DRAFT ENVIRONMENTAL IMPACT REPORT: BBR ENERGY FACILITY (PHASE 2 GILIMBERG ENERGY CLUSTER)

PROJECT NAME:

PROPOSED BBR ENERGY FACILITY (PHASE 2 GILIMBERG ENERGY CLUSTER) HYBRID SOLAR PV & BESS FACILITY AND ASSOCIATED INFRASTRUCTURE (up to 200MWac / 150MW-600MWh) IN CAPRICON DISTRICT (POLOKWANE LOCAL MUNICIPALITY) AND WATERBERG (MOGALAKWENA LOCAL MUNICIPALITY) LIMPOPO PROVINCE.

DFFE REFERENCE NO: 14/12/16/3/3/2/2838

DWS REFERENCE NO: WU48940

REPORT TITLE: DRAFT ENVIRONMENTAL IMPACT REPORT

DATE: 13 NOVEMBER 2026

ENVIRONMENTAL ASSESSMENT PRACTITIONER:

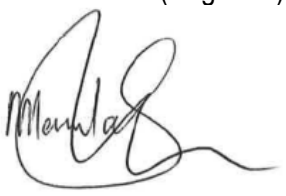
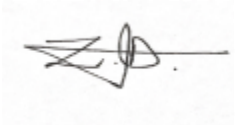
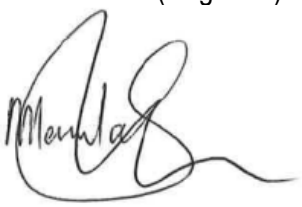
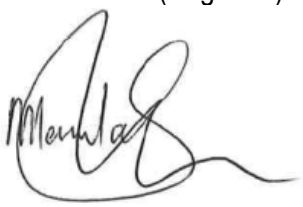
ABANTU ENVIRONMENTAL SERVICES

APPLICANT:

BBR ENERGY FACILITY (PTY) LTD

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DECLARATION OF INDEPENDENCE

I, **Sive Mlamla**, in my capacity as an EAP, hereby declare that I –

- Act as an independent consultant
- Do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed
- Have and will not have vested interest in the activity
- Have no, and will not engage in, conflicting interests in the undertaking of the activity
- Undertake to disclose any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan, or document
- Will provide the competent authority with access to all information at my disposal regarding the report, whether such information is favourable to the Client or not
- Based on information provided to me by the Client and in addition to information obtained during the course of this study, have presented the results and conclusion within the associated document to the best of my professional ability
- Reserve the right to modify aspects pertaining to the present investigation should additional information become available through on-going research and/or further work in this field
- Undertake to have my work peer reviewed on a regular basis by a competent specialist.



Sive Mlamla (Pr.Sci.Nat, Reg. EAP (EAPASA))

Environmental Assessment Practitioner (EAP)

13/11/2026

UNDERTAKING (AFFIRMATION BY THE EAP)

Abantu Environmental Services (Pty) Ltd hereby confirms that, to the best of our knowledge, the information provided in this report was correct at the time of compilation. Information included in this report was based on the information which was provided to us by the Engineers on behalf of the Applicant and the commissioned Specialist reports. It is further confirmed that all comments received from Stakeholders and Interested and Affected Parties (I&APs) will be included in the final reports submitted to the Competent Authorities.

ASSUMPTIONS AND GAPS IN KNOWLEDGE

The following assumptions and potential gaps in knowledge apply:

- All information provided by the Applicant to the EAP was correct and valid at the time it was provided.
- The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process.
- All data from unpublished research is valid and accurate at the time this report was written.
- The scope of this investigation is limited to assessing the potential environmental impacts associated with the proposed development only.

It should be noted that findings, recommendations, and conclusions provided in this report are based on the author's best scientific and professional knowledge and experience. No part of this report may be amended or extended without prior written consent of the authors. Any recommendations, statements or conclusions drawn from or based on this report must clearly cite or refer to this report. Whenever such recommendations, statements, or conclusions form part of the main report to current investigation, this report must be included in its entirety.

EXECUTIVE SUMMARY

INTRODUCTION AND BACKGROUND

BBR Energy Facility (Pty) Ltd is proposing the development of a hybrid renewable energy project consisting of a utility-scale Solar Photovoltaic (PV) plant integrated with a Battery Energy Storage System (BESS) with a Solar PV capacity of up to 200 MWac and BESS of up to 150 MW / 600 MWh over an area of approximately 300 ha, and a 132 kV transmission line to connect to the Borutho substation. The development area is located approximately 46km West of Polokwane within Waterberg District Municipality, Mogalakwena Local Municipality in the Limpopo Province. The project site is situated on communal land on farm Gilimberg No. 861, LR, under the administration of Bohwa Bja Rena Communal Property Trust. The Environmental Authorisation (EA) application was submitted and registered on 06 July 2026. An acceptance letter of the Final Scoping report was received on 01 October 2026. This draft Environmental Impact Report (DEIR) includes information as required per Appendix 3 of the 2014 NEMA EIA Regulations including all inputs from the preceding Scoping phase.

PROJECT DESCRIPTION

The proposed solar facility will comprise of the following key components:

- Ground-mounted mono or bifacial solar PV modules installed on single-axis tracking systems designed to generate clean electricity using photovoltaic (PV) technology
- Battery Energy Storage System (BESS)
- Inverters/Transformer Stations
- On-site Substation and Switching Substation
- Operations and maintenance (O&M) building
- Access roads
- Temporary laydown areas
- Grid connection infrastructure for a 132 kV transmission line to Eskom Borutho substation

MOTIVATION

South Africa's heavy reliance on coal-fired electricity generation contributes to ongoing energy supply challenges and undermines the country's climate commitments under the Paris Agreement. In response, government policies such as the National Development Plan (NDP) and Integrated Resource Plan (IRP) 2019 promote the expansion of renewable energy to improve energy security, reduce emissions, and support sustainable development. The proposed solar PV facility aligns with these objectives by contributing additional clean energy capacity to the national grid, supporting the transition to a lower-carbon economy, and providing socio-economic benefits through job creation and local economic development.

LEGISLATIVE REQUIREMENTS

Listed Activities (LN1, LN2 and LN3) are triggered by the proposed development and as such, an Environmental Authorisation (EA) is required prior to commencement. The EA application is subject to a Full Scoping and Environmental Impact Assessment (EIA) Process, adjudicated by the identified Competent Authority (CA), Department of Forestry, Fisheries and the Environment (DFFE).

ALTERNATIVES

1. **Site Alternatives-** No site/property alternatives exist as the applicant has been given consent by the landowner and is in support of the proposed development. Additionally, the proposed site is in close proximity to existing infrastructure.
2. **Design and layout Alternatives**
    - Alternative 1- This layout alternative entails development of the solar PV facility on the entire development footprint, with no effort to protect environmentally sensitive areas.
    - Alternative 2 (preferred)- This layout alternative avoids sensitive areas within the development footprint.
3. **Technical Alternatives**
    - Alternative 1 (Preferred): Single-Axis trackers- Solar panels rotate along a single axis to follow the sun and improve energy generation compared to fixed systems.
    - Alternative 2: Fixed- Tilt systems- Solar panels are installed at a fixed angle, offering a simpler and lower-cost design but with lower energy output and more land requirements for the same footprint as alternative 1.

    BESS

    - Alternative 1 (Preferred)- Lithium-ion- Lithium-ion batteries offer relatively high energy density and efficiency and are suitable for utility-scale energy storage.
    - Alternative 2- Redox Flow Batteries- Redox flow batteries store energy using liquid electrolytes and are suitable for large-scale energy storage. However, they generally have lower energy density and may require more space for associated infrastructure compared to lithium-ion batteries.
4. **Operational Alternatives**- No alternatives have been considered.
5. **No-go option**- Keeping the current status quo of no activities occurring on site, which would not result in a loss of vegetation or impact on CBA 2. However, potential positive socio-economic impacts will be lost.

SPECIALIST STUDIES

The following specialist impact assessments were undertaken to inform the Scoping & EIA Process:

- Terrestrial Biodiversity Impact Assessment- Inclusive of Plants and animal species
- Aquatic Biodiversity Impact Assessment
- Paleontological Impact Assessment
- Archaeological and Cultural Heritage Impact Assessment
- Agricultural Impact Assessment
- Landscape/Visual Impact Assessment
- Avian Impact Assessment
- Socio-economic Impact Assessment
- Traffic Impact Assessment

None of the specialist impact assessment studies identified any fatal flaws in the development. Overall, the impacts expected to occur as a result of this development can be either avoided entirely or reduced to an acceptable level of impact if all of their recommended mitigation measures are implemented.

PUBLIC PARTICIPATION PROCESS

This Draft Environmental Impact Report (DEIR) was circulated for public participation process (PPP) mainly as follows:

Public comment (30-days): 13 November 2026- 14 December 2026.

Public meetings for presenting the DEIR will be conducted as follows:

- Millenium Park Community Centre (10am)- 30 November 2026

Site notices were placed on 12 November 2026.

Email notice, with a copy of the DEIR to I&APs was circulated on 13 November 2026.

All comments from stakeholders and Interested & Affected Parties (I&APs) will be incorporated into the Final Environmental Impact Report (FEIR). The FEIR will then be submitted for decision-making. This process will ensure that environmental, social, and technical considerations are fully integrated into the final project design for consideration for an authorisation decision.

Environmental Impact Statement and Reasoned Opinion of the EAP

The assessment indicates that the proposed BBR Energy Facility will result in both positive and negative direct, indirect and cumulative impacts on the receiving environment and surrounding communities. The proposed development is considered desirable as it will contribute to renewable energy generation, support national objectives to diversify South Africa's energy mix and reduce reliance on fossil fuels, and contribute to improved energy security. The development is also anticipated to contribute to local economic development and employment opportunities, particularly during the construction phase.

An assessment of alternatives, including the No-Go alternative was undertaken as part of the EIA process. The preferred development layout has been considered in relation to the environmental sensitivities identified on the site, particularly areas of ecological importance, sensitive habitats and drainage lines, with the aim of avoiding and minimising environmental impacts. The No-Go alternative would avoid the environmental impacts associated with the proposed development but would not contribute to the generation of renewable electricity or realise the associated socio-economic benefits but contribute to the traditional trend of fossil fuels generate energy and the insidious climate change impacts. It is therefore not considered the preferred alternative.

Although negative environmental impacts have been identified, particularly in relation to terrestrial biodiversity, avifauna and associated ecological processes, the specialist assessments indicate that these impacts can be reduced through the implementation of appropriate mitigation measures. The implementation of the recommendations contained in the specialist studies, together with the Environmental Management Programmes (EMPrs) for the solar PV facility and associated infrastructure, will be essential to minimising environmental impacts throughout the project lifecycle. Based on the findings of the specialist assessments, the consideration of alternatives and the anticipated socio-economic and renewable energy benefits, it is the opinion of the EAP that the proposed development is environmentally acceptable and should be authorised, subject to the implementation of the EMPr.

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ACRONYMS AND ABBREVIATIONS

CBA	Critical Biodiversity Area
CA	Competent Authority
DEIR	Draft Environmental Impact Report
DFFE	Department of Forestry, Fisheries and the Environment
DWS	Department of Water and Sanitation
dSR	Draft Scoping Report
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EAIR	Environmental Impact Assessment Report
EMPr	Environmental Management Programme
FEIR	Final Environmental Impact Report
FSR	Final Scoping Report
I&APs	Interested and Affected Parties
IEM	Integrated Environmental Management
IDP	Integrated Development Plan
NEMA	National Environmental Management Act
OHSA	Occupational Health and Safety Act
PoS	Plan of Study
PPP	Public Participation Process
S&EIR	Scoping and Environmental Impact Assessment Report
SACAA	South African Civil Aviation Authority
SAHRA	South African Heritage Resources Authority
SAHRIS	South African Heritage Resources Information System
SDF	Spatial Development Framework

ToR	Terms of Reference

1. INTRODUCTION

1.1.PROJECT DESCRIPTION

The BBR Energy Facility (Phase 2 – Gilimberg Energy Cluster) is a proposed hybrid renewable energy project consisting of a utility-scale Solar Photovoltaic (PV) plant integrated with a Battery Energy Storage System (BESS) over an area of approximately 300 ha (**Figure *1***). The facility is designed with a solar PV capacity of up to 200 MWac and a BESS of up to 150 MW / 600 MWh. The project aims to deliver dispatchable renewable energy, enhance grid reliability, and support South Africa's transition to a low-carbon energy mix. The project is located approximately 46km West of Polokwane within the Capricorn District (Polokwane Local Municipality) and Waterberg District (Mogalakwena Local Municipality) in Limpopo Province, South Africa. The plant will connect to the Eskom Borutho substation via 132KV transmission line.

The project site is situated on communal land on farm Gilimberg No. 861, LR, under the administration of Bohwa Bja Rena Communal Property Trust.

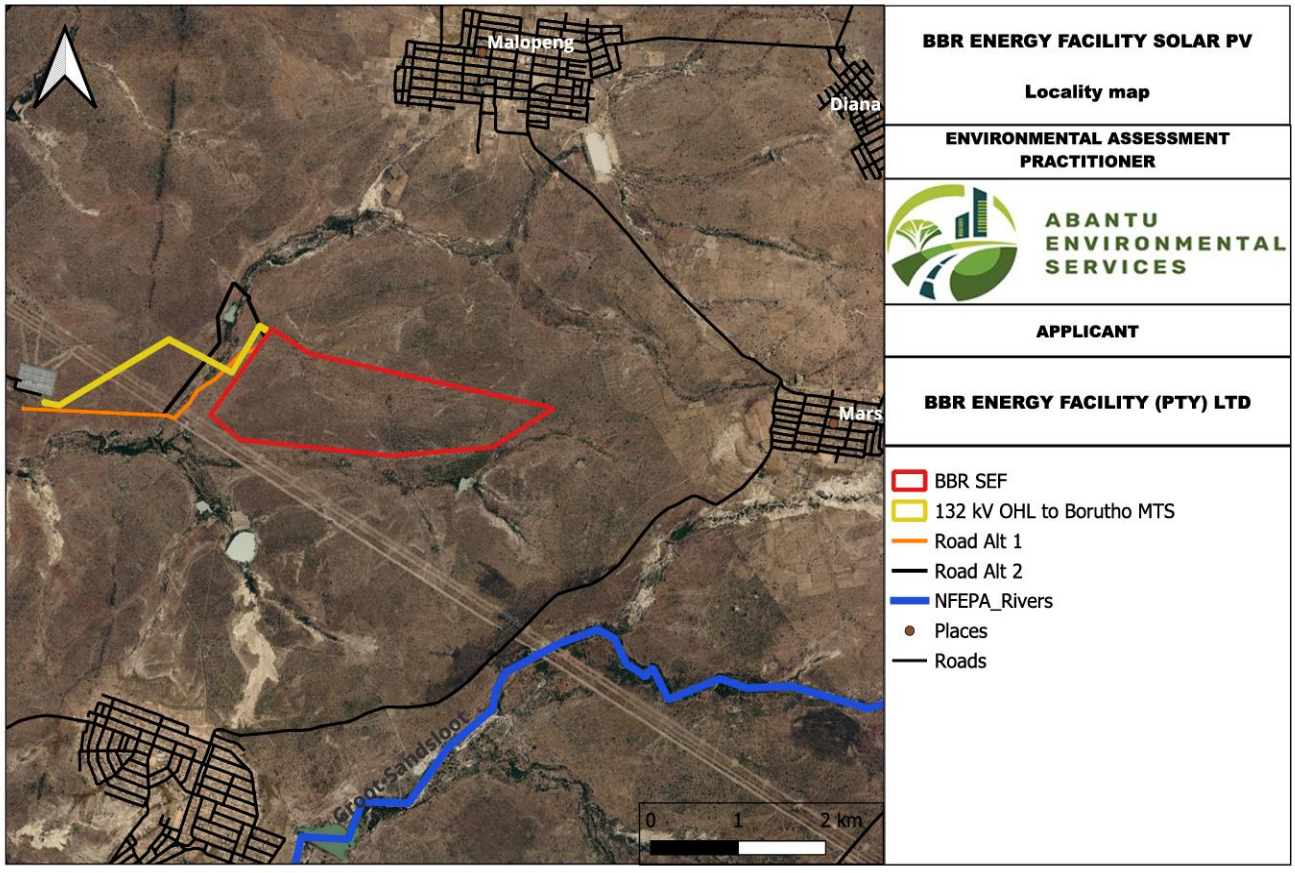


Figure 1. Proposed project layout

The proposed solar facility (~300 hectares) will comprise of the following key components (**Figure 2**):

- Ground-mounted mono or bifacial solar PV modules installed on single-axis tracking systems designed to generate clean electricity using photovoltaic (PV) technology
- Battery Energy Storage System (BESS)
- Inverters/Transformer Stations
- On-site Substation and Switching Substation
- Operations and maintenance (O&M) building
- Access roads
- Temporary laydown areas
- Grid connection infrastructure for a 132 kV transmission line to Eskom Borutho substation

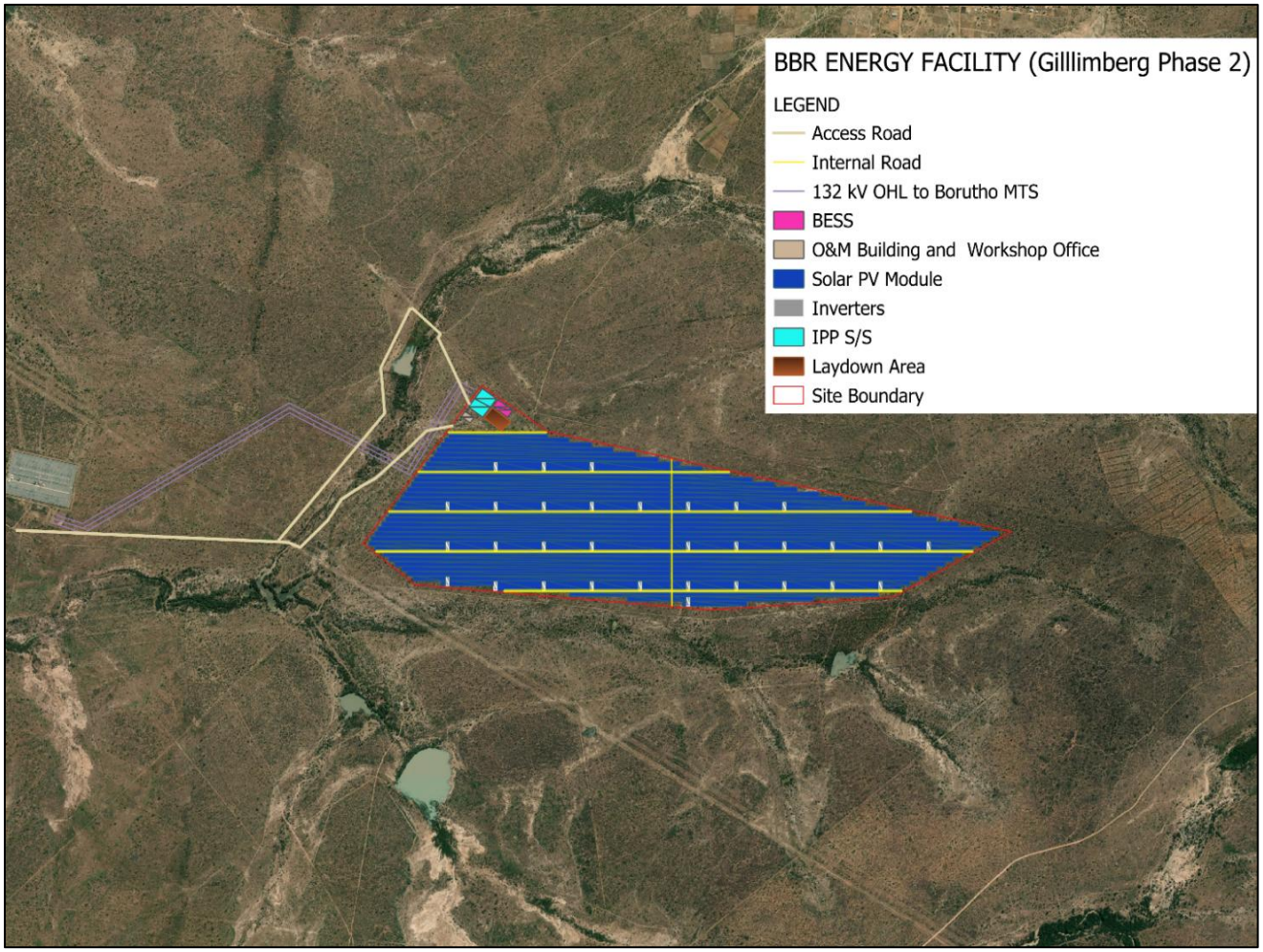


Figure 2. BBR Energy Facility Conceptual Design

The key components of the proposed project are summarised below:

Table 1. Technical details

Component and associated infrastructure	Description/dimensions
Solar field	• Technology: Solar Photovoltaic (PV) • Contracted Capacity: up to 200 Mwac

Component and associated infrastructure	Description/dimensions
	• Estimated Yearly Production: 454.88 9 GWh (P50) and 442.86 GWh (P90) • Structure: Bifacial or Monofacial single axis tracking system • Number of solar PV module: 294912 units • Height: 3.5m • Area of PV Array: 305 ha
Battery Energy Storage System (BESS)	• Technology: Lithium-Ion • Footprint: Up to 2 ha • Height: Up to 10 m • Capacity: Up to 150 MW/600 MWhThe BESS is designed for a 4-hour duration, allowing effective shifting of solar energy from midday generation periods to evening peak demand periods (typically 17:00–21:00).
On-site Substation and Switching Substation	• Footprint: Approximately 2 ha • Height of the on-site substation complex (including switching substation): Up to 10 m. However, the on-site substation will include switchgear portals up to 15 m and lightning masts up to 25 m in height. • Capacity of the on-site substation complex: 132 kV • Powerline height: 32 m • Fence: Galvanized palisade fencing to be used at the substations • Fence height: Up to 2.5 m

132 kV Overhead Transmission Power Line (OHPL)	• Point of Connection: Borutho MTS
	• Line capacity: 132 kV
	• Approximate length: 4 km
	• Pylon height: 32m
	• Tower type: Self-supporting and Angle Strain towers
	• Pylon type, span, working area and footprint:
	  ○ Type: Monopole or steel lattice type pylons, or combination of both where required.
	  ○ Span: The pylons will have a span of 200 m to 350 m for monopole pylons and up to approximately 500 m for lattice structures.
	  ○ Footprint: The size of the final constructed pylon footprint depends on the type of structure used, which will typically range from approximately 0.5 m^2 to 8 m^2 for monopole pylons, and 36 m^2 to 64 m^2 for steel lattice pylons.

Inverter/Transformer Stations	• Number of Inverters: 64 units • Height: Approximately 2 m
Access roads (including upgrading and widening of existing roads, where relevant)	• Existing roads will be used as far as practically achievable. • Details: New Access roads will need to be established. These would either comprise farm roads (compacted dirt/gravel) or paved roads. • Length: up to 5 km • Width: Approximately 8 -15 m
Internal roads	• New internal service roads will need to be established. These would either comprise farm roads (compacted dirt/gravel) or paved roads.

Component and associated infrastructure	Description/dimensions
	• Length: up to 15 km • Width: up to 10 m
On-site medium voltage internal cables	• Placement: Underground (maybe above ground pending technical constraints) • Capacity: 33 kV • Depth: Maximum depth of 1.5 m
Auxiliary Buildings	• Type: These include, but are not limited to, Operation and Maintenance (O&M) building / centre, site office, workshop, staff lockers, bathrooms/ablutions, warehouses, guard houses, etc. • Cumulative Footprint: Approximately up to 5000 m^2 • Height: Up to 10 m
Work area during the construction phase (i.e. laydown area)	• Temporary Laydown: Up to 4 ha.
Fencing around the PV Facility Perimeter	• Type: palisade or mesh or electric fencing • Height: Up to 3 m

1.2.PROPERTY INFORMATION

The property details of the development are provided in **Table 2** below:

Table 2: Summary of property and technical information

PROJECT ASPECT	DESCRIPTION
District	Waterberg District Municipality
Local Municipality	Mogalakwena Local Municipality
Wards	Ward 13
Development footprint size	300 ha
Coordinates	**Latitude (S)** / **Longitude (E)** **SEF** 23°53'47.32"S / 29° 0'9.09"E 23°53'57.35"S / 29° 0'24.81"E 23°54'19.02"S / 29° 2'4.07"E 23°54'32.52"S / 29° 1'40.16"E 23°54'30.15"S / 28°59'56.96"E 23°54'20.56"S / 28°59'45.47"E **Transmission line** 23°53'49.84"S / 29° 0'8.11"E 23°54'5.52"S / 28°59'54.97"E 23°53'52.73"S / 28°59'29.17"E 23°54'17.52"S / 28°58'44.56"E 23°54'15.93"S / 28°58'38.36"E
Farm Name(s) and Number (s)	Farm name: Gilimberg; Farm number: 861; Portion: 0

PROJECT ASPECT	DESCRIPTION
Surveyor General 21 Digit Code	T0LR00000000086100000
Nearest City	Polokwane

1.3.SITE ACCESS

The proposed site can be accessed via a gravel road branching east off the N11, then turning east towards the Borutho Main Transmission Substation.

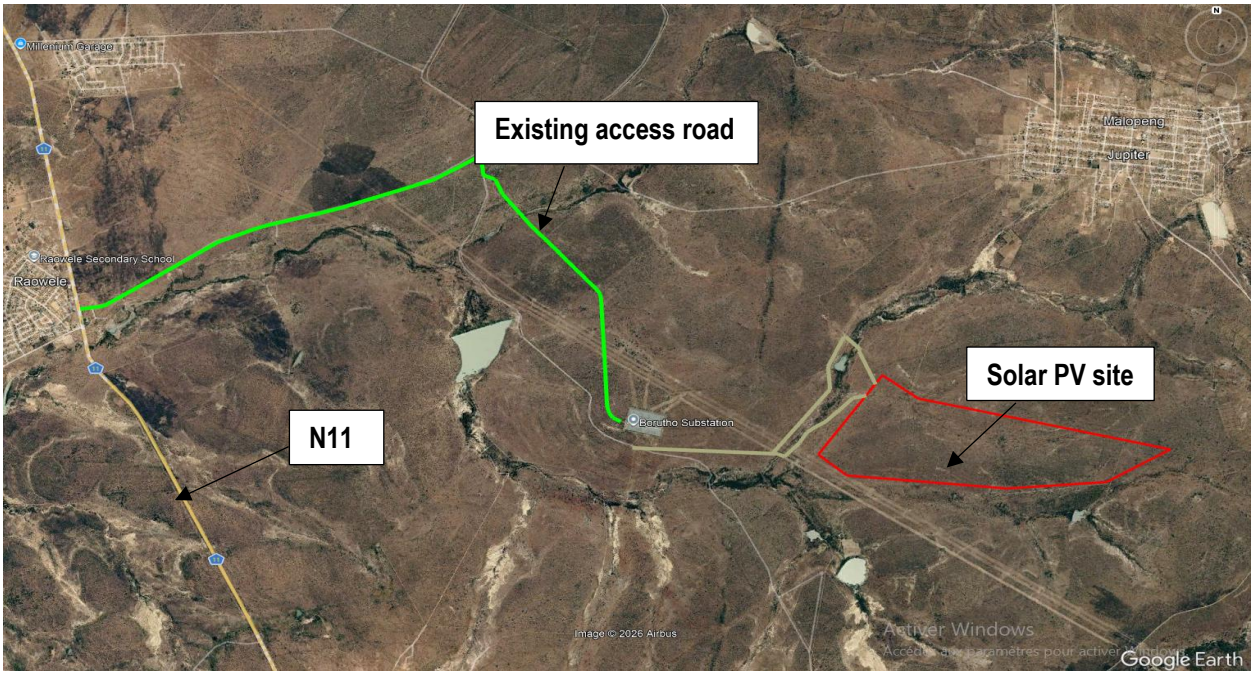


Figure 3. Access to the proposed site

1.4.THE APPLICANT/PROPONENT

Details of the applicant are presented in **Table *3*** below.

Table 3: Applicant details

Applicant	BBR Energy Facility (Pty) Ltd
Contact Person on behalf of Applicant	Methuli Khangelani Mbanjwa
Physical Address	1 Bridgeway Road- SPACES, Bridgeways Precint, Century City, Cape Town, 7441
Postal Address	1 Bridgeway Road- SPACES, Bridgeways Precint, Century City, Cape Town, 7441
Telephone	021 830 5321
Email Address	EIA@forethought-africa.co.za / methuli@forethoughtafrica.co.za

1.5.EAP & CONTACT DETAILS

As per the requirements of the NEMA Regulations and in terms of Regulation 14 of Section 24H Registration Authority Regulations, 2016, as amended, the details and expertise levels of the EAP who prepared the report are provided in **Table 4** below.

Table 4: Environmental Assessment Practitioner details

Contact Details	
Consultant	Abantu Environmental Services (Pty) Ltd
EAP	Sive Mlamla
SACNASP Registration	118495 – Environmental Sciences
EAPASA Registration	2022/5204
Cell	078 207 8278
Postal Address	41 Avon Place Overbaakens Gqeberha, 6070
Fax	086 685 9536
Email	info@abantuenvironmental.co.za
Website	Website: www.abantuenvironmental.co.za

Expertise of the Lead EAP are entailed in **Table 5**.

Table 5: Lead EAP Profile

Environmental Assessment Practitioner:	Mr Sive Mlamla
Expertise:	Sive Mlamla is an environmental scientist with 11 years of experience in scientific research, lecturing and environmental consulting. His key expertise includes environmental impact assessments, environmental compliance auditing, waste planning, proposal & business development, project management, strategic planning, research design & execution, remote sensing & GIS applications for land use/cover change mapping and fluvial geomorphology. **Qualifications** • M.Sc. Geography (Catchment Hydrology) • B.Sc. Honours Environmental Geography • B.Sc. Environmental Sciences (Botany and Geography) **Professional registrations:** • Registered Professional Natural Scientist (Pr.Sci.Nat) - Reg. No. 118495 – SACNASP • Registered Environmental Assessment Practitioner (Reg. EAP (EAPASA)) - Reg. No. 2022/5204 **Training:** • Practical Implementation of Environmental Auditing and Monitoring (2025)

	• WET-Health Tool & WET-EcoServices for Level 1B and Level 2 assessment (2025) • WET-Health Tool for Level 1A assessment (2025) • Environmental Impact Assessments (2025) • Introduction to Synthetic Aperture Radar and Applications (2024) • Earth Observation Data Analysis with Google Earth Engine (2023) • People Management Skills (2017) • Biodiversity spatial data management, acquisition, and analysis (2018) • Water Use Licence Applications via e-WULAAS (2020) • Remote Sensing (land use/cover classification) and SWAT hydrologic modelling (2017) **Registrations and memberships:** • Member of the South African Wetlands Society Reg. No. S9BPP477 • Member of the Southern African Association of Geomorphologists • Institute of Waste Management of Southern Africa (IWMSA) Reg No. 40120001

As per the requirements of the NEMA Regulations and Regulation 14(6) in the S24H Registration Authority Regulations, 2016, as amended, details of the Candidate EAP who assisted in the compilation of the report under the supervision of the EAP are provided in ***Table 6*** below.

Table 6: Candidate Environmental Assessment Practitioner details

Candidate Environmental Assessment Practitioner:	Ms Zimkita Dalasile
Expertise:	Junior Environmental Scientist with 4 years' experience in environmental consulting and scientific research. My expertise includes environmental management, water resource management, water quality management, aquatic ecosystems, environmental impact assessments, scientific report writing, data analysis, environmental monitoring and environmental compliance audits. **Qualifications** • MSc. Environmental Management with Ecological Water Requirements • Postgraduate Diploma Integrated Water Resource Management • BSc. Environmental and Water Science **Professional registration:** • Candidate Environmental Assessment Practitioner (Cand. EAP (EAPASA)) - Reg. No. 2025/20366 • Candidate Natural Scientist (Cand.Sci.Nat.) - Reg. No. 132501 – SACNASP **Training:** • Introduction Environmental Impact Assessments (2024)

1.6.ENVIRONMENTAL TEAM AND SPECIALISTS

Details of the project team, including the appointed independent specialists are presented in **Table 7** below.

Table 7: Project team

ROLE	PERSONNEL	QUALIFICATION	PROFESSIONAL REGISTRATION	EXPERIENCE YEARS
Environmental Assessment Practitioners				
Environmental Assessment Practitioner (EAP)	Mr. Sive Mlamla	MSc Geography	• Pr.Sci.Nat Reg No. 118495 • Reg EAP Reg No. 2022/5204	11
Assistant EAP	Ms Zimkita Dalasile	MSc Environmental Management with Ecological Water Requirements	• Cand.Sci.Nat. Reg No. 132501 • Cand EAP Reg No. 2025/20366	4
Environmental Specialists				
Biodiversity Specialist • **Terrestrial** • **Aquatic**	Mr Rachuene Tselane Rebotile	BSc Hons Environmental Monitoring and Modelling	• Pr.Sci.Nat Reg No. 154249	13
Avifaunal Specialist	Mr Rachuene Tselane Rebotile	BSc Hons Environmental Monitoring and Modelling	• Pr.Sci.Nat Reg No. 154249	13
Agricultural Specialist	Tshiamo Setsipane	MSc Agricultural Science (Soil Science)	• Pr.Sci.Nat Reg No. 114882	11
Palaeontology Specialist	Mr Silindokuhle Mavuso	MSc Palaeontology	• Palaeontological Society of South Africa (PSSA)	12
Heritage Specialist	Mr Roy Muroyi	Master of Arts Heritage Studies	• Association of Southern African Archaeologists • Association of Professional Heritage Practitioners	15
Visual Specialist	Mr Sinenjongo Spampla	MSc Environmental Science	• Pr.Sci.Nat Reg No. 150985	6
Socio-economic Specialist	Dr Anton de Wit	DPhil	• -	24

The Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the consultants that is involved in the EIA process and the compilation of this EIR is presented in **APPENDIX *C***.

1.7.PURPOSE OF THE REPORT

The National Environment Management Act, 1998 (Act No. 107 of 1998) (NEMA) introduced the environmental impact management regime, in particular the Environmental Impact Assessment (EIA) process. The EIA process is a tool which requires the integration of social, economic and environmental factors in the planning, implementation and evaluation of decisions to ensure that development serves the present and future generations. The EIA is South Africa's key regulatory instrument used to mitigate and/or manage the impacts of new developments and activities that are considered to potentially impact on the right to an environment that is not harmful to health and well-being. It is considered as one of the processes that actively promotes or ensures sustainable development. The EIA process is outlined in the Environmental Impact Assessment Regulations and Listing Notices aimed at implementing Chapter 5 of the NEMA.

The Regulations provide for listing of activities which may not commence without an Environmental Authorisation (EA) and identify the process and reports to be submitted to the Competent Authority (CA) for decision making purposes. The process provides the Proponent with an opportunity to assess the potential environmental impacts of a proposed development as well as provide for identification of mitigation measures to be in place to ensure that environmental impacts are avoided, minimised or mitigated. Key to this process is the public participation element, which is also legislated. It forms the integral part of the EIA process and comments and inputs from the interested and/or affected are taken into consideration by the competent authority when making decisions on applications (DEA, 2018).

The environmental assessment process is used to understand the potential environmental impacts of a development, and to inform environmental decision-making before the development (and more particularly, the listed activities that require an EA under NEMA) is authorised. The information recorded during the EIA process provides the basis for a decision to grant (with or without conditions) or refuse authorization in respect of a given application, and with regard to the authorisation of an application, informs the selection of the most appropriate alternative (DEA, 2019).

In terms of the NEMA EIA Regulations, 2017 as amended, the purpose of the EIA Report is as follows:

(1) The environmental impact assessment process must be undertaken in line with the approved plan of study for environmental impact assessment.
(2) The environmental impacts, mitigation and closure outcomes as well as the residual risks of the proposed activity must be set out in the environmental impact assessment report.

1.8.OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The objective of the environmental impact process is to, through a consultative process—

a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;

b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the development footprint on the approved site as contemplated in the accepted scoping report;

c) identify the location of the development footprint within the approved site as contemplated in the accepted scoping report based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;

d) determine the—

i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and

ii) degree to which these impacts—

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources, and

(cc) can be avoided, managed or mitigated;

e) identify the most ideal location for the activity within the development footprint of the approved site as contemplated in the accepted scoping report based on the lowest level of environmental sensitivity identified during the assessment;

f) identify, assess, and rank the impacts the activity will impose on the development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity;

g) identify suitable measures to avoid, manage or mitigate identified impacts; and

h) identify residual risks that need to be managed and monitored.

1.9.REPORT STRUCTURE

The EIA Report includes information as required per Appendix 3 of the 2014 NEMA EIA Regulations. The structure of the EIA Report is presented in **Table *8***.

Table 8: Environmental Impact Report structure

APPENDIX 3	CONTENT AS REQUIRED BY NEMA	SECTION/CHAPTER
(1)	An environmental impact assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application and must include—	
(a)	details of— (iii) the EAP who prepared the report; and (iv) the expertise of the EAP, including a curriculum vitae;	Section 1.5
(b)	the location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including: (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 1.2 and 1.3
(c)	a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is— (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Section 1.1 **APPENDIX *E***
(d)	a description of the scope of the proposed activity, including— (i) all listed and specified activities triggered and being applied for; and (ii) a description of the associated structures and infrastructure related to the development;	Section 1.1 Section 2.3
(e)	a description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;	Section 2
(f)	a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred development footprint within the approved site as contemplated in the accepted scoping report;	Section 3

APPENDIX 3	CONTENT AS REQUIRED BY NEMA	SECTION/CHAPTER
(g)	a motivation for the preferred development footprint within the approved site as contemplated in the accepted scoping report;	Section 3 Section 4 Section 10
(h)	a full description of the process followed to reach the proposed development footprint within the approved site as contemplated in the accepted scoping report, including:	Section 4
	(i) details of the development footprint alternatives considered;	
	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 6 and 6.2
	(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Section 6.3
	(iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 5 **APPENDIX C**
	(v) the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section 8 and 8.3
	(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;	Section 8.2
	(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 9.2
	(viii) the possible mitigation measures that could be applied and level of residual risk;	Section 8.4
	(ix) if no alternative development footprints for the activity were investigated, the motivation for not considering such; and	N/A

APPENDIX 3	CONTENT AS REQUIRED BY NEMA	SECTION/CHAPTER
	(x) a concluding statement indicating the location of the preferred alternative development footprint within the approved site as contemplated in the accepted scoping report;	Section 9
(i)	a full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity, including—	Section 4 Section 9
	(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	Section 8
	(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Section 8.4
(j)	an assessment of each identified potentially significant impact and risk, including— (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be mitigated;	Section 8.3
(k)	where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;	Section 7
(l)	an environmental impact statement which contains— (i) a summary of the key findings of the environmental impact assessment: (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred development footprint on the approved site as contemplated in the accepted scoping report indicating any areas that should be avoided, including buffers; and	Section 9

APPENDIX 3	CONTENT AS REQUIRED BY NEMA	SECTION/CHAPTER
	(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	
(m)	based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation;	Section 7 and 11
(n)	the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;	Section 10
(o)	any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Section 11
(p)	a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section 9
(q)	a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section 10
(r)	where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised;	N/A
(s)	an undertaking under oath or affirmation by the EAP in relation to— (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	Section 13
(t)	where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
(u)	an indication of any deviation from the approved scoping report, including the plan of study, including— (i) any deviation from the methodology used in determining the significance of potential environmental impacts and risks; and (ii) a motivation for the deviation;	N/A

APPENDIX 3	CONTENT AS REQUIRED BY NEMA	SECTION/CHAPTER
(v)	any specific information that may be required by the competent authority; and	N/A
(w)	any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A
(2)	Where a government notice gazette by the Minister provides for any protocol or minimum information requirement to be applied to an environmental impact assessment report the requirements as indicated in such notice will apply.	

1.10 COMPETENT AUTHORITY ACCEPTANCE OF THE FINAL SCOPING REPORT

The Competent Authority (DFFE: Chief Directorate: Integrated Environmental Authorisations) accepted the Final Scoping Report on 01 October 2026. This acceptance was subject to certain requirements which need to be included on the Environmental Impact Assessment Report (EIAR). These are detailed on below.

Table 9. Information required for the EIAR

Comment	Response
Project description and Listed Activities	
1. The identified activities listed on pages 15 to 19 of the application form and pages 8 to 16 of the final SR are hereby noted. The information presented in the application form must be the same as that in the reports to be submitted for review, comments and decision making.	The listed activities presented on this report are the same as the ones on the application form.
2. You are reminded to ensure that the activities applied for are consistent with the project description and vice versa. This information must be clear in the amended application and EIAr to be submitted.	The listed activities are consistent with the project description.
3. For development of roads, it has been noted that activity 24 of Listing Notice 1 and activity 4 of Listing Notice 3 are applied for. However, there is no information regarding the road reserves for the roads. You are advised to provide the above-mentioned details in the column describing the applicability of the triggered activities.	The road reserves of the roads have been included on the listed activity.
4. It is also noted that activities 4 and 12 of Listing Notice 3 have been applied for, however, the relevant site sensitivities including the type of vegetation to be cleared are not specified. As such, you are requested to specify the applicable sensitivities, and this information must be clear in the amended application form and EIAr.	The applicable sensitivities have been included on activities 4 and 12.
5. For activity 12 of Listing Notice 1, it is noted that the description provided includes reference to project components that are unlikely to trigger the listed activity have been included. Please ensure that only activities which do trigger the listed activity are included in the description. You are further advised that listed activities are not based on a precautionary approach. Therefore, ensure that all the listed activities in the amended application form and EIAr are clear and final, for decision making purposes. Should it not be clear that a listed activity is triggered, such activity will not be considered in the decision-making process.	Only activities that trigger the listed activity has been included on Activity 12 of LN1.
6. Please ensure that all relevant activities listed are applied for are specific and can be linked to the development activity or infrastructure (including thresholds) as described in the project description. In	All applicable listed activities are included the application form and the EIAr.

Comment	Response
addition, the onus is on the applicant and the Environmental Assessment Practitioner (EAP) to ensure that all the applicable listed activities are included in the application form and the EIAr. Failure to do so may result in unnecessary delays in the processing of the application.	
7. If the activities applied for in the application form differ from those mentioned in the SR, an amended application form must be submitted with the EIAr.	The activities applied for in the application do not differ from those mentioned in the SR.
Alternatives	
8. Alternatives to be considered as included on what should be page 68 of the final SR are hereby noted. You are required to provide all the alternatives considered for this development as per Appendix 2 (2) (1) (g) (i) (v) (vi) of the NEMA EIA Regulations, 2014 as amended in the final report. Furthermore, the preferred options for all assessed alternatives must be determined and be clear throughout the EIA report to be circulated for review and comments and for decision making.	All alternatives and preferred options have been provided please refer to Section 4.
9. Alternatively, you should submit written proof of an investigation and motivation if no reasonable or feasible alternatives exist in terms of Appendix 2. However, note that no development will be allowed within sensitive areas, mitigation hierarchy should be considered to avoid impacts on sensitive environment.	All alternatives have been provided please refer to Section 4.
10. You are advised to ensure that the alternatives assessed incorporate solutions as advised by specialist input and comments received during public consultation.	Please refer to Section 4.
Layout and Sensitivity Maps	
11. You are advised to include the following in the final layout map: a) The PV development area. b) Position of all infrastructure e.g., panels, BESS, on-site substations, powerline, internal roads, etc. c) All supporting onsite infrastructure such as permanent laydown area and auxiliary buildings, dangerous goods facility etc. d) All existing infrastructure on the site, especially railway lines and roads; e) The location of sensitive environmental features on site e.g., CBAs, heritage sites, wetlands, drainage lines etc. that will be affected by the facility and its associated infrastructure. f) Buffer areas; and g) All "no-go" areas.	Please refer to the Layout plan attached as Appendix E.
12. All available biodiversity information must be used in the finalisation of the map and infrastructure must not encroach on highly sensitive areas.	All biodiversity information provided by the specialist have been used and highly sensitive areas will be avoided.
13. The above map must be overlain with a sensitivity map and a cumulative map which shows neighbouring renewable energy developments.	The map has been overlayed with a sensitivity map. Please refer to Appendix E.
14. Ensure that similar colours are not used to differentiate between infrastructure. i.e., items must be easily distinguishable on the legend.	Items are distinguishable on the legend. Please refer to Appendix E.
15. Google maps will not be accepted for decision-making purposes.	No google maps have been used.
Battery Energy Storage System (BESS)	
16. Applicable BESS technologies must be included under the Technology Alternatives section of the EIAr.	BESS alternative technologies have been included under Section 4.5.

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Comment	Response
17. A risk assessment study is not required for the Battery Energy Storage System (BESS) however, impacts associated with the risks must be identified, considered, and assessed as part of the EIAr.	Impacts associated with the risks of the BESS have been identified and included in the report.
Public Participation Process (PPP)	
18. The PPP must be conducted in terms of Regulations 39, 40, 41, 42, 43 & 44 of the EIA Regulations 2014, as amended.	The PPP has been conducted as per the EIA regulations.
19. Please ensure that all comments from the identified and relevant competent authorities as well as stakeholders are addressed, responded to, and incorporated in the EIAr. The identified stakeholders must include but are not limited to the Mogalakwena Local Municipality and the Polokwane Local Municipality, this Department's Biodiversity Conservation Section at BCAdmin@dffe.gov.za. and the relevant heritage authority i.e., the South African Heritage Resources Agency (SAHRA).	All comments received will be addressed and included in the EIAr.
20. The Comments and Responses Report (C&RR) as incorporated is hereby noted. You are reminded that this report must be continuously updated throughout the EIA process for this proposed development starting with the draft SR. The C&RR must be a separate document from the main report and must be in the table format, which reflects the details of Interested and Affected Parties (I&APs), the date comments were received (actual comments received) and responses provided.	The CRR will be included in the EIAr as a separate report.
21. Comments made by I&APs must be comprehensively captured (copy verbatim if required) and responded to clearly and fully. Please note that a response such as "noted" is not regarded as an adequate response to I&AP's comments.	All comments made by I&APs will be captured and fully responded to on the EIAr.
22. Comments from I&APs must not be split and arranged into categories. Comments from each submission must be responded to individually.	Comments received from each submission will be responded to individually.
23. Proof of correspondence with the various stakeholders must be included in the EIAr. Should you be unable to obtain comments, proof must be submitted to the CA of the attempts that were made to obtain comments.	Proof of correspondence will be included on the EIAr.
24. Please ensure that the EIAr indicates when and where the draft SR and EIAr were made available for a 30 day review and comment period.	Comment period for the draft SR and EIAr have been included in the report.
Specialist Assessments	
25. According to the Site sensitivity verification report (SSVr) dated February 2026 and plan of study for the EIA, the following specialist assessments will be undertaken and included in the EIAr: a) Terrestrial Biodiversity Impact Assessment- Inclusive of Plants species b) Aquatic Biodiversity Impact Assessment c) Paleontological Impact Assessment d) Archaeological and Cultural Heritage Impact Assessment e) Animal Species Impact Assessment f) Agricultural Impact Assessment g) Landscape/Visual Impact Assessment h) Avian Impact Assessment h) Socio-economic Impact Assessment i) Traffic Impact Assessment	The specialist reports have been undertaken and included on the EIAr.
26. Final comments from the South African Heritage Resources Agency (SAHRA) must be addressed and incorporated in the EIAr.	The final comments from SAHRA will be addressed and included in the EIAr.

Comment	Response
27. You are requested to submit copies of signed Specialist Declaration of Interest forms (administered/ witnessed and signed by a commissioner of oaths) for each specialist study conducted.	Signed specialist declaration of interest have been included in the EIAr.
28. All specialist studies must be final, and provide detailed/practical mitigation measures for the preferred alternative and recommendations, and must not recommend further studies to be completed post EA.	All specialist studies are final and include mitigation measures.
29. Specialist assessments must be conducted in accordance with the Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols"), and Government Notice No. 1150 of 30 October 2020 (i.e. protocols for terrestrial plant and animal species).	The specialist studies have been conducted in with the Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols"), and Government Notice No. 1150 of 30 October 2020
30. Please note further that the protocols, if applicable, require certain specialists' to be SACNASP registered. Please ensure that the relevant specialist certificates are attached to the relevant reports.	SACNASP certificates were applicable have been included for the studies.
31. Please note that the Department considers a 'no-go' area, as an area where no development of any infrastructure is allowed; therefore, no development of associated infrastructure including access roads is allowed in the 'no-go' areas.	The no-go area definition of the department is noted.
32. Should the specialist definition of 'no-go' area differ from the Departments definition; this must be clearly indicated. The specialist must also indicate the 'no-go' area's buffer if applicable.	The definition of the department for a no-go is the same as the specialist's definition.
33. Should the specialist studies in the EIAr provide more detail regarding any of the project activity thresholds, please ensure that the project activity descriptions are amended accordingly in the application form and EIAr.	The specialist studies have not provided more detail regarding any of the project activity thresholds.
34. Should a specialist recommend specific mitigation measures, these must be clearly indicated.	All mitigation measures recommended by the specialists have been included in the EIAr.
35. Should the appointed specialists specify contradicting recommendations, the EAP must clearly indicate the most reasonable recommendation and substantiate this with defendable reasons; and where necessary, include further expertise advice.	No contradicting recommendation have been made all specialist recommendations are aligned.
PV Facility Environmental Management Programme	
36. A construction and operational phase EMPr for the PV facility, which includes mitigation and monitoring measures must be submitted with the EIAr.	A construction and operational phase EMPr has been compiled. Please refer to Appendix B.
37. The EMPr must be developed in terms of Appendix 4 of the EIA Regulations, 2014 as amended and must include (but not limited to) the following plans and measures: a) The chance finds procedures included in the EIAr Heritage and Palaeontological studies; b) Re-vegetation and habitat rehabilitation plan; c) Weed and invader plant management plan; d) Traffic management plan; e) Emergency Response plan; f) Fire management plan; g) Stormwater management; h) Noise management; i) Erosion management; j) Waste management; k) Dust management; and	The EMPr has been developed in terms of Appendix 4 of the EIA Regulations as amended. The recommended plans and measures have been included in the EMPr.

Comment	Response
l) All recommendations and mitigation measures recorded in the EIAr and the specialist studies conducted. m) An effective monitoring system to detect any leakage or spillage of all hazardous substances during their transportation, handling, use and storage. This must include precautionary measures to limit the possibility of oil and other toxic liquids from entering the soil or storm water systems.	
38. The decommissioning chapter of the EMPr for the facility must contain information relating to the handling, repurposing or disposal of dysfunctional, severely damaged batteries, module and containers.	The decommissioning chapter of the EMPr includes information relating to the handling, repurposing or disposal of dysfunctional, severely damaged batteries, module and containers.
39. The EMPr must distinguish between impact management actions and impact management outcomes.	The EMPr distinguishes between impact management actions and impact management outcomes.
40. The EMPr must not contain any ambiguity. Where applicable, statements containing the word "should" or "may" are to be amended to "must".	The EMPr does not contain any ambiguity.
Generic Environmental Management Programme (EMPr)	
41. It is noted that activity 11 of Listing Notice 1 has been applied for. Please ensure that the generic EMPr that complies with the GN 435 of March 2022 is developed for the management of impacts of the substation and power line that will be constructed for this development. The relevant generic EMPr(s) must be included in the EIAr, over and above the EMPr for the PV facility.	The generic EMPr has been developed and included in the EIAr.
42. Part B: Section 2 of the generic EMPr(s) must be completed, and a copy of an originally signed EMPr(s) must be submitted with the EIAr. Please note that Point 7.1.1 in Part B: Section 2 needs to match the details of the applicant as contained in the application form. The generic EMPr(s) must be signed by the applicant and submitted with the EIAr. An unsigned Generic EMPr is regarded as incomplete.	Part B: Section 2 of the generic EMPr has been completed and the Generic EMPr has been signed.
43. If any specific environmental sensitivities/attributes are present on the site which require more specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and actions must be included in Part C of the generic EMPr.	Specific impacts from specialist studies have been included in Part C of the generic EMPr.
Cumulative Assessment	
44. The EIAr must include cumulative impact assessment for all identified and assessed impacts and must be refined to indicate the following: a) The cumulative impacts assessment must consider the existing, authorised but not yet developed, the proposed similar development and powerline in the area. b) Detailed process flow and proof must be provided, to indicate how the specialist's recommendations, mitigation measures and conclusions from the various similar developments in the area were taken into consideration in the assessment of cumulative impacts and when the conclusion and mitigation measures were drafted for this project. c) The cumulative impacts significance rating must also inform the need and desirability of the proposed development. d) A cumulative impact environmental statement on whether the proposed development must proceed.	Please refer to Section 8.

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Comment	Response
General	
45. Please ensure that the numbering of pages in the EIAr is continuous, there are instances of the page numbers starting from number 1 in some sections of the report.	The numbering on the EIAr is continuous.
46. Please ensure that the final EIAr includes the period for which the Environmental Authorisation (EA) is required, the date on which the activity will be concluded, and the post-construction monitoring requirements finalised, as per Appendix 3(3)(1)(r) of the NEMA EIA Regulations, 2014, as amended.	The period for which the EA is required has been included in the report. Please refer to Section **Error! Reference source not found.**.
47. Details of the future plans for the site and infrastructure after decommissioning in 20-30 years and the possibility of upgrading the proposed infrastructure to more advanced technologies must be indicated.	The plant will be repowered at the end of the useful life as the project will enter into a power purchase agreement (PPA). At the end of the PPA, the project is likely to be repowered, refinanced and, where there is a need, a gap in the used technology upgraded. An improvement in the technology will be implemented in line with the new financing arrangement and enter into a new power purchase agreement, which extends the useful life of the project. The land Lease with community is for 30 years. And to be extended for another 20 years. It is therefore very likely that the livespan of the proposed project will be further than the initial 20 years purchases agreement.
48. The EAP must provide landowner consent for all farm portions affected by the proposed project, whether the project component is linear or not, i.e. all farm portions where the access road, solar panels and associated infrastructure is to be located.	Proof of landowner consent for the site have been included in the EIAr.
49. Confirmation of the availability of services (e.g., sewage, water, etc. if required) must be included in the EIAr.	No municipal services will be required. The developer will make use of make use of on-site water storage tanks and rainwater harvesting
50. Should a Water Use License be required, proof of application for a license needs to be submitted.	Proof of WULA application has been attached as Appendix F.

2 LEGAL AND POLICY FRAMEWORK

2.1 APPLICABLE ENVIRONMENTAL LEGISLATION

This section of the report presents an overview of the governing legislation identified which may relate to the proposed project. A summary of the applicable legislation is provided in **Table 10** below. The legal compliance obligation for this project stems from the need for an EA to be granted by the CA, DFFE, in accordance with the requirements of the NEMA. In addition, there are numerous other pieces of legislation governed by many acts, regulations, standards, guidelines on a national, provincial, and local level, which should be considered in order to assess the potential applicability of these for the proposed project. More detail on the legislative framework is presented below**.**

Table 10. Applicable legislation

Legislation/ guidelines	Summary	Legal requirement for this project
NATIONAL		
The Constitution of South Africa, 1996 (Act No.108 of 1996)	The Constitution is the highest and the supreme law in South Africa. The Bill of Rights in chapter 2 section 24 of the Constitution of South Africa Act (Act 108 of 1996) makes provisions for environmental issues and declares that: "Everyone has the right – a) to an environment that is not harmful to their health or well-being; and b) to have the environment protected, for the benefit of present and future c) generations, through reasonable legislative and other measures that: i. prevent pollution and ecological degradation; ii. promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development".	The applicant has an obligation to ensure that the project is undertaken in a manner that respects and protects the constitutional rights of all interested and affected parties. The applicant must ensure that the project environment is not harmful and that measures are implemented to prevent pollution so that future generations can enjoy the social and ecological benefits.
National Environmental Management Act, 1998 (Act No.107 of 1998) as amended	The National Environmental Management Act, 1998 (Act No.107 of 1998) (NEMA) is a 'principles based Act' and is an overarching statute regulating various aspects of natural resources use, integrated environmental management and pollution control. The Act provides for the right to an environment that is not harmful to the health and wellbeing of the South African people; sustainable development, environmental protection, equitable distribution of natural resources; and the formulation of environmental management frameworks. Its definition of the environment includes the land and water of the earth, microorganisms, plant and animal life or a combination of those things, and the inter relationships among them. The Act aims to provide for cooperative environmental governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for coordinating environmental functions exercised by organs of state. Section 24 Provides for the prohibition, restriction and control of activities which are likely to have a detrimental effect on the environment.	The applicant must ensure that construction and operation of activities must be conducted according to the generally accepted principles of sustainable development, integrating social, economic, and environmental factors. An application for Environmental Authorisation is being submitted on behalf of the client in line with the requirements of NEMA since the proposed project will trigger listed activities which require authorization prior to commencement. As part of the EIA process, mitigation measures will be proposed to ensure that the significance of the predicted impacts is reduced thus protecting the environment from degradation.

Legislation/ guidelines	Summary	Legal requirement for this project
Environmental Impact Assessment Regulation, 2014 as Amended	The Environmental Impact Assessment (EIA) Regulations promulgated under NEMA in 2014 provide a list of activities which are subject to an Environmental Authorisation (EA) process prior to construction or implementation. In accordance with the 2014 EIA Regulations, (as amended) an EIA process is required owing to the applicability of the activities listed in ***Table 9***. According to the NEMA Regulations these activities may not commence without environmental authorization from the competent authority which requires the investigation, assessment and statement of potential impact of activities and must follow the procedure as described in the EIA Regulations. A Basic Assessment (BA) process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notices 1 and/or 3 and a Scoping and Environmental Impact Assessment (S&EIA) process must be applied to an application if the authorisation applied for is in respect of an activity or activities listed in Listing Notice 2. As the Proposed Project includes activities listed in Listing Notice 2 it is necessary that a S&EIA process is undertaken in order for the Eastern Cape Department of Forestry, Fisheries and the Environment(DFFE) to consider the application in terms of NEMA.	An application for Environmental Authorisation is being submitted on behalf of the client in line with the requirements of NEMA EIA Regulations since the proposed project triggers listed activities which require authorization prior to commencement.
National Environmental Management Biodiversity Act (Act No. 10 of 2004)	The National Environmental Management: Biodiversity Act (NEM:BA) makes provisions for achieving the objectives of the United Nations Convention on Biological Diversity, to which South Africa is a signatory. The Bill promotes management, conservation and sustainable use of indigenous biological resources, and provides for: ● the management and conservation of biological diversity; ● the use of indigenous biological resources in a sustainable manner; and ● the fair and equitable sharing of benefits arising from the commercialization through bio-prospecting of traditional uses and knowledge of generic resources. The Bill gives effect to international agreements relating to biodiversity which are binding on the Republic and provides for co-operative governance in biodiversity management and conservation and provides for a National Biodiversity Institute	According to Limpopo Conservation Plan (2013), the proposed development footprint falls within Critical Biodiversity Areas (CBA) 2. Biodiversity specialists studies have been conducted and findings of the assessments are included in this report.

Legislation/ guidelines	Summary	Legal requirement for this project
	to assist in achieving the above objectives. The Act gives wide powers to the National Biodiversity Institute to inter alia protect flora and fauna in appropriate enclosures, the collection of information, undertaking and promotion of research on indigenous biodiversity and the sustainable use of indigenous biological resources, the prevention, control or eradication of listed invasive species, biodiversity planning and other functions. This act lists all critically endangered, vulnerable and protected species. The potential occurrence of any such species will be investigated in the BA process.	
National Water Act, 1998 (Act No.36 of 1998)	In terms of chapter 3 section 12-20, water resources are to be protected, used, developed, conserved, managed and controlled. This Act recognizes that water is a scarce resource; it is a natural resource that belongs to all of South Africa's people. The National Department of Water and Sanitation is responsible for the nation's water resource and also the Minister of Department of Water and Sanitation ensures that the water resource is "protected, used, developed, conserved, managed and controlled" through the implementation of this Act (National Water Act 36 of 1998). This Act makes provisions for the protection of surface water and groundwater resources and their sustainable management for the prevention and remediation of the effects of pollution, and for the control of emergency occurrences. Section 21 of the National Water Act (NWA) lists water uses for which a Water Use Licence will be required.	The proposed project is located within 100m of an ephemeral stream therefore, Section 21 c and i of the National Water Act will be triggered. A Water Use Licence Application (ref; WU48940) has been lodged with the Department of Water and Sanitation (DWS). An aquatic biodiversity investigation has also been conducted and its findings are incorporated into this report.
National Environmental Management: Air Quality Act, 2004 (Act No.39 of 2004)	The objective of the Act is to protect the environment by providing reasonable measures for the protection and enhancement of air quality and to prevent air pollution. The Act makes provision for measures to control dust, and offensive odours. Section 32 of The National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) deals with dust control measures regarding dust control. The Minister or MEC may prescribe measures for the control of dust in specified places or areas, either in general or by specified machinery or in specified instances, the steps to be taken to prevent nuisance or other measures aimed at controlling dust. The National Dust Control Regulations (2013) provides for the management and monitoring of dust.	The EMPr which will be compiled during the EIA phase must include measures for control of dust during the construction phase, If there are any exceedances observed in terms of the National Dust Regulations then a dust monitoring programme must be submitted to the Competent Authority.

Legislation/ guidelines	Summary	Legal requirement for this project
Conservation of Agricultural Resources Act, 1983 (No. 43 of 1983)	This Act provides for the control over the utilisation of the natural agricultural resources of the country in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants. Section 5 of the Act prohibits the spread of weeds through the prohibition of their sale. GN R1084 (published under CARA) provides categories for the classification of the various weeds and invader plants, and restrictions where these species may occur. Regulation 15E of GN R1084 provides methods to be implemented for the control of weeds and invader species.	CARA finds application throughout the project lifecycle of the Proposed Project. As a result, soil conservation and erosion prevention management and mitigation measures need to be implemented. Furthermore, an Alien Invasives Species Control and Management Plan must be developed and implemented for the duration of the project life cycle of the Proposed Project
Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970), as amended	The Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970), as amended provides for the subdivision of all agricultural land within the Republic thereby prohibiting certain activities from being undertaken without consent from relevant authority, the Minister of the Department of Agriculture, Land Reform and Rural Development.	This Act could be relevant to the Proposed Project if any portion of land is zoned for agriculture and will need to be leased for a period exceeding 10 years is regulated by the Act
National Forests Act, 1998 (No. 84 of 1998)	The National Forest Act (NFA) empowers the Minister of DFFE to declare and list a tree, group of trees, woodland, or a species of trees as protected. A list of protected tree species is included in GN R908, published in November 2014. Section 7 of the Act prohibits the cutting and disturbance of NFA-listed trees.	The Terrestrial Biodiversity specialist has not identified any species protected in terms of the National Forest Act on site.
Occupational Health and Safety Act, 1993 (Act No.85 of 1993)	The Occupational Health and Safety Act makes provisions in regulations Section 8 for the general duties of employers to their employees. The act provides for the health and safety of people at work utilising machinery and the protection of others against health and safety risks associated with activities on site/work. General Administrative Regulations (2003) describe the administration of the various OHS Regulations, including the designation of health and safety committees, the reporting and recording of incidents and occupational diseases. This Act is applicable to all contractors during the planning, construction and operational phases of the project. To provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work.	The applicant must ensure that a safe working environment is provided for its employees during construction and operational phases of the project. This includes obtaining the relevant work permits, providing PPE and ensuring all required facilities are available for a working environment that is conducive. All stalls must have adequate training for their various duties and the applicant must ensure that compliance with the OHSA and Construction Regulations is monitored on a regular basis.

Legislation/ guidelines	Summary	Legal requirement for this project
Hazardous Substance Act (No 15 of 1973)	This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitizing or inflammable nature of the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products about the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. • Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive, etc., nature or because it generates pressure through decomposition, heat, or other means, cause extreme risk of injury etc., can be declared as Group I or Group II substance • Group IV: any electronic product; and • Group V: any radioactive material. The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force. It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored, or handled. If applicable, a license is required to be obtained from the	Relevant permits must be obtained for the storage of hazardous substances if any will be stored on site during construction. The contractor must ensure that hazardous substances are stored in a safe manner and MSDS are retained on file for all hazardous substances on site.
National Environmental Management: Waste Act, 2008 (Act No.59 of 2008)	During construction waste will be produced, in either liquid, solid and/or hazardous state, and this waste will be required to be adequately and appropriately disposed of. There are several Regulations or Acts that are applicable to the proposed development in terms of waste management. To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.	No authorization is required in terms of NEMWA, however, the applicant must make sure that waste is managed appropriately on site. This includes separation of waste, routine cleanup of the site and spillages as well as disposal at appropriately licensed waste landfills. Where possible, waste should be recycled to minimizes volumes of waste disposed to landfills

Legislation/ guidelines	Summary	Legal requirement for this project
National Heritage Resources Act (Act No. 25 of 1999)	The protection of archaeological and paleontological resources is the responsibility of a provincial heritage resources authority and all archaeological objects, paleontological material and meteorites are the property of the State. "Any person who discovers archaeological or paleontological objects or material or a meteorite in the course of development must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority". According to Section 34 of NHRA, No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority. Section 38 Listed Activities: (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length; (b) the construction of a bridge or similar structure exceeding 50 m in length; (c) any development or other activity which will change the character of a site— (i) exceeding 5 000 m^2 in extent; or (ii) involving three or more existing erven or subdivisions thereof; or (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority; (d) the re-zoning of a site exceeding 10 000 m2 in extent; or	According to the heritage specialist there is no sign of sites of heritage potential, graves and historical structures found in within the study area. The SAHRA has been identified as a stakeholder in this project and will be provided an opportunity to comment of the findings of the specialist studies.

Legislation/ guidelines	Summary	Legal requirement for this project
	(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,	
National Energy Act (No. 34 of 2008)	The purpose of the National Energy Act (No. 34 of 2008) is to ensure that diverse energy resources are available, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation; while taking environmental management requirements into account. In addition, the Act also provides for energy planning, and increased generation and consumption of Renewable Energies. The objectives of the Act, are to amongst other things, to: • Ensure uninterrupted supply of energy to the Republic. • Promote diversity of supply of energy and its sources. • Facilitate energy access for improvement of the quality of life of the people of the Republic. • Contribute to the sustainable development of South Africa's economy. The National Energy Act therefore recognises the significant role which electricity plays growing the economy while improving citizens' quality of life. The Act provides the legal framework which supports the development of Renewable Energy facilities for the greater environmental and social good and provides the backdrop against which South Africa's strategic planning regarding future electricity provision and supply takes place.	As the proposed BBR Energy Facility is aimed at generating electricity via renewable energy sources, the proposed development is aligned with the objectives of this Act.
The Spatial Planning and Land Use Management Act, 2013 (No. 6 of 2013) (SPLUMA)	The Spatial Planning and Land Use Management Act, 2013 (Act No. 6 of 2013) aims to confirm and regulate the role of municipalities in land use planning and management.	Objectives of the Act relevant to the Proposed Project ensure that the system of spatial planning and land use management promotes social and economic inclusion and to provide for the sustainable and efficient use of land.
Integrated Environmental Management Information Guidelines Series:	This series of guidelines was published by the Department of Environmental Affairs (DEA) and refers to various environmental aspects. Applicable guidelines in the series for the proposed project include: ● Guideline 5: Companion to NEMA EIA Regulations, 2010; ● Guideline 7: Public participation; and	These guidelines have been consulted in the compilation of this report as well as the public participation process that will be undertaken.

Legislation/ guidelines	Summary	Legal requirement for this project
	• Guideline 9: Need and desirability. Additional guidelines published in terms of the NEMA EIA Regulations, 2014 (as amended), in particular: • Guideline 3: General Guide to EIA Regulations, 2006; • Guideline 4: Public Participation in support of the EIA Regulations, 2006; and Guideline 5: Assessment of alternatives and impacts in support of the EIA Regulations, 2006.	
Municipal Systems Act (Act 32 of 2000)	The Municipal Systems Act provides for the core principles, mechanisms and processes that are necessary to enable municipalities to provide for community participation and for the integration of all activities for the overall social and economic upliftment of communities in harmony with their local natural environment. It also states that a fundamental aspect of the new local government system is the active engagement of communities in the affairs of municipalities of which they are an integral part. The Act requires the implementation and monitoring of Integrated Development Plans, the setting of targets and key performance indicators, including environmental targets, as well as the preparation of by-laws and policies that deal with environmental issues.	The Polokwane and Mogalakwena municipalities has been included as I&AP for this project and the municipal IDP has been consulted in compilation of this report.
PROVINCIAL LEGISLATION AND POLICY FRAMEWORK		
Limpopo Province Green Economy Strategy (2014)	The Green Economy Strategy for the Limpopo province (2014) was developed in alignment with the national green economy strategy elaborated in the National Green Economy Framework and Green Economy Accord, as well the Free State Provincial Growth and Development Strategy. The development process was spearheaded by the Department of Economic Development, Tourism and Environmental Affairs (DETEA). The objective was to develop a green economy strategy to assist the province to: • Improve environmental quality and economic growth • Develop green industries and energy efficiency	The proposed BBR Energy Facility will contribute to the objective of energy efficiency and the development of green industries while consequently promoting economic growth and is therefore consistent with the Limpopo Green Economy Strategy of 2014.

Legislation/ guidelines	Summary	Legal requirement for this project
	• Expand productive capacity and service delivery • Adopt sustainable consumption and production processes • Improve policy making, permitting, monitoring and enforcement on Green Economy Initiatives/Programmes; and • Create decent green jobs and build capacity of relevant personnel from DETEA, municipalities and other relevant stakeholders.	
Limpopo Renewable Energy Strategy and Action Plan (2024)	This strategy recognises the need to balance economic development with environmental and social considerations. It outlines a path for harnessing Limpopo's renewable energy potential while mitigating challenges associated with the energy transition. This proactive approach aims to secure a resilient, equitable, and prosperous future for the province. The vision is to achieve energy security for robust economic growth within the province whilst ensuring a just transition. This is accompanied by complex challenges including high unemployment, grid constraints and underdeveloped industrial bases. To overcome these challenges, there is a need to bridge the gap between supply and demand by focusing on sustainable supply. This will involve several initiatives, including enhancing the role of municipalities and promoting community involvement in solar power.	The proposed BBR Energy Facility aligns with the vision of the Limpopo Province.
Limpopo Conservation Plan (2013)	The purpose of the LCPv2 is to develop the spatial component of a bioregional plan (i.e. map of Critical Biodiversity Areas and associated land-use guidelines). Bioregional plans are one of a range of tools provided for in the Biodiversity Act1 that can be used to facilitate biodiversity conservation in priority areas outside the protected area network. The purpose of a bioregional plan is to inform land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity.	The plan was used to screen the development against CBAs. The proposed BBR Energy Facility falls within CBA 2.

2.2 SOUTH AFRICAN GUIDELINES

The guidelines listed in the table below have been or will be considered during the EIA process. See **Table 11** below.

Table 11: Guidelines Considered in the EIA Process

Guideline	Governing Body	Relevance
Procedures for the Assessment and Minimum Criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation	DFFE	Provides procedures for ground-truthing environmental themes identified by the web-based Screening Tool. The baselines studies used in the Scoping Report have been undertaken in accordance with the requirements of this Notice, where relevant.
Public Participation in terms of NEMA, EIA Regulations (2017)	DFFE	The purpose of this guideline is to ensure that an adequate public participation process is undertaken during the S&EIA process.
Guideline on need and desirability in terms of the EIA Regulations (2014)	DFFE	These guidelines inform the consideration of the need and desirability aspects of the Proposed Project.
National Biodiversity Offset Guidelines (2023)	DFFE	These guidelines have been published to inform the determination of the measurable outcome of compliance with a formal requirement contained in an environmental authorisation to implement an intervention that has the purpose of counterbalancing the residual negative impacts of an activity, or activities, on biodiversity, through increased protection and appropriate management, after every effort has been made to avoid and minimise impacts, and rehabilitate affected areas;
EIA Guideline for Renewable Energy Projects	DFFE	The purpose of this document is primarily to provide guidance on the environmental management legal framework applicable to renewable energy operations and all the role players in the sector.
Guidelines for assessing and monitoring the impact of solar power generating facilities on birds in southern Africa	BirdLife South Africa	These guidelines were developed to ensure that any negative impacts on threatened or potentially threatened bird species are identified and effectively mitigated using structured, methodical and scientific methods.

2.3 LISTED ACTIVITIES TRIGGERED

Table 12 below provides listed activities from the EIA Regulations, 2014 as amended, that are triggered by the proposed housing development.

Table 12: Listed Activities Applied For

Listed activity as described in GN R.324, 325, and 327	Description of project activity that triggers listed activity – if activities in GN R. 324 are triggered, indicate the triggering criteria as described in the second column of GN R. 324
Listed activity as described in GN R. 327	
GNR 327 11 (i) The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more. excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — (a) temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.	The proposed development will occur outside urban areas nor industrial complexes, it will include a transmission line (132 kV) to connect the solar PV facility to Borutho substation and an onsite substation with a capacity of 132kV. The exclusions are not applicable.
GNR 327 12 (ii)(a)(c) The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs—	The development of a crossing structure/culvert as part of the access road to the site triggers this activity as its footprint shall exceed 100 sq. m threshold. The exclusions are not applicable because the development is inland, outside urban areas, does not occur within existing reserves nor temporary in nature.

Listed activity as described in GN R.324, 325, and 327	Description of project activity that triggers listed activity – if activities in GN R. 324 are triggered, indicate the triggering criteria as described in the second column of GN R. 324
(a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; — excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.	
GNR 327 14 The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	The proposed BESS will include the storage of dangerous goods. The battery cell technology chemical composition used will be Lithium Iron Phosphate (LiFePO4).
GNR 327 (19)	The transmission line and the access road crossing traverses a watercourse and will entail the movement of more than 10 cubic metres of soil within a watercourse.

Listed activity as described in GN R.324, 325, and 327	Description of project activity that triggers listed activity – if activities in GN R. 324 are triggered, indicate the triggering criteria as described in the second column of GN R. 324
The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from [—(i)] a watercourse; [(ii) the seashore; or (iii)the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or estuary, whichever distance is the greater—] but excluding where such infilling, depositing, dredging, excavation, removal or moving— (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; [or] (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	The exclusions are not applicable because the development is inland, outside the maintenance ambient, nor occurring behind a development setback
GNR 327 24 (ii) The development of a road— (i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii)with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road—	The proposed development will entail the development of external (8-15m) and internal (10m) access roads wider than 8 meters and up to 5 km and 15 km long, respectively. Therefore, the exclusions are not applicable as the site is in rural areas and there are no LN 2 Activity 27 triggers in the proposed development.

Listed activity as described in GN R.324, 325, and 327	Description of project activity that triggers listed activity – if activities in GN R. 324 are triggered, indicate the triggering criteria as described in the second column of GN R. 324
(a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	
GNR 327 28 Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	The proposed solar PV facility development constitutes industrial use and will occur on a property currently used for agricultural purposes i.e. communal grazing.
Listed activity as described in GN R. 325	
GNR 325 1 The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts or more, excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs (a) within an urban area; or (b) on existing infrastructure.	The proposed development will entail construction of a Solar PV facility with an electricity output of 200MW which exceed the 20MW threshold. The proposed development is outside an urban area and the site has no existing infrastructure.
GNR 325 15 The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or	The proposed development will entail clearance of indigenous vegetation of more than 20 hectares for the construction of the Solar PV facility.

Listed activity as described in GN R.324, 325, and 327	Description of project activity that triggers listed activity – if activities in GN R. 324 are triggered, indicate the triggering criteria as described in the second column of GN R. 324
(ii) maintenance purposes undertaken in accordance with a maintenance management plan.	
Listed activity as described in GN R. 324	
GNR 324 4 (e)(i)(ee) The development of a road wider than 4 metres with a reserve less than 13,5 metres. e. Limpopo i. Outside urban areas (aa) A protected area identified in terms of NEMPAA, excluding disturbed areas; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; or (cc) Areas within urban protected areas.	The proposed development will entail the development of external (8-15m) and internal (10m) access roads wider than 4 metres with a reserve less than 13.5 metres, within a Critical Biodiversity Area 2 (CBA 2) as identified in the Limpopo Conservation Plan.

Listed activity as described in GN R.324, 325, and 327	Description of project activity that triggers listed activity – if activities in GN R. 324 are triggered, indicate the triggering criteria as described in the second column of GN R. 324
GNR 324 10 The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. **e. Limpopo** i. All areas.	The proposed BESS will include the storage of dangerous goods. The battery cell technology chemical composition used will be Lithium Iron Phosphate (LiFePO4).
GNR 324 12 (e)(ii) The clearance of an area of 300m^2 or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. e. Limpopo i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.	The proposed development will entail the clearance of more than 300m^2 of indigenous vegetation (Makhado Sweet Bushveld and Polokwane Plateau Bushveld) for the construction of Solar PV facility. The proposed site falls within CBA 2 as identified in the Limpopo Conservation Plan with a zoning potentially equivalent to open space.
GNR 324 14 (a)(c)(e)(i)(ff) The development of – (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs –	The proposed development will entail a transmission line with a physical footprint of more than 10m^2. As the site consists of an ephemeral watercourse the transmission line will traverse this watercourse or be within 32m. The proposed site falls within CBA 2 as identified in the Limpopo Conservation Plan.

Listed activity as described in GN R.324, 325, and 327	Description of project activity that triggers listed activity – if activities in GN R. 324 are triggered, indicate the triggering criteria as described in the second column of GN R. 324
(a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. e. Limpopo i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an international convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;	

3 NEED AND DESIRABILITY

One of the objectives of the EIA process is to motivate for "the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred development footprint". Consideration should be given to the need and desirability of development in determining whether this is the right time and place for the proposed land use or activity to be established. Hence, it is therefore, equated with rational land use and should be able to answer the question of what the most sustainable use of land is.

3.1 MOTIVATION

South Africa's electricity sector is reliant on coal power which impacts its ability to progress towards the country's climate commitments under the Paris Agreement (GreenCape, 2025). One of the challenges that South Africa is facing at social and economic levels is an ongoing energy crisis which is due to a number of factors, including constraints in the generation capacity of the country's utility, Eskom. South Africa has therefore recognised the need to expand electricity generation capacity within the country. The National Development Plan (NDP) envisages that by 2030, South Africa will have an energy sector that provides reliable and efficient energy service at competitive rates that is socially equitable through expanded access to energy at affordable tariffs; and that is environmentally sustainable through reduced emissions and pollution (Integrated Resource Plan, 2019). South Africa is currently undergoing a significant transition in its energy sector, aiming to reduce its reliance on coal and increase the integration of renewable energy sources.

Although coal still contributes the majority of South Africa's electricity generation, government has established ambitious renewable energy targets to facilitate a transition towards a lower-carbon economy. The country aims to raise the contribution of renewable energy to 30 % by 2030, a significant increase from the current contribution of approximately 12 %. To achieve these goals, the government has implemented various initiatives, such as the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) which promotes private sector investment in renewable energy infrastructure.

The Integrated Resource Plan (IRP) of 2019 further outlines the country's vision for energy up to 2030, emphasizing the diversification of energy sources and a significant reduction in coal dependency. This plan makes provision for significant increases in renewable energy capacity including approximately 17,742 MW from wind energy and 8,288 MW from solar photovoltaic (PV) energy, and other renewable sources. South Africa's transition towards renewable energy is further supported by the government's efforts to promote clean energy and integrate renewable resources into the national power grid (Ukoba *et al.,* 2025).

The proposed solar PV facility therefore aligns with national energy policies and objectives by contributing additional renewable electricity generation capacity to the national grid. The development will contribute towards meeting the national energy targets as set by the Department of Energy and assist the government in achieving its proposed renewable energy target of 17 800 MW by 2030. The project would support energy security, reduce dependence on fossil fuels, and contribute towards South Africa's climate change mitigation commitments. Furthermore, the proposed development supports the objectives of Sustainable Development Goal 7 (SDG 7), which seeks to ensure access to affordable, reliable, sustainable, and clean energy for all. In addition, the development would provide socio-economic benefits through temporary employment opportunities during the construction phase, potential long-term operational employment, and indirect economic stimulation within the local and regional economy.

3.2 ALIGNMENT TO REGIONAL AND LOCAL DEVELOPMENT PLANS

The proposed Energy Facility is strongly aligned with the Limpopo Spatial Development Framework (Limpopo Provincial Government, 2024), which identifies renewable energy and a secure electricity supply as important enablers of economic and industrial development. Its location between the Polokwane industrial area and the Mogalakwena mining region further supports this alignment. The facility will contribute additional renewable generation, battery storage and private-sector investment (De Wit, 2026).

The proposed Energy Facility is strongly aligned with the Limpopo Development Plan (2025), which, as in the case of the last-mentioned SDF, prioritises renewable energy, private-sector investment, energy security and employment creation (de Wit, 2026).

The proposed Energy Facility directly supports the objectives of the Polokwane and Mogalakwena Local Municipalities' IDPs relating to the expansion of renewable energy, improved electricity reliability and the attraction of private investment. The facility's positive impacts on construction employment, local procurement, municipal revenue and long-term economic activity further support the local economic-development objectives of both IDPs (Mogalakwena Local Municipality, 2025; City of Polokwane, 2026).

The proposed Energy Facility is strongly aligned with the development principles of SPLUMA. It supports spatial sustainability by producing renewable energy, spatial resilience by diversifying electricity supply and improving grid reliability through battery storage, and spatial efficiency by directing private investment towards strategic energy infrastructure. The proposed development could also advance spatial justice through local employment, procurement, community benefits and development on communally administered land (de Wit, 2026).

3.3 ACCESS TO LAND AND LOCAL AUTHORITY ENDORSEMENT

The Mashashane Traditional Authority and Bohwa Bja Rena Communal Property Trust approve of the proposed Energy Facility (See Addendum C). This strengthens the desirability of the proposed development because the site of the latter is situated on communal land under administration of this community-based entity. This approval indicates local institutional support and suggests that the proposed Energy Facility is broadly compatible with the Mashashane Traditional Authority's development objectives around Rural Land Administration and Socio-Economic Growth and expectations regarding the use of the land (See Department of Traditional Affairs, 2025; RSA, 2026). It may also reduce the potential for land-use conflict and facilitate cooperation during project implementation.

3.4 SOLAR RESOURCE AND ENERGY PRODUCTION

According to the data obtained from the Global Solar Atlas (2026) the Polokwane area is characterised by high solar energy potential. The Global Horizontal Irradiation (GHI) for the region is approximately 2026.2 kWh/m^2 per year while the estimated specific photovoltaic power output is approximately 1774.6 kWh/m^2 per year demonstrating favourable conditions for photovoltaic (PV) electricity generation (**Figure 4**).

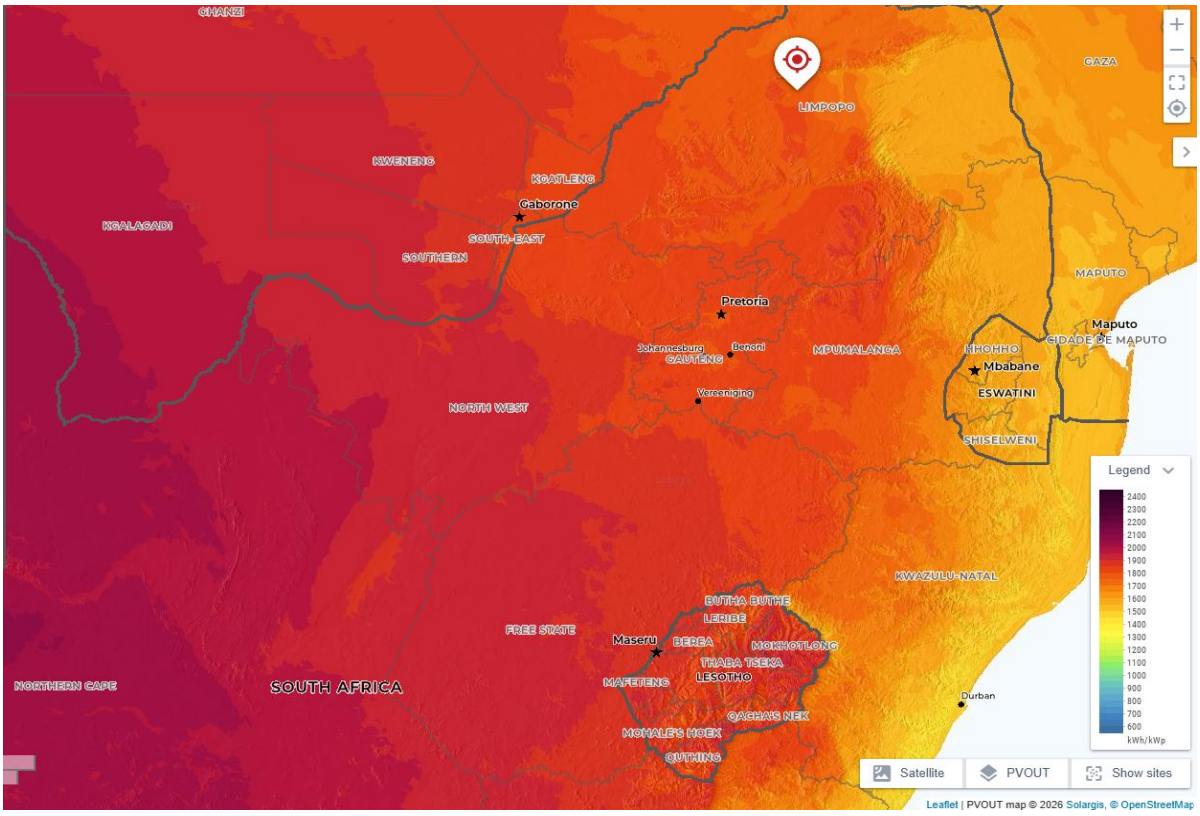


Figure 4. Solar resource characteristics for the Polokwane region (Global Solar Atlas, 2026).

3.5 ACCESS TO GRID

The existing Eskom Borutho Substation is situated approximately 2 km to the west of the proposed site. There is also existing HV powerlines in close proximity to the site. Developments which are in relatively close proximity to a connection point a are favourable, and reduce the losses associated with power transmission. In addition, Eskom's '2040 Transmission Network Study' has drawn on various scenarios to determine the grid's development requirements, as well as to identify critical power corridors for future strategic development. The National EGI corridors consisting of five transmission power corridors of 100 km in width have been gazetted by the DFFE following the outcome of the Strategic Environmental Assessment (SEA) which aimed to identify environmentally acceptable routes. The proposed development falls within the International Strategic Electrical Grid Corridor (see ***Figure 5***).

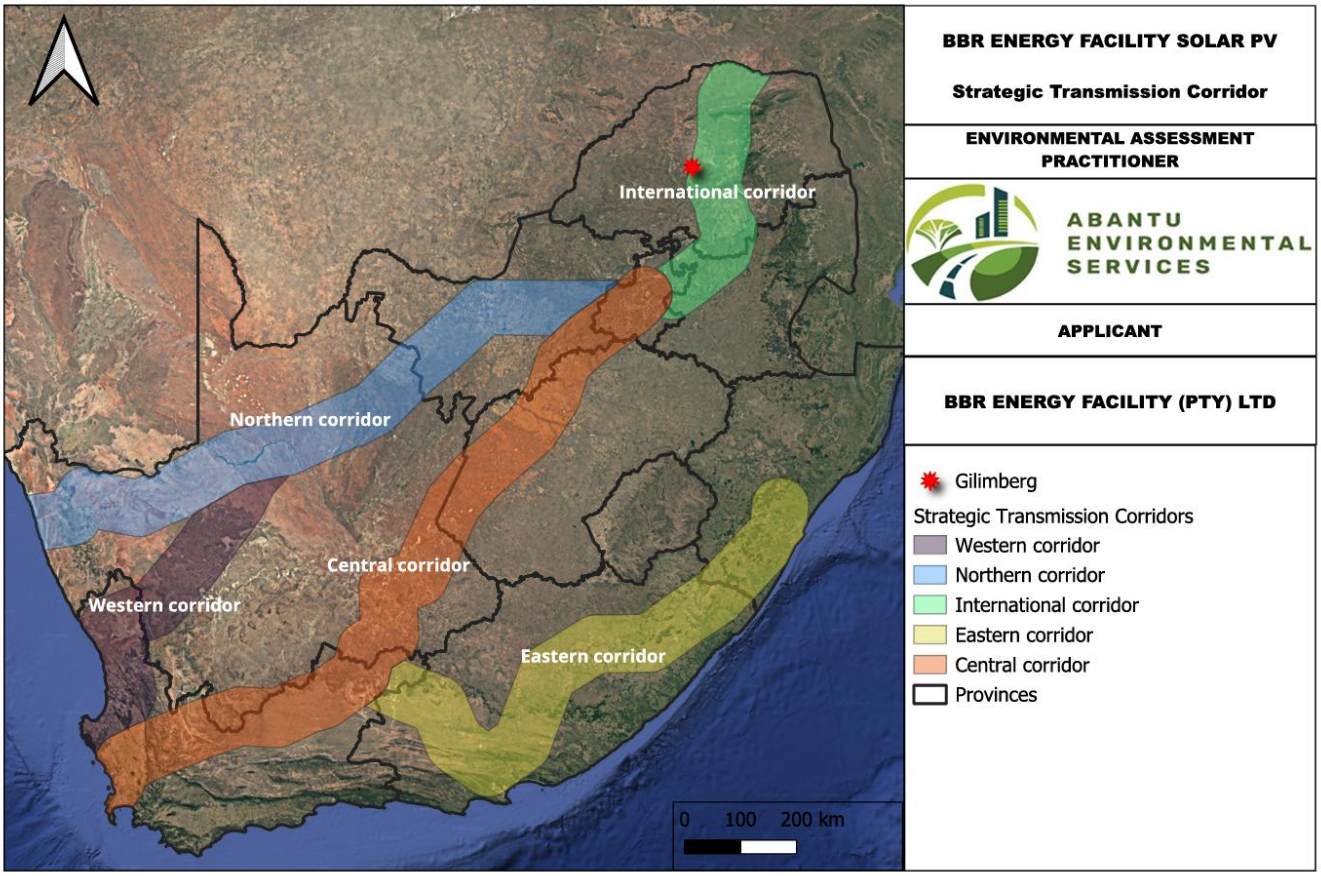


Figure 5. Strategic Transmission Corridor

3.6 MARKET SUITABILITY

South Africa's energy market presents a strong case for hybrid PV-BESS projects due to persistent supply constraints, load shedding, and peak demand mismatches. The integration of storage allows participation in energy arbitrage by storing low-cost or surplus solar energy and dispatching during peak tariff periods. Limpopo's proximity to industrial loads (notably mining operations in Mogalakwena) enhances the potential for private offtake agreements and wheeling arrangements. The project is well-positioned to align with national energy policies, including the Integrated Resource Plan (IRP) and increasing renewable procurement initiatives.

3.7 COMMERCIAL CONSIDERATIONS

The project's commercial viability is influenced by Eskom tariffs, grid access constraints, and evolving market mechanisms. Revenue streams may include energy sales under Power Purchase Agreements (PPAs), peak energy arbitrage, and potential participation in future ancillary service markets. Grid charging capability enhances flexibility and revenue stacking potential. Key risks include grid connection delays, regulatory uncertainty, market price volatility, and technology cost fluctuations. However, the project's hybrid design mitigates curtailment risks and enhances bankability. Future opportunities include expansion of battery capacity, participation in capacity markets, and integration with emerging private energy trading platforms.

3.8 NEED AND DESIRABILITY

The following **Table 13** outlines the need and desirability of the proposed BWSS, addressing ecological sustainability, socio-economic considerations, and environmental justice in relation to the project's location, scale, and anticipated impacts.

Table 13: Need and Desirability assessment for the development

ASPECTS RELATED TO SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES
1.1 How will this development (and its separate elements/aspects) impact the ecological integrity of the area, disturb or enhance ecosystems, and/or result in the loss or protection of biological diversity?
The proposed BBR Energy Facility will result in impacts on ecological integrity through vegetation clearing and habitat transformation and the disturbance will be associated with the construction activities. The proposed site falls within Makhado Sweet Bushveld (VU) (OHPL) and Polokwane Plateau Bushveld (LC) (SEF) vegetation types and is located within CBA 2. According to the terrestrial specialist assessment, the site supports moderate levels of biodiversity and ecological function and has already been influenced by historical and current land uses, including grazing, subsistence agriculture and localised sand mining. Despite these pressures the vegetation remains largely intact, and the site supports one protected species, with a high likelihood of occurrence of Species of Conservation Concern (SCC).

The development is therefore expected to result in habitat loss and fragmentation as well as disturbance on fauna. However, given that the site is not pristine and that ecological processes remain functional, impacts associated with the proposed development are expected to be localised and manageable through the implementation of appropriate mitigation measures.

Ephemeral drainage lines were observed along the boundary of the proposed site as well as a secondary drainage line within the development footprint which is characterised by a poorly developed riparian zone in comparison to the ephemeral drainage line located on the site boundary. The proposed transmission line traverses the ephemeral drainage line which may result in disturbance to the drainage line if not managed appropriately. To minimise potential impacts, the drainage lines should be protected through the implementation of appropriate buffer zones, together with stormwater and erosion control measures to prevent sedimentation and degradation of the drainage lines.

1.2 What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts?

Measures to avoid and minimise potential negative impacts have been considered and are informed by specialist findings. Environmentally sensitive areas will be avoided as far as possible. Appropriate buffer zones around the identified ephemeral drainage lines have been recommended to protect aquatic ecological functioning. Where impacts cannot be entirely avoided such as the clearing of vegetation, for the development footprint and associated infrastructure, mitigation measures have been recommended for inclusion in the Environmental Management Programme (EMPr) to ensure that impacts are minimised.

ASPECTS RELATED TO INTRA- AND INTER-GENERATIONAL EQUITY IN THE CONTEXT OF SUSTAINABILITY

2.1 Does the proposed location, type, and scale of development promote a reduced dependency on resources? For example, can the development be located more appropriately to reduce the dependency on resources needed for service infrastructure?

The proposed development promotes a reduced dependency on non-renewable energy resources. The Solar PV facility will generate electricity without the use of fossil fuels, thereby reducing reliance on conventional energy sources such as coal. The selection of the site in close proximity (approximately 2 km) to the Borutho Substation reduces the need for extensive additional transmission infrastructure. This improves infrastructure efficiency and reduces energy losses associated with long-distance transmission.

2.2 How will the ecological impacts resulting from this development impact people's environmental right?

The proposed development is not anticipated to have significant negative impacts on people's environmental rights. The ecological impacts will include vegetation clearing and habitat transformation. These impacts may indirectly affect people through reduced availability of natural resources such as grazing areas for livestock and fuelwood, as well as temporary negative impacts during the construction phase, including noise, dust, and increased traffic. In addition, the long-term benefits of the development contribute positively to the environmental right by supporting renewable energy generation, reducing reliance on fossil fuels, and lowering greenhouse gas emissions, which are linked to climate change and environmental degradation.

2.3 Describe the linkages and dependencies between human well-being, livelihoods, and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)

Human well-being and livelihoods in the area are linked to ecosystem services provided by the vegetation at the proposed site. These ecosystem services support livestock grazing, and informal resource use (such

as wood), which are important livelihood activities for surrounding rural communities. The development will result in vegetation clearing which may reduce the availability of grazing land and access to natural resources within the proposed site. The proposed development will provide positive socio-economic benefits through improved electricity supply, employment opportunities during construction, and broader support for local economic activities, which help offset the livelihood-related losses.

2.4 Based on all the above, how will this development positively or negatively impact ecological integrity objectives/targets/considerations of the area?

Negative impact

The proposed development will negatively impact the ecological integrity of the area due to the irreversible loss of natural habitat. The proposed site falls within Makhado Sweet Bushveld (VU) and Polokwane Plateau Bushveld (LC) vegetation types and is located within CBA 2. Additionally, the area has a high likelihood of SCCs.

Positive impact

The long-term benefits of the development contribute positively to ecological integrity objectives through the generation of renewable energy, reducing reliance on fossil fuels, and lowering greenhouse gas emissions associated with climate change and environmental degradation. In addition, the project provides a more controlled and managed land use alternative to existing activities such as grazing and localised sand mining, which can contribute to ongoing land degradation if not properly managed.

2.5 Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope, and nature of the project its location, and existing and other planned developments in the area.

Positive cumulative ecological/biophysical impacts:

The proposed project will ensure the create opportunities within renewable energy, reduce the reliance on fossil fuels which release greenhouse gases into the atmosphere, and ensure a balanced and cleaner energy supply.

Negative cumulative ecological/biophysical impacts:

The proposed development will contribute to incremental habitat loss and fragmentation of the vegetation types in the area. Although the site has been disturbed further development will add to the cumulative reduction of the natural habitat.

ASPECTS RELATED TO PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT

3.1 What is the socio-economic context of the area, based on, amongst other considerations, the following considerations: The IDP and any other strategic plans, frameworks of policies applicable to the area; spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.), spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and Municipal Economic Development Strategy?

According to Mogalakwena IDP 2025/2026, the municipality faces challenges in the provision of electricity. The municipality experiences ongoing electricity constraints, including load shedding, system instability when power is restored, and insufficient capacity in Eskom substations supplying surrounding villages. These limitations negatively affect electrification efforts in rural communities, constraining local economic development, service delivery, and quality of life. The proposed solar PV development aligns with the broader strategic need to improve energy availability and support regional development objectives through enhanced electricity generation capacity.

3.2 Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?
The proposed development will contribute to improved electricity generation capacity, helping to address existing challenges such as load shedding, limited substation capacity, and unreliable supply to surrounding villages. This supports the municipality's broader objective of improving energy security, enabling economic development, and enhancing service delivery. In addition, the development will provide employment opportunities during construction and operation phases. Improved electricity supply at a regional level will also support local businesses, small enterprises, and public services, thereby indirectly strengthening socio-economic resilience and development potential in the area.
3.3 How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?
According to the Archaeological and Cultural Heritage Impact Assessment conducted, there is no sign of sites of heritage potential, graves and historical structures found in within the study area and the farm at large.
3.4 How will this development address the specific physical, psychological, developmental, cultural, and social needs and interests of the relevant communities? Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?
The development will address key physical and developmental needs by improving electricity supply, which supports households, public services, and local economic activities. It will also provide short-term employment opportunities during construction and long-term operational jobs, contributing to income generation and skills development in the area. Psychologically and socially, improved energy reliability can enhance quality of life by reducing the stress associated with power interruptions and improving access to lighting.
3.5 How were a risk-averse and cautious approach applied in terms of socio-economic impacts? What are the limits of current knowledge (note: the gaps, uncertainties, and assumptions must be clearly stated)? What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability, and sustainability) associated with the limits of current knowledge? Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development (and its alternatives)?
The proposed development is inherently pro socio-economic impactful by bringing energy security, contributing to unlocking economic potential and creating employment opportunities from construction to operations both directly and indirectly.
3.6 How will the socio-economic impacts resulting from this development impact people's environmental right?
The socio-economic impacts of the development will have both positive and negative implications for people's environmental right, as provided for in Section 24 of the Constitution, which guarantees the right to an environment that is not harmful to health or well-being. The development supports this right by contributing to improved energy security and a transition toward cleaner energy through renewable solar power. By reducing reliance on fossil fuels, it helps lower greenhouse gas emissions and associated air pollution. It also supports local development through job creation and improved electricity supply which indirectly enhances living conditions. Negatively, the proposed development the development will result in localised environmental impacts such as vegetation clearing and habitat loss.

3.7 What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations? What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?
The best practicable environmental option in terms of the socio-economic context has been selected by: • Ensuring consultation with interested and affected parties throughout the Scoping and EIA process. • Solar energy can offer a reliable source of power, which is crucial in reducing the frequency and impact of power outages. • In response to address the increased energy demand to meet the needs of population increase. • Strengthen regional and local economic sectors by providing energy security revising jobs and businesses
3.8 What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?
Mitigation measures for environmental health and safety have been identified, this is to ensure that impacts encountered during the construction phase are addressed adequately.
3.9 What measures were taken to ensure that the interests, needs, and values of all interested and affected parties were considered and that adequate recognition was given to all forms of knowledge, including traditional and ordinary knowledge?
The public participation process shall take note of interests, needs and values of all I&APs based on all forms of knowledge, this will be done by ensuring that every comment received is addressed and considered.
3.10 Considering the interests, needs, and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?
The development supports all segments of the community by improving electricity supply through better access to essential services, business continuity, and economic activity. It also contributes to local development priorities by addressing energy shortages and supporting economic growth. Employment opportunities during construction and operational jobs will mainly benefit local skilled and semi-skilled workers, promoting more inclusive participation in project benefits.

4 PROJECT ALTERNATIVES

The identification of alternatives is a key aspect of the success of the environmental scoping phase. All reasonable and feasible alternatives must be identified and screened to determine the most suitable alternatives to consider and assess in the EIA phase. There are, however, some significant constraints that have to be considered when identifying alternatives for a project with this scope. Such constraints include social, financial and environmental issues, which will be discussed as part of the evaluation of the alternatives for this project.

"Alternatives", in relation to a proposed activity, is defined as different means of meeting the general purpose and requirements of the activity, which may include alternatives to; -

a) the property on which or location where it is proposed to undertake the activity;
b) the type of activity to be undertaken;
c) the design or layout of the activity;
d) the technology to be used in the activity;
e) the operational aspects of the activity; and

4.1 PROCESS FOLLOWED TO REACH THE PREFERRED ALTERNATIVES

The process followed to reach the preferred alternative may be described as follows:

- Developer provides description of project and proposed site area;
- The preliminary sensitivity of the site area is determined using the National Web Based Screening Tool;
- Verification of site sensitivity is done through visual site assessment;
- Options of how the desired project can be implemented with least disturbance of sensitive areas are considered (i.e. alternatives);
- The feasibility of the options/alternatives presented is assessed, only feasible and reasonable alternatives are considered for impact assessment;
- The potential Impacts that may be caused by the feasible alternatives are identified, inputs from specialist reports and I&APs are taken into consideration in this process;
- The technical justification for the alternatives are also considered;
- An assessment of the significance of the impacts is done using the methodology described in Section 8.2;
- The alternative with the lowest (negative) overall combined impact significance score is selected as the preferred alternative.

4.2 PROPERTY OR LOCATION ALTERNATIVES

The proposed BBR Energy Facility will include the development of the solar field, buildings, and associated infrastructure on farm Gillimberg 861 LR. Existing access roads will be used although there will be a need for the development of new access roads within the PV application area and parallel to the transmission lines. The transmission of electricity will be to the existing Borutho Substation.

Factors that were considered in selected of the proposed site include the following:

- Access to required land: The selected site is owned by the Bohwa Bja Rena Communal Property Trust. The traditional leader is in support of the proposed development. The leader has provided a written consent for the proposed BBR Energy Facility.
- Infrastructure proximity: The selected site is located close to N12, which makes it easily accessible for delivery of materials during all phases of the project. The site is also close to the Borutho Substation as well as existing HV powerlines which makes the cost of grid connection more viable.
- Authorised renewable projects in the surrounding area: According to the National Web based Screening Tool, there are 5 Solar PV developments within a 30km radius of the proposed site. This means that in future, the surrounding area may be a strategic zone for renewable energy development as indicated in **Figure *6*** and **Figure *7***.

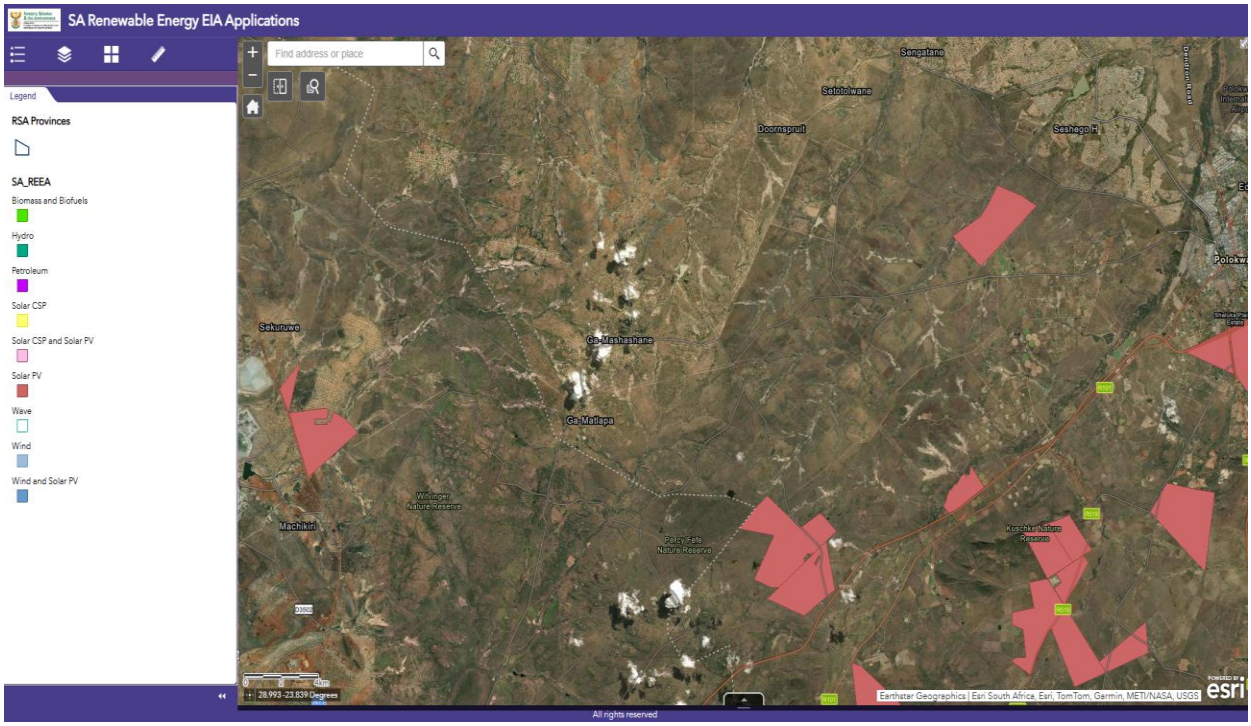


Figure 6. Approved renewable energy developments near the proposed site

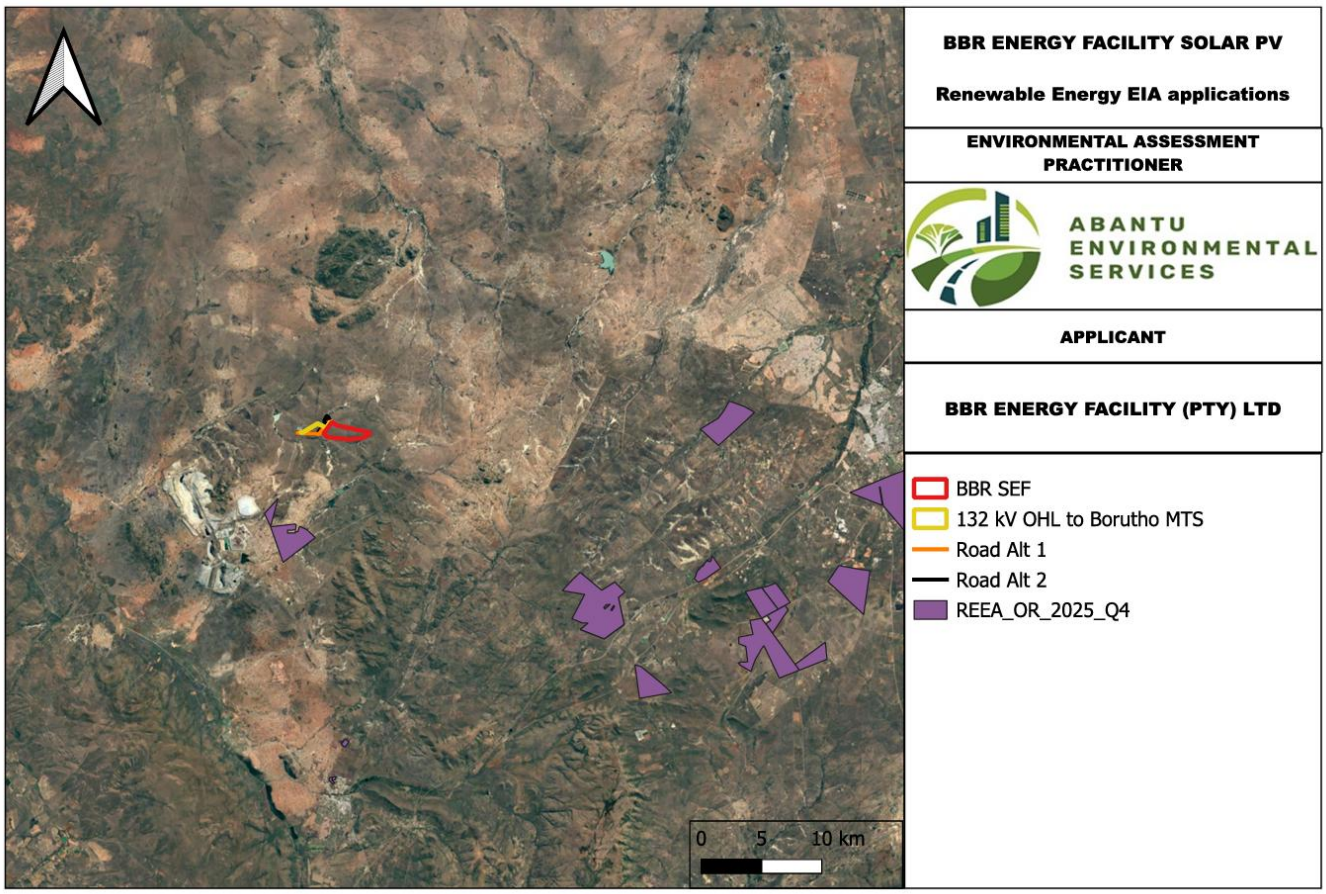


Figure 7. Renewable energy EIA applications

4.3 ACTIVITY ALTERNATIVES

The activity involves the construction of a BBR Energy Facility will include the development of the solar field, buildings, and associated infrastructure. Thus, no other activity alternatives are assessed.

4.4 DESIGN AND LAYOUT ALTERNATIVES

The following layout alternatives have been considered thus far in this environmental process.

(a) Development site

- **Alternative 1-** Development of the entire site

This alternative entails the development of the solar PV facility within the entire proposed development footprint, without avoiding environmentally sensitive areas. This alternative would result in potentially high environmental impacts, as it would affect important ecological features and functions within the site. These include drainage lines, potential Species of Conservation Concern (SCCs) and areas of ecological importance. The implementation of this alternative would therefore lead to increased habitat disturbance and degradation of sensitive environmental features.

- **Alternative 2 (Preferred) - Avoidance of sensitive areas**

This layout alternative incorporates environmental considerations into the project design and limits development within environmentally sensitive areas. The design avoids key ecological features identified on the site, including drainage lines, areas of High Sensitivity Ecological Importance (SEI), and relatively undisturbed habitat areas. By reducing the development footprint and avoiding sensitive areas, this alternative minimises potential environmental impacts.

(b) Access roads

- **Alternative 1**

This route is located close and runs parallel to a drainage feature and may therefore result in significant impacts. Potential impacts include disturbance to aquatic features and edge impacts on riparian vegetation.

- **Alternative 2**

This alternative also occurs close and runs parallel to a drainage feature. As a result, this option may result in similar impacts to Alternative 1.

- **Alternative 3 (preferred)**

Although this option was not proposed by the client, it is considered the preferred alternative from an aquatic perspective, as Alternatives 1 and 2 are associated with potential negative impacts on the drainage feature. Alternative 3 avoids running parallel to the drainage line and avoids no-go areas as far as possible.

4.5 TECHNOLOGY ALTERNATIVES

The following technology alternatives have been considered:

- **Concentrated Solar Power (CSP)**- A CSP produce electric power by converting the sun's energy into high-temperature heat using various mirror configurations. The way this particular technology works is that the sun's energy is concentrated by various reflectors, and this concentrated energy is then used to drive a heat engine and drive an electric generator. The plants that utilize this system consists of two parts: one that collects solar energy and converts it to heat, and the other that converts the heat energy to electricity. CSP is an indirect method that generates alternating current (AC), which will then be easy to distribute on the power network.

  However, a CSP has a high visual impact and requires large volumes of water which is a major constraint for this type of technology considering the water challenges and limitation experienced in South Africa. In addition, the IRP no longer includes the use of CSP as part of the energy mix of the county.

- **Solar PV facility (Preferred)-** Solar PVs are different from CSP. Unlike CSP which uses the sun's energy, PV solar panels make use of the sun's light instead. In other words, photovoltaics is the direct conversion of light into electricity. The way this works is that the solar PV cells absorb light, which will then knock electrons loose. Then once the loose electrons flow, a current is created, and this current is then captured and transferred into wires, thus generating a direct electric current (DC). After the direct electric current is generated, it is then converted into AC, usually using inverters, so that it will be distributed on the power network.

For the preferred main technology i.e. PV solar, the further evaluated alternatives include single-axis tracking and fixed-tilt systems.

- **Single-axis trackers**- This system involves a single axis about which the rotation is possible in order to align the panel perpendicular to the sun's radiations. The single-axis tracking systems are classified into three categories. These include a single-axis horizontal system (HSAT), a single-axis vertical system (VSAT), and a tilted single-axis system for tracking (TSAT). Compared with fixed-tilt systems, single-axis trackers can typically produce about 20–35% more energy under favorable conditions. When combined with bifacial solar panels, energy yield can increase by up to 35%, while also reducing the Levelized Cost of Electricity (LCOE).
- **Fixed-tilt system**- Panels are mounted at a set angle, usually chosen based on the site's latitude. This design is simpler, more durable, and less expensive to install and maintain than tracking systems. However, because the panels cannot follow the sun's movement, the overall energy output is lower compared with tracking-based systems.

BESS

The BESS technology alternatives that have been considered for the proposed development are detailed below:

- **Lithium-ion Batteries (Preferred Alternative)**

  Lithium-ion batteries are rechargeable electrochemical energy storage devices that typically utilise a non-aqueous electrolyte and were first commercialised in the early 1990s. A conventional lithium-ion battery cell consists of four main components, namely an anode, cathode, separator and electrolyte. During charging, lithium ions move from the cathode through the electrolyte to the anode, while the reverse process occurs during discharging, allowing stored energy to be released as electricity (Semeraro *et al.*, 2021).

  Lithium-ion batteries have the characteristics of high-power density, long cycle life, low self-discharge and low maintenance costs. These characteristics make them suitable for various applications, including renewable energy storage and electricity grid support. Lithium-ion batteries are widely

utilised in utility-scale energy storage applications due to their established commercial availability, efficiency and ability to store and discharge electricity when required (IRENA, 2019).

However, lithium has high reactivity, so there are technical limitations related to the safety of building batteries (Semeraro *et al.,* 2021). Lithium-ion batteries, however, have significantly higher energy densities relative to other electrochemical storage technologies such as lead-acid and flow batteries, which allows the same energy needs to be met with smaller and lighter batteries. Lithium-ion batteries are also able to charge and discharge thousands of times before reaching the end of the battery pack life (Bowen *et al.,* 2021).

- **Redox Flow Batteries**

  Redox Flow Batteries (RFBs) are rechargeable electrochemical energy storage systems that store energy through oxidation and reduction reactions involving liquid electrolyte solutions. RFBs are among one of the emerging large-scale energy storage systems that have been receiving considerable attention in recent years due to high energy efficiency of about 70-80%, affordable capital cost and economical life cycle cost without specific site requirement. The RFB stores energy through the use of two redox couple electrolyte solutions (Lim *et al.,* 2015).

  This battery has attractive capabilities where the energy stored and power delivered can be controlled independently, which is highly useful to grid operators. Various redox flow battery chemistries have been developed, including vanadium-vanadium, iron-chromium, zinc-bromine, zinc-iron and hydrogen-bromine systems. Among these, vanadium redox flow batteries are one of the most commercially established technologies, owing to the ability of vanadium to exist in multiple oxidation states (Sankaralingam *et al.,* 2021).

  However, redox flow batteries generally have a lower energy density than lithium-ion batteries and require additional infrastructure, including electrolyte storage tanks, pumps and electrochemical cell stacks. As a result, these systems may require more space to accommodate the associated infrastructure, depending on the storage capacity and system design (Bowen *et al.*, 2021; U.S. Department of Energy, 2023).

4.6 OPERATIONAL ALTERNATIVES

No operational alternatives have been considered in this assessment.

4.7 OPTION OF NOT IMPLEMENTING- "NO-GO ALTERNATIVE"

The no-go alternative means doing nothing, which would eventually result in the abandoning of the project and no Solar PV Facility. This will result in continued blackouts in the country. As such, the 'do nothing' alternative or keeping the current status quo of no activities occurring on-site. Although the no-go alternative would maintain the current environmental status with no negative impacts on the receiving environment.

However, South Africa has been facing significant energy challenges, including frequent load shedding due to insufficient power supply. The proposed project can help address these challenges by contributing to regional and local energy independence. This project would provide a consistent and renewable source of power, reducing reliance on external supply of energy sources. The option of not implementing the development will mean perpetual energy security crisis, job losses and eroding livelihoods as energy availability underpins the economy and socio-economic wellness of the people. Therefore, to contribute towards alleviation of the energy and socio-economic issues linked to the development, the No-Go option is discredited.

4.8 SUMMARY OF ALTERNATIVES

Table 14 below provides a summary of these alternatives, their key characteristics, and the preferred.

Table 14: Summary of alternatives

CATEGORY	ALTERNATIVE	DESCRIPTION	PREFFERED ALTERNATIVE
No-Go Alternative	Status Quo	Keeping the current status quo of no activities occurring on site, which would not result in a loss of vegetation or impact on CBA 2. However, potential positive socio-economic impacts will be lost.	No
Site Alternatives	Alternative 1	No site/property alternatives exist as the applicant has been given consent by the landowner and is in support of the proposed development. Additionally, the proposed site is in close proximity with infrastructure.	Yes
Design and layout Alternatives	Alternative 1	This layout alternative entails development of the solar PV facility on the entire development footprint, with no effort to protect environmentally sensitive areas.	No
	Alternative 2 (Preferred)	This layout alternative avoids sensitive areas within the development footprint.	Yes
Technical Alternatives	Alternative 1 (Preferred)- Single-Axis trackers	Solar panels rotate along a single axis to follow the sun and improve energy generation compared to fixed systems.	Yes
	Alternative 2- Fixed- Tilt systems	Solar panels are installed at a fixed angle, offering a simpler and lower-cost design but with lower energy output.	No
	Alternative 1 (Preferred)- Lithium-ion	Lithium-ion batteries offer relatively high energy density and efficiency and are suitable for utility-scale energy storage.	Yes

CATEGORY	ALTERNATIVE	DESCRIPTION	PREFFERED ALTERNATIVE
	Alternative 2- Redox Flow Batteries	Redox flow batteries store energy using liquid electrolytes and are suitable for large-scale energy storage. However, they generally have lower energy density and may require more space for associated infrastructure compared to lithium-ion batteries.	No
Operational Alternatives	No feasible and reasonable alternatives evaluated and assessed	No feasible alternatives exist.	N/A

4.9 PREFERRED ALTERNATIVES

The preferred alternatives for the proposed development include the following:

- Site Alternatives: Alternative 1
- Design and layout Alternative: Alternative 2
- Technical: Single axis (Alternative 1) and Lithium-ion (Alternative 1)

The reason for the abovementioned preferred alternative options is attributed to the outcome of advantages and disadvantages as described above. The preferred alternatives are likely to have less environmental impacts.

5 DESCRIPTION OF THE AFFECTED ENVIRONMENT

This section of the report provides a description of the environment that may be affected by the proposed project. Aspects of the biophysical, social and economic environment that could be directly or indirectly affected by, or could affect, the proposed project have been described. Baseline information sourced from various spatial datasets, the National Screening tool report, as well as specialist biodiversity and ecosystem mapping resources. These include the National Ecosystem freshwater Priority Areas (NEFPA) wetlands and rivers, the National Wetland Map Version 5 (NWM5), the Eastern Cape Biodiversity Conservation Plan (ECBCP) 2019 and the National Vegetation Map (Mucina & Rutherford, 2018). In addition to environmental sensitivities, this section also describes the existing infrastructure within the project area. The biophysical environment descriptions below include the areas close to the proposed construction area.

5.1 CLIMATE

The Limpopo province is characterized by hot summers with an average maximum temperature of 27^{O}C. Winters in the province are mild with an average minimum temperature of 18^{O}C. High rainfall variability makes the region prone to drought and floods. The majority of the rainfall is accumulated during the austral summer months, ranging from 200 to 1600mm. The dominant climate type is semi-arid, followed by humid subtropical climates and arid (Moumakwe, 2024). Polokwane, the capital city of the province is situated roughly in the center of the province. Polokwane experiences an arid climate typified by a rainy season during summer and a distinct dry period in winter. The yearly average rainfall stands at 495 mm, with December or, less frequently, January being the wettest month, while July records the lowest precipitation levels (Polokwane Local Municipality SDF, 2024).

5.2 TOPOGRAPHY AND HYDROLOGY

The area is characterized by gently undulating terrain and minimal steep slopes (***Figure 8***). Elevation ranges from 1202 m to 1279 m, with an average slope of 2.2%.

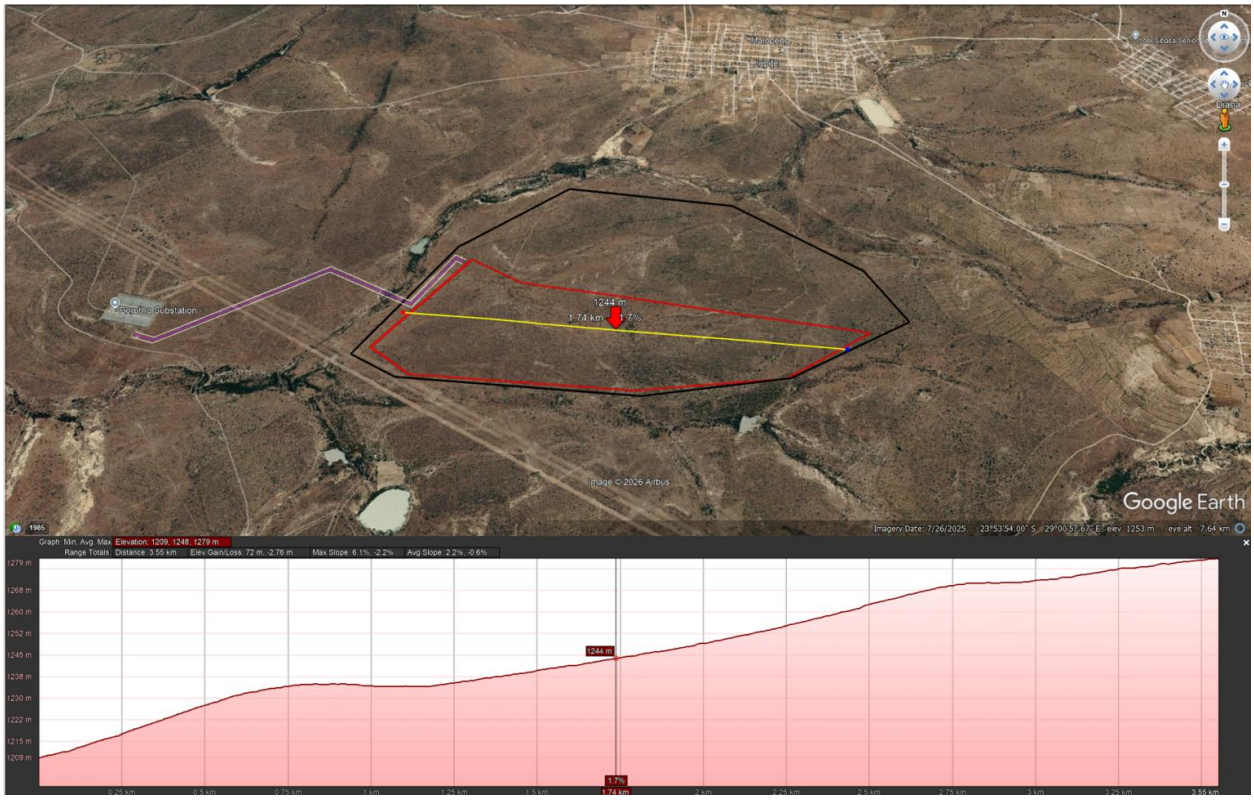


Figure 8. Topography of the proposed development site.

The proposed site is situated within quaternary catchment A61G, located within the Limpopo-Olifants Water Management Area. An ephemeral watercourse (see ***Figure 10***) was observed in close proximity to the project area, and the proposed transmission route intersects the aquatic feature. In addition, an artificial wetland (see ***Figure 11***) was observed within the proposed project area, specifically within the solar facility footprint.



Figure 9. Conditions within the proposed Solar PV development area

Figure 10 below shows the conditions of the ephemeral conditions observed during the site visit.



Figure 10. Conditions of the ephemeral stream



Figure 11. Artificial wetland within the proposed project area.

5.3 GEOLOGY AND SOILS

The proposed area is underlain by the Goudplaats–Hout River Gneiss Suite, which comprises light to dark grey migmatitic tonalite, trondhjemite, granodiorite, monzodiorite, and leucogneiss. The gneisses range from massive to layered, are leucocratic to dark grey, and vary in grain size from fine-grained to pegmatoidal (Dippenaar and Rooy, 2014). The Goudplaats Gneiss is dark grey, fine-grained, and predominantly deformed by ductile processes, reflecting an older and more intensely metamorphosed component of the suite. In contrast, the Hout River Gneiss is pinkish-grey, pegmatoidal, and highly fractured and weathered, representing a younger and more brittle unit (Tshipala, 2018).

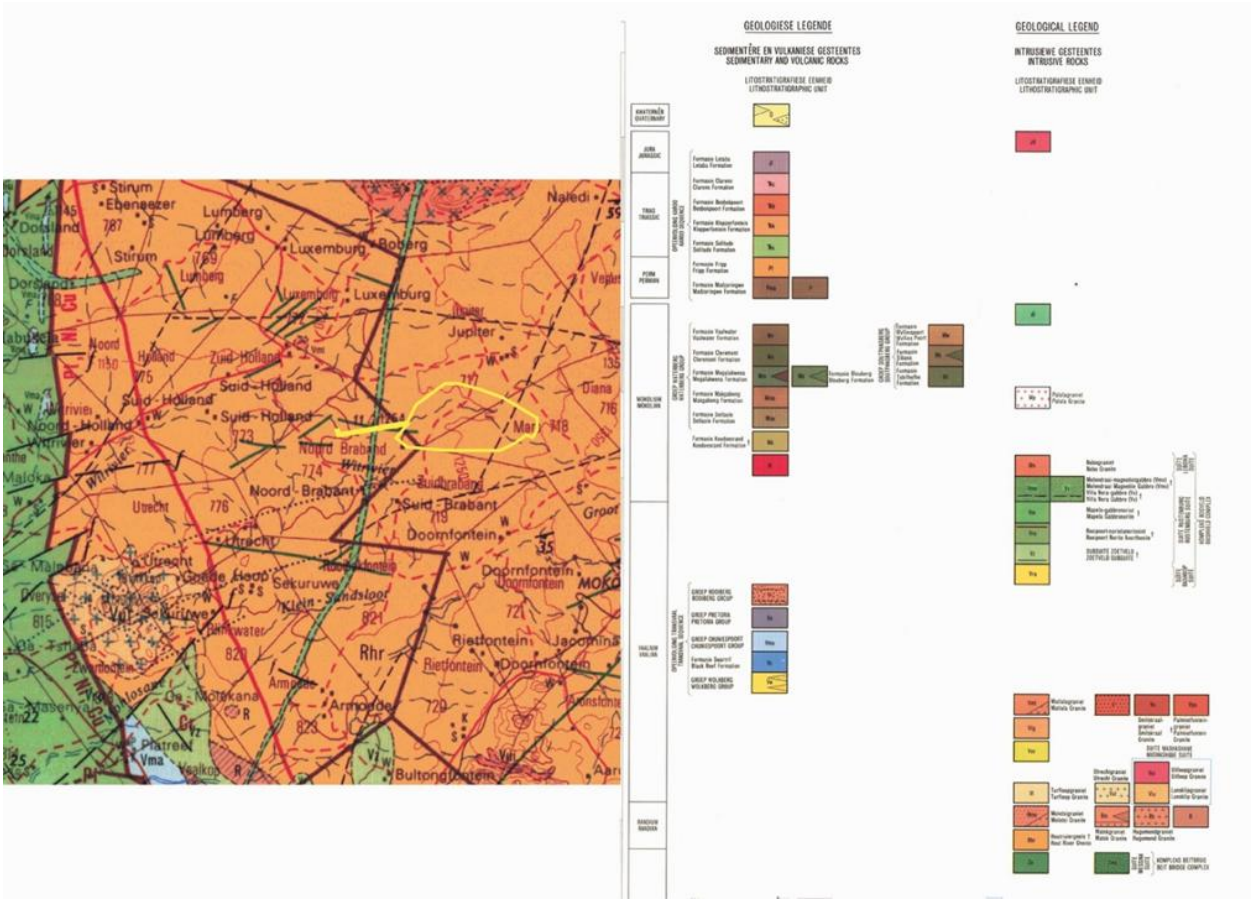


Figure 12. Geological map (Mavuso, 2026)

5.4 TERRESTRIAL AND AQUATIC BIODIVERSITY

5.4.1 TERRESTRIAL

According to the National South African Vegetation Map (2018), the study area falls within both the Central Bushveld Bioregion, within the Savanna Biome. The vegetation types that occur in this area include the Polokwane Plateau Bushveld and Makhado Sweet Bushveld. The proposed Solar PV facility site is largely located within the Polokwane Plateau Bushveld, while most of the associated transmission line passes through the Makhado Sweet Bushveld, with a small portion intersecting the Polokwane Plateau Bushveld. The vegetation types are described below:

(a) Polokwane Plateau

This vegetation type occurs on the higher plains around Polokwane, north of the Strydpoort Mountains and south of the Makhado Sweet Bushveld. Vegetation and landscape features include moderately undulating plains with short open tree layer with well-developed grass layers to grass plains with

occasional trees at higher altitudes (Mucina and Rutherford, 2006). This habitat is characterised by open savannah dominated by Red Grass (*Themeda triandra*) and scattered Umbrella Thorn (*Acacia/Vachellia tortilis*) and Silky thorn (*Acacia/Vachellia rehmanniana*) trees. Much of this habitat has been altered due to agricultural activities and the most pristine examples can be found in and around the Polokwane Nature Reserve (Limpopo Birding Routes, n.d.). The conservation status for this vegetation type is classified as **Least Concern (LC)**.

(a) Makhado Sweet Bushveld

The vegetation occurs on plains and slopes of the Soutspanberg, east of the Waterberg and surrounding the Blouberg and Lerataupje Mountains, and north of the Polokwane Plateau and west of the escarpment, extending south to Mokopane and north to Vivo in the Limpopo Province. The landscape is characterised by slightly to moderately undulating plains, with altitude ranging from 850- 1200 m. The vegetation is described as short stubby bushveld with a poorly developed grass layer (Biodiversity Africa, 2025). The conservation status for this vegetation type is classified as **Vulnerable (VU)**.

According to Limpopo Conservation Plan (2013), the proposed development footprint falls within Critical Biodiversity Areas (CBA) 2.



Figure 13. Vegetation conditions at the proposed site

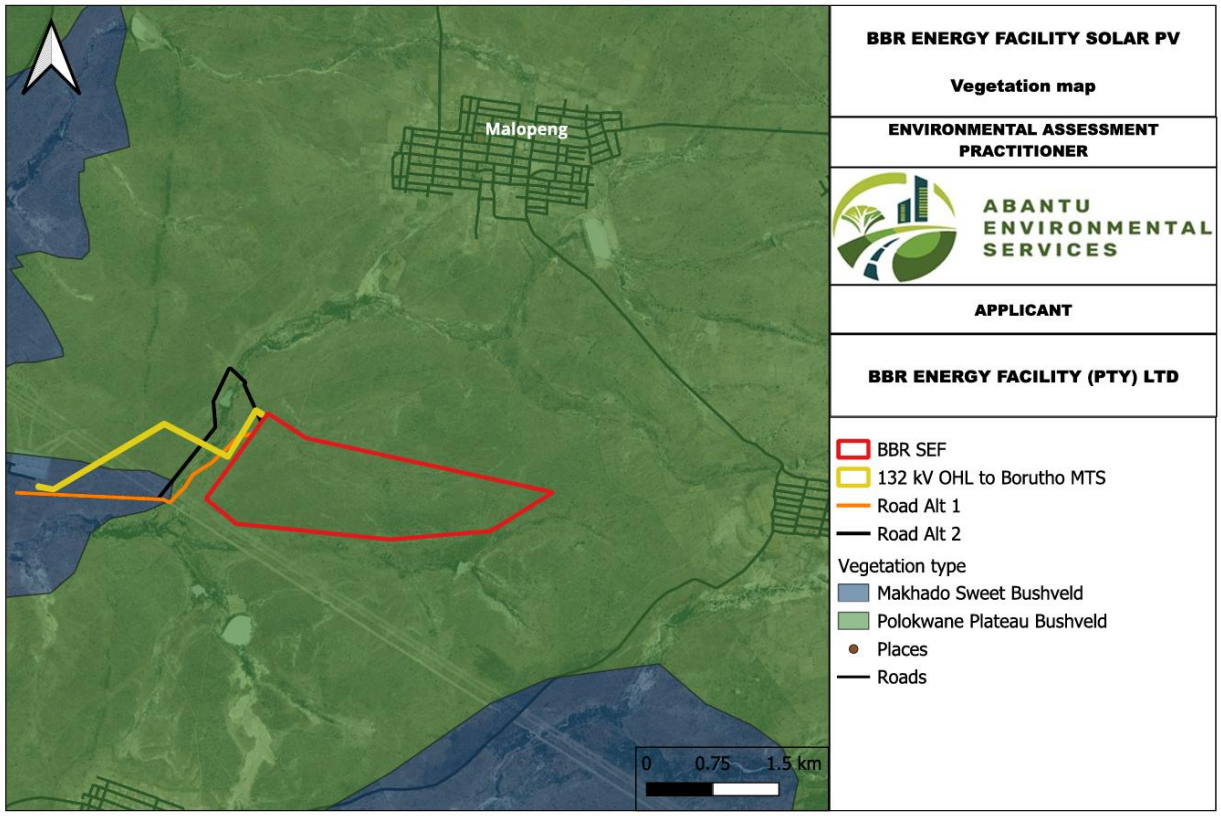


Figure 14. Vegetation map

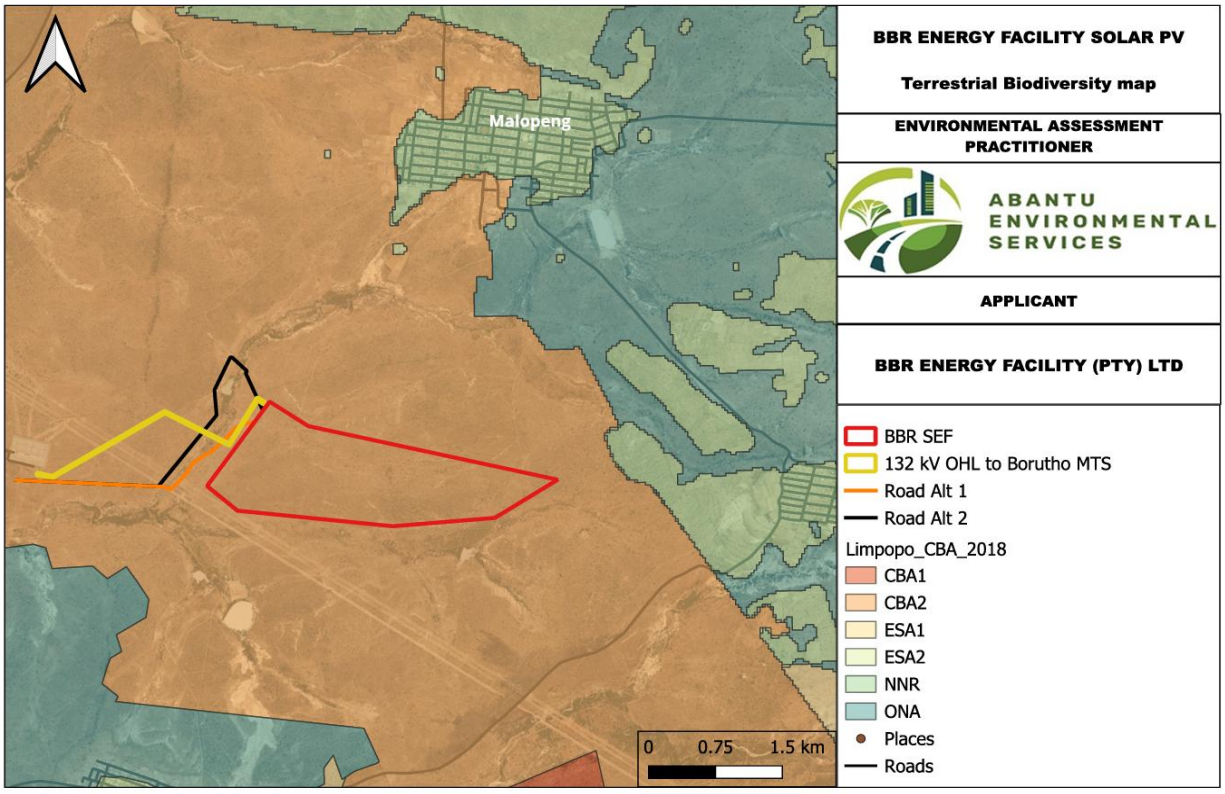


Figure 15. Terrestrial Biodiversity map

5.4.2 AQUATIC BIODIVERSITY

According to the national web-based environmental screening tool, the aquatic biodiversity sensitivity of the site is rated as Low. However, an ephemeral watercourse was observed in close proximity to the project area, and the proposed transmission route intersects this watercourse. In addition, an artificial wetland was observed within the proposed project area, specifically within the solar facility footprint.

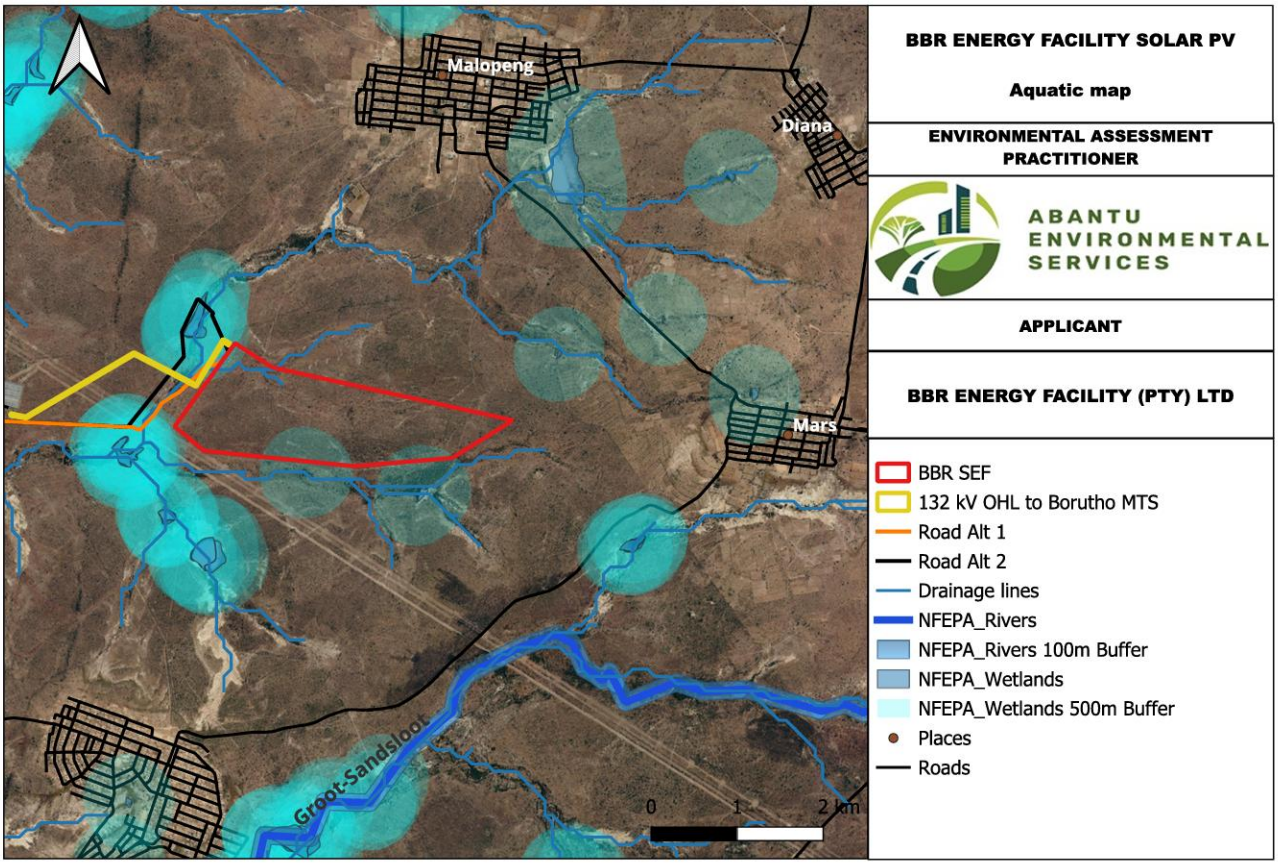


Figure 16. Aquatic CBA

5.5 FAUNA

The DFFE Screening tool listed the animal species theme for the Solar PV footprint as medium with the *Mammalia-Dasymys robertsii* listed as a potential animal species that can occur on site. The transmission line route is rated as having low sensitivity.

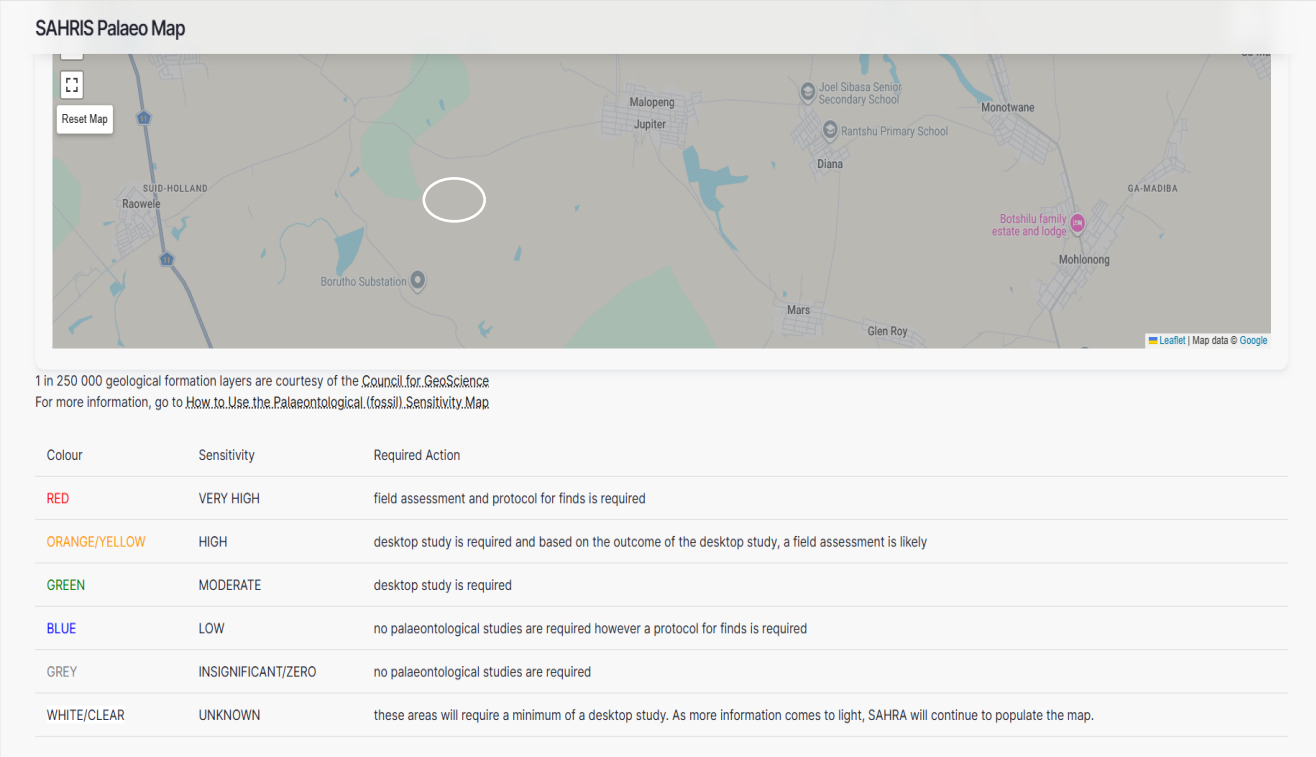
5.6 AVIFAUNA

According to the avifaunal impact assessment report, the assessment confirmed at least 73 bird species from the proposed site, including its Project Area of Influence (PAOI), covering around a 200m buffer. Most of these species are common residents and resistant to fragmentation or land change. There is one national protected species, the White-backed Vulture (Gyps africanus) – Critical Endangered category. The drainage lines

surrounding the project site may present suitable habitats for diverse species, but no SCC waterbird was observed.

5.7 ARCHAEOLOGY AND HERITAGE RESOURCES

According to the National Web-based Screening Tool the proposed area is rated as Low sensitivity. During the site visit no heritage resources were found within the Solar PV facility footprint and within the route of the proposed transmission line. According to Tsimba Archaeological Footprints (2026), there are no signs of heritage potential, graves and historical structures found within the study area and the farm at large. According to the paleo sensitivity map as seen on **Figure *17*** below the sensitivity on palaeontological resources within the proposed area is rated as 'Insignificant/Zero', as such no palaeontological studies are required. However, the screening tool rates the palaeo sensitivity as medium for the area, therefore a Palaeontological study was conducted.



Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 17. Palaeo Map

5.8 LAND USE

On 16 February 2018, Minister Edna Molewa published Government Notice No. 114 in Government Gazette No. 41445 which identified 8 renewable energy development zones (REDZ) important for the development of large-scale wind and solar photovoltaic facilities. The Government Notice included procedure to be followed when applying for environmental authorisation for large scale wind and solar photovoltaic energy facilities when occurring in these REDZs. On 26 February 2021, Minister Barbara Dallas Creecy, published Government Notice

No. 142, 144 and 145 in Government Gazette No. 44191 which identified 3 additional REDZs for implementation as well as the procedures to be followed when applying for environmental authorisation for electricity transmission or distribution infrastructure or large-scale wind and solar photovoltaic energy facilities in these REDZs. The REDZs were identified through the undertaking of 2 Strategic Environmental Assessments, the first being finalised in 2015 and the second being finalised in 2019.

According to the available dataset, the project area does not overlap with a REDZ.

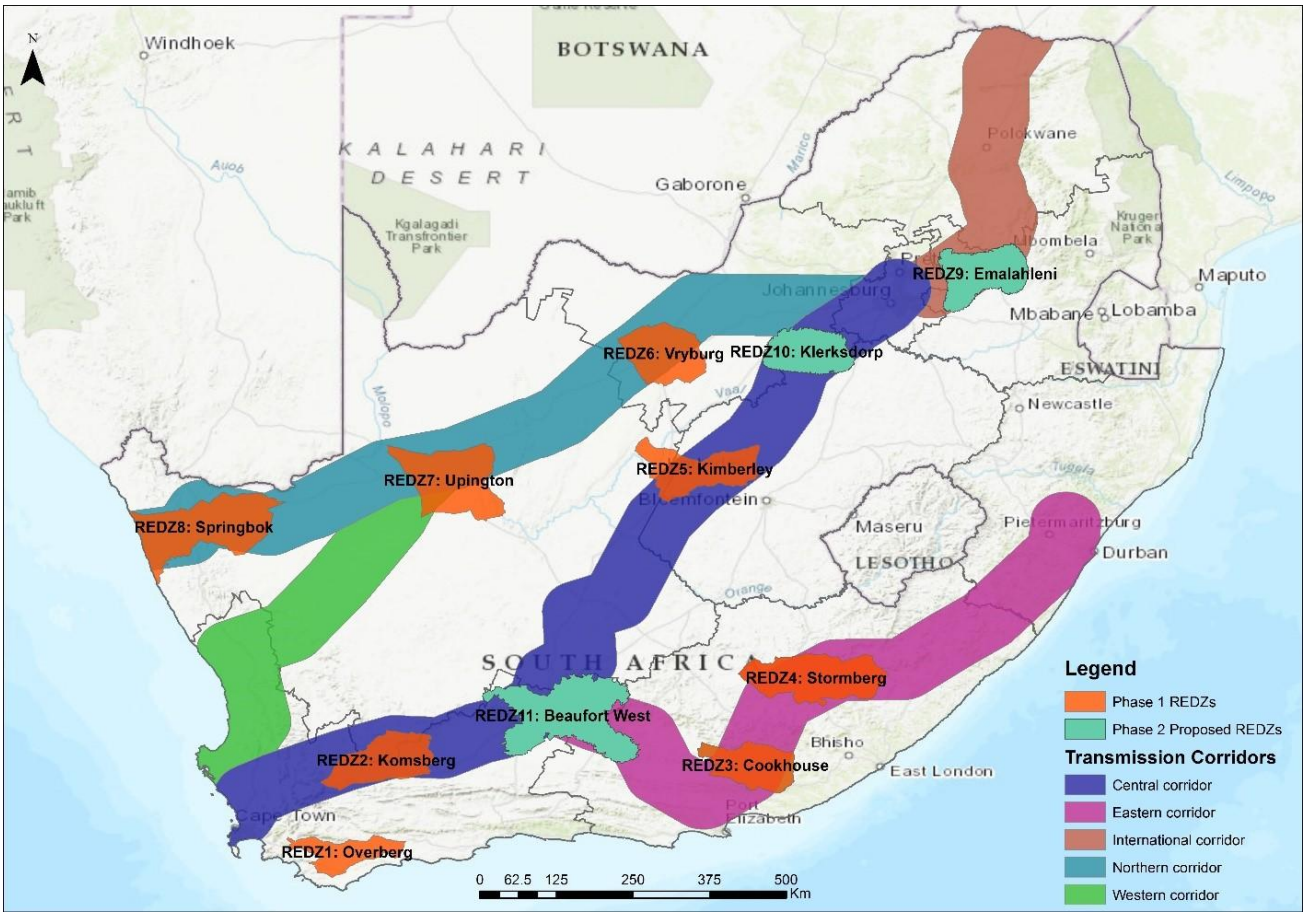


Figure 18. Renewable Energy Development Zones

5.9 STRATEGIC TRANSMISSION CORRIDORS

On the 16 February 2018 minister Edna Molewa published Government Notice No. 113 in Government Gazette No. 41445 which identified 5 strategic transmission corridors important for the planning of electricity transmission and distribution infrastructure as well as procedure to be followed when applying for environmental authorisation for electricity transmission and distribution expansion when occurring in these corridors. On 29 April 2021, Minister Barbara Dallas Creecy published Government Notice No. 383 in Government Gazette No. 44504, which expanded the eastern and western transmission corridors and gave

notice of the applicability of the application procedures identified in Government Notice No. 113, to these expanded corridors.

The project area falls within the International Strategic Transmission Corridor (see ***Figure 19***).

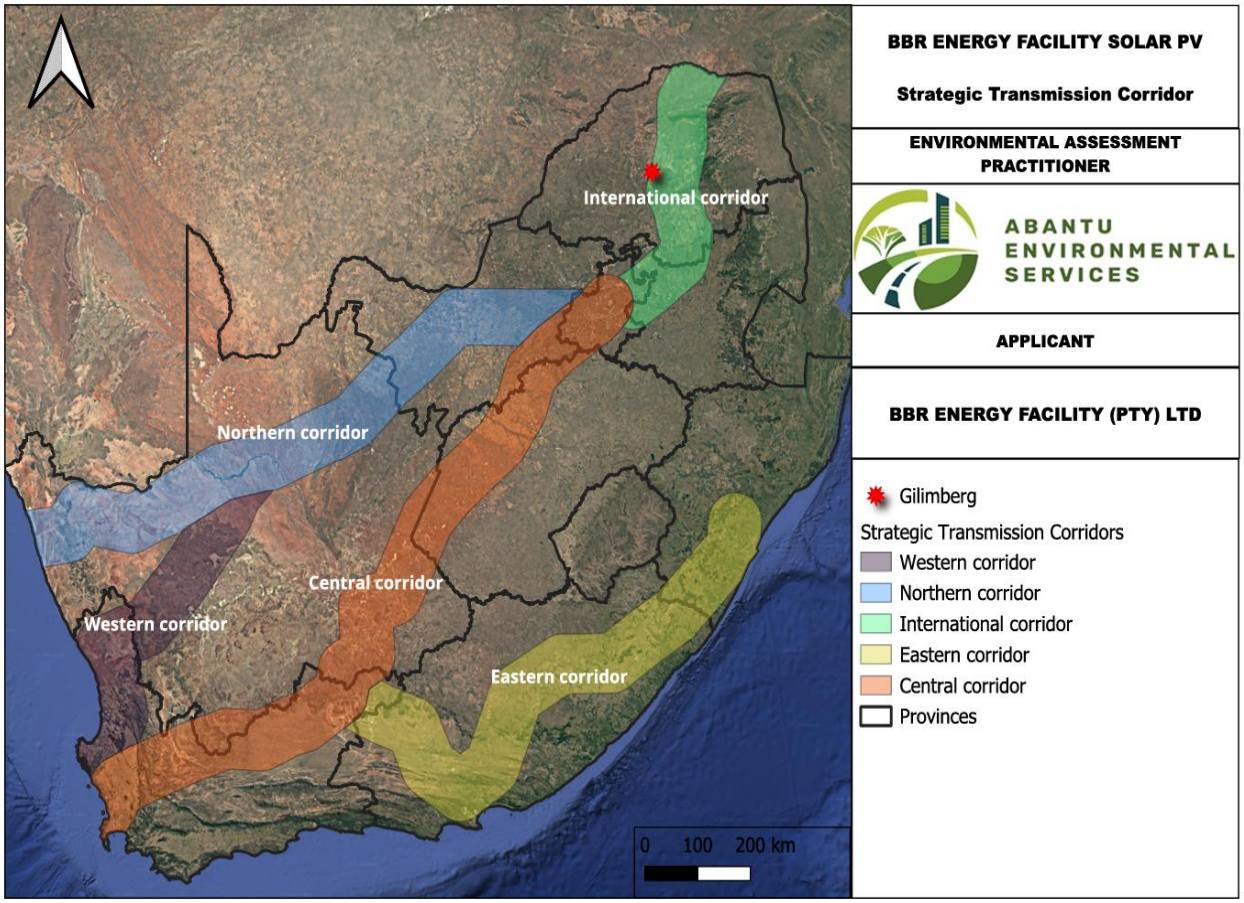


Figure 19. The project area in relation to strategic transmission corridor

5.10 SOCIO-ECONOMIC ATTRIBUTES

5.10.1 Social context of the District Municipality

The Waterberg District Municipality is a Category C municipality located in the southwestern part of the Province. The district is strategically located in sharing its borders with Capricorn District Municipality in the north and Sekhukhune District Municipality in the east. The municipality is the biggest district in the province, making up just more than a third of its geographical area. The largely rural district is made-up of five local municipalities, namely; Bela-Bela, Lephalale, Modimolle-Mookgopong, Mogalakwena, and Thabazimbi.

5.10.2 Social context of the Local Municipality

The Mogalakwena Local Municipality covers an area of approximately 6,166 square kilometers, which is equivalent to 616,600 hectares. and constitutes 12% of the total Waterberg District area (Mogalakwena Local Municipality IDP, 2025). According to Census (2022), the municipality has a total population of 378 198 and 109 294 households with an estimated population growth rate of 2.1% in 2022. In terms of educational attainment, 11.2% have no formal schooling, 8.4% completed/have some primary education, 35,8% have some form of secondary education, 31.7% have completed matric, 8.7% have some form of higher education, and 8.7% have no form of schooling. The total number of economically active people in the municipality is 78 647 with an unemployment rate of 40.2%. The unemployment rate of Mogalakwena is almost double that of the other municipalities in the district.

The economy of Mogalakwena municipality is primarily driven by general government services (20,01%), wholesale and retail trade (18,71%), and business services (16,17%). The primary economic sector contributes 12,36% of the municipal economy of which 2.82% is attributed to agriculture and 9.54% to mining (Mogalakwena Local Municipality IDP, 2025).

6 PUBLIC PARTICIPATION PROCESS

The Public Participation Process (PPP) is a requirement of several pieces of South African Legislation and aims to ensure that all relevant I&AP's are consulted, involved and their opinions are taken into account and a record included in the reports submitted to Authorities. The process ensures that all stakeholders are provided this opportunity as part of a transparent process which allows for a robust and comprehensive environmental study.

The public participation (PP) process has been undertaken in line with the requirements of Regulations 39 to 44 of the EIA Regulations as amended. The primary aim of the public participation process is to ensure that:

- Information that reasonably has or may have the potential to influence any decision regarding an application is made available to potential stakeholders and I&APs;
- Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans; and
- Comments received from potential stakeholders and I&APs are recorded and incorporated into the FEIR to be submitted to the Competent Authority.

The primary objectives of the public participation process are to:

- Inform and notify potentially I&APs of the proposed application (explain steps that were taken to achieve this);
- Initiate or promote meaningful and timeous participation of I&APs by providing proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed, or given;
- Maintain a list of all persons, organization and organs of state that were registered as interested and affected parties in relation to the application;
- Identify issues and concerns of key stakeholders and I&APs with regards to the application for the proposed project;
- Provide a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues; and
- Provide responses to I &AP's queries.

The PPP for this project has been undertaken in accordance with the requirements of the NEMA, as well as the principles of Integrated Environmental Management (IEM). IEM implies an open and transparent participatory process, whereby stakeholders and other I&APs are afforded an opportunity to comment on the project.

6.1 SCOPING PHASE

During the Scoping phase of this project, the key objective of public participation was to provide I&APs with an opportunity to provide comment and input in the planning phase of the project.

(a) Initial Notice

The first stage of public consultation was undertaken during the initial notification phase prior to the circulation of the draft scoping for public review. The initial notice was circulated on 28 April 2026 notifying the public about the proposed development and inviting I & APs to register.

(b) Advertisement and Notices

An advertisement was placed with the Polokwane Observer, site notices were erected in strategic areas around the site, notifying potential Interested and Affected Parties (I & AP's) of the availability of the Draft Scoping Report.

(c) Circulation of the DSR/ Submission of FSR

A draft Scoping Report (DSR) was compiled and made available for public comment for a period of 30 days, from 03 July – 03 August 2026 where after the Final Scoping Report (FSR) including Comments and Responses from the public was submitted to the Competent Authority, DFFE on 17 August 2026. On 01 October 2026, the DFFE accepted the FSR and confirmed that the project may proceed to the Impact Assessment Phase.

6.2 EIA PHASE

After acceptance of the FSR the assessment moves into the EIA phase. This entails the compilation of the Draft Environmental Impact Report (DEIR) and EMPr, 30 days comment period by I&APs and review by competent authority.

(b) Advertisement and Notices

An advertisement is placed with Polokwane Observer , site notices were erected in strategic areas around the site, notifying potential Interested and Affected Parties (I & AP's) of the availability of the Draft Environmental Impact Report (DEIR).

(c) Draft EIR and EMPr Public review

The DEIR and EMPr is made available to all I&APs for a 30-day comment period commencing from **13 November 2026- 14 December 2026**. Public meetings for presenting the DEIR will be conducted as follows:

Public meetings will be held as follows: Public meetings:

- Millenium Park Community Centre (10am)- 30 November 2026

(d) Final Environmental Impact Report (FEIR)

All comments made on the DEIR during public review will be captured and adequately responded to in the Comments and Response Report. Once the FEIR has been finalised, it will be submitted to the DFFE for decision making. When a decision if received from the department, I&APs will also be notified accordingly as per requirements.

(e) Notice of EA decision

- I&APS will be notified of the decision within 14 days from receipt of such
- A 20-day period will be allowed for appeals

6.3 SUMMARY OF COMMENTS RECEIVED

A full account of comments and responses as well as copies of all correspondences between the EAP and I&APs will be appended in a Comments and Responses Report in to be appended in Error! Reference source not found. of this report. The key issues expected to emanate during the public review period of this report will be summarised as follows;

Table 15. Key issues

Aspects	How issue(s) have been addressed
PPP is ongoing	PPP is ongoing

7 SUMMARY AND RECOMMENDATIONS OF THE SPECIALIST ASSESSMENTS

This section provides the key findings and recommendations for the conducted specialist studies. Specialist studies are appended as Appendix C of this report.

TERRESTRIAL IMPACT ASSESSMENT (Rachuene, 2026)

Key Findings

- The project area is characterised as a semi-natural system, historically used for game farming and subsistence agriculture, and currently utilised for communal livestock grazing, with additional disturbances including firewood collection and localised sand mining.
- Despite these pressures, the vegetation remains largely intact, with approximately 95 plant species recorded, predominantly indigenous, and 92% is dominated by indigenous.
- There are two protected species on site. Protected species, Sensitive Plant 1252 and the Marula tree (*Sclerocarya birrea afra*) have been observed on site.
- The site falls within the Makhado Sweet Bushveld (Vulnerable) and Polokwane Plateau Bushveld vegetation types. Although the project area is classified as CBA 2, it does not fall within protected areas, Key Biodiversity Areas (KBA), or threatened ecosystems, and no major aquatic systems are present apart from ephemeral drainage lines around it.
- The assessment confirmed the presence of one protected plant species and identified a high likelihood of occurrence of additional SCC, including *Elaeodendron transvaalense* (which is Near Threatened).
- The site supports moderate biodiversity and retains ecological functionality, including habitat provision and local connectivity and corridors. The ecological sensitivity of the site is therefore rated as medium, with a Moderate Present Ecological Status (PES) and Ecological Importance and Sensitivity (EIS).

Conclusion and recommendations

- Potential impacts include habitat loss, disturbance to fauna and flora, soil erosion, invasive alien plant spread, and localised changes to ecological connectivity. However, these impacts are typical of solar PV developments and can be effectively mitigated.
- The implementation of strict mitigation measures will reduce ecological risk to some extent. Key requirements include:
    - Application of the mitigation hierarchy is recommended. This prioritises the avoidance and minimising of impacts on all drainage lines.
    - Pre – construction botanical walk or search and rescue to identify all the SCC locations and quantity must be undertaken (before vegetation/site clearance). These plants must be relocated and replanted.
    - Micro-siting of infrastructure to avoid sensitive features (drainage lines).
    - Protection of semi-natural vegetation and drainage features with at least 50m buffer

  - Implementation of erosion control and stormwater management
  - Establishment of an Alien Invasive Plant Control Programme and Rehabilitation Plan
  - The rehabilitation of all areas destroyed during this project must prioritise the use of indigenous species
  - A waste management plan that must prioritise avoidance, minimising, prevention and protection of the environment must be developed and adopted. All persons working in the plant must be educated/inducted on this. The informative and awareness boards/posters/leaflets must be clearly displayed in publicly accessible areas.
  - Ongoing monitoring and compliance by an Environmental Control Officer (ECO) throughout the whole project life span.
- With the above measures in place, the significance of impacts can be reduced to low after mitigation.

AQUATIC BIODIVERSITY IMPACT ASSESSMENT (Rachuene, 2026)

Key Findings

- The assessment confirms at least, two drainage lines within the project site and its 200m buffer zone.
- The aquatic systems identified the only drainage lines which are less sensitive and exhibit general conditions of terrestrial system.
- The drainage lines are cut crossing or flowing from east to west. Drainage Line 1 cut across inside the site on the northern area, and Drainage Line 2 cut across on the southern boarder edge, outside the site.
- The Present Ecological State for the drainage lines was assessed. The systems are experiencing the similar pressure and threats or challenges. They are important for its hydrological catchment aspect. It collects and transports the runoff waters during rainfall into the downstream river feeding into wider provincial water sources.
- The geomorphology and vegetation have been modified by the existing activities such as overgrazing, wood cutting, fires and encroachment by invasive plants and Sickle Bush Tree.
- The Combined Ecological Category is C: Status – Moderately modified. A moderate change in ecosystem processes and loss of natural habitats has taken place but the natural habitat remains predominantly intact.
- The Regulating and Support Services of the systems are moderate. This is mainly due to its locality setting as a major receiver of the local waters down to major rivers of the province. Whilst the Provision and Cultural Services are Low on both supply and demand.
- For both drainage lines, the EIS for this system is Moderate.
- Both systems, provide moderate ecosystem services with the PES and REC category: C

Conclusion and recommendations

- The system's PES is determined as Moderate (Category C) and not sensitive to the disturbance whilst they are important to the hydrology catchment of the wide provincial value.
- There are currently experience similar pressure and threats emanating from agricultural activities and human presence.
- The proposed activity has potential to destabilises or modifies the soil structure, topography, and geomorphology, impeding the natural flow of water be within the drainage lines.
- This assessment recommends complete avoidance of the systems and buffer them with 100m.
- The proposed mitigation in this report must be implemented to the best of ability by the applicant, and duty of care must be applied. The proposed activities may be authorised with General Authorisation from competent authorities.
- It is the opinion of the specialist, with field-based facts and available resources, that the proposed activities of maintenance and construction of the solar plant should be considered.

AVIFAUNAL IMPACT ASSESSMENT (Rachuene, 2026)

Key Findings

- At least 73 bird species have been observed directly, either flying, perching, feeding, and interacting, from the project footprint, including the PAOI.
- Over 80% of these species are provincial species of conservation concern (LEMA).
- Nationally protected and Critically Endangered species, the White-backed Vulture (*Gyps africanus*) was observed soaring within the area, but no nesting or roasting sites (trees) are present within the footprint (including the 500m site buffer).
- The White-backed Vulture, generally colonial nesters, typically concentrated either in tall trees along watercourses or in open woodland areas (Mundy et al. 1992). This characteristic is not observed or suitable; therefore, the area is not suitable for nesting but for foraging/feeding (due to potential livestock carcasses from the local communities).
- Drainage lines surrounding the project site may present suitable habitats for diverse species, but no SCC waterbird was observed.

Conclusion and recommendations

- The site is medium-sensitive to the development of this nature, as it will permanently destroy the vegetation for local species. The main risks relate to habitat transformation, disturbance, and interactions with solar and grid infrastructure.
- The mitigation measures presented, including targeted habitat protection, specialist monitoring, infrastructure modifications, and pollution control, are reasonable and sufficient to reduce most impacts to low-medium significance. However, habitat loss is imperative, and probable and residual long-term habitat loss within the project footprint will occur.

- It is recommended that:
    - Pre-construction – an impact assessment will be conducted pre-construction during the dry season (May – August) to identify and confirm/dispute the findings of this assessment. Preferably within 12 months prior to the construction phase starting.
    - Construction and operation proceed only under the guidance of an independent avifaunal specialist.
    - The drainage lines as water courses must be clearly marked and demarcated with signage from their 50m buffer line.
    - Mitigation measures should be implemented in full, with adaptive management applied if mortality or displacement exceeds expected thresholds.
    - Long-term monitoring will be carried out, particularly on vultures, eagles, and large terrestrial birds, with reporting to relevant authorities and stakeholders.
    - The project aligns its monitoring programme with Birdlife South Africa's solar guidelines and the Draft Avian Protocol for solar facilities.
- It is herewith the specialist's experience, knowledge, and opinion, supported by literature and this field survey evidence, that the environmental permitting of this proposed project should be considered.
- Condition that, during the construction and operations stage, a monitoring of birds within the project site and the surrounding area will be conducted for at least a full year period.
- Provided strict adherence to mitigation and monitoring protocols to safeguard avifaunal diversity in the region.

AGRICULTURAL - SOIL, LAND USE, & LAND CAPABILITY ASSESSMENT (Setsipane, 2026)

Key findings

- Based on the observations during the site assessment, the dominant soils within the study area are Mispah/Glenrosa, Dundee and Witbank.
- The majority of the soils occurring within the study area do not meet the conditions for agricultural suitability to a certain extent, and these conditions include:
    - Adequate depth (greater than 60 cm) to accommodate root development for the majority of cultivated crops;
    - Good structure, as in water-stable aggregates, which allows for root penetration and water retention;
    - Sufficient distribution of high-quality and potential soils within the study area to constitute a viable economic management unit and
    - Good climatic conditions, such as sufficient rainfall and sunlight, increase crop variety.
- Most of the study area (90%) is characterised by shallow soils, which are better suited to grazing and small-scale farming. Overgrazing has largely impacted the study area, leading to degraded rangeland.

The dry climate and limited rainfall also limit how quickly grasses can regenerate. Thus, overgrazed, bare land cannot absorb water effectively.

- The proposed solar PV facilities and the overhead power line are not expected to significantly impact agriculture, as they will not hinder future agricultural production in the study area.
- Overall, the land capability of the adjacent soils, along with their agricultural potential, remains very limited.

Conclusion and recommendations

- The proposed overhead powerline to Borutho MTS is not expected to significantly impact agriculture, as it will not affect the future capacity of agricultural production in the study area. All agricultural activities (if any) can continue as usual underneath the power line. Additionally, construction and decommissioning of the power line may cause topsoil loss and land degradation due to land disturbance.
- The potential impact of the project can be effectively mitigated through the implementation of standard, generic measures inherent in the project's engineering design, as well as by adhering to standard best practices for construction sites, all of which are detailed in the Environmental Management Programme (EMPr) as contained within Part B-Section 1 and 2 of the generic EMPr and standards for powerlines and substations.
- The development of the powerline is anticipated to result in only minimal loss of future agricultural production potential. Therefore, the agricultural impact of the proposed solar energy facility and associated powerlines is deemed to be of very low significance.
- In this case, the study area is considered below the threshold for needing conservation as agricultural production land because its limitations make it unsuitable for cropping.
- If this land were used for non-agricultural purposes, it would result in minimal loss of agricultural production potential relative to national food security. As a result, the overall adverse agricultural impact of the development (loss of future agricultural production potential) is considered of low significance.

PALEONTOLOGICAL IMPACT ASSESSMENT (Mavuso, 2026)

Key Findings

- The assessment has established that the study area is underlain predominantly by high-grade metamorphic rocks of the Limpopo Belt, specifically the Hout River Gneiss of the Southern Marginal Zone.
- These lithologies formed under elevated temperatures and pressures during Neoarchaean tectonic collision and do not preserve palaeontological material.
- No fossil-bearing sedimentary formations are mapped within the development footprint, and no palaeontological sites or recorded fossil occurrences are known from the immediate vicinity of the study area.

- On this basis, the proposed development is not expected to have a direct impact on palaeontological heritage resources.
- From a palaeontological perspective, no further specialist palaeontological studies or field investigations are required prior to the commencement of construction activities.

Conclusion and recommendations

- As a precautionary measure and in accordance with best practice and heritage management guidelines, it is recommended that a Fossil Chance Find Protocol be incorporated into the Environmental Management Programme (EMPr).
- This protocol should outline procedures to be followed in the unlikely event that palaeontological material is encountered during construction, including the cessation of work in the affected area and notification of a qualified palaeontologist or the relevant heritage authority.
- Provided that the recommended Fossil Chance Find Protocol is implemented, the proposed construction of the Gillimberg Solar PV Facility and Associated Infrastructure - Phase 2 may proceed without constraints from a palaeontological heritage perspective.
- While pre-construction mitigation measures are not required, it is advisable to implement the following recommendations to ensure appropriate heritage management during excavation and construction activities:
    - ECO Awareness: The Environmental Compliance Officer responsible for overseeing the project should be informed of the geological context of the site and the extremely low likelihood of encountering palaeontological material.
    - Construction Manager Awareness: Construction managers and supervisory personnel should be made aware of the procedures to follow in the unlikely event that fossil material is encountered.
    - Exposure Inspection: Any new geological exposures created during excavation for foundations, cable trenches, substations, or access roads should be visually inspected as part of routine environmental monitoring.
    - Qualified Palaeontologist Notification: In the unlikely event that fossil material is discovered, work in the immediate vicinity must cease and a qualified palaeontologist or the relevant heritage authority must be contacted for further guidance.
    - Recording and Sampling: Any palaeontological material identified as scientifically significant must be recorded and sampled by a qualified specialist. The costs associated with this activity shall be borne by the developer as part of responsible heritage management.

ARCHAEOLOGICAL AND CULTURAL HERITAGE IMPACT ASSESSMENT (Muroyi, 2026)

Key Findings

- Land use in the surrounding area is predominantly agricultural and mining-related, with rural settlements dispersed across farm portions.

- The land within the Jupiter locality and the broader Waterberg region was utilised primarily for pastoral farming, with cattle herding forming a central component of both pre-colonial and colonial land-use systems.
- During the survey a number of cattle were seen grazing within the proposed development site.
- There is no sign of sites of heritage potential, graves and historical structures found in within the study area and the farm at large.
- Although no remains of Stone/ Iron Age sites were noted during site visit, the area could still contain camps and some areas with suitable substrates that could have been used as quarries for material to produce tools.

Conclusion and recommendations

- This report concludes that there are no fatal flaws expected for this project. The impacts of the proposed solar farm development on the cultural landscape will not be significant as no cultural heritage resources were recorded during the field survey.
- The potential for stratified archaeological deposits was assessed as negligible given the local geology and predictive site patterning.
- However archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during development activities, according to the NHRA Section 36, such activities should be halted, SHRA or the Limpopo Provincial Heritage Authority must be notified in order for an investigation and evaluation of the find(s) to take place.
- From a heritage perspective, the proposed development may be allowed to proceed subject to the recommendation given below.
- Measures for inclusion in the EMPr:
    - No further archaeological mitigation is required prior to construction, provided that the development footprint remains within the assessed area.
    - Lack of archaeological find on the surface does not mean absence of archaeological find on the subsurface, therefore should chance archaeological materials or human burials remains be exposed during construction work on any section of the proposed development laydown sites, work should cease on the affected area and the discovery must be reported to the heritage authorities immediately so that an investigation and evaluation of the finds can be made.
    - Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the Limpopo Provincial Heritage Authority.
    - Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the endorsement by Limpopo Provincial Heritage Authority.

- A Chance Finds Procedure must be implemented during all ground-disturbing activities and should be included in the EMPr. Should any archaeological material, human remains, or cultural features be uncovered during construction, work in the affected area must cease immediately, and a suitably qualified archaeologist must be notified in accordance with Sections 35 and 36 of the NHRA.

VISUAL AND LANDSCAPE IMPACT ASSESSMENT (Spamla, 2026)

Key Findings

- The VIA has determined that the visual character across much of the study area is of high conservation value, however, it has been disturbed by pre-existing transmission lines and nearby cultivated agricultural plots hence resulting in a "specialised commercial electrical corridor" sense of place.
- Following the classification system, the proposed project is classed as a "Category 5 development". The vicinity of the receiving environment can be described as an area of high scenic, cultural or historical significance. It is expected that the proposed project will potentially have a very high visual impact on the receiving environment
- The proposed development has the potential to introduce a distinctly industrial and technological character into the receiving environment, with the magnitude of the visual impact likely to vary according to viewing distance, topography, vegetation cover, and the visibility of the infrastructure from surrounding roads, settlements and other sensitive visual receptors.
- It is anticipated that visual impacts will result from the activities and infrastructure in all Project phases i.e., construction, operational, and closure.
- Activities associated with the Project will be visible, to varying degrees from varying distances around the Project site. During the establishment phase, the Project's visibility will be influenced due to the preparatory activities, primarily earthworks and infrastructure establishment.
- During the operation phase, the visibility of the Project will be the result of landscape scarring, powerlines and prominent structures of the PV arrays and tall structure within the plant area.
- The resultant viewshed analysis for the proposed development components indicates that elements of the proposed phase 2 SEF would be visible from much of the 5 km ZVI and from all identified viewpoints/receptors.

Conclusion and recommendations

- The assessment has concluded that the proposed development would be of High significance in visual impact during the construction phases of the project, with a Moderate significance post mitigation. While the potential visual impact would be of Moderate significance during the operational phase of the project, with a Moderate significance post mitigation.
- The decommissioning phase would be of Low significance post mitigation.

- Considering the location of the proposed development, the introduction of the Phase 1 SEF, will result in significant visual intrusion or significantly alter the visual sense of place post-mitigation in the study area.
- This takes into account the effect of the magnitude/footprint size of the phase 1 PV plant area (300ha) which will result in visual impacts that the proposed infrastructure will have in comparison to the pre-existing developments/disturbances within the study area.
- Considering this, cumulative impacts post mitigation have been rated as Moderate during the construction and operational phases of the project, and Low during the decommissioning phase.
- The proposed phase 1 development will result in moderate alteration the current visual character of the landscape, hence authorisation approval is recommended with adherence to the following management and mitigation measures:
- Retain and maintain natural vegetation (if present) immediately adjacent to the development footprint.
- Ensure that vegetation cover adjacent to the development footprint (if present) is not unnecessarily removed during the construction phase, where possible.
- Restrict the activities and movement of construction workers and vehicles to the immediate development footprint and existing access roads.
- Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.
- Screen the construction camp and laydown area yards by enclosing the entire area with a dark green or black cloth of no less than 2m height.
- Where possible, utilize existing screening features such as dense vegetation and topographical features to place the construction camps and lay-down yards out of the view of sensitive visual receptors.
- Reduce and control construction dust using approved dust suppression techniques as and when required (i.e., whenever dust becomes apparent).
- Reduce the construction period by ensuring that adequate resources are mobilised for the construction phase.
- Rehabilitate all disturbed areas (if present / if required) immediately after the completion of construction works.
- Limit the construction phase duration to a shortest term possible.

SOCIO-ECONOMIC IMPACT ASSESSMENT (Dr de Wit, 2026)

Key Findings

- The most significant sensitive receptors in the affected socio-economic environment include unemployed and low-income households, particularly those located in surrounding rural settlements, as well as people with relatively low levels of education, post-school training and access to formal economic opportunities.

- The local municipal economies are also sensitive receptors because they are concentrated in a limited number of economic sectors and have experienced modest and uneven economic growth.
- Inadequate energy security represents an additional sensitive receptor because electricity constraints threaten investment, service delivery and local economic development.
- Collectively, these receptors reflect a context of substantial unemployment, poverty, inequality and socio-economic vulnerability, increasing the sensitivity of the area to both the positive and negative impacts of the proposed development.
- From a positive perspective, the proposed Energy Facility is expected to make a meaningful contribution to local economic activity, particularly during the construction phase, through employment creation, increased demand for goods and services, skills development and a contribution to local GDP. These impacts are particularly important in the Polokwane and Mogalakwena Local Municipalities, where unemployment, poverty and inequality are significant socio-economic challenges.
- During the operational phase, the proposed Energy Facility is expected to create permanent or long term employment opportunities. It will furthermore contribute to local and regional energy security and socio-economic development as a cumulative impact, while also strengthening recurring municipal revenue through property rates and other applicable charges.
- However, the SEIA also identifies negative impacts that require careful management. These include:
    - Increased construction-related traffic on the N11 and local access routes, with associated risks to motorists, workers, pedestrians and other road users.
    - The potential for increased theft, intimidation, extortion and other organised criminal activity during construction.

Conclusion and recommendations

- The Bohwa Bja Rena Communal Property Trust's approval of the proposed Energy Facility should not replace regular consultation with affected households and land users during the construction and operational phase.
- Communication should occur through an agreed stakeholder-engagement forum, supported by scheduled meetings and written reports in appropriate local languages.
- The Communal Property Trust should receive regular, accessible updates on the following matters during construction and operation:
    - Project programme and activities: construction schedules, commissioning dates, operational arrangements and any material changes to the approved project.
    - Land access and use: areas affected, access restrictions, fencing, servitudes, impacts on grazing or cultivation, and arrangements for restoring disturbed land.
    - Employment and procurement: available jobs, required skills, recruitment procedures, selection criteria, local-content commitments and opportunities for local suppliers.
    - Community impacts: expected noise, dust, traffic, visual effects, safety risks and possible disruption to livelihoods or access routes.

- Traffic and public safety: delivery schedules, abnormal-load movements, road closures, emergency procedures and measures protecting pedestrians, livestock and other road users.
- Environmental management: vegetation clearing, erosion control, waste management, water use, fire prevention and the management of hazardous materials, particularly those associated with the BESS.
- Community health and safety: site security, electrical hazards, fire and explosion risks, emergency-response arrangements and appropriate community warning procedures.
- Benefits and commitments: progress with community-development initiatives, training, local enterprise support and other undertakings made by the developer.
- Complaints and grievances: contact details for the Community Liaison Officer, procedures for lodging complaints, response times and feedback on how grievances have been resolved.
- Monitoring and incidents: environmental and socio-economic monitoring results, non compliance, accidents, security incidents and the corrective measures implemented.
- Operational matters: maintenance activities, changes in employment, ongoing land-use restrictions, BESS replacement or disposal, and emergency preparedness.
- Closure or decommissioning: anticipated timing, workforce implications, removal or rehabilitation measures and future land-use arrangements.

- The proposed Energy Facility is considered socio-economically acceptable, as the positive impacts – particularly those related to employment creation, skills development, economic stimulation, municipal revenue and energy security – are likely to outweigh the identified negative impacts.

8 IDENTIFIED ENVIRONMENTAL IMPACTS

It is expected that proposed development will have environmental and social impacts during the construction and operational phases. The impacts have been identified by the EAP, specialist studies and informed public participation process conducted in the scoping phase.

Table 16: Summary of identified impacts

Impacts/ Aspects	Description
PLANNING AND DESIGN PHASE	
Legal and social compliance	• Commencement of project construction and activities without lodging and obtaining relevant authorisation applications and being approved will result in authorities halting the projects, issuing fines, implying no development commencement.
Site establishment	• The establishment of a construction site requires appropriate planning to achieve a holistic balance between efficacy and cost-efficiency of construction activities as well as minimised environmental damage.
Poor site planning and layout	• Failure to avoid sensitivities resulting in unnecessary loss of semi-natural vegetation, protected species (including *Elaeodendron transvaalense*), and disruption of local ecological connectivity
Existing civil services, infrastructure and properties	• Disruption and damage of water supply, powerlines, infrastructure and other properties in close proximity to the proposed site.

Impacts/ Aspects	Description
CONSTRUCTION PHASE	
Direct	
Legal and social compliance	• Failure to fulfil legal environmental compliance may lead to overall disapproval and failure of the project.
Site establishment and security	• The establishment of a construction site requires appropriate planning to achieve a holistic balance between efficacy and cost-efficiency of construction activities as well as minimised environmental damage.
Water consumption	• Increased freshwater use for construction and drinking purposes.
Sanitation	• Lack of supply of ablution facilities for construction workers may result in the pollution of the immediate and surrounding receiving environment of the facility and may pose a health hazard to users.
Direct loss of indigenous vegetation and disturbance of habitats due to construction of PV facility and transmission line	• The solar PV facility and associated infrastructure will require the clearance of vegetation which is likely to result in the loss of vegetation and disturbance of habitats, which can consequently result in the alteration and/or fragmentation of ecosystems on the site.
Direct loss of CBAs	• The proposed development will result in the disturbance of CBA 2 as identified in the Limpopo Conservation Plan.
Disturbance of fauna and loss of habitats	• Clearing of vegetation and construction activities may lead to the displacement of fauna and alteration of habitats, potentially resulting in loss of biodiversity and ecosystem fragmentation.
Disturbance of the surface resulting in increased risk of AIPs	• Disturbance of the surface resulting in increased risk of AIPs.
Impact on avifauna- bird mortality	• The clearing of vegetation within the proposed development footprints would result in the loss of avifaunal habitat.
Impact on the aquatic environment	• The proposed development could have an impact on the ephemeral drainage lines found in close proximity to the site either through direct disturbance or indirectly through contamination from spills.
Soil disturbance during construction leading to erosion, sedimentation of drainage lines,	• Soil impacts during construction from plant activities
Visual impact	• The proposed project would potentially alter the landscape character of the site. This could have some visual implications for the immediate surrounding area.
Waste management	• Lack of adequate waste management during construction could result in spread of litter which may pollute or affect the surrounding environment.
Traffic impact	• The proposed project would result in an increase in traffic volumes generated during the construction and operational phases of the proposed project, which may affect the standard on the existing road network due to increased vehicle trips.
Noise pollution	• During construction noise from machinery and vehicles may potentially cause nuisance to community members close to the proposed area.
Air pollution	• During construction dust generated from vegetation clearing and the movement of vehicles on unsurfaced roads may contribute to elevated particulate matter levels in the air on a local scale.
Chemical spills and hydrocarbon leaks resulting in localised	• Environmental pollution and contamination by potential spills and leakages of dangerous substances

Impacts/ Aspects	Description
soil contamination and impacts on vegetation and soil biota	
Paleontological and heritage resource disturbance	• Damage to cultural, heritage, archaeological and paleaontogical resources during construction activities such as excavations and plant movement.
Economic and employment opportunities	• During the construction phase the development will create temporary job opportunities both direct and indirect in return stimulating the local economy. • A project such as the proposed Energy Facility is expected to stimulate local economic activity, generate employment opportunities, and produce a range of secondary effects through relevant economic multipliers and knock-on effects. The associated impacts include: o Creation of employment opportunities during the construction and operational phases (direct / indirect impacts). o Contribution to local GDP and economic development through capital expenditure during the construction phase (indirect impact). o Contribution to increased economic activity via the demand for local and/or regional goods and services during the construction phase (indirect impact). o Contribution to energy security and contemporary socio-economic development during the
Indirect	
Indirect economic benefits associated with the construction phase	• Contribution to local GDP and economic development through capital expenditure during the construction phase • Contribution to increased economic activity via the demand for local and/or regional goods and services during the construction phase
OPERATIONAL PHASE	
Continued habitat transformation and restriction of faunal movement within the solar facility footprint	• The operation of the facility may result in the continued transformation of habitat and restriction of faunal movement within the solar facility footprint, thereby reducing habitat connectivity.
Disturbance to fauna due to maintenance activities, human presence, and occasional vehicle movement	• Operational activities, including maintenance, human presence and occasional vehicle movement, may result in continued disturbance to surrounding fauna.
Collision of birds with solar farm	• Collision risk may arise when birds in flight strike solar farm infrastructure, particularly associated transmission lines that connect the facility to the grid.
Electrocution of birds when perched on towers	• Electrocution risk within a solar farm development is generally limited to supporting infrastructure such as substations, transformers, and overhead conductors within the facility boundary. While the photovoltaic panels and ground-mounted arrays themselves do not present a hazard, certain structures can attract large raptors and scavenging birds that may perch or attempt to roost.
Disturbance of key habitats and pollution of the surrounding environment	• Land pollution may occur through improper management of solid waste, oil leaks, chemical spills, and construction debris, which can degrade habitats and reduce the ecological integrity of the site.

Impacts/ Aspects	Description
Landscape change from current sense of place to industrial area due to the solar PV facility	• During the operation phase the solar panels will change the landscape at the proposed site and may be visible to surrounding rural settlements.
Potential soil and water contamination associated with the BESS	• The operation and maintenance of the proposed BESS may result in potential soil and water contamination due to accidental leakage or spillage of hazardous substances associated with battery components. Inadequate maintenance, equipment malfunction or improper handling of hazardous substances may result in pollutants entering the surrounding soil and stormwater runoff, potentially affecting surface water and groundwater resources.
Potential fire and associated environmental and safety impacts from the BESS	• The operation of the proposed BESS may pose potential fire risks associated with battery malfunction, overheating, electrical faults or damage to battery components.
Potential environmental contamination from improper management of BESS waste	• The maintenance, replacement and decommissioning of the BESS may result in the generation of battery-related waste, including damaged, defective or end-of-life battery units and associated components. Inappropriate handling, temporary storage or disposal of these materials may result in the release of hazardous substances.
Environmental disturbance associated with the dismantling of the Solar energy facility and associated infrastructure	• The decommissioning of the proposed Solar PV facility will involve the dismantling and removal infrastructure. These activities may result in temporary environmental disturbances. These activities may result in dust generation, noise, soil disturbance, vegetation damage and waste generation, potentially affecting the surrounding environment if not adequately managed.
Creation of employment	• The proposed development would stimulate both direct and indirect employment opportunities during the construction and operation phases.
Energy security	• The proposed development will provide the needed enhancement to the local supply of electricity.
Cumulative impacts	
Empowerment impacts	• The developer will be required to undertake an economic empowerment process to ensure the utilisation of local labour for the proposed development. The related impact includes:
Public health and safety impacts	• The construction of the proposed Energy Facility will involve the movement of relevant heavy vehicular traffic and the daily transport of workers. During this time, the proposed development is also likely to have crime-related impacts on its immediate receiving environment. Related impacts include: • Public health and safety impacts during the construction phase, due to increased construction related vehicular traffic • Increased criminal activity during the construction phase
Institutional impacts	• The Polokwane Local Municipality will host Phase 1 of the proposed Energy Facility which will contribute to municipal income through rates and taxes. The related impact includes: • Increase in municipal income through additional rates and taxes during the operational phase (indirect impact).
DECOMMISSIONING PHASE	
No-go	• Option to sustainable operate the facility through upgrades/refurbishments relevant in the long term.
Failure to implement decommissioning within environmental legislative and social contexts	• Decommissioning implementation, if pursued, without the necessary planning and environmental approvals.

Impacts/ Aspects	Description
Environmental disturbance associated with the dismantling of the Solar energy facility and associated infrastructure	• The decommissioning of the proposed Solar PV facility will involve the dismantling and removal infrastructure. These activities may result in temporary environmental disturbances. These activities may result in dust generation, noise, soil disturbance, vegetation damage and waste generation, potentially affecting the surrounding environment if not adequately managed.

8.1 CUMULATIVE IMPACTS

Cumulative impacts refer to the combined effects of the proposed development together with existing and reasonably foreseeable activities within the broader landscape. The proposed Solar PV facility is located within a landscape that already includes existing infrastructure, such as solar PV facilities, power lines and a substation. The cumulative impact assessment considered the combined impact of the proposed development and other renewable projects within a 30 km radius. According to the National Screening Tool and REEA Database (quarter 4, 2025), there are five approved solar PV projects within 30 km radius of the proposed solar PV facility (see ***Table 17***).

Table 17. Solar projects within 30 km radius

DFFE Reference number	Project name	Capacity (MW)	Status
14/12/16/3/3/2/2430	The Proposed Development of the ABO Ndau Solar Energy Facility 2 and associated infrastructure, located within the Polokwane Local Municipality and Capricorn District Municipality, Limpopo Province.	80	Approved
14/12/16/3/3/1/634	The Proposed Development of a Photo Voltaic Solar Electricity Generator on Portion 36 of farm Piet Potgietersrust and Townlands 44 Ks, Mogalakwena Local Municipality, Waterberg District, Limpopo Province.	10	Approved
14/12/16/3/3/2/2583	Proposed Renewable Energy Generation Project Rietfontein PV Plant on Farm Rietfontein 69 LS, Polokwane Local Municipality, Capricorn District Municipality, Limpopo Province	150	Approved
14/12/16/3/3/2/2431	The Proposed Development of the ABO Ndau Solar Energy Facility 1 and associated infrastructure, located within the Polokwane Local Municipality and Capricorn District Municipality, Limpopo Province.	120	Approved
12/1/9/2-W89	The Proposed Photovoltaic Energy Facility on the farm 823 ptn 3 near Mogalakwena Mine	90	Approved

Table 18 below provides the cumulative impacts of the proposed development.

Table 18. Cumulative impacts

Impacts/ Aspects	Description
Cumulative impacts on terrestrial animal species due	The proposed development together with existing developments within the surrounding landscape may contribute to the incremental loss and fragmentation of semi-natural vegetation, resulting in reduced habitat availability for terrestrial animal species. The

to direct threats and habitat loss and transformation	combined effects of habitat transformation and disturbance may also affect species of conservation concern and reduce ecological connectivity at a local scale.
Cumulative loss of natural vegetation and degradation of ecosystem function	The cumulative effects of vegetation clearing and habitat transformation associated with the proposed development and other land-use activities may result in the gradual alteration of vegetation structure and composition within the surrounding landscape. This may further reduce ecosystem resilience, particularly in previously disturbed areas where invasive alien plant species have not been effectively controlled.
Cumulative impacts on hydrological and soil processes due to vegetation loss and land disturbance	The proposed development, in combination with other developments and land-use activities, may contribute to localised increases in surface runoff and soil erosion where vegetation cover is removed or disturbed. These impacts may result in cumulative sedimentation of ephemeral drainage lines within the surrounding landscape.
Cumulative visual impacts associated with increased infrastructure development	The proposed development, together with existing infrastructure and other developments within the surrounding area, may contribute to the incremental alteration of the visual character of the landscape. However, these are not expected to significantly alter the broader landscape character.
Cumulative positive socio-economic impacts associated with job creation and local economic development	The proposed development, together with existing and other planned renewable energy developments within the surrounding area, may contribute to cumulative socio-economic benefits through employment creation, skills development and increased economic activity. The combined developments may create direct and indirect employment opportunities.

8.2 IMPACT ASSESSMENT METHODOLOGY

This section provides the methodology for assessing the significance of impacts associated with the activity. The criterion for determining impact significance has been defined in accordance with the criteria drawn from Appendix 3 of the Environmental Impact Assessment Regulations, 2014. The levels of detail described in the EIA regulations were fine-tuned by assigning specific values to each impact identified. The impact ratings will be informed by the findings of specialist assessments conducted, fieldwork, and desk-top analysis. The significance of potential impacts that may result from the proposed development will be determined in order to assist the competent authority in making a decision.

In order to establish a coherent framework within which all impacts could be objectively assessed, it is necessary to establish a rating system, to be applied consistently to all the criteria. **Table *19*** provides a summary of the criteria and the rating scales, which will be used in the assessment of the impacts.

Impacts identified were assessed according to the criteria outlined below. Each impact was ranked according to the nature, extent, duration, magnitude, probability, irreplaceable loss of resources and reversibility. These criteria are based on the Department of Environmental Affairs and Tourism (DEAT) Guideline Document to the EIA Regulations (1998). A significance rating was calculated as per the methodology outlined below.
The significance rating of each identified impact / effect was further reviewed by the EAP and/or specialist by applying professional judgement. Where possible, mitigatory measures were recommended for the impacts identified.

Table 19. Impact rating methodology

Nature: classification of whether the impact is positive (+1) or negative (-1), direct or indirect.
Scale: spatial scale of impact and classified as: 5 – International: The effect will occur cross international borders 4 – National: the impact can be considered to be of national significance. 3 – Regional: the impacted area extends to the immediate, surrounding and neighbouring properties; and 2 – Local: Within a radius of 2 km of the construction site; 1 – Site: the impacted area is the whole or significant portion of the site;
Duration: Indicates what the lifetime of the impact will be and is classified as: ● 1- Immediate: The impacts is visible in Less than 1 month

- 2- Short term: The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase;
- 3- Medium term: The impact will last for the period of the construction phase, where after it will be entirely negated;
- 4- Long term: The impact will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory; and
- 5- Permanent: Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

Magnitude: Describes whether an impact is destructive or benign.

- 1- Minor: Limited damage to minimal area of low significance. Will have a negligible impact on the environment.
- 2- Low: Impact affects the environment in such a way that natural, cultural and social functions and processes are not significantly affected;
- 3- Moderate: Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way;
- 4- High: Natural, cultural and social functions and processes are altered to extent that they temporarily cease; and
- 5- Very High: Natural, cultural and social functions and processes are altered to the extent that they permanently cease. Activity has a significant impact on the environment. Irreparable damage to highly valued species, habitat or ecosystem. Persistent severe damage.

Probability: Describes the likelihood of an impact actually occurring:

- 1- Improbable: Likelihood of the impact materialising is very low;
- 2- Low: Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur.
- 3-Medium: Has occurred here or elsewhere and could therefore occur.
- 4-Highly Probable: Most likely that the impact will occur; and
- 5-Definite: Impact will certainly occur.

Significance: Based on the above criteria the significance of issues was determined. The total number of points scored for each impact indicates the level of significance of the impact, and is rated as:

- <30 POINTS - Low: the impacts are less important.
- 30-60 POINTS- Medium: the impacts are important and require attention; mitigation is required to reduce the negative impacts.
- >60 POINTS High: the impacts are of great importance. Mitigation is therefore crucial.

Mitigation: Where negative impacts are identified, mitigation measures (ways of reducing impacts) are required. An indication of the degree of success of the potential mitigation measures is given per impact.

Table 20 describes the criteria to be used and the significance rating of the impacts.

Table 20: Impact rating criteria

DURATION (D)	**MAGNITUDE (M)**
5 - Permanent	5- Very high/do not know
4 - Long term (ceases with operational life)	4 - High
3 - Medium term (5-15 years)	3 - Moderate
2 - Short term (0-5 years)	2 - Low
1 – Immediate	1 - Minor
SCALE (S)	**PROBABILITY (P)**
5 - International	5 - Definite/do not know
4 - National	4 - Highly probable
3 - Regional	3 - Medium probability
2 - Local	2 - low probability
1 - Site	1- Improbable
SIGNIFICANCE POINTS (SP) = (D+M+S) X P	
HIGH (H) = >60 POINTS	
MODERATE (M) = 30-60 POINTS	
LOW (L) = <30 POINTS	
NO SIGNIFICANCE = 0	
POSITIVE IMPACT	

The maximum value of significance points is 100. Environmental effects could therefore be rated as either high (H), moderate (M), or low (L) significance, as seen above.

8.3 IMPACT ASSESSMENT AND SIGNIFICANCE

A summary of all the identified impacts, their associated phase, as well as their impact calculations and significance are presented in **Table *21*** below. The impact significance for the No-Go alternative is not calculated as it is negligible.

Table 21: Impact Assessment and Significance

Pre-Mitigation Scoring and Significance								Post-Mitigation Scoring and Significance						
PLANNING AND DESIGN PHASE														
Impacts	**Alternatives**	**Nature**	**Severity**	**Spatial scale**	**Duration**	**Probability**	**Significance**	**Alternatives**	**Nature**	**Severity**	**Spatial scale**	**Duration**	**Probability**	**Significance**
Legal and social compliance	Alt 1	-1	4	3	5	5	-60	Alt 1	-1	2	1	1	3	-12
	Alt 2	-1	4	3	5	5	-60	Alt 2	-1	2	1	1	3	-12
Poor site planning and layout	Alt 1	-1	4	3	5	5	-60	Alt 1	-1	2	1	1	3	-12
	Alt 2	-1	4	3	5	5	-60	Alt 2	-1	2	1	1	3	-12
Site establishment	Alt 1	-1	4	1	5	4	-40	Alt 1	-1	2	1	1	3	-12
	Alt 2	-1	3	1	4	4	-32	Alt 2	-1	2	1	1	3	-12
Existing civil services, infrastructure and properties	Alt 1	-1	4	1	4	4	-36	Alt 1	-1	2	1	1	3	-12
	Alt 2	-1	4	1	4	4	-36	Alt 2	-1	2	1	1	3	-12
CONSTRUCTION PHASE														
DIRECT IMPACTS														
Legal and social compliance	Alt 1	-1	4	3	5	5	-60	Alt 1	-1	2	1	1	3	-12
	Alt 2	-1	4	3	5	5	-60	Alt 2	-1	2	1	1	3	-12
Site establishment and security	Alt 1	-1	4	1	5	4	-40	Alt 1	-1	2	1	1	3	-12
	Alt 2	-1	4	1	5	4	-40	Alt 2	-1	2	1	1	3	-12
Water consumption	Alt 1	-1	2	1	2	3	-15	Alt 1	-1	1	1	1	3	-9
	Alt 2	-1	2	1	2	3	-15	Alt 2	-1	1	1	1	3	-9
Sanitation	Alt 1	-1	3	1	2	3	-18	Alt 1	-1	1	1	1	3	-9
	Alt 2	-1	3	1	2	3	-18	Alt 2	-1	1	1	1	3	-9
Hazardous material storage and handling	Alt 1	-1	3	1	3	5	-35	Alt 1	-1	2	1	1	3	-12
	Alt 2	-1	3	1	3	5	-35	Alt 2	-1	2	1	1	3	-12

Pre-Mitigation Scoring and Significance								Post-Mitigation Scoring and Significance						
Direct loss of indigenous vegetation and disturbance of habitats due to construction of PV facility and transmission line	Alt 1	-1	4	3	4	5	-55	Alt 1	-1	4	2	3	4	-36
	Alt 2	-1	4	3	4	4	-44	Alt 2	-1	4	2	3	3	-27
Direct loss of CBAs	Alt 1	-1	4	3	4	5	-55	Alt 1	-1	4	2	3	3	-27
	Alt 2	-1	4	3	4	4	-44	Alt 2	-1	4	2	3	2	-18
Loss of SCC	Alt 1	-1	4	1	4	5	-45	Alt 1	-1	3	2	3	3	-24
	Alt 2	-1	4	1	4	5	-45	Alt 2	-1	3	1	3	3	-21
Disturbance of fauna and loss of habitats	Alt 1	-1	4	1	4	5	-45	Alt 1	-1	3	1	3	3	-21
	Alt 2	-1	4	1	4	4	-36	Alt 2	-1	3	1	3	3	-21
Disturbance of the surface resulting in increased risk of AIPs	Alt 1	-1	3	1	4	4	-32	Alt 1	-1	2	1	1	3	-12
	Alt 2	-1	3	1	4	4	-32	Alt 2	-1	2	1	1	3	-12
Impact on avifauna-bird mortality	Alt 1	-1	2	2	2	4	-24	Alt 1	-1	1	1	1	4	-12
	Alt 2	-1	2	2	2	4	-24	Alt 2	-1	1	1	1	4	-12
Impact on the aquatic environment	Alt 1	-1	4	3	5	5	-60	Alt 1	-1	3	2	3	4	-32
	Alt 2	-1	4	3	5	5	-60	Alt 2	-1	3	2	3	4	-32
Visual impact	Alt 1	-1	5	2	5	5	-60	Alt 1	-1	4	2	4	4	-40
	Alt 2	-1	5	2	5	5	-60	Alt 2	-1	4	2	4	4	-40
Waste management	Alt 1	-1	1	1	3	3	-15	Alt 1	-1	1	1	1	3	-9
	Alt 2	-1	1	1	3	3	-15	Alt 2	-1	1	1	1	3	-9
Traffic impact	Alt 1	-1	3	2	3	4	-32	Alt 1	-1	2	2	1	3	-15
	Alt 2	-1	3	2	3	4	-32	Alt 2	-1	2	2	1	3	-15
Noise pollution	Alt 1	-1	1	1	3	3	-15	Alt 1	-1	1	1	1	3	-9
	Alt 2	-1	1	1	3	3	-15	Alt 2	-1	1	1	1	3	-9
Air pollution	Alt 1	-1	1	1	3	3	-15	Alt 1	-1	1	1	1	3	-9
	Alt 2	-1	1	1	3	3	-15	Alt 2	-1	1	1	1	3	-9
Paleontological and heritage resource disturbance	Alt 1	-1	3	1	2	3	-18	Alt 1	-1	2	1	1	3	-12

Pre-Mitigation Scoring and Significance								Post-Mitigation Scoring and Significance						
	Alt 2	-1	3	1	2	3	-18	Alt 2	-1	2	1	1	3	-12
Employment opportunities	Alt 1	1	4	3	3	4	40	Alt 1	1	4	3	3	4	40
	Alt 2	1	4	3	3	4	40	Alt 2	1	4	3	3	4	40
CUMULATIVE IMPACTS														
Cumulative loss of indigeneous vegetation and SCCs due clearing of vegetation	Alt 1	-1	4	3	5	5	-60	Alt 1	-1	4	2	4	4	-40
	Alt 2	-1	4	3	4	5	-55	Alt 2	-1	4	2	3	3	-27
Cumulative loss of natural vegetation and degradation of ecosystem function	Alt 1	-1	4	4	5	5	-65	Alt 1	-1	4	2	4	4	-40
	Alt 2	-1	4	3	4	5	-55	Alt 2	-1	4	2	3	3	-27
Cumulative impacts on hydrological and soil processes dueto vegetation loss and land disturbance	Alt 1	-1	4	3	4	5	-55	Alt 1	-1	4	3	3	3	-30
	Alt 2	-1	4	3	4	5	-55	Alt 2	-1	4	3	3	3	-30
Cumulative visual impacts associated with increased infrastructure development	Alt 1							Alt 1						
OPERATION PHASE														
DIRECT IMPACTS														
Collision of birds with solar farm	Alt 1	-1	3	3	4	4	-40	Alt 1	-1	3	2	3	2	-16
	Alt 2	-1	3	3	4	4	-40	Alt 2	-1	3	2	3	2	-16
Electrocution of birds when perched on towers	Alt 1	-1	5	4	4	5	-65	Alt 1	-1	3	2	3	2	-16
	Alt 2	-1	5	4	4	5	-65	Alt 2	-1	3	2	3	2	-16
Disturbance of key habitats and pollution of the surrounding environment	Alt 1	-1	2	1	2	3	-15	Alt 1	-1	1	1	1	3	-9
	Alt 2	-1	2	1	2	3	-15	Alt 2	-1	1	1	1	3	-9
Landscape change from current sense of place to industrial area due to the solar PV facility	Alt 1	-1	3	1	4	4	-32	Alt 1	-1	2	1	4	3	-21
	Alt 2	-1	3	1	4	4	-32	Alt 2	-1	2	1	4	3	-21

Pre-Mitigation Scoring and Significance								Post-Mitigation Scoring and Significance						
Potential soil and water contamination associated with the BESS	Alt 1	-1	3	3	4	4	-40	Alt 1	-1	2	2	3	2	-14
	Alt 2	-1	3	3	4	4	-40	Alt 2	-1	2	2	3	2	-14
Potential fire and associated environmental and safety impacts from the BESS	Alt 1	-1	4	1	5	5	-50	Alt 1	-1	1	1	1	2	-6
	Alt 2	-1	4	1	5	5	-50	Alt 2	-1	1	1	1	2	-6
Potential environmental contamination from improper management of BESS waste	Alt 1	-1	3	1	5	5	-45	Alt 1	-1	1	1	1	2	-6
	Alt 2	-1	3	1	5	5	-45	Alt 2	-1	1	1	1	2	-6
Creation of employment	Alt 1	1	4	3	4	5	55	Alt 1	1	3	3	4	5	50
	Alt 2	1	4	3	4	5	55	Alt 2	1	3	3	4	5	50
Energy security	Alt 1	1	4	4	4	5	60	Alt 1	1	4	4	4	5	60
	Alt 2	1	4	4	4	5	60	Alt 2	1	4	4	4	5	60
DECOMMISSIONING PHASE														
Failure to implement decommissioning within environmental legislative and social contexts	Alt 1	-1	4	2	4	5	-50	Alt 1	-1	1	1	2	3	-12
	Alt 2	-1	4	2	4	5	-50	Alt 2	-1	1	1	2	3	-12
Environmental disturbance associated with the dismantling of the Solar energy facility and associated infrastructure	Alt 1	-1	4	2	4	5	-50	Alt 1	-1	2	1	2	3	-15
	Alt 2	-1	4	2	4	5	-50	Alt 2	-1	2	1	2	3	-15

8.4 PROPOSED MITIGATION MEASURES

Appendix 3 of the EIA Regulations, 2014 requires that possible mitigation measures that could be applied to avoid or mitigate negative impacts and optimize positive impacts must be identified in the EIA Report. Many of the impacts can be readily mitigated and it is not foreseen that they are likely to pose a significant risk. Where necessary, the EMPr will identify and recommend specific mitigation measures applicable to the project. **Table 22** identities mitigation measures that have been proposed by specialists in the respective reports as well as those tabled by the EAP as identified during the Environmental Impact Assessment. These mitigation measures will also be included in the EMPr for implementation during the construction and operational phases.

Table 22: Proposed mitigation measures

Impacts/ Aspects	Mitigation measures
PLANNING AND DESIGN PHASE	
Legal and social compliance	• Ensure environmental authorisations namely EA and WUL is obtained for the development. • Environmental Control Officer (ECO) to be appointed to monitor compliance with permits conditions. • All health and safety permits and certification to be in place. • Appointment of a Community Liaison Officer (CLO). • Appointment of a Social Facilitator (SF) to manage social-economic aspects of the project relating to community and local business interest, particularly small, medium and micro-enterprise (SMMEs). • A health and safety plan in terms of the Occupational Health and Safety Act (Act No 85 of 1993) must be drawn up by the HSE officer prior to construction to ensure workers safety. • Environmental files to be compiled prior to commencement of construction activities. • Methods statement to be compiled for all works with environmental aspects and impacts, for approval of the ECO. • Employment and sub-contracting of locals. • The Bohwa Bja Rena Communal Property Trust's approval of the proposed Energy Facility should not replace regular consultation with affected households and land users during the construction and operational phase. • Communication should occur through an agreed stakeholder-engagement forum, supported by scheduled meetings and written reports in appropriate local languages. • Developer to engage in a process of skills development and transfer.
Poor site planning and layout	• Infrastructure must be positioned within the least sensitive and already disturbed areas of the site (avoid all the drainage lines) • No activities within the drainage system inside the development footprint • Avoid the system and buffer 100m around. Clearly mark the buffer with visible marker during the construction and operational phase. • For the drainage line outside on the edge/boarder, shift the southern board of the proposed site outsider the 100m buffer zone. • Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan and marked as no-go areas
Site establishment	• Develop a site establishment method statement • The Contractor must prepare a Construction Site Plan prior to establishing on-site. This plan must indicate: • The boundaries of the site that encompass all construction-related activities.

Impacts/ Aspects	Mitigation measures
	• Vehicle and pedestrian access points and routes (safe diversions of routes when necessary). • Laydown area/s, offices, stockpile areas, storage areas, etc. • Construction site to be selected by the contractor in conjunction with the developer, consulting engineer and the ECO. • The drainage lines, including their buffers, must first be receptors for the relocated plants and declared/marked and communicated as a no-go area. • Buffers must be: Clearly demarcated in the field using stakes, danger tape, or fencing and Communicated to all construction personnel • All infrastructure (panels, roads, and cabling) must be micro-sited to avoid these buffers. • Search, Rescue and Relocation of protected and SCC species must be undertaken before site clearance. The ecologist must undertake this, execute the relocation process, and ensure their survival at their receptor site. • An experienced ecologist will determine the number of individuals to be relocated per species. • Necessary permits must be obtained from the relevant authority for the rescue and relocation of the plants. • Relocated individuals must be: Transplanted to a suitable habitat with similar soil and vegetation conditions (prioritise the drainage lines/systems and their buffer). • The experienced ecologist must advise and assist in this task. • Monitored to assess survival and establishment. At least once a month, these replanted plants must be monitored/inspected at their receptor sites to ensure survival. • All data (locations, relocations, mortality) must be recorded and available for audit.
Existing civil services, infrastructure and properties	• Ensure that all existing services and infrastructure are known, mapped and marked to prevent potential damage. • Development of a plan to manage existing services to avoid damages • Wayleaves to be obtained from the relevant custodians for affected servitudes as applicable. • Property owners such as the local residents must be engaged throughout the project lifespan and engaged as necessary to promote conflict free development implementation. • Where relevant, the directly affected property owners must be informed in writing and engaged to reach a consensus and those proceedings and relevant agreements to be documented.
CONSTRUCTION PHASE	

Legal and social compliance	• ECO to be appointed to audit environmental compliance with conditions in the EMPr and other permits and authorisations.
	• Compliance, Monitoring, and Reporting
	  ○ An independent Environmental Control Officer (ECO) must be appointed.
	  ○ ECO responsibilities must include:
	  ▪ Monitoring buffer compliance (15 m SCC buffers) Verification of search and rescue activities
	  ▪ Erosion and stormwater inspections
	  ▪ Alien plant control monitoring
	  ▪ Rehabilitation progress
	• Regular compliance reports must be submitted to the Competent Authority
	• All mitigation actions must be:
	  ○ Documented
	  ○ Auditable
	• CLO and Social Facilitator to be retained throughout the construction tenure to represent the surrounding communities and local business, particularly SMMEs.

Impacts/ Aspects	Mitigation measures
	• Initiate early and continuous engagement with local communities and recognised business forums. • Clearly communicate the project's employment and procurement opportunities, ensuring transparency and fairness. • Establish a Community Liaison Officer role to facilitate ongoing dialogue and resolution of problems. • Ensure all procurement processes follow strict transparency guidelines, including publicly advertised tenders and clearly defined selection criteria. • Avoid side agreements or undocumented commitments to unauthorised groups. • Incorporate risk allowances into project budgets and timelines to account for possible crime related delays. • Include specific contractual clauses that address site access disruptions, security incidents, and force majeure scenarios involving criminal activity. • Publish and track local hiring and subcontracting commitments. • Partner with local training institutions to build workforce capacity and create legitimate access to project benefits.
Site establishment and security	• The Developer / Proponent, SAPS (Limpopo and Mogalakwena Local Municipalities), relevant Community Policing Forums (Limpopo and Mogalakwena Local Municipalities), relevant municipal directorates, and local private security companies, work closely together during the construction phase and that information regarding the following is shared among the relevant Interested and Affected Parties (I&APs); o Duration of the construction phase of the proposed development. o The daily movement patterns of construction workers. o The presence of construction workers and/or other personnel on-site after hours. − Any other information that is deemed important by I&APs in order to prevent any escalation of criminal activity in the affected environment. • Fulltime security officers to be appointed to safeguard the site, its personnel, plant and • equipment • Necessary health and safety as well as road construction signage to be installed. • Construction areas are to be clearly demarcated, and all construction activities are to be restricted to within these demarcated areas. • Engage registered and experienced private security providers (PSIRA-compliant). • Implement comprehensive site security infrastructure, including controlled access points, perimeter fencing, and CCTV surveillance. • Conduct regular security audits to adapt to emerging threats. • Engage local and provincial public law enforcement agencies, as well as the private security industry, during the planning and construction phase. • Report any intimidation or criminal demands to the SAPS. • Train all personnel and contractors on protocols for reporting intimidation and understanding their legal rights. • Provide a confidential, anonymous whistleblowing channel for reporting extortion, threats, or non-compliance.
Water consumption	• A sustainable and lawful water supply must be utilised. • Consistent water supply for construction staff and activities. • If water is stored on-site, drinking water and multi-purposed water storage facilities shall be clearly distinguished and demarcated. • Implement rainwater harvesting techniques, where possible. • Re-use wash water for selected activities such as concrete batching.

Impacts/ Aspects	Mitigation measures
Sanitation	• Ensure availability of ablutions for males and females. One ablution facility for every 10 workers during construction phase. • Ensue regular servicing of the ablution toilets by a service provider. • Ablution facilities to be located outside the regulated water area by all means practically possible.
Hazardous material storage and handling	• A Hazardous Material Spill Response and Contingency Plan must be developed by the Contractor/s • Hazardous materials must be stored and handled in accordance with appropriate legislation and standards, including the Hazardous Substances Act (Act No. 15 of 1973) and Occupational Health and Safety Act (No. 85 of 1993). • Avoid hydrocarbon pollution to soil and watercourses. • During the construction phase all oils, fuel and other maintenance equipment and supplies must be stored in a secure area with an impermeable and bound area. • All stationary plant on site must have drip trays including tools such as generators and equivalent • All maintenance must take place off site. • Spill kits must be kept on-site and maintained. • Cement and concrete must only be mixed in designated areas and on an impermeable surface
Direct loss of indigenous vegetation and disturbance of habitats due to construction of PV facility and transmission line	• Minimise vegetation clearance and confine to the proposed infrastructural footprint. • An Environmental Awareness Programme must be implemented to ensure basic environmental principles are adhered to. • Use existing access roads as opposed to initiating new route, the latter should be authorised first prior to initiating. • Construction must not take place outside the authorised site footprint • Minimise vegetation clearance as practically possible to do so. • Disturbance of semi-natural vegetation must be minimised, especially in less impacted areas. • Topsoil must be: o Stripped (±150–200 mm) o Stockpiled separately o Protected from erosion and contamination • Topsoil must be reused during rehabilitation to preserve seed banks. • Rehabilitation must: o Be implemented progressively where possible o Use locally indigenous species o Prioritise rapid ground cover establishment • No collection of firewood or harvesting of indigenous vegetation by workers is permitted.
Disturbance of fauna and loss of habitats	• Temporary laydown and site office areas to be established in disturbed or low sensitivity areas. • Vegetation clearance must be limited to the footprint of the site and only areas to be used for construction must be cleared. • A pre-construction survey must identify: o Burrows o Nests o Microhabitats • Construction activities must be limited to daylight hours where possible. • Trenches and excavations must: o Be inspected daily and include escape ramps where necessary

Impacts/ Aspects	Mitigation measures
	• Speed limits must be enforced to reduce collisions with fauna. • No hunting, trapping, or disturbance of fauna by workers is permitted. • Where individuals are encountered, implement relocation to a suitable habitat outside the development footprint, under specialist supervision. • Vegetation clearing must be undertaken in a phased manner to allow fauna and invertebrates to disperse naturally.
Disturbance of the surface resulting in increased risk of AIPs	• Develop and implement an Alien Vegetation Management Plan to mitigate the establishment and spread of undesirable alien plant species during construction and operations. • Site must be continuously monitored and managed for alien vegetation growth. • Removal must occur through appropriate methods such as hand pulling, application of chemicals, cutting, etc. in accordance with the NEMBA: Alien Invasive Species Regulations.
Impact on avifauna-bird mortality	• Appoint a qualified avifaunal specialist to oversee all construction activities, maintain monitoring records (including photographic evidence), and guide adaptive management. • Limit vegetation clearance to the smallest footprint necessary. • Avoid drainage lines that are around the project site and some inside the site. • Maintain ecological corridors and establish a minimum of 50m buffer zones around sensitive habitats (drainage lines) to reduce disturbance. • A bird specialist must conduct pre-construction surveys (in the dry season) for Species of Conservation Concern. • Schedule noisy activities outside critical breeding seasons (summer period Oct – Feb); confine movement of machinery and personnel to designated routes and work areas. • Install insulation and bird guards on pylons and substation structures during construction; fit line markers and diverters before grid connection. • Train construction crews on avifaunal sensitivity, species of concern, and incident reporting procedures. • Mark any overhead spans with flight diverters; avoid routing near known flyways; reduce night lighting; implement carcass-search monitoring with adaptive triggers. • Electrocution is likely if perching areas are not insulated. • Fit Bird Guards on pylons/wires near sensitive areas (e.g., water bodies) • More cost-effective to install insulators/diverters during construction. • Insulate pylons, wires, and substation structures. • Follow Eskom Guidelines for installation.
Impact on the aquatic environment (drainage lines and wetlands)	• Avoid drainage lines and buffer 100m around them. Clearly mark the buffer with visible marker during the construction and operational phase. • General Use authorisation must be obtained from the local competent authority. • The deep excavation for infrastructure placement will disturb the soil structure/profile adjacent to the systems. No sedimentation or erosion must take place into the systems. • The drainage systems must not be used as refuge site, parking areas, ablution facilities or any other means. • Mark the drainage buffer with clearly visible markers and communicate their extend to all workers. • Erosion breakers, such as heaps built of soil materials and grass seeds (of wetland species) must be developed on areas of steep slopes, at the gully cuts, and along the edge. • All construction camps, lay down areas, wash bays, batching plants and any storage areas must be located away from any demarcated water courses.

Impacts/ Aspects	Mitigation measures
	• No stockpiling must take place within or near a water course. • Fuel storage, refuelling, and maintenance of construction vehicles and equipment must take place in designated areas away from watercourses.
Management of loss of Land capability	• Direct surface disturbance of the identified arable soils can be avoided where possible to minimise loss of arable soils • Avoid construction on the active agricultural soils where feasible • Minimise the development footprint within the actively cultivated soils • The footprint areas should be lightly ripped to alleviate compaction • Limit removal of vegetation to demarcated areas only • Limit earthworks and vehicle movement to demarcated paths and areas
Visual impact	• The site camp must be clearly demarcated and screened in order to block any unappealing aesthetics within the site camp such material storage areas. • If practically possible, locate construction camps in areas that are already disturbed or where it isn't necessary to remove established vegetation like for example, naturally bare areas. • The construction footprint must be kept as small as possible, to avoid unnecessary disruption to the surrounding environment. • Disturbed areas to be rehabilitated / revegetated as soon as possible during the construction phase. • Areas utilised for construction at the site must be kept clean and tidy at all times. • Screen the construction camp and lay-down yards by enclosing the entire area with a dark green or black shade cloth of no less than 2 m height. • Make use of existing access roads where possible. • Where new access roads are required, the disturbance area should be kept as small as possible. A two-track dirt road will be the most preferred option. • Locate access routes so as to limit modification to the topography and to avoid the removal of established vegetation. • Access routes should be located on the perimeter of disturbed areas such as cultivated/fallow lands as not to fragment intact vegetated areas. • If it is necessary to clear vegetation for a road, avoid doing so in a continuous straight line. Alternatively, curve the road in order to reduce the visible extent of the cleared corridor. • Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.
Waste management	• Provide clearly labelled waste bins with lids • Waste manifest to be filed on site as proof of safe disposal. • Littering is strictly prohibited. • All waste generated on site shall be collected and appropriately disposed of at a registered municipal landfill site. • Minimise accidental hazardous substance spills such as cement by mixing in a container and covering the ground with protective material.
Traffic impact	• Establish an information-sharing link with the Mogalakwena Local Municipality Traffic and Emergency Services Department in Makopane, the closest traffic and emergency services, as well as the SANRAL Limpopo Provincial Office in Polokwane, the agency responsible for the N11 National Road. • Comply with relevant health and safety regulations, and applicable legislation, including the Occupational Health and Safety Act (85/1993): 2014 Construction Regulations and the 1996 National Road Traffic Act.

Impacts/ Aspects	Mitigation measures
	• Pedestrians and motorists must be accommodated through appropriate traffic warning signs and measures. • Speed must be kept at a minimum next to the construction site.
Noise pollution	• Ensure that construction vehicles and working machinery are serviced and are in good condition to reduce their noise levels. • Construction activities must be maintained during the normal working hours (08h00-17h00). • Where works are to be carried outside the normal working hours, the affected adjacent residents must be informed and such be undertaken within the shortest time possible. • Vehicles and plant to be inspected daily for defects which may cause elevated noise generation. • Vehicles and plant to be adequately services and maintained in good condition.
Air pollution	• Implement dust suppression measures as required. • Vehicle speed must be kept at a minimal reduce dust pollution. • Construction plant, equipment, machinery and vehicles must be well maintained and services regularly to minimise exhausted fumes air pollution. • Exposed areas must be re-vegetated as soon as all installations are completed.
Paleontological resource disturbance	• The Environmental Compliance Officer responsible for overseeing the project must be informed of the geological context of the site and the extremely low likelihood of encountering palaeontological material. • Construction managers and supervisory personnel must be made aware of the procedures to follow in the unlikely event that fossil material is encountered. • Any new geological exposures created during excavation for foundations, cable trenches, substations, or access roads must be visually inspected as part of routine environmental monitoring. • In the unlikely event that fossil material is discovered, work in the immediate vicinity must cease and a qualified palaeontologist or the relevant heritage authority must be contacted for further guidance. • Any palaeontological material identified as scientifically significant must be recorded and sampled by a qualified specialist. The costs associated with this activity shall be borne by the developer as part of responsible heritage management.
Archaeological and Cultural resource disturbance	• Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan and marked as no-go areas. • Should any archaeological, cultural property heritage resources be exposed during excavation or be found on development site, a registered heritage specialist or Amafa research and Institute official must be called to site for inspection. • Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed form site. • Should remains and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor will immediately inform the Construction Manager who in turn will inform Amafa Research and Institute. • Should any remains be found on site that is potentially human remains, Amafa research and Institute and South African Police Service must be contacted.
Employment opportunities	• Employment of local labour and contracting of SMMEs.
REHABILITATION PHASE	

Impacts/ Aspects	Mitigation measures
Legal and environmental compliance	• A rehabilitation plan must be developed and implemented.
Site de-establishment	• All structures must be removed and the site must be clean with no waste, rubble or construction material. • Infrastructure must be removed with minimal additional disturbance.

Revegetation	• Rehabilitation of vegetation on the site must be done as described in the Rehabilitation Plan.
	• Compacted soils must be:
	  ○ Ripped
	  ○ Rehabilitated
	• Disturbed areas must be:
	  ○ Recontoured
	  ○ Topsoil replaced
	  ○ Re-vegetated with indigenous species
	• Post-decommissioning monitoring must ensure:
	  ○ Vegetation recovery
	  ○ Stability of soils
	  ○ Absence of invasive species

OPERATIONAL PHASE	
Collision of birds with solar farm	• Mark any overhead spans with flight diverters. • Avoid routing near known flyways • Reduce night lighting; implement carcass-search monitoring with adaptive triggers. • Conduct mortality searches and inspections at least once every 30 days for a minimum of 12 months post-construction.
Electrocution of birds when perched on towers	• Electrocution is likely if perching areas are not insulated. • Fit Bird Guards on pylons/wires near sensitive areas (e.g., water bodies). • Insulate pylons, wires, and substation structures. • Follow Eskom Guidelines for installation.
Disturbance of key habitats and pollution of the surrounding environment	• Keep all activities within the approved footprint. • Provide designated waste areas with appropriate bins/skips. • Dispose of chemicals/metal offcuts per the Waste Act. • Manage noise and littering to avoid disrupting breeding periods.
Potential soil and water contamination associated with the BESS	• Operate, maintain and monitor the BESS according to supplier specifications. • Undertake visual inspections of BESS equipment to identify damage or leaks. • Bund all battery containers (hazardous chemicals) in accordance with legal requirements and supplier requirements.
Potential fire and associated environmental and safety impacts from the BESS	• Provide signage on site specifying the types of batteries in use and the risk of exposure to hazardous material and electric shock. • Provide signage on site specifying how electrical and chemical fires must be dealt with by first responders, and the potential risks to first responders (e.g., toxic fumes). Provide suitable firefighting equipment on site. • A fire management Plan must be developed. • An Emergency Response Plan must be developed and implemented to address potential BESS-related incidents, including fires and explosions.
Potential environmental contamination from	• Develop and implement a waste management plan. • Store battery waste securely in labelled containers before disposal. • Dispose of hazardous battery waste through appropriately authorised facilities.

Impacts/ Aspects	Mitigation measures
improper management of BESS waste	• Maintain records of battery waste disposal or refurbishment. • An End-of-Life Management Plan must be developed for the appropriate handling, reuse, recycling or disposal of damaged and end-of-life batteries and associated components.
Visual impact due to the operation of the facility	• As far as possible, limit the amount of security and operational lighting present on site. • Lighting fixtures should make use of minimum lumen or wattage. • Mounting heights of lighting fixtures should be limited, or alternatively, foot-light or bollard level lights should be used.
Employment opportunities	• N/A
Energy security	• N/A
	DECOMMISSIONING PHASE
Failure to implement decommissioning within environmental legislative and social contexts	• Ensure all applicable authorisations are obtained prior to decommissioning • Ensure implementation of the applicable decommissioning environmental approval and plans • Infrastructure must be removed with minimal additional disturbance.

Environmental disturbance associated with the dismantling of the Solar energy facility and associated infrastructure	• Removal Activities should be limited to area of disturbance
	• The contractor appointed for the removal of infrastructure activities must commit to the disposal of materials at registered sites
	• Salvageable materials may be sold to interested parties where these are not hazardous
	• Compacted soils must be:
	  ○ Ripped
	  ○ Rehabilitated
	• Disturbed areas must be:
	  ○ Recontoured
	  ○ Topsoil replaced
	• Re-vegetated with indigenous species
	• Post-removal of the solar PV, the site must be rehabilitated (compacted areas ripped, topsoil re-instated and the area vegetated with indigenous seed mix)
	• Post-rehabilitation monitoring of soil fertility should be considered
	• The development site should implement adequate dust suppression techniques to limit dust release.
	• Post-decommissioning monitoring must ensure:
	  ○ Vegetation recovery
	  ○ Stability of soils
	  ○ Absence of invasive species
	• Compliance, Monitoring, and Reporting
	  ○ An independent Environmental Control Officer (ECO) must be appointed.
	  ○ ECO responsibilities must include:
	  ▪ Monitoring buffer compliance
	  ▪ Verification of search and rescue activities
	  ▪ Erosion and stormwater inspections
	  ▪ Alien plant control monitoring
	  ▪ Rehabilitation progress
	• Regular compliance reports must be submitted to the Competent Authority
	• All mitigation actions must be:
	  ○ Documented

Impacts/ Aspects	Mitigation measures
	○ Auditable • Adaptively managed based on monitoring results

9. ENVIRONMENTAL IMPACT STATEMENT

The proposed BBR Energy Facility is intended to contribute towards the generation of renewable electricity and improvement of energy security in South Africa. The proposed development is considered desirable as it aligns with national objectives to diversify electricity generation, increase renewable energy capacity and reduce reliance on fossil fuels. Furthermore, the availability of favourable solar resources and proximity to existing electrical grid infrastructure support the suitability of the proposed location for renewable energy generation.

The no-go alternative would avoid environmental impacts associated with the construction and operation of the proposed development. It would also allow the continuation of existing land uses. However, the no-go alternative would prevent the realisation of the anticipated socio-economic and renewable energy benefits associated with the proposed development, including additional renewable electricity generation capacity, improved energy security and employment opportunities.

Based on the findings of the environmental impact assessment and specialist studies, the proposed development is anticipated to result in both positive and negative environmental and socio-economic impacts. The positive impacts are primarily associated with renewable energy generation, employment creation, skills development, local procurement opportunities and contributions towards local and regional economic development. The potential negative impacts are primarily associated with vegetation clearance, habitat loss, disturbance to fauna and flora, soil erosion and construction related disturbances. The preferred layout has therefore been designed to avoid and minimise disturbance to environmentally sensitive areas as far as possible. The preferred development layout incorporates the avoidance of drainage lines, areas of High Sensitivity Ecological Importance, protected tree species and relatively undisturbed habitats. In addition, the preferred access road alternative has been identified on the basis of minimising potential disturbance to drainage features and associated riparian vegetation.

According to the Terrestrial Biodiversity Assessment, the specialist indicated that the site retains ecological functionality, including habitat provision and ecological connectivity, and assigned a Medium ecological sensitivity rating, with Moderate Present Ecological Status (PES) and Ecological Importance and Sensitivity (EIS). Potential impacts associated with the proposed development include habitat loss, disturbance to fauna and flora, soil erosion, invasive alien plant spread and localised changes to ecological connectivity. However,

the specialist concluded that these impacts could be reduced to Low significance following the implementation of appropriate mitigation measures. For the Avifaunal assessment the specialist classified the site as having Medium avifaunal sensitivity, with at least 73 bird species recorded, including the Critically Endangered White-backed Vulture (*Gyps africanus*). Potential impacts associated with the proposed development include habitat transformation, disturbance to avifaunal species and interactions with solar PV and associated electrical infrastructure. Although residual long-term habitat loss within the development footprint is anticipated, the specialist concluded that most impacts could be reduced to Low–Medium significance following the implementation of appropriate mitigation measures, including habitat protection, infrastructure modifications and long-term avifaunal monitoring. The aquatic biodiversity assessment identified drainage lines within the site, with the system's PES determined as Moderate. The specialist identified that these systems are already subjected to pressures associated with agricultural activities and human presence. To prevent further disturbance and degradation of the aquatic environment, the specialist recommended the complete avoidance of the identified aquatic systems and the establishment of a 100 m buffer around these features. The archaeological and palaeontological assessments did not identify any fatal flaws that would prevent the proposed development, provided that the recommended chance-find procedures are implemented. Furthermore, the Socio-Economic Impact Assessment concluded that the anticipated positive socio-economic benefits are likely to outweigh the identified negative impacts, subject to appropriate management measures.

Based on the assessment by the EAP and specialists it is anticipated that the identified impacts can be mitigated to acceptable levels through the implementation of the Environmental Management Programme (EMPr) and adherence to specialist recommendations.

9.1 SUMMARY OF IDENTIFIED ENVIRONMENTAL IMPACTS

The tables below summarise all the potential impacts anticipated during the construction and operation phases of the proposed development.

CONSTRUCTION PHASE

Table 23. Identified impacts on construction phase

Impact	Mitigation	Significance rating
Legal and social compliance	Without	High
	With	Low
Site establishment and security	Without	Medium
	With	Low

Impact	Mitigation	Significance rating
Water consumption	Without	Low
	With	Low
Sanitation	Without	Low
	With	Low
Hazardous material storage and handling	Without	Medium
	With	Low
Direct loss of indigenous vegetation and disturbance of habitats due to construction of PV facility and transmission line	Without	Medium
	With	Medium
Disturbance of fauna and loss of habitats	Without	Medium
	With	Low
Disturbance of the surface resulting in increased risk of AIPs	Without	Medium
	With	Low
Impact on avifauna- bird mortality	Without	Low
	With	Low
Impact on the aquatic environment	Without	High
	With	Medium
Visual impact	Without	High
	With	Medium
Waste management	Without	Low
	With	Low
Traffic impact	Without	Medium
	With	Low
Noise pollution	Without	Low
	With	Low
Air pollution	Without	Low
	With	Low
Paleontological resource disturbance	Without	Low
	With	Low
Archaeological and Cultural resource disturbance	Without	Low
	With	Low
Employment opportunities	Without	Medium (+)
	With	Medium (+)

OPERATION PHASE

Table 24. Identified impacts on operation phase

Impact	Mitigation	Significance rating
Collision of birds with solar farm	Without	Medium
	With	Low
Electrocution of birds when perched on towers	Without	High
	With	Low
	Without	Low

Impact	Mitigation	Significance rating
Disturbance of key habitats and pollution of the surrounding environment	With	Low
Landscape change from current sense of place to industrial area due to the solar PV facility	Without	Medium
	With	Low
Potential soil and water contamination associated with the BESS	Without	Medium
	With	Low
Potential fire and associated environmental and safety impacts from the BESS	Without	High
	With	Low
Potential environmental contamination from improper management of BESS waste	Without	Medium
	With	Low
Visual impact due to the operation of the facility	Without	Medium
	With	Medium
Creation of employment	Without	Medium (+)
	With	Medium (+)
Energy security	Without	High (+)
	With	High (+)

CUMULATIVE IMPACTS

Table 25. Identified cumulative impacts

Impact	Mitigation	Significance rating
Cumulative impacts on terrestrial animal species due to direct threats and habitat loss and transformation	Without	High
	With	Low
Cumulative loss of natural vegetation and degradation of ecosystem function	Without	Medium
	With	Low
Cumulative impacts on hydrological and soil processes due to vegetation loss and land disturbance	Without	High
	With	Low
Cumulative visual impacts associated with increased infrastructure development	Without	Medium
	With	Medium

9.2 POSITIVE AND NEGATIVE IMPLICATIONS OF THE PROPOSED PROJECT

The following negative and positive impacts are anticipated from the proposed development:

Table 26. Positive and negative impacts

NEGATIVE IMPACTS	POSITIVE IMPACTS
Impacts on terrestrial ecosystems- Habitat loss due to vegetation clearance	Creation of local employment
Disturbance to fauna and habitat fragmentation	Energy security
Impact on aquatic environment (wetlands and drainage lines)	
Visual impact	
Soil erosion	
Impact on Heritage and Cultural Resources	
Impact on avifauna	
Noise Impact	
Waste	
Impact on Air Quality	
Increase in traffic levels	

9.3 FINAL COMPOSITE MAP

The environmental sensitivities/constraints of the sites are illustrated in ***Figure 20*** below.

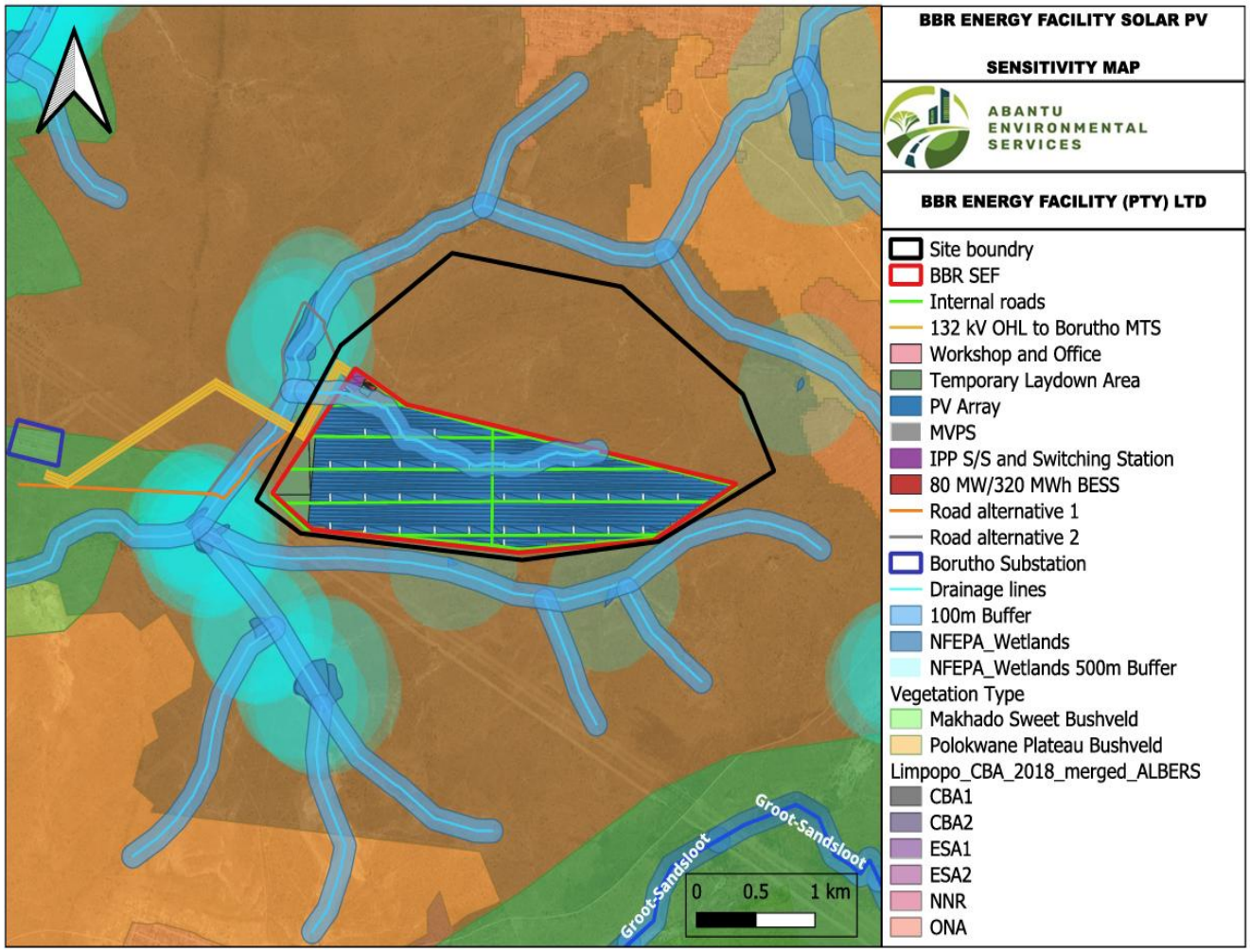


Figure 20: Final composite map

9 ASSUMPTIONS, UNCERTAINTIES OR GAPS IN KNOWLEDGE

The following assumptions and limitations have been identified by the EAP and some have been extracted from the various specialist studies undertaken for this project.

EAP:

- All information provided by the Applicant to the EAP was correct and valid at the time it was provided.
- The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process.
- A Digital Elevation Model (DEM) with a spatial resolution of 30 meters from Shuttle Radar Topography Mission (SRTM) employed to delineate and validate watercourses within the development area is assumed to be the most accurate data source compared to National scale derived rivers as employed in the aquatic specialist investigation.
- It is assumed that a 50m buffer on tributary watercourses is adequate within the development footprint whereas a 100 m on the main channel outside the development footprint suffices on the basis that the Terrestrial Biodiversity and the Avifaunal assessments recommended that Protection of semi-natural vegetation and drainage features with at least 50m buffer despite Aquatic report one size fits all 100m.
- All data from unpublished research is valid and accurate at the time this report was written.
- The scope of this investigation is limited to assessing the potential environmental impacts associated with the proposed development only.

AVIFAUNAL IMPACT ASSESSMENT

- Surveys conducted March 2026 (Autumn), limiting detection of annual, ephemeral, and some migratory species.
- Methods used: vehicle transects, on-foot walks, and key-point sampling; possible bias from noise or limited spatial coverage.
- Avian list reflects only species directly or indirectly observed; cryptic, nocturnal, and some priority taxa likely under-recorded.
- Nesting and foraging areas may have been missed due to the short survey duration.
- Secondary datasets (SABAP2, CWAC, literature) are assumed to be accurate and sufficient, as no recent detailed studies exist for the site.
- Overall assessment constrained by time, seasonality, and data gaps; further monitoring is recommended.

AQUATIC BIODIVERSITY IMPACT ASSESSMENT

- Although all watercourses occurring within 500m of the proposed activities were mapped at a desktop level, field investigations were confined to the ones within the 200m zone of the proposed site. Only two were within the scope and assessed during this project.
- Sampling by its nature means that not all parts of the study area were visited but reasonable and representative data was collected to be analysed.
- The assessment findings are thus only applicable to these three wetland systems.
- A Soil Munsell Colour Chart was used to determine the soil matrix colour of the soil sampled. However, it is important to note that the recording of the colours using the soil chart is highly subjective and varies significantly depending on soil moisture and the prevailing light conditions. In this case, all the soils sampled were moist to wet and sampling was undertaken in sunny conditions.
- Soil wetness indicators (i.e., soil mottles, grey soil matrix), which in practice are primary indicators of hydromorphic soils, are not seasonally dependent (wetness indicators are retained in the soil for many years) and therefore seasonality does not influence the delineation of wetland areas. This assessment was conducted in October 2026.
- Vegetation are the first responder to the soil and hydrological modification, therefore cannot entirely be relied on during the determination of the wetland assessment unless only determining the degree of water quality and hydrology impact.
- Although every effort was made to correctly identify the plant species encountered onsite, wetland plants, particularly the Cyperaceae (sedge) family, are notoriously difficult to identify to species level. Every effort as made to accurately identify plant species but where identification to species level could not be determined, such species were only identified to genus level.
- Seasonality can also influence the species of flora encountered at the site, with the flowering time of many species often posing a challenge in species identification.

AGRICULTURAL IMPACT COMPLIANCE STATEMENT

- It is assumed that the infrastructure components will remain as indicated on the layout and that the activities for the construction and operation of the infrastructure are limited to that typical for a project of this nature;
- The soil survey was confined to the study area outline with consideration of various land uses outside the study area;

- During the site assessment and compilation of the report, employment figures pertaining to the study area could not be sourced; and
- Soil profiles were observed using a 1.5 m hand-held soil auger; thus, a description of the soil characteristics deeper than 1.5 m cannot be given.

PALAEONTOLOGICAL IMPACT ASSESSMENT

- This Palaeontological Impact Assessment is based on a desktop evaluation of the geological and palaeontological context of the proposed development area.
- The assessment assumes that the available geological mapping accurately reflects the distribution of lithologies within the development footprint, namely high-grade metamorphic rocks of the Limpopo Belt, specifically the Hout River Gneiss of the Southern Marginal Zone.
- It is assumed that these metamorphic lithologies are representative of the subsurface conditions across the entire development area. As the Hout River Gneiss formed under high-temperature and high-pressure conditions during Neoarchaean tectonic collision, it is assumed that these rocks do not preserve palaeontological material.
- The assessment further assumes that no unmapped sedimentary units occur beneath the surface within the development footprint.
- Uncertainties associated with this assessment arise from the absence of intrusive excavation, drilling logs, or detailed subsurface geotechnical data at the time of the study.
- While it is considered highly unlikely that fossil-bearing sedimentary units occur within a terrain dominated by high-grade metamorphic rocks, there remains a remote possibility that small, localised sedimentary lenses or reworked materials of limited scientific value could be present. However, any such material would not represent in situ fossil-bearing stratigraphy and would not significantly alter the palaeontological interpretation of the area.
- Despite these uncertainties, the regional geological framework of the Limpopo Belt is well established, and the mapped lithologies within the development footprint are reliable indicators of palaeontological context.
- The conclusions of this assessment are therefore regarded as robust for the purposes of a desktop palaeontological impact assessment.

VISUAL AND LANDSCAPE IMPACT ASSESSMENT

- Given the nature of the receiving environment and the height of the proposed development infrastructure, the study area is assumed to encompass an area of 5 km from the route alignment. This limit on the visual assessment zone relates to the fact that visual impact decreases exponentially over distance. Thus, although the SEF development may still be visible beyond 5 km, the degree of

visual impact will diminish considerably. As such, the need to assess the impact on potential receptors beyond this distance would not be warranted.

- It should be noted that the fieldwork for this study was undertaken in October 2026, a period which is characterised by pleasantly warm and sunny weather conditions.
- Terrain data and Digital Elevation Model (DEM) used to generate the viewshed(s) and visibility analysis conducted in respect of the solar energy facility, is derived from the ALOS Global Digital Surface Model (AW3D30) data which is fairly coarse, may be inconsistent and outdated in some places.
- The viewshed / visibility analysis does not consider any existing vegetation cover or built infrastructure which may screen views of the PV plant along with the evacuation line and its pylons. This analysis should therefore be seen as a conceptual representation or a worst-case scenario.

10 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD BE AUTHORISED

The Environmental Impact Assessment (EIA) process has been undertaken in accordance with the EIA Regulations, 2014 (as amended) published in terms of Section 24 (5) of the National Environmental Management Act (Act No 107 of 1998) (as amended). All relevant legislation has been considered to ensure compliance, and the assessment has been informed by specialist studies, stakeholder engagement, and available baseline information. These inputs have guided the identification of potential impacts, the evaluation of alternatives, and the development of appropriate mitigation and management measures. The EIA process serves as a decision-support tool that integrates social, economic, and environmental considerations to promote sustainable development. The assessment indicates that the proposed development will result in both positive and negative environmental impacts.

Notwithstanding the identified negative impacts, the proposed development is considered desirable in terms of its potential contribution to renewable energy generation and energy security in South Africa. The project is also expected to provide socio-economic benefits, including employment opportunities and local economic development. The proposed development has considered the identified environmental sensitivities. In determining the preferred development layout, consideration was given to the environmental sensitivities identified within the project area. These include drainage lines, areas of High SEI, protected plant species, SCC and relatively undisturbed habitats. Although the site has been assigned an overall Medium terrestrial ecological sensitivity, it retains ecological functionality and supports features requiring protection. Accordingly, Layout Alternative 2 is preferred over Alternative 1, as it incorporates the avoidance of

environmentally sensitive areas into the development design, thereby minimising unnecessary habitat loss and disturbance.

Alternatives for the proposed access roads were also considered. Access Road Alternatives 1 and 2 are located close to drainage features and may result in increased disturbance to aquatic features. Access Road Alternative 3 was therefore identified as the preferred option from an aquatic perspective, as it avoids running parallel to drainage features and minimises encroachment into identified no-go areas. The No-Go alternative would avoid the direct environmental impacts associated with the development but would also result in the loss of the anticipated renewable energy and socio-economic benefits.

The EIA process has identified potential environmental impacts associated with the construction and operation of the proposed development, particularly relating to terrestrial biodiversity, avifauna, soil erosion, drainage features and the surrounding environment. The specialist studies indicate that most of the assessed impacts can be reduced through the implementation of appropriate mitigation measures. However, certain residual impacts, particularly those associated with habitat transformation, will remain. The assessment also considered the potential cumulative impacts associated with the proposed development together with the existing, authorised and reasonably foreseeable developments within the surrounding area. The identified negative cumulative impacts include habitat loss and fragmentation, degradation of natural vegetation and ecosystem function, disturbance to terrestrial fauna, changes to hydrological and soil processes, and the incremental transformation of the surrounding landscape. The cumulative agricultural assessment further considered the potential loss of agricultural production. The agricultural specialist concluded that the cumulative impact on future agricultural productivity would be Low with the implementation of mitigation measures and would not result in an unacceptable reduction in overall agricultural production capacity.

Although the proposed development may contribute to the cumulative transformation of the surrounding environment, these impacts can be minimised through the avoidance of environmentally sensitive areas and the implementation of appropriate mitigation measures. Furthermore, the proposed development together with other renewable energy developments within the surrounding area may contribute to positive cumulative socio-economic impacts through employment creation, skills development and local economic development. These cumulative impacts have been considered in determining the overall environmental acceptability of the proposed development.

Based on the specialist findings, no environmental fatal flaws have been identified that would necessarily prevent the proposed development from proceeding. The preferred alternative is considered to provide a

more environmentally acceptable development option through the avoidance of identified sensitive features and the incorporation of specialist recommendations into the proposed layout. The EMPr will provide measures to manage the identified environmental impacts throughout the various phases of the development. Taking into consideration the need and desirability of the proposed development, the assessment of alternatives and the environmental sensitivities considered in determining the preferred layout, it is the opinion of the EAP that the proposed development is environmentally acceptable and it is recommended that the development be authorised.

11 ASPECTS TO BE INCLUDED AS CONDITIONS OF AUTHORISATION

In order to achieve appropriate environmental management standards and ensure that the findings of the environmental studies are implemented through practical measures, the recommendations from this EIA study are included within an EMPr. The EMPr must be used to ensure compliance with environmental specifications and management measures.

The following key conditions should be included as conditions of authorization:

- Ensure other environmental authorisations namely WUL is obtained for the development
- Pre – construction botanical walk or search and rescue to identify all the SCC locations and quantity must be undertaken (before vegetation/site clearance). These plants must be relocated and replanted.
- Micro-siting of infrastructure to avoid sensitive features (drainage lines).
- Protection of semi-natural vegetation and drainage features with at least 50m buffer
- For the drainage line outside on the edge/boarder, shift the southern board of the proposed site outside the 100m buffer zone.
- Conduct a pre-construction avifaunal survey – an impact assessment will be conducted pre-construction during the dry season (May – August) to identify and confirm/dispute the findings of this assessment. Preferably within 12 months prior to the construction phase starting
- As a precautionary measure and in accordance with best practice and heritage management guidelines, it is recommended that a Fossil Chance Find Protocol be incorporated into the Environmental Management Programme (EMPr).
- Environmental Control Officer (ECO) to be appointed to monitor compliance with permits conditions.
- Develop and implement an Alien Vegetation Management Plan to mitigate the establishment and spread of undesirable alien plant species during construction and operations.
- Appoint a qualified avifaunal specialist to oversee all construction activities, maintain monitoring records (including photographic evidence), and guide adaptive management.
- Maintain ecological corridors and establish a minimum of 50m buffer zones around sensitive habitats (drainage lines) to reduce disturbance.

- Schedule noisy activities outside critical breeding seasons (summer period Oct – Feb); confine movement of machinery and personnel to designated routes and work areas.
- Install insulation and bird guards on pylons and substation structures during construction; fit line markers and diverters before grid connection.
- Train construction crews on avifaunal sensitivity, species of concern, and incident reporting procedures.
- Operate, maintain and monitor the BESS according to supplier specifications.
- Undertake visual inspections of BESS equipment to identify damage or leaks.
- Bund all battery containers (hazardous chemicals) in accordance with legal requirements and supplier requirements.
- A fire management Plan must be developed.
- An Emergency Response Plan must be developed and implemented to address potential BESS-related incidents, including fires and explosions.
- An End-of-Life Management Plan must be developed for the appropriate handling, reuse, recycling or disposal of damaged and end-of-life batteries and associated components.
- As a precautionary measure and in accordance with best practice and heritage management guidelines, it is recommended that a Fossil Chance Find Protocol be incorporated into the Environmental Management Programme (EMPr).
- Retain and maintain natural vegetation (if present) immediately adjacent to the development footprint.
- The Bohwa Bja Rena Communal Property Trust's approval of the proposed Energy Facility should not replace regular consultation with affected households and land users during the construction and operational phase.
- Communication should occur through an agreed stakeholder-engagement forum, supported by scheduled meetings and written reports in appropriate local languages.

12 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

The duration of the construction phase will be 36 months. The operational phase of the project is long term as the structure is designed to be robust to achieve a service life of 30 years. Thus, the period for which the Environmental Authorisation is required is linked to the lifespan of the structure.

13 UNDERTAKING

The EAP herewith confirms:

(a) The correctness of the information provided in the reports;

(b) The inclusion of comments and inputs from stakeholders and I&AP's;

(c) The inclusion of inputs and recommendations from the specialist reports where relevant; and

(d) That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.



Signature of the environmental assessment practitioner:

ABANTU ENVIRONMENTAL SERVICES (PTY) LTD

Name of company:

Date: 13 November 2026

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15 APPENDICES

APPENDIX A: CV AND DECLARATION OF INDEPENDENCE BY THE EAP

APPENDIX B: ENVIRONMENTAL MANAGEMENT PROGRAMME

APPENDIX C: SPECIALIST STUDIES

APPENDIX D: ENGINEERING FEASIBILITY REPORT

APPENDIX E: PROPOSED DEVELOPMENT LAYOUT

APPENDIX F: PROOF OF WULA

APPENDIX G: ACCEPTENCE OF THE FSR

APPENDIX H: PROOF LANDOWNER CONSENT