areas.	Construction	ECO	Continuous	Photographic evidence
58.	Access to the site must be limited and all construction staff and machinery must remain within the demarcated construction area.	ECO / EO	Access control must be implemented.	Construction	ECO	Continuous	Access control register
59.	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.	ECO / EO	Erect appropriate temporary barriers around access restricted areas.	Construction	ECO	Continuous	Photographic evidence
60.	Unauthorised access and development related activity inside access restricted areas is prohibited.	ECO / EO	Erect appropriate temporary barriers around access restricted areas.	Construction	ECO	Continuous	Photographic evidence

6.2.3 Access roads

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

Table 5-13: Environmental actions and outcomes applicable to Access Roads

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
61.	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.	Contractor	Undertake maintenance activities on private roads used for construction.	Construction	ECO / EO	Continuous	Photographic record of access roads tracking condition
62.	All contractors must be made aware of all the access routes.	Contractor	Provide a map showing all access routes associated with the project.	Construction	ECO	Construction	Access routes map available
63.	Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense.	Contractor	All access routes developed that are not in-line with the access route agreements must be closed and re-habilitated.	Construction	ECO	Continuous	Photographic record of the closure of access roads and re-vegetation
64.	Maximum use of both existing servitudes and existing roads must be made to minimise further disturbance through the development of new roads.	Contractor	Existing access routes to be used must be specified and the development of new roads must be avoided.	Construction	ECO / EO	Continuous	Implement approved layout
65.	In circumstances where private roads must be used, the condition of the said roads must be recorded: photographic record; prior to use and the condition thereof agreed by the landowner, the Proponent, and the contractor.	EO	Record the conditions of private roads to be used and agree on the required condition of the roads with the landowner, Proponent, and contractor.	Construction	ECO	Prior to road use	Photographic record of the road conditions
66.	Access roads must only be developed on pre-planned and approved roads.	Contractor	Construction of access roads only on pre-planned and approved roads.	Construction	ECO	Once, prior to construction	Implement approved layout
67.	Mitigate traffic impacts.	Contractor	The delivery of components and construction materials (for maintenance activities) to the site should be staggered and trips should be scheduled to occur outside of peak traffic periods. Transporting site personnel to and from the site must be done by means of busses or minibus taxis. This will reduce the number of trips bound for the site. All directly affected and neighbouring farmers and local residents will be able to lodge grievances with Leliehoek Solar Facility using the Grievance Procedure regarding dangerous driving or other traffic violations that could be linked to the project.	Construction	ECO / EO	Continuous	Traffic Management Plan and Grievance procedure and logbook of complaints and actions taken.

6.2.4 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.

Table 5-14: Environmental actions and outcomes applicable to Fencing and Gate installation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
68.	Use existing gates provided to gain access to all parts of the area authorised for development, where possible.	Contractor	Identify and inform all relevant staff of the existing gates to be used.	Construction	EO	Monthly	Existing gates are utilised on a frequent basis and only limited new access gates are developed
69.	Existing and new gates to be recorded and documented	ECO	Existing and new gates will be recorded and documented as per the requirements of Section: Access Roads	Construction	ECO	Once, when the construction of all new gates has been completed	Photographic record of the existing and new gates as per the requirements of Section: Access Roads
70.	All gates must be fitted with locks and be kept always locked during the development phase, unless otherwise agreed with the landowner.	Contractor	Ensure all relevant gates are fitted with locks and are always locked.	Construction and Operational	ECO	Continuous	All gates are locked
71.	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.	Contractor	Install gates in a manner so that there is a gap of no more than 100 mm between the bottom of the gate and the ground.	Construction	EO	Once, during the erection of the gates during the construction phase	New gates installed as per the requirement
72.	Original tension must be maintained in the fence wires.	Contractor	Maintain original tension of fences through required activities.	Construction	ECO	Monthly	No tension reduction on fence wires
73.	All gates installed in electrified fencing must be re-electrified;	Contractor	Electrify gates installed in electrified fencing.	Construction	ECO	Once, during the erection of the gates during the construction phase	Gates installed in electrified fencing is electrified
74.	All demarcation fencing and barriers must be maintained in good working order for the duration of overhead transmission and distribution electricity infrastructure development activities.	Contractor	Undertake maintenance activities on fences and barriers.	Construction	ECO	Monthly	Photographic record of fences erected
75.	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.	Contractor	Fence construction camps, batching plants, hazardous storage areas and access restricted areas. Avoid sensitive flora.	Construction	ECO	Once during the erection of fencing	Photographic record of fences erected
76.	Fencing (e.g., palisade) must provide appropriate opening for animals to pass through (unless it is a confined area animal must not get into like the substation etc) – bars placed 20 cm apart should provide sufficient space for the movement of small animals whilst deterring humans.	Contractor	Ensure installation follows specified heigh requirements.	Construction	ECO	Once during the erection of fencing	Photographic record of fences erected
77.	If not electrified, the bottom wire of perimeter fence must be at least 15 cm from the ground, and above 30 cm if electrified.	Contractor	Ensure installation follows specified heigh requirements.	Construction	ECO	Once during the erection of fencing	Photographic record of fences erected

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
78.	Any temporary fencing to restrict the movement of livestock must only be erected with the permission of the landowner.	EO/ Contractor	Obtain written approval from the relevant landowner where temporary fencing is required to restrict livestock movement.	Construction	ECO	To be monitored as temporary fencing is required	Written approval to be provided by the deco
79.	All fencing must be developed of high-quality material bearing the SABS mark.	Contractor	Make use of high-quality materials approved by SABS.	Construction	EO	To be monitored as fencing is erected during the construction phase	Use of high-quality materials for fencing approved by SABS
80.	The use of razor wire as fencing must be avoided as far as possible.	Contractor	Razor wire must not be sourced or used for the erection of fencing.	Construction	ECO	To be monitored as fencing is erected during the construction phase	Fences erected do not make use of razor wire
81.	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 always required.	Contractor	Ensure fenced areas are locked as required through the implementation of a formalised process. Appoint a security company.	Construction	EO	Weekly and as and when required	Fences are locked and no complaints from landowners are received. A security company is appointed
82.	On completion of the development phase all temporary fences are to be removed.	Contractor	Removal of all temporary fences.	Construction	ECO /EO	Once, following the completion of the construction phase	No temporary fences associated with the project is present following the completion of the construction phase
83.	The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.	Contractor	Appropriate removal of all fence uprights.	Construction	ECO / EO	Once, following the completion of the construction phase	No fence uprights associated with the project is present following the completion of the construction

6.2.5 Water Supply Management

Impact management outcome: Undertake responsible water usage.

Table 5-15: Environmental actions and outcomes applicable to Water Supply Management

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
84.	All abstraction points or boreholes must be registered with the DWS, and suitable water meters installed to ensure that the abstracted volumes are measured daily;	Proponent	According to the Water Use Licence.	Construction	ECO	Once off prior to construction	water Use Licence on file
85.	For the utilisation of boreholes that may yield groundwater: • Utilise the boreholes as per the recommended sustainable yields and avoid over abstraction of any one borehole. • Address any water quality problems at the various boreholes. This may require treatment or appropriate mixing. • Where possible, rotate abstraction and distribute evenly between the boreholes to limit drawdown. • Monitor the borehole water levels and abstraction volumes. • The groundwater is of moderate quality and thus is not a source of potable as is (treatment to the SANS 241 standards would be required to render the water fit for human consumption, if used)	Proponent and Contractor	Method Statements According to the Water Use Licence.	Construction	ECO	Continuous	Records of borehole monitoring and water quality
86.	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 riverbed 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.	Proponent and Contractor	Method Statements According to the Water Use Licence.	Construction	ECO	Continuous	Method Statements and Water Use Licence on file and Photographic records
87.	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.	Contractor / EO in consultation with the ECO	Implement the required water conservation measures throughout on- site construction processes.	Construction	ECO	Monthly, and as and when required	Successful implementation of water conservation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
88.	Reduce water demand by: • Dust suppression must employ chemical dust suppressants (i.e. Dustex® or similar) which are deployed on main haul roads in accordance with the supplier recommendations. This should be provisioned for in the Bill of Quantities and costed for by the Contractor. • Where possible, potable water should not be used for dust suppression. • Water from evaporation / sediment ponds should be recycled for dust suppression (provided uncontaminated by deleterious materials).	Contractor / EO in consultation with the ECO	Keep record of water usages on site.	Construction	ECO	Monthly, and as and when required	Record of water usage and successful implementation of reduction of water use

6.2.6 Stormwater, groundwater, and wastewater management

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

Table 5-16: Environmental actions and outcomes applicable to Stormwater, groundwater, and wastewater management

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
89.	Reduce risk of groundwater contamination via the following: • Septic tanks and mobile toilets, fuel or chemical storage areas must be kept away (100 m) from any borehole well head. • Any borehole should not be located in a depression where it could become inundated. • There should be no standing / open water immediately around the wellhead. • Any stationary plant used around the wellhead, or anywhere, should make use of a drip tray during re-fuelling or dispensing of liquids. Proper non-drip dispensing equipment and spill kits should also be used. • A designated fuel storage and dispensing areas should have sufficient ground protection to prevent and contain leaks and spills. • Refuelling and servicing of plant and equipment in field should be avoided. • Runoff must go through an oil/grease trap before being discharged, no soaps can be introduced in this system. Refer to Section: Hazardous substances for specifications relating to fuels storage and re-fuelling areas.	Contractor and EO	Implement measures for the control and management of stormwater and contaminated runoff. Appropriate Storm Water structures as informed by the Storm Water Management Plan (Appendix J)	Construction	ECO	Continuous	No mismanagement of runoff or contaminated water and stormwater
90.	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;	Contractor	Implement measures for the control and management of runoff. Appropriate Storm Water structures, as informed by the Storm Water Management Plan (Appendix J)	Construction	ECO	Continuous	No mismanagement of runoff or contaminated water due to the temporary concrete batching plant
91.	Rainwater that collects in bunded areas shall be promptly removed and dealt with as water containing waste	Contractor	Implement measures for the control and management of runoff. Appropriate Storm Water structures, as informed by the Storm Water Management Plan (Appendix J)	Construction	ECO	Continuous	No mismanagement of runoff or contaminated water
92.	All spillage of oil onto concrete surfaces must be controlled using an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility;	Contractor and EO	Obtain approved absorbent material and make use of licensed waste disposal facilities for disposal of oil. Appropriate Storm Water structures, as informed by the Storm Water Management Plan (Appendix J)	Construction	ECO	Continuous	Availability of approved absorbent material at the construction site and proof of disposal of oil at licensed disposal facilities

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
93.	Natural stormwater 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;	Proponent in consultation with the ECO	Consultation between the Proponent and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge. Appropriate Storm Water structures, as informed by the Storm Water Management Plan (Appendix J)	Construction	ECO	As and when the need arises to discharge natural stormwater runoff and clean water	Proof of consultation between the Proponent and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.
94.	Rehabilitate any areas where erosion occurred and amend the stormwater run-off control measures if required.	Contractor	Implement erosion control measures. Appropriate Storm Water structures, as informed by the Storm Water Management Plan (Appendix J)	Construction	ECO	Monthly	Photographic proof of rehabilitation of areas that were eroded
95.	Washing and cleaning of equipment must be done in designated wash bays, where rinse water is contained in evaporation/sedimentation ponds (to capture oils, grease cement and sediment).	Contractor	Implement measures for the control and management of runoff. Appropriate Storm Water structures, as informed by the Storm Water Management Plan (Appendix J)	Construction	ECO	Continuous	No mismanagement of runoff or contaminated water
96.	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.	Proponent in consultation with the ECO	Consultation between the Proponent and the ECO to determine if water can be discharged directly into water bodies (where present). The necessary water quality testing must be undertaken prior to discharge. Appropriate Storm Water structures, as informed by the Storm Water Management Plan (Appendix J)	Construction	ECO	As and when the need arises to discharge water	Proof of consultation between the Proponent and ECO and the outcomes thereof to be provided. Proof of water quality testing and the results thereof.

6.2.7 Solid and hazardous waste management

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

Table 5-17: Environmental actions and outcomes applicable to Solid and hazardous waste management

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
97.	All measures regarding waste management must be undertaken using an integrated waste management approach.	Contractor	Develop and implement a method statement to address waste management .	Construction	ECO	Monthly	Implementation of the method statement and proof of waste management through proof of responsible disposal
98.	Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided.	Contractor	Provision of appropriate waste collection bins strategically placed throughout the site.	Construction	ECO	Continuous	Appropriate waste collection bins are available throughout the site
99.	A suitably positioned and clearly demarcated waste collection site must be identified and provided.	Proponent and Contractor	Identify an appropriate location for the waste collection site which must be clearly demarcated through signage and temporary fencing.	Construction	ECO	Once, prior to the commencement of construction	A waste collection site is appropriately placed and demarcated
100.	The waste collection site must be maintained in a clean and orderly manner.	Contractor	Regular collection of waste and maintenance of the area must be undertaken as per the waste requirements for the project during construction.	Construction	ECO	Continuous	The waste collection site is maintained and clean
101.	Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal.	Contractor	Provide separate and marked bins for the different waste types associated with the construction phase.	Construction	EO	Continuous	Separate waste bins are available on site and waste generated is separated into the relevant bins
102.	Staff must be trained in waste segregation.	EO / in consultation with the ECO	Include waste segregation as part of the environmental awareness training material.	Construction	ECO	Monthly, and as and when required	Environmental awareness training material requirements checklist
103.	Bins must be emptied regularly.	Contractor	Bins must be emptied before reaching total capacity and on a regular basis as required for the project.	Construction	ECO	Monthly	No mismanagement t of bins.
104.	General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company.	Contractor	Disposal of general waste at licensed waste disposal facilities must be undertaken as per the waste management plan.	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
105.	No burning of solid waste is allowed.	Contractor	Disposal of general waste at licensed waste disposal facilities must be undertaken as per the waste management plan.	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided
106.	Hazardous waste must be disposed of at a registered waste disposal site.	Contractor	Disposal of hazardous waste at licensed waste disposal facilities must be undertaken as per the waste management plan.	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
107.	Certificates of safe disposal for general, hazardous and recycled waste must be maintained.	Contractor	Obtain certificates for safe disposal of waste.	Construction	ECO	Monthly	Disposal certificates of disposal at licensed facilities to be provided and filed as part of the filing system

6.2.8 Protection of watercourses

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.

Table 5-18: Environmental actions and outcomes applicable to Protection of watercourses

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
108.	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.	Contractor	Contractor to undertake activities which can cause spills of pollutants outside of watercourses.	Construction	ECO	Continuous	No incidents reported of spillage of pollutants into watercourses
109.	In the event of a spill, prompt action must be taken to clear the polluted or affected areas.	Contractor and EO	Develop a management plan or process for implementation should a spill take place.	Construction	ECO	Continuous	Feedback must be provided by the contractor in terms of how the spill was handled and photographic evidence of the feedback must be provided and kept on record
110.	Where possible, no development equipment must traverse any seasonal or permanent wetland.	Contractor and EO	Develop a Method statement on how to traverse any seasonal or permanent wetland.	Construction	ECO	Continuous	Feedback must be provided by the contractor in terms of how the spill was handled and photographic evidence of the feedback must be provided and kept on record
111.	Development of permanent watercourse crossing must only be undertaken where no alternative access to solar array position is available.	Contractor and EO	Ensure that permeant crossings (access roads) are provided for access to the grid connection corridor, if no alternative crossing is available.	Construction	ECO	Continuous	Ensure that permeant crossings are developed if there is no alternative.
112.	Where roads and crossings are upgraded, the following applies: • All pipe culverts must be removed and replaced with suitably sized box culverts, where road levels are raised. • River levels, regardless of the current state of the river / water course must be reinstated thus preventing any impoundments from being formed . • Where large cut and fill areas are required, these must be stabilised and rehabilitated during the construction process, to minimise erosion and sedimentation. • Suitable stormwater management systems must be installed along roads and other areas and monitored during the first few months of use. Any erosion / sedimentation must be resolved by using the appropriate additional interventions (i.e., extension, energy dissipaters, spreaders, etc).	Contractor and EO	Ensure that construction methods accommodate all requirements to ensure aquatic continuity.	Construction	ECO	Monthly, and as and when required	Free flow of water must be visible, and erosion must be observed

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
113.	There must not be any impact on the long-term morphological dynamics of watercourses.	Proponent and EO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring.	Construction	ECO, do	For all phases of the project life cycle (i.e. construction, operation, decommissioning g)	No incidents reported of spillage of pollutants into watercourses
114.	Existing crossing points must be favoured over the creation of new crossings (including temporary access).	Proponent and EO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring.	Construction	ECO, EO	During the construction phase of the project.	Existing crossing points utilised as opposed to new ones created and no incidents reported of spillage of pollutants into watercourses
115.	When working in or near any watercourse, 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.	Contractor	Activities undertaken near watercourses must be in-line with and consider the specified environmental controls.	Construction	ECO	Monthly, and as and when required	No degradation of the watercourses and no incidents of destruction reported.
116.	Where roads and crossings are upgraded, the following applies:	Contractor and EO	Ensure that construction methods accommodate all requirements to ensure aquatic continuity.	Construction	ECO	Monthly, and as and when required	Free flow of water must be visible, and erosion must be observed

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
	• All pipe culverts must be removed and replaced with suitably sized box culverts, where road levels are raised. • River levels, regardless of the current state of the river / water course must be reinstated, thus preventing any impoundments from being formed . • Where large cut and fill areas are required, these must be stabilised and rehabilitated during the construction process, to minimise erosion and sedimentation. • Suitable stormwater management systems must be installed along roads and other areas and monitored during the first few months of use. Any erosion / sedimentation must be resolved by using the appropriate additional interventions (i.e., extension, energy dissipaters, spreaders, etc).						
117.	There must not be any impact on the long-term morphological dynamics of watercourses.	Proponent and EO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring.	Construction	ECO or EO	For all phases of the project life cycle (i.e. construction, operation, decommissioning g)	No incidents reported of spillage of pollutants into watercourses
118.	Existing crossing points must be favoured over the creation of new crossings (including temporary access).	Proponent and EO	Develop a management plan or process for implementation should a spill take place within a watercourse and ensure continually monitoring.	Construction	ECO or EO	During the construction phase of the project.	Existing crossing points utilised as opposed to new ones created and no incidents reported of spillage of pollutants into watercourses
119.	When working in or near any watercourse, 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.	Contractor	Activities undertaken near watercourses must be in-line with and consider the specified environmental controls	Construction	ECO	Monthly, and as and when required	No degradation of the watercourses and no incidents of destruction reported.

6.2.9 Vegetation clearing

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

Table 5-19: Environmental actions and outcomes applicable to Vegetation Clearing

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
120.	Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species.	Contractor	Demarcate areas containing protected or endangered species to be avoided by construction activities.	Construction	ECO	Weekly, and as and when required	No clearance of protected or endangered species other than those permitted to be removed
121.	No indigenous trees or shrubs may be felled, lopped, pruned, or removed without the prior permission of the ECO.	Contractor	Demarcate areas containing protected or endangered species to be avoided by construction activities.	Construction	ECO	Weekly, and as and when required	No clearance of protected or endangered species other than those permitted to be removed
122.	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.	ECO	Ensure that the audit report indicates all species rescued and replanted and provides feedback in terms of compliance with the conditions of permits for replanting.	Construction	Not Applicable		
123.	Trees felled due to construction must be documented and form part of the Environmental Audit Report.	ECO	Ensure that the audit report documents the details of trees felled.	Construction	Not Applicable		
124.	Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris.	Contractor	Felled trees, vegetation cuttings and debris must be disposed of at a licensed waste disposal facility.	Construction	ECO	Monthly	No felled trees, vegetation cuttings and debris are dumped in inappropriate locations and disposal certificates are available as proof of responsible disposal
125.	The use of herbicides should be avoided as far as possible. However if required to be used, a daily register must be kept of all relevant details of herbicide usage. 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 that is appropriately trained.	DPM and contractor	A suitably qualified pest control operator must be appointed. Develop a daily register for the documentation of the details of herbicide usage.	Construction	ECO	As and when the use of herbicides is required	Only registered pest control operators must be appointed, and proof of their registration must be provided Daily register provided by the pest control operator
126.	All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance with **Section: Access restricted areas**	Contractor in consultation with the CEO	Spatially demarcate protected species and sensitive vegetation and implement appropriate fencing where required as per **Section: Access restricted areas,**	Construction	ECO	Continuous	Demarcation and fencing are undertaken in- line with the requirements of **Section: Access restricted areas**

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
127.	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.	Contractor	Undertake removal of alien invasive vegetation in accordance with the relevant guideline relevant to the project area and ensure the vegetation is disposed of at a licensed waste disposal facility.	Construction and Operational	ECO Operation and maintenance team	Monthly, and as and when required	Proof must be obtained if alien invasive vegetation has been cleared, in accordance with the relevant guideline, and that the vegetation was disposed of at a licensed waste disposal facility
128.	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.	Contractor	Dispose of the debris in accordance with the waste management plan.	Construction	ECO Operation and maintenance team	Monthly, and as and when required	Proof must be provided that the debris has been disposed of at a licensed waste disposal facility
129.	Grassland Management Manage the CBA and remaining primary grasslands within the project area to improve veld condition and biodiversity quality and functionality.	Proponent	Implement an appropriate grazing system that controls stocking rate and grazing intensity, and includes appropriate rest for the veld. Implement an appropriate fire management strategy which includes controlled burns when required, and suppressing uncontrolled burns.	Construction and Operational	ECO Operation and maintenance team	As per the grazing system and fire management strategy	Photographic evidence and notes of the implementation kept on file

6.2.10 Protection of fauna

Impact management outcome: Minimise disturbance to fauna and avifauna.

Table 5-20: Environmental actions and outcomes applicable to Protection of Fauna

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
130.	All vehicles entering the site must adhere to low-speed limits for heavy (30km/h) and light vehicles (40km/h).	Contractor and EO	Ensure speed limit signs are visible and speed is monitored.	Construction	ECO Operation and maintenance team	Monthly, and as and when required	No incident report relating to speeding.
131.	No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present.	Contractor and EO	Develop a procedure for dealing with livestock within the affected properties.	Construction	ECO	Once, prior to the commencement of construction and as and when required during the construction phase	Written consent provided by the landowner and proof of representation of the landowner during interference
132.	No Domestic animals allowed on site.	Contractor and EO	Remove any domestic animal that may enter on site to nearest animal care facility egg SPCA.	Construction	ECO Operation and maintenance team	Monthly, and as and when required	No presence of domestic animals on site.
133.	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.	Contractor and EO	Avoid breeding sites and ensure that special care is taken in the presence of nestlings and fledglings.	Construction	ECO Operation and maintenance team	Weekly, and as an when required during the construction. Monthly, and as and when required during operation	Photographic record of intact breeding sites

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
134.	Special recommendations of the avian specialist must be always adhered to correct implementation of mitigation measures.	Contractor and EO	All mitigation measures recommended by the avifauna specialist must be implemented.	Construction	ECO Operation and maintenance team	Weekly during construction and monthly during operation	Photographic record of compliance and successful implementation of the recommended measures
135.	No poaching must be tolerated under any circumstances. All animal dens near the works areas must be marked as Access restricted areas.	Contractor and EO	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement. These areas must be demarcated as Access Restricted Areas.	Construction	ECO	Construction and Operation	ECO Operation and maintenance team
136.	No deliberate or intentional killing of fauna is allowed.	Contractor and EO	Implement and maintain snake deterrents on pylons in areas where snakes are abundant.	Construction	ECO Operation and maintenance team	Once, during the construction of the pylons and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
137.	Maintain a log of fauna-related incidents or mortalities. The log should be reviewed annually, and mitigations amended/implemented as data suggests.	Contractor and EO	Capture all incidents and mortalities of all faunae on site. An investigation of cause to each incident to mortality must be undertaken.	Construction	ECO Operation and maintenance team	Monthly, and as and when required	Report logging all fauna-related incidents or mortalities together with mitigation measures that are implemented.
138.	In areas where snakes are abundant, snake deterrents are to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages	dEO / cEO in consultation with the Contractor	Implement and maintain snake deterrents on pylons in areas where snakes are abundant	Construction and Operation	ECO Operation and maintenance team	Once, during the construction of the pylons and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents

6.2.11 Protection of heritage resources

Impact management outcome: Minimise impact to heritage resources.

Table 5-21: Environmental actions and outcomes applicable to Protection of Heritage Resources

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
139.	Carry out general monitoring of excavations for potential fossils, artefacts, and material of heritage importance.	Suitably qualified specialist in consultation with the ECO	Appoint a suitably qualified specialist to carry out the monitoring of excavations for fossils, artefacts, and important heritage material.	Construction	ECO	During the undertaking of excavations of fossils, artefacts, and heritage material	Proof of appointment of a suitably qualified specialist and photographic record of required monitoring by the specialist
140.	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.	EO in consultation with the Contractor and ECO	Develop and implement procedures for situations where human remains, archaeological, palaeontological, or historical material are uncovered.	Construction	ECO	Weekly, during the construction phase and as and when required	Proof of work ceased, and the required procedures followed in cases where material is discovered.

6.2.12 Safety of the public

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

Table 5-22: Environmental actions and outcomes applicable to Protection of Heritage Resources Safety of the Public

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
141.	All unattended open excavations must be adequately fenced or demarcated.	Contractor	Ensure that all excavations undertaken is fenced and demarcated within a reasonable timeframe and in instances where excavations will be open for long-periods of time	Construction	ECO	Weekly	Excavations are fenced where required and photographic proof can be provided
142.	Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed structures and protective scaffolding.	Contractor	All staff must be easily identifiable, and the climbing of towers and scaffolding must be undertaken by authorized personnel as managed by the Contractor	Construction	ECO	Monthly, and as and when required	No incidents of unauthorised climbing are reported
143.	Ensure structures vulnerable to high winds are secured.	Contractor	Ensure that sufficient stabilisation measures are implemented to secure structures vulnerable to high winds	Construction	ECO	Weekly, and as and when required	No incidents of unstable structures due to high winds is reported
144.	Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	EO	Compile and regularly update as incidents and complaints are submitted from the public and indicate the actions taken to resolve the complaint	Construction	ECO	Monthly, and as and when required	The incidents and complaints register are complete and provides all the required details

6.2.13 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.

Table 5-23: Environmental actions and outcomes applicable to Sanitation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
145.	Mobile chemical toilets are installed onsite if no other ablution facilities are available.	Contractor	Mobile chemical toilets must be placed appropriately and in areas that avoid environmental sensitivities.	Construction	ECO	Weekly	Mobile toilets are installed and avoid environmental sensitivities
146.	The use of ablution facilities and or mobile toilets must be always used and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances.	Contractor and EO	All site staff must be informed of this requirement during the Environmental Awareness Training and the consequences of not adhering to the requirement.	Construction	ECO	Monthly, and as and when required	No evidence of non-compliance identified
147.	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 Empire; 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.	Contractor and EO	The installation of the toilets by the Contractor must be as per the listed requirements.	Construction	ECO	Weekly	No evidence of non-compliance identified
148.	A copy of the waste disposal certificates must be maintained.	Contractor	Certificates obtained from the licensed waste disposal facility with the emptying of the toilets must be kept on file.	Construction	ECO	Monthly, and as and when required	Certificates for waste disposal from the licensed waste disposal facility

6.2.14 Prevention of disease

Impact management outcome: All necessary precautions linked to the spread of disease are taken.

Table 5-24: Environmental actions and outcomes applicable to Prevention of Disease

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
149.	Undertake environmentally friendly pest control in the camp area.	Contractor	Only environmentally- friendly pest control must be used, when required.	Construction	ECO	As and when pest control is required for the project	Contractor to provide proof of pest control used being environmentally-friendly

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
150.	Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV/ AIDS, COVID 19.	EO / Contractor in consultation with the ECO	The effects of sexually transmitted diseases and HIV/ AIDS and COVID 19 must be covered in the Environmental Awareness Training.	Construction	ECO	Once, prior to the commencement t of construction and monthly during construction	Environmental awareness training material requirements checklist
151.	The Contractor must ensure that information posters on HIV/ AIDS, COVID 19 are displayed in the Contractor Camp area.	Contractor	Develop and place information posters on HIV/ AIDS and COVID 19.	Construction	ECO	Weekly	Photographic evidence of poster placement
152.	Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable.	EO / Contractor in consultation with the ECO	Information and education of sexually transmitted diseases must be covered in the Environmental Awareness Training.	Construction	ECO	Monthly	Environmental awareness training material requirements checklist
153.	Free condoms must be made available to all staff on site at central points.	Contractor	Placement of free condoms in mobile toilets and at the construction camps.	Construction	ECO	Monthly	Proof of placement of free condoms by the contractor to be provided
154.	Medical support must be made available.	Contractor and EO	Ensure that designated personnel with first aid training are available on site and that first aid kits to provide medical support is readily available.	Construction	ECO	Monthly	Check the availability of first aid trained personnel and medical kits (including if these are complete in terms of supplies)
155.	Provide access to Voluntary HIV and COVID 19 Testing and Counselling Services.	Contractor	Compile a HIV testing schedule and COVID 19 register and provide counselling services where required.	Construction	ECO	Quarterly, and as and when required	Voluntary testing schedules and proof of counselling (where undertaken)

6.2.15 Emergency procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Table 5-25: Environmental actions and outcomes applicable to Emergency Procedures

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
156.	The relevant local authority must be made aware of a fire as soon as it starts.	Contractor in consultation with the ECO	Develop and include a procedure in the Emergency Preparedness, Response and Fire Management Plan for the event of a fire and the procedure to be followed for informing the local authority.	Construction	ECO	As and when a fire occurs	The local authority was informed as per the relevant procedure set out in the Emergency Preparedness, Response and Fire Management Plan
157.	In the event of emergency, necessary mitigation measures to contain the spill or leak must be implemented (**see Hazardous Substances**).	Contractor	Implement the required mitigation measures in the event of a spill or leak as per the requirements (see Hazardous Substances).	Construction	ECO	As and when a spill or leak occurs	The mitigation measures included under **(see Hazardous Substances**). have been adhered to

6.2.16 Hazardous substances

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Table 5-26: Environmental actions and outcomes applicable to Hazardous Substances

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
158.	The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible.	EO in consultation with the Contractor	Develop a strategy of how hazardous substances can be and should be minimised.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Contractor to provide evidence of substances used for proof of compliance
159.	All hazardous substances must be stored in suitable containers as defined in the Method Statement.	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
160.	Containers must be clearly marked to indicate contents, quantities, and safety requirements.	Contractor	Develop a Method Statement for the storage of hazardous substances in suitable containers.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Photographic proof that hazardous substances are stored in suitable containers as per the requirements of the relevant Method Statements
161.	All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers.	Contractor	Where hazardous waste is stored, these must be clearly marked indicating the.	Construction	ECO	Monthly	Photographic proof that containers are marked as per the requirements
162.	Bunded areas to be suitably lined with a SABS approved liner.	Contractor	Where hazardous waste is stored, these must be clearly marked indicating the.	Construction	ECO	Monthly	Photographic proof that containers are marked as per the requirements
163.	An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis.	Contractor and EO	Compile and update an Alphabetical Hazardous Chemical Substance (HCS) control sheet specific to the project.	Construction	ECO	Monthly, and as and when required	Complete and up to date control sheet provided by the Contractor
164.	All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS).	Contractor and EO	Keep a record of all hazardous chemicals and the respective MSDS.	Construction	ECO	Monthly, and as and when required	Record of hazardous chemicals and the respective MSDS
165.	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.	Contractor and EO	Develop environmental awareness training material which covers the relevant impacts and safety measures. Provide appropriate training and personal protective equipment for the relevant personnel handling hazardous substances and materials equipment for the relevant personnel handling hazardous substances and materials.	Construction	ECO	Prior to the commencement of the environmental awareness training and monthly during the construction phase for personal protective equipment	Environmental awareness training material requirements checklist and all relevant personnel have undergone appropriate training and have access to personal protective equipment

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
166.	The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers.	Contractor	Appropriate storage facilities must be constructed or obtained for the storing of diesel, other liquid fuel, oil, and hydraulic fluid.	Construction	ECO	Monthly, and as and when required	Storage tanks for the project are appropriate and no incidents are reported in this regard
167.	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).	Contractor	Appropriate storage facilities must be constructed or obtained for tanks as per the requirements listed.	Construction	ECO	Monthly, and as and when required	Storage areas for the tanks / bowsers for the project are appropriate and no incidents are reported in this regard
168.	The floor of the bund must be sloped, draining to an oil separator.	Contractor	Appropriate storage facilities must be constructed as per the requirements listed.	Construction	ECO	Once, during construction	Bunded storage areas are constructed according to the requirements
169.	Provision must be made for refuelling at the storage area, which is further than 100m of a river channel, 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.	Contractor	Appropriately constructed refuelling facility must be developed as per the requirements. Drip trays must be provided for use.	Construction	ECO	Continuous	Soils at the refuelling facility are protected as required and drip trays are provided and used
170.	All empty externally dirty drums must be stored on a drip tray or within a bunded area.	Contractor	Ensure that empty dirty drums are stored appropriately according to a waste method statement.	Construction	ECO	Continuous	Drip trays or bunded areas are used for the storage of dirty drums. Waste Method Statement on file
171.	No unauthorised access into the hazardous substance's storage areas must be permitted.	Contractor	Ensure through the implementation of procedures that no unauthorised access is undertaken into the storage areas.	Construction	ECO	Monthly	Proof of the implementation of the relevant procedure must be provided by the contractor
172.	No smoking must be allowed within the vicinity of the hazardous storage areas.	Contractor	Inform all employees of the requirement and develop and place relevant signage in the relevant areas	Construction	ECO	Monthly Weekly	Photographic record of the signage placed must be provided
173.	Adequate fire-fighting equipment must be made available at all hazardous storage areas.	Contractor	Hazardous storage areas must be fitted with adequate fire-fighting equipment.	Construction	ECO	Monthly	Adequate fire- fighting equipment is available and has been serviced
174.	Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used.	Contractor	Provide a mobile refuelling unit as well as suitable ground protection, where required.	Construction	ECO	Monthly, and as and when required	A mobile refuelling unit and suitable ground protection is available for use
175.	An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be always available.	Contractor	Provide an appropriate spill kit for the project for the use of hazardous substances.	Construction	ECO	Monthly, and as and when required	Appropriate spill kits are available for use

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
176.	An appropriate number of spill kits must be available and must be in all areas where activities are being undertaken.	Contractor and EO	Provide an appropriate number of spill kits in relevant areas.	Construction	ECO	Monthly	Proof of appropriate number of spill kits in appropriate areas to be provided by the contractor
177.	No hazardous waste may be buried or burned under any circumstances.	Contractor and EO	Provide appropriate waste storage areas/containers before waste is removed from site.	Construction	ECO	Monthly	Proof of correct storage
178.	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 procedures in **Sections: Storm and wastewater management and for solid and hazardous waste management**	Contractor and EO	Storage and disposal of contaminated soil must be in accordance with the National Environmental Management: Waste Act and sections storm **and Sections: Storm and wastewater management and for solid and hazardous waste management**	Construction	ECO	Monthly, and as and when required	Proof of storage and disposal in terms of the National Environmental Management: Waste Act must be provided. Certificates of disposal at licensed waste disposal facilities must be provided
179.	Appoint appropriate contractors to remove any residue from spillages from site. Handling, storage and disposal of excess or containers of potentially hazardous materials shall be in accordance with the requirements of pertinent Regulations and Acts (e.g. Hazardous Substances Act, Number 15 of 1973). Refer to Section: for procedures concerning storm and wastewater management and for solid and hazardous waste management.	Contractor and EO	Contractors must provide appropriate registration certificates to undertake the work.	Construction	ECO	Monthly	Proof of contractor's registrations certificates

6.2.17 Workshop, equipment maintenance and storage

Impact management outcome: Soil, surface water and groundwater contamination are minimised.

Table 5-27: Environmental actions and outcomes applicable to Workshop, Equipment Maintenance and Storage

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
180.	Where possible and practical, all maintenance of vehicles and equipment must take place in the workshop area.	Contractor	Demarcate specific areas for the maintenance of vehicles and equipment.	Construction	ECO	Monthly	A dedicated area for the maintenance of vehicles and machinery is used.
181.	During servicing of vehicles or equipment, especially where emergency repairs are affected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil.	Contractor	Ensure that a drip tray is available for an emergency repair required.	Construction	ECO	Monthly	Contractor to provide evidence of drip tray use for emergency repairs

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
182.	Leaking equipment must be repaired immediately or be removed from site to facilitate repair.	Contractor	Ensure that where leaking equipment is identified it is repaired immediately or removed from site for repairs.	Construction	ECO	Monthly	Contractor to provide details of equipment repaired or removed from site
183.	Workshop areas must be monitored for oil and fuel spills.	EO	Undertake regular inspections of the workshop areas for oil and fuel spills and keep an updated register of inspection on site.	Construction	ECO	Monthly	Register of inspection
184.	Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available.	Contractor	Provide an appropriate spill kit for the project.	Construction	ECO	Monthly, and as and when required	Appropriate spill kits are available for use
185.	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.	Contractor	Ensure that the workshop area is sufficiently bunded in accordance with the required specification.	Construction	ECO	Once, during the Construction Phase and as and when required	Workshop area is bunded in accordance with the required specification
186.	Water drainage from the workshop must be contained and managed in accordance with **Section: Storm and wastewater management,**	Contractor	Ensure that water drainage from workshop area is managed as per the requirements of **Section: Storm and wastewater management**	Construction	ECO	Monthly	Workshop drainage is managed in accordance with the requirements

6.2.18 Batching plants

Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.

Table 5-28: Environmental actions and outcomes applicable to Batching Plants

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
187.	Concrete mixing must be carried out on an impermeable surface.	Contractor	Provide impermeable surface for the mixing of concrete.	Construction	ECO	Weekly	No concrete mixing is undertaken on open ground
188.	Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies, and drains.	Contractor	Demarcate and provide a storage area for bagged cement in-line with the listed requirements.	Construction	ECO	Weekly	Photographic proof of bagged cement stored within the demarcated area
189.	Suitable screening and containment must be in place to prevent wind-blown contamination from cement storage, mixing, loading, and batching operations.	Contractor	Demarcate and provide screening.	Construction	ECO	Weekly	Photographic proof of screened demarcated area
190.	A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted.	Contractor	Provide a washout facility for the washing of associated equipment. Enforce limitations on water use for washing of equipment.	Construction	ECO	Weekly	No cement laden water is released into the environment. Only minimal water is used for washing
191.	Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licensed disposal facility.	Contractor	Make use of hardened concrete where possible or dispose of concrete in a suitable manner.	Construction	ECO	Monthly	Certificates of disposal of concrete at licensed waste disposal facility

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
192.	Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site.	Contractor	Bind empty cement bags and temporarily store it in an appropriate area on site.	Construction	ECO	Monthly	Proof of binding of empty cement bags and storage in an appropriate are on site to be provided by the Contractor
193.	Mixed cement and empty bags are classified as hazardous waste and must be disposed of according to **Sections: Storm and wastewater management and for solid and hazardous waste management**	CEO and Contractor	Storage and disposal of hazardous substances must be in accordance with the National Environmental Management: Waste Act and **Sections: Storm and wastewater management and for solid and hazardous waste management**	Construction	ECO	Monthly, and as and when required	Proof of storage and disposal in terms of the National Environmental Management: Waste Act must be provided. Certificates of disposal at licensed waste disposal facilities must be provided
194.	Sand and aggregates containing cement must be kept damp to prevent the generation of dust Refer to **Section: Dust emissions**	Contractor	Ensure that sand and aggregates are kept damp or otherwise protected from dust generation.	Construction	ECO	Monthly	Proof of damping (or alternative dust suppression) of sand and aggregates must be provided by the Contractor

6.2.19 Dust emissions

Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.

Table 5-29: Environmental actions and outcomes applicable to Dust Emissions

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
195.	Take all reasonable measures to minimise the generation of dust because of project development activities to the satisfaction of the ECO.	Contractor	Apply dust suppressant.	Construction	ECO	Weekly	Contractor to provide proof of use of dust suppressants, Dust Management Method Statement
196.	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.	Contractor	Proper planning for vegetation removal must be undertaken as well as for the associated rehabilitation.	Construction	ECO	Weekly	Plan for implementation must be provided by the Contractor
197.	Excavation, handling, and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present.	Contractor	Ensure that specific limitations are placed on the transport and handling of erodible materials during high wind conditions or when a visible dust plume is present.	Construction	ECO	Bi-weekly	No complaints submitted in this regard
198.	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.	ECO	ECO to provide adequate recommendation.	Construction			

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
199.	Where possible, soil stockpiles must be in sheltered areas where they are not exposed to the erosive effects of the wind.	Contractor	Place soil stockpiles in areas less affected by wind.	Construction	ECO	Bi-weekly	Soil stockpiles are not exposed to wind and have not been eroded
200.	Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO.	Contractor in consultation with the ECO	Contractor to implement erosion control measures as recommended and agreed with the ECO.	Construction	ECO	Weekly, until erosion is no longer a problem	Recommendation owns made by the ECO have been implemented by the Contractor
201.	Vehicle speeds must not exceed 30 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas.	Contractor and EO	Inform all drivers of speed limits and place appropriate signage along the relevant roads.	Construction	ECO Operation and Maintenance team	Monthly	No complaints from community members are submitted
202.	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.	Contractor	Ensure that straw stabilisation is undertaken as per the listed requirements.	Construction	ECO	Monthly	Photographic record of all straw stabilisation undertaken
203.	For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.	Contractor	Appropriate dust suppressant measures are implemented.	Construction	ECO	Weekly	Photographic record of measures being implemented and the results thereof

6.2.20 Noise

Impact management outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.

Table 5-30: Environmental actions and outcomes applicable to Noise

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
204.	Noisy construction activities near receptors (i.e., within 2km) should be limited to 06:00 - 18:00 Monday to Saturday, with no work on Sundays or public holidays.	Contractor	Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the project.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard.
205.	Any plant and equipment normally required for operation at night (19:00 - 07:00), e.g., generators, should be silenced or suitably shielded to ensure that the night-time lower threshold of 45 dB, Lea would not be exceeded at the nearest noise-sensitive developments.	Contractor	Provide and implement silencing technology.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard. Silencing technology is utilised.
206.	The Contractor must keep noise level within acceptable limits. Restrict the use of sound amplification equipment for communication and emergency only.	Contractor	Ensure that noise limits do not exceed acceptable limits and avoid the use of amplification communication.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard. No amplification equipment is used.
207.	All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained.	Contractor	Provide and implement silencing technology.	Construction	ECO	Monthly, and as and when required	No complaints registered in this regard. Silencing technology is utilised.

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
208.	Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site daily for construction workers.	EO	Update complaints register. Provide daily transport to and from site for employees. (Appendix D)	Construction	ECO	Monthly, and as and when required	Complaint's register provided by the CEO and proof of transportation services provided
209.	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.	EO and Contractor in consultation with the ECO	Compile a Code of Conduct for staff. Appropriate operating hours must be identified for the project.	Construction	ECO	Once, prior to the commencement of construction	No complaints registered in this regard.

6.2.21 Fire prevention

Impact management outcome: Prevention of uncontrollable fires.

Table 5-31: Environmental actions and outcomes applicable to Fire Prevention

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
210.	Designate smoking areas where the fire hazard could be regarded as insignificant.	Contractor or EO	Identify and demarcate through signage designated smoking areas.	Construction	ECO	Monthly	Photographic record of designated smoking area
211.	No fires to be lit on the site.	Contractor or EO	Inform through awareness training.	Construction	ECO	Monthly	Proof of awareness training
212.	Firefighting equipment must be available on all vehicles located on site.	EO in consultation with the Contractor	Provide all vehicles with firefighting equipment.	Construction	ECO	Monthly	All vehicles are fitted with firefighting equipment and the details thereof are provided by the CEO
213.	Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site.	EO / Contractor in consultation with the ECO	Develop environmental awareness training material which covers the contact numbers for the FPA and emergency services. Place the contact numbers for the FPA and emergency services at a visible and central location.	Construction	ECO	Prior to the commencement of the environmental awareness training and once during the construction phase	Environmental awareness training material requirements checklist and photographic record of contact numbers on display

6.2.22 Stockpiling and stockpile areas

Impact management outcome: Erosion and sedimentation as a result of stockpiling are reduced.

Table 5-32: Environmental actions and outcomes applicable to Stockpiling and stockpile areas

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
214.	All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site to minimise impacts to watercourses, watercourses and water bodies.	Contractor	Identify and demarcate an appropriate location for the storage of excavated materials.	Construction	ECO	Monthly	Excavated material is not stored within sensitive environmental areas
215.	All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods.	Contractor	Implement appropriate and sufficient maintenance on stockpiled material regularly.	Construction	ECO	Bi-weekly (every second month)	Stockpiled material is maintained sufficiently and is clear of weeds and alien vegetation
216.	Topsoil stockpiles must not exceed 2 m in height.	Contractor	Enforce limitations for the height of topsoil stockpiles.	Construction	ECO	Bi-weekly (every second month)	Topsoil stockpiles do not exceed 2m in height
217.	During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g., cloth, tarpaulin etc.	Contractor	Appropriate material must be provided to cover stockpiles when required.	Construction	ECO	Monthly	Contractor to provide proof of availability of appropriate material to cover stockpiles when required

6.2.23 Excavation and Installation of foundations

Impact management outcome: No environmental degradation occurs as a result of excavation or installation of foundations.

Table 5-33: Environmental actions and outcomes applicable to Excavation and Installation of Foundations

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
218.	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.	Contractor	Use a licensed waste disposal facility for the disposal of excess spoil.	Construction	ECO	Monthly	Certificates obtained for the disposal of excess spoil at a licensed waste disposal facility
219.	Management of equipment for excavation purposes must be undertaken in accordance with Section: Workshop equipment maintenance and storage	Contractor	Undertake the management of equipment for excavation as per the requirements of **Section: Workshop equipment maintenance and storage,**	Construction	ECO	Monthly	Management of equipment is undertaken in line with the requirements of **Section: Workshop equipment maintenance and storage,**
220.	Hazardous substances spills from equipment must be managed in accordance with **Section: Hazardous substances**	Contractor	Undertake the management of hazardous substances spills from equipment as per the requirements of **Section: Hazardous substances**	Construction	ECO	Monthly	Management of hazardous substances spills from equipment is undertaken in line with the requirements Section: Hazardous substances
221.	Residual cement must be disposed of in accordance with Section: **Section: Hazardous substances**	Contractor	Undertake the disposal of residual cement as per the requirements of **Section: Hazardous substances**	Construction	ECO	Monthly	The disposal of residual cement is undertaken in line with section 5.8.

6.2.24 Visual

Impact management outcome: Socio-economic development is enhanced.

Table 5-34: Environmental actions and outcomes applicable to Visual

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
222.	Use earth berms and planting to visually screen the substation (including associated battery storage facility) and O&M buildings, where necessary.	Contractor	Ensure berms are created or vegetation is planted to provided screening.	Construction	ECO	Monthly	Substation and O&M buildings are sufficiently screened
223.	Security and other outdoor lighting must be fitted with reflectors to conceal the light source and avoid spoilage to adjacent areas.	Contractor	Ensure all security and outdoor lights are fitted with reflectors.	Construction	ECO	Monthly	Photographic evidence
224.	Traffic and other signage to be limited to only that which is essential.	Contractor	Ensure that only necessary signage is erected.	Construction	ECO	Monthly	Photographic evidence
225.	All yards and storage areas to be enclosed by masonry walls.	Contractor	Erect masonry walls around yards and storage areas.	Construction	ECO	Once off	Photographic record of walls erected

6.2.25 Socio-economic

Impact management outcome: Socio-economic development is enhanced.

Table 5-35: Environmental actions and outcomes applicable to Socio-economic

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
226.	Sustain continuous communication and liaison with neighbouring owners and residents.	Contractor	Development and implement and Grievance Mechanism provides procedures for communication / liaison with neighbouring landowners and residents.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	Communication / liaison with neighbouring landowners and residents are undertaken in line with the requirements of the Grievance Mechanism. No complaints on communication with neighbouring landowners and residents is submitted
227.	Undertake a 'locals first' policy about construction labour needs and create work and training opportunities for local stakeholders.	Contractor	Develop and implement a "locals first" policy for the provision of employment opportunities.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy is considered in terms of the employment and training opportunities
228.	Minimize impacts associated with influx of jobseekers.	Proponent and Contractor	Develop and implement a "locals first" policy for the provision of employment opportunities.	Construction	ECO	Once, prior to the commencement of construction and monthly during the construction phase	The "locals first" policy is considered in terms of the employment and training opportunities
229.	Minimise loss to agricultural land	Contractor	Minimise the damage caused by construction activities to the farmland by ensuring strict compliance with construction plans and worker 'Code of Conduct'.	Construction	ECO	Monthly	Photographic evidence

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
			Any damage to vegetation will be rehabilitated in accordance with mitigation proposed for the rehabilitation of natural vegetation.				

6.2.26 Temporary closure of site

Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.

Table 5-36: Environmental actions and outcomes applicable to Temporary Closure of Site

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
230.	Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in **Sections: Management of hazardous substances and Workshop, equipment maintenance and storage**	Contractor	Regular emptying of the bunds must be undertaken. This must be undertaken as per the requirements listed in **Sections: Management of hazardous substances and Workshop, equipment maintenance and storage**	Construction	ECO	Prior to site closure for more than 05 days	Bunds are emptied as per the requirements listed under S**ections: Management of hazardous substances and Workshop, equipment maintenance and storage**
231.	Hazardous storage areas must be well ventilated.	Contractor	Install appropriate ventilation in all hazardous storage areas.	Construction	ECO	Prior to site closure for more than 05 days	Effective ventilation is installed in hazardous storage areas
232.	Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service.	Contractor or EO	Ensure fire extinguishers are serviced, as required and are easily accessible with appropriate signage indicating location. Ensure service records and kept up to date and filed.	Construction	ECO	Prior to site closure for more than 05 days	Signage placed indicating location of fire extinguishers and service records
233.	Emergency and contact details must be displayed.	Contractor or EO	Place emergency and contact details which are readily available and easily accessible.	Construction	ECO	Prior to site closure for more than 05 days	Photographic proof of contact details on display
234.	Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel.	Contractor in consultation with the ECO	Hold a workshop with all security personnel to provide a brief of the project and security requirements. Provide facilities to contact management and emergency personnel.	Construction	ECO	Prior to site closure for more than 05 days	Proof of the workshop held must be kept on file by the contractor.
235.	Night hazards such as reflectors, lighting, traffic signage etc. must have been checked.	Contractor	Regular checks of night hazards must be undertaken.	Construction	ECO	Prior to site closure for more than 05 days	Proof of checks of night hazards must be provided by the contractor
236.	Fire hazards identified and the local authority must have been notified of any potential threats e.g., large brush stockpiles, fuels etc.	EO or Contractor in consultation with the ECO	Identify any potential fire hazards and notify the relevant local authority.	Construction	ECO	Prior to site closure for more than 05 days	Proof of notification of the fire hazards to the local authority must be provided by the Contractor
237.	Structures vulnerable to high winds must be secured.	Contractor	Ensure structures vulnerable to wind are secure prior to site closure.	Construction	ECO	Prior to site closure for more than 05 days	Structures vulnerable to wind are secured prior to site closure

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
238.	Wind and dust mitigation must be implemented.	Contractor	Implement wind and dust mitigation prior to site closure.	Construction	ECO	Prior to site closure for more than 05 days	Wind and dust mitigation is implemented prior to site closure
239.	Cement and materials stores must have been secured.	Contractor	Ensure cement and material stores are secured prior to site closure.	Construction	ECO	Prior to site closure for more than 05 days	Cement and material stores
240.	Toilets must have been emptied and secured.	Contractor	Ensure toilets are emptied and secured prior to site closure.	Construction	ECO	Prior to site closure for more than 05 days	Toilets are emptied and secured prior to site closure
241.	Refuse bins must have been emptied and secured.	Contractor	Ensure refuse bins are emptied and secured prior to site closure.	Construction	ECO	Prior to site closure for more than 05 days	refuse bins are emptied and secured prior to site closure
242.	Drip trays must have been emptied and secured.	Contractor	Ensure drip trays are emptied and secured prior to site closure.	Construction	ECO	Prior to site closure for more than 05 days	Drip trays are emptied and secured prior to site closure

6.3 ENVIRONMENTAL ACTIONS AND OUTCOMES APPLICABLE TO THE OPERATION PHASE

6.3.1 Access roads

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

Table 5-37: Environmental actions and outcomes applicable to Access Roads

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
243.	Maximum use of both existing servitudes and existing roads must be made to minimise further disturbance through the development of new roads.	Contractor	Existing access routes to be used must be specified and the development of new roads must be avoided.	Operational	ECO / EO	Continuous	Implement approved layout
244.	During operation, if abnormal loads are required for maintenance, the appropriate arrangements will be made to obtain the necessary transportation permits and the route agreed with the relevant authorities to minimise the impact of other road users.	Contractor	Valid transport permits.	Operational	ECO / EO	Continuous	Evidence of permits

6.3.2 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.

Table 5-38: Environmental actions and outcomes applicable to Fencing and Gate Installation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
245.	All gates must be fitted with locks and be kept always locked during the development phase, unless otherwise agreed with the landowner;	Contractor	Ensure all relevant gates are fitted with locks and are always locked.	Operational	ECO	Continuous	All gates are locked

6.3.3 Water Supply Management

Impact management outcome*:* Undertake responsible water usage.

Table 5-39: Environmental actions and outcomes applicable to Water Supply Management

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
246.	For the utilisation of boreholes that may yield groundwater: • Utilise the boreholes as per the recommended sustainable yields and avoid over abstraction of any one borehole. • Address any water quality problems at the various boreholes. This may require treatment or appropriate mixing • Where possible rotate abstraction and distribute evenly between the boreholes to limit drawdown. • Monitor the borehole water levels and abstraction volumes. • As the groundwater is of moderate quality and thus is not a source of potable as is (treatment to the SANS 241 standards would be required to render the water fit for human consumption, if used)	Proponent and Contractor	Method Statements According to the Water Use Licence	Operational	ECO	Continuous	Records of borehole monitoring and water quality

6.3.4 Water Supply Management

Impact management outcome*:* Undertake responsible water usage.

Table 5-40: Environmental actions and outcomes applicable to Water Supply Management

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
247.	For the utilisation of boreholes that may yield groundwater: • Utilise the boreholes as per the recommended sustainable yields and avoid over abstraction of any one borehole. • Address any water quality problems at the various boreholes. This may require treatment or appropriate mixing. • Where possible rotate abstraction and distribute evenly between the boreholes to limit drawdown. • Monitor the borehole water levels and abstraction volumes.	Proponent and Contractor	Method Statements According to the Water Use Licence	Operational	ECO	Continuous	Records of borehole monitoring and water quality

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
	• As the groundwater is of moderate quality and thus is not a source of potable as is (treatment to the SANS 241 standards would be required to render the water fit for human consumption, if used)						

6.3.5 Vegetation Clearing

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

Table 5-41: Environmental actions and outcomes applicable to Vegetation Clearing

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
248.	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.	Contractor	Undertake removal of alien invasive vegetation in accordance with the relevant guideline relevant to the project area and ensure the vegetation is disposed of at a licensed waste disposal facility.	Operational	ECO Operation and maintenance team	Monthly, and as and when required	Proof must be if alien invasive vegetation has been cleared in accordance with the relevant guideline and that the vegetation was disposed of at a licensed waste disposal facility
249.	Minimise impacts associated with loss of vegetation.	Proponent	A fire management policy and guidelines will be developed to ensure that the operation of the facility is compatible with the long-term fire ecology of the site.	Operational	ECO Operation and maintenance team	Annual	Fire management policy
250.	Grassland Management Manage the CBA and remaining primary grasslands within the project area to improve veld condition and biodiversity quality and functionality.	Proponent	Implement an appropriate grazing system that controls stocking rate and grazing intensity, and includes appropriate rest for the veld. Implement an appropriate fire management strategy which includes controlled burns when required, and suppressing uncontrolled burns.	Operational	ECO Operation and maintenance team	As per the grazing system and fire management strategy	Photographic evidence and notes of the implementation kept on file
251.	Grassland Management Vaal Vet Grassland	Proponent	Ecological compensation or trade-off is appropriate to meet internationally acceptable standards. The options for biodiversity compensation for this project (and other renewable projects on surrounding farms in the area) should be determined through engagement with provincial conservation authorities and provincial and national environmental departments.	Operational	ECO Operation and maintenance team	To be determined in the compensation strategy	Implementation of the compensation strategy

6.3.6 Protection of fauna

Impact management outcome: Minimise disturbance to fauna and avifauna.

Table 5-42: Environmental actions and outcomes applicable to Protection of Fauna

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
252.	All vehicles entering the site must adhere to low-speed limits for heavy (30km/h) and light vehicles (40km/h).	Contractor and EO	Ensure speed limit signs are visible and speed is monitored.	Operational	ECO Operation and maintenance team	Monthly, and as and when required	No incident report relating to speeding.
253.	No Domestic animals allowed on site.	Contractor and EO	Remove any domestic animal that may enter on site to nearest animal care facility egg SPCA.	Operational	ECO Operation and maintenance team	Monthly, and as and when required	No presence of domestic animals on site.
254.	Special recommendations of the avian specialist must be always adhered to correct implementation of mitigation measures.	Contractor and EO	All mitigation measures recommended by the avifauna specialist must be implemented.	Operational	ECO Operation and maintenance team	Weekly during construction and monthly during operation	Photographic record of compliance and successful implementation of the recommended measures
255.	No deliberate or intentional killing of fauna is allowed.	Contractor and EO	Implement and maintain snake deterrents on pylons in areas where snakes are abundant.	Operational	ECO Operation and maintenance team	Once, during the construction of the pylons and as and when required. Monthly during operation	Photographic record of the implementation and maintenance of snake deterrents
256.	Maintain a log of fauna-related incidents or mortalities. The log should be reviewed annually, and mitigations amended / implemented as data suggests.	Contractor and EO	Capture all incidents and mortalities of all faunae on site. An investigation of cause to each incident to mortality must be undertaken.	Operational	ECO Operation and maintenance team	Monthly, and as and when required	Report logging all fauna-related incidents or mortalities together with mitigation measures that are implemented.
257.	Bats should be prevented as far as possible from entering any possible artificial roost structures (e.g., roofs of buildings and road culverts) by ensuring that they are appropriately sealed. A bat specialist must be consulted should bats start to colonise infrastructure. Buildings and road culverts must be monitored for any signs of roosting activity.	Proponent and a suitably qualified specialist EO in consultation with the Contractor and ECO	Monitor and record roost and any roosting activities of bats	Operational	ECO Operation and maintenance team	Monthly, and as and when required	Photographic evidence and GPS co-ordinates of any roosts
258.	Follow an avifaunal monitoring programme during construction and operational phases.	DPM and a suitably qualified specialist EO in consultation with the Contractor and ECO	Implement avifaunal monitoring programme	Operational	ECO Operation and maintenance team	Monthly, and as and when required	Photographic evidence and records of bird sightings
259.	A post construction inspection must be conducted by an avifaunal specialist to confirm that all aspects have been appropriately handled and that road and hard stand verges do not provide additional substrate for raptor prey species.	Suitably qualified specialist and ECO	Undertake inspection	Operational	ECO Operation and maintenance team	Once, post construction	Record of inspection findings

6.3.7 Prevention of disease

Impact management outcome: All necessary precautions linked to the spread of disease are taken.

Table 5-43: Environmental actions and outcomes applicable to Prevention of Disease

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
260.	Medical support must be made available.	Contractor and EO	Ensure that designated personnel with first aid training are available on site and that first aid kits to provide medical support is readily available.	Operational	ECO	Monthly	Check the availability of first aid trained personnel and medical kits (including if these are complete in terms of supplies)

6.3.8 Emergency procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Table 5-44: Environmental actions and outcomes applicable to Emergency Procedures

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
261.	In the event of emergency, necessary mitigation measures to contain the spill or leak must be implemented see **Sections: Management of hazardous substances**	Contractor	Implement the required mitigation measures in the event of a spill or leak as per the requirements of **Sections: Management of hazardous substances**	Operational	ECO	As and when a spill or leak occurs	The mitigation measures included under **Sections: Management of hazardous substances** have been adhered to
262.	Prevent Electromagnetic Interference	Contractor	Appropriate mitigation measures might include the replacement of receiving aerial installations, replacement by satellite dishes or the provision of a private transmitter.	Operational	ECO	Monthly	Installation reports

6.3.9 Visual

Impact management outcome: Socio-economic development is enhanced.

Table 5-45: Environmental actions and outcomes applicable to Visual

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
263.	On-site signage must be discrete, and billboards avoided. Signage must be set against a backdrop and not intrude on the skyline.	Contractor	Ensure that signage is not intruding skyline	Operational	ECO	Monthly	Photographic evidence
264.	Promote Tourism through visuals information boards.	Contractor	Establish an information kiosk/notice board on the site boundary or entrance to facilitate educating the public about the need and benefits of project. This is aimed at instilling the concept of sustainability and creating awareness by engaging the community and local schools. Information brochures and posters will be made available at the kiosk that will provide more information about the facility. These should be presented in the appropriate languages to maximise the benefits.	Operational	ECO	Monthly	Photographic evidence

6.4 ENVIRONMENTAL ACTIONS AND OUTCOMES APPLICABLE TO THE POST-OPERATIONAL PHASE

The post operational phase activities included as part of the Empire are in respect of rehabilitation activities required.

6.4.1 Protection of watercourses

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.

Table 5-46: Environmental actions and outcomes applicable to Protection of Watercourses

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
265.	Monitor and rehabilitate disturbed areas near drainage lines.	Contractor and EO	Monitoring program to be established by freshwater ecologist.	Rehabilitation	ECO Operation and maintenance team	Monthly, and as and when required	Photographic evidence

6.4.2 Excavation and Installation of foundations

Impact management outcome: No environmental degradation occurs because of excavation or installation of foundations.

Table 5-47: Environmental actions and outcomes applicable to Excavation and Installation of Foundations

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
266.	Spoil can be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.	Contractor	Spoil used for landscaping must be applied as per the listed requirements.	Rehabilitation	ECO	Monthly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor

6.4.3 Landscaping and rehabilitation

Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.

Table 5-48: Environmental actions and outcomes applicable to Landscaping and Rehabilitation

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
267.	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.	Contractor and ECO	Implement a rehabilitation plan; Dispose of all spoil and waste at a licensed waste disposal facility. (Appendix F)	Rehabilitation	ECO	Weekly	Rehabilitation of the disturbed areas is undertaken as per the rehabilitation plan. All waste disposal certificates are available.
268.	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.	Contractor and ECO	Assess all slopes.	Rehabilitation	ECO	Weekly	All slopes are assessed and contoured as required
269.	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.	Contractor and ECO	Assess all slopes.	Rehabilitation	ECO	Weekly	All slopes are assessed and terraced as required

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
270.	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.	Contractor and ECO	Ensure all berms have a slope of 1:4 and is replanted with indigenous species.	Rehabilitation	ECO	Weekly	All berms have a slope of 1:4 and is replanted with indigenous species and grasses
271.	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.	DPM	Ensure that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners.	Rehabilitation	ECO	Weekly	Written permission from Landowners
272.	Indigenous species must be used where it compliments or approximates the original condition.	Contractor	Make use of indigenous species for rehabilitation.	Rehabilitation	ECO	Weekly	Indigenous species are used for rehabilitation
273.	Stockpiled topsoil must be used for rehabilitation (refer to **Section: Stockpiling and stockpiled areas**).	Contractor	Ensure stockpiled topsoil is used as per the requirements listed under **Section: Stockpiling and stockpiled areas**	Rehabilitation	ECO	Weekly	Stockpiled topsoil is used as per the requirements listed under Section: Stockpiling and stockpiled areas refer **Section: Stockpiling and stockpiled areas**
274.	Stockpiled topsoil must be evenly spread to facilitate seeding and minimise loss of soil due to erosion.	Contractor	Ensure that topsoil is spread evenly.	Rehabilitation	ECO	Weekly	Topsoil is spread evenly
275.	Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed.	Contractor	Remove all visible weeds from placement area and topsoil before spreading the topsoil.	Rehabilitation	ECO	Weekly	No weeds are visible in the placement area or the topsoil
276.	Subsoil must be ripped before topsoil is placed.	Contractor	Undertake the ripping of subsoil prior to the spreading of topsoil.	Rehabilitation	ECO	Weekly	Subsoil is ripped before topsoil is placed
277.	The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment. The site should be monitored for erosion and alien plant invasion for a period of at least five (5) years after the infrastructure has been removed to ensure that rehabilitation is successful and that areas that do not recover adequately can be identified and remedied.	Contractor	Plan the timeframe for rehabilitation to undertake vegetation planting during the optimal time for vegetation establishment.	Rehabilitation	ECO	At the start of rehabilitation to confirm correct timeframe	Rehabilitation is undertaken during the optimal time
278.	Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is affected and erosion is controlled.	Contractor	All disturbed slope areas must be stabilised.	Rehabilitation	ECO	Weekly	Disturbed slopes are stabilised sufficiently
279.	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.	Contractor	Stabilise slopes as per the design specifications.	Rehabilitation	ECO	Weekly	Slopes are stabilised as per the design specifications

Ref #	Impact Management Actions	Implementation			Monitoring		
		Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
280.	Spoil can be used for backfilling or landscaping if it is covered by a minimum of 150 mm of topsoil.	Contractor	Spoil used for landscaping must be applied as per the listed requirements.	Rehabilitation	ECO	Weekly	Photographic record of spoil used for landscaping purposes as well as feedback from the contractor
281.	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 to come 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.	Contractor in consultation with a suitably qualified specialist	Make use of a suitable vegetation seed mixture should enhancement be required.	Rehabilitation	ECO	As and when required	Use of a suitable vegetation seed mixture if required
282.	Grassland Management Manage the CBA and remaining primary grasslands within the project area to improve veld condition and biodiversity quality and functionality.	Proponent	Implement an appropriate grazing system that controls stocking rate and grazing intensity, and includes appropriate rest for the veld. Implement an appropriate fire management strategy which includes controlled burns when required, and suppressing uncontrolled burns.	Rehabilitation	ECO	As per the grazing system and fire management strategy	Photographic evidence and notes of the implementation kept on file
283.	Grassland Management Vaal Vet Grassland	Proponent	Ecological compensation or trade-off is appropriate to meet internationally acceptable standards. The options for biodiversity compensation for this project (and other renewable projects on surrounding farms in the area) should be determined through engagement with provincial conservation authorities and provincial and national environmental departments.	Rehabilitation	ECO	To be determined in the compensation strategy	Implementation of the compensation strategy

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