DU PLESSIS DAM SOLAR PV1 GRID CONNECTION

Switching Station and 132kV Powerline connecting the Du Plessis Dam Solar PV1 to the Mulilo Cluster 1 Substation, De Aar, Northern Cape Province

ENVIRONMENTAL MANAGEMENT PROGRAMME

DRAFT

June 2022

Applicant

Du Plessis Dam Solar PV1 (Pty) Ltd

Care of Mulilo Renewable Project Developments

Top Floor Golf Park 4, Raapenberg Rd, Mowbray, 7700

Contact persons:

Mr Andrew Pearson (Tel 084 722 4855 / 021 685 3240 / andrew@mulilo.com

Mr Ryan David-Andersen (Tel 072 678 1523 / ryan@mulilo.com

LANDSCAPE DYNAMICS

Compiled by

Landscape Dynamics Environmental Consultants

Contact persons: Annelize Erasmus (082 566 4530) & Susanna Nel (082 888 4060)

info@landscapedynamics.co.za

OBJECTIVES OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The compilation of this Environmental Management Programme (EMPr) forms part of the requirements of the 2014 EIA Regulations, as amended. The EMPR is an environmental awareness plan describing the manner in which

- the applicant intends to inform his or her employees of any environmental risk which may result from their work; and
- risks must be dealt with in order to avoid pollution or the degradation of the environment; and
- any specific information that may be required by the competent authority.

Compliance with the contents of the EMPr is required during the Planning & Design Phase, the Construction Phase, the Post-Construction & Operational Phase as well as the Decommissioning Phase, if applicable.

The EMPr serves as an environmental management tool by providing a generic structured plan of mitigatory measures / management action, which serves as a guide to assist in minimising the potential environmental impact of the activity that may arise during the construction and operational phases.

The EMPr provides a set of guidelines for the environmental management of all works to be executed so as to have a minimum impact on the environment in accordance with all relevant legislation, policies and standards.

In this context it should be viewed as a dynamic or 'living' document, which may require updating, or revision during the life-cycle of the project to address new circumstances as the need arises. It is essentially a written plan of how the environment is to be managed in practical and achievable terms.

The effectiveness of the EMPr is limited by the level of adherence to the conditions set forth herein. Compliance with the EMPr will be monitored on a regular basis as set out in the EMPr and contractual clauses.

The EMPr forms part of the Contract Documentation and is thus a legally binding document. An individual responsible for environmental damage must pay costs both to environment and human health and the preventative measures to reduce or prevent additional pollution and/or environmental damage from occurring (the Polluter Pays Principle).

Further to the above, the following objectives apply:

- To state the standards and guidelines which has to be adhered to in terms of environmental legislation;
- To set out the mitigation measures / management actions and environmental specifications which Eskom will be required to implement in order to minimise the extent of environmental impacts, and where possible to improve the condition of the environment;
- To mitigate potential negative impact associated with the project and ensure optimising of positive impact;
- To define corrective actions which must be taken in the event of non-compliance with the specifications of the EMPr;
- To prevent long-term or permanent environmental degradation;
- To ensure that the applicant, construction workers and the operational and maintenance staff are well acquainted with their responsibilities in terms of the environment;
- To ensure that communication channels to report on environment related issues are in place.

GAZETTED GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME

On 22 March 2019 a *Generic Environmental Management Programme (EMPr)* was promulgated in terms of Section 24 of NEMA and gazetted as Government Notice No 435. This EMPr is applicable where application is made for Environmental Authorisation for substations and overhead electricity transmission and distribution infrastructure as identified in terms of

- **activity 11 or 47 of EIA Regulations Listing Notice 1 of 2014, as amended, or for**
- **activity 9 of EIA Regulations Listing Notice 2 of 2014, as amended, and**
- **any other listed and specified activities necessary for the realisation of such infrastructure.**

The EMPr forms part of the Basic Assessment and EIA Reports, is a legally binding document and contains general as well as site specific mitigation measures.

The Generic Environmental Management Programme consists of the following:

- APPENDIX A: DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE and
- APPENDIX B: DEVELOPMENT AND EXPANSION OF OVERHEAD ELECTRICITY INFRASTRUCTURE

The proposed Du Plessis Dam Solar PV1 Grid Connection entails the construction of a switching station at the Du Plessis Solar PV1 and an approximate 8km of 132kV power line that will connect the Du Plessis Dam Solar PV1 facility to the Mulilo Cluster 1. Both Appendices A and B are thus applicable to this project.

Both Appendixes are divided into the following:

1. Part A (General Guidance and Information)
2. Part B: Section 1 (Pre-approved Generic EMPr Template)
3. Part B: Section 2 (Site Specific Information and Declaration)
4. Part C (Site Specific Sensitivities / Attributes)
5. Method Statements

PART A (GENERAL GUIDANCE AND INFORMATION)

- Provides general guidance and information such as definitions, acronyms, roles & responsibilities, documentation and reporting. This section **is not legally binding**.

PART B: SECTION 1 (PRE-APPROVED GENERIC EMPr TEMPLATE)

- Contains generally accepted impact management outcomes and impact management Actions required for the avoidance, management and mitigation of impacts and risks associated with the development
- The template in this section is to be completed by the contractor, with each completed page signed and dated by the holder of the EA prior to commencement of the activity. Once completed and signed, the template represents the EMPr for the activity approved by the Competent Authority (CA) and **is legally binding**.
- The template is not required to be submitted to the CA because the generic EMPr was gazetted for

implementation and has therefore been approved by the CA.

- The EAP must make this section available for public consideration.

PART B: SECTION 2 (SITE SPECIFIC INFORMATION and DECLARATION)

- Contains preliminary infrastructure layout *and* a declaration that the applicant/holder of the EA
  - will comply with the pre-approved generic EMPr as contained Part B: Section 1;
  - understands that the impact management outcomes and impact management actions **are legally binding**.
- The preliminary infrastructure layout must be submitted with the BAR / EIA Report ensuring that all impact management outcomes and impact management actions have been either preapproved or approved in terms of Part C.
- This section **must be** submitted to the CA together with the final BAR or EIA Report. The information submitted to the CA will be considered to be incomplete should a signed copy of Part B: section 2 not be submitted.
- Once approved, this Section forms part of the EMPr for the site and **is legally binding**.

PART C (SITE SPECIFIC SENSITIVITIES / ATTRIBUTES)

- Any site specific management outcomes and management actions not included in the pre-approved generic EMPr must be included in this section.
- These specific environmental attributes must be referenced spatially and impact management outcomes and impact management actions must be provided.
- These outcomes and actions must be presented in the format of Part B: Section 1.
- This section will not be required should the site contain no specific environmental sensitivities or attributes.
- If Part C is applicable it is required to be submitted together with the BAR or EIA Report to the CA for consideration.
- The information in this section must be prepared by an EAP and must contain his/her name and expertise including a Curriculum Vitae.
- Once approved, Part C forms part of the EMPr for the site and **is legally binding**.

METHOD STATEMENTS

- It contains the method statements to be prepared prior to commencement of the activity.
- The method statements are **not required** to be submitted to the Competent Authority.

Information provide in this EMPr is information as requested in

Appendix A: Substations

- Part B: Section 2 (Site Specific Information and Declaration)
- Part C (Site Specific Sensitivities / Attributes)

Appendix B: Overhead power lines

- Part B: Section 2 (Site Specific Information and Declaration)
- Part C (Site Specific Sensitivities / Attributes)

Addenda

Addendum 1 – Landscape Dynamics Company Profile and Condensed CVs of the EAPs
Addendum 2 – DFFE Screening Tool
(a) DFFE Screening Tool Report
(b) Verification of the DFFE Screening Tool Report

Appendix A: Substations
Part B: Section 2
Site Specific Information and Declaration

CONTACT DETAILS OF THE APPLICANT AND THE EAP

Contact details of the applicant

Name of applicant	: Du Plessis Dam Solar PV1 (Pty) Ltd (Reg Nr 2015/ 270346 / 07O
Contact person	: Mr Warren More
Tel No	: 021 685 3240
E-mail address	: warren@mulilo.com
Postal Address	: PostNet Suite #53, Private Bag X21, Howard Place, 7405
Physical Address	: Top Floor, Build.#4, Golf Park Estate, 44 Raapenberg Rd. Mowbray, Cape Town, 7405

Contact details of the EAP

Name of EAP	: Landscape Dynamics Environmental Consultants (Pty) Ltd
	: Annelize Erasmus & Susanna Nel
Tel No	: 082 566 4530 / 082 888 4060
E-mail address	: info@landscapedynamics.co.za

Expertise of the EAP

Landscape Dynamics CC is the Environmental Consultants appointed for this project. Landscape Dynamics is an environmental consultancy firm established in May 1997. The main line of business since that time up to the present is the compilation of environmental impact assessments. Landscape Dynamics has a broad client base from both the private and government sectors which has developed over the past 25 years of professional services supplied. The operating base for Landscape Dynamics is the entire South Africa; with offices and/or local representation in Gauteng, the Western Cape, Mpumalanga and Kwa-Zulu Natal.

The Environmental Assessment Practitioners (EAPs) for this project are Ms Annelize Erasmus and Ms Susanna Nel. Both EAPs are registered with EAPASA. .

Refer to Addenda A of this EMPr for a Company Profile and Curriculum Vitae's of the EAPs.

PROJECT INFORMATION

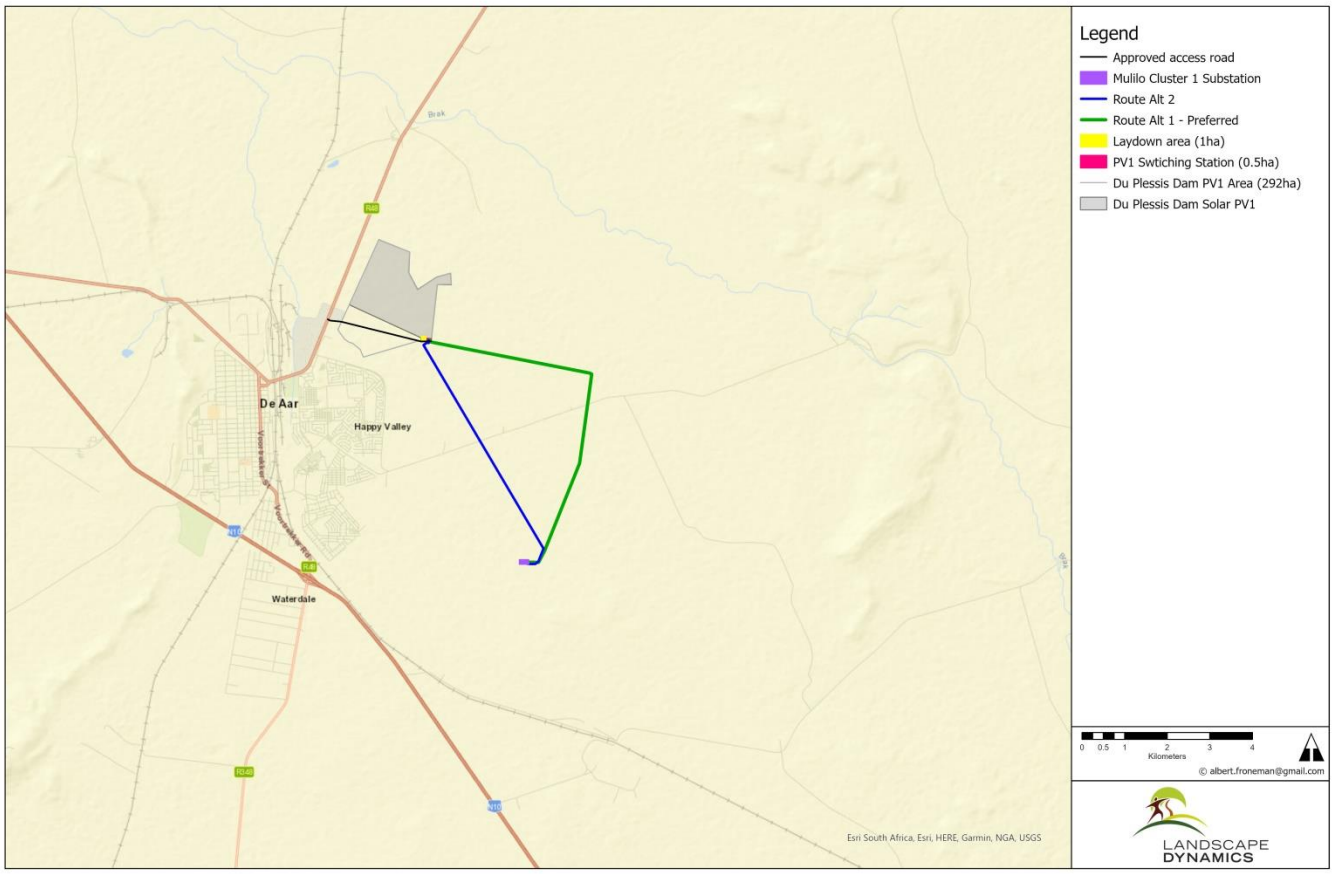
- ***Project name***

Du Plessis Dam Solar PV1 Grid Connection

- ***Project Locality***

The proposed project is situated between 3km and 6km east of De Aar, within the jurisdiction of the Emthanjeni Local Municipality, Pixley Ka Seme District in the Northern Cape Province.

Du Plessis Dam Solar PV 1 Grid Connection - Locality map



The switching station, laydown area ant the authorised route corridor affect the following properties :-

- The Remainder of the Farm Du Plessis Dam No 179
- Portions 1 of the Farm De Aar 180
- Portions 4 of the Farm De Aar 180

Major region				Minor region				Farm / Erf number								Portion number				
C	0	5	7	0	0	0	0	0	0	0	0	0	1	7	9	0	0	0	0	0
C	0	5	7	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	1
C	0	5	7	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	4

- ***Description of the project***

The energy to be generated by the Du Plessis Dam Solar PV1 needs to be evacuated and connected to the national grid. The only way of achieving this is by means of a switching station and a power line. The proposed electrical infrastructure will connect the electricity generated by the Du Plessis Solar PV1 to the Mulilo Cluster 1 Substation to ultimately connect to the Eskom national grid.

The project components for the project are the following:

Infrastructure	Specifications
Powerline (Grid connection)	• 132kV S/C Overhead Power line will connect the Du Plessis Dam Solar PV1 Eskom Switching Station with the Mulilo Cluster 1 Substation • Length/Route is approximately 7.6km • Eskom Servitude width is 31m. • A 300m wide corridor was assessed • Associated infrastructure at the Overhead Power Line Route/Servitude: o Steel monopole structures o ACSR & OPGW Conductors o Foundations and Earthing o Line Hardware and Accessories
Access Roads	• ±2km, 12m wide access road o Starting point at the R48 and ends at the PV1 switching station o This access road is existing but will be widened to 12m o Road was authorised with the Du Plessis Solar PV1 application (DFFE Ref Nr 12/12/16/3/3/2/456) • ±6m wide access road will be constructed along the line route for construction and maintenance purposes – this road will be inside the powerline servitude
Switching Station	• 33/132kV switching yard • ± 0.5 hectares in size (50m x 100m) • Internal access roads of 6m wide Associated infrastructure at the Switching Station o Outdoor Mechanical-Electrical High Voltage Equipment o Indoor Medium Voltage Switchgear and Low Voltage Controlgear o Lighting Protection Equipment o Perimeter and internal Fencing o Buildings required for operation (i.e. ablutions required for maintenance staff)
Laydown area	• A construction site area of ±1 hectares directly adjacent to the PV1 Switching Station is required. • All temporary infrastructure will be rehabilitated following the completion of the construction phase, where it is not required for the operation phase.

Storage of diesel	Diesel storage of less than 80m^3 for the 132kV Switching Station: ○ During construction, diesel is required for construction vehicles as well as generators for the construction camp and commissioning whilst waiting for the Eskom grid connection works to be completed ○ During operations, diesel is required for Operations & Maintenance vehicles at the PV plants but also required for backup diesel generators at the substations. The Generators supply auxiliary power to the substation's protection and communications systems, should there be outages on the grid. This is an Eskom requirement together with a battery room at the substations to act as UPS for these critical systems.
Temporary Services	During the construction phase, temporary sanitation facilities will be provided (i.e. chemical toilets) and these toilets will be regularly serviced by a licensed company.

DFFE SCREENING TOOL REPORT

Refer to Addenda B(a) of this EMPr for the Screening Tool Report as well as Addendum B(b) for the Verification Assessment of the DFFE Screening Tool Report which guided the choice of specialists which resulted in the compilation of the Combined Environmental Sensitivity Map provided in Part C of this EMPR.

DECLARATION

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

_____

Signature Proponent/applicant/ holder of EA

_____15 June 2022_____

Date

AMENDMENTS TO SITE SPECIFIC INFORMATION (PART B; SECTION 2)

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

Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

Note
The electrical infrastructure as authorised in this project will be handed over to Eskom after construction thereof has been completed. The Environmental Authorisation as well as this EMPr must therefore be transferred to Eskom at that time.

Appendix A: Substations
Part C
Site Specific Sensitivities / Attributes

Specific environmental sensitivities/attributes which are present on the site and which require more specific impact management outcomes and actions are included in this section. These outcomes and actions are not covered in the generic EMPr template.

The management controls including impact management outcomes and impact management actions are presented in the format of the preapproved generic EMPr template.

Part C is submitted to the CA together with the BAR or EIA Report for consideration of, and decision on, the application for EA. Once approved, Part C forms part of the EMPr for the site and is legally binding.

Contact details of the EAP

Name of EAP : Landscape Dynamics Environmental Consultants
: Susanna Nel & Annelize Erasmus
Tel No : 082 888 4060 & 082 566 4530
E-mail address : info@landscapedynamics.co.za

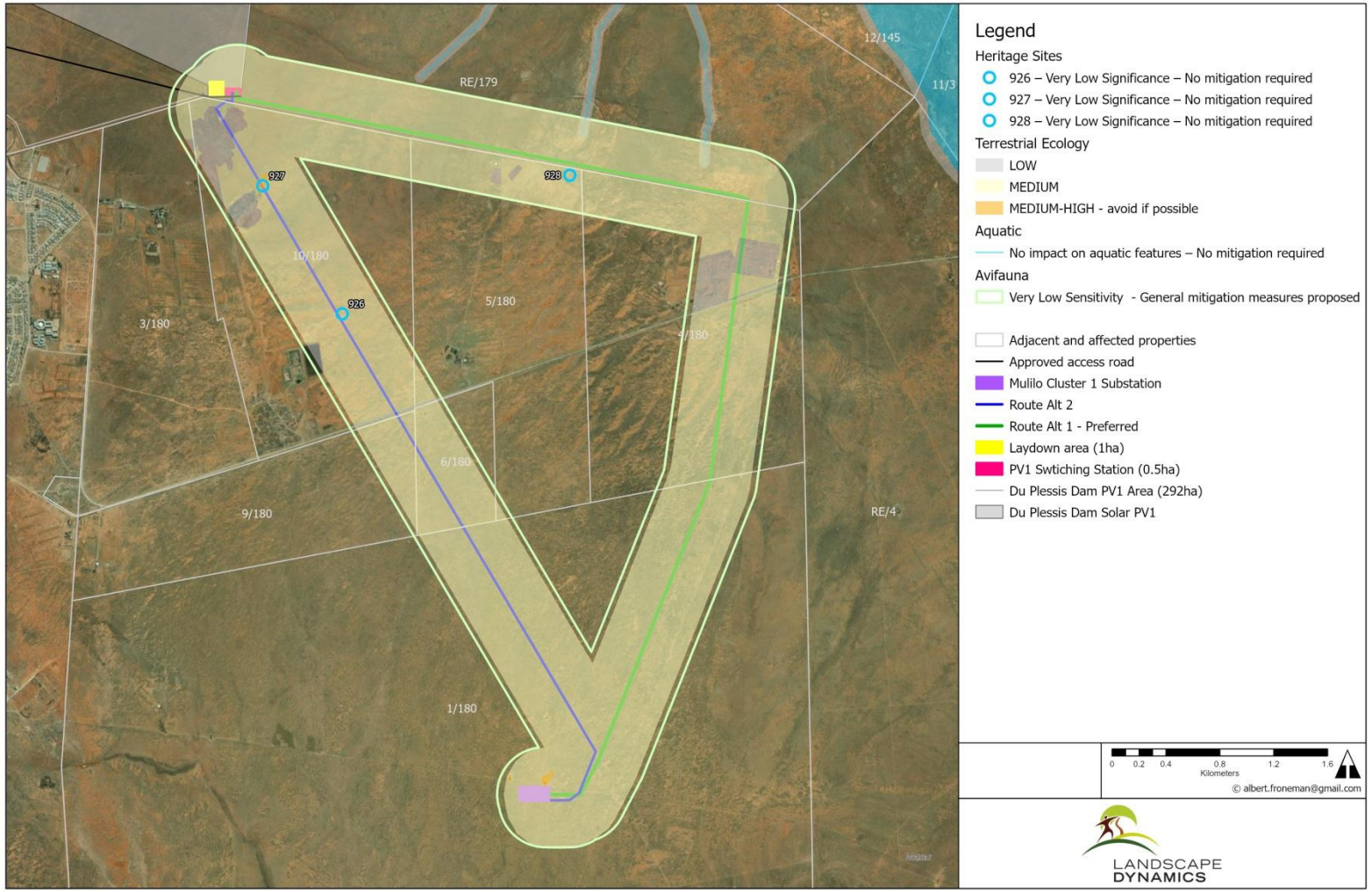
Expertise of the EAP

Landscape Dynamics is an environmental consultancy firm established in May 1997. The main line of business since that time up to present is the compilation of environmental impact assessments. Landscape Dynamics has a broad client base from both the private and government sectors which has developed over the past 22 years of professional services supplied. The operating base for Landscape Dynamics is the entire South Africa; with local representation in Gauteng, the North West Province, Mpumalanga, the Western Cape, the Northern Cape and Limpopo. The Environmental Assessment Practitioners (EAPs) for this project are Ms Annelize Erasmus and Ms Susanna Nel.

Refer to Addenda A of this EMPr for a Company Profile and Curriculum Vitae's of the EAPs

Site-specific sensitivities: Environmental Sensitivity Map

Du Plessis Dam Solar PV1 Grid Connection : Combined Environmental Sensitivity Map



PLANNING & DESIGN PHASE

Impact Management Outcome: Prevention of Erosion and Groundwater Contamination						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

• Prior to the detailed design stage and implementation, a physical high resolution topographical survey needs to be conducted. The site drainage needs to be designed on this elevation basis, with the full consideration of the final infrastructure layout on site. The final infrastructural layout and drainage design mutually impact on each other and will therefore be an iterative process.
• The plan must ensure the following :
  • Compliance with applicable regulations
  • Prevent off-site migration of contaminated storm water or increased soil erosion.
  • Implementation of appropriate design measures that will allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows.
  • Drainage measures must promote the dissipation of stormwater run-off.
• Continuous communication should take place with Eskom to ensure compliance with their most recent policies, design standards and specifications.
• A Safety Officer must be appointed to ensure compliance with the Occupational Health and Safety Act, No 181 of 1993, as amended (Responsibilities must include the provision of Personal Protective Equipment, the undertaking of safety inspections, safety awareness training, etc.)
 	
Diesel Storage Facility (Design considerations)-
• Compliance with SANS 10089-1:2008; Part 1: Storage and distribution of petroleum products in above-ground installations must be done.
• Provision must be made for a thick reinforced concrete spillage containment slab laid
	EA holder
	
	Project Engineers
	
	Health & Safety Officer
		The EA holder must appoint a consulting engineer to compile a detailed Storm Water Management Plan which should be based on the final design of all the project components	Prior to any construction activities taking place	EA holder	Prior to commencement of construction activities compliance of design requirement must be confirmed by the ECO
					
					During the Operational Activity the Environmental Officer of the EA Holder must confirm continued compliance.
						Engineering reports and ECO Reports

to fall to a catch pit connected to an oil/grease separator • The storage tank must be fully contained within the bunded area to contain spillage of hydrocarbons and contaminated rainwater and prevent the ingress of hydrocarbon spillages and contaminated rainwater into the ground or surface water. • Spillages from the tank bund must be retained and released in a controlled manner to an oil separator. • Allowance must be made for the removal of hazardous substances to an appropriate waste facility. • Spillages of hydrocarbons and contaminated water must be collected from the following areas : ▪ Diesel tank bunded area ▪ Product receiving station and receiving pipelines ▪ Vehicle servicing area • Hydrocarbon (oil, diesel, petrol) waste as well as hydrocarbon containing material must be regarded as hazardous waste and separated from general waste. • All hazardous substances at the site must be adequately stored and accurately identified, recorded and labelled prior to removal to a registered hazardous waste facility.						

Impact Management Outcome: Protection of the Natural and Heritage Environment prior to Commencement of Construction						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<u>Appointment of Contractors</u> • The EA, Generic EMPR and the Site Specific EMPR must form part of the tender documents.	EA holder & Project Engineers	The EA holder must clearly and adequately	Prior to any construction activities taking place	EA holder	Once prior to commenc ement of	Must keep attendance registers and

<u>Appointment of an Environmental Control Officer</u> • To be responsible to confirm that all requirement in terms of the EMPR are implemented during the construction phase. • The ECO must monitor and report on compliance with the conditions of the Environmental Authorisation and EMPR, i.e. actions required by the EA Holders prior to commencement of construction. • The ECO must do basic Environmental Awareness Training or else provide the appropriate material for communication by the Contractors • The ECO responsibilities must include all requirements as per generic EMPR. <u>Alien Invasive Management</u> • Appoint a specialist to compile an Alien Invasive Management Plan for implementation during the construction and the operation phases of the project. <u>Avi-Fauna</u> The project engineers must adhere to the following: • The most appropriate and up-to-date marking devices must be selected in consultation with the Endangered Wildlife Trust (EWT) Wildlife and Energy Programme. • Appropriate marking devices must be attached on all spans of all new power lines in accordance with installation guidelines to increase visibility. • The pylons to be constructed must have bird deterrent devices mounted on relevant parts of the structure where necessary to reduce the chances of electrocution.	EA Holder & ECO & Contractor EA Holder to appoint an ecologist EA Holder & Project Engineers	demarcate the laydown area			construction activities	training material and photographs as proof of evidence. The Alien Invasive Management Plan must be kept on site in the ECO file. The project engineers must confirm in writing that the design of the infrastructure complies with the requireme

• Pylon positions of the proposed lines should be staggered between the pylon positions of the existing, adjacent overhead power line where practically possible to increase visibility of both lines to flying birds. • Perimeter or security fences should be spaced a minimum of 2.5m apart if double-layered fencing is installed to prevent entrapment of larger bodied birds that may find themselves between the fences. <u>Palaeontology</u> The EA Holder must appoint a palaeontologist to provide guidance in terms of the implementation of the **Chance Fossil Finds Procedure** to be implemented during the Construction Phase. This must include the provision of photographs of similar fossils to the EA Holders to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones. This information must be built in the Environmental Awareness Training Programme.						nt for the protection of avi-fauna.

CONSTRUCTION PHASE

Impact Management Outcome: Protection of the Natural and Cultural Environment during Construction						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<u>Fauna and Flora</u> • Minimise vegetation clearing and disturbance to footprint areas only. • Implement the Alien Invasive Management Plan. • Restrict access to sensitive areas during construction by ensuring that the labourers do not go outside the approved route corridor. • Avoid direct disturbance of "Depressions" occurring within the corridor. These depressions can be found in the Aquatic Specialist Impact Assessment Report prepared by Dr Toni Belcher for this project – included in Appendix E(2) of the Basic Assessment Report. • Rehabilitate all disturbed areas to the satisfaction of the ECO whilst labourers and appropriate tools are still on site. <u>General</u> • Constant monitoring needs to be undertaken during the entire construction period to evaluate the effectiveness of the proposed mitigation and whether further measures are required. • Mitigation as per the Generic EMPr must be followed	EA holder & Contractor ECO	The ECO must ensure that conditions as per the EMPr are being implemented	During the entire construction period	EA holder	Once every two weeks	The ECO must keep record of site inspections and findings

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Avifauna *Habitat Destruction during Construction* • Existing roads should be used where possible. The minimum footprint areas of infrastructure should be used wherever possible; • Temporary access roads should be kept to a minimum in order to limit direct vegetation loss and habitat fragmentation. • All contractors are to apply good environmental practice during construction. *Disturbance and Displacement during Construction* • Maximum use of existing access road and servitudes must take place. • No unnecessary off-road driving should be permitted. • Speed limits should be strictly enforced to reduce unnecessary noise. • The movement of construction personnel should be restricted to the construction areas on the project site. • No dogs or cats other than those of the landowners should be allowed on site. • An appointed Environmental Control Officer (ECO) must be trained by an avifaunal specialist to identify the potential priority species that may occur across the development area as well as the signs that indicate possible breeding by these species. • The ECO must make a concerted effort to look out for such breeding activities especially of Red Data species; and if any Red Data species are confirmed to be breeding (e.g. if a nest site is found), construction activities within 500 m of the breeding site must cease and an avifaunal specialist is to be contacted immediately for further assessment of the situation and instruction on how to proceed. *Direct Mortality during Construction* • Maximum use of existing access road and servitudes must take place. • Night driving must be avoided where possible. • Any holes dug should not be left open for extended periods of time to	EA Holder Contractor	The ECO must ensure that conditions as per the EMPr are being implemented	During the entire construction period	EA holder	Once every two weeks	The ECO must keep record of site inspections and findings

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
prevent entrapment of ground dwelling birds (especially chicks) and only be dug when required and filled in soon thereafter. • Site access should be controlled and no unauthorised persons should be allowed onto the site; • Personnel should not be allowed to wander off the construction site; • All personnel should undergo an initial environmental induction with regards to birds and in particular awareness about not harming or collecting species or eggs. • The illegal collection, hunting or harvesting of birds at the site should be strictly forbidden. • No animals such as dogs or cats to be allowed on site other than those of the landowners. • Perimeter or security fences should be spaced a minimum of 2.5m apart if double-layered fencing is installed to prevent entrapment of larger bodied birds that may find themselves between the fences. • Appropriate solid-waste management should be implemented to reduce the likelihood of attracting species such as crows to the project site as increases in their numbers may impart additional predation pressure on eggs of nesting birds. • Any birds directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person.						
<u>Archaeological Resources</u> • Should any buried archaeological resources or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds. The South African Heritage Resources Agency (SAHRA) must be contacted immediately in order to determine an appropriate way forward.	EA holder	The ECO must ensure that conditions as per the EMPr are being implemented	During the entire construction period	EA holder	Archaeological findings may occur during the earthworks	The ECO must keep record of site inspections and findings

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<u>Palaeontology</u> The **Chance Fossil Finds Procedure** must be implemented during the course of construction activities. The following procedure is only required if fossils are seen on the surface and when drilling/excavations commence. • When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone, coal) should be put aside in a suitably protected place. This way the project activities will not be interrupted. • Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones. This information will be built into the EMPr's training and awareness plan and procedures. *This must be done during the Pre-Construction and Design Phase.* • Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. • If there is any possible fossil material found by the Environmental Control Officer or Contactor(s), then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible. • Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits. The contact details of SAHRA are as follows: SAHRA APM Unit	EA holder Must appoint a palaeontologist should any fossils be discovered. He/she will assess the findings and advise on further actions to be taken.	The ECO must ensure that conditions as per the EMPr are being implemented	During the entire construction period	EA holder	Palaeontological findings may occur during the earthworks	The ECO must keep record of site inspections and findings

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
111 Harrington Street, Cape Town, 8000 Care of Ms Natasha Higgitt nhiggitt@SAHRA.org.za Tel 021 462 4502 • If no good fossil material is recovered then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils. • If no fossils are found and the excavations have finished then no further monitoring is required.						
Impact of an uncontrolled labour force • Labourers should be trained in general principles of environmental management that includes the following: o Removal of agricultural products is prohibited. o No plants may be collected. o No firewood may be collected. o No open fires are to be made. o No wandering on adjacent properties is allowed. o No access to the watercourse areas is allowed. o No watercourse may be used for any purpose (i.e. drinking water, washing, laundry, etc.) o The veld may not be used for any toilet needs. • Secure accommodation facilities must be provided for guarding personnel (if applicable). • Supervision of labourers must at all times take place.	EA holder Contractor	The ECO must ensure that conditions as per the EMPr are being implemented, which includes training before construction commences as well as regular follow-ups	During the entire construction period	EA holder	Constantly during the entire construction period	The ECO must keep record of site inspections and findings

Impact Management Outcome: Prevent Impact on Aquatic Environment						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
• All the proposed project activities should remain outside the recommended buffers of the delineated aquatic ecosystems in the macro area. These aquatic features should however not be at risk, since the construction activities must be confined to the corridor area. • During the construction phase, proper site management must be undertaken at the laydown and construction sites. This should specifically address on-site stormwater management and prevention of pollution measures from any potential pollution sources during construction activities such as hydrocarbon spills. • Refer to the *Generic EMPr*	EA holder & Contractor	The ECO must ensure that conditions as per the EMPr are being implemented, which includes training before construction commences as well as regular follow-ups	During the entire construction period	EA holder	Constantly during the entire constructio n period	The ECO must keep record of site inspections and findings

Impact Management Outcome: Prevent Groundwater Pollution						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Strict measures must be implemented : • Emergency incident reporting and remedial measures must be in place • Adequate oil containment precautions must be taken. • A bio-remediation contractor must be appointed to rehabilitate large oil	EA holder Contractor	The ECO must ensure that conditions as	During the entire construction period	EA holder	Constantly during the entire	The ECO must keep record of

spills. The regional officer of the Department of Water & Sanitation will advise in this regard. • Small oil spills must be cleaned immediately with an oil spill kit. • Proper maintenance procedures for vehicles and equipment must be followed. • Servicing of vehicles may only take place in designated areas, in this case on a concrete surface within the switching station site. • Drip trays should be used during the servicing of vehicles. The content thereof must be disposed in accordance with relevant hazardous material disposal requirement. • Measures to contain accidental spills must be readily available on site (spill kits). • All hazardous substance spills must be reported to the Contractor and the ECO, recorded and investigated. Waste Management Procedures must include the following:- • General household waste (i.e. strict control over labourers; no burning or burying of waste; provision of dustbin and garbage bags; regular removal preferably by municipal waste removal; etc.) • Construction waste (i.e. stringent daily clean-up and either disposal at registered waste site or preferably sold for recycling purposes) • Sewage waste (labourers to be provided with proper ablution facilities- chemical toilets must be provided and serviced by a reputable outside company; no effluent to be dumped on adjacent land). Written proof of servicing of the chemical toilets must be obtained and kept on site in the ECO file. • Hazardous waste (i.e. oil contaminated waste to be moved to registered hazardous waste landfill site; adequate storage and labelling of hazardous materials on site). Stormwater should not be discharged into the working areas and it should be ensured that stormwater leaving the footprint of the proposed development areas is not contaminated by any substance, whether that substance is solid, liquid, vapour or any combination thereof. Way slips or written proof of disposal at an appropriately registered waste facility must		per the EMPr are being implemented, which includes training before construction commences as well as regular follow-ups			construction period	site inspections and findings

be obtained and kept on site in die ECO File. • Refer to the *Generic EMPr*						

Impact Management Outcome: Effective Storm Water Management and the Prevention of Erosion						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

• It is recommended that access and service roads, as well as stormwater systems are constructed at the commencement of the construction phase to ensure that suitable stormwater management measures are in place at the least additional cost.
• In order to preserve the natural state of the surface and vegetation as far as practically possible, off-road driving should be restricted to the absolute essential.
• Space for lay-down areas for construction material and for construction facilities is restricted on site. The following should be taken into account:
  ○ Temporary or permanent soil stockpiles should be placed outside of drainage lines, on a flat surface, protected from wind and rain.
  ○ High resolution site survey data must be used to design stormwater ditches to direct surface flood water past any stockpiles.
• Site clearing should be limited to the essential.
• Construction waste must be collected and stored safely for disposal in accordance with the relevant waste regulations, protocols, and product specifications. Care must be taken not to leave any waste on site that can lead to future contamination of the site.
	EA holder
	Contactor
		The ECO must ensure that conditions as per the EMPr are being implemented, which includes training before construction commences as well as regular follow-ups	During the entire construction period	EA holder	Constantly during the entire constructio n period	The ECO must keep record of site inspections and findings

OPERATIONAL PHASE

Impact Management Outcome: Effective Storm Water Management and Prevention of Erosion

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
• Regular conditional inspections of all storm water infrastructure are required. Inspection data must be recorded and accumulated for tracking purposes. Regular reporting should be a scheduled management task. • Any item that may be found to be out of order, for instance accumulation of settled sand in a trench, or erosion, must be addressed and corrected without delay to keep the storm water system in a good and fully functional condition. Record must be kept on all repairs. • Specific attention must be given to inspection during and after any rain and/or flood event to kerb any damage that may occur.	EA holder	Regular site inspections and monitoring	Continuous	EA holder	Twice a year and after severe rainstorm events	Site inspection registers must be kept.

Impact Management Outcome: Prevent Groundwater Pollution

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
• Prevent impact rather than manage impact: ○ Permanent staff as well as maintenance and inspection personnel	EA holder	The ECO must	Continuous	EA holder	Once a	The ECO

must be appropriately trained in terms of waste management, specifically with regards to hazardous waste, inclusive of risk associated with the diesel storage facility, vehicle maintenance, etc. Appropriate Personal Protective Equipment (PPE) must at all times be provided. ○ Spillages of hydrocarbons and contaminated water must be collected from the following areas : ▪ Diesel tank bunded area ▪ Product receiving station and receiving pipelines. ○ The storage tank must be fully contained within the bunded area to contain spillage of hydrocarbons and contaminated rainwater and prevent the ingress of hydrocarbon spillages and contaminated rainwater into the ground or surface water. ○ Spillages from the tank bund must be retained and released in a controlled manner to an oil separator from where it could be temporarily stored and ○ The storage tank must be fully contained within the bunded area to contain spillage of hydrocarbons and contaminated rainwater and prevent the ingress of hydrocarbon spillages and contaminated rainwater into the ground or surface water. ○ Provision must be made for a thick reinforced concrete spillage containment slab laid to fall to a catch pit connected to an oil/grease separator. ○ Spillages of hydrocarbons and contaminated water must be collected from the following areas : ▪ Diesel tank bunded area ▪ Product receiving station and receiving pipelines ▪ Vehicle servicing area ○ Proper maintenance procedures for vehicles and equipment must be followed. ○ Servicing of vehicles may only take place in designated areas, in this case on a concrete surface within the switching station site.	Contractor	ensure that conditions as per the EMPr are being implemented.			month	must keep record of site inspections and findings

○ Drip trays should be used during the servicing of vehicles. The content thereof must be disposed in accordance with relevant hazardous material disposal requirement. ○ As part of routine maintenance, the Applicant must undertake regular engineering inspections of the tank, tank valves and pumps to ensure that there are no leaks. • Hydrocarbon (oil, diesel, petrol) waste as well as hydrocarbon containing material must be regarded as hazardous waste and separated from general waste. • All hazardous substances at the site must be adequately stored and accurately identified, recorded and labelled prior to removal to a registered hazardous waste facility. • Provide measures for emergency incident reporting and remedial measures and personnel must be appropriately trained. • A bio-remediation contractor must be appointed to rehabilitate large oil spills. The regional officer of the Department of Water & Sanitation will advise in this regard. • Small oil spills must be cleaned immediately with an oil spill kit. Measures to contain accidental spills must always be readily available on site (spill kits). • All hazardous substance spills must be reported to the Contractor and the ECO, recorded and investigated. • Follow acceptable maintenance and operational practises to ensure consistent, effective and safe performance of the infrastructure Also refer to the *Generic EMPr.*						

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

Disturbance and Displacement during Operation • Only the existing demarcated access roads may be used.; • No unnecessary off-road driving should be permitted. • Speed limit of 30km/h on the private farm roads should be strictly enforced to reduce unnecessary noise and fatalities; • The movement of inspectors and maintenance personnel should be restricted to the construction areas on the project site; • No dogs or cats other than those of the landowners should be allowed on site. *Direct Mortality during Operation: Collisions* • Flappers and BFDs must be maintained and replaced where necessary, for the life span of the project; • An operational monitoring programme must include regular monitoring of the entire length of the power lines and perimeter fences for collision incidents for the lifespan of the project. • Collision incidents must be recorded and reported to the Endangered Wildlife Trust (EWT). *Direct Mortality during Operation: Electrocution* An operational monitoring programme must be implemented and include regular monitoring of the power lines and switching stations for electrocution incidents (this can be done simultaneously with the collision monitoring) and integrity of anti-perch devices and insulated components. • Any mortalities must be reported to the EWT.	EA holder	Site inspections and monitoring	Continuous	EA holder	Twice a year	Site inspection registers must be kept.

Impact Management Outcome: Protection of natural habitat during the Operational Phase						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

• Implement the Alien Invasive Management Plan • Any water supply, sanitation services as well as solid waste management services that may be required for the operation purposes should preferably be provided by an off-site service provider. • Maintenance and inspection of the electricity infrastructure must take place as per the Eskom Generic EMPR.	EA holder	The environmental manager must ensure regular monitoring, servitude maintenance and site inspections take place and that any faults or accidents or deterioration of the natural habitat is immediately reported and addressed.	Continuously	EA holder	As per generic EMPR	Site inspection registers must be kept.

Appendix B: Overhead power lines
Part B: Section 2
Site Specific Information and Declaration

CONTACT DETAILS OF THE APPLICANT AND THE EAP

Contact details of the applicant

Name of applicant	: Du Plessis Dam Solar PV1 (Pty) Ltd (Reg Nr 2015/ 270346 / 07O
Contact person	: Mr Warren More
Tel No	: 021 685 3240
E-mail address	: warren@mulilo.com
Postal Address	: PostNet Suite #53, Private Bag X21, Howard Place, 7405
Physical Address	: Top Floor, Build.#4, Golf Park Estate, 44 Raapenberg Rd. Mowbray, Cape Town, 7405

Contact details of the EAP

Name of EAP	: Landscape Dynamics Environmental Consultants (Pty) Ltd
	: Annelize Erasmus & Susanna Nel
Tel No	: 082 566 4530 / 082 888 4060
E-mail address	: info@landscapedynamics.co.za

Expertise of the EAP

Landscape Dynamics CC is the Environmental Consultants appointed for this project. Landscape Dynamics is an environmental consultancy firm established in May 1997. The main line of business since that time up to the present is the compilation of environmental impact assessments. Landscape Dynamics has a broad client base from both the private and government sectors which has developed over the past 25 years of professional services supplied. The operating base for Landscape Dynamics is the entire South Africa; with offices and/or local representation in Gauteng, the Western Cape, Mpumalanga and Kwa-Zulu Natal.

The Environmental Assessment Practitioners (EAPs) for this project are Ms Annelize Erasmus and Ms Susanna Nel. Both EAPs are registered with EAPASA. The Landscape Dynamics Company Profile with the relevant condensed Curriculum Vitae's is attached in Appendix H(1).

Refer to Addenda A of this EMPr for a Company Profile and Curriculum Vitae's of the EAPs.

PROJECT INFORMATION

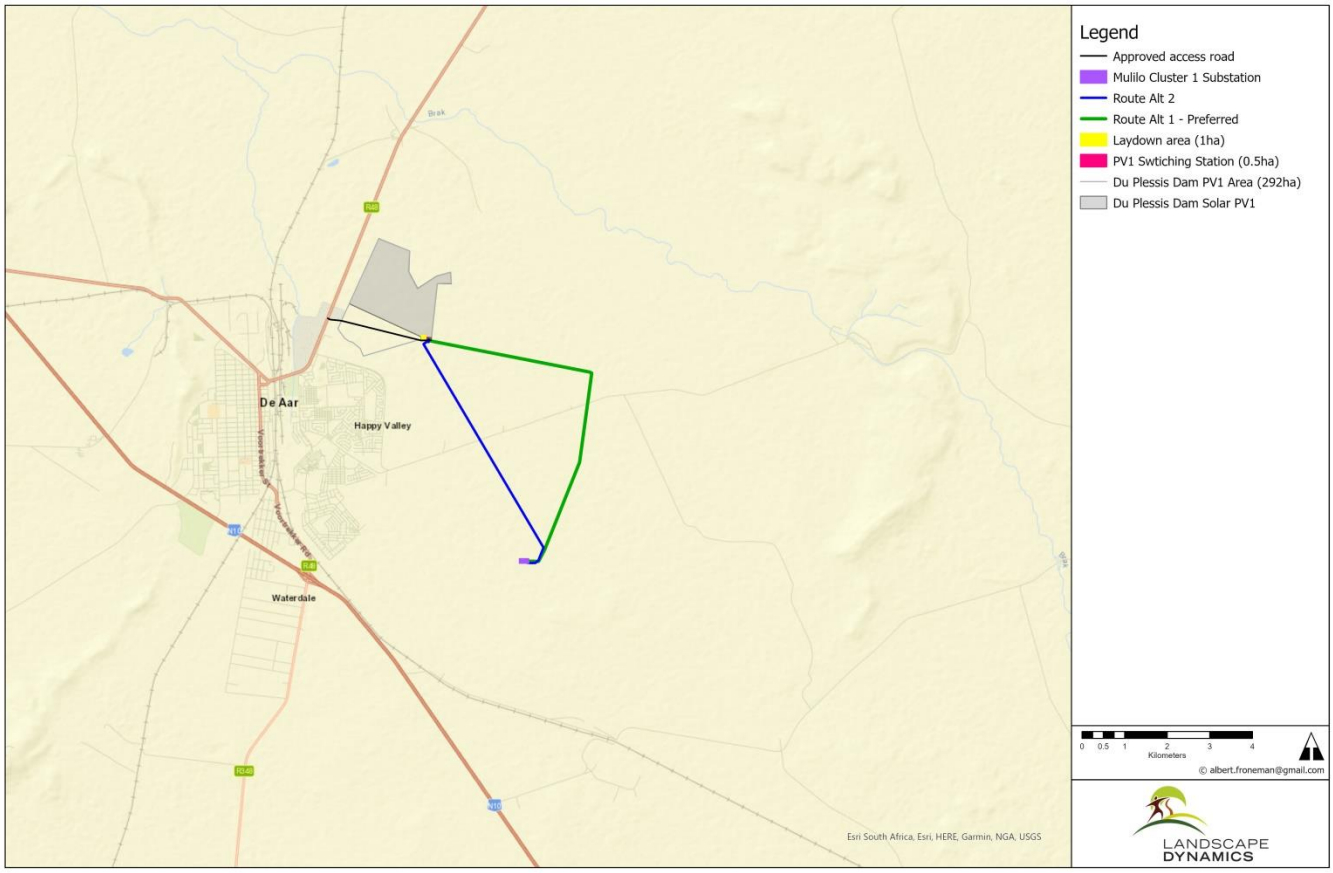
- ***Project name***

Du Plessis Dam Solar PV1 Grid Connection

- ***Project Locality***

The proposed project is situated between 3km and 6km east of De Aar, within the jurisdiction of the Emthanjeni Local Municipality, Pixley Ka Seme District in the Northern Cape Province.

Du Plessis Dam Solar PV 1 Grid Connection - Locality map



The switching station, laydown area ant the authorised route corridor affect the following properties :-

- The Remainder of the Farm Du Plessis Dam No 179
- Portions 1 of the Farm De Aar 180
- Portions 4 of the Farm De Aar 180

Major region				Minor region				Farm / Erf number								Portion number				
C	0	5	7	0	0	0	0	0	0	0	0	0	1	7	9	0	0	0	0	0
C	0	5	7	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	1
C	0	5	7	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	0	4

- ***Description of the project***

The energy generated by the Du Plessis Dam Solar PV1 needs to be evacuated and connected to the national grid. The only way of achieving this is by means of a switching station and a power line. The proposed electrical infrastructure will connect the electricity generated by the Du Plessis Solar PV1 to the Mulilo Cluster 1 Substation to ultimately connect to the Eskom national grid.

The project components for the project are the following:

Infrastructure	Specifications
Powerline (Grid connection)	132kV S/C Overhead Power line will connect the Du Plessis Dam Solar PV1 Eskom Switching Station with the Mulilo Cluster 1 Substation Length/Route is approximately 7.6km Eskom Servitude width is 31m. A 300m wide corridor was assessed Associated infrastructure at the Overhead Power Line Route/Servitude: ○ Steel monopole structures ○ ACSR & OPGW Conductors ○ Foundations and Earthing ○ Line Hardware and Accessories
Access Roads	±2km, 12m wide access road Starting point at the R48 and ends at the PV1 switching station This access road is existing but will be widened to 12m Road was authorised with the Du Plessis Solar PV1 application (DFFE Ref Nr 12/12/16/3/3/2/456) ±6m wide access road will be constructed along the line route for construction and maintenance purposes – this road will be inside the powerline servitude
Switching Station	33/132kV switching yard ± 0.5 hectares in size (50m x 100m) Internal access roads of 6m wide Associated infrastructure at the Switching Station Outdoor Mechanical-Electrical High Voltage Equipment Indoor Medium Voltage Switchgear and Low Voltage Controlgear Lighting Protection Equipment Perimeter and internal Fencing Buildings required for operation (i.e. ablutions required for maintenance staff)
Laydown area	A construction site area of ±1 hectares directly adjacent to the PV1 Switching Station is required. All temporary infrastructure will be rehabilitated following the completion of the construction phase, where it is not required for the operation phase.
ɔrage of diesel	Diesel storage of less than 80m^3 for the 132kV Switching Station: During construction, diesel is required for construction vehicles as well as generators for the construction camp and commissioning whilst waiting for the Eskom grid connection works to be completed During operations, diesel is required for Operations & Maintenance vehicles at the PV plants but also required for backup diesel generators at the substations. The Generators supply auxiliary power to the substation's protection and communications systems, should there be outages on the grid. This is an Eskom requirement together with a battery room at the substations to act as UPS for these critical systems.

mporary Services	During the construction phase, temporary sanitation facilities will be provided (i.e. chemical toilets) and these toilets will be regularly serviced by a licensed company.

DFFE SCREENING TOOL REPORT

Refer to Addenda B(a) of this EMPr for the Screening Tool Report as well as Addendum B(b) for the Verification Assessment of the DFFE Screening Tool Report which guided the choice of specialists which resulted in the compilation of the Combined Environmental Sensitivity Map provided in Part C of this EMPR.

DECLARATION

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

_____

Signature Proponent/applicant/ holder of EA

____15 June 2022_____

Date

AMENDMENTS TO SITE SPECIFIC INFORMATION (PART B; SECTION 2)

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

Note

The electrical infrastructure as authorised in this project will be handed over to Eskom after construction thereof has been completed. The Environmental Authorisation as well as this EMPr must therefore be transferred to Eskom at that time.

Appendix B: Overhead power lines
Part C
Site Specific Sensitivities / Attributes

Specific environmental sensitivities/attributes which are present on the site and which require more specific impact management outcomes and actions are included in this section. These outcomes and actions are not covered in the generic EMPr template.

The management controls including impact management outcomes and impact management actions are presented in the format of the preapproved generic EMPr template.

Part C is submitted to the CA together with the Basic Assessment Report for consideration of, and decision on, the application for EA. Once approved, Part C forms part of the EMPr for the site and is legally binding.

Contact details of the EAP

Name of EAP : Landscape Dynamics Environmental Consultants
: Annelize Erasmus & Susanna Nel
Tel No : 082 566 4530 & 082 888 4060
E-mail address : info@landscapedynamics.co.za

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The Environmental Assessment Practitioners (EAPs) for this project are Ms Annelize Erasmus and Ms Susanna Nel. Both EAPs are registered with EAPASA. The Landscape Dynamics Company Profile with the relevant condensed Curriculum Vitae's is attached in Appendix H(1).

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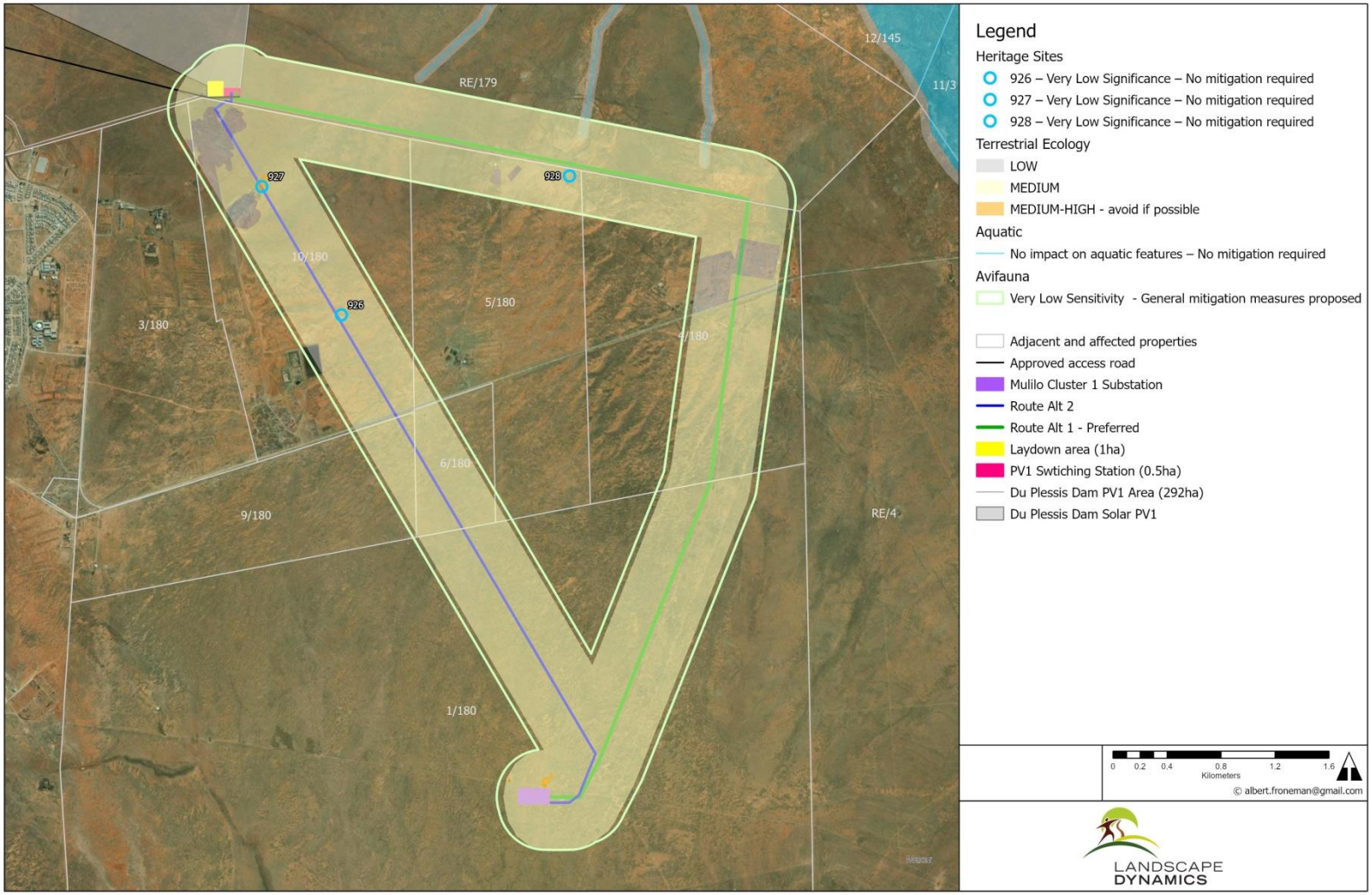
Site-specific sensitivities: Environmental Sensitivity Map

Du Plessis Dam Solar PV1 Grid Connection : Combined Environmental Sensitivity Map



PLANNING & DESIGN PHASE

Impact Management Outcome: Prevention of Erosion and Groundwater Contamination						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

• Prior to the detailed design stage and implementation, a physical high resolution topographical survey needs to be conducted. The site drainage needs to be designed on this elevation basis, with the full consideration of the final infrastructure layout on site. The final infrastructural layout and drainage design mutually impact on each other and will therefore be an iterative process.
• The plan must ensure the following :
  • Compliance with applicable regulations
  • Prevent off-site migration of contaminated storm water or increased soil erosion.
  • Implementation of appropriate design measures that will allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows.
  • Drainage measures must promote the dissipation of stormwater run-off.
• Continuous communication should take place with Eskom to ensure compliance with their most recent policies, design standards and specifications.
• A Safety Officer must be appointed to ensure compliance with the Occupational Health and Safety Act, No 181 of 1993, as amended (Responsibilities must include the provision of Personal Protective Equipment, the undertaking of safety inspections, safety awareness training,
	EA holder
	
	Project Engineers
	
	Health & Safety Officer
		The EA holder must appoint a consulting engineer to compile a detailed Storm Water Management Plan which should be based on the final design of all the project components	Prior to any construction activities taking place	EA holder	Prior to commencement of construction activities compliance of design requirement must be confirmed by the ECO
					
					During the Operational Activity the Environmental Officer of the EA Holder
						Engineering reports and ECO Reports

etc.) *Diesel Storage Facility (Design considerations)-* • Compliance with SANS 10089-1:2008; Part 1: Storage and distribution of petroleum products in above-ground installations must be done. • Provision must be made for a thick reinforced concrete spillage containment slab laid to fall to a catch pit connected to an oil/grease separator • The storage tank must be fully contained within the bunded area to contain spillage of hydrocarbons and contaminated rainwater and prevent the ingress of hydrocarbon spillages and contaminated rainwater into the ground or surface water. • Spillages from the tank bund must be retained and released in a controlled manner to an oil separator. • Allowance must be made for the removal of hazardous substances to an appropriate waste facility. • Spillages of hydrocarbons and contaminated water must be collected from the following areas : ▪ Diesel tank bunded area ▪ Product receiving station and receiving pipelines ▪ Vehicle servicing area • Hydrocarbon (oil, diesel, petrol) waste as well as hydrocarbon containing material must be regarded as hazardous waste and separated from general waste. • All hazardous substances at the site must be adequately stored and accurately identified, recorded and labelled prior to removal to a registered hazardous waste facility.					must confirm continued compliance .	

Impact Management Outcome: Protection of the Natural and Heritage Environment prior to Commencement of Construction						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<u>Appointment of Contractors</u> • The EA, Generic EMPR and the Site Specific EMPR must form part of the tender documents. <u>Appointment of an Environmental Control Officer</u> • To be responsible to confirm that all requirement in terms of the EMPR are implemented during the construction phase. • The ECO must monitor and report on compliance with the conditions of the Environmental Authorisation and EMPR, i.e. actions required by the EA Holders prior to commencement of construction. • The ECO must do basic Environmental Awareness Training or else provide the appropriate material for communication by the Contractors • The ECO responsibilities must include all requirements as per generic EMPR. <u>Alien Invasive Management</u> • Appoint a specialist to compile an Alien Invasive Management Plan for implementation during the construction and the operation phases of the project. <u>Avi-Fauna</u> The project engineers must adhere to the following: • The most appropriate and up-to-date marking devices must be selected in	EA holder & Project Engineers EA Holder & ECO & Contractor EA Holder to appoint an ecologist EA Holder & Project Engineers	The EA holder must clearly and adequately demarcate the laydown area	Prior to any construction activities taking place	EA holder	Once prior to commencement of construction activities	Must keep attendance registers and training material and photographs as proof of evidence. The Alien Invasive Management Plan must be kept on site in the ECO file. The project engineers must confirm in writing that

consultation with the Endangered Wildlife Trust (EWT) Wildlife and Energy Programme. • Appropriate marking devices must be attached on all spans of all new power lines in accordance with installation guidelines to increase visibility. • The pylons to be constructed must have bird deterrent devices mounted on relevant parts of the structure where necessary to reduce the chances of electrocution. • Pylon positions of the proposed lines should be staggered between the pylon positions of the existing, adjacent overhead power line where practically possible to increase visibility of both lines to flying birds. • Perimeter or security fences should be spaced a minimum of 2.5m apart if double-layered fencing is installed to prevent entrapment of larger bodied birds that may find themselves between the fences. <u>Palaeontology</u> The EA Holder must appoint a palaeontologist to provide guidance in terms of the implementation of the **Chance Fossil Finds Procedure** to be implemented during the Construction Phase. This must include the provision of photographs of similar fossils to the EA Holders to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones. This information must be built in the Environmental Awareness Training Programme.						the design of the infrastructure complies with the requirement for the protection of avi-fauna.

CONSTRUCTION PHASE

Impact Management Outcome: Protection of the Natural and Cultural Environment during Construction						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<u>Fauna and Flora</u> • Minimise vegetation clearing and disturbance to footprint areas only. • Implement the Alien Invasive Management Plan. • Restrict access to sensitive areas during construction by ensuring that the labourers do not go outside the approved route corridor. • Avoid direct disturbance of "Depressions" occurring within the corridor. These depressions can be found in the Aquatic Specialist Impact Assessment Report prepared by Dr Toni Belcher for this project – included in Appendix E(2) of the Basic Assessment Report. • Rehabilitate all disturbed areas to the satisfaction of the ECO whilst labourers and appropriate tools are still on site. <u>General</u> • Constant monitoring needs to be undertaken during the entire construction period to evaluate the effectiveness of the proposed mitigation and whether further measures are required. • Mitigation as per the Generic EMPr must be followed	EA holder & Contractor ECO	The ECO must ensure that conditions as per the EMPr are being implemented	During the entire construction period	EA holder	Once every two weeks	The ECO must keep record of site inspections and findings

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Avifauna *Habitat Destruction during Construction* • Existing roads should be used where possible. The minimum footprint areas of infrastructure should be used wherever possible; • Temporary access roads should be kept to a minimum in order to limit direct vegetation loss and habitat fragmentation. • All contractors are to apply good environmental practice during construction. *Disturbance and Displacement during Construction* • Maximum use of existing access road and servitudes must take place. • No unnecessary off-road driving should be permitted. • Speed limits should be strictly enforced to reduce unnecessary noise. • The movement of construction personnel should be restricted to the construction areas on the project site. • No dogs or cats other than those of the landowners should be allowed on site. • An appointed Environmental Control Officer (ECO) must be trained by an avifaunal specialist to identify the potential priority species that may occur across the development area as well as the signs that indicate possible breeding by these species. • The ECO must make a concerted effort to look out for such breeding activities especially of Red Data species; and if any Red Data species are confirmed to be breeding (e.g. if a nest site is found), construction activities within 500 m of the breeding site must cease and an avifaunal specialist is to be contacted immediately for further assessment of the situation and instruction on how to proceed. *Direct Mortality during Construction* • Maximum use of existing access road and servitudes must take place. • Night driving must be avoided where possible. • Any holes dug should not be left open for extended periods of time to prevent entrapment of ground dwelling birds (especially chicks) and only	EA Holder Contractor	The ECO must ensure that conditions as per the EMPr are being implemented	During the entire construction period	EA holder	Once every two weeks	The ECO must keep record of site inspections and findings

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
be dug when required and filled in soon thereafter. • Site access should be controlled and no unauthorised persons should be allowed onto the site; • Personnel should not be allowed to wander off the construction site; • All personnel should undergo an initial environmental induction with regards to birds and in particular awareness about not harming or collecting species or eggs. • The illegal collection, hunting or harvesting of birds at the site should be strictly forbidden. • No animals such as dogs or cats to be allowed on site other than those of the landowners. • Perimeter or security fences should be spaced a minimum of 2.5m apart if double-layered fencing is installed to prevent entrapment of larger bodied birds that may find themselves between the fences. • Appropriate solid-waste management should be implemented to reduce the likelihood of attracting species such as crows to the project site as increases in their numbers may impart additional predation pressure on eggs of nesting birds. • Any birds directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person.						
<u>Archaeological Resources</u> • Should any buried archaeological resources or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds. The South African Heritage Resources Agency (SAHRA) must be contacted immediately in order to determine an appropriate way forward.	EA holder	The ECO must ensure that conditions as per the EMPr are being implemented	During the entire construction period	EA holder	Archaeological findings may occur during the earthworks	The ECO must keep record of site inspections and findings
<u>Palaeontology</u>	EA holder	The ECO must	During the entire	EA holder	Palaeontolog	The ECO

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
The **Chance Fossil Finds Procedure** must be implemented during the course of construction activities. The following procedure is only required if fossils are seen on the surface and when drilling/excavations commence. • When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone, coal) should be put aside in a suitably protected place. This way the project activities will not be interrupted. • Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones. This information will be built into the EMPr's training and awareness plan and procedures. *This must be done during the Pre-Construction and Design Phase*. • Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment. • If there is any possible fossil material found by the Environmental Control Officer or Contactor(s), then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible. • Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits. The contact details of SAHRA are as follows: SAHRA APM Unit 111 Harrington Street, Cape Town, 8000	Must appoint a palaeontologist should any fossils be discovered. He/she will assess the findings and advise on further actions to be taken.	ensure that conditions as per the EMPr are being implemented	construction period		ical findings may occur during the earthworks	must keep record of site inspections and findings

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Care of Ms Natasha Higgitt nhiggitt@SAHRA.org.za Tel 021 462 4502 • If no good fossil material is recovered then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils. • If no fossils are found and the excavations have finished then no further monitoring is required.						
Impact of an uncontrolled labour force • Labourers should be trained in general principles of environmental management that includes the following: o Removal of agricultural products is prohibited. o No plants may be collected. o No firewood may be collected. o No open fires are to be made. o No wandering on adjacent properties is allowed. o No access to the watercourse areas is allowed. o No watercourse may be used for any purpose (i.e. drinking water, washing, laundry, etc.) o The veld may not be used for any toilet needs. • Secure accommodation facilities must be provided for guarding personnel (if applicable). • Supervision of labourers must at all times take place.	EA holder Contractor	The ECO must ensure that conditions as per the EMPr are being implemented, which includes training before construction commences as well as regular follow-ups	During the entire construction period	EA holder	Constantly during the entire construction period	The ECO must keep record of site inspections and findings

Impact Management Outcome: Prevent Impact on Aquatic Environment						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
• All the proposed project activities should remain outside the recommended buffers of the delineated aquatic ecosystems in the macro area. These aquatic features should however not be at risk, since the construction activities must be confined to the corridor area. • During the construction phase, proper site management must be undertaken at the laydown and construction sites. This should specifically address on-site stormwater management and prevention of pollution measures from any potential pollution sources during construction activities such as hydrocarbon spills. • Refer to the *Generic EMPr*	EA holder & Contractor	The ECO must ensure that conditions as per the EMPr are being implemented, which includes training before construction commences as well as regular follow-ups	During the entire construction period	EA holder	Constantly during the entire constructio n period	The ECO must keep record of site inspections and findings

Impact Management Outcome: Prevent Groundwater Pollution						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Strict measures must be implemented : • Emergency incident reporting and remedial measures must be in place • Adequate oil containment precautions must be taken. • A bio-remediation contractor must be appointed to rehabilitate large oil spills. The regional officer of the Department of Water & Sanitation will advise in this regard.	EA holder Contractor	The ECO must ensure that conditions as per the EMPr are being	During the entire construction period	EA holder	Constantly during the entire constructio n period	The ECO must keep record of site inspections

• Small oil spills must be cleaned immediately with an oil spill kit. • Proper maintenance procedures for vehicles and equipment must be followed. • Servicing of vehicles may only take place in designated areas, in this case on a concrete surface within the switching station site. • Drip trays should be used during the servicing of vehicles. The content thereof must be disposed in accordance with relevant hazardous material disposal requirement. • Measures to contain accidental spills must be readily available on site (spill kits). • All hazardous substance spills must be reported to the Contractor and the ECO, recorded and investigated. Waste Management Procedures must include the following:- • General household waste (i.e. strict control over labourers; no burning or burying of waste; provision of dustbin and garbage bags; regular removal preferably by municipal waste removal; etc.) • Construction waste (i.e. stringent daily clean-up and either disposal at registered waste site or preferably sold for recycling purposes) • Sewage waste (labourers to be provided with proper ablution facilities- chemical toilets must be provided and serviced by a reputable outside company; no effluent to be dumped on adjacent land). Written proof of servicing of the chemical toilets must be obtained and kept on site in the ECO file. • Hazardous waste (i.e. oil contaminated waste to be moved to registered hazardous waste landfill site; adequate storage and labelling of hazardous materials on site). Stormwater should not be discharged into the working areas and it should be ensured that stormwater leaving the footprint of the proposed development areas is not contaminated by any substance, whether that substance is solid, liquid, vapour or any combination thereof. Way slips or written proof of disposal at an appropriately registered waste facility must be obtained and kept on site in die ECO File. • Refer to the *Generic EMPr*		implemented, which includes training before construction commences as well as regular follow-ups				and findings

Impact Management Outcome: Effective Storm Water Management and the Prevention of Erosion						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance

• It is recommended that access and service roads, as well as stormwater systems are constructed at the commencement of the construction phase to ensure that suitable stormwater management measures are in place at the least additional cost.
• In order to preserve the natural state of the surface and vegetation as far as practically possible, off-road driving should be restricted to the absolute essential.
• Space for lay-down areas for construction material and for construction facilities is restricted on site. The following should be taken into account:
  ○ Temporary or permanent soil stockpiles should be placed outside of drainage lines, on a flat surface, protected from wind and rain.
  ○ High resolution site survey data must be used to design stormwater ditches to direct surface flood water past any stockpiles.
• Site clearing should be limited to the essential.
• Construction waste must be collected and stored safely for disposal in accordance with the relevant waste regulations, protocols, and product specifications. Care must be taken not to leave any waste on site that can lead to future contamination of the site.
	EA holder
	Contactor
		The ECO must ensure that conditions as per the EMPr are being implemented, which includes training before construction commences as well as regular follow-ups	During the entire construction period	EA holder	Constantly during the entire constructio n period	The ECO must keep record of site inspections and findings

OPERATIONAL PHASE

Impact Management Outcome: Effective Storm Water Management and Prevention of Erosion						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
• Regular conditional inspections of all storm water infrastructure are required. Inspection data must be recorded and accumulated for tracking purposes. Regular reporting should be a scheduled management task. • Any item that may be found to be out of order, for instance accumulation of settled sand in a trench, or erosion, must be addressed and corrected without delay to keep the storm water system in a good and fully functional condition. Record must be kept on all repairs. • Specific attention must be given to inspection during and after any rain and/or flood event to kerb any damage that may occur.	EA holder	Regular site inspections and monitoring	Continuous	EA holder	Twice a year and after severe rainstorm events	Site inspection registers must be kept.

Impact Management Outcome: Prevent Groundwater Pollution						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
• Prevent impact rather than manage impact: ○ Permanent staff as well as maintenance and inspection personnel must be appropriately trained in terms of waste management, specifically with regards to hazardous waste, inclusive of risk associated with the diesel storage facility, vehicle maintenance, etc.	EA holder Contractor	The ECO must ensure that conditions as per the EMPr	Continuous	EA holder	Once a month	The ECO must keep record of site

Appropriate Personal Protective Equipment (PPE) must at all times be provided. ○ Spillages of hydrocarbons and contaminated water must be collected from the following areas : ▪ Diesel tank bunded area ▪ Product receiving station and receiving pipelines. ○ The storage tank must be fully contained within the bunded area to contain spillage of hydrocarbons and contaminated rainwater and prevent the ingress of hydrocarbon spillages and contaminated rainwater into the ground or surface water. ○ Spillages from the tank bund must be retained and released in a controlled manner to an oil separator from where it could be temporarily stored and ○ The storage tank must be fully contained within the bunded area to contain spillage of hydrocarbons and contaminated rainwater and prevent the ingress of hydrocarbon spillages and contaminated rainwater into the ground or surface water. ○ Provision must be made for a thick reinforced concrete spillage containment slab laid to fall to a catch pit connected to an oil/grease separator. ○ Spillages of hydrocarbons and contaminated water must be collected from the following areas : ▪ Diesel tank bunded area ▪ Product receiving station and receiving pipelines ▪ Vehicle servicing area ○ Proper maintenance procedures for vehicles and equipment must be followed. ○ Servicing of vehicles may only take place in designated areas, in this case on a concrete surface within the switching station site. ○ Drip trays should be used during the servicing of vehicles. The content thereof must be disposed in accordance with relevant hazardous material disposal requirement.		are being implemented.				inspections and findings

○ As part of routine maintenance, the Applicant must undertake regular engineering inspections of the tank, tank valves and pumps to ensure that there are no leaks. • Hydrocarbon (oil, diesel, petrol) waste as well as hydrocarbon containing material must be regarded as hazardous waste and separated from general waste. • All hazardous substances at the site must be adequately stored and accurately identified, recorded and labelled prior to removal to a registered hazardous waste facility. • Provide measures for emergency incident reporting and remedial measures and personnel must be appropriately trained. • A bio-remediation contractor must be appointed to rehabilitate large oil spills. The regional officer of the Department of Water & Sanitation will advise in this regard. • Small oil spills must be cleaned immediately with an oil spill kit. Measures to contain accidental spills must always be readily available on site (spill kits). • All hazardous substance spills must be reported to the Contractor and the ECO, recorded and investigated. • Follow acceptable maintenance and operational practises to ensure consistent, effective and safe performance of the infrastructure Also refer to the *Generic EMPr.*						

Impact Management Outcome: Protection of Avifauna						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Disturbance and Displacement during Operation • Only the existing demarcated access roads may be used.; • No unnecessary off-road driving should be permitted.	EA holder	Site inspections and monitoring	Continuous	EA holder	Twice a year	Site inspection

• Speed limit of 30km/h on the private farm roads should be strictly enforced to reduce unnecessary noise and fatalities; • The movement of inspectors and maintenance personnel should be restricted to the construction areas on the project site; • No dogs or cats other than those of the landowners should be allowed on site. *Direct Mortality during Operation: Collisions* • Flappers and BFDs must be maintained and replaced where necessary, for the life span of the project; • An operational monitoring programme must include regular monitoring of the entire length of the power lines and perimeter fences for collision incidents for the lifespan of the project. • Collision incidents must be recorded and reported to the Endangered Wildlife Trust (EWT). *Direct Mortality during Operation: Electrocution* An operational monitoring programme must be implemented and include regular monitoring of the power lines and switching stations for electrocution incidents (this can be done simultaneously with the collision monitoring) and integrity of anti-perch devices and insulated components. • Any mortalities must be reported to the EWT.						registers must be kept.

Impact Management Outcome: Protection of natural habitat during the Operational Phase						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
• Implement the Alien Invasive Management Plan • Any water supply, sanitation services as well as solid waste management services that may be required for the operation purposes should preferably be provided by an off-site service provider.	EA holder	The environmental manager must ensure regular	Continuously	EA holder	As per generic EMPR	Site inspection registers must be

• Maintenance and inspection of the electricity infrastructure must take place as per the Eskom Generic EMPR.		monitoring, servitude maintenance and site inspections take place and that any faults or accidents or deterioration of the natural habitat is immediately reported and addressed.				kept.