

Nyakallo Solar Park (Pty) Ltd, Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province

Scoping Report 2026-05-0022

6 July 2026

GCS Project Number: 23-0646

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**Nyakallo Solar Park (Pty) Ltd, Lephalale Local Municipality, Waterberg District
Municipality, Limpopo Province
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OBJECTIVE OF THE SCOPING PHASE

The Scoping Phase aims, through a consultative process, to:

- Identify the policies and legislation applicable to the proposed activity.
- Establish the need and desirability of the proposed activity, including its relevance within the context of the chosen location.
- Confirm the preferred activity and technological alternatives through a comprehensive impact and risk assessment, using a ranking process.
- Determine and verify the ideal site through a detailed selection process that encompasses impact and risk assessment, considering cumulative impacts and evaluating all alternatives based on the geographical, physical, biological, social, economic, and cultural dimensions of the environment.
- Pinpoint key issues to be addressed in the assessment phase.
- Define the scope of the assessment, including the methodologies, expertise required, and extent of further consultation necessary to assess the impacts and risks associated with the preferred site. This includes evaluating the impacts' nature, significance, consequence, extent, duration, and probability to guide the precise development footprint within the site.
- Identify appropriate measures to avoid, manage, or mitigate impacts and assess the residual risks that require ongoing management and monitoring.

During the Scoping Phase, concerns raised by stakeholders, and registered Interested and Affected Parties (I&APs) are considered to identify significant issues warranting further specialist investigation and assessment. You are invited to review the Draft Scoping Report (DSR), available for public comment from 8 July 2026 to 11 August 2026, at the locations listed below. Written comments and substantiated issues must be submitted to GCS Environment South Africa (Pty) Ltd (GCS) by 11 August 2026. Providing feedback well within the review period is appreciated to allow the Environmental Assessment Practitioner (EAP) adequate time to address comments comprehensively.

Place	Address	Telephone
Lephalale Public Library	Corner of Joe Slovo & Douwater Roads, Civic Centre, Lephalale	+27 (0)14 762 1453
Marapong Library	916 Phukubye Street, Marapong	+27 (0)14 762 1617
GCS Website	https://www.gcs-sa.biz/public-documents/	+27 (0)11 803 5726

Following the DSR comment period, the Report will be updated to incorporate all received feedback. The finalised Scoping Report will then be submitted to the Competent Authority (CA), which in this case is Department of Forestry, Fisheries and the Environment (DFFE).

Upon reviewing the Final Scoping Report (FSR), the DFFE may either approve it, potentially with conditions, or advise the Applicant to proceed with the tasks outlined in the Plan of Study for the Environmental Impact Assessment (EIA). Alternatively, the DFFE retains the right to refuse Environmental Authorisation (EA) at this stage.

YOUR INPUT ON THE DRAFT SCOPING REPORT

You are invited to review the DSR, which will be available for public review from 8 July 2026 to 11 August 2026. Please ensure that any substantiated issues and comments are submitted in writing to GCS by 11 August 2026. Early submission of feedback within the review period is highly appreciated to allow the EAP adequate time to address your comments comprehensively.

If you have further inquiries or additional comments after reviewing the DSR, please feel free to contact:

GCS Environment South Africa (Pty) Ltd

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EXECUTIVE SUMMARY

Introduction

Nyakallo Solar Park (Pty) Ltd proposes to develop the Nyakallo Solar Park, a utility-scale renewable energy facility comprising a solar photovoltaic (PV) power plant and associated Battery Energy Storage System (BESS), on Portions 1, 2 and the Remainder of Portion 3 of Farm Hanglip No. 508 LQ. The Project site is situated within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province.

The proposed facility will have a maximum export capacity of approximately 262 megawatts alternating current (MWac), with an installed direct current generation capacity of up to approximately 315 megawatts peak (MWp). The facility will be supported by a containerised lithium-ion BESS with a storage capacity of approximately 600 megawatt-hours (MWh) and a discharge capacity of approximately 200 megawatts (MW) at the point of connection.

The Project will include PV modules mounted on single-axis tracking structures, inverters, transformers, internal electrical reticulation, on-site substations, switching infrastructure, BESS infrastructure, internal access roads, laydown and staging areas, construction camp, waste management / segregation area, construction areas, operations and maintenance infrastructure, stormwater management and drainage infrastructure, security infrastructure and associated auxiliary infrastructure.

The solar facility will be developed within an application area of approximately 723 hectares (ha), with a proposed development footprint of approximately 414.55 ha. Electricity generated by the facility is proposed to be evacuated via a future grid connection to Eskom infrastructure. The grid connection infrastructure will be subject to a separate Environmental Authorisation process, where required, and does not form part of the present application.

Environmental Authorisation Process

GCS Environment South Africa (Pty) Ltd has been appointed as the independent Environmental Assessment Practitioner to manage the application for Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment Regulations, 2014, as amended.

The Environmental Authorisation application is being undertaken through a Scoping and Environmental Impact Assessment Reporting process. This Draft Scoping Report has been prepared to identify the key environmental and social issues associated with the proposed development, describe the receiving environment, identify and evaluate feasible alternatives, present the outcomes of the initial public participation process, and define the scope of specialist studies and further assessment to be undertaken during the Environmental Impact Assessment Phase.

The Department of Forestry, Fisheries and the Environment is the Competent Authority for the application. Relevant organs of state and commenting authorities will be consulted as part of the process.

Need and Desirability

The proposed Nyakallo Solar Park is considered to be needed and desirable as it will contribute approximately 262 MWac of renewable electricity generation capacity, supported by a 600 MWh BESS. The Project will contribute to electricity supply, grid stability, energy diversification and South Africa's transition towards a lower-carbon energy system.

The Project site is located within the broader Lephalale energy hub, in proximity to existing energy generation, transmission and energy-related infrastructure. This location is considered suitable for renewable energy development due to its strategic position near existing grid infrastructure, its solar resource potential, and its compatibility with the broader energy character of the area.

The Project also has the potential to contribute to local and regional socio-economic benefits, including employment opportunities, procurement of goods and services, skills development and support for local economic activity during the construction and operational phases. Subject to the outcomes of the Environmental Impact Assessment process and the implementation of appropriate mitigation measures, the Project is considered to be a sustainable and justifiable land use.

Site Screening Verification and Screening Tool Outcomes

A Site Screening Verification Report was prepared to verify the sensitivities identified by the National Web-Based Environmental Screening Tool. The purpose of the verification was to confirm the current land use and environmental sensitivities of the Project site, verify whether the Screening Tool ratings accurately reflect on-site conditions, and motivate the specialist studies required for the Environmental Impact Assessment Phase.

The Screening Tool identified several environmental themes with medium to very high sensitivity across the proposed development area. Very High sensitivity was identified for the Aquatic Biodiversity, Terrestrial Biodiversity, Avian, Landscape / Solar, Palaeontology and Agriculture themes. Medium sensitivity was identified for the Animal Species, Civil Aviation / Solar PV and Radio Frequency Interference themes. Low sensitivity was identified for the Archaeological and Cultural Heritage, Plant Species and Defence themes.

In addition to the environmental sensitivity themes, the Screening Tool identified relevant development incentives, restrictions, exclusions and regulatory considerations applicable to the Project site. These include the site's location within the Waterberg District Municipality Environmental Management Framework area and the Air Quality - Waterberg-Bojanala

Priority Area. The Screening Tool also identified the site as being located within an area associated with main electricity transmission and distribution substation infrastructure. Several renewable energy developments with approved Environmental Authorisations occur within 30 km of the Project area, indicating that cumulative impacts associated with renewable energy development must be considered during the assessment.

The Screening Tool sensitivities are indicative and have therefore been verified against the proposed development footprint, available specialist findings and site-specific conditions. The verified sensitivities will inform the scope of specialist assessments, layout refinement, avoidance of sensitive features and the application of the mitigation hierarchy during the Environmental Impact Assessment process.

Receiving Environment and Key Sensitivities

The Project site occurs within an area characterised by natural bushveld vegetation, agricultural activities, game farming, existing servitudes and energy-related infrastructure. The surrounding area is influenced by the broader Lephalale energy and industrial context, including the presence of existing power generation, mining and transmission infrastructure.

The site sensitivity verification and baseline assessments confirmed several environmental features requiring avoidance, mitigation and specialist management. These include an ephemeral wetland / wash system and associated buffer, hydromorphic habitat, natural woodland areas, protected tree species, potential faunal habitat, avifaunal species of conservation concern, visual receptors, palaeontological sensitivity and heritage chance find considerations.

The Aquatic Biodiversity sensitivity remains high due to the confirmed ephemeral wetland / wash system, Freshwater Ecosystem Priority Area sub-catchment context and associated buffer requirements. Terrestrial biodiversity sensitivity remains high to medium, with higher sensitivity associated with the wetland and hydromorphic habitat and medium sensitivity associated with woodland habitats. Avian sensitivity remains very high due to recorded species of conservation concern, raptor activity, waterbird use and the need for continued monitoring.

Agricultural sensitivity was refined from very high to moderate-low based on site-specific findings. Plant species sensitivity was identified as low by the Screening Tool; however, site verification confirmed that protected trees and mature woodland areas require specific management attention. Civil aviation sensitivity was reduced to low / very low based on the glint and glare assessment, which found no glare exposure to assessed aviation receptors.

Alternatives Considered

The Scoping Report considers the site alternative, land use alternative, technology

alternatives, site access alternatives and the no-go alternative.

No alternative development site was identified for the Nyakallo Solar Park, as the selected site provides strategic, technical and site-specific advantages for renewable energy development. The site is located within the broader Lephalale energy hub and is close to existing transmission and energy infrastructure.

The land use alternative considers the continuation of the existing land use compared with conversion to renewable energy generation. The proposed land use change is considered potentially acceptable, subject to the findings of the specialist studies, layout refinement and mitigation measures.

Technology alternatives considered include Solar PV compared with Concentrated Solar Power, and lithium-ion battery technology compared with flow battery technology. Solar PV and lithium-ion BESS technology are preferred due to their suitability, maturity, scalability, lower water requirements and compatibility with the site and project objectives.

Site access alternatives have also been considered, and the preferred access arrangement will be confirmed through the Traffic Impact Assessment and further engagement with relevant road authorities, where required.

The no-go alternative would result in the Project not proceeding. While this would avoid direct site-specific environmental impacts, it would also result in the loss of renewable energy generation capacity, BESS-supported grid stability benefits, socio-economic opportunities and contribution to national energy transition objectives.

Public Participation Process

Public participation is being undertaken in accordance with the requirements of the Environmental Impact Assessment Regulations, 2014, as amended. The Draft Scoping Report will be made available for public review from 8 July 2026 to 11 August 2026.

The public participation process includes notification of Interested and Affected Parties, placement of the Draft Scoping Report at accessible public locations, publication of relevant project information, circulation of notices and provision of an opportunity for stakeholders to submit written comments.

At the time of preparation of the Draft Scoping Report, no comments or issues had been raised by Interested and Affected Parties in relation to this application. Comments received during the public review period will be recorded, assessed and responded to in a Comments and Responses Report. Where relevant, the issues raised and associated responses will be incorporated into the Final Scoping Report.

Potential Impacts Identified During the Scoping Phase

Potential impacts have been identified for the construction, operational and decommissioning phases of the Project. These impacts are preliminary and will be assessed further during the Environmental Impact Assessment Phase.

During construction, potential impacts may include vegetation clearance, habitat loss and fragmentation, disturbance to fauna and avifauna, disturbance of protected tree species, impacts on freshwater resources, soil disturbance, erosion, compaction, groundwater quality risks, groundwater abstraction impacts, dust generation, noise, traffic and road safety impacts, waste generation, hazardous substance risks, disturbance of heritage resources, visual intrusion, socio-economic effects and health and safety risks.

During operation, potential impacts may include ongoing habitat modification, reduced faunal movement, operational disturbance, stormwater and erosion risks, groundwater abstraction and water quality risks, operational waste and hazardous substances, visual impacts associated with PV arrays and associated infrastructure, limited operational noise, low-level traffic impacts, and community health and safety risks. Positive operational impacts may include renewable electricity generation, improved energy security, contribution to lower-carbon electricity supply and long-term local economic opportunities.

During decommissioning, impacts similar to the construction phase may occur, including dust, noise, traffic, waste generation, hazardous substance handling, soil disturbance and temporary ecological disturbance. However, the decommissioning phase will also provide an opportunity to remove obsolete infrastructure, recycle components and rehabilitate the land to a natural or near-natural state, or to another compatible land use such as agriculture, grazing or conservation.

Specialist Studies and Plan of Study for the Environmental Impact Assessment Phase

The Environmental Impact Assessment Phase will include detailed specialist assessments to evaluate the nature, extent, duration, probability and significance of identified impacts, as well as the degree to which such impacts can be avoided, minimised, mitigated or managed.

The specialist assessments to be undertaken or updated during the Environmental Impact Assessment Phase will include, where applicable:

- Soils, Land Use and Land Capability Assessment;
- Hydropedology Assessment;
- Terrestrial Ecological Assessment;
- Avifaunal Assessment;
- Aquatic Assessment;

- Hydrological Assessment;
- Geohydrological Assessment;
- Noise Screening Assessment;
- Air Quality Assessment;
- Climate Change Assessment;
- Archaeological Impact Assessment;
- Palaeontological Impact Assessment;
- Traffic Impact Assessment;
- Visual Impact Assessment, including Glint and Glare;
- Socio-Economic Assessment; and
- Any additional specialist input required by the Competent Authority or identified through the public participation process.

The findings of these assessments will be used to refine the project layout, identify no-go and buffer areas, assess cumulative impacts, define mitigation and monitoring measures, and inform the Environmental Management Programme.

Cumulative Impacts

Cumulative impacts will be an important consideration during the Environmental Impact Assessment Phase due to the Project's location within the broader Lephalale energy hub and the presence of existing and approved energy, mining, industrial and renewable energy developments within the surrounding area.

Cumulative impact assessment will focus on biodiversity loss and fragmentation, avifaunal impacts, freshwater resource impacts, visual landscape change, traffic, socio-economic effects, air quality and cumulative renewable energy development within the broader area. The assessment will consider whether the Project, together with other existing and reasonably foreseeable developments, could result in combined impacts that require additional mitigation, layout refinement or monitoring.

Conclusion

The Scoping Phase has identified the key environmental and social sensitivities, potential impacts, alternatives and specialist studies required to inform the Environmental Impact Assessment Phase. The proposed Nyakallo Solar Park is considered to be aligned with national, provincial and local objectives relating to renewable energy development, energy security, climate change mitigation and socio-economic development.

The site sensitivity verification confirms that the proposed development area contains environmental features and regulatory considerations requiring avoidance, mitigation and specialist management. These include freshwater features, hydromorphic habitat, woodland habitats, protected tree species, avifaunal sensitivities, palaeontological sensitivity, heritage chance find considerations, visual receptors and cumulative renewable energy development considerations.

Subject to the outcomes of the Environmental Impact Assessment Phase, specialist assessments, stakeholder engagement, layout refinement, application of the mitigation hierarchy and implementation of an Environmental Management Programme, the proposed Nyakallo Solar Park may proceed to detailed impact assessment as part of the Environmental Authorisation process.

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LIST OF ABBREVIATIONS

Abbreviation	Description
AC	Alternating Current
AEL	Atmospheric Emission Licence
AoI	Area of Influence
BESS	Battery Energy Storage System
CA	Competent Authority
CAA	Civil Aviation Authority
CATS	Civil Aviation Technical Standards
CBA	Critical Biodiversity Area
CCTV	Closed-Circuit Television
CO ₂ e	Carbon Dioxide Equivalent
CSP	Concentrated Solar Power
DC	Direct Current
DFFE	Department of Forestry, Fisheries and the Environment
DMRE	Department of Mineral and Petroleum Resources
DSR	Draft Scoping Report
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioners Association of South Africa
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMPr	Environmental Management Programme
ESA	Ecological Support Area
FEPA	Freshwater Ecosystem Priority Area
FSR	Final Scoping Report
GCS	GCS Environment South Africa (Pty) Ltd
GHG	Greenhouse Gas
GN	Government Notice
GN R	Government Notice Regulation
GNR	Government Notice Regulation
HGM	Hydrogeomorphic
HV	High Voltage
I&APs	Interested and Affected Parties
IEM	Integrated Environmental Management
IRP	Integrated Resource Plan
KBA	Key Biodiversity Area
KML	Keyhole Markup Language
LV	Low Voltage
mamsl	Metres above mean sea level
MV	Medium Voltage
NAAQS	National Ambient Air Quality Standards
NBA	National Biodiversity Assessment
NDC	Nationally Determined Contribution
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NERSA	National Energy Regulator of South Africa
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NLC	National Land Cover
NSS	Natural Scientific Services
NSR	Noise-Sensitive Receptor
NWA	National Water Act, 1998 (Act No. 36 of 1998)
O&M	Operations and Maintenance
PCS	Power Conversion System
PES	Present Ecological State
PHRA	Provincial Heritage Resources Authority

Abbreviation	Description
PPP	Public Participation Process
PV	Photovoltaic
PZI	Potential Zone of Influence
REDZ	Renewable Energy Development Zone
RFI	Radio Frequency Interference
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SANBI	South African National Biodiversity Institute
SANLC	South African National Land Cover
SANS	South African National Standard
SCC	Species of Conservation Concern
S&EIR	Scoping and Environmental Impact Assessment Reporting
SCADA	Supervisory Control and Data Acquisition
Screening Tool	National Web-Based Environmental Screening Tool
SEF	Solar Energy Facility
SSVR	Site Sensitivity Verification Report
ToR	Terms of Reference
VIA	Visual Impact Assessment
WUL	Water Use Licence
WULA	Water Use Licence Application

UNITS OF MEASUREMENT

Unit of Measure	Description
%	Percentage
°	Degree
°C	Degrees Celsius
ha	Hectare
ha/LSU	Hectares per Large Stock Unit
km	Kilometre
km ²	Square kilometre
km/h	Kilometres per hour
kV	Kilovolt
L/s	Litres per second
m	Metre
m ²	Square metre
m ³	Cubic metre
m ³ /a	Cubic metres per annum
m/s	Metres per second
mamsl	Metres above mean sea level
mbgl	Metres below ground level
MW	Megawatt
MWac	Megawatt alternating current
MWp	Megawatt peak
MWh	Megawatt hour
tCO ₂ e	Tonnes of carbon dioxide equivalent
µg/m ³	Micrograms per cubic metre
µm	Micrometre
Wp	Watt peak

CHEMICAL ELEMENTS

Symbol / Parameter	Description
C	Carbon
N	Nitrogen
O	Oxygen
S	Sulphur
CO	Carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent

Symbol / Parameter	Description
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
SO ₂	Sulphur dioxide
PM ₁₀	Particulate matter with an aerodynamic diameter of less than 10 micrometres
PM _{2.5}	Particulate matter with an aerodynamic diameter of less than 2.5 micrometres
GHG	Greenhouse gas

1 INTRODUCTION

Nyakallo Solar Park (Pty) Ltd (the Applicant) proposes to develop the Nyakallo Solar Park, a utility-scale renewable energy facility comprising a solar photovoltaic (PV) power plant and associated Battery Energy Storage System (BESS), on Portions 1, 2 and the Remainder of Portion 3 of Farm Hanglip No. 508 LQ, situated within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province.

The proposed facility will have an export capacity of approximately 262 megawatts alternating current (MWac), with a direct current capacity of up to approximately 315 megawatts peak (MWp), supported by a BESS with a storage capacity of approximately 600 megawatt-hours (MWh) and a discharge capacity of approximately 200 megawatts (MW) at the point of connection. The Project will include PV modules mounted on single-axis tracker systems, inverters, internal electrical reticulation, an on-site substation, access roads, laydown and construction areas, operational and maintenance infrastructure, stormwater management measures, security infrastructure and associated auxiliary infrastructure.

The Project site is located within the broader Lephalale energy hub and in proximity to existing Eskom transmission and energy-related infrastructure. The development of the Nyakallo Solar Park is intended to contribute to South Africa's renewable energy generation capacity, support electricity supply and grid stability, and contribute to the national transition towards a more diversified and lower-carbon energy mix.

A separate application for Environmental Authorisation (EA) will be submitted for the Eskom grid connection infrastructure. The present application is limited to the proposed Nyakallo Solar Park facility and associated internal infrastructure up to the future Eskom grid connection point.

GCS Environment South Africa (Pty) Ltd (GCS) has been appointed as the independent Environmental Assessment Practitioner (EAP) to manage and submit the application for EA in terms of Sections 24 and 24O of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), and the Environmental Impact Assessment (EIA) Regulations, 2014 (Government Notice Regulation (GN R) 982¹), read together with the applicable Listing Notices, namely GN R 983², GN R 984³ and GN R 985⁴ of 2014, as amended.

The EA application will follow a Scoping and Environmental Impact Assessment Reporting

¹ EIA Regulations, 2014, GN R 982 in GG 38282 of 4 December 2014, promulgated under sections 24(5) and 44 of the NEMA, with effect from 8 December 2014, as amended.

² Listing Notice 1 of 2014, GN R 983 in GG 38282 of 4 December 2014, promulgated under sections 24(2), 24(5), 24D and 44 of the NEMA, with effect from 8 December 2014, as amended.

³ Listing Notice 2 of 2014, GN R 984 in GG 38282 of 4 December 2014, promulgated under sections 24(2), 24(5), 24D and 44 of the NEMA, with effect from 8 December 2014, as amended.

⁴ Listing Notice 3 of 2014, GN R 985 in GG 38282 of 4 December 2014, promulgated under sections 24(2), 24(5), 24D and 44 of the NEMA, with effect from 8 December 2014, as amended.

(S&EIR) process as prescribed by the EIA Regulations. This Scoping Report has therefore been prepared to identify the key environmental and social issues associated with the proposed development, describe the receiving environment, identify feasible alternatives, present the outcomes of the initial public participation process (PPP), and define the scope of specialist studies and further assessment to be undertaken during the EIA Phase.

In accordance with Section 24C of NEMA, the Department of Forestry, Fisheries and the Environment (DFFE) is the Competent Authority (CA) for this application, with the relevant provincial department and other commenting authorities consulted, where required, as part of the assessment process.

1.1 Content of the Scoping Report

The content of this Report must comply, in terms of content, with Appendix 2 of the EIA Regulations. In Table 1-1, the requirements as set out in Appendix 2, are correlated with the sections in this Report.

Table 1-1: Contents of the Scoping Report

Contents of the Scoping Report		Relevant Section in the Report
a	Details of - i. The EAP who prepared the Report, and ii. The expertise of the EAP, including a curriculum vitae.	Section 2.2. Appendix A.
b	The location of the activity, including - i. The 21-digit Surveyor General code for each cadastral land parcel, ii. Where available, the physical address and farm name, and iii. Where the required information in terms of (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	Section 3.
c	A plan which locates the proposed activity or activities applied for 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, or ii. On land where the property has not been defined, the coordinates within which the activity is to be undertaken.	Figure 3-2. Figure 4-1.
d	A description of the scope of the proposed activity, including - i. All listed and specified activities triggered, and ii. A description of the activities to be undertaken, including associated structures and infrastructure.	Section 4. Section 8.
e	A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	Section 8.
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 location.	Section 6.
g	A full description of the process followed to reach the proposed preferred activity, site and location within the site, including - i. Details of all alternatives to be considered, ii. Details of the public participation process (PPP) undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs, iii. A summary of the issues raised by Interested and Affected	Section 7. Section 10. Section 11. Section 12. Section 13.

Contents of the Scoping Report		Relevant Section in the Report
	Parties (I&APs), and an indication of the manner in which the issues were incorporated, or the reasons for not including them, iv. The environmental attributes associated with the alternatives focusing on geographical, physical, biological, social, economic, heritage and cultural aspects, v. The impacts and risks identified for each alternative, 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. vi. The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives, 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, viii. The possible mitigation measures that could be applied and level of residual risk, ix. The outcome of the site selection matrix, x. If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such, and xi. A concluding statement indicating the preferred alternatives, including preferred location of the activity.	
h	A Plan of Study for undertaking the EIA process to be undertaken, including - i. A description of the alternatives to be considered and assessed with the preferred site, including the option of not proceeding with the activity, ii. A description of the aspects to be assessed as part of the EIA process, iii. Aspects to be assessed by specialists, iv. A description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists, v. A description of the proposed method of assessing duration and significance, vi. An indication of the stages at which the CA will be consulted, vii. Particulars of the PPP that will be conducted during the EIA process, viii. A description of the tasks that will be undertaken as part of the EIA process, and ix. Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	Section 14.
i	An undertaking oath or affirmation by the EAP in relation to - i. The correctness of the information provided in the Report, ii. The inclusion of comments and inputs from stakeholders and I&APs, and iii. Any information provided by the EAP to I&APs and any responses by the EAP to comments or inputs made by I&APs.	Section 17.
j	An undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and I&APs on the Plan of Study for undertaking the EIA.	Section 17

Contents of the Scoping Report		Relevant Section in the Report
k	Where applicable, any specific information required by the CA.	Section 15.
l	Any other matter required in terms of Section 24(4)(a) and (b) of the Act.	Section 16.

2 PROJECT TEAM⁵

This section provides the details of the Applicant, EAP and Project team.

2.1 Applicant

The contact details of the Applicant, Nyakallo Solar Park (Pty) Ltd, are provided in Table 2-1 below.

Table 2-1: Name and address of the Applicant

Applicant Name:	Nyakallo Solar Park (Pty) Ltd
Company/ Trading name (if any):	-
Company Registration Number:	2025/308933/07
Company Representative:	Ramon Tavenor
Telephone No.:	+27 79 502 9605
Facsimile No.:	-
E-mail Address:	ramon@norskrenewables.com
Physical Address:	4 th Floor Spaces Sunclare, 21 Dreyer Street, Claremont, Western Cape, 7708
Postal Address:	4 th Floor Spaces Sunclare, 21 Dreyer Street, Claremont, Western Cape, 7708

2.2 Environmental Assessment Practitioner

The contact details of the EAP are provided in Table 2-2 below.

Table 2-2: Contact details of the Environmental Assessment Practitioner

Name of Environmental Assessment Practitioner (EAP):	Paula Tolksdorff
Professional Affiliation / Registration:	- Registered EAP (Environmental Assessment Practitioners Association of South Africa): 2019/509. - Registered Professional Natural Scientist (South African Council for Natural Scientific Professions): (152904). - International Association for Impact Assessment - South Africa Membership: 1745. - International Association for Public Participation Membership: IAP2SA014.
Company Name:	GCS Environment South Africa (Pty) Ltd
Physical Address:	63 Wessels Road Rivonia, 2128
Postal Address:	P.O. Box 2597 Rivonia, 2128

⁵ Required in accordance with Appendix 2, Section 2(1)(a) of the EIA Regulations, 2014, which requires the Scoping Report to include details of the EAP who prepared the report and the expertise of the EAP, including a curriculum vitae. The appointment and requirements applicable to EAPs and specialists are further addressed in Regulations 12 and 13, and specialist report requirements are set out in Appendix 6.

Telephone No.:	+27 (0)11 803 5726
Facsimile No.:	+27 (0)11 803 5745
E-mail Address:	paulat@gcs-sa.biz

2.2.1 Expertise of the Environmental Assessment Practitioner

This section provides the qualifications and experience of the EAP. The EAP's Curriculum Vitae and qualifications are attached in Appendix A.

2.2.1.1 The Qualifications of the Environmental Assessment Practitioner

Paula Tolksdorff holds the following qualifications:

- National Diploma: Civil Engineering, University of the Witwatersrand, 1993.
- National Higher Diploma: Civil Engineering, University of the Witwatersrand, 1994.
- Baccalaureus Technologiae (B-Tech), Engineering Civil, Urban and Rural Development, University of the Witwatersrand, 1997.
- MSc. Environmental Management, University of North West (two years course work complete 2011/2012).

2.2.2 Summary of the Environmental Assessment Practitioner's Past Experience

Paula brings over 30 years of specialised experience in the environmental sector, working across various industries, including global industrial and mining clients, as well as commercial developments. Her career has taken her through significant projects across Africa, where she has gained a deep understanding of how environmental and social licences to operate impact both operations and project outcomes.

With a strong foundation in sustainability, Paula applies her expertise to integrate and maintain effective, sustainable practices across a wide range of operational contexts. As an EAP and Professional Natural Scientist, her skills are both robust and multifaceted. She excels in conducting environmental and social impact assessments and in developing comprehensive environmental and social (E&S) management programmes tailored to the specific needs of each project. Her work includes crafting and implementing E&S management systems for both construction and operational phases, ensuring they adhere to international standards, as well as local regulatory requirements.

Paula is also highly experienced in stakeholder engagement, ensuring clear communication and collaboration across all parties involved in a project. Her capabilities extend to due diligence and compliance auditing, where she provides critical oversight to ensure regulatory compliance and operational integrity. Additionally, she has extensive experience managing water and waste resources, promoting responsible and sustainable practices.

Through her well-honed project management skills, Paula effectively leads complex projects,

consistently ensuring that sustainability goals are met. Her career and diverse background demonstrate a deep commitment to advancing environmental stewardship and sustainable development across challenging and diverse environments.

2.3 Details of the Specialist Team

Table 2-3 below provides details of the specialist team.

Table 2-3: Details of the specialist team

Assessment	Specialist	Qualifications	Professional registration / affiliation
Air Quality Assessment - uMoya-NILU Consulting (Pty) Ltd	Dr Mark Zunckel	National Diploma in Meteorology, Technikon Pretoria, 1980; BSc Meteorology, University of Pretoria, 1984; BSc (Hons) Meteorology, University of Pretoria, 1988; MSc, University of Natal, 1992; PhD, University of the Witwatersrand, 1999.	Professional Natural Scientist, SACNASP. Registration number to be confirmed.
	Nopasika Xulu	BSc Environmental Studies, University of the Witwatersrand, 2011; BSc (Hons) Environmental Studies, University of the Witwatersrand, 2012; MSc Environmental Sciences, North West University, 2017.	
Climate Change Assessment - Cypress and Myrtle (Pty) Ltd	Hirshwyn Arulappan	BSc (Hons) Environmental Management, University of South Africa, 2018; BSocSci Geography and Environmental Management, University of KwaZulu-Natal, 2015.	
	Marinus du Preez	MSc Zoology, North West University, 2017; BSc (Hons) Aquatic Ecosystem Health in Environmental Science, North West University, 2013; BSc Environmental and Biological Sciences, North West University, 2012.	Professional Natural Scientist, SACNASP (134755).
	Tarryn Reddy	BSc Geological Sciences, Environmental and Engineering Geology, University of KwaZulu-Natal, 2015.	Candidate Natural Scientist, SACNASP. Registration number to be confirmed.
Hydrogeological Investigation - GCS Water and Environmental Consulting	Wian De Klerk	BSc Environmental Sciences with Geology and Geography; BSc (Hons) Hydrology and Geohydrology.	Candidate Natural Scientist, SACNASP. Registration number to be confirmed.
	Hendrik Botha	BSc Chemistry and Geology, Environmental Sciences, 2012; BSc (Hons) Hydrology, Environmental Sciences, 2013; MSc Geohydrology and Hydrology, Environmental Sciences, 2014-2016.	Professional Natural Scientist, SACNASP (400139/17).
Hydrological Assessment - GCS Water and Environmental Consulting	Chané de Bruyn	BSc Environmental Sciences with Geology and Botany, North West University, 2016; BSc (Hons) Environmental Sciences with Hydrology and Geohydrology, North West University, 2018; MSc Environmental Sciences with	

Assessment	Specialist	Qualifications	Professional registration / affiliation
		Hydrology and Geohydrology, North West University, 2023.	
	Hendrik Botha	BSc Chemistry and Geology, Environmental Sciences, 2012; BSc (Hons) Hydrology, Environmental Sciences, 2013; MSc Geohydrology and Hydrology, Environmental Sciences, 2014-2016.	Professional Natural Scientist, SACNASP (400139/17).
Soils, Land Capability and Land Use Assessment - Eco-Assist Environmental Consultants	Wayne Jackson	BSc Soil Science and Hydrology, University of KwaZulu-Natal, Pietermaritzburg.	Professional Natural Scientist, SACNASP (119037).
Terrestrial and Freshwater Assessment - Natural Scientific Services CC	Susan Abell	BSc, University of the Witwatersrand, 1998; BSc (Hons), University of the Witwatersrand, 1999; MSc, University of the Witwatersrand, 2001.	Professional Natural Scientist, SACNASP (400116/05).
	Tyron Clark	MSc Zoology, 2019.	Professional Natural Scientist, SACNASP; Field of Practice: Zoology (121338).
	Rowena Harrison	PhD Soil Science, 2023.	Professional Natural Scientist, SACNASP (400715/15). Field of practice to be confirmed.
	Geoff Lockwood	Ornithologist; Acting Chief Executive Officer, Delta Environmental Centre.	Former Vice-Chairman, BirdLife South Africa.
	Lloyd Mhlongo	PhD Ethnobotany, submitted / under review.	Not provided in source documentation.
Archaeological Impact Assessment - Umlando: Archaeological Surveys and Heritage Management	Gavin Anderson	MPhil in Archaeology and Social Psychology, University of Cape Town.	Member, Association of Southern African Professional Archaeologists.
Palaeontological Impact Assessment - Alan Smith Consulting	Dr Alan Smith	PhD Geology; Research Associate, University of KwaZulu-Natal.	Professional Natural Scientist, SACNASP. Registration number to be confirmed.
Noise Screening Assessment - Enviro-Acoustic Research CC	M. de Jager	BEng Chemical Engineering.	Professional Natural Scientist, SACNASP (117253); Member, South African Institute of Occupational Safety and Health (72765282).
	Johan Maré	MSc Microbiology.	Professional Natural Scientist, SACNASP (400092/91).
Socio-Economic Impact Assessment - Loci Environmental Pty Ltd	Dr Kay Brugge	BA; BA (Hons); Master's degree; D.Litt. et Phil. Qualifications are in Psychology / Neuropsychology.	
	Anita Bron	MA Research Psychology, University of Pretoria, 2000.	Registered Research Psychologist, Health Professions Council of South Africa (PS0073075); Member,

Assessment	Specialist	Qualifications	Professional registration / affiliation
			South African Monitoring and Evaluation Association.
Traffic Impact Assessment - iWink Consulting (Pty) Ltd	Iris Wink	Diploma in Draughtsperson, Lower Saxonian State Office for Road Engineering; BSc Civil Engineering, Leibniz Technical University of Hannover, Germany; MSc Civil and Transport Engineering, Leibniz Technical University of Hannover, Germany.	Engineering Council of South Africa (20110156).
Glint and Glare Impact Assessment - Future Impact (Pty) Ltd	Dr Brett Williams	PhD Environmental Management, University of Pretoria; MBA, University of Wales; National Diploma in Health and Safety Management; Harvard University - Applications of Industrial Hygiene Principles; United States Environmental Protection Agency - Pollution Measurement; United States Environmental Protection Agency - Air Dispersion Modelling.	Environmental Auditor, ISO 14001:2015 and ISO 45001:2018; Registered Occupational Hygienist, Southern African Institute of Occupational Hygienists (0221).
Visual Impact Assessment - GCS Water and Environmental Consulting	Nompilo Mbokazi	BSc Geography, University of Pretoria, 2020.	Professional Natural Scientist, SACNASP (154230).

3 LOCATION AND DESCRIPTION OF THE PROPERTY⁶

3.1 Project Location

The proposed Nyakallo Solar Park will be located on Portions 1, 2 and the Remainder of Portion 3 of Farm Hanglip No. 508 LQ within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province.

The Project site is situated approximately 3.53 kilometres (km) south-west of Marapong, 8.26 km south-west of Onverwacht and 12.85 km south-west of Lephalale (Figure 3-1). The site falls within Ward 3 of the Lephalale Local Municipality and is located within an area characterised by agricultural activities, game farming, natural bushveld vegetation and existing energy-related infrastructure.

The application area comprises approximately 723 hectares (ha), of which approximately 414.55 ha is proposed for development (Figure 3-2). The site is located in proximity to existing Eskom transmission infrastructure and forms part of the broader Lephalale energy hub, making it well suited for integration into the national electricity grid.

Access to the site will be obtained via the existing provincial and municipal road network, which provides connectivity to Marapong, Onverwacht and Lephalale.

Table 3-1 provides a summary of the land uses surrounding the Project site.

Table 3-1: Position of the Project site with surrounding land uses

Direction	Land Uses
North	Matimba Power Station, Marapong Town
East	Natural Vegetation
South	Natural Vegetation, Matimba Ash Facility
West	Medupi Power Station, Powerline network

3.2 Property Description

Table 3-2 provides a detailed description of the property involved in the project, including the farm portion covered by the application, the relevant municipal district, and the nearest town to the project.

⁶ Required in accordance with Appendix 2, Section 2(1)(b) and (c) of the EIA Regulations, 2014, which requires the Scoping Report to include the location of the activity, including the 21-digit Surveyor General code of each cadastral land parcel, the physical address and farm name where available, or the coordinates of the property boundary where such information is not available, as well as a plan locating the proposed activity at an appropriate scale.

Table 3-2: Property description

Farm Name	Farm Hanglip No. 508 LQ		
Affected Portions	Portion 1, Portion 2 and the Remainder of Portion 3		
Application Area	Approximately 723 ha		
Development Footprint	Approximately 414.55 ha		
Magisterial District	Waterberg District Municipality		
Nearest Settlements	Marapong (~3.53 km), Onverwacht (~8.26 km) and Lephalale (~12.85 km)		
Surveyor General Codes	TOLQ00000000508000001 TOLQ00000000508000002 TOLQ00000000508000003		
Coordinates:	Corner Point	Latitude (S)	Longitude (E)
	Centre	23° 41' 22.90"	27° 36' 45.69"
	Boundary Point (BP) 1	23° 40' 14.37"	27° 38' 05.58"
	BP 2	23° 41' 42.49"	27° 37' 28.02"
	BP 3	23° 41' 52.97"	27° 36' 48.40"
	BP 4	23° 41' 22.84"	27° 37' 01.79"
	BP 5	23° 41' 14.33"	27° 36' 49.00"
	BP 6	23° 41' 26.77"	27° 36' 42.57"
	BP 7	23° 41' 47.96"	27° 35' 38.43"
	BP 8	23° 41' 47.96"	27° 35' 25.73"

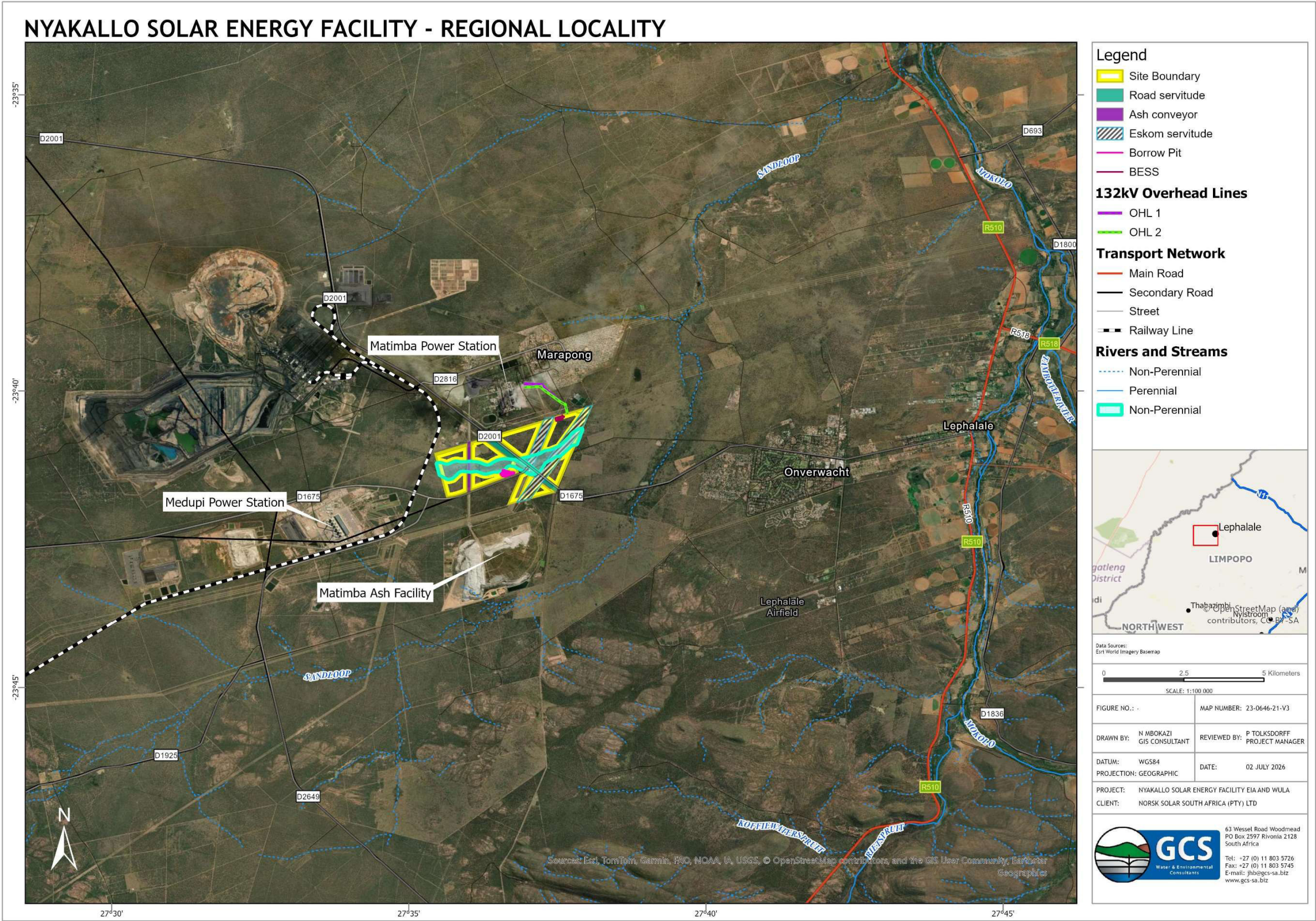


Figure 3-1: Regional Project Locality

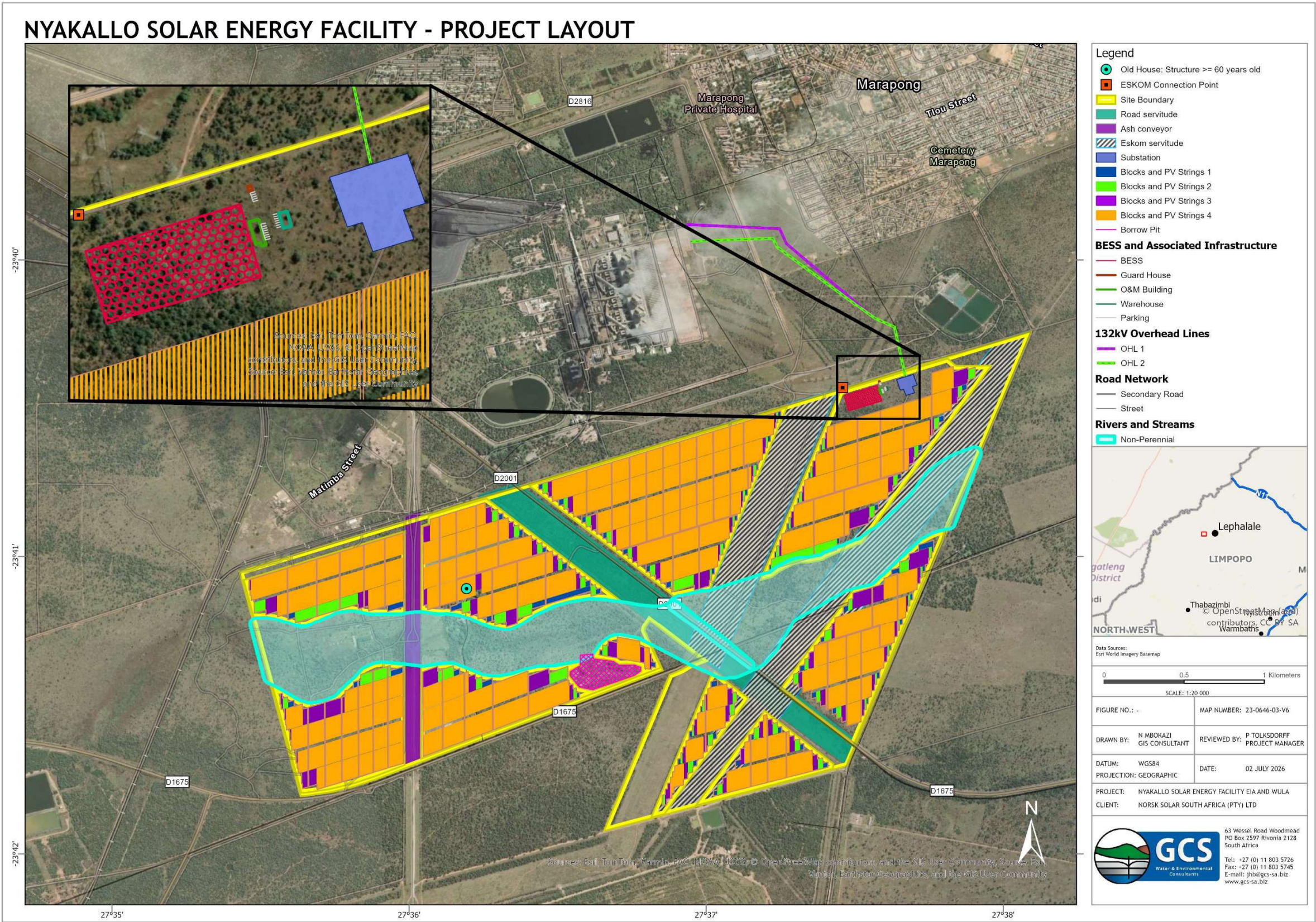


Figure 3-2: Project Layout

4 PROJECT DESCRIPTION⁷

4.1 Key Components of the Project

The key components of the Nyakallo Solar Park are summarised in Table 1-1 below and described in more detail in the sections that follow. The Project layout is shown Figure 3-2, while the Engineering Layout Plan is provided in Figure 4-1.

Table 4-1: Project Information

Facility name:	Nyakallo Solar Park.
Applicant:	Nyakallo Solar Park (Pty) Ltd.
Type of technology:	Solar Photovoltaic (PV). Bi-facial PV modules with single axis trackers.
Mounting structure	Mounting structures will be single axis tracker type with independent rows oriented in a north-south direction, with a 1-portrait module configuration (one panel high). The foundations will consist of driven piles and/or drilled and concrete foundations.
Total capacity:	262 MWac (DC capacity up to 315 MWp)
Wattage per solar panel:	600 - 800 W. (The wattage per module depends on availability at the time of construction. The current design uses a 660 Wp module)
Number of total panels:	Up to 500 000.
Battery Energy Storage System (BESS):	The BESS will consist of battery containers and bi-directional power conversion systems, as well as safety equipment such as additional switchgear, fire suppression systems, earthing equipment and monitoring and control systems. Low voltage (LV) to medium voltage (MV) containerised transformer stations will step-up the voltage to 33 kV. Capacity: of approximately 600 MWh and approximately 200 MW at the point of connection when commissioned, enabling the storage of surplus energy and enhancing grid stability. Preferred technology: lithium-ion phosphate (or alternative sustainable batteries). A battery control system integrated to the master site controller and Supervisory Control and Data Acquisition system will be implemented.
Inverters:	Inverters for DC/alternating current (AC) power conversion will be central or string, from 250 kW to 12 MW maximum capacity per unit. Combiner boxes will be used to combine DC strings.
Internal electrical reticulation:	Internal MV and LV reticulation will be installed across the solar PV and BESS facility. This will comprise a combination of underground cabling, above-ground cabling (including cable trays), and overhead lines where required. The internal reticulation network will connect PV strings, inverters, MV transformer stations, the on site substation, BESS infrastructure, and auxiliary facilities.
Temporary laydown, staging areas and construction camp:	The combined footprint of the construction camp and associated laydown/staging areas is approximately 25 ha.
Operations and Maintenance (O&M) footprint:	O&M area typically to be up to 6 ha, including security gate house, ablutions, workshops, storage and warehousing areas, site offices, 33 kV switch gear and relay room.
Security infrastructure:	The Nyakallo Solar Park will be enclosed by security fencing positioned around the final approved facility footprint. Controlled access points, including a security gatehouse and associated monitoring systems, will

⁷ Required in accordance with Appendix 2, Section 2(1)(d) of the EIA Regulations, 2014, which requires the Scoping Report to include a description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for, as well as a description of the associated structures and infrastructure related to the development.

	be implemented to restrict unauthorised access during construction and operation.
Grid connection:	The Project will connect to the Eskom electrical network at high voltage (HV). The connection voltage will be 132 kV. Transformation from 132 kV to 33 kV will be at the main substation with an internal 33 kV (MV) collector network. 2 MVA to 12 MVA transformers stations will step-up the voltage from the inverters to a 33 kV to connect to the MV collector network.
On site substation:	MV / HV step-up substation (typically 33 kV / 132 kV) where one or more step-up transformers elevate the AC voltage from medium voltage to high voltage, aligning it with the grid's requirements.
Connection to Eskom substation:	Overhead transmission line (132 kV) will connect the switching substation to a switching bay at Eskom's existing Matimba Substation or suitable alternative. A separate application for Environmental Authorisation will be submitted for the Eskom grid connection. The grid connection itself does not form part of this application. This application is limited to the proposed development and the internal connection from the facility to the future Eskom grid connection point.
New switching substation	Eskom switching substation, the HV output electrical line coming from the solar park will potentially be connected to a new switching substation.
Internal roads:	Gravel surfaced internal site roads will need to be constructed to provide access to the various components of the Nyakallo Solar Park. The main access road from the provincial road to the main gate might be either a gravel road or a paved road.
Stormwater management and drainage:	A site-wide stormwater management and drainage system will be implemented to manage runoff from internal roads, solar panel areas, inverter stations, substations, BESS infrastructure, and operational areas. Measures may include surface drainage channels, cut-off drains, attenuation structures, erosion protection, and energy dissipation features, designed to maintain pre-development flow regimes and prevent erosion and sedimentation.
Waste management	Waste will be generated during construction, operational, and decommissioning phases of the Nyakallo Solar Park and will be managed in accordance with applicable legislation and standards. During the construction phase, waste streams will include packaging materials (e.g. Cardboard, wooden pallets and plastic wrapping), scrap metal, minor quantities of concrete waste, electrical cable off-cuts and reels, plastic pipe off-cuts, empty containers, limited quantities of lubricating oils and filters, and unused or spent chemicals. Domestic waste (e.g. Paper, plastic, cans and bottles, food waste) as well as sewage effluent and greywater from portable sanitation facilities, will also be generated. Waste will be temporarily stored in designated areas and segregated into recyclable and general waste streams. Recyclable materials will be transported to appropriate registered recycling facilities, while general waste will be disposed of at licensed landfill sites. Hazardous waste will be handled in accordance with applicable requirements and disposed of at licensed hazardous waste facilities. Domestic waste and sewage/greywater will be removed from site by authorised service providers. During the operational phase, waste generation will be minimal and limited to domestic waste from site offices and maintenance activities, as well as sewage effluent and greywater. Waste will be collected in designated and clearly marked bins and/or containers and removed from site by licensed contractors for recycling and/or disposal at a registered disposal facility.

	During the decommissioning phase, waste will include materials associated with the dismantling and removal of infrastructure, including PV panels, mounting structures, cables, inverters, transformers, and battery storage components. Additional waste streams may include glass, silicon components, scrap metal, and limited quantities of construction rubble (e.g. concrete from foundations and hardstanding areas). All materials will be removed from site and managed through recycling, reuse, or disposal at licensed facilities, and appropriately. Temporary infrastructure, including fencing, storage containers, bins or containers, and sanitation facilities will be removed from site upon completion of decommissioning.
Accessibility:	Via Provincial Roads D2001, D1675 and Municipal Road Nelson Mandela Drive.

4.2 Solar Photovoltaic Facility

The solar power plant will consist of up to 500 000 bi-facial PV modules, which are designed to capture sunlight from both the front and rear surfaces to increase efficiency. Each module will be rated between 600 and 800 watt-peak (Wp), together providing a combined direct current generation capacity of up to 315 MWp which will provide 262 MW alternating current (AC) generation capacity. The modules will be mounted on strong steel or aluminium structures treated against corrosion, and the foundations will be adapted to the soil and ground conditions, either through piles driven into the ground, drilled concrete supports, or a combination of both. The modules will be mounted on single axis trackers, which follow the sun's movement during the day to maximise energy production.

The PV modules will generate direct current (DC) electricity, which will then be converted to AC through inverters. These inverters, supplied by a reputable global manufacturer with operations in South Africa, will be either central or string type. They are designed for high efficiency and reliable performance under South Africa's high temperature conditions. The inverters will fully comply with the South African Grid Code as regulated by the National Energy Regulator of South Africa.

4.3 Battery Energy Storage System

To ensure continuous supply and grid stability, the Project will include a lithium-ion battery storage system with a total storage capacity of approximately 600 megawatt-hours (MWh) and a discharge capacity of up to approximately 200 MW, at the point of connection when commissioned, enabling the storage of surplus energy and enhancing grid stability. The BESS will be housed in containerised units that will be centralised in one area close to the main substation. The system will allow surplus electricity generated during the day to be stored and later supplied when solar generation is lower or when the grid requires additional capacity. Each unit will include bi-directional power conversion systems, switchgear, transformers, grounding systems, as well as safety features such as fire detection, and fire suppression equipment.

4.4 Electrical Infrastructure

The facility will be connected directly to the Eskom transmission network. The connection will be made at 132 kV. Electricity produced by the solar panels will first be converted to low voltage AC, stepped up to 33 kV medium voltage (MV), and transferred through an internal collector network of underground cables and overhead lines. From there, the electricity will flow to a new on site step-up substation, where it will be converted to the required high voltage (HV) level.

The key electrical infrastructure will include containerised substations, transformers, MV switchgear, a new MV/HV substation, and an outdoor HV switchyard that will be handed over to Eskom once complete.

4.5 Civil Infrastructure

The Project will include a network of internal access roads to provide access to the solar arrays and facilities. Some of these roads will be permanent and will also serve as maintenance routes once the facility is operational. Main access roads will link the site to public routes. Appropriate stormwater management infrastructure will be incorporated into the road design to control runoff, minimise erosion, and protect surrounding soil and water resources.

During construction, several temporary facilities will be established, including a construction camp, laydown areas for materials and equipment, a batching plant, parking areas, and zones for soil and material stockpiling. Temporary and permanent water storage, waste segregation areas, ablution blocks, and kitchen facilities will also be provided for construction workers as well as for the Operations and Maintenance (O&M) phase. Water supply during will be supported by boreholes, pumps, and storage tanks, and municipal water may also be utilised where available. If required, a water treatment and purification facility will be provided to ensure the availability of potable water as well as clean water for solar module washing.

4.6 Buildings

Permanent buildings will include an O&M centre, which will house offices, staff facilities such as kitchens and ablutions, and parking. Additional auxiliary buildings will be constructed to accommodate workshops, warehouses, and storage for spare parts, tools, and service vehicles. A designated waste storage area will be developed for the safe handling and collection of domestic waste by the local municipality and/or private service provider. Security will be supported by guardhouses and staffed access control points at key entry locations.

4.7 Other Infrastructure and Equipment

To secure the facility and support its operations, the site will be enclosed by perimeter

fencing and monitored by a CCTV surveillance system covering the site boundary and internal access points. Dedicated security buildings and control stations will provide 24-hour monitoring. Lighting at strategic positions will be required for security and operational purposes.

Several weather stations will be installed across the site to collect meteorological data critical for plant performance monitoring. Finally, a fibre optic and/or wireless communication network will connect all equipment and operational systems, ensuring efficient communication, real-time monitoring, and centralised control.

4.8 Project Activities Per Phase

The development of the Nyakallo Solar Park will follow a structured Project lifecycle consisting of four key phases: Planning and Design, Construction and Commissioning, O&M, and finally Decommissioning and Rehabilitation.

4.8.1 Planning and Design Phase (Pre-construction Phase)

The planning and design phase lays the foundation for the Project. Its purpose is to confirm the technical feasibility of the facility, secure all necessary permits and approvals, and ensure that the Project design avoids sensitive environmental features.

During this phase, a range of specialist studies will be carried out as part of the S&EIR process. These include environmental, social, technical, and engineering studies that provide baseline information about the site. Surveys will be conducted to assess soil and geotechnical conditions for infrastructure foundations, to map topography, and to identify access routes and watercourses. Additional surveys will confirm the exact Project footprint, finalise the routing of MV overhead and underground lines, and identify any environmental sensitivities through walk-through surveys.

At the end of this phase, the Project design will be refined based on the findings of these studies, and applications for permits (such as environmental authorisations, water use licences, and grid connection agreements) will be submitted to the relevant authorities.

4.8.2 Construction and Commissioning Phase

The construction and commissioning phase represents the most active period on site. It is expected to take approximately 20 to 30 months and will involve the simultaneous development of the entire solar park rather than a phased rollout. The aim of this phase is to physically establish the facility and prepare it for operation.

Key activities will include site establishment and preparation, such as setting up temporary offices, waste segregation area(s), workshops, ablutions, and storage facilities. The Project area will be cleared of vegetation in designated zones, with topsoil managed appropriately, and internal and external access roads will be constructed or upgraded. Security fencing will

be installed to secure the site.

Construction activities will then focus on building the core infrastructure: establishing laydown areas, constructing the batching plant, transporting PV modules, inverters, and battery containers to site, and erecting mounting structures and solar panels. Substations and ancillary infrastructure will be built, and powerline(s) connecting the facility to the Eskom grid will be installed.

Once physical construction is complete, the facility will undergo commissioning, which involves testing and verifying that all systems (including PV modules, inverters, the BESS, substations, and transmission lines) operate safely and according to design. Disturbed areas, such as the ground between module rows, will be rehabilitated to prevent dust and erosion.

4.8.3 Operations and Maintenance Phase

The O&M phase is the longest stage of the Project lifecycle, expected to last at least 20 to 35 years. During this phase, the facility will generate renewable electricity and supply it to the national grid, while the BESS will store energy to balance supply and demand and enhance grid stability.

Daily activities will include monitoring the plant's performance and reporting on energy generation. Preventive and corrective maintenance will be undertaken on all infrastructure, including PV modules, inverters, substations, and BESS units. Solar modules will be cleaned periodically using water treated to the appropriate quality to remove dust and maintain efficiency. Vegetation management, such as brush cutting and controlled ground cover, will also take place to reduce fire risks, limit erosion, and manage dust.

Security personnel will remain on site to ensure the facility is protected, while weather stations and monitoring systems will provide real-time data to inform efficient operation. Employment during this phase will be less compared to construction but will include skilled technical staff, maintenance teams, and security personnel.

4.8.4 Decommissioning and Rehabilitation Phase

The final phase of the Project lifecycle is Decommissioning and Rehabilitation. This phase ensures that when the solar park reaches the end of its economic life, the site is safely closed and restored in line with environmental and regulatory requirements.

Decommissioning will begin with the safe shutdown of all generation and storage equipment. Infrastructure such as PV modules, inverters, battery containers, substations, and powerlines will be carefully dismantled and removed. Wherever possible, materials will be sorted for recycling or reuse, with non-recyclable materials disposed of responsibly.

Once equipment has been removed, the site will be rehabilitated. This will include restoring the ground surface, re-establishing vegetation, and ensuring that soils are stabilised.

Rehabilitation measures will be guided by environmental specialists and aligned with the requirements of authorities at the time of closure. This phase will ensure that the land can be returned to a safe and sustainable condition, with potential for future agricultural or other compatible uses.

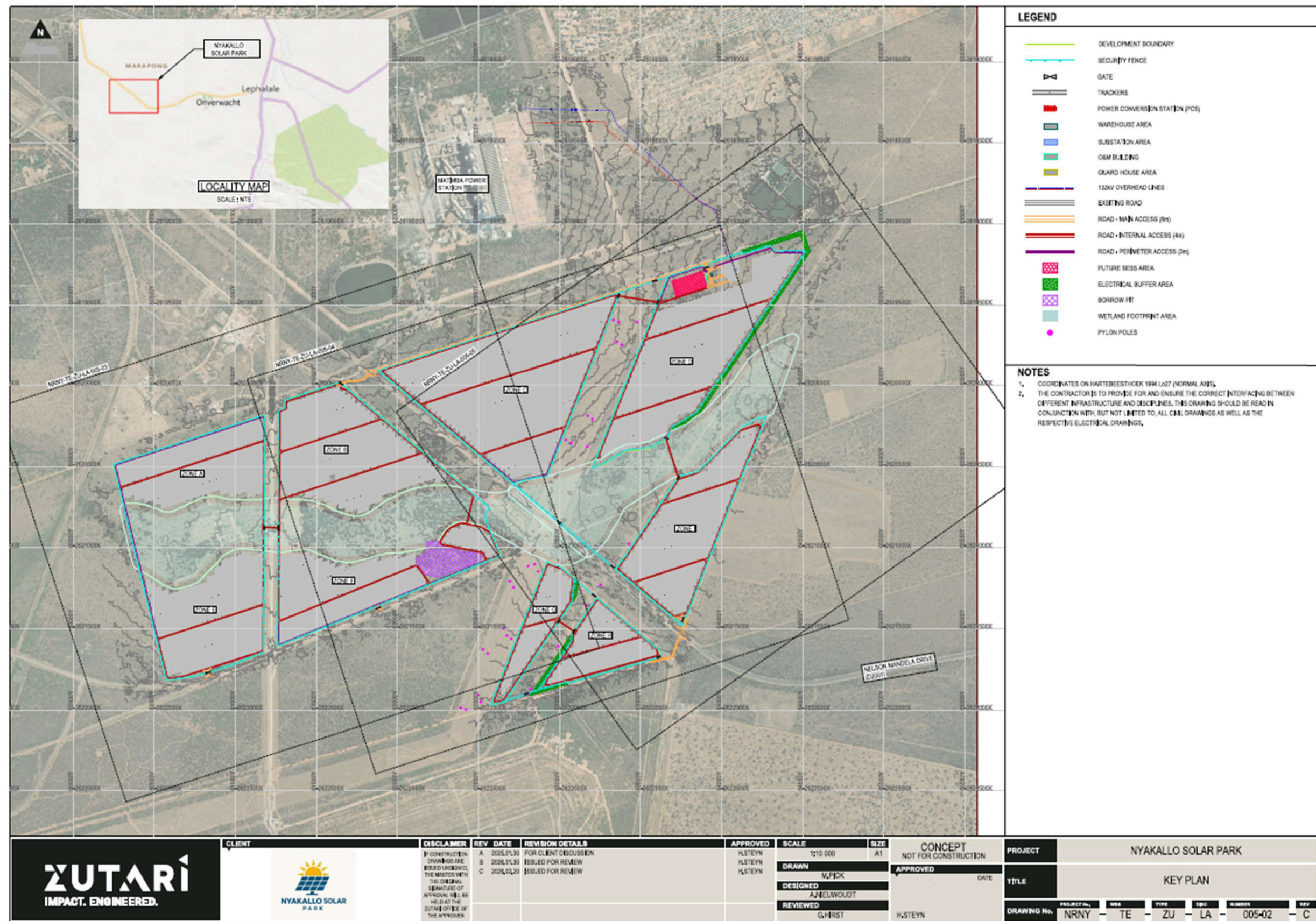


Figure 4-1: Engineering Layout Plan

5 SCREENING TOOL OUTCOMES⁸

This chapter provides an overview of the Site Screening Verification Report (SSVR) prepared by GCS Environment South Africa (Pty) Ltd (attached in Appendix B).

5.1 Purpose and Legislative Context

The SSVR was prepared in compliance with Regulation 16(1)(b)(v) of the EIA Regulations, 2014. These Regulations require that the results of the National Web-Based Environmental Screening Tool (Screening Tool) be verified prior to the commencement of specialist studies identified by the Screening Tool.

The primary purpose of the SSVR is to:

- Confirm the current land use and environmental sensitivities of the site.
- Verify whether the sensitivity ratings assigned by the Screening Tool accurately reflect on site conditions.
- Motivate the appropriateness and necessity of the specialist studies recommended by the Screening Tool.
- Provide evidence-based justification for proceeding with the proposed scope of specialist investigations during the EIA Phase.

5.2 Methodological Approach

The site sensitivity verification followed a structured and integrated methodology, combining desktop-based analysis, on-site verification and professional evaluation. The purpose of the verification was to confirm the current land use and environmental sensitivities of the proposed development area, as identified by the National Web-Based Environmental Screening Tool, and to inform the scope of specialist investigations required for the EIA process.

5.2.1 Desktop Assessment

A desktop assessment was undertaken to establish a baseline understanding of the Project site and surrounding environmental context. This included a review of recent high-resolution satellite imagery, available spatial datasets and the Screening Tool outputs. The assessment considered current and historical land use, vegetation and habitat condition, topography, surface water features, existing infrastructure, mapped environmental sensitivities,

⁸ Required in accordance with Regulation 16(1)(b)(v) of the EIA Regulations, 2014, which requires an application for environmental authorisation to be accompanied by the report generated by the National Web-Based Environmental Screening Tool. The site sensitivity verification must confirm or dispute the current land use and environmental sensitivities identified by the Screening Tool, and must inform the specialist studies required for the assessment.

biodiversity priority areas and the broader regional context.

The findings of the desktop assessment were used to identify key focus areas for field verification and to determine which environmental themes required confirmation or further specialist investigation.

5.2.2 Site Visit and Field Verification

A preliminary site sensitivity verification visit was conducted on 7 May 2025 by Paula Tolkdorff of GCS. The purpose of the site visit was to ground-truth the Screening Tool outputs and desktop assessment findings, and to confirm the current condition of the site.

The field verification included a visual inspection of land use, disturbance patterns, vegetation cover, habitat condition, aquatic features, existing infrastructure, access routes and any physical constraints relevant to the proposed development. Representative site conditions and key environmental features were documented photographically.

In addition to the preliminary verification visit, the Project site was visited on several occasions during 2024 and 2025 by various specialists. Relevant observations and findings from these specialist site visits have been incorporated into the site sensitivity verification to ensure that the assessment reflects current and site-specific environmental conditions.

5.2.3 Evaluation and Sensitivity Confirmation

The findings of the desktop assessment, site verification and specialist observations were evaluated collectively to confirm or refine the environmental sensitivities identified by the Screening Tool.

The evaluation considered whether the Screening Tool sensitivity ratings accurately reflect on-site conditions, whether any mapped sensitivities required refinement, and whether additional or theme-specific specialist studies were required. The outcomes of this evaluation informed the proposed scope of specialist investigations and ensured that the studies required for the EIA process are proportionate, defensible and aligned with the principles of the mitigation hierarchy and applicable regulatory requirements.

5.3 Screening Tool Report Outcomes

The Screening Tool Report was generated for the proposed Nyakallo Solar Park on 29 April 2026. The Screening Tool identified several environmental themes with medium to very high sensitivity across the proposed development area. These sensitivities indicate the presence of potentially environmentally important features within or near the site, which require verification and assessment by suitably qualified specialists.

The results are summarised in Table 5-1 and the Screening Tool Report dated 29 April 2026 is attached in Appendix B.

Table 5-1: Screening Tool Sensitivity Outcomes

Theme	Sensitivity Rating
Aquatic Biodiversity	Very High
Terrestrial Biodiversity	Very High
Avian	Very High
Landscape (Solar)	Very High
Palaeontology	Very High
Agriculture	Very High
Animal Species	Medium
Archaeological and Cultural Heritage	Low
Plant Species	Low
Civil Aviation (Solar PV)	Medium
Radio Frequency Interference (RFI)	Medium
Defence	Low

The Aquatic Biodiversity Theme was identified as having very high sensitivity due to the presence of wetland depression features and the site's location within a Freshwater Ecosystem Priority Area (FEPA) sub-catchment. The Terrestrial Biodiversity Theme was also identified as very high due to the FEPA sub-catchment. The Avian Theme was identified as very high due to the site being located within 50 km of colonies and within 20 km of known Cape Vulture restaurant sites.

The Landscape (Solar) Theme was identified as very high due to the proximity of the site to nearby towns or villages, including areas within 500 metres (m) of a town or village. The Palaeontology Theme was identified as very high due to features with very high palaeontological sensitivity. The Agriculture Theme was also identified as very high, with sensitivity features including pivot irrigation, rainfed annual crop cultivation or planted pastures, and areas of moderate to high agricultural potential.

The Animal Species Theme was identified as medium sensitivity and includes several avifaunal and mammal species sensitivity features, including species such as *Podica senegalensis* (African Finfoot), *Terathopius ecaudatus* (Bateleur), *Hydroprogne caspia* (Caspian Tern), *Gyps africanus* (White-backed Vulture), *Aquila rapax* (Tawny Eagle), *Dasymys robertsii* (Roberts Shaggy Rat) and *Lycaon pictus* (African Wild Dog), as well as a sensitive species identified by a unique species number. The Plant Species Theme was identified as low sensitivity. The Archaeological and Cultural Heritage Theme and Defence Theme were also identified as low sensitivity. The Civil Aviation Theme was identified as medium sensitivity due to the site being located within 8 km of another civil aviation aerodrome. The Radio Frequency Interference (RFI) Theme was identified as medium sensitivity due to portions of the site being located within 1 km of a telecommunication facility.

Based on these outcomes, the Screening Tool identified a suite of specialist assessments required to support the EA application. These studies are summarised in Table 5-2 and are considered necessary to verify the Screening Tool sensitivities, assess potential environmental impacts, apply the mitigation hierarchy, inform layout optimisation, and support decision-making by the CA.

Table 5-2: Specialist Studies Recommended by the Screening Tool

Environmental Theme	Required Specialist Study
Aquatic Biodiversity	Aquatic Biodiversity Impact Assessment
Terrestrial Biodiversity	Terrestrial Biodiversity Impact Assessment
Avian	Avifaunal Impact Assessment
Landscape (Solar)	Landscape/Visual Impact Assessment
Palaeontology	Palaeontology Impact Assessment
Agriculture	Agricultural Impact Assessment
Animal Species	Animal Species Assessment
Archaeological and Cultural Heritage	Archaeological and Cultural Heritage Impact Assessment
Plant Species	Plant Species Assessment
Civil Aviation (Solar PV)	Glint and Glare Assessment and Civil Aviation Assessment
Radio Frequency Interference (RFI)	RFI Assessment
Defence	Defence Assessment
Geotechnical	Geotechnical Assessment
Socio-Economic	Socio-Economic Assessment

In addition to identifying environmental sensitivities and specialist assessment requirements, the Screening Tool highlights the following development incentives, restrictions, exclusions and regulatory considerations applicable to the Project site:

- The site falls within the Waterberg District Municipality Environmental Management Framework area, which must be considered during the assessment process.
- The site falls within the Air Quality - Waterberg-Bojanala Priority Area, which may have implications for air quality management and cumulative impact consideration.
- The site is located within an area associated with main electricity transmission substation infrastructure.
- The site is located within an area associated with main electricity distribution substation infrastructure.
- Several renewable energy developments with approved environmental authorisations occur within 30 km of the proposed Project area, including multiple Solar PV projects located within or very close to the proposed area. This indicates that cumulative impacts associated with renewable energy development must be considered in the assessment.
- The Screening Tool did not identify a specific development footprint, and therefore the identified sensitivities must be verified against the final proposed development footprint and layout.
- The Screening Tool confirms that the identified environmental sensitivities are indicative and must be verified on site by suitably qualified specialists.
- Where sensitive species are identified only by a unique species number, the EAP or relevant specialist must request the species information from the South African National Biodiversity Institute, where required, to ensure that the species is

appropriately assessed and protected.

5.4 Desktop and Site Visit Findings

5.4.1 Overview of Site Conditions

The desktop assessment and site verification confirmed that the proposed Nyakallo Solar Park development area comprises a combination of natural, modified and transformed land uses. The Project site is located within a broader landscape characterised by agricultural activities, grazing, natural bushveld vegetation, game farming, existing electrical transmission and distribution infrastructure, nearby mining activities, roads, servitudes and energy-related infrastructure associated with the broader Lephalale energy node.

The desktop assessment considered recent and historical satellite imagery, available spatial datasets, the Screening Tool Report, specialist assessments and mapped environmental sensitivities. The site visit and specialist field investigations were used to ground-truth the Screening Tool outputs and confirm the actual on-site conditions. The verification process confirmed that several of the Screening Tool sensitivities are valid at a screening level, although some sensitivity ratings were refined based on site-specific specialist findings.

The site includes areas of natural woodland, disturbed woodland, hydromorphic habitat, wetland-associated habitat, previously disturbed areas, agricultural / grazing areas and infrastructure related disturbance. The western portion of the site is influenced by existing servitudes and associated infrastructure, while other areas retain relatively intact vegetation and habitat structure. Historic disturbance is also evident in parts of the Project area, including areas associated with previous construction-related activities and agricultural use.

5.4.2 Aquatic Biodiversity

From an aquatic biodiversity perspective, the desktop and field verification confirmed the presence of an ephemeral wetland / wash system associated with the broader Sandloop system. Although the system is seasonal and may be dry for parts of the year, it conveys water following rainfall events and supports hydromorphic and wetland-associated habitat. The aquatic feature is ecologically relevant because it provides seasonal habitat, contributes to local hydrological functioning and occurs within a FEPA sub-catchment. This confirms that the aquatic sensitivity is valid and that the wetland / wash system and associated buffer must be treated as key layout constraints.

5.4.3 Terrestrial Biodiversity

The terrestrial biodiversity assessment confirmed that the Project area supports a mosaic of habitat types, including Open Thornveld, Closed Woodland, Broadleaf Woodland, wetland-associated habitat, hydromorphic habitat and disturbed / transformed areas. The wetland and hydromorphic habitats are regarded as the most sensitive terrestrial features, while woodland habitats retain ecological value through their role in supporting faunal movement,

foraging, nesting and refuge. The Project area also occurs within an Ecological Support Area (ESA), with Critical Biodiversity Areas (CBAs) located nearby. This confirms that the site retains biodiversity sensitivity despite existing disturbance.

5.4.4 Plant Species

The Plant Species Theme was identified as low sensitivity by the Screening Tool; however, the site-specific findings confirmed that this rating does not fully reflect the management requirements on site. Protected trees were recorded within the development area, including *Sclerocarya birrea subsp. afra* (Marula), *Vachellia erioloba* (Camel Thorn), *Combretum imberbe* (Leadwood) and *Boscia albitrunca* (Shepherd's Tree). The presence of protected trees and mature woodland means that plant sensitivity is elevated in specific areas, even though the broader Screening Tool rating is low. Alien invasive plant species were also recorded and will require management during the construction and operational phases.

5.4.5 Animal Species

The Animal Species Assessment confirmed that the Project area and surrounding Area of Influence support a diverse faunal assemblage. Species recorded or considered relevant include mammals, reptiles, amphibians, butterflies and bird species. Habitat availability is strongly linked to the woodland and wetland-associated areas, which provide refuge, breeding, dispersal and foraging habitat. The confirmed or potential presence of Species of Conservation Concern (SCC) supports the need for Animal Species Assessment and appropriate mitigation, especially in areas where clearing, earthworks, fencing, traffic and operational activities may affect habitat use and faunal movement.

5.4.6 Avian

The Avian Theme remains a key sensitivity for the Project. Avifaunal monitoring confirmed that the Project area and surrounding Area of Influence support a diverse bird community, including woodland species, raptors, waterbirds and SCC. The broader landscape contains habitat suitable for vultures, large terrestrial birds and wetland-associated species. Waterbodies and ephemeral systems in the area may attract waterbirds following rainfall, while woodland areas provide nesting and roosting opportunities. Raptor activity was also recorded. The avifaunal findings confirm that the very high Screening Tool sensitivity is valid and that continued pre-construction monitoring and layout refinement are required.

5.4.7 Landscape / Visual

The Landscape / Visual assessment confirmed that the proposed solar PV facility will introduce large-scale infrastructure into the landscape. However, the receiving environment is already influenced by existing powerlines, roads, mining infrastructure, the Matimba Power Station, the Grootegeluk Coal Mine and surrounding settlements. Sensitive visual receptors include nearby communities, residents, schools and workers in the surrounding area.

Motorists are considered less sensitive due to the temporary nature of their views. The visual sensitivity is therefore retained, but must be interpreted in the context of an already modified energy and mining landscape.

5.4.8 Palaeontology

The Palaeontology Theme was identified as very high sensitivity by the Screening Tool due to the mapped geological context. The specialist assessment confirmed that the site may be associated with fossil-bearing geological units, particularly coal-bearing formations that may contain plant fossils. However, the fossils likely to occur are generally common, and the shallow nature of the proposed infrastructure reduces the likelihood of significant palaeontological impacts. The implementation of a Chance Find Protocol is therefore considered appropriate.

5.4.9 Agriculture

The Agricultural Theme was identified as very high sensitivity by the Screening Tool; however, the site-specific agricultural assessment refined this rating. The agricultural assessment found that the site is constrained by climatic limitations and that most of the land has moderate to low agricultural potential. Soil forms recorded include Hutton and Ermelo soil forms, with land capability generally falling within moderate classes. A limited irrigated area was identified, but it is used for animal feed supplementation rather than intensive crop production. The site is therefore not considered critical for food production, and the verified agricultural sensitivity is moderate-low.

5.4.10 Archaeological and Cultural Heritage

The Archaeological and Cultural Heritage Assessment confirmed that the site has low archaeological sensitivity. Isolated Middle Stone Age and Late Stone Age stone tools were recorded, but these occur as low-density scatters and are not considered to require further mitigation. No significant Iron Age sites were identified. The Hanglip farmhouse may be older than 60 years and may therefore be protected in terms of heritage legislation. Should the farmhouse be directly affected, further built environment assessment and relevant heritage approvals may be required.

5.4.11 Civil Aviation / Glint and Glare

The Civil Aviation / Glint and Glare Assessment confirmed that the site is located near Lephalale Aerodrome, which triggered the medium Screening Tool sensitivity. Specialist glare modelling was undertaken for relevant aviation receptors, including runway approach paths and circuit receptors. The modelling found no green, yellow or red glare exposure for the assessed aviation receptors. The actual glint and glare impact on aviation receptors is therefore considered very low, subject to implementation of the assessed layout and any requirements from the relevant aviation authority.

5.4.12 Radio Frequency Interference

The RFI Theme was identified as medium sensitivity due to the proximity of telecommunications infrastructure. This sensitivity requires confirmation with the relevant telecommunications infrastructure operators to determine whether any operational radio or telecommunication installations may be affected.

5.4.13 Defence

The Defence Theme was identified as low sensitivity and no defence-related constraints were confirmed during the verification process. No further defence-related environmental constraints were identified based on the available information.

5.5 Theme-By-Theme Verification, Sensitivity Confirmation, and Specialist Motivation

The site sensitivity verification confirmed or refined the Screening Tool sensitivities for each environmental theme. The verification outcomes are summarised below.

5.5.1 Aquatic Biodiversity

The Screening Tool identified the Aquatic Biodiversity Theme as very high sensitivity. This rating is confirmed. The site occurs within a FEPA sub-catchment and includes an ephemeral wetland / wash system associated with the Sandloop system. Although the system is seasonal, it performs hydrological and ecological functions and supports wetland-associated habitat after rainfall events.

The aquatic feature is a key environmental constraint and must be avoided as far as practicable. A suitable buffer must be applied to protect the integrity of the system and reduce the risk of sedimentation, altered runoff, erosion, vegetation clearing and construction-related disturbance. The Aquatic Biodiversity Impact Assessment is therefore required to delineate aquatic features, confirm Present Ecological State, assess ecological importance and sensitivity, determine buffer requirements and inform water use authorisation requirements, including potential Section 21(c) and (i) water uses under the National Water Act, 1998 (Act No. 36 of 1998) (NWA).

5.5.2 Terrestrial Biodiversity

The Screening Tool identified the Terrestrial Biodiversity Theme as very high sensitivity. This rating is confirmed at a screening level, with site-specific sensitivity varying across the Project area. The highest terrestrial sensitivity is associated with wetland and hydromorphic habitats, while woodland habitats generally retain medium ecological sensitivity.

The terrestrial assessment confirmed that the site contains Open Thornveld, Closed Woodland, Broadleaf Woodland, hydromorphic habitat, wetland-associated habitat and disturbed areas. The site also occurs within an ESA, with CBAs located nearby. The Terrestrial

Biodiversity Impact Assessment is required to confirm habitat condition, Site Ecological Importance, ecological constraints, sensitive habitat boundaries and appropriate mitigation. The assessment is also required to inform layout optimisation and ensure that areas of higher ecological importance are avoided or minimised as far as practicable.

5.5.3 Plant Species

The Screening Tool identified the Plant Species Theme as low sensitivity. This rating is not fully supported by the site-specific verification. While the broader site may not be mapped as highly sensitive for plant species by the Screening Tool, the presence of protected trees and mature woodland requires elevated management attention.

Protected trees recorded on site include *Sclerocarya birrea subsp. afra* (Marula), *Vachellia erioloba* (Camel Thorn), *Combretum imberbe* (Leadwood) and *Boscia albitrunca* (Shepherd's Tree). These species may require permits prior to removal, pruning, disturbance or destruction. The Plant Species Assessment is therefore required to identify protected and conservation-important plant species, inform micro-siting, support permit applications where required and recommend mitigation such as avoidance, demarcation, search and rescue, controlled clearing and alien invasive plant management.

5.5.4 Animal Species

The Screening Tool identified the Animal Species Theme as medium sensitivity. This rating is confirmed. The site supports suitable habitat for a range of faunal species, including mammals, reptiles, amphibians and invertebrates. The wetland / wash system and woodland areas are particularly important as they provide seasonal water, cover, foraging areas, dispersal corridors and refuge habitat.

SCC recorded or considered relevant include, amongst others, *Smutsia temminckii* (Ground Pangolin), *Leptailurus serval* (Serval), *Lycaon pictus* (African Wild Dog), *Python natalensis* (Southern African Python), *Pyxicephalus edulis* (African Bullfrog) and *Pyxicephalus adspersus* (Giant Bullfrog). The Animal Species Assessment is required to assess the potential impact of habitat loss, fragmentation, construction traffic, fencing, trenching, vegetation clearance, lighting, noise and operational disturbance on faunal species. Mitigation must include pre-clearance searches, rescue and relocation protocols, speed control, open trench management, wildlife-friendly fencing considerations and protection of wetland and woodland habitats.

5.5.5 Avian

The Screening Tool identified the Avian Theme as very high sensitivity. This rating is confirmed. The avifaunal sensitivity is supported by the presence of SCC, raptor activity, waterbird use of ephemeral waterbodies and suitable habitat for large terrestrial and woodland bird species.

Species recorded or relevant to the assessment include *Gyps africanus* (White-backed Vulture), *Ardeotis kori* (Kori Bustard), *Ephippiorhynchus senegalensis* (Saddle-billed Stork), *Ciconia nigra* (Black Stork), *Phoeniconaias minor* (Lesser Flamingo), *Phoenicopterus roseus* (Greater Flamingo), and other priority avifaunal species. The site also falls within a broader landscape relevant to vulture and raptor movement. The Avifaunal Impact Assessment and pre-construction monitoring are required to assess seasonal avifaunal use, flight paths, nesting activity, potential collision risk, displacement risk, disturbance impacts, “lake effect” risk and operational phase monitoring requirements. The findings must inform the final layout, infrastructure placement and mitigation measures.

5.5.6 Landscape / Visual

The Screening Tool identified the Landscape (Solar) Theme as very high sensitivity. This rating is confirmed at screening level due to the scale of the proposed PV facility and the presence of visual receptors in the surrounding area. The Visual Impact Assessment confirmed that the Project will be visible from certain surrounding receptors, including nearby communities, residents, schools, workers and road users.

The receiving environment is not pristine and is already influenced by mining, power generation, transmission infrastructure, settlements, roads and other industrial land uses. However, the Project will still introduce a large solar PV facility into the visual landscape and may result in a change in visual character. A Landscape / Visual Impact Assessment is therefore required to identify sensitive receptors, model visibility, assess visual exposure, consider cumulative impacts and recommend mitigation, including vegetation screening where appropriate, infrastructure colour treatment, lighting control and layout refinement.

5.5.7 Palaeontology

The Screening Tool identified the Palaeontology Theme as very high sensitivity. This rating is confirmed at screening level due to the geological units mapped across the site. The specialist assessment indicates that fossil material may occur, particularly in association with coal-bearing formations. However, the fossils expected are generally common and the proposed development is unlikely to result in significant palaeontological impact, particularly given the relatively shallow nature of most solar PV infrastructure.

A Palaeontological Impact Assessment is required to verify the Screening Tool rating, assess the likelihood of fossil occurrence, identify construction-related risk and recommend mitigation. A Chance Find Protocol must be included in the EMP and implemented during all ground-disturbing activities. If fossil material is uncovered during construction, work in the immediate area must stop and a suitably qualified palaeontologist must be contacted.

5.5.8 Agriculture

The Screening Tool identified the Agriculture Theme as very high sensitivity. This rating was

refined through the Agricultural Impact Assessment to moderate-low site-specific sensitivity. The assessment confirmed that the site is constrained by climatic conditions and that the land is not considered critical for food production.

The site is dominated by soil forms and land capability classes that generally support grazing or moderate agricultural potential rather than high-potential crop production. Although a small irrigated area is present, it is used for animal feed supplementation and is not considered a critical agricultural production area. The Agricultural Impact Assessment is required to verify the Screening Tool rating, assess soil forms, land capability, agricultural potential and land use, and determine whether the proposed development would result in unacceptable agricultural resource loss. Based on the specialist findings, the loss of agricultural potential is not considered a fatal flaw.

5.5.9 Archaeological and Cultural Heritage

The Screening Tool identified the Archaeological and Cultural Heritage Theme as low sensitivity. This rating is confirmed. The Heritage Impact Assessment identified isolated Middle Stone Age and Late Stone Age stone tools, but these were assessed as low significance and do not require further mitigation. No significant archaeological sites or Iron Age sites were identified.

The Hanglip farmhouse may be older than 60 years and may therefore be protected under heritage legislation. Should the farmhouse be demolished, altered or directly affected, further built environment assessment and approval from the relevant heritage authority may be required. A Chance Find Protocol must be included in the EMP to manage any archaeological, cultural heritage or burial features that may be uncovered during construction.

5.5.10 Civil Aviation / Glint and Glare

The Screening Tool identified the Civil Aviation Theme as medium sensitivity due to the proximity of the site to Lephalale Aerodrome. This rating is confirmed at screening level. However, the specialist Glint and Glare Assessment found that the assessed aviation receptors would experience no green, yellow or red glare exposure from the proposed PV development.

The actual aviation-related glint and glare sensitivity is therefore considered very low. The Glint and Glare Assessment is nevertheless required to verify the Screening Tool rating, assess potential aviation impacts, consider flight paths and runway approach receptors, and provide defensible confirmation that glare impacts are not expected to be significant. Any further requirements from the relevant aviation authority must be addressed during the EA process.

5.5.11 Radio Frequency Interference

The Screening Tool identified the RFI Theme as medium sensitivity due to the proximity of telecommunications infrastructure within approximately 1 km of the Project area. This rating

remains unchanged pending confirmation from relevant infrastructure operators.

The RFI sensitivity does not necessarily indicate that an impact will occur, but it confirms that further confirmation is required to determine whether nearby telecommunications infrastructure is operational and whether it could be affected by the proposed solar PV infrastructure. In lieu of a standalone RFI specialist study, written confirmation should be requested from the relevant telecommunications service providers or infrastructure operators.

5.5.12 Defence

The Screening Tool identified the Defence Theme as low sensitivity. This rating is confirmed. No defence-related constraints, restricted areas or defence infrastructure sensitivities were identified within the proposed development area. No further specialist assessment is required, unless requested by the CA or relevant defence authority during the application process.

5.5.13 Geotechnical and Socio-Economic Considerations

Although not environmental sensitivity themes in the same manner as the biodiversity, heritage or visual themes, geotechnical and socio-economic considerations are relevant to the overall assessment of the Project. A Geotechnical Assessment is required to inform engineering design, foundation requirements, soil stability, construction suitability and stormwater management considerations. A Socio-Economic Assessment is required to consider local economic benefits, employment opportunities, potential impacts on surrounding land users and the contribution of the Project to renewable energy development within the Lephalale area.

5.6 Conclusion

The Site Sensitivity Verification Report confirms that the Screening Tool identified several environmental themes with medium to very high sensitivity across the proposed Nyakallo Solar Park development area. These include Aquatic Biodiversity, Terrestrial Biodiversity, Avian, Landscape (Solar), Palaeontology, Agriculture, Animal Species, Civil Aviation, RFI, Plant Species, Archaeological and Cultural Heritage and Defence.

The verification process confirmed that a number of these sensitivities are valid at a screening level; however, several were refined through site-specific specialist assessment. The findings demonstrate that the Project site is not uniform in sensitivity. Rather, it comprises a mosaic of higher-sensitivity and lower-sensitivity areas, with the main constraints associated with aquatic features, hydromorphic habitat, mature woodland, protected trees, avifaunal habitat and selected heritage and palaeontological considerations.

The Aquatic Biodiversity Theme remains highly sensitive due to the confirmed presence of an

ephemeral wetland / wash system associated with the Sandloop system. This feature provides seasonal hydrological and ecological function and is linked to a FEPA sub-catchment. The wetland / wash system and its buffer must be treated as a key environmental constraint, and the final layout must avoid or minimise encroachment into this system as far as practicable. Any activities within regulated watercourse areas must be assessed in terms of the NWA, and authorised where required.

The Terrestrial Biodiversity Theme remains sensitive due to the presence of natural woodland, hydromorphic systems, wetland-associated habitat and the broader ESA context. Although parts of the site are disturbed or modified, the remaining woodland and wetland-associated habitats provide ecological function and support species movement, foraging, refuge and nesting. The final layout should prioritise avoidance of high sensitivity areas and minimise fragmentation of remaining natural habitat.

The Avian Theme remains very high sensitivity due to the diversity of avifauna recorded, the presence of SCC, raptor activity and the use of wetland and waterbody habitats by waterbirds. Continued pre-construction monitoring is important to confirm seasonal patterns of habitat use and to inform final infrastructure placement and operational mitigation. Potential avifaunal impacts, including displacement, collision risk, disturbance and artificial waterbody attraction effects, must be addressed in the EIA and EMPr.

The Plant Species Theme was identified as low sensitivity by the Screening Tool; however, the site verification confirmed the presence of protected tree species and mature woodland habitat. This requires the plant sensitivity to be elevated in areas where protected trees occur. Protected trees must be avoided where possible, and where removal cannot be avoided, the relevant permits must be obtained prior to disturbance. Alien invasive plant species must also be controlled through the implementation of an alien invasive plant management programme.

The Animal Species Theme remains medium sensitivity. The site supports a range of faunal habitats and species, including SCC or protected species. The most important faunal habitat areas correspond with wetland-associated and woodland habitats. Construction-related impacts such as vegetation clearance, increased traffic, open trenches, fencing, noise, dust and lighting must be managed through appropriate mitigation measures, including pre-clearance inspections, faunal rescue protocols and environmental awareness training.

The Agriculture Theme was refined from very high sensitivity to moderate-low site-specific sensitivity. This refinement is based on the specialist assessment, which confirmed that the site is constrained by climatic limitations and that the development area is not considered critical for food production. The agricultural impact is therefore not considered a fatal flaw, provided that soil management, erosion control and rehabilitation measures are implemented where required.

The Landscape (Solar) Theme remains sensitive due to the scale of the proposed infrastructure and the presence of visual receptors in the surrounding area. However, the receiving environment is already modified by mining, power generation, electrical infrastructure, roads and settlement. Visual impacts must be managed through layout planning, lighting control, housekeeping, infrastructure colour selection where relevant and vegetation screening where feasible.

The Palaeontology Theme remains very high at Screening Tool level due to the mapped geological sensitivity. However, the specialist findings indicate that significant palaeontological impacts are unlikely, provided that the Chance Find Protocol is implemented. Similarly, the Archaeological and Cultural Heritage Theme remains low sensitivity, subject to the implementation of a Chance Find Protocol and further built environment assessment if the Hanglip farmhouse is to be directly affected.

The Civil Aviation Theme was triggered as medium sensitivity due to the proximity of Lephalale Aerodrome. Specialist glint and glare modelling confirmed that no green, yellow or red glare exposure is expected for the assessed aviation receptors. The actual glint and glare impact is therefore considered very low. The RFI Theme remains medium sensitivity pending confirmation from telecommunications infrastructure operators, while the Defence Theme is confirmed as low sensitivity.

Table 5-3 below provides a consolidated summary of the Screening Tool sensitivity ratings, the specialist studies identified and undertaken, and the final verified sensitivities for each environmental theme.

Table 5-3: Summary of Screening Tool Outcomes, Specialist Studies and Final Verified Sensitivities

Environmental Theme	Screening Tool Sensitivity Rating	Recommended Specialist Study	Final Verified Sensitivity
Aquatic Biodiversity	Very High	Aquatic Biodiversity Impact Assessment / Wetland Assessment	High / Very High. Confirmed due to the ephemeral wetland / wash system, Freshwater Ecosystem Priority Area sub-catchment context and required buffer.
Terrestrial Biodiversity	Very High	Terrestrial Biodiversity Impact Assessment	High to Medium. High in wetland / hydromorphic habitat and medium in woodland habitats; lower in transformed areas.
Avian	Very High	Avifaunal Impact Assessment / Avifaunal Pre-construction Monitoring	Very High. Confirmed due to recorded Species of Conservation Concern (SCC), raptor activity, waterbird use and required ongoing monitoring.
Landscape (Solar)	Very High	Landscape / Visual Impact Assessment	Very High at Screening Tool level; site-specific impacts are manageable with mitigation within an already modified landscape.
Palaeontology	Very High	Palaeontology Impact Assessment	Very High at desktop screening level; site-specific impact risk is reduced

Environmental Theme	Screening Tool Sensitivity Rating	Recommended Specialist Study	Final Verified Sensitivity
			subject to implementation of the Chance Find Protocol.
Agriculture	Very High	Agricultural Impact Assessment	Moderate-Low. Specialist assessment confirmed climatic limitations, moderate land potential and limited agricultural production value.
Animal Species	Medium	Animal Species Assessment	Medium, with elevated management attention required in wetland, woodland and habitat areas supporting SCC.
Archaeological and Cultural Heritage	Low	Archaeological and Cultural Heritage Impact Assessment	Low. No significant archaeological resources requiring mitigation were identified; Chance Find Protocol required. Built environment input required if the Hanglip farmhouse is affected.
Plant Species	Low	Plant Species Assessment	Low to Medium. Low generally, but medium in areas supporting protected trees and mature woodland habitat.
Civil Aviation (Solar PV)	Medium	Glint and Glare Assessment / Civil Aviation Assessment	Low / Very Low. Glint and glare assessment found no glare exposure to assessed aviation receptors.
Radio Frequency Interference (RFI)	Medium	RFI Assessment	Medium at Screening Tool level. Sensitivity retained pending confirmation of any infrastructure-specific RFI requirements.
Defence	Low	Defence Assessment	Low. No defence sensitivity requiring further specialist assessment was identified.
Geotechnical	Not rated as a sensitivity theme	Geotechnical Assessment	Not applicable to Screening Tool sensitivity; geotechnical findings to inform engineering design and construction management.
Socio-Economic	Not rated as a sensitivity theme	Socio-Economic Assessment	Not applicable to Screening Tool sensitivity; socio-economic considerations to inform the broader Environmental Impact Assessment process.

Overall, the SSVR confirms that the proposed Nyakallo Solar Park can proceed to the EIA Phase, subject to the implementation of the mitigation hierarchy. The final layout must avoid confirmed sensitive features as far as practicable, particularly the wetland / wash system, associated buffer, hydromorphic habitat, areas of higher ecological importance, protected trees and key avifaunal habitat areas. Where avoidance is not possible, impacts must be minimised, rehabilitated and managed through enforceable mitigation measures.

The specialist studies undertaken are considered appropriate and sufficient to verify the Screening Tool outcomes, refine site-specific sensitivities, inform layout optimisation and support decision-making by the CA. All specialist recommendations must be incorporated into the EIA Report and Environmental Management Programme. Subject to the implementation of these recommendations, compliance with applicable regulatory requirements and

continued consideration of sensitive environmental features during detailed design, construction and operation, the proposed Nyakallo Solar Park is considered suitable to proceed for further assessment within the EA process.

6 PROJECT MOTIVATION, NEED AND DESIRABILITY⁹

In accordance with item 2(1)(f) in Appendix 2 of the EIA Regulations, this section provides a motivation for the need and desirability for the project. Need and desirability is based on the principle of sustainability, set out in the Constitution and in NEMA, and provided for in various policies and plans. Addressing the need and desirability of a development is a way of ensuring sustainable development, in other words, that a development is ecologically sustainable and socially and economically justifiable and ensuring the simultaneous achievement of the triple bottom-line.

A discussion on the socio-economic and environmental need and desirability considerations is provided below.

6.1 Need for the Nyakallo Solar Park

South Africa continues to experience electricity supply constraints, with load-shedding and grid instability affecting households, businesses, mines, schools, clinics and broader economic productivity. National energy planning recognises the need to increase generation capacity, diversify the national energy mix, and support the integration of renewable energy and energy storage technologies to improve energy security and resilience (DMRE, 2019) (DMRE, 2023).

The proposed Nyakallo Solar Park responds directly to this need by adding approximately 262 MWac of solar photovoltaic (PV) generation capacity, with a direct current capacity of up to approximately 315 MWp. The Project will also include a BESS with a storage capacity of approximately 600 MWh and a discharge capacity of approximately 200 MW at the point of connection.

The PV facility will generate renewable electricity during daylight hours, while the BESS will allow surplus energy to be stored and released when required, including during periods of reduced solar generation, evening demand peaks or grid stress. This combination of solar PV and storage improves the reliability and flexibility of renewable energy and contributes to a more stable electricity system (DMRE, 2019) (DMRE, 2023).

The Project will also reduce reliance on coal-based electricity generation by contributing additional low-carbon generation capacity to the national grid. This supports South Africa's

⁹ Required in accordance with Appendix 2, Section 2(1)(f) of the EIA Regulations, 2014, which requires the Scoping Report to include 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 location.

climate change commitments, the transition towards a lower-carbon economy, and the broader objectives of national energy policy (UNFCCC, 2015) (Presidency, 2022). Solar PV is also significantly less water-intensive than coal-fired power generation, which is an important consideration in the water-stressed Waterberg region (NPC, 2012).

6.2 Why this Location is Desirable

6.2.1 Local Context (Lephalale Area)

The proposed Project is located within the Lephalale Local Municipality, in an area strongly associated with energy generation, mining and energy-related infrastructure. The broader Lephalale area includes major coal-fired power stations, mining activities and associated transmission infrastructure. While this has created employment and economic activity, it has also resulted in environmental pressures, including air quality impacts, water resource pressure and economic dependence on the coal-based energy sector (Lephalale Local Municipality, 2025).

Locating a renewable energy facility in this area supports the diversification of the local energy economy and contributes to the broader just transition. The Project will introduce renewable generation and storage capacity into an established energy hub, while making use of proximity to existing transmission infrastructure and energy-related land use patterns (PCC, 2021A) (Presidency, 2022).

6.2.2 Regional Context (Waterberg District, Limpopo)

The Waterberg District and broader Limpopo Province have strong solar resource potential, making the area suitable for utility-scale solar PV development. The proposed site is located within a region where solar energy generation can be technically and economically viable due to high solar irradiation levels (CSIR, 2021) (Limpopo Province, 2020).

The location of the Project near existing electricity infrastructure is desirable, as it improves the potential for efficient grid integration and reduces the need for extensive new transmission infrastructure. The co-location of PV generation and battery storage further improves the value of the Project by enabling energy to be stored and dispatched when required (DMRE, 2019) (DMRE, 2023).

At a regional level, the Project supports economic diversification, renewable energy investment, employment creation and skills development in an area historically linked to coal-based electricity generation and mining (Waterberg DM, 2021) (Limpopo Province, 2020).

6.2.3 National Context

At a national level, the Project aligns with South Africa's need to improve electricity security, increase renewable energy generation, reduce greenhouse gas emissions and support the

transition towards a more diversified and resilient energy system (DMRE, 2019) (Presidency, 2022).

The proposed Nyakallo Solar Park is consistent with national planning objectives that promote renewable energy development, private sector investment in electricity generation, and the integration of storage technologies to support grid flexibility. By contributing additional renewable energy capacity, the Project supports the national objective of ensuring a reliable, efficient and environmentally sustainable energy sector that can support inclusive economic growth (NPC, 2012) (DMRE, 2019).

6.3 Sustainability Considerations

6.3.1 Sustainable Development

The Project supports sustainable development by providing renewable electricity with negligible operational greenhouse gas emissions and limited water requirements when compared with conventional coal-fired electricity generation.

The Project layout and assessment process will be informed by the mitigation hierarchy, namely to avoid, minimise, rehabilitate and, where required, offset potential environmental impacts. Sensitive environmental features identified through the Screening Tool, site sensitivity verification and specialist investigations will inform the refinement of the development footprint. Environmental management measures relating to dust, noise, stormwater, erosion, biodiversity, heritage, waste and traffic will be included in the Environmental Management Programme (EMPr) for implementation during construction, operation and decommissioning.

6.3.2 Efficient and Equitable Land Use

The proposed Project site is located in an area characterised by agricultural activities, game farming, natural bushveld vegetation and existing energy-related infrastructure. While the land has agricultural zoning and land use potential, the development footprint will be refined through the EIA process to avoid and minimise impacts on sensitive environmental features and land use constraints.

The use of the site for renewable energy generation represents an efficient land use where solar resource availability, proximity to grid infrastructure and regional energy planning considerations support the suitability of the location. The Project also has the potential to provide local and regional benefits through employment, procurement, skills development and increased investment in the local economy (Lephalale Local Municipality, 2025) (Waterberg DM, 2021).

6.3.3 Socio-economic Benefits

The Project is expected to create employment opportunities during the construction,

operation and maintenance, and decommissioning phases. The greatest employment demand is anticipated during the construction phase, with additional long term employment opportunities associated with operations, maintenance, security, vegetation management, panel cleaning, technical support and site administration.

Indirect socio-economic benefits may include opportunities for local suppliers and service providers, including transport, accommodation, catering, civil works, security, waste management and maintenance services. The Project may also contribute to local skills development and capacity building, particularly where local recruitment and procurement are prioritised (Lephalale Local Municipality, 2025) (Waterberg DM, 2021).

By contributing to improved electricity supply and grid stability, the Project may also provide broader economic benefits by supporting energy security for households, industries, mining operations and commercial activities (NPC, 2012) (DMRE, 2019).

6.3.4 Cumulative Effects and Just Transition

The Lephalale and Waterberg region has historically played a significant role in South Africa's coal-based electricity sector. The introduction of renewable energy projects in this region contributes to the gradual diversification of the local and regional energy economy (Lephalale Local Municipality, 2025) (Presidency, 2022).

The Nyakallo Solar Park, particularly through the inclusion of BESS infrastructure, will contribute not only renewable generation capacity but also flexibility services required by a modern electricity system. These services may include energy shifting, peak support and improved grid stability. In this way, the Project supports the broader transition towards a more resilient and lower-carbon energy system (DMRE, 2019) (Lephalale Local Municipality, 2023) (Presidency, 2022).

6.3.5 Intergenerational Equity

The Project supports intergenerational equity by contributing to renewable energy generation without creating the long term environmental liabilities typically associated with coal-based electricity generation, such as ash disposal, large-scale air emissions and acid-forming waste streams (NPC, 2012) (UNFCCC, 2015).

At the end of the Project's operational life, infrastructure will be decommissioned, removed where required, and the site rehabilitated in accordance with the applicable legislative requirements and environmental management commitments. Where feasible, materials such as PV panels, mounting structures, cables, inverters, transformers and battery components will be reused, recycled or disposed of at appropriately licensed facilities.

6.4 Environmental and Planning Compatibility

The proposed Nyakallo Solar Park is compatible with broader planning objectives that support

renewable energy development, electricity security, climate change mitigation, local economic development and sustainable infrastructure investment (NPC, 2012) (Limpopo Province, 2020) (Lephalale Local Municipality, 2025).

Although the site falls outside a formally designated Renewable Energy Development Zone, the Project remains consistent with national objectives to expand renewable energy generation and support private sector participation in electricity supply (DMRE, 2019) (Presidency, 2022). The location is considered appropriate due to the availability of solar resources, proximity to existing energy infrastructure, and the role of the Lephalale area as an established energy hub.

Potential environmental sensitivities identified through the Screening Tool and site sensitivity verification process will be assessed further during the EIA Phase. The outcomes of the specialist studies will inform layout refinement, mitigation measures and the final assessment of environmental acceptability.

6.5 Conclusion

The proposed Nyakallo Solar Park is considered both needed and desirable. The Project will contribute approximately 262 MWac of renewable electricity generation capacity, supported by a 600 MWh BESS, thereby assisting with electricity supply, grid stability and the transition to a lower-carbon energy system (DMRE, 2019) (DMRE, 2023) (Presidency, 2022).

The Project is located within an established energy region, close to existing transmission and energy-related infrastructure, and is well positioned to contribute to energy diversification in the Lephalale and Waterberg area. It supports national, provincial and local objectives relating to energy security, renewable energy development, climate change mitigation and socio-economic development (NPC, 2012) (Limpopo Province, 2020) (Lephalale Local Municipality, 2025).

Subject to the outcomes of the EIA process, specialist studies and implementation of appropriate mitigation measures, the Project is considered to be a sustainable and justifiable land use that can provide local, regional and national benefits while managing environmental impacts in accordance with the mitigation hierarchy and NEMA principles.

7 ALTERNATIVES¹⁰

This section meets the requirements of item 2(1)(g)(i) of Appendix 2 of the EIA Regulations, 2014, by providing details of the alternatives considered and the final proposed alternative. Alternatives are discussed in more detail below.

¹⁰ Required as per the EIA Regulations Appendix 2 (3) (2) (g) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including (i) details of all the alternatives considered.

7.1 Site Alternative

No site alternatives were identified for the Nyakallo Solar Park, as the selected location offers strategic, technical and site-specific advantages that make it suitable for renewable energy development.

The proposed site is located within the broader Lephalale energy hub, an area already characterised by major energy generation, transmission and industrial infrastructure, including the Matimba and Medupi coal-fired power stations, associated mining activities and existing Eskom electrical infrastructure. The establishment of a PV facility with an associated BESS in this area supports the diversification of the local and regional energy mix and contributes to South Africa's broader energy transition objectives by introducing renewable generation and storage capacity within an established energy landscape.

The proximity of the site to existing electricity infrastructure further supports the suitability of the Project, as it provides an opportunity for efficient integration into the national electricity grid and reduces the need for extensive new supporting grid infrastructure. The Project will therefore make use of a location that is already closely associated with electricity generation and transmission, while contributing to the transition towards a more diversified and lower-carbon energy system.

Accessibility further strengthens the suitability of the preferred site. The Traffic Impact Assessment confirms that feasible access to the Project site is available via the existing external road network, including the R510 and existing farm / local access roads. Two access route alternatives were assessed, namely access from the R510 via Nelson Mandela Drive / D2001 through Onverwacht, and access from the R510 via Kuipersbuld Road towards the site.

Although the Nelson Mandela Drive / D2001 route is shorter, it is not preferred for construction traffic, as heavy vehicles would be required to travel through residential and developed areas. The R510 / Kuipersbuld Road route is therefore recommended as the preferred construction phase access route, as it is more suitable from a road safety perspective and avoids routing construction vehicles through residential areas. The Traffic Impact Assessment confirmed that the R510 / Kuipersbuld Road intersection provides suitable turning and merging infrastructure, and that the required minimum sight distances are met in both directions. Some sections of the route may require widening or upgrading during the detailed design stage to accommodate larger haulage vehicles.

Operational phase traffic is expected to be nominal and can be accommodated by the external road network. Subject to detailed design, route survey, road authority requirements and implementation of the recommended mitigation measures, the existing access network is considered suitable to support the construction, operation and maintenance of the Project.

Given these factors, including the Project's strategic location within an established energy

hub, proximity to existing electricity infrastructure, availability of supporting road access, proximity to nearby towns and a potential local workforce, and alignment with national renewable energy and energy security objectives, the selected site is considered suitable for the Nyakallo Solar Park. The identification of alternative sites was therefore not deemed necessary, as few other locations would offer a comparable combination of locational, infrastructural, technical and policy-aligned advantages.

7.2 Land Use Alternative

The land use alternative considers whether the Project area should remain under its current agricultural use or be converted to renewable energy generation.

The proposed conversion from agricultural use to renewable energy generation is considered acceptable based on the findings of the Soils, Land Capability and Land Use Specialist Assessment (Eco-Assist, 2026). The site has historically supported limited agricultural activities, including grazing, pasture areas and limited irrigated use. However, the agricultural potential of the land is constrained by climatic conditions, particularly low rainfall, moisture stress and a restricted growing season.

The specialist assessment classified the climate capability of the Project area as C6, which indicates severe climatic limitations. While the terrain is generally flat to gently sloping and the dominant soils have moderate cultivation capability, the combined soil and climate assessment indicates that most of the site has moderate agricultural potential rather than high agricultural potential.

The land could therefore continue to support low-intensity agricultural use, mainly grazing and limited fodder or pasture production where water is available. However, it is not considered highly suitable for intensive crop production or high-value agricultural use. The limited irrigated area on site is used for animal feed supplementation and is not considered critical to the broader farming operation.

The no-go alternative would allow the current agricultural use to continue, but the agricultural benefit of retaining the land in its current use is limited. In contrast, the proposed renewable energy use would allow land with moderate-low agricultural sensitivity to contribute to electricity generation, energy security and local socio-economic benefits. The land use alternative of retaining the site for agriculture is therefore not preferred, as the proposed renewable energy use represents a more optimal and beneficial use of land with moderate-low agricultural sensitivity, subject to the implementation of appropriate soil management, erosion control and rehabilitation measures.

7.3 Technology Alternative

7.3.1 *Solar Photovoltaic versus Concentrated Solar Power*

Considering the site's favourable solar irradiation levels, available development area and relatively suitable topography, the development of a solar PV facility is considered the most appropriate technology option for the Nyakallo Solar Park.

Solar PV technology is well suited to the Project site and has several practical and environmental advantages when compared with Concentrated Solar Power (CSP). These include lower water demand, a smaller operational footprint, a reduced visual profile, shorter construction timeframes, modular design flexibility, and fewer operational requirements. These factors are particularly relevant in the Lephalale and Waterberg context, where water availability and cumulative environmental pressures are important considerations.

The national energy policy framework also supports the development of solar PV as a key renewable energy technology. The Integrated Resource Plan 2019 provides for the continued procurement and development of solar PV capacity as part of South Africa's future energy mix, while limited provision is made for new CSP capacity (DMRE, 2019). Solar PV is therefore considered more aligned with current national energy planning, grid integration requirements and the practical implementation needs of the proposed Project.

Based on the above, solar PV is considered the preferred and most feasible technology alternative for the Nyakallo Solar Park.

7.3.2 *Lithium-ion versus Flow Batteries*

The Nyakallo Solar Park will include a BESS to support energy storage, grid stability and the dispatch of electricity during periods of reduced solar generation or increased grid demand. Battery storage is an important component of the Project, as it improves the flexibility and reliability of renewable energy generation.

Lithium-ion battery technology is currently one of the most widely used storage technologies for utility-scale renewable energy projects. It is compact, efficient, commercially proven and suitable for short-duration, high-power applications. Lithium-ion systems also have the advantage of a relatively smaller footprint and established supply chains. However, potential disadvantages include degradation over time, fire risk if not appropriately designed and managed, and reliance on finite raw materials.

Flow battery technology is also being considered as an alternative. Flow batteries are generally larger and may have higher upfront costs, but they offer advantages in relation to operational lifespan, scalability and safety. They may be better suited to long-duration energy storage applications where extended discharge periods are required.

Both lithium-ion and flow battery technologies are being considered as potential storage options for the Project. The final battery technology will be confirmed during the detailed design phase, taking into account technical feasibility, safety, operational requirements, environmental considerations, supplier availability, lifecycle costs and grid requirements. Regardless of the technology selected, the BESS will be designed, installed and managed in accordance with applicable safety, environmental and operational standards.

7.4 Site Access Alternatives

Alternative site access routes were considered as part of the Traffic Impact Assessment (iWink, 2026) prepared for the proposed Nyakallo Solar Park. The assessment considered the feasibility of access to the Project site from the external road network, with specific consideration of access spacing, sight distance, road safety, route length, suitability for construction traffic, abnormal load requirements and the potential interaction between construction vehicles and surrounding road users.

The proposed development will generate the highest traffic volumes during the construction phase, including the transport of construction staff, materials, equipment, solar PV components and, where required, abnormal loads. Access selection is therefore particularly important for the construction phase, where larger vehicles and more frequent trips are expected. Operational phase traffic is expected to be nominal and limited mainly to permanent staff, periodic maintenance vehicles and occasional water delivery for panel cleaning.

Two alternative access routes (Figure 7-1) were assessed due to their relative proximity to the external road network and directness to the Project site. These comprise:

- Access Route 1: Access from the R510 via Nelson Mandela Drive / D2001 through Onverwacht towards the site; and
- Access Route 2: Access from the R510 via Kuipersbult Road towards the site.

7.4.1 Access Route 1: R510 / Nelson Mandela Drive / D2001

Access Route 1 extends from the R510 / Nelson Mandela Drive intersection through Onverwacht, following the D2001 towards the Project site. This route is approximately 12 km in length and is therefore favourable in terms of travel distance.

However, this route is not preferred for the construction phase because construction vehicles would be required to travel through residential and developed areas. The movement of heavy vehicles, delivery trucks and possible abnormal loads through these areas would increase road safety risks and may result in nuisance impacts, including dust, noise, traffic conflicts and interaction with pedestrians, public transport users and local traffic.

For this reason, Access Route 1 is not recommended for construction phase traffic. It may,

however, be considered for limited use during the operational phase, once construction is complete, as operational traffic volumes are expected to be low and nominal.

7.4.2 Access Route 2: R510 / Kuipersbuld Road

Access Route 2 extends from the R510 via Kuipersbuld Road towards the Project site. This route is approximately 26 km in length and is longer than Access Route 1. However, it is preferred from a road safety perspective as it avoids routing high volumes of construction traffic through residential areas.

The R510 / Kuipersbuld Road intersection was assessed in terms of geometric suitability, turning movements and sight distance. The intersection currently provides a merging lane on the R510 northbound and a turning lane on the R510 southbound, which assists larger vehicles turning into and out of Kuipersbuld Road. In terms of the TRH17 Guidelines for the Geometric Design of Rural Roads, the required shoulder sight distance for a stop-controlled condition on a road with a speed limit of 100 km/h is 420 m for the largest vehicle, based on a 5 m setback from the intersecting road. The Traffic Impact Assessment confirmed that the required minimum sight distances are met in both directions at the R510 / Kuipersbuld Road intersection.

Some sections of the Kuipersbuld Road route may need to be widened or upgraded to accommodate large construction and haulage vehicles. These requirements must be confirmed during the detailed design stage, following route survey and confirmation by the appointed haulage contractor.

Based on the specialist traffic assessment, Access Route 2 is recommended as the preferred construction phase access route.

7.4.3 Preferred Access Arrangement

The preferred access arrangement is to use Access Route 2, via the R510 / Kuipersbuld Road intersection, as the main construction phase access route to the Project site. This route is recommended because it avoids routing construction traffic through residential areas and is therefore more suitable from a road safety and community impact perspective.

Access Route 1, via Nelson Mandela Drive / D2001, should not be used for regular construction traffic. This route may be retained as a potential secondary or operational phase access option, subject to final access arrangements, road authority requirements and the Project's detailed design.

The final access design, including internal access roads, bellmouths, road widening, turning radii, signage, traffic control and any road upgrades, must be confirmed during the detailed design stage. All upgrades and modifications must be designed in accordance with the relevant road authority requirements and applicable geometric design standards.

7.5 The “No-Go” Alternative

Should the option of not implementing the Nyakallo Solar Park be considered, the land use of the project site will continue, and there would not be environmental impacts as well as socio-economic benefits associated with the implementation of the project.

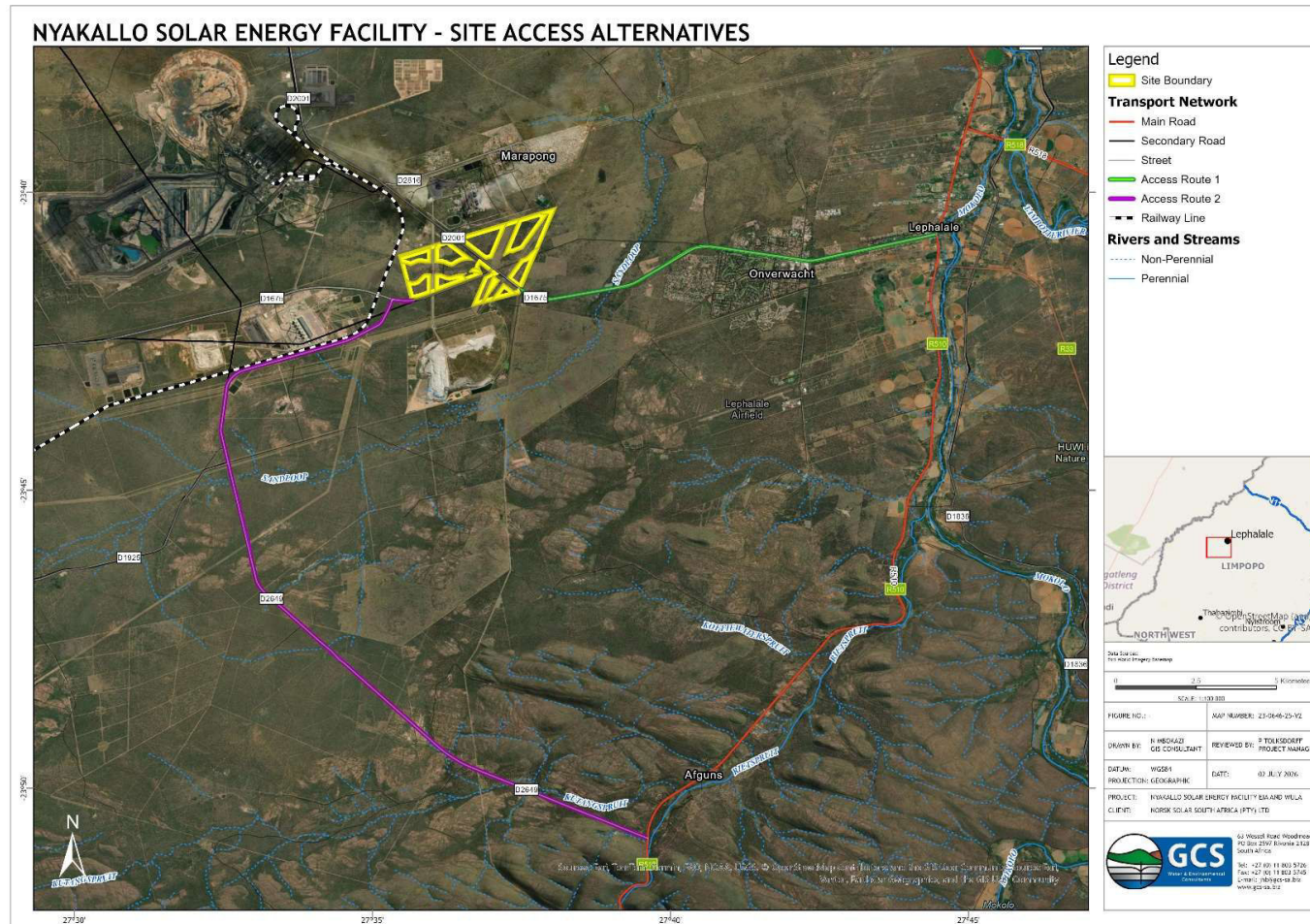


Figure 7-1: Site Access Alternatives

8 ADMINISTRATIVE AND LEGAL FRAMEWORK

The South African environmental regulatory framework was promulgated with the aim of environmental protection. The regulatory framework provides requirements and guidelines for E&S management.

Table 8-1 provides a list of applicable legislative requirements, guidelines as well as a description of how the project complies with and responds to the policy and legislation context.

Table 8-1: Applicable Legislation, Policies and Guidelines Applicable to the Project

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
Legislation		
Chapter 2, Section 24 and Section 32 of the Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996).	Chapter 2 of the Constitution is the cornerstone of democracy in South Africa. The Chapter enshrines the rights of all people living in South Africa and affirms the democratic values of human dignity, equality and freedom. Section 24 of the Constitution states that everyone has the right to an environment that is not harmful to their health or wellbeing; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that - • Pollution and ecological degradation; • Promote conservation; and • Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. Section 24 guarantees the protection of the environment through reasonable legislative (and other measures), and such legislation is continuously in the process of being promulgated. Section 32 provides for access to information, held by any person or organ of state, where such information is required to exercise or protect the rights of any other person. The Promotion of Access to Information Act (Act No. 2 of 2000) gives effect to the provisions of this right.	A Scoping and Environmental Impact Reporting (S&EIR) process will be undertaken to identify and assess potential impacts associated with the proposed project.
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)¹¹. • EIA Regulations, 2014 (Government Notice Regulation (GN R) 982 of 2014, as amended in June 2021)¹². • EIA Regulations Listing Notice 1 of 2014 (GN R 983 of 2014, as amended)¹³. • EIA Regulations Listing Notice 2 of 2014 (GN R 984 of 2014, as amended)¹⁴. • EIA Regulations Listing Notice 3 of 2014 (GN R 985 of 2014, as amended)¹⁵. • Financial Provisioning Regulations, 2015 (GN R 1147 of 2015, as amended)¹⁶.	The NEMA can be regarded as the most important piece of general environmental legislation. The overarching principle of the Act is sustainable development. It defines sustainability as meaning the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure the development serves present and future generations. The Act provides a framework for environmental law reform and covers three areas, namely: • Land, planning and development; • The use and conservation of natural and cultural resources; and • Pollution control and waste management. Section 24 of the NEMA sets out the provisions which are to give effect to the general objectives of Integrated Environmental Management (IEM) and laid down in Chapter 5 of the NEMA. In terms of Section 24(1), the potential impact on the environment of listed activities must be considered, investigated, assessed and reported on to the Competent Authority (CA) charged by the NEMA with granting of the relevant Environmental Authorisation (EA). In terms of Section 24F(1) of the NEMA no person may commence an activity listed or specified in terms of Section 24(2)(a) or (b) unless the CA has granted an EA for the activity. The Minister published the EIA Regulations comprising the EIA Regulations GN R 982, and three Listing Notices namely GN R 983 (Listing Notice 1), GN R 984 (Listing Notice 2) and GN R 985 (Listing Notice 3) in terms of sections 24(2) and 24D of the NEMA. The Regulations make provision for the regulation of the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for EA for the commencement of activities, subjected to EIA, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.	In terms of Section 24(1) of NEMA, the potential consequences or impacts of proposed activities—particularly those identified as listed activities—must be considered, investigated, assessed and reported to the CA before they may commence (unless expressly excluded). Accordingly, an application for EA for the listed activities contemplated in Listing Notices 1, 2 and 3 (GN R 983, GN R 984 and GN R 985, as amended) will be submitted to the Department of Forestry, Fisheries and the Environment (DFFE) as the CA. The potentially triggered listed activities are set out in Table 8-2 of this Report. During the EIA Phase, the project's environmental and socio-economic impacts, risks, reasonable alternatives and cumulative effects will be assessed. Practicable mitigation and management measures, together with a monitoring and reporting programme, will be developed and captured in the Environmental Management Programme (EMPr). The process will include public participation and specialist studies, as required by the EIA Regulations.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA)¹⁷. • List of waste management activities that have, or are likely to have, a	The NEMWA commenced on 1 July 2009 and as a result of its commencement the relevant provisions in the Environment Conservation Act, 1989 (Act No. 73 of 1989) (ECA) in respect of waste management, were repealed. The Act sets out to reform the law regulating waste management and deals with waste management and control more comprehensively than was dealt with in the ECA. It also introduces new and distinct concepts never canvassed within the realm of waste	Activities associated with the Nyakallo Solar Park do not require an WML.

¹¹ The National Environmental Laws Amendment Act, 2022 (Act No 2 of 2022) was signed into law on 24 June 2022. Except for sections 11, 35(a), 57, 60, 61(c), 61(j), 61(k), 62, 63, 64, 65, 66, 72, 76, 77, 86, 87 and 88 pertaining mostly to changes to the NEMWA, the NEMLAA came into effect on 30 June 2023 as per Proclamation Notice 125 of 2023, published in GG 48869.

¹² GN R 982 of 4 December 2014 as amended by GN R 326 of 7 April 2017, GN 706 of 13 July 2018, GN 599 of 29 May 2020 and GN 517 of 11 June 2021.

¹³ GN R 983 in GG 38282 of 4 December 2014 as amended by GN R 327 in GG 40772 of 7 April 2017, GN 706 in GG 41766 of 13 July 2018 and GN 517 in GG 44701 of 11 June 2021.

¹⁴ GN R 984 in GG 38282 of 4 December 2014, as amended by GN R 325 in 40772 of 7 April 2017 and GN 517 in GG 44701 of 11 June 2021.

¹⁵ GN R 985 in GG 38282 of 4 December 2014, as amended by GN R 324 in 40772 of 7 April 2017, GN 706 in GG 41766 of 13 July 2018 and GN 517 in GG 44701 of 11 June 2021.

¹⁶ The Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations published in GN R 1147 in GG 39425 of 20 November 2015 as amended by GN 1314 in GG 40371 of 26 October 2016; GN R 452 in GG 41584 of 20 April 2018; GN 991 in GG 41921 of 21 September 2018; GN 24 in GG 42956 of 17 January 2020; GN 495 in GG 44698 of 11 June 2021.

¹⁷ As amended by the National Environmental Management: Waste Amendment Act 26 of 2014. As stated above, the National Environmental Laws Amendment Act, 2022 (Act No 2 of 2022) was signed into law on 24 June 2022 and will come into operation on a date to be fixed and proclaimed by the President. Once the amendment act comes into operation residue stockpiles and residue deposits will be removed from NEMWA and regulated in terms of the provisions of NEMA. Residue stockpiles and residue deposits will therefore no longer be regarded as waste for which a waste management licence is required. Residue stockpiles and residue deposits will in future be authorized in terms of the NEMA under the EIA Listing Notices. In terms of the transitional provisions any approval granted, or waste management licence issued in relation to residue deposits and residue stockpiles remain valid until it lapse or replaced under the provisions of the NEMA.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
detrimental effect on the environment (GN 921 of 2013, as amended)¹⁸. - National Waste Information Regulations, 2012 (GN R 625 of 2012)¹⁹. - Regulations Regarding the Planning and Management of Residue Stockpiles and Residue Deposits, 2015 (GN R 632 of 2015, as amended)²⁰. - Waste Classification and Management Regulations, 2013 (GN R 634 of 2012)²¹. - National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN R 635 of 2012)²². - National Norms and Standards for the Disposal of Waste to Landfill (GN R 636 of 2012)²³. - National Norms and Standards for the Storage of Waste (GN 926 of 2013)²⁴. - National Norms and Standards for the Remediation of Contaminated Land and Soil Quality - GN 331 in Government Gazette No. 37603 dated 2 May 2014.	management in South Africa, such as the concept of contaminated land and extended producer responsibility. It also provides for more elaborate definitions to assist in the interpretation of the Act. In terms of Section 19(1) of the NEMWA, the Minister, published in GN R 921, a list of waste management activities that have, or are likely to have a detrimental effect on the environment. Section 20 of the NEMWA pertains to the consequences of listed waste management activities and states that no person may commence, undertake or conduct a waste management activity, except in accordance with the requirements or standards for that activity as determined by the Minister or in accordance with a Waste Management Licence (WML) issued in respect of that activity, if a licence is required. In accordance with Section 19(3), the Schedule to GN R 921 provides that a WML is required for those activities listed in Category A and B thereof and compliance with the Norms and Standards is required for those activities listed in Category C thereof prior to the commencement, undertaking or conducting of same. In addition, GN R 921 differentiates between Category A, B, and Category C waste management activities. Category A waste management activities are those which require the conducting of a basic assessment process as stipulated in the EIA Regulations, (GN R 982) promulgated in terms of the NEMA as part of the WML application and Category B waste management activities are those that require the undertaking of S&EIR process stipulated in the GN R 982 as part of the WML application. Category C waste management activities do not require a WML, however a person who wishes to commence, undertake or conduct a waste management activity listed under this category, must comply with, amongst others, the relevant National Norms and Standards for the Storage of Waste (GN R 926 of 29 November 2013) published in terms of the NEMWA.	
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEMAQA). - Listed Activities and Associated Minimum Emission Standards Identified in terms of Section 21 of the NEMAQA (GN R 893 of 2013, as amended)²⁵. - National Dust Control Regulations, 2013 (GN R 827 of 2013)²⁶. - National Atmospheric Emission Reporting Regulations, 2015 (GN R 283 of 2015)²⁷. - Atmospheric Dispersion Modelling Regulations, 2014 (GN R 533 of 2014)²⁸. - National Greenhouse Gas Emission	The Act aims to regulate and protect the environment, by “providing reasonable measures for the prevention of air pollution and ecological degradation, and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national Norms and Standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto”. The Minister published Listed Activities and Associated Minimum Emission Standards Identified in terms of Section 21 of the NEMAQA in 2013. Part 3 of the Notice makes provision for a list of activities in the following categories which the Applicant must review to determine whether an application for an Air Emissions Licence (AEL) is required: - Category 1: Combustion Installations; - Category 2: Petroleum Industry, the production of gaseous and liquid fuels as well as petrochemicals from crude oil, coal, gas or biomass; - Category 3: Carbonisation and Coal Gasification; - Category 4: Metallurgical Industry; - Category 6: Organic Chemicals Industry; - Category 7: Inorganic Chemicals Industry; - Category 8: Thermal Treatment of Hazardous and General Waste; - Category 9: Pulp and Paper Manufacturing Activities, including By-Products Recovery; and	Activities associated with the Nyakallo Solar Park do not require an AEL. The project will need to comply with the National Dust Control Regulations, 2013.

¹⁸ GN 921 in GG 37083 of 29 November 2013 as amended by GN 332 in GG 37604 of 2 May 2014; GN R 633 in GG 39020 of 24 July 2015; and GN 1094 in GG 41175 of 11 October 2017.

¹⁹ GN R 625 in GG 35583 of 13 August 2012.

²⁰ GN R 632 in GG 39020 of 24 July 2015 as amended by the Planning and Management of Residue Stockpiles and Residue Deposits Amendment Regulations, 2018 published under GN 990 in GG 41920 of 21 September 2018. Once the relevant sections in the National Environmental Laws Amendment Act, 2022 (Act No 2 of 2022) comes into effect, residue stockpiles and residue deposits will be excluded from NEMWA and will be regulated in terms of the provisions of NEMA. The Residue Regulations will remain operational and will be deemed to have been made under NEMA.

²¹ GN R 634 in GG 36784 of 23 August 2012.

²² GN R 635 in GG 36784 of 23 August 2012.

²³ GN R 636 in GG 36784 of 23 August 2012.

²⁴ GN 926 in GG 37088 of 29 November 2013.

²⁵ GN R 893 in GG 37054 of 22 November 2013, as amended by GN 551 in GG 38863 of 12 June 2015; GN 1207 in GG 42013 of 31 October 2018; GG 687 in GG 42472 of 22 May 2019; GN 421 in GG 43174 of 27 March 2020.

²⁶ GNR 827 in GG 36974 of 1 November 2013.

²⁷ GN R 283 in GG 38633 of 2 April 2015.

²⁸ GN R 533 in GG 37804 of 11 July 2014.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
Reporting Regulations (GN R 275 of 2017 as amended) ²⁹ .	Category 10: Animal Matter Processing.	
National Environmental Management: Biodiversity Act, 2004 (Act No. 39 of 2004) (NEMBA). - Threatened or Protected Species Regulations, 2007 (GN R 152 of 2007)³⁰. - Alien and Invasive Species Regulations (GN R 1020 of 2020)³¹. - Alien and Invasive Species Lists, 2020 (GN 1003 of 2020)³².	The Act aims to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA. The Act allows for the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith. In terms of Section 57 of the Act, no person may carry out any restricted activity involving any species which has been identified by the Minister as "critically endangered species", "endangered species", "vulnerable species" or "protected species" without a permit. The Act defines "restricted activity" in relation to such identified species so as to include, but not limited to, "hunting, catching, capturing, killing, gathering, collecting, plucking, picking parts of, cutting, chopping off, uprooting, damaging, destroying, having in possession, exercising physical control over, moving or translocating". The Minister has made Regulations in terms of Section 97 of the NEMBA with regards to Threatened and Protected Species which came into effect on 1 June 2007. Furthermore, the Minister published lists of critically endangered, endangered, vulnerable, and protected species in terms of Section 56(1) of the NEMBA.	As part of the project, Terrestrial and Freshwater Ecological assessments will be undertaken during the EIA Phase to establish baseline conditions, map sensitive habitats, identify species of conservation concern, and assess ecosystem processes including riparian and wetland function. The results will inform avoidance-led design, delineate no-go areas and buffers, and define mitigation to prevent or minimise impacts. The assessments will be conducted in accordance with the NEMBA and its Regulations, as well as relevant provincial guidelines. The outputs will include impact significance ratings, recommended mitigation and monitoring measures, and rehabilitation and adaptive management actions for incorporation into the EMPr.
National Forests Act (Act No. 84 of 1998). - Latest list of protected tree species in South Africa (GN 4496 (Government Notice 50291 of 13 March 2024)). - Specifies exemptions under Sections 7(1) and 15(1) of the Act (GN 25 of 2014 (Government Gazette No. 37246 of 24 January 2014)).	The Act provides for special measures to protect certain forests and tree species while promoting the sustainable use of forests for environmental, economic, educational, recreational, cultural, health, and spiritual purposes. In terms of Section 15(1), no protected tree species may be cut, damaged, destroyed, disturbed, or possessed (including products thereof), unless under licence granted by the relevant authority.	Permits will be obtained for any protected tree species.
Limpopo Environmental Management Act 2003, Act 7 of 2003.	Provides for the management and protection of the environment in Limpopo Province. Objectives include securing ecologically sustainable development, ensuring the responsible use of natural resources, contributing to the progressive realisation of Section 24 of the Constitution of the Republic of South Africa, 1996, and giving effect to international environmental agreements.	The project will be designed and implemented in alignment with the objectives of the Act, ensuring ecologically sustainable development, responsible natural resource use, and protection of environmental rights.
Provincial Notice 1 of 2019 (No. 2966): Waterberg District Bioregional Plan.	The bioregional plan informs land use planning, environmental assessments and authorisations, and natural resource management. It identifies biodiversity priority areas, namely Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), and provides guidelines for land use planning and decision-making.	Terrestrial and aquatic ecological assessments will be undertaken to identify CBAs and ESAs in the project area. The results will inform avoidance-led design, delineate no-go areas and ecological buffers, and define mitigation measures to align with the bioregional plan.
National Water Act, 1998 (Act No. 36 of 1998) (NWA). Regulations on the use of water for mining and related activities aimed at the protection of water resources (GN 704 of 1999) ³³ . - Water Use Licence Application and Appeals Regulations, 2017 (GN R 267 of 2017)³⁴. - Regulations regarding the safety of dams in terms of Section 123(1) of the NWA (GN R 139 of 2012)³⁵. - General Authorisations: - General Authorisation: 21(c) and (i) water use for the purpose of rehabilitating a	The national government, acting through the Minister of Water and Sanitation (previously the Minister of Water Affairs), is the public trustee of South Africa's water resources, and must ensure that water is protected, used, developed, conserved, managed, and controlled in a sustainable and equitable manner for the benefit of all persons (Section 3(1)). Section 19 of the NWA places an obligation on landowners, persons in control of land, occupants of land and land users of land on which: - Any activity or process is or was performed or undertaken; or - Any other situation exists, which causes, has caused or is likely to cause pollution of a water resource, to take all reasonable measures to prevent any such pollution from occurring, continuing, or recurring. In terms of the NWA a person may only use water without a licence under certain circumstances. All other use, provided that such use qualifies as a use listed in Section 21 of the Act, require a Water Use Licence (WUL). A person may only use water without a licence if such water use is permissible under Schedule 1 (generally domestic type use) if that water use constitutes a continuation of an existing lawful water use (water uses being undertaken prior to the commencement of the NWA, generally in terms of the Water Act of 1956), or if that water use is permissible in terms of a general authorisation issued under Section 39 (general authorisations allow for the use of certain Section 21 uses provided that the criteria and	The Nyakallo Solar Park will trigger one or more water uses as defined in Section 21 of the NWA and will therefore require authorisation. A Water Use Licence Application (WULA) will be submitted to the Department of Water and Sanitation for the Section 21 water uses identified for the project. The specific water uses applicable to the proposed activities are set out in Table 8-3. As part of the EIA Phase, Groundwater, Surface Water and Hydropedological assessments will be undertaken to establish baseline conditions, assess potential direct and cumulative impacts, confirm buffers and crossing requirements. The recommended mitigation measures will be incorporated into the EIA Phase and reflected in the EMPr.

²⁹ GN R 275 in GG 40762 of 3 April 2017 as amended by GN R 994 in GG 43712 of 11 September 2020.

³⁰ GN R 152 in GG 29657 on 23 February 2007.

³¹ GN R 1020 in GG 43735 of 25 September 2020.

³² GN 1003 in GG 43726 of 18 September 2020. Notice replaced the previous Alien and Invasive Species Lists (GN 864 in GG 40166 of 29 July 2016).

³³ GN 704 in GG 20119 of 4 June 1999.

³⁴ GN R 267 in GG 40713 of 24 March 2017.

³⁵ GN R 139 in GG 35062 of 24 February 2012.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
wetland for conservation purposes (GN 1198 of 2009)³⁶. - General Authorisation: 21(c) and (i) water uses (GN 509 of 2016)³⁷. - Revision of General Authorisation for the Taking and Storing of Water (GN 538 of 2016)³⁸. - Revision of General Authorisation in terms of Section 39 of the National Water Act 36 of 1998 (GN 665 of 2013)³⁹.	thresholds described in the general authorisation is met). The Minister published Regulations Regarding the Procedural Requirements for Water Use Licence Applications and Appeals in GN R 267 of 2017. The Regulations serve to prescribe the procedure and requirements of Water Use Licence Applications (WULAs) as contemplated in Sections 41 of NWA, as well as an appeal against a decision made by a Responsible Authority in terms of Section 41(6) of the NWA. The Regulations provide the requirements for the WULA and state that consideration and decision for a WUL must be undertaken within a period of 300 days of submitting such application. A procedure for public participation must also be conducted as contemplated in Section 41(4) of the NWA, as part of the WULA process.	
National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA).	The NHRA established the South African Heritage Resources Agency (SAHRA) as well as provincial heritage resources agencies. In terms of the NHRA, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide, or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site. Section 38 of the NHRA states that any person who intends to undertake developments categorised in Section 38 of the NHRA must at the very earliest stages of initiating such development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. By way of example, the developments referred to in Section 38 of the NHRA include: The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 metres in length; The construction of a bridge or similar structure exceeding 50 metres in length; - Any development or other activity which will change the character of a site - - Exceeding 5000 m² in extent; or - Involving three or more existing erven or subdivisions thereof; or - Involving three or more erven or divisions thereof which have been consolidated within the past five years; or - The costs of which will exceed a sum set in terms of Regulations by SAHRA or a Provincial Heritage Resources Authority (PHRA); or - The rezoning of a site exceeding 10 000 m² in extent; or - Any other category of development provided for in the Regulations by SAHRA or the PHRA.	In terms of Section 38(1) of the NHRA, any person proposing (i) a development that will change the character of a site exceeding 5,000 m² in extent, or (ii) the construction of a road, powerline or pipeline exceeding 300 m in length, must notify the responsible heritage resources authority (SAHRA and/or the relevant PHRA) at the earliest stage of project initiation. A case for the Nyakallo Solar Park has been registered with SAHRA (Case ID 25544). An Archaeological Impact Assessment and a Phase 1 Palaeontological Impact Assessment will be undertaken. The findings, significance ratings, and recommended mitigation measures will be incorporated into the EIA Phase and reflected in the EMPr. No disturbance of heritage resources will occur without the necessary authorisations or permits.
Section 25 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) (ECA). Noise Control Regulations (GN R 154 of 1992) ⁴⁰ .	These Regulations set out rules relative to the control of noise as provided for in Section 25 of the ECA. The Regulations, among other things: define powers of local authorities to control noise; define general prohibitions in relation with activities that produce noise; define and prohibit noise nuisance; and concern the use of noise measuring instruments.	Nyakallo Solar Park (Pty) Ltd will have to ensure that employees, contractors and subcontractors adhere to the requirements of this Act.
Hazardous Substances Act, 1973 (Act No. 15 of 1973) (HAS).	The Act aims to provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitising or flammable nature or the generation of pressure thereby in certain circumstances, and for the control of certain electronic products; to provide for the division of such substances or products into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products; and to provide for matters connected therewith.	Nyakallo Solar Park (Pty) Ltd will have to ensure that employees, contractors and subcontractors adhere to the requirements of this Act.
Civil Aviation Act, 2009 (Act No. 13 of 2009) (CAA).	Governs civil aviation in South Africa and establishes the South African Civil Aviation Authority (SACAA), mandated to control, promote, regulate, support, develop, enforce, and continuously improve aviation safety and security. The SACAA fulfils this mandate by aligning with the Standards and Recommended Practices of the International Civil Aviation Organisation, while adapting them to the South African context through the South African Civil Aviation Regulations (CARs) and the South African Civil Aviation Technical Standards (CATs). All proposed developments or activities that may affect civil aviation must be assessed in terms of these regulations to ensure aviation safety.	The project will be assessed for potential impacts on civil aviation in accordance with the CARs and CATs. Any submissions or approvals required by the SACAA will be obtained to ensure compliance with aviation safety standards.
National Road Traffic Act, 1996 (Act No. 93 of 1996) National Road Traffic Regulations,	Provides for the regulation of road traffic in South Africa, including limitations on vehicle dimensions, axle loads, and vehicle masses for vehicles using public roads.	Transportation of key infrastructure components and machinery to the project site during the construction phase may require abnormal load permits. Permit applications will be submitted in terms of Section 81 of the

³⁶ GN 1198 in GG 32805 of 18 December 2009.

³⁷ GN 509 in GG 40229 of 26 August 2016.

³⁸ GN 538 in GG 40243 of 2 September 2016.

³⁹ GN 665 in GG 36820 of 6 September 2013.

⁴⁰ GN R 154 of January 1992.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
2000.	Certain vehicles or loads that exceed the prescribed limitations and cannot reasonably be dismantled without disproportionate effort, cost, risk, or damage are classified as abnormal loads. Such loads may only be transported on public roads under an exemption permit issued in terms of Section 81 of the Act.	Act to ensure compliance with road traffic regulations.
Policies and Plans		
National Development Plan, 2011 (NDP) ⁴¹ .	Development in South Africa is guided by the NDP, which presents a shared long term strategic framework within which more detailed development planning can take place to advance the long term goals adopted in the NDP. The plan aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty and the reduction of inequality. The NDP 2030 sets a target of creating approximately 11 million new jobs and achieving an annual average economic growth rate of 5.4 % by 2030.	The NDP is applicable in guiding Nyakallo Solar Park (Pty) Ltd to ensure that all adjacent and affected communities attain a decent standard of living through the elimination of poverty and the reduction of inequality. The project is in alignment with the NDP through its potential to create employment and its plans to develop infrastructure.
DFFE Environmental Screening Tool.	The DFFE requires that their National Environmental Screening Tool be utilised prior to undertaking an application for any EA and that the report generated by the tool be submitted with the EA application. The tool is a geographically based web-enabled application which allows a proponent intending to submit an application for an EA to pre-screen their proposed site for any environmental sensitivities. Regulation 16(1)(b)(v) of the requires a screening report to accompany an application for an EA.	The S&EIR process has been undertaken in respect of the authorisation process of the project and is in compliance with the NEMA requirements read with the EIA Regulations of 2014. An EA application together with the Screening Tool Report was submitted to the DFFE, on 18 July 2025.
Waste management standards: SANS 10234:2019, Edition 2: Globally Harmonised System of Classification and Labelling of Chemicals (GHS) ⁴² .	SANS 10234:2008 South Africa has moved a step forward in regard to mandating that Globally Harmonised System (GHS) of Classification and Labelling of Chemicals, be implemented within the country. Standard SANS 10234:2019 (edition-2) was published through the South Africa Bureau of Standards on December 17, 2019. This Standard supersedes Standards: SANS 10265 edition-1 of 1999 and SANS 10234 edition-1.01 of 2008. This Standard is aligned with the 4th revision of the UN GHS Purple book and is cross referenced in the NEM: WA and National Health Act, 2003 (Act No. 61 of 2003). The National Committee for Standards for Dangerous Goods, including hazardous chemical substances and dangerous goods, is in charge of preparing this Standard. The Committee has decided to permanently remove the Supplement (List of Classification and Labelling of Chemicals in Accordance with GHS), to the SANS 10234:2008 (edition-1), since the Committee believes that the chemicals on this list are constantly changing. This Standard is also mandated by the DFFE and Department of Health. This Standard will be considered a minimum requirement to adhere to when the draft Regulation of Hazardous Substances Agents (2018) is published, which is projected for 2020, under the authority of the Department of Labour. The Standard provides guidelines for classifying chemicals based on their physical, health, and environmental hazards, as well as standardised labelling elements such as pictograms, signal words, hazard statements, and precautionary statements.	The Guidelines will be consulted when compiling the Environmental Management Programme (EMPr).
Air quality: - National Ambient Air Quality Standards (NAAQS), 2009⁴³. - GN 486 dated 2 July 2012: National Ambient Air Quality Standard for Particulate Matter with Aerodynamic Diameter less than 2.5 Micron Metres (PM_{2.5})⁴⁴.	NAAQS The NAAQS provide comprehensive guidelines and Regulations to safeguard air quality across South Africa. These standards outline permissible concentrations of various air pollutants, including particulate matter, sulphur dioxide, nitrogen dioxide, carbon monoxide, ozone, and lead, aimed at protecting public health and the environment. The NAAQS serves as a benchmark for assessing and monitoring air quality levels nationwide, guiding government agencies, industries, and other stakeholders in implementing measures to mitigate air pollution and minimise its adverse impacts. NAAQS - PM_{2.5} The National Ambient Air Quality Standard for Particulate Matter with Aerodynamic Diameter less than 2.5 Micron Metres (PM _{2.5}) establishes regulatory guidelines to control and monitor fine particulate pollution in the ambient air across South Africa. PM _{2.5} refers to tiny particles suspended in the air, which can penetrate deep into the lungs and pose significant health risks, including respiratory and cardiovascular problems. The standard sets permissible concentration limits for PM _{2.5} in ambient air, serving as a crucial tool for protecting public health and the environment.	The Guidelines will be consulted when compiling the Environmental Management Programme (EMPr).
Noise standards: SANS 10103:2008 The measurement and rating of environmental noise with respect to annoyance and to speech communication⁴⁵.	SANS 10103:2008 outlines guidelines for the measurement and assessment of environmental noise concerning its potential to cause annoyance and disrupt speech communication. This standard provides a framework for objectively evaluating noise levels in various environments to ensure they meet acceptable thresholds for human comfort and communication.	The Guidelines will be consulted when compiling the EMPr.

⁴¹ https://www.nationalplanningcommission.org.za/National_Development_Plan

⁴² Standard SANS 10234:2019 (edition-2), South African Bureau of Standards

⁴³ GN 1210 in GG 32816 of 24 December 2009.

⁴⁴ GN 486 in GG 35463 of 29 June 2012.

⁴⁵ South African Bureau of Standards - SANS 10103:2008 The measurement and rating of environmental noise with respect to annoyance and to speech communication, 2008.

Applicable Legislation and Guidelines used to compile the Report	Description	How Does This Development Comply with and Respond to The Policy and Legislative Context
IEM guidelines: • Integrated Environmental Management Information Series - Impact Significance. Information Series 5, 2004⁴⁶. • Integrated Environmental Management Information Series - Cumulative Effects Assessment. Information Series 7, 2004⁴⁷. • Integrated Environmental Management Information Series - Criteria for Determining Alternatives in EIA. Information Series 11, 2004⁴⁸. • Review in EIA, Integrated Environmental Management, Information Series 13, 2004⁴⁹. • Public Participation guideline in terms of NEMA EIA Regulations, 2017⁵⁰. • Guidelines on Need and Desirability, 2017⁵¹. • Guideline on the Administration of Appeals, 2015⁵².	The IEM guidelines serve as a comprehensive framework for managing environmental considerations across various sectors and activities. These guidelines emphasise the integration of environmental considerations into decision-making processes at all stages of planning, implementation, and monitoring. By adopting an integrated approach, IEM seeks to balance socio-economic development with environmental protection, ensuring that development activities are sustainable and minimise adverse environmental impacts. Key components of IEM include stakeholder engagement, EIA, environmental management plans, monitoring, and adaptive management strategies.	The S&EIR process for the project will be undertaken in accordance with the principles of IEM. A detailed impact assessment together with the recommended mitigation and management measures will be provided. The Need and Desirability of the project will be considered and discussed following the guidelines provided by the DFFE. The public participation process (PPP) will be facilitated as recommended in the Public Participation guidelines. The Exemption and Appeal guidelines will be considered during the outset of the project to determine the necessary processes and applications that need to be followed (if required).

⁴⁶ DEAT (2002) Impact Significance, Integrated Environmental Management, Information Series 5, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

⁴⁷ DEAT (2004) Cumulative Effects Assessment, Integrated Environmental Management, Information Series 7, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

⁴⁸ DEAT (2004) Criteria for determining Alternatives in EIA, Integrated Environmental Management, Information Series 11, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

⁴⁹ DEAT (2004) Review in Environmental Impact Assessment, Integrated Environmental Management, Information Series 13, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

⁵⁰ Department of Environmental Affairs (2017), Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa.

⁵¹ DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa.

⁵² Department of Environmental Affairs (2015), Guidelines on the Administration of Appeals, Department of Environmental Affairs, Pretoria, South Africa.

8.1 Listed and Specified Activities

The project activities listed in the abovementioned legislation require authorisation prior to commencement. These activities are provided in Table 8-2 below.

Table 8-2: Listed Activities to be authorised under the National Environmental Management Act, 1998 (Act No. 108 of 1998)⁵³

Activity No.	Description of the Activity	Applicability
GN R 983 (Listing Notice 1) 9 (i) and (ii)	The development of infrastructure exceeding 1 000 metres (m) in length for the bulk transportation of water or storm water - (i) with an internal diameter of 0.36 m or more; or (ii) with a peak throughput of 120 litres per second (l/s) or more, excluding where - (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	The proposed stormwater management plan and infrastructure for the project has the potential to exceed a length of 1000 m, with an internal diameter of 0.36 m or more and/or a peak throughput of 120 l/s. While the final designs are yet to be confirmed, the project may trigger this listed activity, necessitating an Environmental Authorisation (EA).
GN R 983 (Listing Notice 1) 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 kilovolts (kV) but less than 275 kV; or (ii) inside urban areas or industrial complexes with a capacity of 275 kV 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 (km) 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 Nyakallo Solar Park will require the development of electricity transmission infrastructure to connect the facility to the national grid at Eskom's Matimba Substation. This includes a permanent overhead transmission line and associated electrical infrastructure with a connection voltage of approximately 132 kilovolt (kV). The transmission infrastructure will be located outside an urban area or industrial complex and exceeds the 33 kV threshold specified in this listed activity. Accordingly, the proposed development triggers this listed activity and requires EA ⁵⁴ .
GN R 983 (Listing Notice 1) 12 (ii) (a) and (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- (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	Although the preliminary project layout has been informed by desktop sensitivity mapping and has sought to avoid flood-prone areas associated with the watercourse system, the proposed development includes infrastructure such as internal access roads, stormwater management structures, electrical reticulation, inverter stations, and ancillary civil works that may occur within 32 m of a watercourses. Individual infrastructure elements may have a physical footprint exceeding 100 m ² . These works are located outside urban areas and do not fall within

⁵³ The activity and sub-listing activities have been noted in bold text.

⁵⁴ A separate application for EA will be submitted for the Eskom grid connection. The grid connection itself does not form part of this application. This application is limited to the proposed development and the internal connection either overhead or underground from the facility to the future Eskom grid connection point.

Activity No.	Description of the Activity	Applicability
	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 the development and where indigenous vegetation will not be cleared.	existing road or railway reserves, nor do they constitute temporary infrastructure to be removed within six weeks. Accordingly, the proposed development may trigger this listed activity and requires EA.
GN R 983 (Listing Notice 1) 19	The infilling or depositing of any material of more than 10 cubic metres (m³) into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 m³ from a watercourse; 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; (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.	Although the preliminary project layout has been informed by desktop sensitivity mapping and has sought to avoid flood-prone areas associated with the watercourse system, construction activities associated with the proposed development may require the excavation, removal, movement, infilling, or deposition of soil and other material in excess of 10 m ³ within or adjacent to a watercourses. Such activities may be associated with the establishment of internal access roads, stormwater management structures, electrical reticulation crossings, and other ancillary civil works. These works are not limited to maintenance activities and will occur outside existing port or harbour areas. Accordingly, the proposed development may trigger this listed activity and requires EA.
GN R 984 (Listing Notice 2) 1	The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts (MW) 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.	Nyakallo Solar Park is a hybrid electricity generation facility which is a solar photovoltaic (PV) and Battery Energy Storage System (BESS) and will have a capacity of up to 315 megawatt peak (MWp) (equivalent to approximately 262 megawatt alternating current (MWac)). This project falls outside an urban area or existing infrastructure and exceeds the 20 MW electricity output threshold, triggering the need for an EA under this listed activity.
GN R 984 (Listing Notice 2) 4	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 more than 500m³.	The proposed BESS will comprise containerised lithium-ion battery units and associated power conversion, control, and safety infrastructure. Lithium-ion batteries are classified as a dangerous good due to their chemical and fire risk characteristics. The BESS

Activity No.	Description of the Activity	Applicability
		will have a total energy storage capacity of up to approximately 600 megawatt-hours (MWh), at the point of connection at commissioning, and will be housed within multiple containerised units. The combined volumetric storage capacity of these containers is anticipated to exceed the 500 m ³ threshold specified in this listed activity. Accordingly, the development and operation of the BESS triggers the requirement for EA under this listed activity.
GN R 984 (Listing Notice 2) 6	The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding- (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 m ³ or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 m ³ per day.	A Water Use Licence in terms of Section 21 under the National Water Act, 36 of 1998 (NWA) will be required for the sewage conservancy tank / septic tanks, which triggers the need for an EA under this listed activity.
GN R 984 (Listing Notice 2) 15	The clearance of an area of 20 hectares (ha) or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The establishment of the PV facility and associated infrastructure will require the clearance of indigenous vegetation to accommodate solar panel arrays, inverter stations, internal access roads, substation, the BESS, laydown areas, and associated infrastructure. The total project area measures approximately 723 ha, with an estimated development footprint of approximately 414.55 ha, which substantially exceeds the 20 ha threshold specified in this listed activity. The vegetation clearance is not associated with a linear activity and does not constitute routine maintenance. Accordingly, the proposed development triggers this listed activity and requires EA.
GN R 985 (Listing Notice 3) 4 (e) (i) (cc) and (ee)	The development of a road wider than 4 m with a reserve less than 13.5 m. (e) Limpopo: (i) Outside urban areas: (aa) A protected area identified in terms of	The proposed Nyakallo Solar Park includes the development of an internal access road network to provide construction, operational, and maintenance access to solar arrays,

Activity No.	Description of the Activity	Applicability
	NEMPAA, excluding disturbed areas; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an EMF 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) CBAs 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 km from national parks or world heritage sites or 5 km 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 SDFs adopted by the competent authority or zoned for a conservation purpose; or (cc) Areas within urban protected areas.	inverter stations, the BESS, substations, and associated infrastructure. The internal roads will generally be gravel surfaced and up to approximately 6 m wide, with road reserves less than 13.5 m, thereby exceeding the 4 m width threshold. The internal road network will traverse areas mapped as an Ecological Support Areas (ESA) in terms of the Limpopo Conservation Plan, within a Freshwater Ecosystem Priority Area (FEPA)-defined sub-catchment associated with the Sandloop River system, and outside urban areas.
GN R 985 (Listing Notice 3) 12 (e) (ii)	The clearance of an area of 300 m² 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 (ii) 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 and equivalent zoning.	The establishment of the solar PV facility, including solar panel arrays, inverter stations, internal roads, substations, BESS infrastructure, laydown areas, and the construction camp, will require the clearance of indigenous vegetation. The total project area measures approximately 723 ha, with an estimated development footprint of approximately 414.55 ha, far exceeding the 300 m ² threshold. The majority of the development footprint falls within areas classified as ESA in terms of the Limpopo Conservation Plan and within a FEPA sub-catchment, thereby triggering this listed activity.
GN R 985 (Listing Notice 3) 14 (ii) (a) and (c), (e) (ii) (dd) and (ff)	The development of- (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 m ² ; or (ii) infrastructure or structures with a physical footprint of 10 m² or more; where such development occurs- (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 m 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	The proposed development includes infrastructure such as internal access roads, electrical reticulation, inverter stations, substations, stormwater management structures, and associated civil works, some of which may be located within 32 m of watercourses or traverse and cross watercourses and associated ephemeral and episodic drainage features. Individual infrastructure elements may exceed the 10 m ² footprint threshold. These features occur within a FEPA-defined sub-catchment and spatially overlap an ESAs identified in the Limpopo Conservation Plan, outside of urban areas.

Activity No.	Description of the Activity	Applicability
	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 EMF 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 km from national parks or world heritage sites or 5 km from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; or (ii) Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose.	

The following project activities in Table 8-3 trigger various water uses as defined in Section 21 of the NWA and will require licensing.

Table 8-3: Water Uses in terms of Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) that are associated with the proposed Project

Section 21 Water Use	Proposed Project Activity
Section 21(a): Taking water from a water resource.	Municipal supply will be the first option; however, groundwater may be sourced to meet both domestic needs and the cleaning requirements of the solar panels. To support this, a dedicated water filtration and purification facility will be established, ensuring the provision of potable water for human consumption and suitably treated water for solar module cleaning.
Section 21(c): Impeding or diverting the flow of water in a watercourse.	While the project area has been designed to avoid flood-prone areas associated with the watercourse, however infrastructure related to the project will fall within 500 m of the watercourse.
Section 21(i): Altering the bed, banks, course or characteristic of a watercourse.	
Section 21(g): Disposing of waste in a manner which may detrimentally impact on a water resource.	Domestic effluent (sewage) will be collected in a conservancy tank, which will be regularly serviced by a licensed waste management provider.

8.2 Required Authorisations

The project triggers several listed activities, therefore, EA and Water Use Licence Applications (WULA) must be submitted in compliance with the following national legislation:

EA:

In terms of the NEMA, an EA is required for the following listed activities:

- GN R 983 (Listing Notice 1): Activity 9 (i) and (ii).
- GN R 983 (Listing Notice 1): Activity 11 (i).
- GN R 983 (Listing Notice 1): Activity 12 (ii) (a) and (c).
- GN R 983 (Listing Notice 1): Activity 19.
- GN R 984 (Listing Notice 2): Activity 1.
- GN R 984 (Listing Notice 2): Activity 4.
- GN R 984 (Listing Notice 2): Activity 6.
- GN R 984 (Listing Notice 2): Activity 15.
- GN R 985 (Listing Notice 3): Activity 4 (e) (i) (cc) and (ee).
- GN R 985 (Listing Notice 3): Activity 12 (e) (ii).
- GN R 985 (Listing Notice 3): Activity 14 (ii) (a) and (c), (e) (ii) (dd) and (ff).

WULA:

In terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA), a WULA must be undertaken for the following water uses as listed under Section 21 of the Act:

- Section 21 (a) taking water from a resource.
- Section 21 (c) Impeding or diverting the flow of water in a watercourse.
- Section 21 (g) Disposing of waste in a manner likely to negatively impact a water resource.
- Section 21 (i) Altering the bed, banks, course, or characteristics of a watercourse.

9 SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT REPORTING PROCESS

A formal pre-application meeting request was submitted to the DFFE. The prescribed Pre-Application Meeting Request Form was completed and lodged with the DFFE for consideration.

Following review of the request, the DFFE confirmed that a pre-application meeting was not

required for the Project. The DFFE subsequently assigned the Project reference number 2026-05-0022.

9.1 Application

An application for EA will be submitted to the DFFE in terms of NEMA, and the EIA Regulations, 2014.

The application will identify the applicable Listing Notices and listed activities triggered by the proposed development, and will include the relevant cadastral information, site location details, boundary coordinates, Applicant details and EAP particulars, as required by the EIA Regulations, 2014.

9.2 Scoping Phase

The Scoping Phase is undertaken to lawfully define the scope of the assessment and to set out the Plan of Study for EIA. In accordance with Appendix 2 of the EIA Regulations, the Scoping Report must:

- Identify the policy and legislative context.
- Motivate the need and desirability of the proposed activity.
- Identify and confirm feasible and reasonable alternatives (technology, layout, and the no-go option) and provide a reasoned preliminary ranking.
- Identify and confirm the preferred site or development footprint through a site selection process that considers environmental sensitivities and cumulative risks.
- Isolate key issues and risks for detailed assessment.
- Agree on the level of assessment (methods, expertise, consultation) required.
- Identify initial mitigation measures for testing and refinement during the EIA Phase.

9.2.1 Public Participation

The Draft Scoping Report (DSR) was made available to registered Interested and Affected Parties (I&APs) and authorities for a minimum 30-day review. Notifications will include site notices, targeted letters/e-mails, and appropriate media notices. All submissions will be captured in a Comments and Responses Report (CRR), with a clear indication of how each comment has been addressed.

9.2.2 Submission and Acceptance

Following incorporation of comments, the Final Scoping Report (FSR) and Plan of Study for EIA will be submitted to the DFFE within the period prescribed by the Regulations. The DFFE must then, within the prescribed consideration period, either:

- Accept the FSR and instruct the EAP to proceed with the EIA Phase as scoped; or
- Refuse EA if the proposal conflicts with a statutory prohibition or if the FSR does not substantially comply with the objectives and content requirements and compliance cannot be achieved within the prescribed timeframe.

9.2.3 Outcome of Scoping

Acceptance of the FSR constitutes the legally approved scope for the EIA Phase. Any deviation from the accepted scope will be managed through the mechanisms provided in the EIA Regulations.

9.3 Environmental Impact Assessment Phase

Upon Scoping acceptance, the EIA Phase will be executed in accordance with the approved Plan of Study and will produce:

- A Draft Environmental Impact Report (EIR), presenting the integrated assessment and a reasoned environmental opinion.
- A Draft Environmental Management Programme (EMPr), translating mitigation and management measures into binding, auditable commitments.

9.3.1 Specialist Studies

9.3.1.1 Commissioning and Standards

The suite of specialist studies has been derived from the Scoping process and the national Screening Tool outcomes. Where applicable, studies will comply with the Protocols for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes (GN R 320 of 2020, as amended). In the absence of an applicable protocol, reports will comply with Appendix 6 of the EIA Regulations.

9.3.1.2 Purpose and Outputs

Each study will: (i) define its scope and methodology; (ii) establish baseline conditions; (iii) identify and assess Project-related impacts (including cumulative pathways where relevant); (iv) recommend avoidance and mitigation measures; (v) quantify or map sensitivity and buffer requirements; (vi) specify monitoring indicators; and (vii) state assumptions, limitations and confidence levels.

9.3.1.3 Integration and Peer Review

Findings will be integrated by the EAP to ensure consistency in assumptions, boundaries, and rating scales. Where appropriate, internal peer review will be applied to ensure methodological rigour and consistency with regulatory requirements.

9.3.2 Environmental Impact Assessment

The impacts of the proposed project will be assessed through a structured methodology aligned with Appendix 3 of the EIA Regulations. This process involves identifying potential impacts, predicting their nature, magnitude, extent, and duration, proposing mitigation measures, and evaluating residual impacts after mitigation. Significance is determined using a consequence-probability approach, where consequence reflects duration, extent, severity, and irreplaceability of resources, and probability represents the likelihood of occurrence. Criteria such as cumulative effects, reversibility, and potential for mitigation are also considered. This ensures that both positive and negative impacts are systematically evaluated to guide decision-making during the EIA.

9.3.3 Environmental Management Programme

The EMPr will specify objectives, performance indicators and targets; detailed method statements; roles and responsibilities; training and awareness; incident and emergency response; grievance and complaints procedures; monitoring and auditing schedules and locations; reporting formats; and corrective action procedures with trigger thresholds. Commitments will be structured to be measurable, verifiable, and time-bound.

9.3.4 Public Participation

The Draft EIR will be made available to registered I&APs and authorities for a minimum 30-day review. Notifications will include targeted letters/e-mails, and appropriate media notices. All submissions will be captured in a CRR, with a clear indication of how each comment has been addressed.

9.3.5 Decision-Making and Appeals

9.3.5.1 Decision-Making

Upon receipt of the Final EIR and EMPr, the DFFE will determine the application by applying the decision-making criteria in the NEMA. Considerations include, *inter alia*, the nature, extent, duration, and significance of potential impacts; the effectiveness and practicality of proposed mitigation and the Applicant's ability to implement the EMPr; feasible and reasonable alternatives; relevant spatial tools and planning instruments; and the full record of public participation and inter-authority consultation. The DFFE must grant EA (with enforceable conditions) or refuse EA and provide written reasons.

9.3.5.2 Appeals

Any person aggrieved by the decision may lodge an appeal in terms of the National Appeal Regulations within the prescribed timeframes. The appeal authority may confirm, vary, or set aside the decision, with reasons.

10 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

10.1 Approach and Methodology

The public participation approach adopted for this proposed project is in line with the processes contemplated in Chapter 6 of the EIA Regulations. A phased approach for the PPP activities has been adopted as aligned with the requirements of NEMA, namely:

- Application Phase.
- Announcement Phase.
- Scoping Phase.
- EIA Phase.
- Decision Phase.

Table 10-1 notes the PPP Phases, objectives for each interaction with I&APs, key activities to be undertaken and outputs.

10.1.1 Protection of Personal Information Act 4 of 2013

In compliance with the Protection of Personal Information Act, 2013 (Act No. 4 of 2013) (POPIA), any personal information provided by I&APs will exclusively be used as part of the public participation and decision-making process and will therefore not be utilised for any other purpose, other than that for which it was provided. No additional copies will be made of documents containing personal information unless permission has been obtained from the owner of said information. Records of personal information will be retained no longer than reasonably required for lawful purposes.

Table 10-1: Public consultation phases, objectives, key activities and outputs

Phases	Objectives	Key Activities	Key Outputs
Application Phase.	To conduct a screening process for identifying the triggered listed activities.	To submit the required environmental application.	Submission and acceptance of the EA application by the Department of Forestry, Fisheries and the Environment (DFFE).
Announcement Phase.	- To distribute Project-related information to the public and Interested and Affected Parties (I&APs). - To request the public to register as I&APs for the Project. - To provide an opportunity for registered I&APs to comment on the Draft Scoping Report (DSR).	- Review existing documents relevant to the proposed Project area. - I&AP identification and mapping to update the database. - Compile a Background Information Document (BID), site notice, newspaper advertisement and notification letter.	- I&AP updated database. - Distribution of information material to the public and I&APs.
Scoping Phase.	- To introduce the Project Team. - To inform and consult relevant authorities (including local government and traditional authorities), directly and indirectly affected landowners, impacted ward committees and community-based organisations about the Project. - To generate feedback on the scope, approach and potential impacts identified in the DSR.	- Undertaking introductory meetings with relevant authorities to sensitise them of the Project and the process that will be followed. - Undertaking consultations in the form of consultation meetings. - Collating inputs, comments and suggestions for inclusion into the Final Scoping Report (FSR) and notification to registered I&APs.	- Recording of issues, comments and suggestions. - Collating inputs into the specialist assessments for consideration in the EIA Phase. - Submission of the FSR to DFFE for adjudication and notification to registered I&APs of this submission.
EIA Phase.	- To provide stakeholders with the opportunity to comment on the Draft EIA Report including Environmental Management Programme (EMPr). - To consult with registered I&APs and any other registered stakeholder in the form of consultation meetings to present the findings of the specialist assessments. - To gather further comments for inclusion into the Final EIA Report for DFFE submission and adjudication.	Afford I&APs an opportunity to comment on the Draft and Final EIA Report including EMPr.	Recording further comments and suggestions from I&APs and finalise the Final EIA Report including EMPr for submission to DFFE for decision-making.
Decision-making Phase.	To formally notify registered I&APs of the outcome of the decision by the DFFE on the project.	Dissemination of notification letters or announcement regarding the outcome of the decision by the DFFE.	Announcement of the decision made by the DFFE.

10.2 Public Participation Activities

10.2.1 Announcement Phase

The primary objectives of the this phase are threefold: firstly, to disseminate pertinent information regarding the project to both the general public and I&APs; secondly, to encourage members of the public to formally register as I&APs for the project, thereby facilitating their engagement and participation in the process; and finally, to afford registered I&APs the opportunity to offer feedback and commentary on the DSR, ensuring their voices are heard and considered in the ongoing development of the project.

10.2.1.1 Announcement Phase Public Participation Activities

Table 10-2 provides details of the public participation activities undertaken during the announcement phase.

Table 10-2: Public participation activities undertaken during the Announcement Phase

Activity	Details
Identificat ion of stakeholde rs	A comprehensive stakeholder database was developed, capturing all individuals, organisations, and authorities with an interest in or potentially affected by the project—collectively referred to as Interested and Affected Parties (I&APs). The database includes directly affected landowners, adjacent property owners, relevant government departments, and other key stakeholders within and surrounding the project area. For a copy of the stakeholder database please refer to Appendix C.
Distributio n of announce ment e- mail/SMS and Backgroun d Informatio n Document (BID)	On 1 July 2026, a notification e-mail and BID—prepared in English, Afrikaans, and Sepedi—were distributed to the stakeholder database. The BID outlined the project background, location, proposed activities, and applicable regulatory processes. A registration and comment form was included to allow stakeholders to formally register as I&APs and submit written comments. An SMS notification was also distributed on 29 June 2026 to ensure broad awareness. For a copy of the BID please refer to refer to

Nokusho Ngobeni	South African Heritage Resources Agency	
Limpopo Department: Agriculture and Rural Development (LDARD)		
Ramatsimele Jacqueline Maisela	LDARD	Head of Department
Bafedi Mabunda	LDARD	HOD - PA
Makopoi Nkopane	LDARD	Chief Directors: Agri
MSJ Nowata	LDARD	Chief Directors: Agri
Patience Hlongwa	LDARD	
Zanele Sihlangu	LDARD	
Kgabo Molebo	LDARD	
Patrick Lukhele	LDARD	
Annelize Colett	LDARD	
E Thulari	DALRRD - National Dept	
Mary Mogale	DALRRD - National Dept	
Limpopo Department: Public Works, Roads Infrastructure (DPRI)		
Dikgole Timothy Seroka	DPRI	Head of Department
Nakisane Mthimkhulu	DPRI	HOD - PA
H Mabasa	DPRI	Senior Management
FD Maguga	DPRI	Senior Management
RW Mothapo	DPRI	Senior Management
	DPRI	MEC's Secretary
N. Moloto	DPRI	Manager
Waterberg District Municipality (WDM)		
Cllr M.J Maeko	Waterberg District Municipality	Executive Mayor
Lephalale Local Municipality (LLM)		
Feziwe Nogilana-Raphela		Acting Municipal Ma
Cllr Aaron Mokgetle		Mayor
Limpopo Heritage Resources Authority (LIHRA)		
David Monama	LIHRA	
South African National Biodiversity Institute (SANBI)		
	Thohoyandou National Botanical Garden	
	Mokopane Biodiversity Conservation Centre	
National Road Agency (NRA)		
Ria Barkhuizen	NRA	Team Secretary
Community Leaders		
Mshoza Kghosi Selek	Lephalale Tribal Authority: Selek	Royal Council
Petros Kgoshi Shongoane	Lephalale Tribal Authority: Shongoane	Royal Council
Langa / Mokuruanyane	Lephalale Tribal Authority: Abbotstport	Royal Council
Andries Mocheko	Waterberg Environmental Justice Forum	Director
Seleka Mothiba	Taxi Association	Secretary
Titus Seabi	Radical Economic Transformation	Director
Abafhani Ramolongo	NAFCOC	Director
Bafedile Masasa	Evergreen NPO	Director
Grace Peletona	Lephalale Womens forum	Director
Jeanneth Peletona		Secretary
Andries Mocheko		Representative
Benny Selek	Rural Coucil Youth	Representative
Hendrick Selek		Representative
NGOs/ CBOs/ Parastatals		
John Davies	Endangered Wildlife Trust	Unit Manager, Birds
Suzanne Powell	Endangered Wildlife Trust	Unit Manager, Biodi
General email	Endangered Wildlife Trust	
Kerri Wolter	VulPro (The Vulture Programme)	Founder & CEO
Conservation / Research Team	VulPro (The Vulture Programme)	Field Projects, Color
General email	VulPro (Vulture Conservation & Rehabilitation)	
Meagan Bromfield	Associate	
Mark D Anderson	Birdlife SA	Chief Executive Offi
Hanneline Smit-Robinson	Birdlife SA	Head of Conservatio
Morgan Griffiths	Africa	Chief Executive Offi
Christopher Mamabolo	Eskom Matimba	Environmental Mans

		<table border="1"> <tr> <td>Filomaine Swanepoel</td><td>Grootegeeluk Coal Mine</td><td>Senior Specialist Environm</td></tr> <tr> <td>Mariette Liefferink</td><td>Federation for a Sustainable Environment</td><td>Chief Executive Officer</td></tr> <tr> <td>M Newman</td><td>Centre for Environmental Rights</td><td></td></tr> <tr> <td>Bobby Peek</td><td>Africa</td><td>Director</td></tr> <tr> <td>Dudu Hadebe</td><td>ACTING SENIOR MANAGER: GRID PLANNING</td><td></td></tr> <tr> <td>General email</td><td>Waterberg Women Advocacy Organization (WWAO)</td><td></td></tr> <tr> <td>General email</td><td>AgriSA</td><td></td></tr> <tr> <td>Shadrack Moephuli</td><td>Agricultural Research Council</td><td>President and CEO</td></tr> <tr> <td>Marthinus Erasmus</td><td>Agri Bosveld</td><td>Chairperson</td></tr> <tr> <td>Sandra Pretorius</td><td>Agri South Africa</td><td>Secretary: Lephalale</td></tr> <tr> <td>Lize McCourt</td><td>SANParks</td><td>Chief Operating Officer</td></tr> <tr> <td>Kobus</td><td>Ackermann</td><td>Grootegeeluk Mine</td></tr> <tr> <td>John Geeringh</td><td>Eskom Holdings SOC Limited</td><td>Senior Environmental Advi</td></tr> <tr> <td>Ezekiel Matsieng</td><td>Radical Economic Transformation and Development</td><td>Chairperson</td></tr> <tr> <td>Titus Seabi</td><td>Radical Economic Transformation and Development</td><td>Secretary</td></tr> <tr> <td colspan="3">Public Places</td></tr> <tr> <td></td><td>Marapong Public Library</td><td></td></tr> <tr> <td></td><td>Lephalale Public Library</td><td></td></tr> <tr> <td colspan="3">Media</td></tr> </table>	Filomaine Swanepoel	Grootegeeluk Coal Mine	Senior Specialist Environm	Mariette Liefferink	Federation for a Sustainable Environment	Chief Executive Officer	M Newman	Centre for Environmental Rights		Bobby Peek	Africa	Director	Dudu Hadebe	ACTING SENIOR MANAGER: GRID PLANNING		General email	Waterberg Women Advocacy Organization (WWAO)		General email	AgriSA		Shadrack Moephuli	Agricultural Research Council	President and CEO	Marthinus Erasmus	Agri Bosveld	Chairperson	Sandra Pretorius	Agri South Africa	Secretary: Lephalale	Lize McCourt	SANParks	Chief Operating Officer	Kobus	Ackermann	Grootegeeluk Mine	John Geeringh	Eskom Holdings SOC Limited	Senior Environmental Advi	Ezekiel Matsieng	Radical Economic Transformation and Development	Chairperson	Titus Seabi	Radical Economic Transformation and Development	Secretary	Public Places				Marapong Public Library			Lephalale Public Library		Media		
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Media																																																											
Appendix D.																																																											
Placement of site notices	Multilingual site notices (English, Afrikaans, and Sepedi) were erected at prominent, publicly accessible locations around the project area. These notices informed I&APs of the proposed project, outline the public participation process, and invite registration and submission of comments on the Draft Scoping Report (DSR).																																																										
Placement of newspaper advertisements	Newspaper advertisements, published in English, Afrikaans, and Sepedi, appeared in the Mogol Ads on 26 June 2026. The notice provided an overview of the project, invite public registration and comment, and announce opportunities for consultation and review of the DSR.																																																										
For placement of the newspaper advertisements please refer to Appendix E.																																																											

10.2.2 Scoping Phase

The objectives of public participation during the Scoping Phase are multifaceted. Primarily, it aims to furnish I&APs with ample and easily accessible information presented in an unbiased manner. This empowers them to articulate comments, express concerns, and offer suggestions aimed at optimising the proposed project outcomes. Furthermore, I&APs are to be given the platform to contribute to the formulation of specialists' Terms of Reference (ToR) for the requisite studies, ensuring their perspectives are integrated into the investigative process. Additionally, they are provided with the opportunity to impart valuable local and traditional knowledge, enriching the EIA with insights essential for comprehensive understanding and assessment.

10.2.2.1 Scoping Phase Public Participation Activities

Table 10-3 provides details of the public participation activities to be undertaken during the

Scoping Phase.

Table 10-3: Public participation activities undertaken during the Scoping Phase

Activity	Details												
Availability of the Draft Scoping Report (DSR).	The DSR will be made available for 30 days from the 8 July 2026 to 11 August 2026 at the following places: <table><tr><th>Place</th><th>Address</th><th>Telephone</th></tr><tr><td>Lephalale Public Library</td><td>Corner of Joe Slovo & Douwater Roads, Civic Centre, Lephalale</td><td>+27 (0)14 762 1453</td></tr><tr><td>Marapong Library</td><td>916 Phukubye Street, Marapong</td><td>+27 (0)14 762 1617</td></tr><tr><td>GCS Website</td><td>https://www.gcs-sa.biz/public-documents/</td><td>+27 (0)11 803 5726</td></tr></table>	Place	Address	Telephone	Lephalale Public Library	Corner of Joe Slovo & Douwater Roads, Civic Centre, Lephalale	+27 (0)14 762 1453	Marapong Library	916 Phukubye Street, Marapong	+27 (0)14 762 1617	GCS Website	https://www.gcs-sa.biz/public-documents/	+27 (0)11 803 5726
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Marapong Library	916 Phukubye Street, Marapong	+27 (0)14 762 1617											
GCS Website	https://www.gcs-sa.biz/public-documents/	+27 (0)11 803 5726											
Announcement of submission of the Final Scoping Report (FSR).	Interested and Affected Parties (I&APs) will be notified, via e-mail, of the submission of the FSR to the Department of Forestry, Fisheries and the Environment (DFFE).												
The DFFE acceptance of the FSR.	The DFFE will provide written acceptance of the FSR.												

10.3 Summary of Issues Raised by Interested and Affected Parties

At the time of preparation of this report, no comments or issues had been raised by I&APs in relation to this application.

Any comments received during the public review period will be recorded, assessed and responded to in a CRR. The relevant comments and responses will be incorporated into the final report, where applicable, following completion of the public review process.

11 DESCRIPTION OF THE ENVIRONMENT

11.1 Topography

The topography of the Project area is generally flat to gently sloping. The site has a slight overall gradient towards the south, with a gradient of approximately 0.007, and a more gradual slope towards the south-east, with average slopes ranging between approximately 1.4 percent (%) and 1.8%.

The highest elevation occurs in the northern portion of the site, at approximately 878 metres above sea level (mamsl), while the lower-lying areas occur towards the south eastern portion of the Project area, at approximately 863 mamsl.

Overall, the limited variation in elevation indicates a relatively even landscape, with no steep slopes or pronounced topographical constraints identified within the Project area.

11.2 Geology

The Project site is located within the regional geological setting of the Karoo Supergroup and is underlain predominantly by rocks of the Swartrant Formation. According to the 1:250 000

Geological Map Series 2326 for Lephalale, the Swartrant Formation in the Project area is characterised by sandstone, grit, siltstone, carbonaceous mudrock and coal seams (Figure 11-1).

The broader geological context of the site includes lithologies of the Karoo Supergroup and the Waterberg Group. The Swartrant and Grooteegeluk Formations, which form part of the Eccra Group of the Karoo Supergroup, occur within the central, western and eastern portions of the area. The Swartrant Formation consists mainly of sandstone, gritstone, mudstone and coal, while the Grooteegeluk Formation consists of mudstone, carbonaceous shale and coal.

To the north of the Project site, the geology transitions into the younger, fine-grained sandstones of the Clarens Formation, which forms part of the Stormberg Group. To the south, the geology is associated with rocks of the Kransberg Subgroup of the Waterberg Group, which comprises yellowish, coarse-grained sandstone.

The structural geology of the broader area is influenced by several faults. The Eenzaamheid Fault separates the Waterberg Group in the south from the Karoo Supergroup sediments to the north. The Daarby Fault separates the Swartrant Formation from the Clarens Formation to the north of the area. Other faults mapped in the broader area include the Zoetfontein Fault.

The geological setting is therefore characterised by sedimentary formations comprising sandstone, siltstone, mudstone, carbonaceous shale and coal-bearing units, with local structural control associated with regional faulting. These geological conditions are relevant to groundwater occurrence and movement in the area, as the Project site occurs on Eccra lithologies overlying a semi-confined aquifer system associated with the Waterberg Group.

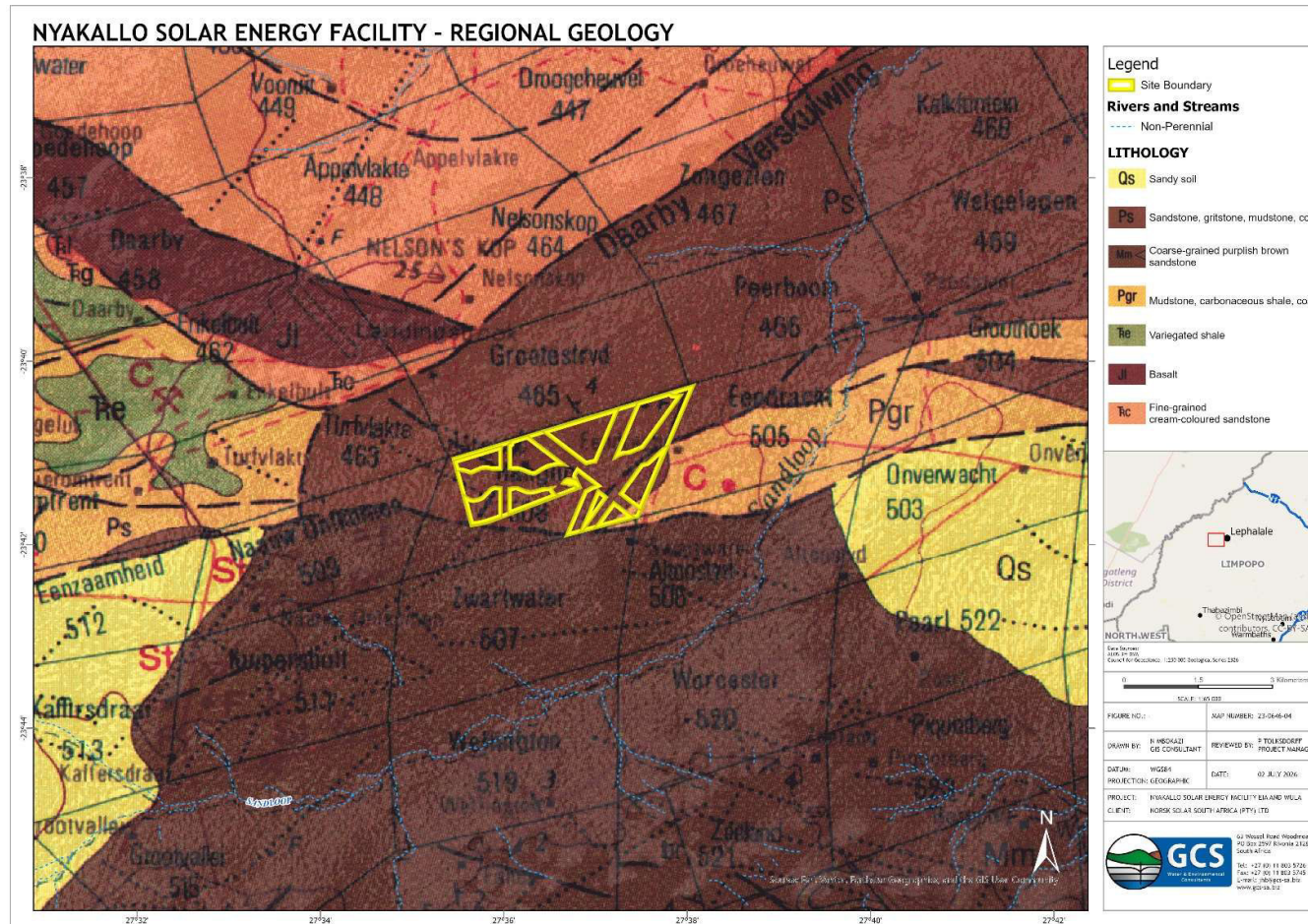


Figure 11-1: Regional geology

11.3 Land Types and Soils

11.3.1 Soils, Land Capability and Agricultural Potential

A Soils, Land Capability and Land Use Specialist Assessment (Eco-Assist, 2026) was undertaken for the proposed Nyakallo Solar Park. The assessment was undertaken by Eco-Assist Environmental Consultants and included both a desktop assessment and field-based soil survey. The purpose of the assessment was to characterise the soil resources, confirm land capability, determine agricultural potential, verify the agricultural sensitivity identified by the Screening Tool, and assess the suitability of the site for the proposed development.

The desktop assessment included a review of aerial imagery, land type data, topographical and contour data, climate capability information, terrain capability information, soil capability data, land capability data and grazing capacity information. The field assessment was undertaken by traversing the site by vehicle and on foot. Soil observations were made using a hand-held soil auger, and soil forms were classified to family level in accordance with the Soil Classification: A Natural and Anthropogenic System for South Africa. Soil survey positions were recorded using a Global Positioning System, and the soil findings were used to prepare soil distribution, land capability, land potential and current land use mapping.

11.3.2 Climate and Terrain Context

The Project area is located within a summer rainfall region, with dry winters and dry shoulder months during May and September. Mean annual precipitation in the broader area ranges from approximately 350 millimetres (mm) in the north-east to approximately 500 mm in the south-west. Frost is generally infrequent; however, the climate capability classification indicates that the Project area falls within climate capability class C6, which is associated with severe climatic limitations.

The C6 climate capability class indicates a moderately restricted growing season due to low temperatures, frost and/or moisture stress. As a result, crops suited to this climatic region may experience frequent yield losses, particularly under rainfed conditions. These climatic limitations are an important factor in determining the overall agricultural potential of the site.

The terrain of the Project area is generally suitable from an agricultural accessibility and land use perspective. The elevation ranges from approximately 830 mamsl to approximately 900 mamsl. Slopes are generally shallow, ranging between 0 % and 5%. The Project area is slightly east-facing and is situated predominantly on a crest landscape unit. These terrain conditions do not present significant topographical constraints to either grazing or solar PV development.

11.3.3 Soil Forms and Soil Characteristics

The field assessment confirmed that the Project area is dominated by deep, freely draining

soils, primarily associated with the Hutton and Ermelo soil forms. These soils occur mainly in midslope to upper slope landscape positions and are characterised by orthic topsoil over thick red or yellow-brown apedal subsoil horizons.

The Hutton soil form is generally associated with orthic topsoil over a thick red apedal horizon, while the Ermelo soil form is characterised by orthic topsoil over a thick yellow-brown apedal horizon. These soil forms are typically well drained and relatively deep, which provides moderate agricultural value, particularly for grazing and certain cultivation uses where climate and water availability allow.

Pinedene soils were also identified within the Project area. These soils occur mainly in midslope to footslope positions where water movement through the landscape has resulted in bleached soil conditions. The Pinedene soil form is characterised by orthic topsoil over a yellow-brown apedal horizon, underlain by a gleyic sub-horizon. These soils indicate a greater influence of subsurface wetness or periodic water movement when compared with the dominant freely draining Hutton and Ermelo soils.

A very small extent of wetland-associated soils was identified within the assessment area. Disturbed areas and existing infrastructure were also mapped, reflecting historical and current land use activities within the Project area.

The soil forms and mapped areas within the assessment area are summarised in the table below and illustrated in Figure 11-2.

Table 11-1: Soil Forms

Soil / Land Cover Category	Description	Approximate Area
Hutton / Ermelo	Deep, freely draining soils with orthic topsoil over red or yellow-brown apedal horizons	755.4 hectares (ha)
Pinedene	Orthic topsoil over yellow-brown apedal horizon and gleyic sub-horizon; associated with water movement through the landscape	6.1 ha
Wetland	Wetland-associated soils	0.7 ha
Disturbed Areas	Areas altered by previous or existing disturbance	49.3 ha
Infrastructure	Existing infrastructure areas	26.5 ha
Total Assessment Area		838.0 ha

The dominance of Hutton and Ermelo soils indicates that most of the Project area comprises deep, freely draining soils with moderate agricultural value. However, the agricultural potential of these soils is constrained by regional climate limitations, particularly moisture stress and the limited growing season under rainfed conditions.

11.3.4 Land Capability

Land capability refers to the most intensive long term sustainable use of land under rainfed conditions, taking into account soil, terrain and climate limitations. The land capability assessment classified the majority of the Project area as Class III land.

Class III land is generally considered suitable for cultivation, but with moderate limitations that restrict the choice of crops or require careful management. Within the Project area, the Class III classification is associated mainly with the Hutton, Ermelo and Pinedene soil forms. Although these soils have reasonable depth and drainage characteristics, their agricultural value is limited by climatic constraints and the broader semi-arid conditions of the region.

The wetter areas were classified as Class V land, which is generally more suitable for grazing than cultivation due to wetness or other limitations. Disturbed areas were classified as Class VIII land, which indicates very limited agricultural capability, while existing infrastructure areas are not available for agricultural production.

The land capability classification for the Project area is summarised in the table below and illustrated in Figure 11-3.

Table 11-2: Land capability classification

Land Capability Class	Associated Area / Soil Type	Approximate Area	General Interpretation
Class III	Hutton, Ermelo and Pinedene soils	761.5 ha	Moderate cultivation capability, subject to climate and management limitations
Class V	Wetland-associated areas	0.7 ha	Generally suitable for grazing / non-arable uses due to wetness limitations
Class VIII	Disturbed areas	49.3 ha	Very limited agricultural capability
Infrastructure	Existing infrastructure	26.5 ha	Not available for agricultural production
Total		838.0 ha	

Overall, approximately 91% of the assessed area is classified as Class III land. This indicates that the site has moderate land capability, but it does not represent highly productive or prime agricultural land. The site's agricultural use and potential must therefore be interpreted in the context of both the soil characteristics and the climatic limitations of the Lephalale area.

11.3.5 Agricultural Potential

Agricultural potential was determined by combining the land capability classification with the climate capability classification. Although the soils within much of the Project area have moderate capability, the climate capability is restrictive, resulting in an overall moderate agricultural potential classification.

The majority of the Project area was classified as L4 land potential, which represents moderate agricultural potential. L4 land is associated with moderately regular and/or moderate to severe limitations due to factors such as soil, slope, temperature or rainfall. In this case, the L4 classification is primarily influenced by the C6 climate capability and the moisture stress limitations of the region.

A small area of irrigated land was identified within the Project area and is used for animal feed supplementation. This area was classified as L4 irrigated potential. The specialist

assessment notes that this area is not used for crop production in the broader commercial sense and is not considered critical to the overall farming operation. The associated agricultural infrastructure can be relocated to other existing farming operations.

Disturbed areas were classified as L8, indicating very low agricultural potential, while wetland areas were classified separately as vleiland.

The land potential classification for the Project area is summarised in the table below in illustrated in Figure 11-4.

Table 11-3: Land potential classification

Land Potential Class	Description	Approximate Area	Interpretation
L4	Moderate agricultural potential	748.8 ha	Moderate potential, limited by climate and moisture stress
L4 Irrigated	Moderate irrigated potential	12.7 ha	Existing irrigated area used for cattle feed supplementation
Vleiland	Wetland / wetness-influenced area	0.7 ha	Not suitable for cultivation; sensitive to disturbance
L8	Very low agricultural potential	49.3 ha	Disturbed land with very limited agricultural value
Infrastructure	Existing infrastructure	26.5 ha	Not available for agricultural production
Total		838.0 ha	

The agricultural potential of the Project area is therefore considered to be moderate overall. While the soils are generally deep and freely draining, the climatic limitations, current land use and existing disturbed/infrastructure areas reduce the practical agricultural production potential of the site.

11.3.6 Current Land Use

The current land use within the Project area is predominantly associated with grazing, veld and animal husbandry. The site includes areas of natural or semi-natural veld, existing farming infrastructure, and limited irrigated land used for animal feed supplementation. The surrounding area is also influenced by existing energy-related and mining infrastructure, including proximity to major power generation and associated infrastructure.

The irrigated area identified on site represents a relatively small component of the overall assessment area. It is used for supplementary feed production rather than intensive commercial crop production. The specialist assessment indicates that the affected infrastructure can be relocated to the landowner's other existing farming operations, thereby reducing the significance of the loss of this specific agricultural use.

The site is therefore not characterised by high-value intensive agriculture across the broader Project area. Its primary agricultural value lies in grazing and moderate potential land capability rather than high-potential crop production.

11.3.7 Agricultural Sensitivity

The Screening Tool identified the Project area as being dominated by medium agricultural sensitivity, with a portion in the western part of the Project area rated as high agricultural sensitivity. The specialist assessment verified the site conditions through field investigation and confirmed that the presence of irrigated areas requires consideration in the agricultural assessment.

The verified agricultural sensitivity is therefore linked to the presence of moderate potential soils, areas of existing agricultural use, and the small irrigated component. However, the site is not considered to comprise extensive high-value agricultural land or prime agricultural land. The specialist findings indicate that, with appropriate mitigation and management, the proposed development can be accommodated without unacceptable loss of agricultural resources.

11.3.8 Baseline Conclusion

The baseline assessment indicates that the Nyakallo Solar Park Project area is dominated by deep, freely draining Hutton and Ermelo soils, with limited areas of Pinedene soils, wetland soils, disturbed land and existing infrastructure. The majority of the site is classified as Class III land capability and L4 land potential, indicating moderate agricultural capability and moderate agricultural potential.

The agricultural potential of the site is limited mainly by climatic constraints, including moisture stress and a moderately restricted growing season. Existing land use is predominantly grazing and animal husbandry, with a small irrigated area used for cattle feed supplementation. The site is not considered to represent prime agricultural land or extensive high-value crop production land.

Potential impacts on soils and agricultural resources during construction and operation may include loss of topsoil, soil compaction, erosion, disturbance of soil profiles, and temporary exclusion of land from agricultural use. These impacts can be mitigated through appropriate soil management, controlled construction footprints, topsoil stripping and stockpiling, erosion control, maintenance of ground cover between panel rows, and rehabilitation during decommissioning. Subject to the implementation of these measures, the residual impact on soils, land capability and agricultural potential is expected to be manageable.

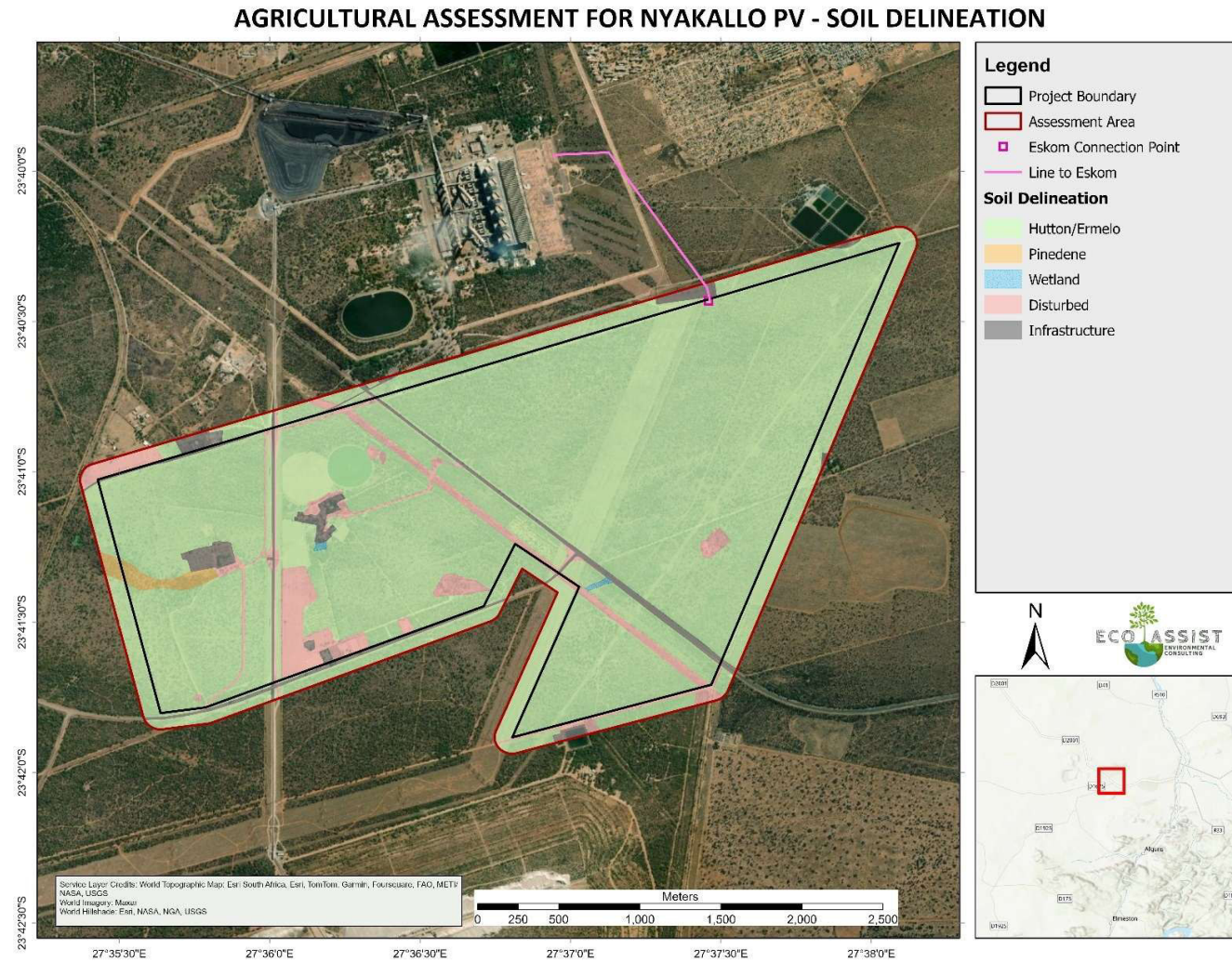


Figure 11-2: Soil Delineation Map

AGRICULTURAL ASSESSMENT FOR NYAKALLO PV - LAND CAPABILITY

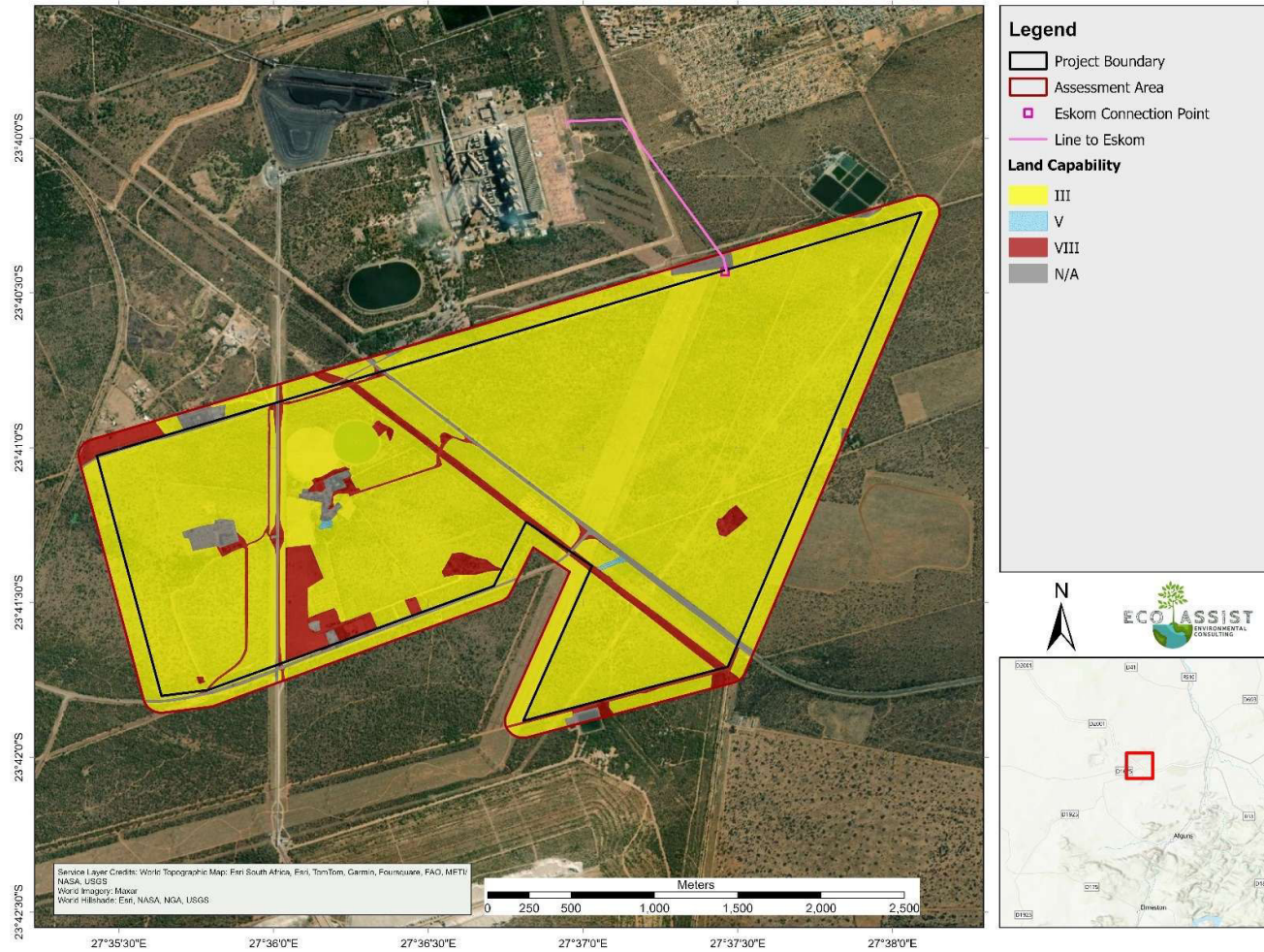
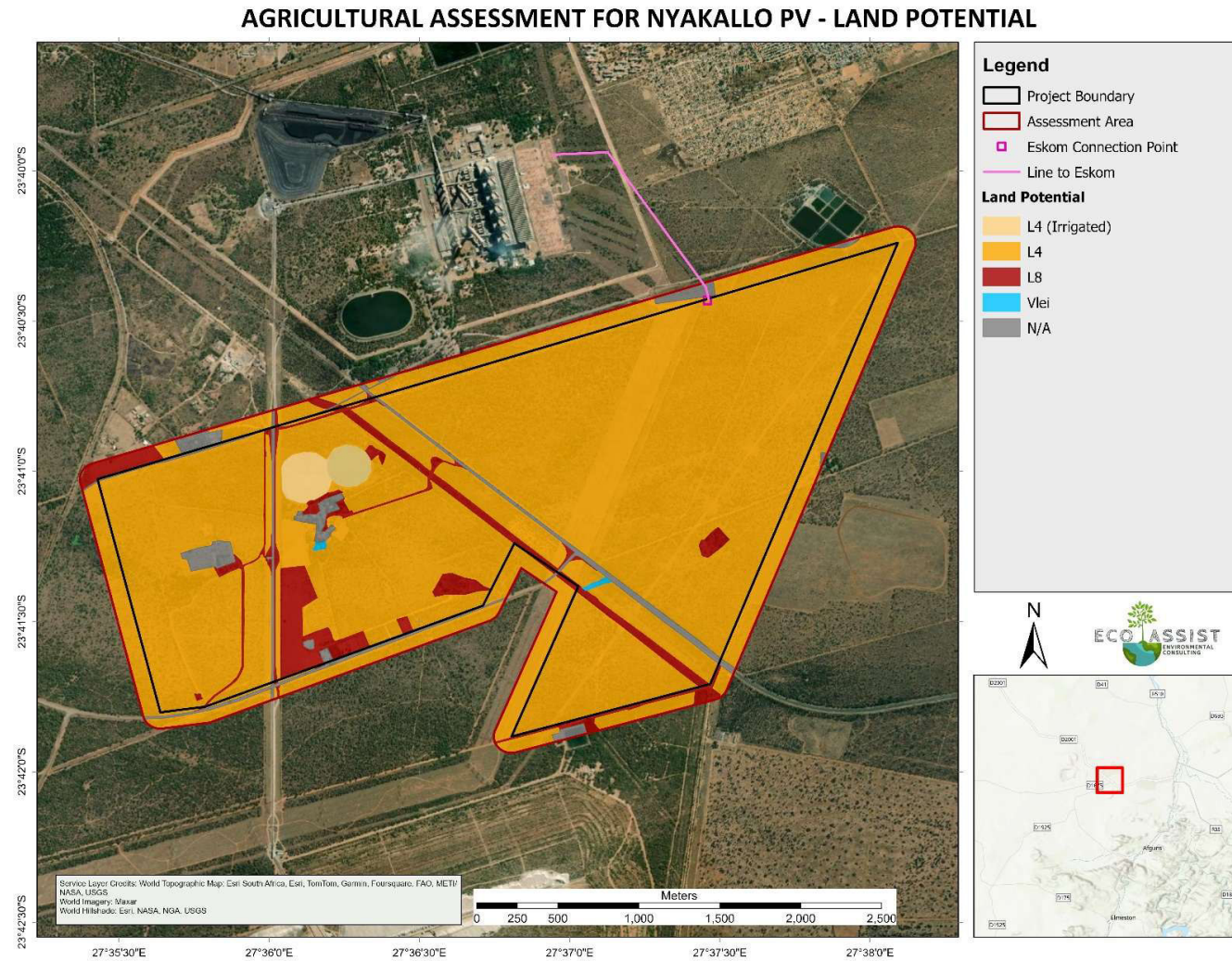


Figure 11-3: Land Capability Map



11.4 General Land Use and Cover

The Project area comprises a mixture of natural vegetation, livestock farming areas, previously cultivated agricultural fields, and existing infrastructure servitudes (Figure 11-5). The property is bisected by road, conveyor and powerline servitudes, which have contributed to habitat disturbance and fragmentation (Figure 11-6).

Historically (Figure 11-6), the site and surrounding area were largely natural, with some areas used for crop-based agriculture. Industrial and energy-related land use in the broader area increased from the 1980s, with the construction of Matimba Power Station, the associated railway line, ash disposal infrastructure, ash conveyor and powerline servitudes. Further land use change occurred from approximately 2008 onwards with the construction of Medupi Power Station to the south-west of the Project area.

By 2011, the Marapong settlement had expanded southwards towards the Project area. In 2012, portions of the Project area were transformed through temporary infrastructure associated with Medupi Power Station, including construction camps and laydown areas. During this period, agricultural fields to the west were no longer actively cultivated and began to regenerate towards a more natural habitat state. Pivot-based agricultural activities were also noted north of the Project area from around 2015.

Overall, the current land use reflects a combination of natural bushveld, agricultural use, regenerating former agricultural land, and substantial energy-related infrastructure associated with the broader Lephalale energy hub (Figure 11-6 and Figure 11-7).



Figure 11-5: Land uses associated with the Project area (A: Livestock; B: Crop farming; C: Servitudes- Ash belt; D: Past construction camp areas) (NSS, 2025d)



Figure 11-6: Aerial view of the servitudes present within the western portion of the Project site



Figure 11-7: Aerial view of the western portion of the Project site

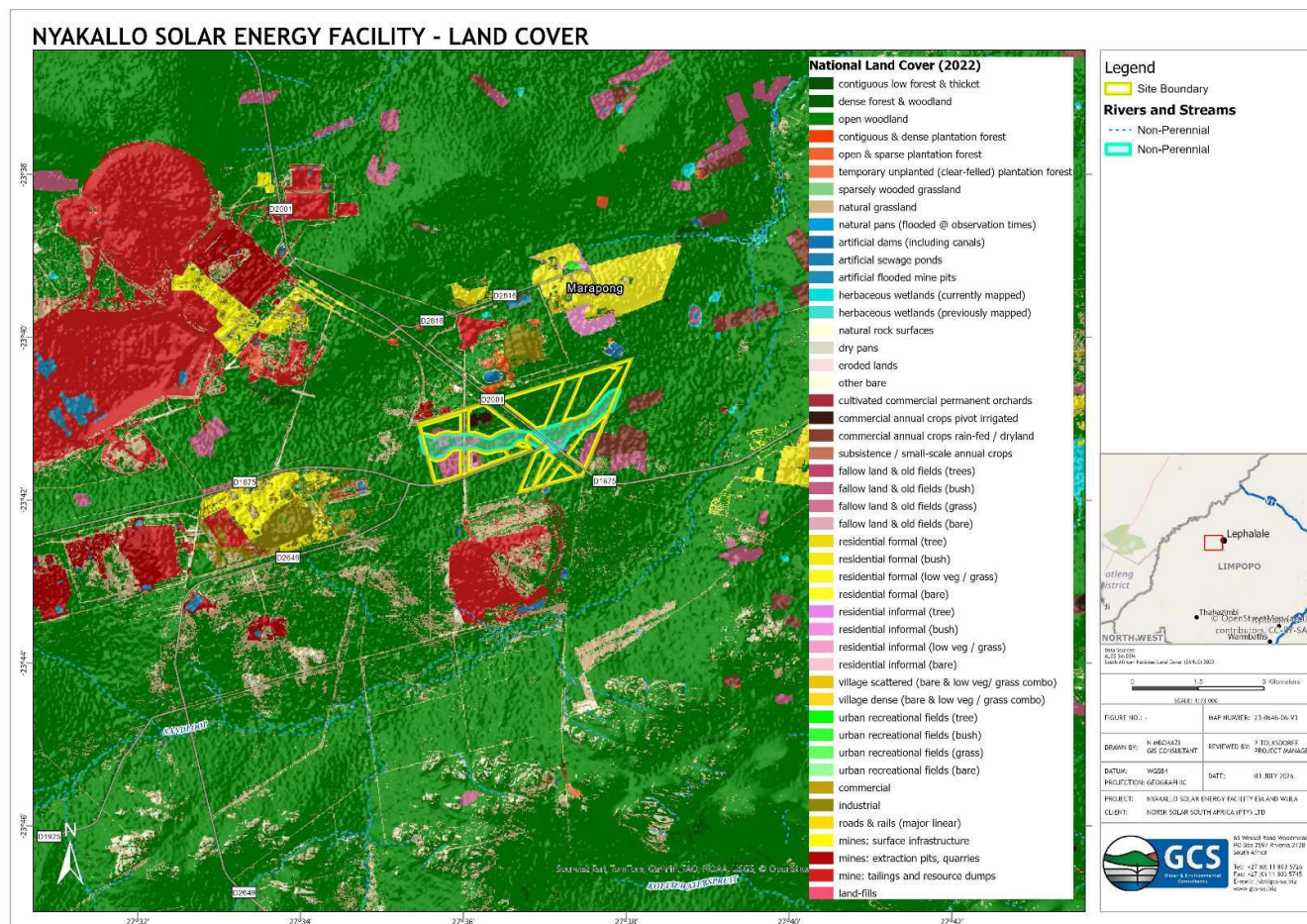


Figure 11-8: Land cover

11.5 Regional Habitats and Vegetation

This section has been informed by the Terrestrial and Wetland Assessment for the Proposed Nyakallo Solar Park, Lephalale, Limpopo, prepared by Natural Scientific Services (NSS) (NSS, 2025d).

The Project area is located within the Savanna biome and falls within the Limpopo Sweet Bushveld vegetation type. Limpopo Sweet Bushveld occurs only within Limpopo Province and is typically associated with plains and gently undulating or irregular terrain traversed by tributaries of the Limpopo River system. The vegetation type is generally characterised by short, Open Woodland, with a woody layer dominated by species such as *Terminalia sericea* (Silver Cluster-leaf), *Combretum apiculatum* (Red Bushwillow), *Dichrostachys cinerea* (Sickle Bush), *Sclerocarya birrea* subsp. *afra* (Marula), *Senegalia nigrescens* (Knob-thorn), *Vachellia erioloba* (Camel Thorn), *Senegalia burkei* (Black Monkey Thorn), *Senegalia mellifera* (Black-thorn Acacia) and *Combretum imberbe* (Leadwood).

The Project area is situated within a broader landscape that has been influenced by agricultural activities, livestock grazing, existing servitudes, energy-related infrastructure, mining-related activities and historical disturbance associated with surrounding developments. Despite this, the site still supports a mosaic of natural and semi-natural woodland habitats, hydromorphic systems and transformed areas. These habitats provide ecological functions at a local scale, including faunal refuge, foraging habitat, nesting opportunities, plant species diversity, movement corridors and linkages to surrounding natural areas.

The regional vegetation context of the Project area is shown in Figure 11-10.

The vegetation and habitat units mapped within the Project area include Open Thornveld, Mixed Woodland, Broadleaf Woodland, terminalia woodland, recovery woodland, ephemeral wash systems and transformed areas. The mapped vegetation communities are shown in Figure 11-11.

The dominant habitat unit within the Project area is *Senegalia nigrescens* - *Vachellia erioloba* Open Thornveld. This vegetation unit accounts for approximately 236 ha, or 33.86 % of the mapped vegetation coverage. This unit is generally represented by Open Thornveld woodland with a well-developed woody component and a herbaceous layer that varies depending on disturbance, grazing pressure and micro-topographical position.

Sclerocarya Broadleaf Woodland is also well represented, accounting for approximately 139 ha, or 19.94 % of the mapped coverage. This unit is ecologically important due to the presence of *Sclerocarya birrea* subsp. *afra* (Marula), including mature individuals which provide structural habitat, food resources and ecological niches for birds, mammals and invertebrates. Mature trees within this unit may also provide nesting opportunities for larger

birds and refuge for arboreal or semi-arboreal species.

The *Combretum apiculatum* - *Vachellia erioloba* - *Combretum imberbe* Mixed Woodland occurs across approximately 82 ha, or 12.34 % of the mapped area. This woodland type includes several important woody species, including protected tree species such as *Vachellia erioloba* (Camel Thorn) and *Combretum imberbe* (Leadwood). These species contribute to habitat complexity and provide ecological value due to their size, longevity and role in supporting faunal activity.

Terminalia Woodland is more limited in extent, occurring across approximately 18 ha, or 2.58% of the mapped area. This vegetation unit is associated with *Terminalia sericea* (Silver Cluster-leaf) and other woodland species and contributes to the overall habitat heterogeneity of the site.

Recovery Open Woodland accounts for approximately 70 ha, or 10.04 % of the mapped coverage. This unit represents areas where vegetation structure and composition indicate recovery from previous disturbance. Although these areas may have lower ecological integrity than mature woodland units, they remain important as transitional habitat and can contribute to landscape connectivity.

The ephemeral wash system accounts for approximately 113.6 ha, or 16.29 % of the mapped habitat coverage. This system is associated with hydromorphic and seasonally wet conditions and overlaps with portions of the broader woodland mosaic. It provides important ecological function in an otherwise semi-arid landscape, particularly through the provision of seasonal water, moist microhabitats, amphibian breeding habitat, and foraging areas for wetland-associated birds and other fauna.

Transformed and disturbed areas include cleared areas and excavations, *Dichrostachys* bush clumps, crop farming areas, built-up areas and servitudes. These areas reflect historical and current anthropogenic disturbance within the Project area. Although transformed areas generally have reduced ecological integrity, some may still serve as movement areas for disturbance-tolerant fauna or provide limited foraging resources.

The vegetation units identified within the Project area are summarised in Table 11-4.

Table 11-4: Vegetation Units and Habitat Types within the Project area (NSS, 2025d)

Broad Habitat Group	Vegetation / Habitat Unit	Approximate Extent (ha)	Approximate Coverage (%)	Baseline Ecological Comment
Thornveld / Woodland	<i>Senegalia nigrescens</i> - <i>Vachellia erioloba</i> Open Thornveld	236	33.86	Dominant vegetation unit; supports woody and herbaceous diversity and provides habitat for birds, mammals and reptiles
Thornveld / Woodland	<i>Combretum apiculatum</i> - <i>Vachellia</i>	82	12.34	Mixed woodland with protected tree species potential; provides structural habitat and faunal refuge

Broad Habitat Group	Vegetation / Habitat Unit	Approximate Extent (ha)	Approximate Coverage (%)	Baseline Ecological Comment
	<i>erioloba</i> - <i>Combretum imberbe</i> Mixed Woodland			
Thornveld / Woodland	Terminalia Woodland	18	2.58	Localised woodland unit contributing to habitat heterogeneity
Thornveld / Woodland	Sclerocarya Broadleaf Woodland	139	19.94	Ecologically important woodland with mature Marula trees and structural habitat value
Thornveld / Woodland	Recovery Open Woodland	70	10.04	Recovering woodland habitat, likely influenced by historical disturbance
Hydromorphic / Seasonal System	Ephemeral Wash	113.6	16.29	Seasonal drainage and hydromorphic habitat; important for amphibians, wetland-associated flora and avifauna
Transformed / Modified	Cleared Areas and Excavations	16	2.29	Disturbed areas with reduced ecological integrity
Transformed / Modified	<i>Dichrostachys</i> Bush Clumps	13	1.86	Dense bush clumps, potentially linked to disturbance and bush encroachment
Transformed / Modified	Crop Farming Areas	28	4.02	Cultivated or historically cultivated areas with reduced natural habitat value
Transformed / Modified	Built-up Areas / Dwellings	5	0.72	Existing infrastructure and disturbed land
Transformed / Modified	Servitudes	90	12.91	Linear disturbance areas contributing to habitat fragmentation

The natural and semi-natural woodland habitats within the Project area are considered important from a local ecological perspective because they provide habitat for a range of faunal groups, including birds, mammals, reptiles, amphibians and invertebrates. Closed and Open Woodland areas provide cover, foraging resources and nesting opportunities, while Open Thornveld areas provide habitat for larger birds, grazers and browsers.

The Project area also supports protected tree species and other plant species of ecological importance. Protected species recorded in the broader Area of Influence include *Sclerocarya birrea* subsp. *afra* (Marula), *Vachellia erioloba* (Camel Thorn), *Combretum imberbe* (Leadwood), *Boscia albitrunca* (Shepherd's Tree) and *Spirostachys africana* (Tamboti). These species contribute to local ecological functioning and should be considered during layout refinement, pre-clearance surveys and vegetation management. The distribution of protected tree and protected plant species is shown in Figure 11-12 and Figure 11-13.

Alien and invasive plant species were also recorded within the Project area and Area of Influence. These include species such as *Cereus jamacaru* (Queen of the Night), *Agave sisalana* (Sisal) and *Opuntia* species (Prickly Pear species). Alien invasive plant species can reduce habitat quality, alter vegetation structure, affect faunal movement, increase

competition with indigenous species and reduce ecological resilience. The presence of alien invasive species will require management during construction and operation through an Alien and Invasive Species Management Programme. Alien and invasive species recorded within the Project area are shown in Figure 11-9.



Figure 11-9: Alien Invasive Species found in the Area of Influence: A) *Cereus jamacaru* (Queen of the Night); B) *Agave sisalana* (Sisal); C) *Opuntia spp* (Prickly Pear) (NSS, 2025d)

The baseline assessment indicates that the Project area retains ecologically functional woodland and hydromorphic habitat units, although these occur within a landscape that has been modified by existing land uses and infrastructure. The key vegetation-related sensitivities are associated with the *Sclerocarya* Broadleaf Woodland, Mixed Woodland containing protected trees, the ephemeral wash system, and areas supporting protected plant species. These areas should inform layout refinement, vegetation clearance planning, pre-construction walkdowns and mitigation measures.

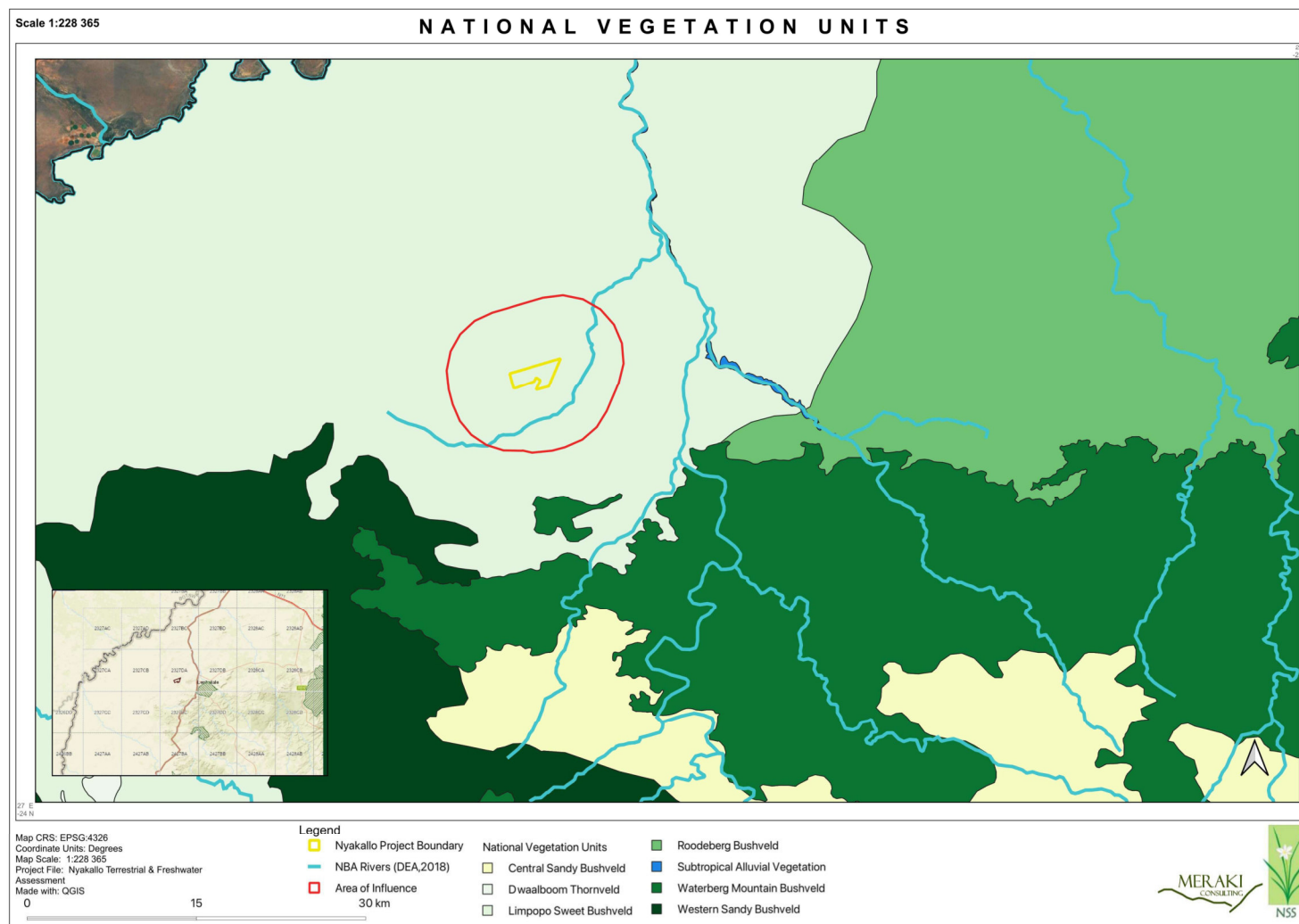


Figure 11-10: Regional Vegetation Type in relation to the Project Area (NSS, 2025d)

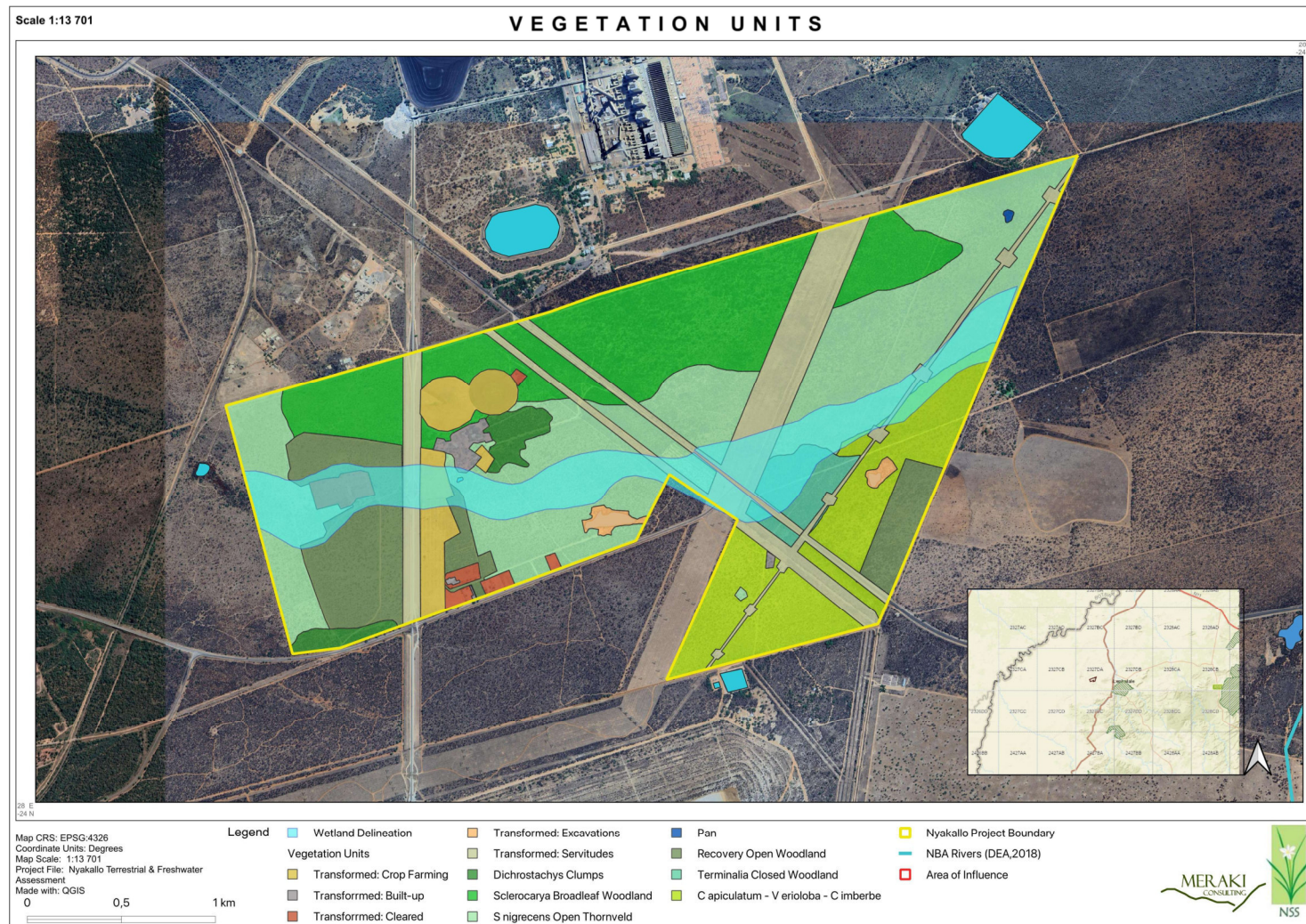


Figure 11-11: Vegetation Communities and Habitat Units within the Project area (NSS, 2025d)

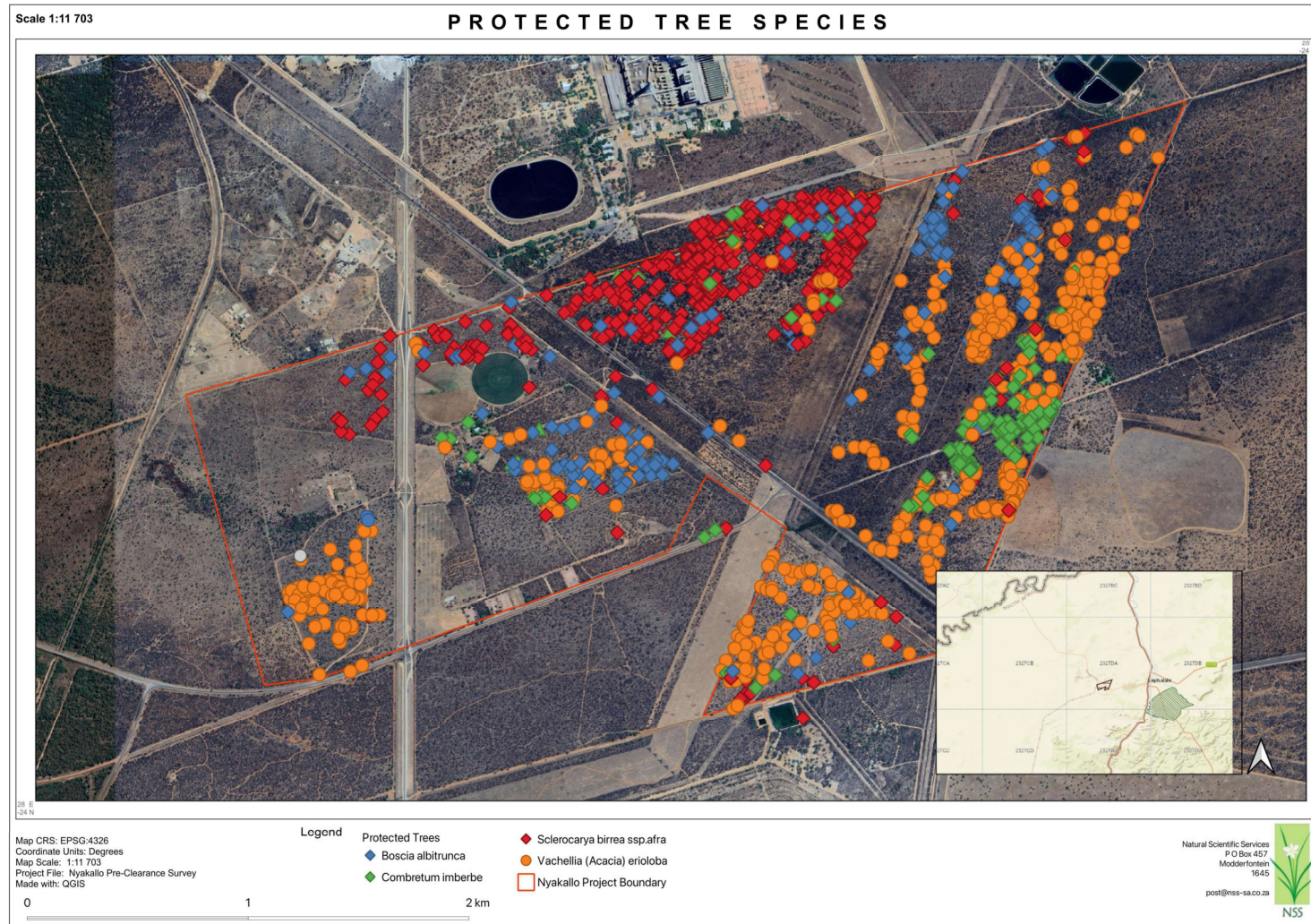


Figure 11-12: Nationally Recognised Protected Species distribution within the Project area (NSS, 2025d)

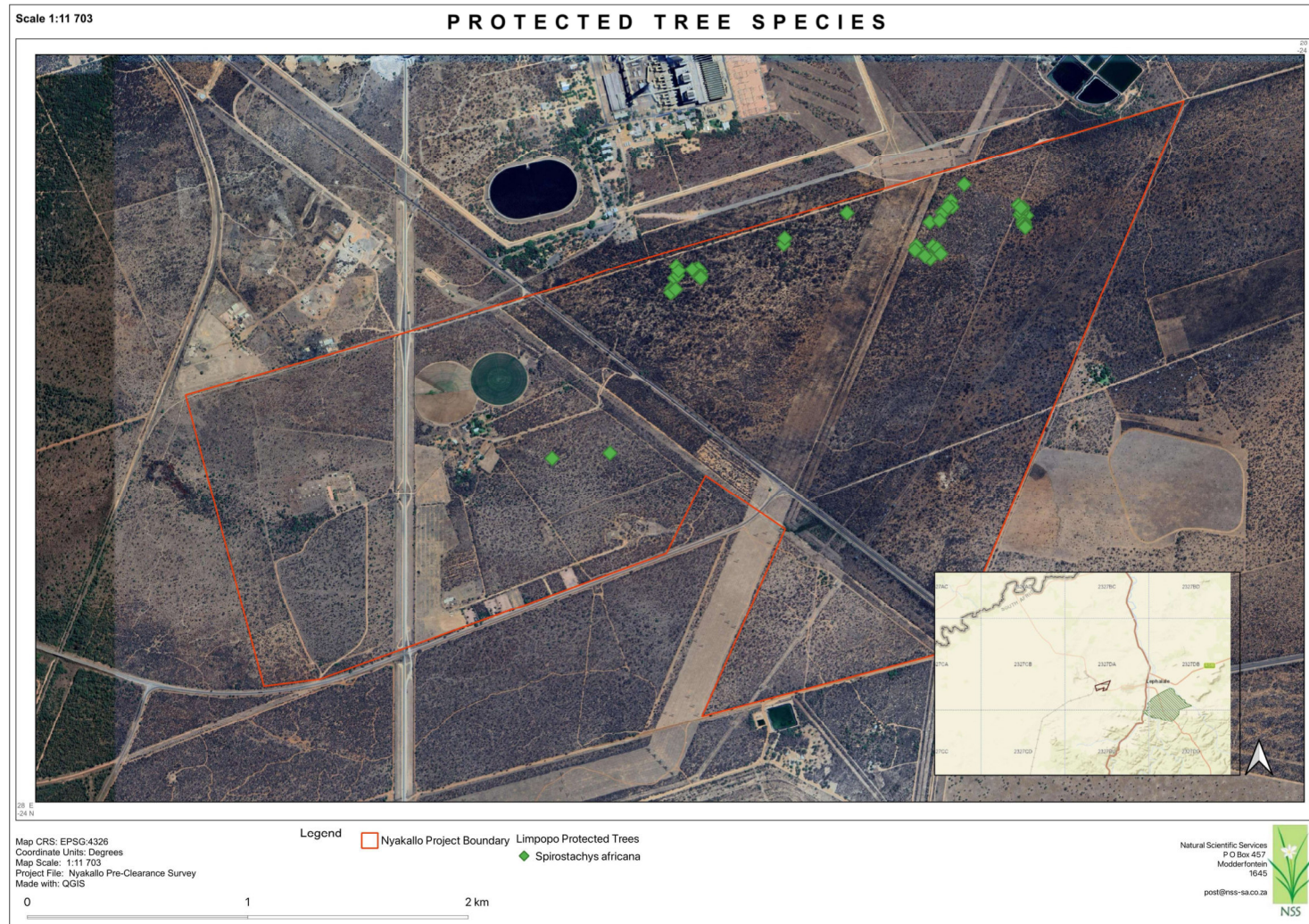


Figure 11-13: Limpopo Environmental Management Act Protected Species distribution within the Project area (NSS, 2025d)

11.6 Freshwater Resources

The Project area is located within the Limpopo Water Management Area and falls within the broader Mokolo River Catchment. The Mokolo River, also referred to as the Mogol or Mogolo River, rises in the western Waterberg and flows northwards through the Lephalale region before joining the Limpopo River. The broader catchment is located within a semi-arid landscape where surface water systems are often seasonal or episodic and where freshwater features provide important ecological functions during and after rainfall events.

Freshwater resources associated with the Project area are primarily represented by ephemeral drainage and wetland systems. These systems do not flow permanently and may remain dry for extended periods. However, following heavy rainfall or localised upstream inputs, they can convey surface flow, support temporary inundation, maintain wetland-associated vegetation and provide breeding and foraging habitat for amphibians and wetland-associated birds. In semi-arid landscapes, ephemeral systems are ecologically important because they provide periodic aquatic habitat and contribute to landscape connectivity.

The key freshwater feature associated with the Project area is an ephemeral wash / wetland system. Field investigations confirmed the presence of an ephemeral system within the Project area and Area of Influence. The system has been classified as a Level 3 Plain system in terms of the Ollis et al. (2013) hydrogeomorphic (HGM) classification approach. Although the system is generally dry for much of the year, it becomes hydrologically active following heavy rainfall events and supports wetland indicators, including hydric soils and hydrophytic vegetation.

The location and extent of the ephemeral wetland system are shown in Figure 11-14.

The freshwater assessment identified a combination of hydrological, soil and vegetation indicators supporting the delineation of the ephemeral system. Wetland-associated soils include hydric characteristics and wetness indicators associated with seasonal saturation or periodic water movement through the landscape. Vegetation indicators include wetland-associated plants such as *Typha species* (Bulrush), *Schoenoplectus species* (Club-rush), *Cyperus species* (Sedges) and *Eleocharis species* (Spike-rushes). These indicators confirm that, although the system is ephemeral, it retains wetland-related ecological function.

Flow within the system is influenced by local topography, surface water pathways, rainfall events and existing infrastructure. LIDAR and digital elevation model information indicate the direction of surface water movement and the relationship between the ephemeral system, local drainage features and surrounding infrastructure. The surface flow direction and wetland system are shown in Figure 11-15 and Figure 11-16.

During periods of high rainfall, the system can convey flows and result in localised flooding or semi-standing water. Photographic evidence from rainfall events and site visits indicates

that the system can become active during wet periods, including flow through and around existing infrastructure such as conveyor and culvert systems. The system therefore plays an important role in conveying runoff and maintaining seasonal hydrological connectivity.

The Present Ecological State of the ephemeral wetland system is considered moderately modified. This condition reflects historical and ongoing changes to hydrology, sediment movement, vegetation structure and surrounding land use. Existing impacts include upstream water discharges, changes in sediment movement, servitudes, nearby infrastructure, altered flow paths, invasive species encroachment and broader land use changes. Despite these modifications, the system remains ecologically functional and continues to provide wetland-related ecological services.

The freshwater system provides a range of ecosystem services, including seasonal habitat provision, flood attenuation, sediment trapping, nutrient cycling, biodiversity support, faunal refuge and ecological connectivity. The system is particularly important for amphibians, which rely on seasonal and temporary wet habitats for breeding. The system may also support wetland-associated birds and other fauna during periods of inundation or increased moisture availability.

The freshwater baseline characteristics of the identified system are summarised in Table 11-5.

Table 11-5: Freshwater Resources within the Project Area

Freshwater Feature	Classification	Hydrological Regime	Baseline Condition	Key Ecological Functions	Baseline Sensitivity
Ephemeral wash / wetland system	Level 3 Plain system / ephemeral wetland system	Seasonal / episodic; rainfall-driven flow	Moderately Modified	Seasonal habitat, amphibian breeding habitat, sediment movement, wetland vegetation support, ecological connectivity	High
Associated floodplain / flow path areas	Surface flow and temporary inundation areas	Active during heavy rainfall events	Modified by infrastructure and land use	Runoff conveyance, temporary inundation, localised sediment transport	Moderate to High
Sandloop system, broader context	Ephemeral drainage / river system	Seasonal / episodic	Moderately Modified / Endangered ecosystem context	Regional freshwater connectivity and riparian habitat	High

The Sandloop ephemeral system is located to the east of the Project area and forms part of the broader freshwater context. The Sandloop system is considered important due to its ecological function, seasonal flow characteristics, riparian vegetation and role in regional

freshwater connectivity. It is also recognised in freshwater conservation planning as an ecologically important system. The Project area's relationship to the Sandloop system and broader freshwater context is shown in Figure 11-14.

The wetland system has a high ecological sensitivity due to its function within a semi-arid landscape, its seasonal habitat value, its role in supporting amphibians and wetland-associated fauna, and its connection to broader freshwater conservation priorities. The wetland system is also situated within a FEPA sub-catchment, which increases its conservation relevance.

A 40 m buffer has been recommended around the delineated ephemeral wetland system. The purpose of the buffer is to reduce edge effects, protect wetland vegetation and soils, maintain hydrological connectivity, minimise sedimentation, prevent contamination, allow faunal movement and provide space for natural ecological processes. Development should avoid the delineated wetland system and associated buffer.

The freshwater sensitivity, buffer requirements and regulatory relevance are summarised in Table 11-6.

Table 11-6: Freshwater Sensitivity, Buffer and Regulatory Requirements

Feature	Sensitivity / Importance	Recommended Buffer	Regulatory Relevance	Key Controls
Ephemeral wetland system	High ecological sensitivity due to seasonal hydrological function, wetland indicators and habitat value	40 m	National Water Act Section 21(c) and Section 21(i), where applicable	Avoidance, demarcation, stormwater management, erosion control and pollution prevention
Wetland buffer	Supports wetland ecological functioning and reduces indirect impacts	40 m from delineated system	To be treated as a sensitive area during construction and operation	No-go demarcation, restricted vehicle access, vegetation retention and monitoring
Sandloop system	Regional freshwater conservation importance and ecological connectivity	Avoid indirect impacts	Relevant to freshwater planning and cumulative impact consideration	Maintain water quality, flow paths and riparian connectivity

The key potential pressures on freshwater resources include direct disturbance of wetland soils and vegetation, alteration of surface water flow paths, erosion and sedimentation, contamination from construction activities, increased stormwater runoff, alien invasive plant encroachment and cumulative impacts associated with nearby infrastructure and land use change. These risks can be managed through the application of the mitigation hierarchy, with avoidance of the delineated wetland system and buffer as the primary management measure.

Provided that the delineated wetland system and recommended 40 m buffer are avoided, and that appropriate erosion, stormwater and pollution prevention measures are implemented, the residual risks to freshwater resources are expected to be manageable.

Construction activities should not encroach into the wetland or buffer, and the area should be clearly demarcated as a no-go area prior to site establishment. Stormwater management infrastructure should be designed to maintain pre-development flow regimes as far as practicable and prevent concentrated flows, erosion or sedimentation within the wetland system.

The baseline assessment therefore indicates that freshwater sensitivity within the Project area is concentrated around the ephemeral wash / wetland system and its associated buffer. These areas should guide layout refinement, construction planning, stormwater design, water use authorisation requirements and monitoring during the construction and operational phases.

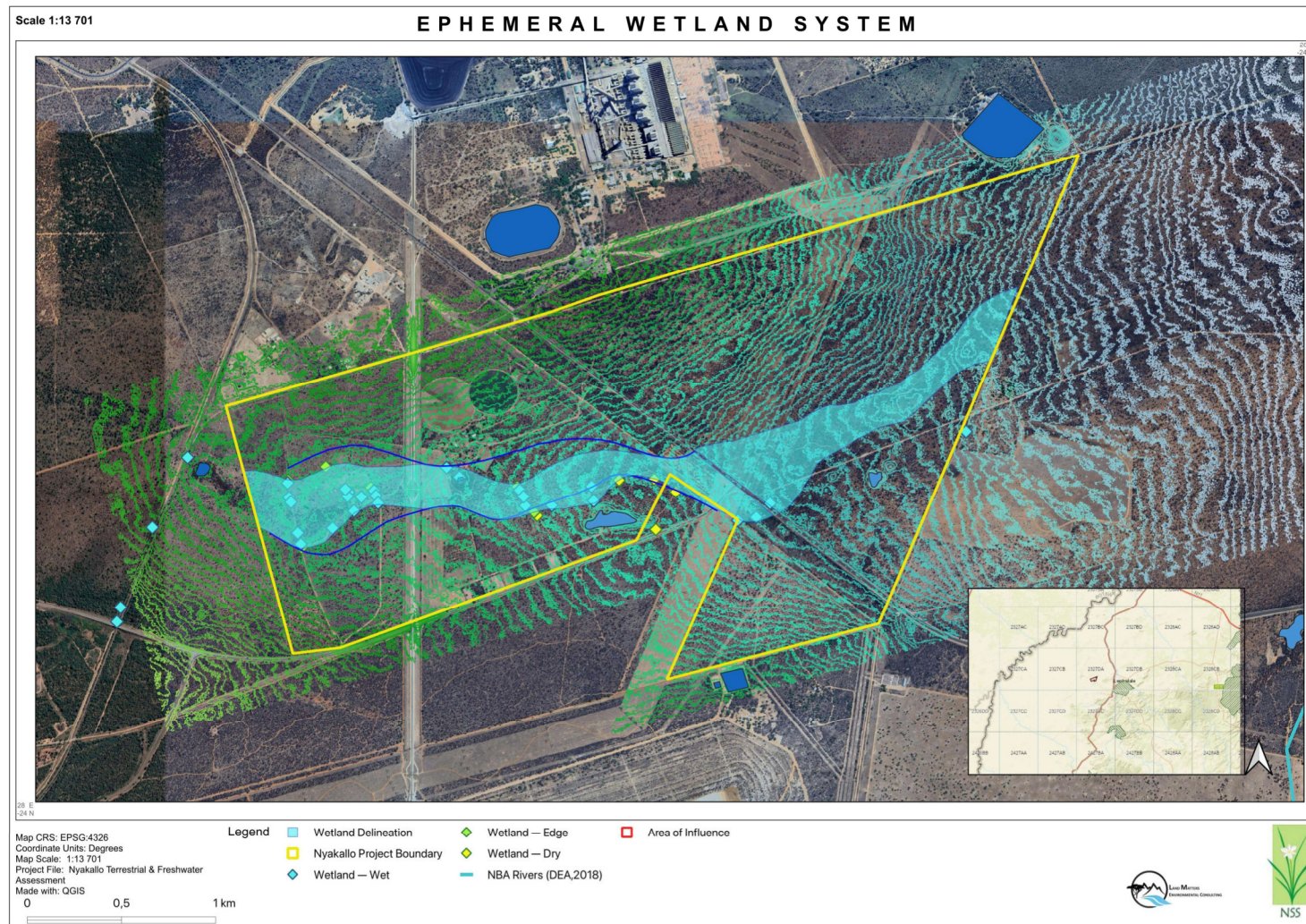


Figure 11-14: Ephemeral Wetland System within the Project area

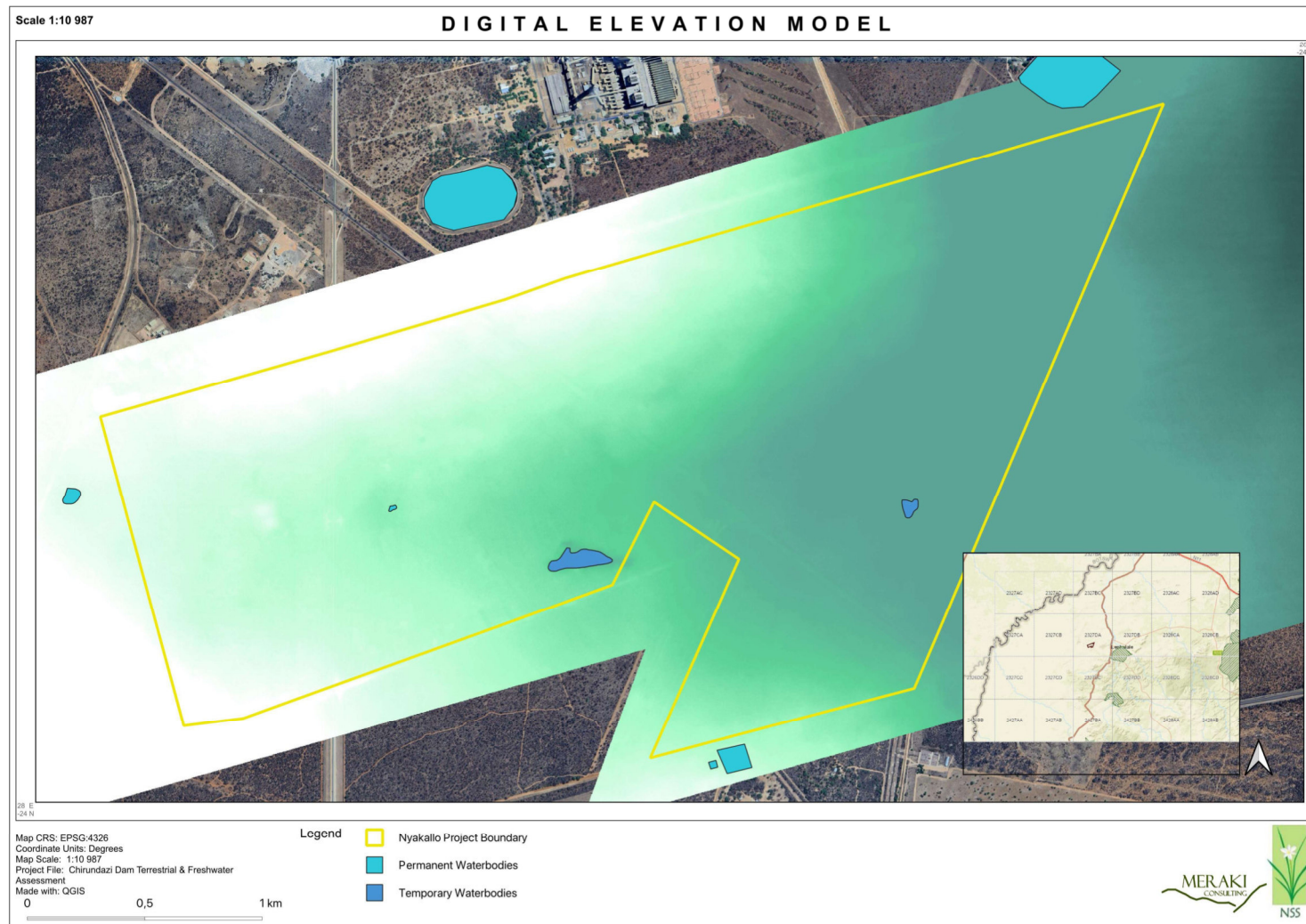


Figure 11-15: Digital Elevation Model and Direction of Surface Water Flow

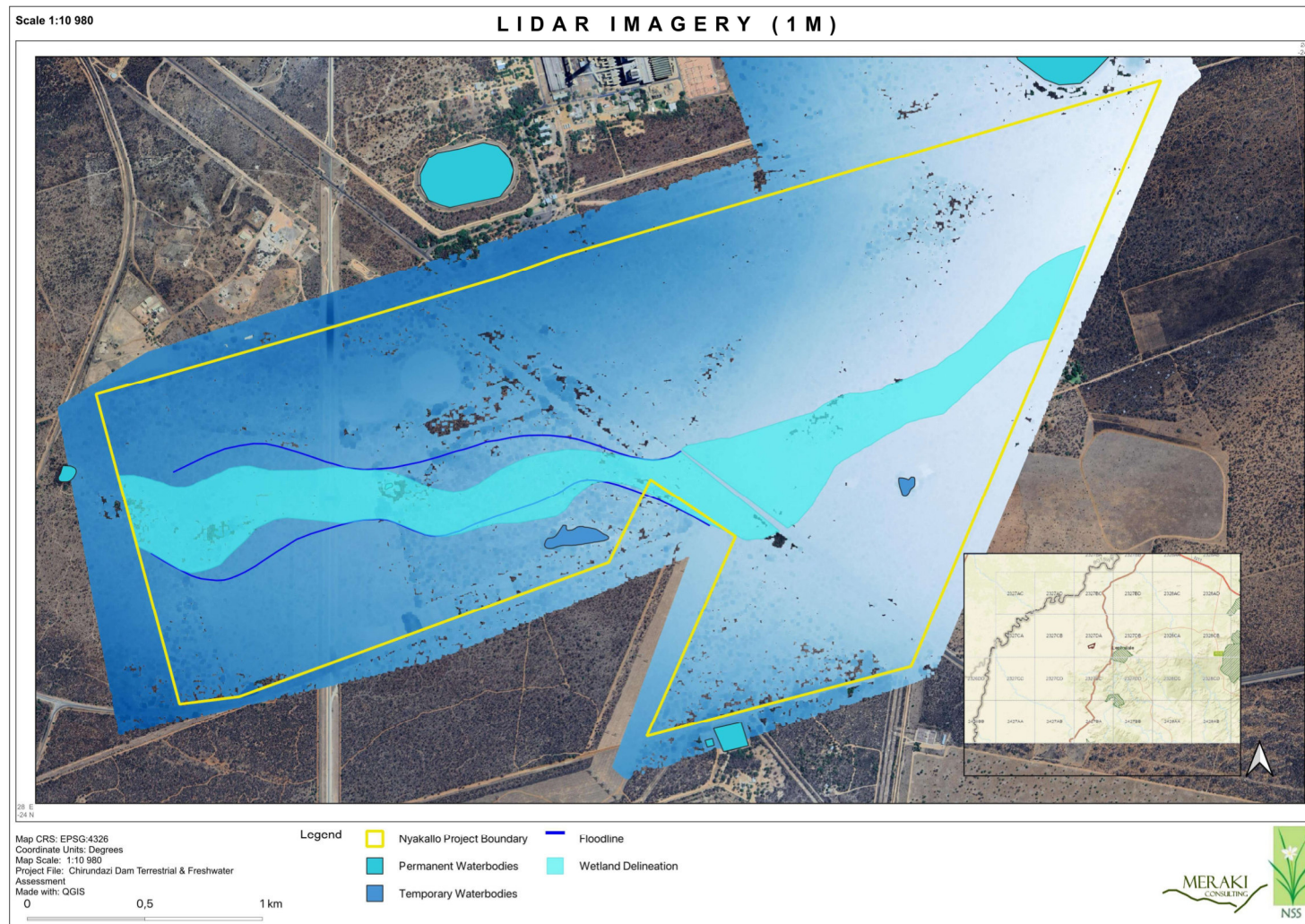


Figure 11-16: LIDAR-derived Surface Flow Paths and Wetland System

11.7 Conservation Priorities

11.7.1 Protected Areas

A total of 53 Protected Areas (PAs) are within the boundaries of Lephalale Local Municipality and of these 35 are found within a 50 km radius of the Project area (Figure 11-17). Those closest to the Project are highlighted in Table 11-7 below. Of main importance is the location of the Waterberg Biosphere (United Nations Educational, Scientific and Cultural Organisation (UNESCO) Reserve) in the south eastern region of the municipality and approximately 47 km from the Project area. This UNESCO reserve also forms part of a Key Biodiversity Area (KBA).

Table 11-7: Protected Areas within 50km of the Project area

Protected area	Description	Distance from site (km)	Extent (ha)	Designation
D'nyala Nature Reserve	The name originates after the Nyala tree (<i>Xanthocercis zambesiaca</i>) that grows in the area up to 30 m high. It lies between the Mogol River in the west and the Tamboti River in the east.	13 km southeast	8000	Provincial reserve
Manketti Game Reserve (not on map)	Located around the Exxaro Grootegeeluk Mining Operations. It is managed by Ferroland Grondtrust, a wholly owned subsidiary of Exxaro. It generates income from commercial hunting, game trading and tourism.	northwest	22 000	Private Game Reserve
Tierkop Nature Reserve (within the Area of Influence (Aoi))	Located to the west of the Project with coordinates 23° 45'S, 27° 33'E, and an elevation of 889 m.a.s.l. The reserve is recognised as a Protected Area and is approximately 1890 ha.	4.8 km west	1890	Private Nature Reserve
Olifantspad Private Nature Reserve	Limited information available.	17 km northwest	1122	Private Nature Reserve
Waterberg Biosphere Reserve	A United Nations Educational, Scientific and Cultural Organisation Reserve -designated area established in 2001. It encompasses the Waterberg Mountain Range, with a diverse array of habitats, including dry deciduous forests, sour and mixed bushveld, and wetland systems. It contains a high level of biological diversity including many Species of Conservation Concern, as well as many endemic species. The area has significant archaeological importance, with San rock art and Stone Age artefacts, and has been inhabited for thousands of years.	47 km north	654033	Biosphere Reserve (International)
Alexander Estate Private Nature Reserve	Limited information available.	19 km east	2981	Private Nature Reserve

11.7.2 Key Biodiversity Areas

KBAs are sites identified as globally significant for the conservation of biodiversity, based on their importance for threatened species, restricted range species, and other ecological criteria. Established through a standardised framework by organisations such as the International Union for Conservation of Nature (IUCN), KBAs prioritise areas critical for maintaining species populations and ecosystems, using measurable thresholds for vulnerability and irreplaceability. In addition to this, Important Bird Areas (IBAs), previously identified by BirdLife International, have been incorporated into the KBA framework incorporated IBAs as a foundational component, recognising their rigorous methodology. Many IBAs automatically qualify as KBAs if they meet global criteria, ensuring bird conservation priorities are integrated into broader biodiversity goals while expanding the scope to include other taxa like mammals, plants, and invertebrates. This integration enhances holistic conservation planning and resource allocation.

A KBA is recognised to the south east, approximately 47 km from the Project area. This KBA is known as the Waterberg KBA and covers over 10000 km², with 23.85% covered by PAs. The KBA meets the thresholds for 4 criteria described in the Global Standard for the Identification of KBAs (A1a, A1b, A1c, A1d, B1, B2, B3a, B4, E). Based on current available information, 19 species meet one or more KBA criteria and include avifauna, butterflies, ichthyofauna, mammals, plants, and herpetofauna as per Table 11-8.

Table 11-8: Biodiversity elements triggering KBA criteria (KBA Partnership, 2025)

Taxon	Scientific Name	Common Name	IUCN Status	KBA Criteria
Actinopterygii	<i>Enteromius sp. nov. 'waterberg'</i>		NT	B1
Actinopterygii	<i>Marcusenius krameri</i>		LC	B1
Actinopterygii	<i>Oreochromis mossambicus</i>	Mozambique Tilapia	VU	A1b, A1d
Aves	<i>Gyps coprotheres</i>	Cape Vulture	VU	A1b
Lamiales	<i>Jamesbrittenia bergae</i>		VU	A1b B1 B3a
Mammalia	<i>Redunca fulvorufula</i>	Mountain Reedbuck	EN	A1a A1c
Mammalia	<i>Giraffa camelopardalis</i>	Giraffe	VU	A1d
Papilionoidea	<i>Dingana jerinae</i>	Jerine's Widow	VU	A1b B1
Papilionoidea	<i>Acraea barberi</i>	Barber's Acraea	LC	B1
Papilionoidea	<i>Coenyra rufiplaga</i>	Secucuni Shadefly	LC	B1
Reptilia	<i>Afroedura waterbergensis</i>	Waterberg Flat Gecko	LC	B1 B2 B3a
Reptilia	<i>Lygodactylus waterbergensis</i>	Waterberg Dwarf Gecko	LC	B1 B2 B3a
Reptilia	<i>Pseudocordylus transvaalensis</i>	Northern Crag Lizard	LC	B1, B2
Reptilia	<i>Kinixys lobatsiana</i>	Lobatse Hinged Tortoise	VU	A1b A1d B3a
Reptilia	<i>Platysaurus minor</i>	Waterberg Flat Lizard	LC	B1 B3a
Reptilia	<i>Smaug breyeri</i>	Waterberg Dragon Lizard	LC	B1 B3a

A quantitative analysis of irreplaceability indicates that the Waterberg KBA is 100% irreplaceable for the global persistence of 5 species, therefore meeting criterion E. It also holds significant proportions of the global extent of 2 geographically restricted ecosystems (meeting criterion B4).

11.7.3 National Freshwater Ecosystem Priority Areas & National Biodiversity Assessment

In an attempt to better conserve aquatic ecosystems, South Africa categorised its river systems according to set ecological criteria (i.e. ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to identify FEPAs. The FEPAs (Figure 11-18) were intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environmental Management: Biodiversity Act, 2004 (Act No. 39 of 2004) (NEMBA) biodiversity goals.

The National Biodiversity Assessment (NBA) 2018, led by South African National Biodiversity Institute, assesses the state of South Africa's biodiversity across terrestrial, freshwater, estuarine, and marine realms, reporting on ecosystem threat status and protection levels to inform policy, planning, and conservation under NEMBA. The freshwater component updates the status of rivers, wetlands, and freshwater species, using the South African Inventory of Inland Aquatic Ecosystems and National Wetland Map 5 (NWM5). The NBA 2018 updates and expands FEPA's work, serving as a more comprehensive and current assessment for freshwater ecosystems.

The NBA incorporates FEPA's river and wetland ecosystem types and updates them with approximately 23% more wetland areas. It refines the HGM classifications and adds a Confidence Map for data reliability.

In terms of NBA, the Sandloop ephemeral system, which flows in a northerly direction and positioned 2.5 km east of the Project area, is considered Class C: Moderately Modified System. Its ecosystem threat status is also considered Endangered.

The Sandloop River, features seasonal flows on sandy/gravelly beds fringed with riparian vegetation such as *Spyrostachys africana* and *Ziziphus mucronata*). Geomorphologically these types of systems, support nutrient spiralling and sediment transport during floods. These processes maintain ecological connectivity, critical for aquatic and riparian species. It faces threats from coal mining, invasive species encroachment, and land use change, likely rendering it Endangered as per NBA 2018. Its ecological reserve under the NWA should maintain natural flow regimes (seasonal floods), water quality (low heavy metals), and riparian buffers to protect biodiversity and services.

11.7.4 Limpopo Conservation Plan

The Limpopo Conservation Plan (Version 2, LCPv2, 2013 and updated in sections) classified areas within the province on the basis of its contribution to reach the conservation targets within the province. These areas are classified as CBAs and ESAs to ensure sustainability in the long term. The CBAs are classified as either 'Irreplaceable' (must be conserved), or 'Optimal'.

CBAs are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. Thus, if these areas are not maintained in a natural or near natural state then biodiversity targets cannot be met. ESAs are areas that provide support to the CBAs and considered important. According to this spatial dataset, the Project area is positioned within an ESA, with CBAs positioned offsite to the east along the Sandloop system (Figure 11-19).

Maintaining an area in a natural or near natural state can include a variety of biodiversity-compatible land uses and resource uses. The following strategies therefore apply to ESAs:

- Maintain in a functional state, avoid intensification of land uses, and rehabilitate to a natural or near- natural state where possible
- Overall maintain landscape connectivity by avoiding loss/degradation of CBAs and ESAs, especially in corridor pinch-points.

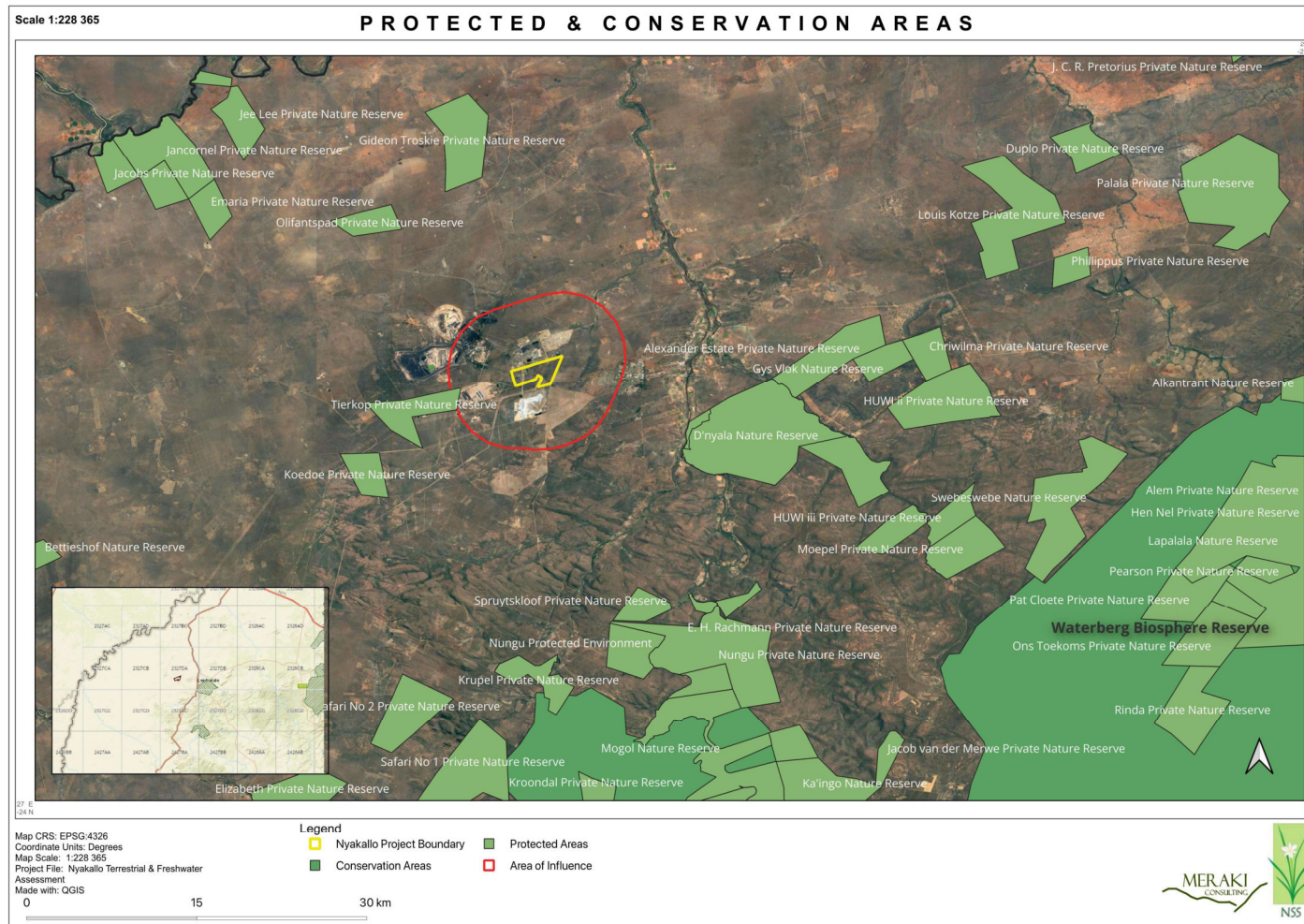


Figure 11-17: Protected Area network within 50 km radius of the Project area

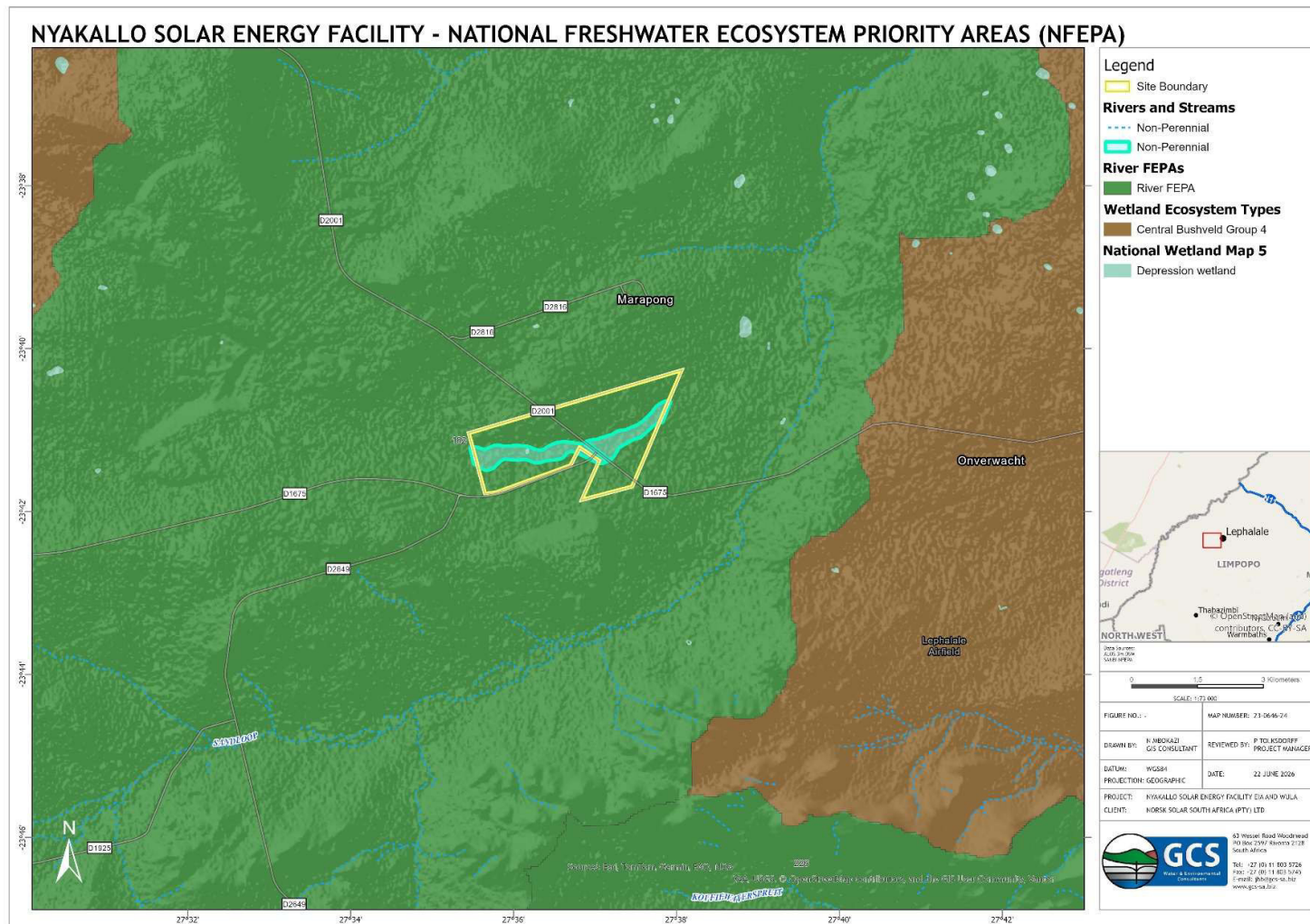


Figure 11-18: Freshwater Ecosystem Priority Areas in relation to the Project area

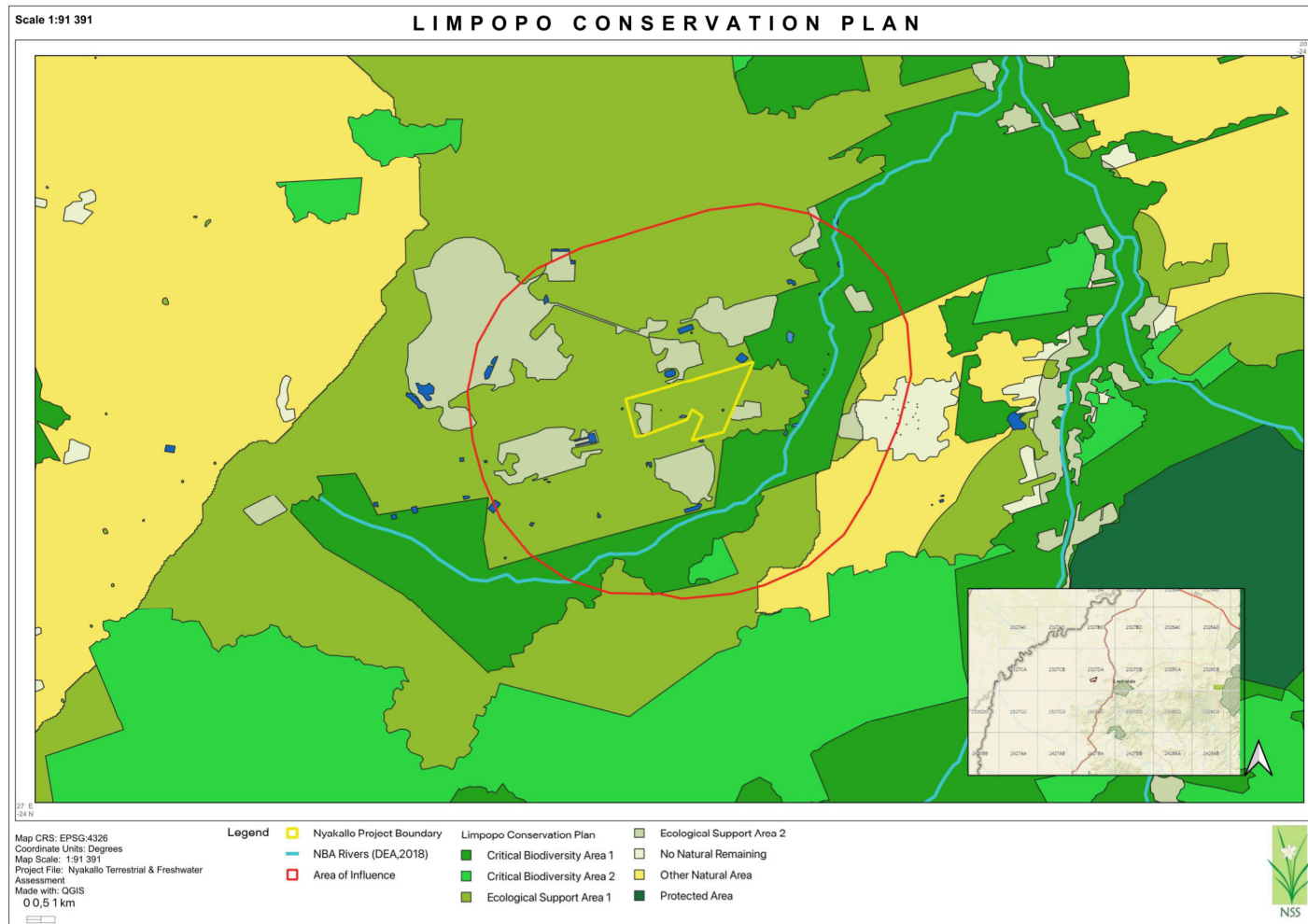


Figure 11-19: Limpopo Conservation Plan in relation to the Project area

11.8 Fauna

The faunal baseline has been informed by the Terrestrial and Wetland Assessment prepared for the proposed Nyakallo Solar Park (NSS, 2025d). The assessment considered the Project area and broader Area of Influence (AoI), with specific reference to the faunal habitats and species assemblages present within and around the Project area.

The Project location is described in Section 3. This section focuses on the existing faunal assemblage within the Project area and AoI, including mammals, reptiles, amphibians, butterflies and general faunal habitat use. Avifauna is discussed separately in Section 11.9 due to the dedicated avifaunal monitoring undertaken for the Project.

The faunal baseline should be understood in the context of the broader receiving environment. The Project area is located within a bushveld landscape that includes woodland, thornveld, seasonal wetland features and anthropogenic / transformed areas. The surrounding landscape has already been influenced by power generation infrastructure, mining-related land uses, roads, settlement areas and other transformed features. Despite this existing transformation, the Project area and AoI continue to support a range of faunal species associated with woodland, open savanna, wetland and disturbed habitats.

11.8.1 Faunal Habitat Context

The Project area and AoI support a diverse faunal assemblage across five broad faunal habitat types, namely:

- Closed Broadleaf Woodland;
- Open Broadleaf Woodland;
- Open Thornveld;
- Wetlands, including artificial and natural wetland features; and
- Anthropogenic / transformed habitats.

These habitat types provide a range of sheltering, foraging, breeding and movement opportunities for different faunal groups. The woodland and thornveld habitats support terrestrial and arboreal species, while wetland and artificial waterbody habitats provide locally important refugia in an otherwise relatively dry bushveld landscape.

The faunal baseline therefore includes species associated with relatively intact woodland, species associated with water and wetland habitats, species that use open savanna / thornveld conditions, and adaptable species able to use disturbed or modified areas. This habitat mosaic is important because different faunal groups depend on different habitat features, such as tree cover, hollows, ground cover, leaf litter, termite mounds, open foraging areas, temporary water, soft soils and rocky or disturbed microhabitats.

11.8.1.1 Closed Broadleaf Woodland

Closed Broadleaf Woodland represents one of the more structurally complex habitat types in the Aol. The relatively denser tree and shrub layer provides cover, shade, shelter and movement corridors for fauna. The habitat is likely to support a higher diversity of woodland-associated mammals, reptiles, invertebrates and birds because of its greater vegetation structure and microhabitat variety.

This habitat type provides important resources such as:

- Tree cover for arboreal species;
- Leaf litter and fallen branches for reptiles and invertebrates;
- Shaded refuge areas during hot periods;
- Foraging opportunities for insectivores and small mammals; and
- Nesting, roosting and shelter opportunities for birds and small mammals.

Arboreal and semi-arboreal species such as *Galago moholi* (Southern Lesser Galago) are associated with woodland structure, where trees and shrubs provide movement routes and feeding opportunities. Dense woodland also provides suitable cover for small carnivores, rodents, reptiles and secretive species that may be less frequently observed during field surveys.

11.8.1.2 Open Broadleaf Woodland

Open Broadleaf Woodland provides a more Open Woodland structure, with scattered trees and a more open understorey than Closed Broadleaf Woodland. This habitat supports a mixture of woodland and open savanna faunal species.

The more open structure allows greater movement by medium-sized mammals and provides foraging areas for browsers, insectivores and predators. It also supports reptiles that require basking areas and cover, as well as invertebrates associated with grasses, shrubs and flowering plants.

Species such as *Raphicerus campestris* (Steenbok), *Helogale parvula* (Dwarf Mongoose), *Mellivora capensis* (Honey Badger) and various reptiles may use this habitat for foraging, shelter and movement. The presence of open patches within woodland also provides habitat for ground-dwelling birds and for predators that hunt in semi-open areas.

11.8.1.3 Open Thornveld

Open Thornveld provides habitat for species adapted to more open savanna conditions. This habitat type generally supports grazers, browsers, ground-dwelling species, larger nesting birds, reptiles and invertebrates.

The open structure allows easier movement for larger terrestrial fauna and provides visibility for species that forage in open areas. Open Thornveld is also likely to provide important hunting and foraging opportunities for raptors, owls and small carnivores because prey species such as rodents, reptiles and insects may be more accessible in less densely wooded areas.

The thornveld habitat contributes to the faunal diversity of the Aol by supporting species that may not be as strongly associated with denser woodland. It also forms part of the broader woodland-thornveld habitat mosaic used by mobile fauna moving across the landscape.

11.8.1.4 Wetlands and Water-associated Habitats

Wetland habitats, including artificial and natural wetland features, provide important ecological resources for fauna. In the context of the broader semi-arid woodland landscape, even temporary or artificial waterbodies may provide important seasonal water, foraging and breeding opportunities.

These habitats are particularly important for amphibians, water-associated reptiles, waterbirds and other fauna requiring access to surface water. The presence of ephemeral waterbodies, borrow pits, drainage features and other wet areas contributes to seasonal faunal diversity within the Aol.

Amphibians are especially dependent on seasonal water availability. Species such as *Pyxicephalus edulis* (African Bullfrog), *Hildebrandtia ornata* (Ornate Frog), *Ptychadena anchietae* (Plain Grass Frog), *Kassina senegalensis* (Bubbling Kassina), *Chiromantis xerampelina* (Southern Foam Nest Frog), *Sclerophrys garmani* (Olive Toad) and *Phrynomantis bifasciatus* (Banded Rubber Frog) are linked to rainfall events, temporary pools, drainage features or wetland conditions.

Water-associated reptiles such as *Pelomedusa subrufa* (African Helmeted Terrapin) also reflect the importance of water availability within the Aol. These habitats therefore form an important component of the faunal baseline, even where they are temporary or artificial in nature.

11.8.1.5 Anthropogenic and Transformed Habitats

Anthropogenic and transformed habitats occur within the broader Aol as a result of existing land uses and disturbance. These include areas influenced by roads, power generation infrastructure, mining-related activities, settlements, transformed land and other modified features.

Although these habitats are generally less natural than woodland and wetland habitats, they may still be used by adaptable faunal species. Some generalist mammals, birds, reptiles and invertebrates may forage, shelter or move through transformed areas, particularly where

vegetation cover or water remains available.

Transformed areas may also create artificial microhabitats, such as disturbed ground, borrow pits, drainage depressions, stockpiled material, fence lines and structures. These features can be used by some reptiles, small mammals, invertebrates and generalist birds. However, these habitats generally have lower ecological integrity than intact woodland, thornveld and wetland habitats.

11.8.2 Mammal Baseline

Thirty-one mammal species were recorded within the Project area and Aol. The recorded mammal assemblage includes small mammals, arboreal species, browsers, insectivores, carnivores and wide-ranging species.

Species recorded or noted as potentially occurring include *Smutsia temminckii* (Ground Pangolin), *Leptailurus serval* (Serval), *Lycaon pictus* (African Wild Dog), *Mellivora capensis* (Honey Badger), *Raphicerus campestris* (Steenbok), *Helogale parvula* (Dwarf Mongoose) and *Galago moholi* (Southern Lesser Galago).

The mammal assemblage reflects the range of available habitat types. Woodland habitats provide shelter and arboreal structure for species such as Southern Lesser Galago, while Open Woodland and thornveld provide suitable foraging habitat for Steenbok and small carnivores. Species such as Dwarf Mongoose are often associated with termite mounds, logs, dense vegetation and sheltering opportunities, while Honey Badger is a wide-ranging generalist species able to use a variety of habitats.

The presence or potential occurrence of *Smutsia temminckii* (Ground Pangolin) is an important baseline feature because this species is associated with savanna and woodland habitats where ants and termites are available as food resources. *Leptailurus serval* (Serval) is often associated with areas that provide cover and prey availability, including grassland, wetland margins and woodland mosaics. *Lycaon pictus* (African Wild Dog), where potentially occurring, represents a wide-ranging species that uses large landscapes and is not restricted to a single habitat patch.

The mammal baseline therefore indicates that the Project area and Aol provide habitat for both common bushveld species and species of conservation relevance. The occurrence or potential occurrence of wide-ranging mammals reflects the broader ecological connectivity of the landscape, although parts of the surrounding area are already modified.



Figure 11-20: Examples of Mammal evidence within the Project area and Aol: A: Serval (*Leptailurus serval*); B: Steenbok (*Raphicerus campestris*); C: Dwarf Mongoose (*Helogale parvula*); D: Southern Lesser Galago (*Galago moholi*) (all pictures taken on-site) (NSS, 2025d)

11.8.3 Reptile Baseline

Twelve reptile species were recorded within the Aol. The recorded reptile assemblage includes snakes, lizards, tortoises, chameleons and terrapins, reflecting the variety of terrestrial and water-associated habitats present within the Aol.

Recorded species include *Python natalensis* (Southern African Python), *Dendroaspis polylepis* (Black Mamba), *Stigmochelys pardalis* (Leopard Tortoise), *Chamaeleo dilepis* (Flap-neck Chameleon), *Pelomedusa subrufa* (African Helmeted Terrapin), *Heliobolus lugubris* (Bushveld Lizard), *Trachylepis varia* (Eastern Variable Skink) and *Acanthocercus atricollis* (Southern Tree Agama).

The reptile assemblage reflects the habitat diversity of the Aol. Lizards and skinks are likely to use open patches, woody debris, soil surfaces, tree trunks and disturbed microhabitats for basking, shelter and foraging. Chameleons are associated with shrubs and tree cover, while tortoises require suitable ground cover, foraging resources and movement areas. Snakes such as Black Mamba and Southern African Python require suitable shelter and prey availability and may move across a range of habitats.

The presence of *Python natalensis* (Southern African Python), a Specially Protected Species, is an important baseline finding. The occurrence of both terrestrial reptiles and water-associated species also reflects the importance of the woodland, thornveld and wetland habitat mosaic.



Figure 11-21: Examples of Reptile evidence within the Aol: A: Bushveld Lizard (*Heliobolus lugubris*); B: African Helmeted Terrapin (*Pelomedusa subrufa*); C: Southern African Python (*Python natalensis*); D: Eastern Variable Skink (*Trachylepis varia*); E: Black Mamba (*Dendroaspis polylepis*); F: Southern Tree Agama (*Acanthocercus atricollis*); G: Southern Tree Agama (*Acanthocercus atricollis*); H: Green Chameleon (*Chamaeleo marmoratus*); I: Yellow-bellied Sea Turtle (*Chelonia mydas*).

atricollis); H: Flap-neck Chameleon (*Chamaeleo dilepis*); I: Leopard Tortoise (*Stigmochelys pardalis*) (all pictures taken on-site) (NSS, 2025d)

11.8.4 Amphibian Baseline

Nine amphibian species were recorded within the Aol. Amphibian occurrence is closely linked to rainfall, temporary water availability, wetland features, drainage lines and artificial waterbodies.

Recorded species include *Pyxicephalus edulis* (African Bullfrog), *Hildebrandtia ornata* (Ornate Frog), *Ptychadena anchietae* (Plain Grass Frog), *Kassina senegalensis* (Bubbling Kassina), *Chiromantis xerampelina* (Southern Foam Nest Frog), *Sclerophrys garmani* (Olive Toad) and *Phrynomantis bifasciatus* (Banded Rubber Frog).

The amphibian assemblage is typical of species that use temporary pools, wetland margins, drainage areas and seasonally wet habitats. Many of these species are likely to be more detectable during or shortly after rainfall events, when calling, breeding and movement activity increases.

Pyxicephalus adspersus (Giant Bullfrog) was previously confirmed by NSS in the broader region and remains relevant to the broader faunal baseline. The presence of bullfrog species is important because these species use seasonal waterbodies for breeding and may spend much of the year underground or away from breeding sites.

The amphibian baseline confirms the ecological importance of seasonal water availability within the Aol. Wetland features, ephemeral pools, borrow pits and drainage depressions are therefore important components of the baseline faunal environment.



Figure 11-22: Examples of Amphibians evidence within the Aol: A: Ornate Frog (*Hildebrandtia ornata*); B: Plain Grass Frog (*Ptychadena anchietae*); C: Bubbling Kassina (*Kassina senegalensis*); D: Southern Foam Nest Frog (*Chiromantis xerampelina*); E: Olive Toad (*Sclerophrys garmani*); G: Banded Rubber Frog (*Phrynomantis bifasciatus*); F: African Bullfrog (*Pyxicephalus edulis*), (all pictures taken on-site) (NSS, 2025d)

11.8.5 Butterfly and Invertebrate Baseline

Twenty-three butterfly species were recorded within the Aol. Although none of the recorded butterfly species are currently listed as threatened, the presence of a diverse butterfly

assemblage contributes to the overall biodiversity value of the Project area and Aol.

Recorded butterfly species include *Acraea natalica* (Black-based Acraea), *Acraea anemosa* (Broad-bordered Acraea), *Acraea eponina* (Small Orange Acraea), *Byblia ilithyia* (Joker), *Junonia oenone* (Blue Pansy), *Danaus chrysippus* (African Monarch), *Hamanumida daedalus* (Guineafowl) and *Eurema brigitta* (Broad-bordered Grass Yellow).

Butterflies are useful indicators of habitat diversity because their occurrence is linked to host plants, flowering resources, vegetation structure and seasonal conditions. The butterfly records therefore support the finding that the Aol contains a range of usable faunal microhabitats.

The butterfly assemblage also reflects the presence of flowering plants, host plants and seasonal vegetation resources. These resources are important not only for butterflies, but also for other pollinators and invertebrates that form part of the food base for insectivorous birds, reptiles, amphibians and small mammals.



Figure 11-23: Examples of butterfly species observed within the Aol: A: Black-based Acraea (*Acraea natalica*); B: Broad-bordered Acraea (*Acraea anemosa*); C: Small Orange Acraea (*Acraea eponina*); D: Joker (*Byblia ilithyia*) (All pictures taken on-site) (NSS, 2025d)

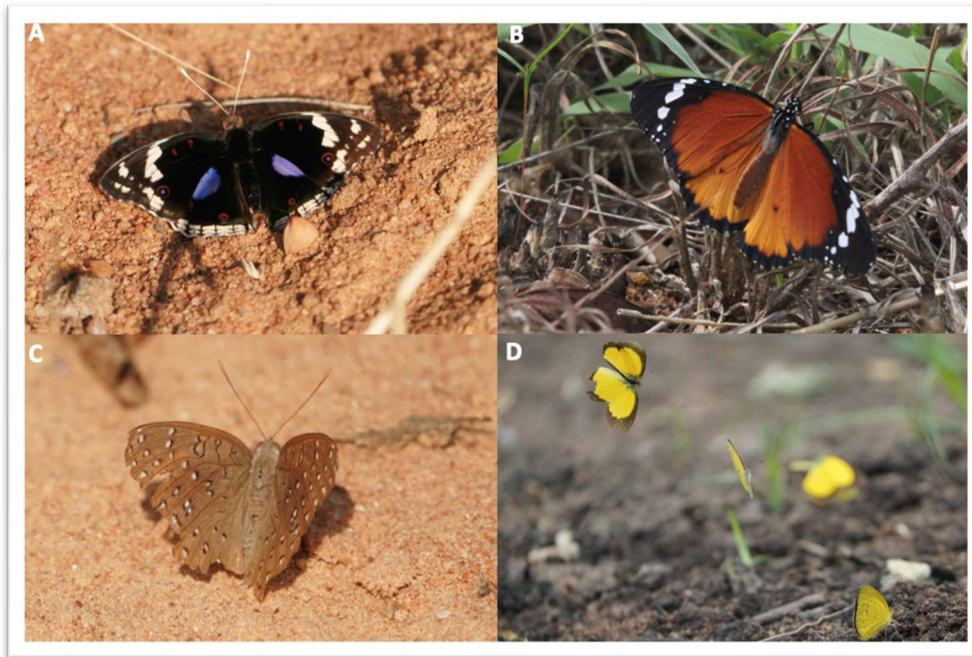


Figure 11-24: Examples of butterfly species observed within the Aol: A: Blue Pansy (*Junonia oenone*); B: African Monarch (*Danaus chrysippus*); C: Guineafowl (*Hamanumida daedalus*); D: Broad-bordered Grass Yellow (*Eurema brigitta*) (All pictures taken on-site) (NSS, 2025d)

11.8.6 Species of Conservation Concern and Protected Fauna

The faunal baseline includes several SCC and protected species. These include mammals such as *Smutsia temminckii* (Ground Pangolin), *Leptailurus serval* (Serval) and *Lycaon pictus* (African Wild Dog), reptiles such as *Python natalensis* (Southern African Python), and amphibians such as *Pyxicephalus adspersus* (Giant Bullfrog), previously confirmed by NSS in the broader region.

The occurrence or potential occurrence of SCC indicates that the Aol forms part of a broader ecological landscape that supports fauna of conservation relevance. These species are generally associated with suitable habitat availability, prey or food resources, seasonal water, movement opportunities and the broader ecological condition of the surrounding landscape.

11.8.7 Ecological Function of the Faunal Assemblage

The faunal assemblage contributes to the ecological functioning of the Project area and Aol. Mammals, reptiles, amphibians, birds and invertebrates play different ecological roles, including seed dispersal, pollination, predation, scavenging, grazing, browsing, insect control and nutrient cycling.

Small mammals and invertebrates form an important prey base for snakes, raptors, owls and

small carnivores. Amphibians and reptiles contribute to insect control and form part of the food web. Butterflies and other invertebrates contribute to pollination and provide seasonal food resources for birds, reptiles and amphibians. Larger mammals and wide-ranging carnivores reflect broader landscape connectivity and habitat availability.

This ecological context is important for understanding the baseline because the value of the faunal environment is not only determined by individual species records, but also by the interactions between habitat types, seasonal resources and faunal groups.

11.8.8 Baseline Faunal Sensitivity

From a baseline perspective, the most important faunal features within the Project area and Aol are:

- The woodland-thornveld habitat mosaic, which supports mammals, reptiles, birds and invertebrates;
- Wetland and seasonal water-associated habitats, which support amphibians, water-associated reptiles and waterbirds;
- The presence of scc and protected species;
- The presence of wide-ranging species that indicate broader landscape connectivity;
- The diversity of butterfly species, which reflects habitat and plant resource diversity; and
- The combination of natural and modified habitats, which supports both specialist and adaptable species.

The receiving environment is therefore not uniform. Some areas are more transformed and support mainly generalist species, while other areas retain more natural habitat structure and support a broader faunal assemblage.

11.8.9 Faunal Baseline Summary

The faunal baseline indicates that the Project area and Aol support a diverse faunal assemblage associated primarily with woodland, thornveld and wetland habitats. The receiving faunal environment includes common bushveld fauna, water-associated species, protected species and SCC.

The ecological value of the Aol is linked to the combination of habitat types present, particularly the woodland-thornveld matrix and the seasonal / artificial wetland features. Mammals, reptiles, amphibians and butterflies recorded within the Aol reflect the diversity of available microhabitats and seasonal resources.

Although the broader landscape is already influenced by power generation, mining, roads and other anthropogenic land uses, the Project area and Aol continue to provide habitat for a

diverse range of fauna. The faunal baseline is therefore best described as a mixed bushveld faunal environment that retains ecological value through its habitat mosaic, seasonal water features and recorded species diversity.

11.9 Avifauna

The avifaunal baseline has been informed by the avifaunal pre-construction monitoring undertaken by NSS for the proposed Nyakallo Solar Facility. The monitoring programme included desktop assessment and active field sampling to document avifaunal species, SCC, priority species, endemic species and seasonal use of the Project area and surrounding Aol.

The Project location is described in Section 3. This section focuses on the existing avifaunal baseline within the Project area and Aol.

11.9.1 Avifaunal Fieldwork Periods

The avifaunal monitoring included several fieldwork periods to capture seasonal variation in bird use of the Project area and surrounding Aol. The fieldwork periods included:

- 28 November to 2 December 2024 - Stage 1: Avifaunal in-field scoping (NSS, 2025a);
- to 15 March 2025 - Stage 2: Trip 1 Avifaunal pre-construction monitoring (NSS, 2025b);
- 21 to 25 July 2025 - Stage 2: Trip 2 Avifaunal pre-construction monitoring (NSS, 2025b); and
- 25 to 29 September 2025 - Stage 2: Trip 3 Avifaunal pre-construction monitoring (NSS, 2025c).

Additional biodiversity fieldwork was undertaken during December 2024, January 2025, March 2025 and May 2025, during which noteworthy avifaunal species were also recorded.

This seasonal coverage is important because the use of the Project area by birds varies according to rainfall, water availability, breeding season, migration patterns and seasonal habitat condition.

11.9.2 Avifaunal Area of Influence and Surrounding Context

The avifaunal assessment considered the Project area and surrounding Aol. The Aol includes the Project footprint and surrounding landscape features that may support avifaunal movement, foraging, breeding, roosting or seasonal use.

The Project area is surrounded by mixed land uses, including Matimba Power Station and Marapong Town to the north, natural woodland and a landfill site to the east, natural woodland and the Matimba Ash Facility to the south, and Medupi Power Station and powerline infrastructure to the west.

The receiving avifaunal environment is therefore not pristine, but it includes a mosaic of

habitats that remain important for birds, particularly woodland habitats, water-associated features and large trees suitable for nesting or roosting.

11.9.3 Avifaunal Habitat Types

Five broad habitat types were identified within the Aol, namely:

- Open Thornveld;
- Open Broadleaf Woodland;
- Closed Broadleaf Woodland;
- Wetlands, including artificial and natural wetland features; and
- Anthropogenic / transformed habitats.

These habitat types provide different resources for birds. Woodland and thornveld habitats support bushveld species, raptors, owls, hornbills, woodpeckers, doves, sandgrouse and small passerines. Wetland and artificial waterbody habitats support waterbirds, waders, ducks, storks, herons, crakes and other water-associated species. Transformed habitats may be used by generalist species and birds adapted to disturbed environments.

11.9.4 Regional Avifaunal Context

The regional avifaunal context is influenced by the broader Waterberg system and associated KBA. The wider Lephalale region supports a high diversity of bird species, including woodland species, raptors, waterbirds, bustards, korhaans and species associated with ephemeral pans and drainage systems.

Seasonal and interannual variation in water availability is important in this landscape. During periods when water is present in ephemeral waterbodies, borrow pits, return water dams, wastewater treatment ponds and non-perennial drainage features, the area may attract a wider range of waterbirds and water-associated species.

11.9.5 Overall Avifaunal Diversity

During the first avifaunal monitoring period, a total of 207 species were recorded within the Aol. This represented approximately 51.6% of the potentially occurring species and was considered representative of the typical bird assemblage for the area.

The recorded avifaunal assemblage includes woodland birds, waterbirds, raptors, owls, large terrestrial birds, sandgrouse, doves, hornbills, woodpeckers, storks, herons, ducks, waders and small passerines. This diversity reflects the range of habitat types present within the Aol.

11.9.6 Summer / Wet Season Avifaunal Baseline

During the late summer monitoring period, water was present within the Project area and surrounding landscape. This attracted a variety of waterbirds, and evidence of breeding at

ephemeral waterbodies was recorded.

SCC flyovers recorded during this monitoring period included *Phoeniconaias minor* (Lesser Flamingo), *Phoenicopterus roseus* (Greater Flamingo) and *Gyps africanus* (White-backed Vulture). SCC recorded within the Aol included *Ephippiorhynchus senegalensis* (Saddle-billed Stork), *Ciconia nigra* (Black Stork) and *Ardeotis kori* (Kori Bustard).

Breeding waterbird species recorded within the Aol included *Dendrocygna viduata* (White-faced Whistling Duck) and *Anas erythrorhynchos* (Red-billed Teal). The presence of breeding waterbirds indicates that ephemeral waterbodies within the Aol can provide seasonally important breeding habitat.

The monitoring also recorded secretive and sparsely distributed wetland-associated species such as *Botaurus sturmii* (Dwarf Bittern) and *Paragallinula angulata* (Lesser Moorhen). These species may be more detectable during wetter periods when wetland habitat availability increases.

11.9.7 Mid-Winter Avifaunal Baseline

During the mid-winter field survey, a total of 104 species were recorded within the Aol, with 81 species recorded on Nyakallo. This was considered representative of the typical mid-winter bird assemblage.

Water availability was greatly reduced during the mid-winter survey, although water remained in some borrow pits and was present due to discharge from the west. As a result, fewer waterbird species were recorded compared with the wetter survey periods.

Commonly recorded bushveld species during the mid-winter survey included *Uraeginthus angolensis* (Blue Waxbill), *Cisticola chiniana* (Rattling Cisticola), *Streptopelia capicola* (Ring-necked Dove), *Spermestes cucullata* (Bronze Mannikin) and *Estrilda astrild* (Common Waxbill).

A flyover by *Mycteria ibis* (Yellow-billed Stork) was recorded, and *Elanus caeruleus* (Black-winged Kite) was recorded within Nyakallo. Other raptors recorded on Nyakallo included *Accipiter badius* (Shikra) and *Melierax canorus* (Pale Chanting Goshawk). Waterbird species recorded in the Aol during the mid-winter survey included *Ichthyophaga vocifer* (African Fish Eagle), *Tringa nebularia* (Common Greenshank), *Vanellus armatus* (Blacksmith Lapwing) and *Ceryle rudis* (Pied Kingfisher).

11.9.8 Spring Avifaunal Baseline

The spring survey confirmed continued avifaunal use of the Project area and Aol. The survey also recorded *Hieraaetus wahlbergi* (Wahlberg's Eagle) nesting within the Nyakallo Project area, in one of the nests within the wash system in the north-eastern section of the Project area.

The spring fieldwork confirmed the continued importance of water-based habitats within the Aol. Waterbirds constituted more than 27% of the species recorded in the Aol during the spring survey, including species recorded within the Project area and wetland-based habitats in the broader Aol.

Water-associated species recorded during the spring survey included *Mycteria ibis* (Yellow-billed Stork), *Leptoptilos crumenifer* (Marabou Stork), *Ephippiorhynchus senegalensis* (Saddle-billed Stork), *Scopus umbretta* (Hamerkop), *Anhinga rufa* (African Darter), *Zapornia pusilla* (Baillon's Crake), *Netta erythrophthalma* (Southern Pochard), *Thalassornis leuconotus* (White-backed Duck) and *Anas undulata* (Yellow-billed Duck).

Interesting species recorded during the spring survey included *Ixobrychus minutus* (Little Bittern) and *Zapornia pusilla* (Baillon's Crake), both of which are associated with wetland habitat conditions.

11.9.9 Raptors and Vultures

The avifaunal baseline confirms the use of the Project area and Aol by raptors and vultures. *Gyps africanus* (White-backed Vulture) was recorded as a flyover species.

Raptor species recorded within the Project area and Aol include *Hieraaetus wahlbergi* (Wahlberg's Eagle), *Aquila spilogaster* (African Hawk-Eagle), *Elanus caeruleus* (Black-winged Kite), *Accipiter badius* (Shikra), *Melierax canorus* (Pale Chanting Goshawk) and *Ichthyophaga vocifer* (African Fish Eagle). An out-of-range *Lophaetus occipitalis* (Long-crested Eagle) was also recorded within the powerline servitude on site.

The presence of mature trees, nests and confirmed Wahlberg's Eagle nesting indicates that the woodland and wash system habitats provide nesting opportunities for raptors.

11.9.10 Owls and Nocturnal Species

Owls were prevalent during night surveys and were also captured on motion cameras. Owl species recorded include *Tyto alba* (Barn Owl), *Ptilopsis granti* (White-faced Owl), *Glaucidium perlatus* (Pearl-spotted Owlet), *Otus senegalensis* (African Scops Owl) and *Bubo africanus* (Spotted Eagle-Owl).

The presence of several owl species indicates that the Project area and Aol provide nocturnal foraging and roosting habitat. Woodland, thornveld and open areas are likely to support prey availability for these species.

11.9.11 Waterbirds and Wetland-associated Species

Waterbirds form an important component of the avifaunal baseline. Their presence varies seasonally depending on rainfall, water availability and the condition of ephemeral and artificial waterbodies.

During wetter periods, waterbirds were more prominent within the Aol, with breeding activity

recorded at ephemeral waterbodies. During the mid-winter survey, water availability was reduced and fewer waterbird species were recorded. During the spring survey, waterbirds made up more than 27% of the species recorded in the Aol.

Waterbird and wetland-associated species recorded include flamingos, storks, ducks, crakes, herons, darters, lapwings, kingfishers and waders. This confirms that seasonal water availability is a key driver of avifaunal use of the Aol.

11.9.12 Large Terrestrial Birds and Ground-dwelling Species

Large terrestrial birds and ground-dwelling species form part of the avifaunal assemblage recorded within the Aol. *Ardeotis kori* (Kori Bustard) was recorded as an SCC within the Aol. Other ground-associated species recorded include korhaans, sandgrouse and guineafowl.

Species photographed or recorded within the Aol include *Lophotis ruficrista* (Red-crested Korhaan), *Numida meleagris* (Helmeted Guineafowl), *Pterocles bicinctus* (Double-banded Sandgrouse) and *Pterocles burchelli* (Burchell's Sandgrouse). These species are associated with Open Woodland, thornveld and semi-open bushveld habitats.

11.9.13 Woodland and Bushveld Bird Assemblage

The woodland and bushveld bird assemblage is well represented within the Project area and Aol. Commonly recorded species include small passerines, doves, hornbills, woodpeckers, cuckoos, batises, tits, waxbills and mannikins.

Examples include *Uraeginthus angolensis* (Blue Waxbill), *Cisticola chiniana* (Rattling Cisticola), *Streptopelia capicola* (Ring-necked Dove), *Spermestes cucullata* (Bronze Mannikin), *Estrilda astrild* (Common Waxbill), *Tockus rufirostris* (Southern Red-billed Hornbill), *Tockus leucomelas* (Southern Yellow-billed Hornbill), *Melaniparus niger* (Southern Black Tit), *Chloropicus namaquus* (Bearded Woodpecker), *Dendropicos fuscescens* (Cardinal Woodpecker), *Batis molitor* (Chinspot Batis), *Chrysococcyx caprius* (Diederik Cuckoo) and *Clamator jacobinus* (Jacobin Cuckoo).

The presence of these species reflects the importance of the woodland and thornveld habitats as the main supporting habitat for common and widespread bushveld birds.

11.9.14 Endemic and Localised Species

The avifaunal reports note the relevance of *Certhilauda chuana* (Short-clawed Lark), a localised endemic species detected during earlier surveys in the Aol. The occurrence of localised or habitat-specific species adds to the ecological importance of the avifaunal baseline.

11.9.15 Avifaunal Baseline Summary

The avifaunal baseline indicates that the Project area and Aol support a diverse bird assemblage, including woodland species, waterbirds, raptors, owls, large terrestrial birds,

ground-dwelling species and several SCC.

Seasonal water availability is a major driver of bird presence and diversity in the Aol. During wetter periods, ephemeral and artificial waterbodies support increased waterbird activity and breeding. During drier periods, the assemblage is more strongly dominated by bushveld and woodland species.

The presence of SCC, confirmed raptor nesting, waterbird use of ephemeral waterbodies and a diverse woodland bird assemblage confirms that the Project area and Aol form part of a locally important avifaunal environment within a broader landscape already influenced by power generation, mining, roads and other transformed land uses.



Figure 11-25: Examples of some of the avifaunal species photographed in the Aol; A: Red-crested Korhaan (*Lophotis ruficrista*); B: Helmeted Guineafowl (*Numida meleagris*); C: Double-banded Sandgrouse (*Pterocles bicinctus*); D: Southern Red-billed Hornbill (*Tockus rufirostris*); E: Southern Yellow-billed Hornbill (*Tockus leucomelas*); F: Kori Bustard (*Ardeotis kori*) (all photos taken on-site/Aol) (NSS, 2025d)



Figure 11-26: Examples of some of the avifaunal species photographed in the Aol; A: Village Indigobird (*Vidua chalybeate*); B: Southern Black Tit (*Melaniparus niger*); C: Bearded Woodpecker (*Chloropicus namaquus*); D: Cardinal Woodpecker (*Dendropicos fuscescens*); E: Diederik Cuckoo (*Chrysococcyx caprius*); F: Jacobin Cuckoo (*Clamator jacobinus*); G: Chinspot Batis (*Batis molitor*); H: (all photos taken on-site or in the Aol) (NSS, 2025d)

11.10 Groundwater

The baseline groundwater environment has been informed by the Nyakallo Solar Park Hydrogeological Report prepared by GCS (Pty) Ltd for the proposed Nyakallo Solar Park (GCS, 2026). The hydrogeological study included a desktop review, field hydrocensus, aquifer testing of selected on-site boreholes and groundwater quality sampling.

The Project location is described in Section 3. This section focuses on the baseline groundwater setting within the Project area and surrounding groundwater study area.

11.10.1 Catchment, Topography and Drainage

The Project site is located within quaternary catchment A42J, in the Mokolo Catchment of the Limpopo Water Management Area. The surface topography is generally undulating and drains towards the north-east. Surface elevations in the broader area range from approximately 1 170 mamsl in the south eastern mountainous areas to approximately 850 mamsl in the northern low-lying areas.

A non-perennial stream located east of the Project site drains the area towards the north-east, forming part of the broader drainage system that contributes to the Mokolo River and ultimately the Limpopo River system.

11.10.2 Geological and Hydrogeological Setting

Geologically, the Project site is situated mainly on the Swartrant Formation of the Karoo Supergroup. This formation is characterised by sandstone, grit, siltstone, carbonaceous mudrock and coal seams. The broader geological setting also includes the Grootegeeluk Formation, consisting of mudstone, carbonaceous shale and coal, and the Waterberg Group to the south, which includes coarse-grained sandstone.

The Eenzaamheid Fault separates the Waterberg Group in the south from the Karoo Supergroup sediments to the north. The Daarby Fault separates the Swartrant Formation from the Clarens Formation north of the area. The regional structural geology is important to the groundwater setting, as faulting may influence groundwater occurrence, storage and movement.

Hydrogeologically, the Project site is located on a Type D3 aquifer, described as an intergranular and fractured aquifer system. Expected borehole yields for this aquifer type are generally between 0.5 litres per second (l/s) and 2.0 l/s.

The Lephalale area includes aquifers associated with the Karoo Sequence, Waterberg Formation and alluvial aquifers. The Mokolo River Basin is described as highly block-faulted. The hydrogeological report indicates that the Project area is underlain by Eccalithology overlying a semi-confined aquifer associated with the Waterberg Group. Given the depth and

yields of boreholes encountered on site, the on-site boreholes are interpreted to tap into this semi-confined aquifer system.

11.10.3 Groundwater Levels and Groundwater Movement

Groundwater levels in the area show a relationship with surface topography. The hydrogeological report indicates that regional groundwater levels (Figure 11-27) generally mimic topography, with regional groundwater levels estimated at approximately 30 metres below ground level (mbgl), relative to topography. This indicates that groundwater occurrence and movement are influenced by the broader topographical and structural setting.

11.10.4 Existing Groundwater Users and Hydrocensus Findings

A hydrocensus (Figure 11-28) was undertaken between 25 and 27 March 2024 to verify groundwater use within a 2.5 km radius of the site. The hydrocensus identified three additional boreholes in addition to the on-site boreholes.

The report notes that most rural streets, shops, businesses, game reserves and houses in Marapong are connected to an existing reticulated water supply. Of the three additional boreholes identified during the hydrocensus, two were destroyed and one was a monitoring borehole. The report therefore indicates that, excluding possible abstractions at nearby power stations or municipal abstractions, very little unregistered groundwater abstraction is expected within the catchment.

11.10.5 Aquifer Testing and Groundwater Availability

Aquifer testing was undertaken on selected on-site boreholes. Boreholes BH1, BH3 and BH4 were tested, while BH02 was found to have collapsed and was no longer viable as a water supply borehole.

The aquifer test results indicate transmissivity values ranging from approximately 6.7 m²/day to 8.8 m²/day, with estimated storage coefficients ranging from 1.0E-3 to 27.5E-3. These results indicate that the tested boreholes intersect a productive groundwater system within the local hydrogeological context.

11.10.6 Groundwater Quality

Groundwater sampling was undertaken near the end of the constant rate aquifer tests to obtain representative groundwater quality samples. Three samples were collected and submitted to a SANAS-accredited laboratory. The analyses included alkalinity, electrical conductivity, total dissolved solids, dissolved metals, anions and pH.

The results were compared with SANS 241:2015 drinking water standards. The report notes that microbial analysis was not undertaken and that, without treatment, the groundwater should not be used for drinking purposes.

The groundwater chemistry indicates brackish water with elevated concentrations of some dissolved constituents. Sodium and chloride concentrations exceed aesthetic drinking water limits in the sampled boreholes. Fluoride concentrations in BH01 and BH3 exceed the SANS 241:2015 drinking water limit, while BH4 recorded low fluoride. Nitrate concentrations remain below the SANS 241:2015 limit in the sampled boreholes, although BH4 recorded a higher nitrate concentration than BH01 and BH3. Sulphate concentrations were below the SANS 241:2015 limit in the sampled boreholes. The groundwater quality is therefore more suitable for non-potable use unless treated to the required standard for drinking water.

11.10.7 Baseline Groundwater Summary

The groundwater baseline indicates that the Project area is located within a semi-arid, structurally complex hydrogeological setting. The local groundwater system is associated with Karoo Supergroup lithologies and a deeper semi-confined Waterberg aquifer. Groundwater occurrence is influenced by fractured and intergranular aquifer conditions, regional faulting and topography.

Existing groundwater use within the local hydrocensus area appears limited, with most surrounding users connected to reticulated water supply. The tested on-site boreholes indicate groundwater availability, although the groundwater quality is brackish and affected by elevated fluoride in some boreholes. The groundwater baseline is therefore characterised by a productive but quality-constrained groundwater resource within a semi-arid catchment setting.

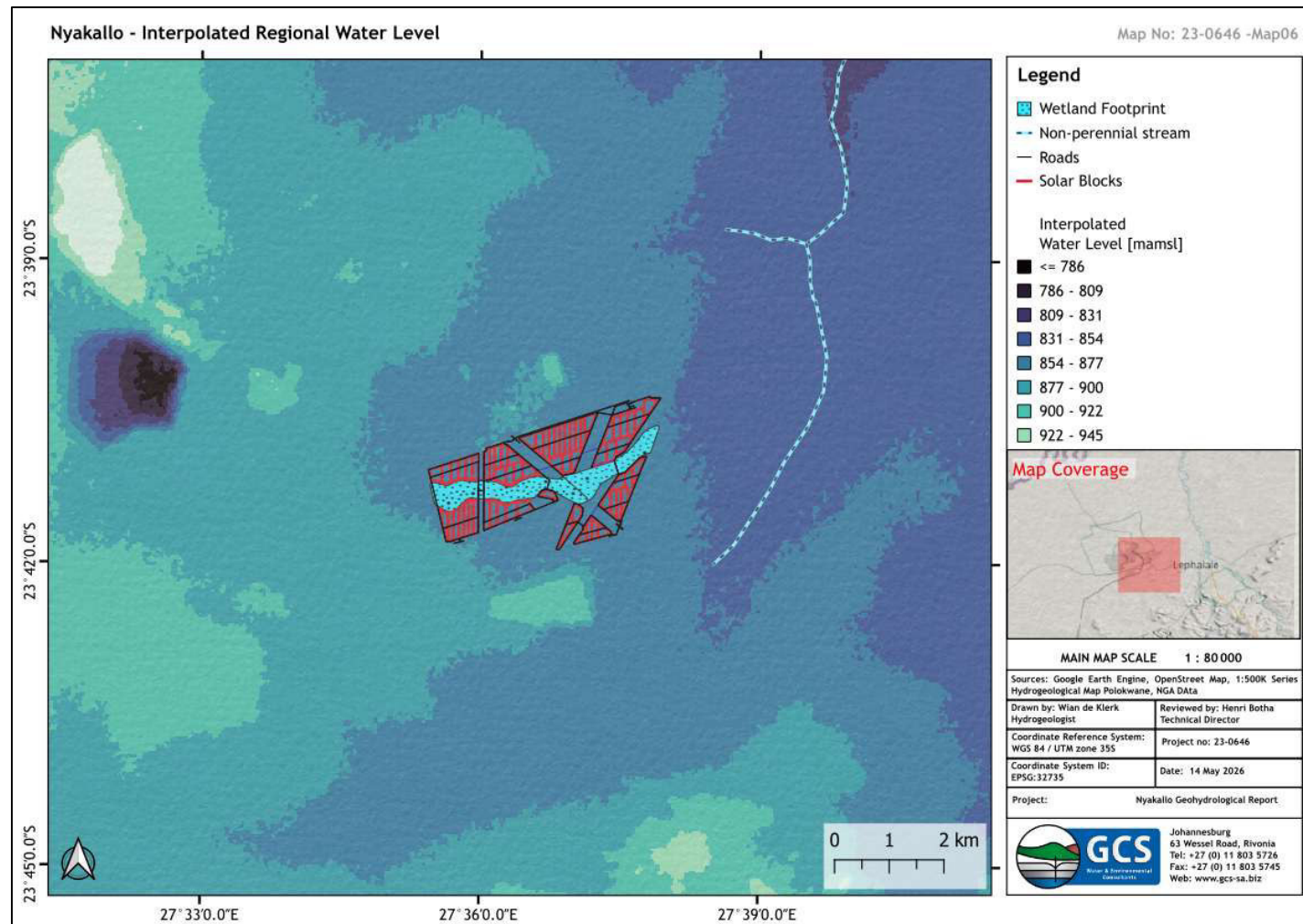


Figure 11-27: Regional Groundwater levels (GCS, 2026)

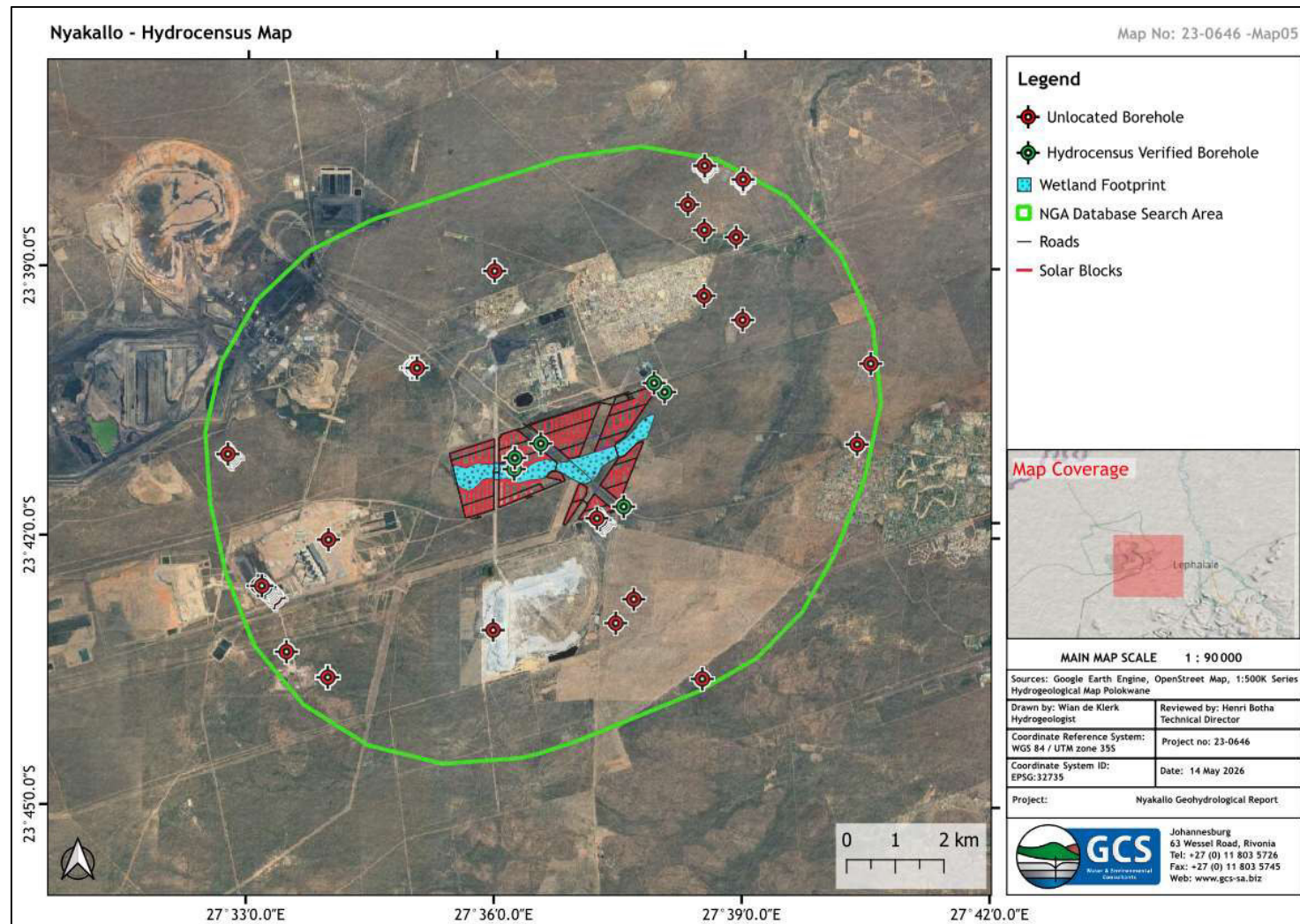


Figure 11-28: Hydrocensus map (GCS, 2026)

11.11 Traffic

The baseline traffic and transport environment has been informed by the Traffic Impact Assessment prepared by iWink Consulting (Pty) Ltd for the proposed Nyakallo Solar Park (iWink, 2026). The assessment describes the existing regional and local road network serving the Project area, the available access routes to the site, existing transport conditions and relevant route characteristics.

The Project location is described in Section 3. This section focuses on the baseline traffic and transport environment within and around the Project area. The surrounding area is characterised by a combination of agricultural land uses, mining activity, power generation infrastructure, rural settlement areas and existing road infrastructure. The existing road network therefore serves a mixed-use receiving environment, including local communities, mining and energy-related traffic, agricultural users and general regional road users.

The main regional road serving the broader Project area is the R510. The R510 connects Lephalale with surrounding towns and regional destinations and functions as an important regional mobility route. Local access to the Project area is provided by existing provincial, municipal and farm roads connecting the site to the R510 and surrounding settlements.

Two access routes to the Project site were identified in the Traffic Impact Assessment. The first route is from the R510 via Nelson Mandela Drive / D2001 through Onverwacht towards the site. This route is approximately 12 km in length. The second route is from the R510 via Kuipersbult Road towards the site. This route is approximately 26 km in length.

The R510 / Kuipersbult Road intersection includes existing turning and merging infrastructure, including a merging lane on the R510 northbound and a turning lane on the R510 southbound. The Traffic Impact Assessment confirmed that the required minimum shoulder sight distances are met in both directions at this intersection.

Public transport in the broader area is limited and is mainly provided by minibus taxis. Private vehicles are also commonly used in the area. Non-motorised transport, including pedestrian movement, may occur near settlements and along local roads. There are no known planned public transport facilities in the immediate vicinity of the Project site.

Existing traffic on the surrounding road network is expected to be associated with regional movement along the R510, local community access, agricultural activities, mining-related traffic and general access to nearby settlements and infrastructure. The Project site itself does not currently generate significant traffic volumes, with existing traffic expected to be limited to farming, maintenance and local access activities.

11.12 Noise

The baseline noise environment has been informed by the Noise Screening Report prepared

by Enviro-Acoustic Research cc for the proposed Nyakallo Solar Project near Lephalale, Limpopo Province (EARES, 2024).

The Project location is described in section 3. This section focuses on the baseline noise environment within the Project Focus Area and surrounding receiving environment. The broader receiving environment is characterised by a combination of roads, wilderness / natural areas, business activities, heavy industry, existing power generation infrastructure and mining-related activities. As a result, the area is not considered acoustically pristine. The existing soundscape is already influenced by anthropogenic noise sources, particularly road traffic, power generation activities and supporting commercial and industrial activities.

The Project Focus Area is located in a landscape described as “plains”, with limited natural landform features that would function as effective noise barriers. The relatively open topography means that sound propagation is influenced mainly by distance from the source, ground conditions, vegetation, atmospheric conditions and the presence of existing noise sources rather than by landform screening.

The area falls within the Savanna biome and is generally associated with mixed bushveld vegetation. The natural veld has been affected by anthropogenic activities, although the Project area remains well vegetated in places. Vegetation may provide some localised visual and physical screening, but it is not expected to materially alter sound propagation across the broader Project Focus Area.

Existing noise sources in the Project Focus Area are mainly associated with road traffic and power generation activities. The D2001 provincial road transects the Project Focus Area and is expected to contribute to elevated ambient sound levels, particularly close to the road. The Noise Screening Report notes that road traffic may influence ambient sound levels up to approximately 200 m from the road and may remain audible over greater distances during quiet night-time periods.

The surrounding land use is described as mainly wilderness, roads, business and heavy industry. Noise associated with existing power generation activities and supporting commercial / business activities contributes to the current soundscape. Ambient sound levels are therefore expected to vary across the Project Focus Area depending on distance from roads, power generation infrastructure, industrial activities and other surrounding land uses.

Potential noise sensitive receptors were identified through desktop review using tools such as Google Earth. Residential areas and potential noise sensitive developments / receptors were identified within the Project Focus Area. The Noise Screening Report notes that NSR01 to NSR04 are located directly within the area proposed for the PV development, with the project developer indicating that these residential users will be relocated. It is therefore assumed, for baseline description purposes, that these structures form part of the current

noise sensitive receptor context, but that their future residential status is linked to the Project planning process.

No site-specific ambient sound level measurements were undertaken as part of the screening assessment. The Noise Screening Report states that a Screening Noise Report prepared in terms of South African National Standard 10328:2008, *Methods for Environmental Noise Impact Assessments*, does not require a site visit to measure existing ambient sound levels where the screening approach is applied.

Overall, the baseline noise environment is defined by an already modified soundscape influenced by road traffic, power generation activities, heavy industry, commercial / business activities and nearby settlement areas. Localised quieter areas may occur further away from roads and industrial activities; however, the broader Project Focus Area is already subject to existing anthropogenic noise sources and is not considered an undisturbed acoustic environment.

11.13 Air Quality

The baseline air quality environment has been informed by the Air Quality Specialist Study prepared by uMoya-NILU Consulting (Pty) Ltd for the proposed Nyakallo Solar Project near Lephalale, Limpopo Province (uMoya-NILU, 2024).

The Project site is located on relatively flat terrain, with no distinct topographical features in close proximity that would materially influence local air pollutant dispersion. The surrounding land use comprises sparsely vegetated areas with scattered natural shrubs, residential areas, mining-related infrastructure, roads, industrial activities, bare land and existing power generation infrastructure. The broader Lephalale area is therefore already influenced by anthropogenic air emission sources, particularly mining, power generation, traffic, domestic fuel combustion, windblown dust, agricultural activities and associated industrial activities.

Sensitive receptors within the broader receiving environment include nearby residential and settlement areas. The Air Quality Assessment identified sensitive receptors within the area surrounding the Project site, including residential areas and other land uses that may be sensitive to changes in ambient air quality. The Lephalale settlement is located approximately 1 km north-north-west of the Project site, while Onverwacht is located approximately 4 km south-south-east of the Project site. Mining-related buildings and infrastructure occur mainly to the west of the Project area, within approximately 1 km of the site.

The baseline climate of the area is characterised by hot summer conditions and cooler winter conditions. The annual average temperature for Lephalale is approximately 21°C. Higher temperatures are generally experienced from September to March, while lower temperatures

occur from April to August. Rainfall is relatively low and occurs mainly during the late summer months. The climate and seasonal rainfall pattern are relevant to the air quality baseline because dry periods can increase the potential for windblown dust from exposed surfaces, gravel roads and disturbed areas.

Wind conditions are important in determining the dispersion and transport of air pollutants. The Air Quality Assessment indicates that the predominant wind directions for Lephalale are from the north-east, north-north-east and east-north-east. Winds from these directions are generally light, with most hourly wind speeds below 5.5 m/s. Stronger winds exceeding 8 m/s may occur and can contribute to sandstorms and dust entrainment, particularly during dry periods.

Baseline ambient air quality was assessed using available monitoring data from the Eskom Medupi Air Quality Monitoring Station, located approximately 9 km west-south-west of the Project site. The monitoring dataset covers the period 2021 to 2023 and includes particulate matter and gaseous pollutants. The average data capture was approximately 58%, which was considered representative for the baseline air quality of particulate matter in the study area. Carbon monoxide concentrations were not presented due to very low data capture during the monitoring period.

Particulate matter is commonly categorised according to particle size. PM₁₀ refers to particulate matter with an aerodynamic diameter of less than 10 micrometres (µm). These particles are generally associated with sources such as vehicle movement, construction activities, unpaved roads, windblown dust, industrial activities, material handling and combustion sources. PM_{2.5} refers to finer particulate matter with an aerodynamic diameter of less than 2.5 µm. PM_{2.5} is generally associated with combustion-related sources, including vehicle exhausts, industrial processes and fuel burning, and can remain suspended in the atmosphere for longer periods than larger particles. Due to their smaller size, PM₁₀ and particularly PM_{2.5} can be inhaled and may affect the respiratory system, making them important indicators for baseline Air Quality Assessment.

The baseline data indicate that particulate matter is an existing air quality concern in the broader area. Daily average PM₁₀ concentrations measured at the Eskom Medupi Air Quality Monitoring Station ranged from 1 µg/m³ to 1 000 µg/m³, with an average of 79.47 µg/m³. A total of 118 exceedances of the PM₁₀ 24-hour National Ambient Air Quality Standard of 75 µg/m³ were recorded during the monitoring period. Annual average PM₁₀ concentrations ranged from 28.3 µg/m³ to 146.96 µg/m³, with the annual standard of 40 µg/m³ exceeded during the monitoring period.

PM_{2.5} concentrations measured at the Eskom Medupi Air Quality Monitoring Station also indicate existing baseline exceedances. Daily average PM_{2.5} concentrations ranged from 1 µg/m³ to 151 µg/m³, with an average of 18.78 µg/m³. A total of 27 exceedances of the PM_{2.5}

24-hour standard of $40 \mu\text{g}/\text{m}^3$ were recorded during the monitoring period. Annual average PM_{2.5} concentrations ranged between $16.57 \mu\text{g}/\text{m}^3$ and $30.71 \mu\text{g}/\text{m}^3$, with the annual standard of $20 \mu\text{g}/\text{m}^3$ exceeded during the monitoring period.

Baseline sulphur dioxide (SO_2) and nitrogen dioxide (NO_2) concentrations were also considered using data from the Eskom Medupi Air Quality Monitoring Station. SO_2 is commonly associated with fossil fuel combustion, especially coal-fired power generation and industrial fuel combustion. Annual average SO_2 concentrations measured at the Eskom Medupi Air Quality Monitoring Station ranged from $6.49 \mu\text{g}/\text{m}^3$ to $14.66 \mu\text{g}/\text{m}^3$ between 2021 and 2023, which is below the annual National Ambient Air Quality Standard of $19 \mu\text{g}/\text{m}^3$.

NO_2 is commonly associated with combustion sources, including power generation, industrial activities and vehicle exhaust emissions. Annual average NO_2 concentrations measured at the Eskom Medupi Air Quality Monitoring Station ranged from 9.37 ppb to 11.17 ppb between 2021 and 2023, which is below the annual standard of 21 ppb. However, hourly NO_2 concentrations ranged from 0.1 ppb to 723.96 ppb, and 443 exceedances of the hourly standard were recorded during the 2021 to 2023 monitoring period.

Existing air pollution sources in the area include fugitive emissions from the nearby Grootegeluk Coal Mine, entrained dust from gravel roads, domestic fuel combustion from the Marapong settlement, exposed bare land, wind erosion and seasonal biomass burning associated with agricultural activities.

The baseline air quality environment is therefore characterised by an already modified airshed influenced by regional industrial, mining, power generation, domestic fuel use, transport-related and windblown dust emission sources. Particulate matter, particularly PM₁₀ and PM_{2.5}, represents the main existing air quality concern in the area. The Project site is located within a broader airshed where ambient air quality is already influenced by existing regional sources, and where dispersion conditions are governed by local wind patterns, seasonal climate and the relatively flat terrain.

11.14 Visual Aspects

11.14.1 Baseline Visual Environment

The baseline visual environment has been informed by the Visual Impact Assessment prepared by GCS Water and Environment (Pty) Ltd for the proposed Nyakallo Solar Park (Eco-Assist, 2026). The Visual Impact Assessment describes the receiving visual environment, including the topography, vegetation, land cover, sense of place and visual receptors within the surrounding landscape.

The Project area is situated within a landscape that has already been influenced by energy generation, mining, road infrastructure, powerline servitudes, formal settlement areas, dispersed rural homesteads and natural bushveld areas. The broader receiving environment

is therefore not visually pristine. Existing features such as Matimba Power Station, Grootegeluk Coal Mine, Eskom powerline servitudes, access roads, Marapong, Onverwacht and other settlement areas already contribute to a modified visual setting. However, the area still retains natural visual qualities associated with bushveld vegetation, Open Woodland areas, the non-perennial Sandloop River and the broader Waterberg / Limpopo bushveld character.

11.14.2 Topography and Visual Screening

The regional landscape is characterised by gently undulating to gradually elevating topography, with no steep hills or mountains in the immediate surrounding environment. Elevation within the 10 km study area generally ranges from approximately 820 mamsl to 920 mamsl, increasing gradually from east to west.

Due to the relatively even topography, terrain alone does not provide substantial natural screening across the broader Project area. The visibility of landscape features is therefore influenced more strongly by distance, vegetation cover, land use, receptor location and the presence of existing infrastructure than by topographical barriers.

11.14.3 Vegetation and Landscape Cover

Vegetation within the receiving environment is predominantly Limpopo Sweet Bushveld. This vegetation type occurs across the proposed development area and extends into the surrounding landscape. The vegetation is generally characterised by mixed bushveld and Open Woodland, with dominant tree heights estimated at approximately 2.5 m.

The Visual Impact Assessment indicates that vegetation, rather than terrain, plays the more important role in visual screening, particularly beyond approximately 2 km from the Project site. Bushveld vegetation may therefore partially screen views across the landscape, depending on the density, height and continuity of the vegetation.

The surrounding land cover includes Open Woodland, bushveld, agricultural disturbance, mining activities, power generation infrastructure, formal residential areas, roads, servitudes and dispersed homesteads. The visual character is therefore mixed, consisting of both natural and modified landscape elements.

11.14.4 Sense of Place

The local sense of place is shaped by both natural and transformed landscape elements. The non-perennial Sandloop River and surrounding bushveld vegetation contribute to the natural character of the area. These features provide local landscape value and contribute to the visual identity of the receiving environment.

At the same time, the broader Lephalale area has already been substantially altered by energy and mining infrastructure. The existing Matimba Power Station, Grootegeluk Coal

Mine, Eskom powerlines, roads and settlement areas form prominent visual features in the landscape. The receiving environment therefore comprises a mixed sense of place, where natural bushveld and Open Woodland occur alongside large-scale industrial, energy and infrastructure related land uses.

The Visual Impact Assessment identifies the receiving environment as being of medium scenic, cultural or historical significance.

11.14.5 Visual Receptors

The Visual Impact Assessment identified several visual receptors within the 10 km study area. These include residents, educational facilities, mine workers and motorists using nearby roads.

Residents and educational facilities are regarded as sensitive visual receptors because they are likely to have more sustained views of the surrounding landscape and a stronger interest in the quality of their living, learning and community environment. Mine workers may also experience repeated views of the area as part of their workday, depending on their work location and movement patterns.

Motorists are generally considered less sensitive visual receptors because their views are temporary, changing and mainly focused on the road environment. However, roads remain important in the baseline because they are used by a range of local residents, workers, visitors and service vehicles.

The main roads relevant to the visual baseline include the D1675, also referred to as Nelson Mandela Drive, and the D2001, which passes through or near the Project area. These roads form part of the existing visual setting and provide movement corridors through the broader landscape.

11.14.6 Climate and Atmospheric Conditions Relevant to Visual Character

The visual character of the area is also influenced by seasonal and daily weather conditions, including rainfall, cloud cover, dust, wind and light conditions. These factors can influence visibility, contrast and the clarity of long-distance views.

In dry and windy periods, dust may reduce visual clarity and contribute to a more disturbed visual experience, particularly near roads, mining areas and exposed surfaces. During wetter periods, increased vegetation cover may improve the visual absorption capacity of the landscape.

11.14.7 Visual Baseline Summary

The baseline visual environment is characterised by a combination of natural bushveld, Open Woodland, settlement areas, roads, mining infrastructure, power generation infrastructure and existing electrical servitudes. The area retains some natural visual qualities due to the

bushveld vegetation, open landscape character and the non-perennial Sandloop River. However, the broader receiving environment is already visually modified by existing mining and energy-related land uses.

The most sensitive visual receptors are residents and educational facilities, while motorists are generally less sensitive due to temporary and changing views. Vegetation provides an important screening function, particularly beyond approximately 2 km from the site, while topography provides limited screening due to the generally even and gently rising terrain.

Overall, the visual baseline can be described as a mixed and moderately modified visual environment, where natural bushveld features occur within a broader landscape already shaped by large-scale energy, mining and infrastructure development.

11.15 Socio-Economic Baseline

This section provides a baseline description of the existing social and socio-economic environment within which the proposed Nyakallo Solar Park will be developed. The baseline is based primarily on the Social Impact Assessment (SIA) prepared for the Project by Loci Environmental (2025), supported by available municipal, provincial and national planning information referenced in that report. The purpose of the baseline is to describe the receiving environment in a clear and practical way, so that I&APs, authorities and decision-makers can understand the current social setting before the potential impacts of the Project are assessed.

11.15.1 Regional and Local Setting

The proposed Nyakallo Solar Park is located on Portions 1, 2 and the Remainder of Portion 3 of the Farm Hanglip No. 508 LQ, within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province. The site is situated approximately 13 km west of Ellisras and Onverwacht, within the broader Lephalale area (Figure 3-1).

Lephalale is a well-established energy and mining node in Limpopo Province. The Matimba Power Station is located immediately north of the Project site, while the Medupi Power Station and Grootegeeluk Coal Mine are located to the west. The surrounding receiving environment therefore already includes large-scale industrial, energy, mining, transport and settlement-related land uses. The broader Lephalale area includes the formal town areas of Ellisras, Onverwacht, Altoostyd and Marapong, as well as informal settlements such as Mahlakung, Mmamojela Park, Paprika, Thulare Park and informal settlements in and around Marapong. Beyond the urban area, Greater Lephalale also includes more than 30 villages associated with the Seleka, Shongoane and Langa traditional authority areas, as well as smaller settlements, private farms, nature reserves and agricultural land.

The Project must therefore be understood within a mixed social landscape. It is not located in an isolated or pristine rural environment, but in an area already strongly shaped by energy

generation, mining, agriculture, transport routes, settlement expansion and regional economic activity.

11.15.2 Spheres of Social Influence

For social assessment purposes, the Project's Aol can be described across three broad spheres:

- Primary sphere of social influence: This includes the Project footprint, adjacent areas and nearby social receptors. It includes the local surrounds of the site, Lephalale Town, Onverwacht, Altoostyd, Marapong, nearby informal settlements, Grootegeeluk Coal Mine, Medupi Power Station and Matimba Power Station. This is the area where direct social changes are most likely to be experienced, including changes linked to land use, construction activity, local roads, employment expectations, nuisance effects and community perceptions.
- Secondary sphere of social influence: This includes the wider Lephalale Local Municipality and Waterberg District Municipality. This sphere is relevant because Project-related economic benefits, employment opportunities, service pressures, procurement opportunities and municipal planning considerations may extend beyond the immediate site surroundings.
- Tertiary sphere of social influence: This includes the Limpopo Province, South Africa and, where relevant, the broader regional context. This broader sphere is relevant to macro-economic benefits, renewable energy development, regional employment patterns, migration dynamics, energy security and policy alignment with provincial and national development priorities.

11.15.3 Population and Settlement Context

The Lephalale area has experienced significant population and settlement change over time, largely influenced by major energy and mining developments. Large projects such as Medupi Power Station attracted workers, contractors, jobseekers and associated service providers into the area. This contributed to "boom-town" characteristics, where rapid growth, inward migration, informal settlement expansion and pressure on services can occur during major construction periods, followed by possible out-migration or economic adjustment after construction ends.

Population and household projections indicate that Lephalale Local Municipality is expected to continue growing. The SIA reports that households in Lephalale Local Municipality are projected to increase from approximately 44,764 households in 2021 to approximately 59,582 households by 2031. This represents an estimated increase of approximately 14,818 households and an average annual household growth rate of approximately 2.9 %, which is the highest projected household growth rate among the local municipalities in Waterberg

District Municipality.

Informal settlements are an important part of the Lephalale social baseline. The SIA reports that five informal settlements in the vicinity of Lephalale Town, namely Mahlakung, Mmamojela Park, Marapong, Paprika and Thulare Park, were recorded as containing approximately 5,243 informal structures and approximately 8,670 households during the municipal planning period. The SIA further notes that a large proportion of informal settlement residents reportedly moved to Lephalale in search of employment, although many were unable to secure work.

This settlement pattern is important for the Scoping Report because it indicates that the receiving environment includes communities with high expectations for employment, local procurement and development opportunities, but also existing vulnerability linked to informal housing, unemployment and pressure on municipal services.

11.15.4 Economic Context and Employment

Limpopo Province's economy is strongly influenced by mining, agriculture, energy and construction. According to the SIA, Limpopo contributed approximately 7.7% to South Africa's national Gross Domestic Product in 2022. Mining is identified as the largest contributor to the provincial economy, while agriculture is the largest employer among the real economic sectors, followed by construction and mining.

Unemployment remains a key socio-economic issue in the province and local area. The SIA records that Limpopo Province had an expanded unemployment rate of approximately 47.8 % in the first quarter of 2024, compared to the national expanded unemployment rate of approximately 41.9 %. Under the official definition, Limpopo's unemployment rate was approximately 32.7 % in the first quarter of 2024. For Lephalale Local Municipality, the SIA records a general unemployment rate of approximately 22.2 %, with youth unemployment, for persons aged 15 to 34, higher at approximately 26.9 %.

The local economy is therefore characterised by a combination of large formal economic drivers, including energy and mining, and significant unemployment and livelihood vulnerability, particularly among youth and informal settlement residents. This creates a context in which renewable energy projects may be viewed by communities as potential sources of employment, skills development, local procurement and community development funding. It also creates a risk of unrealistic expectations if employment opportunities, procurement processes and eligibility criteria are not clearly communicated during the Project lifecycle.

11.15.5 Education, Language and Demographic Characteristics

The social baseline described in the SIA includes consideration of education, home language, gender and age structure. These factors are important because they influence how

communities access information, participate in public consultation processes, apply for employment opportunities and engage with grievance mechanisms.

The Lephalale area includes a diverse population, with formal urban communities, informal settlements, rural villages, farm residents, workers associated with mines and power stations, and migrant workers. Public participation and community engagement material should therefore be accessible, clear and available in appropriate languages. Notices, meetings and stakeholder engagement processes should also take account of literacy levels, access to digital communication, and the need to include women, youth, people living in informal settlements and rural communities.

Youth unemployment is particularly relevant to the Project baseline. Young people are likely to be among those most interested in construction employment, training, security, cleaning, transport and local supplier opportunities. At the same time, youth unemployment can contribute to frustration if opportunities are perceived to be inaccessible, unfairly allocated or captured by outsiders or selected groups.

11.15.6 Infrastructure and Municipal Services

The SIA describes the baseline infrastructure context with reference to water reticulation and sanitation, electricity, public roads and transport, health facilities, and health and safety. Lephalale has established urban infrastructure in the formal town areas, but service pressures remain important, especially in informal settlements and rapidly growing areas.

Water and sanitation services are important baseline considerations because informal settlement growth and population movement can place pressure on municipal systems. Electricity access also varies across formal and informal settlement areas. Although the broader Lephalale area is strongly associated with electricity generation, access to reliable household services may still be uneven across the receiving communities.

Public roads and transport are particularly important for the Project because construction will require the movement of workers, materials, equipment and contractors. Local residents and road users may experience changes in traffic conditions during construction, especially along access routes connecting the site to Lephalale and the broader road network. Road safety is therefore a key social receptor issue to be considered in the impact assessment, although this baseline section only records the existing context.

Health facilities and social services in the broader Lephalale area serve both established residents and people who have moved into the area for employment or livelihood reasons. Any project that attracts jobseekers or temporary workers into the area must be understood in the context of existing pressure on public services. However, the SIA notes that, compared with historic large-scale developments such as Medupi Power Station, the Nyakallo Solar Park workforce is smaller and the Project is not expected to drive the same scale of population

change.

11.15.7 Land Use and Livelihoods

The Project site is located in an area that has historically included agricultural land use, but the surrounding landscape has been substantially influenced by industrial and energy infrastructure. Existing land uses in the broader area include agriculture, mining, power generation, transport servitudes, settlement areas, informal settlements and conservation or tourism-related land uses.

The SIA notes that the Project land was acquired on a willing buyer/willing seller basis. It further notes that two permanent and two part-time farm workers associated with small-scale pig farming on the proposed Project site would continue to be employed on alternative farms, with the piggery moving to a different location. The SIA also notes that there are existing servitudes associated with Eskom power lines, an ash conveyor belt linked to Matimba Power Station, and provincial road servitudes on or near sections of the proposed Project site.

The land use baseline is therefore not one of undisturbed rural land. Rather, it is a transitional landscape where agricultural land uses, industrial infrastructure, energy generation and settlement expansion already interact.

11.15.8 Tourism and Sense of Place

The broader Waterberg and Limpopo context includes tourism assets such as game farms, nature reserves, private lodges, conservation areas and regional tourism routes. However, the immediate Project site is not described in the SIA as a major recreational or tourism destination. The local sense of place is already influenced by the presence of Matimba Power Station, Medupi Power Station, Grootegeluk Coal Mine, roads, servitudes and settlement areas.

This does not mean that visual character or sense of place is unimportant. Nearby residents, road users, farmers, tourism operators and visitors may still value open views, rural character or the broader Waterberg landscape. For this reason, the social baseline should be read together with the Visual Impact Assessment, Traffic Impact Assessment, Noise Screening Report, Heritage Assessment and other relevant specialist studies.

11.15.9 Community Health, Safety and Social Vulnerability

The SIA identifies community health, safety and social vulnerability as important baseline considerations. The broader social context includes concerns such as crime, road safety, gender-based violence and harassment, sexual exploitation and abuse, public health risks, unemployment, poverty, and pressure on services. These issues are not unique to the Project, but they form part of the receiving environment into which the Project will be introduced.

Gender-based violence and harassment is specifically identified in the SIA as a key contextual issue requiring proactive management. The SIA recommends that a Gender-Based Violence and Harassment and Sexual Exploitation and Abuse Action Plan be implemented for the Project. This is particularly relevant where construction workforces, contractors, jobseekers and vulnerable community members may interact.

11.15.10 Summary of the Social Baseline

The proposed Nyakallo Solar Park is located in a socially and economically complex receiving environment. The area is already shaped by major energy and mining activities, including Matimba Power Station, Medupi Power Station and Grooteegeluk Coal Mine. Lephalale has experienced population movement, informal settlement growth and boom-town dynamics associated with large-scale construction and industrial development.

The baseline socio-economic context is characterised by:

- An Established Energy And Mining Economy;
- Projected Household Growth In Lephalale Local Municipality;
- Informal Settlements Associated Partly With Employment-Seeking Migration;
- High Provincial Unemployment And Notable Youth Unemployment;
- Expectations Around Employment, Skills Development And Local Procurement;
- Existing Pressure On Services In Some Settlement Areas;
- Mixed Land Uses Including Agriculture, Power Generation, Mining, Transport Servitudes And Settlements;
- Community Health And Safety Sensitivities, Including Road Safety, Crime, Public Health And Gender-Based Violence and harassment; and
- A broader regional context in which renewable energy development is aligned with economic diversification, energy security and local development objectives.

This baseline provides the social setting against which the potential positive and negative impacts of the proposed Nyakallo Solar Park should be assessed in the EIA process.

11.16 Cultural Heritage Baseline

This section provides a baseline description of the heritage environment within which the proposed Nyakallo Solar Park will be developed. The baseline is based primarily on the Heritage Impact Assessment prepared by Umlando: Archaeological Surveys and Heritage Management, with palaeontological input from Dr Alan Smith (Umlando, 2024) (Smith, 2024). The purpose of this section is to describe the known heritage, archaeological and palaeontological context of the site in a clear manner, so that I&APs, authorities and

decision-makers can understand the heritage receiving environment before potential impacts are assessed.

11.16.1 Site Location and Heritage Setting

The Project area is situated within a landscape that has already been influenced by agriculture, roads, power generation infrastructure, mining-related infrastructure, servitudes and previous disturbance. The Heritage Impact Assessment indicates that the area has a low heritage sensitivity from an archaeological and built heritage perspective, but a very high palaeontological screening sensitivity according to the national palaeontological sensitivity mapping. The palaeontological sensitivity is linked to the underlying geology rather than to confirmed significant fossil finds on the site.

11.16.2 Desktop Heritage Context

The desktop study reviewed available historical mapping, aerial photography, previous heritage surveys and known heritage information for the broader area.

Previous heritage work in the broader area included surveys by Archaeo-Info Northern Province, Digby Wells and AGES. The earlier Archaeo-Info Northern Province survey reportedly recorded no heritage sites within part of the study area. Other surveys on nearby or adjacent properties recorded Middle Stone Age scatters, 20th-century graves, 19th-century pottery, artefact scatters, ruined structures and graves in the broader surrounding area.

Historical aerial imagery was also reviewed. The 1937 aerial photograph showed the study area as general bushveld, with no visible structures. By 1969, the aerial imagery showed Hanglip Farm, three possible kraals and three possible houses, potentially associated with farm labourer occupation. The 1969 topographical map shows the Hanglip Farm buildings. The main Hanglip farmhouse is considered likely to be older than 60 years and is therefore automatically protected under heritage legislation.

The desktop review indicates that the broader landscape has some heritage potential, particularly for low-density archaeological scatters and historical farm-related features. However, the available information does not indicate the presence of high significance heritage sites within the proposed development footprint.

11.16.3 Field Survey Findings

A field survey was undertaken over three days during the last week of January 2024. Although vegetation was dense in some areas, the specialist reported that existing paths and open areas allowed for an adequate sample survey. All potential sites identified from the desktop mapping were visited.

The field survey found that the study area generally consists of soft sand, approximately 1 m deep, overlying a hard calcrete deposit. Archaeological material occurs mainly as a lag

deposit on top of the calcrete layer, among quartz and quartzite pebbles. Isolated quartz and quartzite stone tools were recorded in parts of the study area. These stone tools were mainly attributed to the Middle Stone Age and Late Stone Age.

Stone tools (Figure 11-29) were also noted on many tracks and roads. However, the specialist indicated that calcrete and stone material had been used to cover some roads and that this material likely came from the main quarry. This means that some artefacts are not necessarily in their original archaeological context.

The field survey also confirmed that the former Medupi labour camp area still contains foundations. The Medupi laydown area had been scraped down to bedrock, or the sand had been blown away. These disturbed areas reduce the likelihood of intact heritage deposits in those localities.

Three possible kraal areas identified during the desktop assessment were surveyed. The specialist concluded that they were probably wooden structures that have since disappeared. The areas around three possible house locations were also surveyed within a 50 m radius of each point. A *Sclerocarya birrea* subsp. *afra* (Marula) (Figure 11-30) with old cut marks was noted near one of the house locations, possibly indicating the use of bark for traditional medicine. A fragment of a lower grinding stone was recorded near one of the house locations.

No Iron Age sites were confirmed during the field survey. The specialist specifically notes that the clear absence of pottery suggests that there are no Iron Age sites within the study area. The recorded stone tool scatters are considered to be of low heritage significance and require no further mitigation.

11.16.4 Built Heritage

The Hanglip farmhouse (Figure 11-31) is likely to be between 60 and 80 years old. As structures older than 60 years are protected under the NHRA, the farmhouse is automatically protected. The heritage specialist indicates that the building is likely to be of low significance, but that it must be assessed by a built environment specialist if it is to be demolished or altered.

The other structures in the Hanglip area are described as more recent and are not considered protected under heritage legislation. From a heritage management perspective, the preferred option would be to avoid unnecessary demolition of the older farmhouse, or alternatively to reuse it as part of the Project's office or administrative infrastructure, if feasible.

11.16.5 Graves and Burial Grounds

The Heritage Impact Assessment did not identify graves within the proposed development footprint during the field survey. However, previous heritage surveys in the broader area

recorded graves on nearby or adjacent properties. Graves and burial grounds are highly sensitive heritage resources and are protected under the NHRA.

The absence of confirmed graves within the Project footprint is an important baseline finding. However, the broader landscape context remains relevant because graves have been recorded in the wider area by previous heritage studies.

11.16.6 Palaeontological Context

The palaeontological assessment indicates that the site is underlain by the Swartrant Formation and Grootegeluk Formation, with possible Karoo Dolerite. The Swartrant and Grootegeluk Formations are red-coded on the South African Heritage Resources Information System palaeontological sensitivity map, indicating very high palaeontological sensitivity at a screening level. Karoo Dolerite is an intrusive igneous rock and is not fossiliferous.

The Swartrant and Grootegeluk Formations are correlated with the Vryheid Formation, which can contain trace fossils and plant fossils. Plant fossil material may occur in association with coal seams. However, the palaeontological specialist indicates that such fossils are common and are not considered palaeontologically significant in this context. The report also notes that the important marine reptile Mesosaurus is associated with the Whitehill Formation, but has not been recorded from the Swartrant, Grootegeluk or Vryheid Formations.

The proposed PV footprint is expected to be shallow, which reduces the likelihood of affecting palaeontological material. In addition, the on-site geology is likely to be weathered, further reducing the chance of significant palaeontological material being encountered.

11.16.7 Heritage Sensitivity Summary

The heritage baseline indicates that the Project site has generally low archaeological heritage sensitivity, with isolated low significance Stone Age artefacts occurring mainly as lag deposits. No confirmed Iron Age sites, graves or high significance archaeological sites were identified within the development footprint during the field survey.

The main heritage sensitivities identified for the Project baseline are:

- The possible older Hanglip farmhouse, which may be older than 60 years and is therefore protected under the NHRA;
- Isolated Middle Stone Age and Late Stone Age stone tools of low significance;
- The broader landscape context, where graves and other heritage resources have been recorded by previous surveys outside or near the study area; and
- The very high palaeontological screening sensitivity linked to the mapped geological formations, although significant palaeontological material is considered unlikely.

The proposed Nyakallo Solar Park site is located in a landscape that has already been modified

by agriculture, energy infrastructure, roads, servitudes and other disturbances. The Heritage Impact Assessment found that the archaeological heritage sensitivity of the site is low. Isolated Stone Age artefacts occur within the study area, but these are of low significance.

The palaeontological screening sensitivity of the site is very high due to the mapped geological formations; however, the palaeontological specialist concluded that significant palaeontological material is unlikely to be encountered. The shallow nature of the proposed PV development footprint further reduces the potential for palaeontological sensitivity to translate into significant site-specific constraints.

The Hanglip farmhouse requires specific management consideration because it may be older than 60 years. A destruction permit has been obtained for the farmhouse. Accordingly, no further built environment assessment is required in respect of the proposed demolition, subject to compliance with the conditions of the approved permit. Other structures identified in the area are more recent and are not protected.

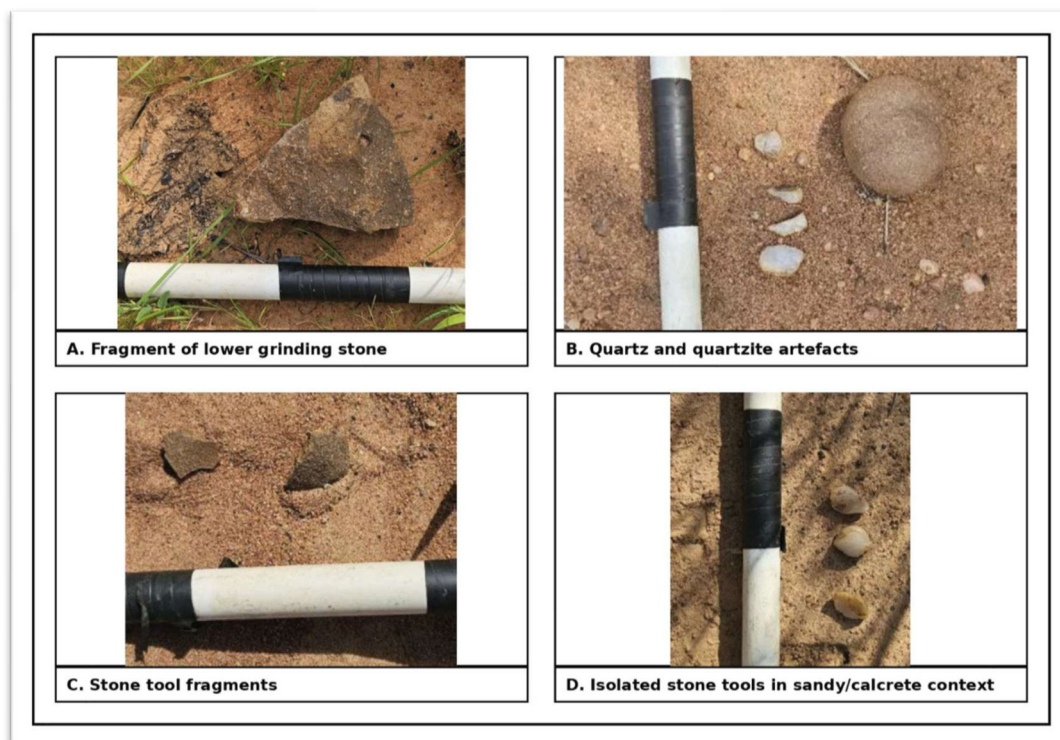


Figure 11-29: Stone tools noted in the study area



Figure 11-30: *Sclerocarya birrea* subsp. *afra* (Marula) tree used for traditional medicine



Figure 11-31: Hanglip farmhouse

12 OVERALL SITE SENSITIVITIES

This section provides an integrated overview of the overall site sensitivities and key environmental considerations associated with the proposed Nyakallo Solar Park. The section is informed by the Site Screening Verification Report, baseline environmental findings, specialist inputs and the consolidated site sensitivity mapping presented in Figure 12-1.

The Project site is located within the broader Lephalale energy and industrial landscape and is influenced by existing agriculture, roads, servitudes, powerline infrastructure, the ash conveyor, nearby settlements, mining activities and other energy-related infrastructure. Although the site is located in a landscape that has already been modified, it also contains environmental features that require avoidance, mitigation and specialist management. These include the ephemeral wetland and associated buffer, hydromorphic habitat, woodland areas, protected tree species, faunal and avifaunal habitat, palaeontological sensitivity, heritage chance find considerations and visual receptors.

12.1 Overall Sensitivity Context

The overall site sensitivity is considered to be mixed. Higher sensitivities are associated with freshwater features, hydromorphic areas, ecological corridors, woodland habitat and avifaunal use areas. Lower sensitivities are generally associated with previously disturbed areas, existing servitudes, infrastructure corridors and areas where agricultural sensitivity has been refined to moderate-low based on site-specific findings.

The Screening Tool identified several themes as Very High sensitivity, including Aquatic Biodiversity, Terrestrial Biodiversity, Avian, Landscape / Solar, Palaeontology and Agriculture. Site verification and specialist inputs have refined these sensitivities and confirmed that the final layout must be guided by site-specific conditions rather than desktop sensitivity alone. The verified sensitivities must therefore inform the final development footprint, avoidance areas, buffers and EMPr.

12.2 Key Environmental Considerations

The most important environmental consideration is the confirmed ephemeral wetland system within the Project area. Although this system is seasonal and may be dry for extended periods, it performs important hydrological and ecological functions, including surface water conveyance, sediment movement, temporary habitat provision and ecological connectivity. The system and its applicable buffer should be avoided as far as reasonably practicable. Where any crossing or infrastructure interface is unavoidable, this must be assessed in detail during the EIA Phase and authorised in terms of the relevant water use requirements.

The terrestrial biodiversity sensitivity is highest in wetland, hydromorphic and woodland habitats. Vegetation clearance must therefore be limited to the approved footprint, and no-

go areas must be clearly demarcated before construction. Protected trees and mature woodland areas must be avoided where possible, and relevant permits must be obtained where removal or disturbance cannot be avoided.

Avifaunal sensitivity remains a key consideration due to the confirmed presence of species of conservation concern, raptor activity, waterbird use and the need for continued monitoring. Potential impacts include habitat loss, disturbance, displacement and risks associated with electrical infrastructure. These impacts must be assessed further during the EIA Phase, and the final layout should incorporate avifaunal mitigation measures, including avoidance of sensitive habitats and appropriate design of electrical infrastructure.

From a soils and land capability perspective, the agricultural sensitivity has been refined from Very High to moderate-low based on site-specific conditions. The conversion of land from its current use to renewable energy generation is therefore considered potentially acceptable, provided that appropriate soil management, erosion control, topsoil handling and rehabilitation measures are implemented.

Heritage sensitivity is generally low, although heritage chance find procedures remain necessary. The Hanglip farmhouse is a built heritage consideration, and any applicable permit conditions must be complied with. Palaeontological sensitivity was identified as Very High at desktop level; however, site-specific impacts are expected to be manageable through implementation of a Chance Find Protocol.

Visual, noise, air quality and traffic impacts are expected to be manageable through standard mitigation measures. Visual impacts must be considered in relation to nearby receptors and the broader modified landscape. Construction-phase dust, noise and traffic impacts must be managed through the EMPr, while operational impacts are expected to be limited and localised.

12.3 Layout and Management Implications

The final layout must apply the mitigation hierarchy by first avoiding confirmed sensitive features, then minimising and managing unavoidable impacts. Priority must be given to:

- Avoiding the ephemeral wetland system and applicable buffer;
- Maintaining natural drainage and stormwater flow patterns;
- Avoiding hydromorphic habitat, protected trees and mature woodland where possible;
- Reducing avifaunal disturbance and infrastructure-related risks;
- Using already disturbed or lower-sensitivity areas where feasible;
- Managing erosion, dust, noise, traffic and hazardous substances; and

- Implementing chance find procedures for heritage and palaeontological resources.

12.4 Summary

The Nyakallo Solar Park site is not uniformly sensitive but contains specific environmental features that require careful planning and management. The most important sensitivities relate to freshwater resources, hydromorphic habitat, terrestrial biodiversity, protected trees, avifauna, palaeontology, heritage chance finds and visual receptors.

Given the site's location within an already modified energy and infrastructure landscape, the proposed development is considered broadly compatible with the surrounding land use context. However, the acceptability of the Project will depend on final layout refinement, specialist assessment, avoidance of sensitive areas, implementation of mitigation measures and inclusion of all management requirements in the EMPr.

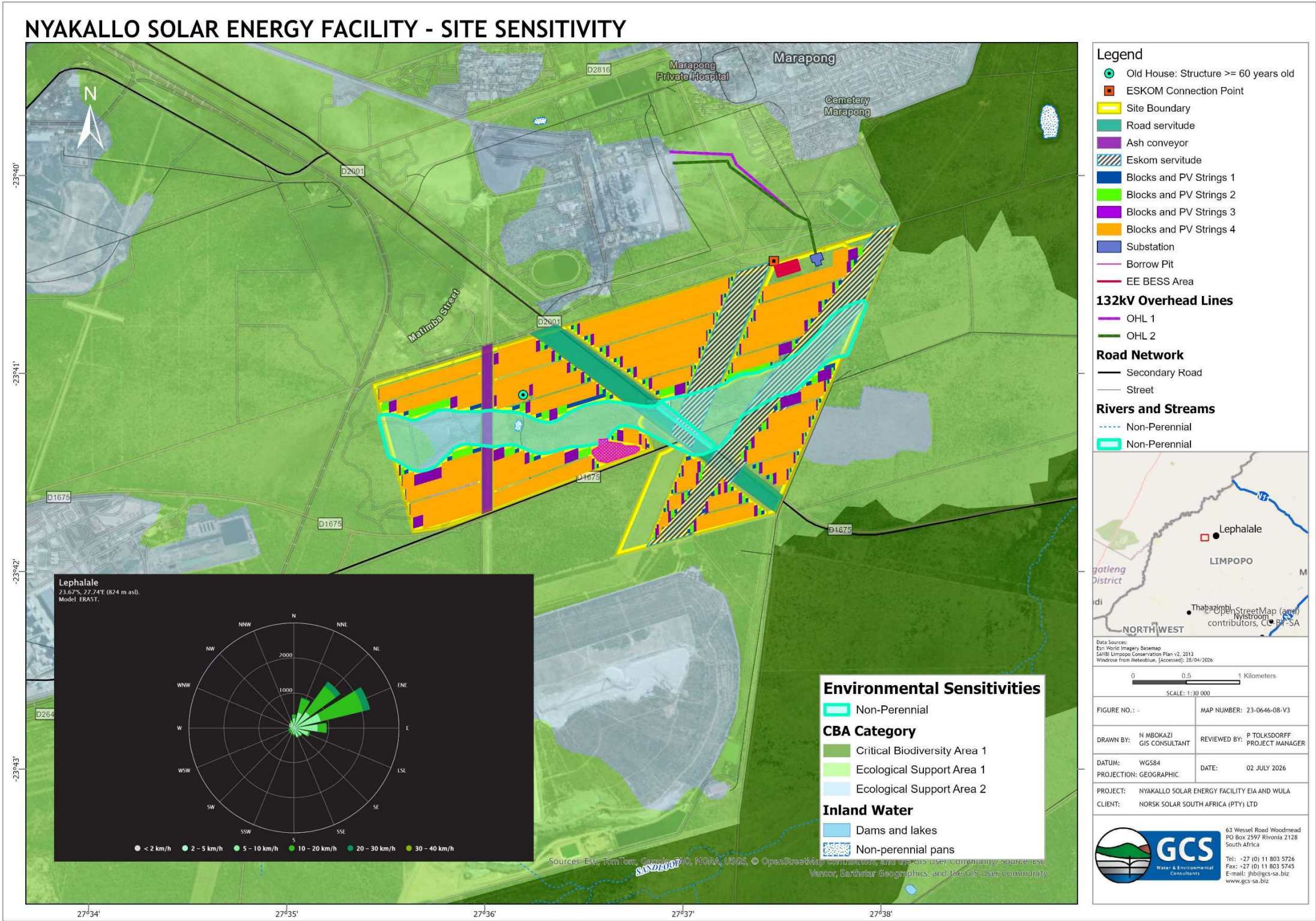


Figure 12-1: Overall Site Environmental Sensitivity Map

13 POTENTIAL IMPACTS ON THE ENVIRONMENT AND COMMUNITY IDENTIFIED DURING THE SCOPING PHASE

This section provides a high level description of the potential E&S impacts identified during the Scoping Phase for the proposed Nyakallo Solar Park. The impacts described below are preliminary and will be assessed in more detail during the EIA Phase, informed by the findings of the relevant specialist studies, stakeholder comments and the final project layout.

13.1 Construction Phase

13.1.1 Biodiversity

Construction activities may result in the clearance of vegetation and disturbance of natural woodland, hydromorphic habitat and areas supporting protected tree species. The establishment of PV arrays, internal roads, laydown areas, BESS infrastructure, substations and associated services could lead to habitat loss, fragmentation and displacement of fauna. Disturbance during construction may also affect SCC, reptiles, small mammals, amphibians, invertebrates and avifauna using the broader project area.

The removal or disturbance of mature woodland and protected trees may reduce habitat complexity and ecological connectivity within the site. Construction noise, movement of vehicles, artificial lighting, increased human presence and excavation activities may further disturb fauna and avifauna, particularly in areas close to wetland / wash systems and woodland habitats. Without proper control, construction activities may also facilitate the spread of alien invasive plant species through soil disturbance and vehicle movement.

These impacts can be reduced through layout refinement, avoidance of confirmed sensitive features, pre-construction walkdowns, demarcation of no-go areas, protected tree permitting where required, alien invasive plant control, rehabilitation of disturbed areas and implementation of biodiversity management measures in the EMPr.

13.1.2 Freshwater Resources

Construction activities may affect freshwater resources through vegetation clearing, earthworks, soil compaction, stormwater runoff, erosion and sedimentation. The project area contains an ephemeral wetland / wash system and associated buffer, which could be impacted if construction activities encroach into sensitive areas or alter natural surface water flow paths.

Potential impacts include disturbance of wetland habitat, increased sediment loads, localised erosion, alteration of drainage patterns, contamination from spills and reduced ecological functioning of freshwater features. Temporary construction activities such as access roads, laydown areas, stockpiles and material handling may further increase runoff and sediment transport during rainfall events.

These impacts should be managed through strict avoidance of the wetland / wash system and associated buffer, implementation of stormwater and erosion control measures, controlled vehicle access, appropriate placement of stockpiles and laydown areas, and regular inspection of drainage and sediment control structures during construction.

13.1.3 Soils and Land Capability

Construction will involve vegetation clearing, grading, excavation, trenching, compaction and the movement of construction vehicles and equipment. These activities may disturb soil structure, reduce infiltration, expose soils to erosion and result in the loss or mixing of topsoil. The establishment of internal roads, panel foundations, laydown areas and service trenches may also result in localised changes to land capability.

Although the agricultural sensitivity of the site has been refined from very high to moderate-low, construction may still result in the loss of land currently used for grazing, limited cultivation or other agricultural purposes. Soil disturbance may also increase the risk of erosion, particularly in areas where vegetation cover is removed and where runoff is concentrated.

Potential impacts can be managed through topsoil stripping and stockpiling, erosion control, minimising the construction footprint, restricting vehicle movement to designated roads, rehabilitation of temporary disturbance areas and preventing unnecessary disturbance outside the approved development footprint.

13.1.4 Groundwater

Construction activities may pose a risk to groundwater quality through accidental spills or leaks of hydrocarbons, oils, lubricants, cementitious materials and other hazardous substances. Excavations, trenches and foundation works may also temporarily expose subsurface materials and create preferential pathways for contamination if not properly managed.

Groundwater abstraction may be required to support construction activities, including dust suppression, concrete works, potable or domestic use, equipment washing and other site-related water demands. If abstraction is not appropriately managed, it may result in localised drawdown of groundwater levels, reduced availability of groundwater to existing users, changes to local groundwater flow patterns and potential stress on the aquifer, particularly during dry periods. Poorly managed abstraction could also affect nearby boreholes or groundwater-dependent users if abstraction volumes exceed sustainable yields.

Potential impacts to groundwater are therefore associated with both water quality and water quantity. Quality-related impacts may arise from poor storage and handling of hazardous substances, uncontrolled refuelling, inadequate spill response and poor management of construction wastewater. Quantity-related impacts may arise from excessive or unmonitored

abstraction, inadequate borehole management, or failure to comply with applicable water use authorisation requirements.

These impacts can be reduced through the implementation of a spill prevention and response plan, bunded storage areas, controlled refuelling areas, appropriate management of concrete wash water, protection of boreholes, abstraction monitoring, compliance with authorised abstraction volumes, and regular inspection of vehicles, equipment, hazardous substance storage areas and groundwater infrastructure.

13.1.5 Air Quality

Construction activities may generate dust and vehicle emissions from vegetation clearing, earthworks, grading, excavation, stockpiling, material handling and movement of vehicles on unpaved roads. Dust may affect nearby receptors, construction workers, surrounding land users and vegetation, particularly during dry and windy conditions.

Exhaust emissions from construction vehicles and machinery may result in localised increases in particulate matter, nitrogen oxides and other combustion-related pollutants. Although these impacts are typically temporary and limited to the construction period, unmanaged dust emissions may cause nuisance impacts and reduce local air quality.

Dust impacts can be managed through dust suppression, speed limits, stabilisation of exposed surfaces, covering of loads, minimising unnecessary clearing, progressive rehabilitation, and regular maintenance of construction vehicles and equipment.

13.1.6 Noise

Construction will generate noise from site clearing, earthworks, excavation, piling or foundation activities, vehicle movement, delivery trucks, cranes, generators and general construction equipment. Noise may affect nearby sensitive receptors, surrounding land users, site workers and fauna, particularly where activities occur close to residential areas, farms or other receptors.

Construction noise may be intermittent and vary depending on the type of activity, equipment used and proximity to receptors. Increased noise levels may result in nuisance, disturbance and temporary disruption to the existing acoustic environment. Fauna and avifauna may also be disturbed by sudden or prolonged construction noise.

Noise impacts should be managed through limiting noisy activities to appropriate working hours, maintaining equipment, using silencers where required, positioning noisy equipment away from receptors where practicable, and responding to noise complaints through the grievance mechanism.

13.1.7 Traffic and Road Safety

Construction will increase traffic volumes on local and regional roads due to the delivery of

PV panels, mounting structures, BESS components, transformers, construction materials, equipment and workforce transport. Heavy vehicle movements may affect road safety, road condition, traffic flow and access for surrounding land users.

Potential impacts include increased risk of vehicle accidents, damage to road surfaces, dust from unpaved roads, temporary disruption at access points and safety risks to pedestrians, livestock, local road users and construction workers. Abnormal load deliveries may also require careful planning and coordination with relevant authorities.

These impacts can be managed through a traffic management plan, designated haul routes, speed control, signage, driver induction, scheduling of deliveries, maintenance of access roads, and consultation with relevant road authorities and affected landowners.

13.1.8 Waste and Hazardous Substances

Construction will generate solid and liquid waste streams, including general domestic waste, packaging materials, scrap metals, cables, timber, concrete waste, surplus construction materials and hazardous wastes such as oils, lubricants, solvents, contaminated rags and spill clean-up materials. Without proper management, these wastes could result in littering, soil contamination, water pollution and visual degradation.

Hazardous substances used during construction, including fuels, oils, chemicals, paints and cleaning agents, may pose a risk to soils, groundwater and freshwater resources if incorrectly stored, handled or disposed of. Poor waste management could also attract pests and contribute to informal dumping if not properly controlled.

Waste impacts can be managed through a structured waste management plan, waste separation, recycling where feasible, safe storage of hazardous wastes, disposal at appropriately licensed facilities, housekeeping inspections and prohibition of burning or burying waste on site.

13.1.9 Cultural Heritage

Construction activities may affect heritage resources through vegetation clearing, excavation, grading, trenching and movement of heavy machinery. Potential impacts include disturbance or destruction of archaeological material, stone tools, historical structures, palaeontological resources, graves or unmarked burial sites that may be present within the broader area.

The site includes heritage features and palaeontological sensitivity that require management through the assessment process. Although known heritage constraints can be avoided or managed through permitting and mitigation, chance finds may still occur during construction.

Potential impacts can be managed through implementation of a Chance Find Protocol, demarcation and avoidance of known heritage resources, worker awareness training, and

immediate cessation of work in the affected area if heritage or palaeontological material is uncovered.

13.1.10 Visual Aspects

Construction activities may temporarily alter the visual character of the project area through vegetation clearing, earthworks, laydown areas, cranes, construction camps, temporary lighting, dust generation and movement of vehicles and machinery. These activities may be visible from surrounding roads, settlements, farms and other receptors.

Construction-related visual impacts are expected to be temporary but may still affect the local sense of place, particularly where natural bushveld or open rural views are replaced by visible construction activity. Night-time lighting may also create visual intrusion if not properly managed.

Visual impacts can be reduced through minimising unnecessary clearing, maintaining tidy construction areas, controlling dust, limiting night-time lighting, rehabilitating temporary disturbance areas and using downward-facing security lighting where required.

13.1.11 Socio-Economic Environment

Construction may result in positive socio-economic impacts through temporary employment opportunities, procurement of goods and services, skills development and increased local economic activity. The project may provide opportunities for local contractors, accommodation providers, transport operators and suppliers during the construction period.

However, construction may also result in temporary social impacts such as increased traffic, noise, dust, safety risks, pressure on local services, influx of workers and potential disruption to surrounding land users. If local expectations regarding employment and procurement are not managed, dissatisfaction may arise among community members.

These impacts can be managed through transparent employment and procurement procedures, stakeholder engagement, a grievance mechanism, worker codes of conduct, and local recruitment where feasible and ongoing communication with affected communities and landowners.

13.1.12 Health and Safety

Construction activities may pose health and safety risks to workers, contractors, visitors and the surrounding community. Potential risks include vehicle accidents, heavy machinery incidents, working at heights, electrical hazards, fire risk, exposure to dust and noise, hazardous substance handling, excavation hazards and heat stress.

Community health and safety risks may arise from increased construction traffic, unauthorised access to construction areas, dust generation, open excavations and interaction between construction workers and local communities. Poor site control could increase the

risk of accidents or security incidents.

These impacts can be managed through implementation of an occupational health and safety plan, access control, induction and training, emergency response planning, personal protective equipment, signage, traffic management, fire prevention measures and regular safety inspections.

13.2 Operation Phase

13.2.1 Biodiversity

During operation, the presence of PV infrastructure, fencing, internal roads, BESS facilities, substations and maintenance activities may result in ongoing habitat modification and reduced movement of fauna across the site. Operational activities may also result in disturbance to birds, mammals, reptiles and other fauna through vehicle movement, maintenance activities, lighting and human presence.

The project may affect biodiversity through collision risks, displacement of sensitive species, alteration of habitat structure, spread of alien invasive species and reduced ecological connectivity. Avifauna may be affected by habitat displacement, disturbance near nesting or foraging areas, collision with infrastructure and changes in local habitat availability.

Operational impacts can be managed through biodiversity monitoring, alien invasive plant control, maintenance of no-go areas, appropriate fencing design where feasible, sensitive lighting, speed limits, continued avifaunal monitoring and implementation of specialist recommendations.

13.2.2 Freshwater Resources

Operational impacts to freshwater resources may arise from stormwater runoff from compacted areas, internal roads, panel areas and associated infrastructure. Changes in runoff patterns may increase erosion or sedimentation if stormwater is not properly managed. Maintenance activities may also pose a risk of contamination from spills, leaks or poor waste handling.

The ephemeral wetland / wash system and associated buffer remain key freshwater features requiring protection throughout the operational phase. If stormwater controls are poorly maintained, concentrated flows may alter natural drainage patterns or affect downstream freshwater habitat.

These impacts can be managed through long term stormwater management, routine inspection and maintenance of erosion controls, protection of wetland buffers, spill response procedures and avoidance of operational encroachment into sensitive freshwater areas.

13.2.3 Soils and Land Capability

Operation of the solar facility will result in the long term conversion of parts of the site from

agricultural or natural land use to renewable energy infrastructure. While some soil disturbance will be reduced after construction, operational activities may continue to cause localised compaction, erosion and disturbance along roads, maintenance routes and around infrastructure.

The project may reduce the availability of land for grazing or cultivation within the development footprint for the duration of the operational life. However, areas outside the infrastructure footprint may retain some ecological or low-intensity land use potential, depending on the final layout and management approach.

Operational soil impacts can be managed through erosion monitoring, maintenance of vegetation cover where feasible, control of vehicle movement, rehabilitation of disturbed areas and regular inspection of drainage and erosion-prone areas.

13.2.4 Groundwater

Operational risks to groundwater include both potential groundwater quality impacts and water quantity impacts associated with groundwater abstraction for operational use. Groundwater abstraction may be required for operational and maintenance activities, including panel cleaning, domestic use, fire water storage, landscaping or general facility maintenance. If abstraction is not appropriately authorised, monitored and managed, it may result in localised lowering of groundwater levels, reduced borehole yields, changes to groundwater flow patterns and potential impacts on existing groundwater users in the surrounding area.

Operational risks to groundwater quality are mainly associated with accidental spills or leaks from transformers, BESS infrastructure, maintenance vehicles, oils, lubricants, cleaning materials and hazardous substance storage areas. If not properly contained, contaminants may infiltrate soils and affect local groundwater quality.

These impacts can be reduced through compliance with applicable water use authorisation requirements, abstraction metering and monitoring, adherence to sustainable abstraction rates, periodic inspection of boreholes and water supply infrastructure, water conservation and reuse measures where feasible, bunded infrastructure, spill containment, appropriate hazardous substance storage, regular maintenance, emergency response procedures and groundwater monitoring where required by the relevant specialist recommendations or authorisations.

13.2.5 Air Quality

Operational air quality impacts are expected to be limited, as solar PV facilities do not generate significant combustion emissions during normal operation. Potential air quality impacts may arise from vehicle movement on internal roads, maintenance activities, dust from exposed surfaces and occasional use of backup equipment or generators.

The project may also have a positive regional air quality and climate-related contribution by generating renewable electricity with negligible operational greenhouse gas emissions when compared with conventional fossil fuel-based electricity generation.

Operational air quality impacts can be managed through road maintenance, speed control, dust suppression where required, vegetation stabilisation and maintenance of vehicles and equipment.

13.2.6 Noise

Operational noise may be generated by inverters, transformers, BESS cooling systems, substation equipment, security systems and maintenance vehicles. Noise levels are expected to be more continuous but generally lower than peak construction noise, depending on the final equipment specifications and distance to receptors.

Potential impacts may include nuisance at nearby sensitive receptors if equipment is located close to receptors or if tonal noise is generated. Fauna may also be affected by persistent operational noise in sensitive habitat areas.

Noise impacts can be managed through equipment selection, appropriate siting of noise-generating infrastructure, maintenance of equipment, use of acoustic enclosures where necessary and response to any operational noise complaints.

13.2.7 Traffic and Road Safety

Operational traffic will be substantially lower than construction traffic and will mainly comprise staff vehicles, security vehicles, maintenance vehicles and occasional deliveries of replacement components. Potential impacts may include minor increases in traffic on access roads, safety risks at site entrances and dust from internal roads.

These impacts can be managed through access control, speed limits, road maintenance, signage and continued implementation of traffic safety measures.

13.2.8 Waste and Hazardous Substances

Operational waste may include general domestic waste, packaging, damaged panels, electrical components, used oils, filters, batteries, cleaning materials and hazardous waste associated with maintenance activities. BESS infrastructure may also require specialised handling of battery components at the end of their service life.

If not properly managed, operational waste and hazardous substances could result in soil contamination, groundwater pollution, fire risk, littering and harm to fauna. Damaged or obsolete PV panels, batteries and electrical equipment must be managed through appropriate reuse, recycling or disposal pathways.

These impacts can be managed through an operational waste management plan, waste separation, safe storage of hazardous waste, use of licensed waste facilities, supplier take-

back options where available, spill response procedures and regular housekeeping inspections.

13.2.9 Cultural Heritage

Operational impacts to cultural heritage are expected to be limited if known heritage resources are avoided or managed during construction. However, ongoing maintenance, road works, trenching or repair activities may still disturb previously unidentified archaeological, palaeontological or heritage material.

A Chance Find Protocol should remain applicable during operation, especially for any future ground-disturbing works. Known heritage resources should be demarcated or recorded as required and protected from accidental disturbance.

13.2.10 Visual Aspects

The operational solar facility will introduce a large-scale renewable energy facility into the landscape, including PV arrays, BESS containers, substations, fencing, internal roads and associated infrastructure. This may change the visual character of the site from predominantly rural / natural and agricultural land to an energy infrastructure landscape.

Potential visual impacts may be experienced by nearby residents, road users, farms and surrounding receptors. The scale, reflectivity, colour, form and extent of the PV arrays may influence the sense of place, particularly where views are currently open or dominated by bushveld vegetation. Night-time lighting may also contribute to visual intrusion if not properly controlled.

The broader Lephalale area is already influenced by energy generation, transmission infrastructure, mining and industrial land uses. This context may reduce the contrast of the project in the regional landscape but does not remove the need to manage site-specific visual impacts.

Visual impacts can be managed through layout refinement, retention of vegetation screening where feasible, sensitive lighting design, use of non-reflective finishes where possible, good housekeeping and rehabilitation of disturbed areas.

13.2.11 Socio-Economic Environment

The operational phase may provide long term socio-economic benefits through renewable energy generation, local employment, security and maintenance opportunities, municipal and regional economic contributions, skills development and support for South Africa's energy transition. The BESS component may also support grid stability and improve the dispatchability of renewable electricity.

Potential negative socio-economic impacts may include changes in land use, reduced availability of land for agricultural purposes within the footprint, perceived impacts on sense

of place, concerns about security, and limited long term employment expectations compared with the construction phase.

These impacts can be managed through continued stakeholder engagement, transparent communication on employment opportunities, local procurement where feasible, grievance management, and implementation of social management commitments.

13.2.12 Health and Safety

Operational health and safety risks may include electrical hazards, fire risks associated with electrical equipment and BESS infrastructure, vehicle movement, security risks, maintenance activities, exposure to hazardous substances and emergency response requirements. Community safety risks may arise if unauthorised access to the facility occurs.

BESS infrastructure requires particular attention to fire prevention, emergency response planning, ventilation, containment and manufacturer-specific safety requirements. Electrical infrastructure must also be managed to prevent electrocution, fire and operational incidents.

These impacts can be managed through access control, emergency response planning, fire management systems, compliance with electrical safety standards, worker training, routine inspections, security measures and coordination with local emergency services.

13.3 Decommissioning Phase

Decommissioning, though decades in the future, will reintroduce impacts similar to those of the construction phase, including dust, noise, waste generation, and traffic from the removal of infrastructure. However, this phase will also provide the opportunity to recycle components, remove obsolete infrastructure, and rehabilitate the land to a natural or near natural state, or to alternative compatible uses such as agriculture or conservation.

14 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS⁵⁵

The purpose of the EIA Phase is to thoroughly investigate the potential negative and positive impacts of the project's activities on the environment. This phase involves quantifying the potential impacts to evaluate their significance and the extent to which they may affect the receiving environment.

The objectives of the EIA Phase are to:

- Ensure comprehensive consideration of impacts: assess both the biophysical and socio-economic impacts of the project to inform the decision-making process.
- Minimise environmental harm: propose management and mitigation measures to avoid or

⁵⁵ Required as per the EIA Regulations, 2014 Appendix 2 (2) (1) (h) a plan of study for undertaking the environmental impact assessment process to be undertaken.

reduce significant negative impacts, ensuring that project activities do not have a substantial detrimental effect on the environment.

- Facilitate stakeholder engagement: inform I&APs about the project and the PPP that will be followed.
- Provide a platform for public input: offer I&APs the opportunity to raise their concerns and contribute to the assessment process.
- Enable informed decision-making: provide authorities with a robust process that ensures E&S considerations are integrated into their decisions, meeting their obligations to safeguard both the environment and the affected communities.

14.1 Description of Alternatives to be Considered, Including the No-Project Option

A description of the alternatives considered thus far is provided in Section 7. Additional alternatives may be identified through ongoing stakeholder engagement and specialist studies.

14.2 Description of Aspects to be Assessed by Specialists

The following aspects will be assessed through ToR-based investigations to be undertaken by appointed specialist consultants. Each ToR has been developed to ensure that the investigations are thorough, methodologically sound, and fully compliant with legislative and regulatory requirements applicable to the project. The specialists will evaluate the significance of potential environmental and socio-economic impacts across the construction, operational and decommissioning phases. The outcomes will inform mitigation measures, guide best practice integration, and ensure that the Nyakallo Solar Park is designed and implemented in a manner that promotes environmental sustainability and minimises adverse effects. All specialists will be registered with South African Council for Natural Scientific Professions or an equivalent recognised professional body, where applicable.

14.2.1 Soils, Land Use and Land Capability Assessment

The soils, land use and land capability assessment will confirm the soil forms, soil depth, soil sensitivity, land capability, agricultural potential and existing land uses within the proposed development footprint. The assessment will consider the potential loss of agricultural land, soil disturbance, erosion, compaction, topsoil loss and changes to current land use resulting from construction, operation and decommissioning activities. The specialist will identify areas requiring avoidance or specific management, provide mitigation measures for soil handling and rehabilitation, and recommend measures for inclusion in the EMPr.

14.2.2 Hydropedology Assessment

The hydropedology assessment will assess the relationship between soils, hillslope processes, subsurface water movement and wetland / drainage features within the Project area. The assessment will identify hydropedological soil indicators, preferential flow paths, recharge and interflow zones, and areas where soil-water processes may support freshwater features. The specialist will assess the potential impacts of vegetation clearing, compaction, earthworks, roads, stormwater infrastructure and infrastructure placement on hydropedological functioning. Recommendations will be provided to inform layout refinement, buffer requirements, stormwater management and the EMPr.

14.2.3 Terrestrial Ecological Assessment

The terrestrial ecological assessment will assess vegetation communities, habitat types, protected plant species, alien invasive species, faunal habitat, ecological connectivity and terrestrial biodiversity sensitivity within the Project area. The assessment will identify sensitive habitats and SCC that may be affected by the proposed development. Potential impacts to be assessed will include habitat loss, fragmentation, disturbance to fauna, loss of protected trees, edge effects, alien invasive plant spread and cumulative biodiversity impacts. The specialist will recommend avoidance areas, mitigation measures, permits required where applicable, rehabilitation actions and monitoring measures for inclusion in the EMPr.

14.2.4 Avifaunal Assessment

The avifaunal assessment will assess bird species, avifaunal habitats, SCC, raptor activity, large terrestrial birds, waterbird use and potential bird movement patterns within the Project area and surrounding landscape. The assessment will consider potential impacts such as habitat displacement, disturbance, collision risk, electrocution risk where relevant, lighting impacts and cumulative impacts associated with renewable energy development in the broader area. The specialist will provide mitigation measures, monitoring requirements and layout recommendations to minimise impacts on avifauna during construction, operation and decommissioning.

14.2.5 Aquatic Assessment

The aquatic assessment will delineate and assess freshwater features within and near the Project area, including the ephemeral wetland / wash system, drainage lines and associated buffer areas. The assessment will describe the Present Ecological State, Ecological Importance and Sensitivity, hydrological and ecological functioning, and regulatory implications of the identified freshwater features. Potential impacts to be assessed will include encroachment into freshwater features, alteration of surface flow paths, erosion, sedimentation, contamination and loss of aquatic habitat. The specialist will recommend

buffers, avoidance areas, mitigation measures, water use authorisation requirements and monitoring measures for inclusion in the EMPr.

14.2.6 Hydrological Assessment

The hydrological assessment will assess catchment characteristics, surface water flow paths, runoff, stormwater behaviour, drainage patterns, flood-related risks and potential impacts of the proposed development on surface water resources. The assessment will evaluate the potential effects of vegetation clearing, increased hardstanding areas, roads, foundations and stormwater infrastructure on runoff volumes, flow concentration, erosion and sediment transport. The specialist will prepare or refine the conceptual stormwater management approach, identify erosion and sediment control requirements, assess surface water-related risks and recommend management and monitoring measures for inclusion in the EMPr and, where applicable, the WULA process.

14.2.7 Geohydrological Assessment

The geohydrological assessment will assess the groundwater setting, aquifer characteristics, groundwater levels, groundwater quality, groundwater users, borehole yields and potential groundwater-related impacts associated with the proposed development. The assessment will consider both groundwater quality risks, such as spills, leaks and hazardous substance handling, and groundwater quantity risks associated with groundwater abstraction for construction and operational water use. The specialist will confirm sustainable abstraction rates, pumping schedules, groundwater monitoring requirements, potential impacts on existing users and mitigation measures for inclusion in the EMPr and WUL process.

14.2.8 Noise Screening Assessment

The noise screening assessment will identify potential noise sensitive receptors and assess whether construction, operational and decommissioning activities may result in nuisance or disturbance. The assessment will consider construction equipment, vehicle movements, delivery activities, inverter stations, transformers, BESS cooling systems, substation equipment and other operational noise sources. The specialist will determine whether further detailed noise assessment will be required, identify management measures to reduce noise impacts and provide recommendations for working hours, equipment maintenance, complaint response and EMPr commitments.

14.2.9 Air Quality Assessment

The Air Quality Assessment will assess potential air quality impacts associated with construction, operation and decommissioning of the Project. The assessment will consider dust generation from vegetation clearing, earthworks, exposed surfaces, stockpiles, material handling and vehicle movement, as well as emissions from construction equipment and vehicles. The operational phase assessment will consider limited dust sources associated with

road use and maintenance activities. The specialist will identify nearby sensitive receptors, assess cumulative air quality context where relevant, and recommend dust suppression, vehicle control, monitoring and management measures for inclusion in the EMPr.

14.2.10 Climate Change Assessment

The climate change assessment will assess the Project's greenhouse gas emissions, climate change benefits and climate-related risks to the Project. The assessment will consider emissions associated with construction, operation and decommissioning, as well as the renewable energy contribution of the Project compared to fossil fuel-based electricity generation. The assessment will also consider climate resilience risks, including extreme heat, rainfall variability, storms, flooding, water availability, dust accumulation and impacts on infrastructure performance. The specialist will recommend climate change mitigation, adaptation, monitoring and resilience measures for inclusion in the Project design and EMPr.

14.2.11 Archaeological Impact Assessment

The archaeological impact assessment will assess potential impacts on archaeological and cultural heritage resources within the Project area. The assessment will include a desktop review, field verification where required, identification of known or potential heritage resources, assessment of heritage sensitivity and determination of whether any permits or additional management measures will be required. Potential impacts to be assessed will include disturbance or destruction of archaeological artefacts, historical structures, cultural landscape features, graves or chance finds during construction. The specialist will provide mitigation measures, chance find procedures and recommendations for inclusion in the EMPr.

14.2.12 Palaeontological Impact Assessment

The palaeontological impact assessment will assess the palaeontological sensitivity of the geological formations underlying the Project area and the likelihood of fossil heritage being affected by the proposed development. The assessment will consider the depth and extent of excavations, foundation works, trenching, road construction and other ground-disturbing activities. The specialist will determine whether further field assessment, monitoring or fossil-find procedures will be required. Recommendations will include a Chance Find Protocol and any conditions required to manage palaeontological resources during construction and decommissioning.

14.2.13 Traffic Impact Assessment

The Traffic Impact Assessment will assess the potential impacts of construction, operation and decommissioning traffic on the surrounding road network. The assessment will identify access routes, site access requirements, internal road arrangements, construction vehicle volumes, staff transport, abnormal load requirements, road safety risks, road condition impacts and cumulative traffic implications. The specialist will assess the suitability of

proposed access arrangements, identify permits or approvals required for abnormal loads, and recommend mitigation measures such as traffic management, signage, speed control, delivery scheduling, road maintenance and driver safety requirements for inclusion in the EMPr.

14.2.14 Visual Impact Assessment, including Glint and Glare

The Visual Impact Assessment will assess the potential visual effects of the proposed solar facility on the receiving environment, surrounding receptors, road users, settlements, farms, tourism receptors and the broader sense of place. The assessment will consider the visibility of PV arrays, BESS infrastructure, substations, fencing, roads, lighting and associated infrastructure during construction, operation and decommissioning. The assessment will also consider potential glint and glare impacts on aviation receptors, motorists and other sensitive receptors. The specialist will provide viewshed analysis, receptor sensitivity assessment, glint and glare modelling where required, layout and screening recommendations, lighting controls and mitigation measures for inclusion in the EMPr.

14.2.14.1 Socio-Economic Assessment

The socio-economic assessment will assess the potential positive and negative social and economic impacts associated with the proposed development. The assessment will consider local and regional employment, procurement, skills development, community benefits, impacts on existing land uses and livelihoods, perceptions of change, sense of place, community health and safety, vulnerable groups, worker influx and cumulative social impacts. The specialist will identify opportunities to enhance local benefits and recommend measures to manage social risks, stakeholder expectations, grievance mechanisms, local employment procedures and community health and safety requirements for inclusion in the EMPr.

14.3 Methodology for Assessing Impacts

The impacts of the proposed project will be assessed and rated according to the methodology described below and which was developed to align with the requirements of Appendix 3 of the EIA Regulations. The assessment process will follow a structured approach comprising four key activities:

- Identification and assessment of potential impacts likely to result from the project activities.
- Prediction of the nature, magnitude, extent, and duration of these impacts, with specific focus on those that may be significant.
- Identification of appropriate mitigation measures to reduce, avoid, or manage the severity or significance of the potential impacts.

- Evaluation of residual impacts to determine the significance of the impact after implementation of mitigation measures.

The assessment of significance was guided by a set of criteria, including:

- Cumulative impacts in the broader E&S context.
- Nature of the impact, i.e., whether it is positive, negative, direct, or indirect.
- Extent of the impact, ranging from localised to regional or national scale.
- Probability of occurrence of the impact.
- Reversibility of the impact, i.e., whether it can be restored to pre-impact conditions.
- Irreplaceability of affected resources, considering whether resources lost can be substituted or recovered.
- Potential for mitigation, i.e., the extent to which the impact can be avoided, minimised, or offset.

The evaluation of significance followed a consequence-probability approach:

$$\text{Consequence} = (\text{Duration} + \text{Extent} + \text{Irreplaceability of resource}) \times \text{Severity}$$

The overall significance of an impact was then determined using the formula:

$$\text{Significance} = \text{Consequence} \times \text{Probability}$$

A summary of the criteria used to assess the significance of impacts is provided in Table 14-1, with detailed explanations presented in Table 14-2.

Table 14-1: Proposed Criteria and Rating Scales to be used in the Assessment of the Potential Impacts

Criteria	Rating Scales	Notes
Nature	Positive (+)	An evaluation of the effect of the impact related to the proposed development.
	Negative (-)	
Duration	Temporary (1)	The duration of the activity associated with the impact will last 0 - 6 months.
	Short-term (2)	The duration of the activity associated with the impact will last 6-18 months.
	Medium-term (3)	The duration of the activity associated with the impact will last 18 months - 5 years.
	Long term (4)	The duration of the activity associated with the impact will last more than 5 years.
Extent	Footprint (1)	The impact only affects the area in which the proposed activity will occur.
	Site (2)	The impact will affect only the development area.
	Local (3)	The impact affects the development area and adjacent properties.
	Regional (4)	The effect of the impact extends beyond municipal boundaries.
	National (5)	The effect of the impact extends beyond more than 2 regional/ provincial boundaries.
	International (6)	The effect of the impact extends beyond country borders.
Severity	Low (1)	Where the impact affects the environment in such a way

Criteria	Rating Scales	Notes
		that natural, cultural, and social functions and processes are minimally affected.
	Moderate (2)	Where the affected environment is altered but natural, cultural, and social functions and processes continue albeit, in a modified way, and valued, important, sensitive, or vulnerable systems or communities are negatively affected.
	High (3)	Where natural, cultural, or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease, and valued, important, sensitive, or vulnerable systems or communities are substantially affected.
Potential for impact on irreplaceable resources	No (0)	No irreplaceable resources will be impacted.
	Yes (1)	Irreplaceable resources will be impacted.
Consequence	Extremely detrimental (-25 to -33)	A combination of extent, duration, intensity, and the potential for impact on irreplaceable resources.
	Highly detrimental (-19 to -24)	
	Moderately detrimental (-13 to -18)	
	Slightly detrimental (-7 to -12)	
	Negligible (-6 to 0)	
	Slightly beneficial (0 to 6)	
	Moderately beneficial (13 to 18)	
	Highly beneficial (19 to 24)	
	Extremely beneficial (25 to 33)	
Probability (the likelihood of the impact occurring)	Improbable (0)	It is highly unlikely or less than 50% likely that an impact will occur.
	Probable (1)	It is between 50 and 70% certain that the impact will occur.
	Definite (2)	It is more than 75% certain that the impact will occur or the impact will occur.
Significance	Very high - negative (-49 to -66)	A function of Consequence and Probability.
	High - negative (-37 to -48)	
	Moderate - negative (-25 to -36)	
	Low - negative (-13 to -24)	
	Neutral - Very low (0 to -12)	
	Low positive (0 to 12)	
	Moderate-positive (13 to 24)	
	High-positive (37 to 48)	
	Very high - positive (49 to 66)	

Table 14-2: Explanation of Assessment Criteria

Criteria	Explanation
Nature	This is an evaluation of the type of effect the construction, operation, and management of the proposed development would have on the affected environment. Will the impact of change on the environment be positive, negative, or neutral?

Criteria	Explanation
Extent or Scale	This refers to the spatial scale at which the impact will occur. The extent of the impact is described as footprint (affecting only the footprint of the development), site (limited to the site), and regional (limited to the immediate surroundings and closest towns to the site). The extent of scale refers to the actual physical footprint of the impact, not to the spatial significance. It is acknowledged that some impacts, even though they may be of a small extent, are of very high importance, e.g., impacts on species of very restricted range. To avoid “double counting,” specialists have been requested to indicate spatial significance under “intensity” or “impact on irreplaceable resources” but not under “extent” as well.
Duration	The lifespan of the impact is indicated as temporary, short, medium, and long term.
Severity	This is a relative evaluation within the context of all the activities and the other impacts within the framework of the project. Does the activity destroy the impacted environment, alter its functioning, or render it slightly altered?
Impact on irreplaceable resources	This refers to the potential for an environmental resource to be replaced should it be impacted. A resource could be replaced by natural processes (e.g., by natural colonisation from surrounding areas), through artificial means (e.g., by reseeded disturbed areas or replanting rescued species) or by providing a substitute resource, in certain cases. In natural systems, providing substitute resources is usually not possible, but in social systems, substitutes are often possible (e.g., by constructing new social facilities for those who are lost). Should it not be possible to replace a resource, the resource is essentially irreplaceable, e.g., red data species that are restricted to a particular site or habitat to a very limited extent.
Consequence	The consequence of the potential impacts is a summation of the above criteria, namely the extent, duration, intensity, and impact on irreplaceable resources.
Probability of occurrence	The probability of the impact occurring is based on the professional experience of the specialist with environments of a similar nature to the site and/or with similar projects. It is important to distinguish between the probability of the impact occurring and the probability that the activity causing a potential impact will occur. Probability is defined as the probability of the impact occurring, not as the probability of the activities that may result in the impact.
Significance	Impact significance is defined to be a combination of the consequence (as described below) and the probability of the impact occurring. The relationship between consequence and probability highlights that the impact (or impact significance) must be evaluated in terms of the seriousness (consequence) of the impact, weighted by the probability of the impact occurring. In simple terms, if the consequence and probability of an impact are high, then the impact will have a high significance. The significance defines the level to which the impact will influence the proposed development and/or environment. It determines whether mitigation measures need to be identified and implemented and whether the impact is important for decision-making.
Degree of confidence in predictions	Specialists and the environmental team were required to indicate the degree of confidence (low, medium, or high) that there is in the predictions made for each impact based on the available information and their level of knowledge and expertise. The degree of confidence is not considered in the determination of consequence or probability.
Mitigation measures	Mitigation measures are designed to reduce the consequence or probability of an impact or to reduce both consequence and probability. The significance of impacts has been assessed both with mitigation and without mitigation.

14.3.1.1 Cumulative Assessment Methodology

“Cumulative impact, in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.”

The cumulative impact assessment will be undertaken during the EIA Phase using a structured, qualitative methodology, supported by quantitative indicators where feasible. The assessment will evaluate the contribution of the proposed Nyakallo Solar Park in combination with existing developments and reasonably foreseeable future activities occurring within the surrounding landscape.

Cumulative impacts will be clearly defined and, where practicable, quantified, including but not limited to:

- Cumulative land transformation (expressed in hectares).
- Loss and fragmentation of natural and semi-natural habitats.
- Reduction in ecological connectivity.
- Cumulative pressure on aquatic systems and wetlands.
- Cumulative visual and landscape character change.
- Additive disturbance to biodiversity and ecosystem processes.

The identified cumulative impacts will be assessed and rated using the same significance rating methodology applied to project-specific impacts, ensuring consistency across the EIA process.

14.4 Cumulative Spatial Context

The cumulative spatial context of the proposed development is illustrated in the Cumulative Sensitivity Map (Figure 14-1). The map presents the project site within a 30 km assessment radius, consistent with the spatial extent identified by the DFFE online environmental screening and mapping portal for cumulative impact assessment.

The DFFE portal identifies a number of existing, approved and proposed developments within this 30 km radius. All appointed specialists will be provided with the relevant spatial datasets obtained from the DFFE portal and will be required to incorporate these surrounding developments into their cumulative impact assessments.

14.5 Assessment Approach and Integration

A transparent and traceable cumulative assessment process will be followed. Each specialist

will be required to demonstrate:

- How surrounding developments were identified and spatially mapped.
- How cumulative interaction pathways were evaluated.
- How existing baseline degradation and development pressure were considered.
- How mitigation measures and findings from similar developments in the area informed the assessment.
- How proposed mitigation measures contribute to reducing cumulative effects.

This process will be clearly documented within the individual specialist reports and integrated into the EIA Report.

14.6 Use of Cumulative Impact Findings

The resulting cumulative impact significance ratings will be used to inform the assessment of the need and desirability of the proposed development. A clear cumulative impact environmental statement will be provided, indicating whether the proposed Nyakallo Solar Park should proceed in the context of existing and reasonably foreseeable developments within the surrounding area.

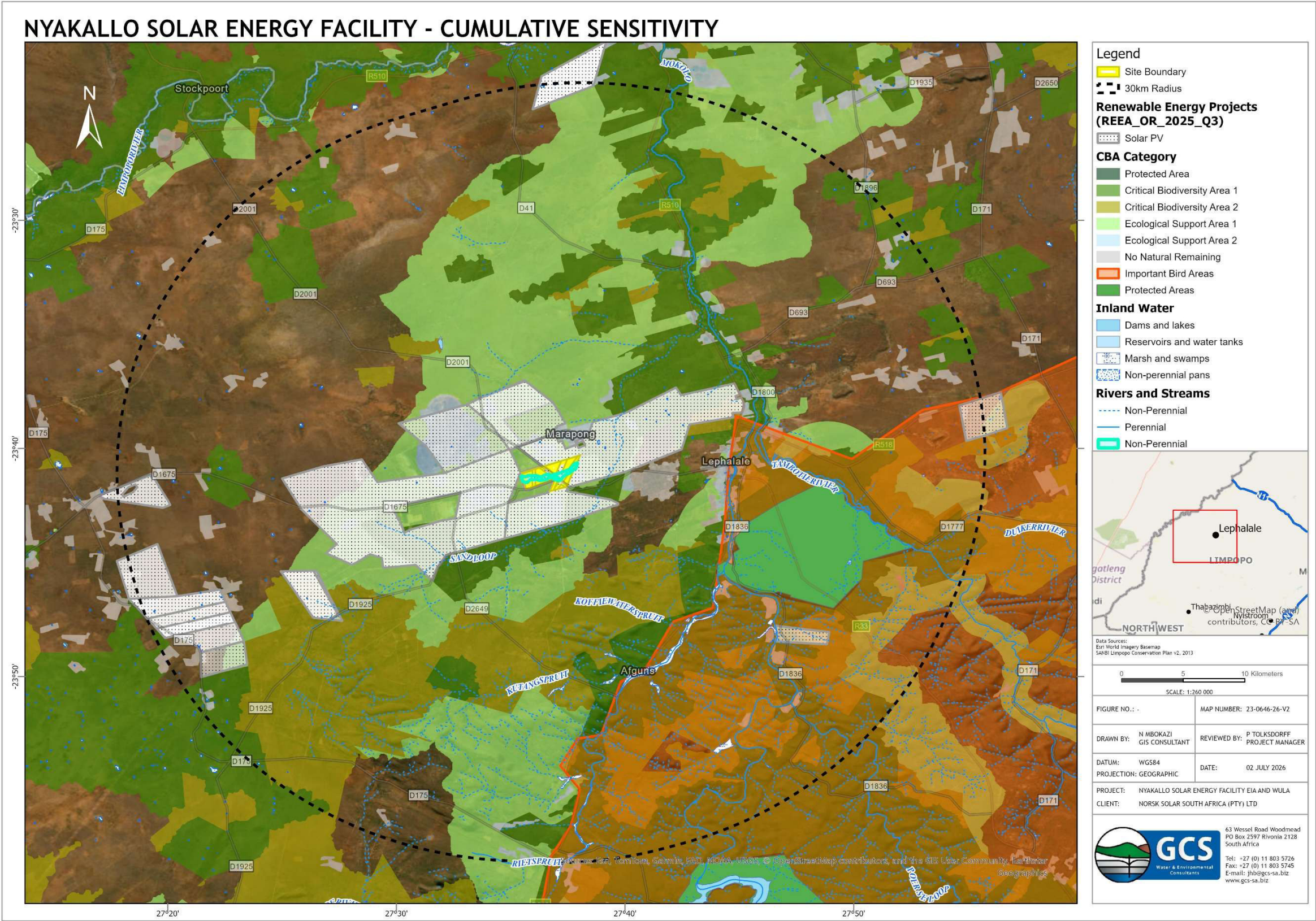


Figure 14-1: Cumulative Environmental Sensitivity Mapping

14.7 The Stages at which the Competent Authority will be Consulted

The EAP will engage with the DFFE throughout the following subsequent phases:

- DSR: distribute the DSR during the public comment period to gather initial feedback and comments.
- FSR: submit the FSR to the DFFE for review and acceptance.
- Draft EIA Report and EMPr: distribute the Draft EIA Report and EMPr during the public comment period to collect comments.
- Final EIA Report and EMPr: submit the Final EIA Report and EMPr to the DFFE for review and a final decision.

14.8 Particulars of the Public Participation Process

The PPP during the EIA Phase is centred around the review of the EIA findings, which will be documented in the Draft EIA Report. Stakeholders will be informed of the project's progress and the availability of the Draft EIA Report through mail, e-mail, and/or SMS notifications. A legislated 30-day public comment period will be provided to ensure ample time for feedback and engagement.

The Draft EIA Report will be made accessible in the following ways:

- Online Access: the Report will be available for download from the GCS website.
- Physical Copies: hard copies will be placed in public locations, such as the Lephalale Public Library and Marapong Library, to facilitate access for those without internet availability.

The specific approach for stakeholder engagement during the EIA Phase will be informed by initial consultations carried out during the Scoping Phase. Information provided I&APs during this phase will include:

- An updated site plan,
- A discussion of alternatives considered,
- A description of project activities and operations,
- Baseline environmental data,
- Findings from specialist studies,
- An assessment of identified impacts,
- Proposed management and mitigation measures,
- A monitoring and measurement plan, and

- Details related to project closure.

All feedback received during the EIA Phase will be meticulously documented in a CRR, which will be incorporated into both the Draft and Final EIA Reports. The Final EIA Report will also be made available for public review, with hard copies distributed to relevant authorities and key stakeholders. Upon the conclusion of the review process, all stakeholders will receive a formal letter notifying them of the decision made by the authorities.

A detailed overview of the planned stakeholder engagement activities is presented in Table 14-3, which includes the following:

Table 14-3: Stakeholder engagement activities planned for the Environmental Impact Assessment Phase

Activities	Details
Update of the Stakeholder Engagement Database	The existing database will be updated, with further amendments as new stakeholders are identified during the EIA Phase.
Announcement of the Draft EIA Report and Environmental Management Programme (EMPr)	Notification of the availability of the Draft EIA Report and EMPr will be disseminated via e-mail and bulk SMS.
Availability of the Draft EIA Report and EMPr	Hard copies will be available at the Lephalale Public Library and Marapong Library for public review and comment over the 30-day period.
Online Access	Documentation will be hosted on the GCS website, accessible for the public review period of 30 days.
Comments from Authorities	Copies of the Draft EIA Report and EMPr will be shared with relevant commenting authorities for their feedback.
Focus Group Meetings	Meetings with focus groups will be organised to discuss specific concerns and gather input from stakeholders.
Stakeholder Feedback	Comments, concerns, and suggestions received during meetings and written submissions will be compiled in the CRR for the EIA Phase.
Final EIA Report and EMPr	The final Report will be updated to reflect stakeholder input, with the CRR included as part of the submission to the DFFE.

15 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY⁵⁶

15.1 Impact on the Socio-Economic Conditions of Any Directly Affected Person

The Nyakallo Solar Park will influence the socio-economic conditions of directly affected persons in both positive and negative ways. On the positive side, the project will create jobs during construction and operation, with a focus on local recruitment, and provide skills development and training opportunities. Local service providers and suppliers stand to benefit from procurement opportunities in transport, civil works, accommodation, catering, and security. Improved energy reliability will further support households, schools, clinics, and businesses in the area, while also stabilising mining operations that sustain regional employment.

The primary negative impact relates to the permanent change in land use. Once the land is

⁵⁶ Required as per the EIA Regulations Appendix 2 (2) (1) (l) any other matter required in terms of section 24 (4) (a) and (b) of the Act.

purchased by the Applicant, existing agricultural practices, such as livestock grazing and residual crop farming, will cease. While these activities are privately managed and not community-based, their discontinuation represents a shift away from traditional land uses to energy generation, with implications for the landowner and any associated farm employment. Construction activities may also cause temporary disruption, including increased dust, noise, and traffic, while the presence of large-scale solar infrastructure will alter the sense of place and visual character of the site.

Placed within the broader historical context—where the region has already transitioned from predominantly agricultural and natural landscapes to a hub for energy and industrial development with the establishment of Matimba and Medupi Power Stations, infrastructure servitudes—the project represents a continuation of this land use trajectory. Unlike coal-based energy projects, however, the solar park supports long term diversification of the local economy and contributes to South Africa’s just transition objectives. With fair engagement, effective management of construction-related impacts, and equitable distribution of employment and procurement opportunities, the socio-economic outcomes for directly affected persons are expected to remain net positive.

15.2 Impact on any National Estate Referred to in Section 3(2) of the National Heritage Resources Act

Section 3(2) of the NHRA defines the national estate as including, among others, burial grounds and graves, archaeological and palaeontological sites, cultural landscapes, and places of historical or social significance.

A Heritage Impact Assessment has been undertaken for the proposed Nyakallo Solar Park. The assessment included a desktop review and field survey to identify heritage resources that may form part of the national estate. Previous heritage surveys in the broader area recorded heritage resources such as Middle Stone Age scatters, graves, pottery, artefact scatters and structures on nearby properties. However, the site-specific field survey confirmed that no significant archaeological sites requiring mitigation were identified within the proposed development footprint.

Isolated Middle Stone Age and Late Stone Age stone tools were recorded across parts of the study area. These occur mainly as low-density surface scatters or lag deposits and were assessed as being of low heritage significance. No Iron Age sites were identified, and no significant archaeological resources requiring specific mitigation were confirmed within the proposed development area. A Marula tree with old cut marks, likely associated with traditional medicine use, and a fragment of a lower grinding stone were also recorded near possible historical occupation areas; however, these features are not expected to represent fatal flaws to the proposed development.

No graves or burial grounds were identified within the proposed development footprint during the field survey. Should any graves, human remains or burial features be uncovered during construction, work in the affected area must cease immediately and the find must be reported to the South African Heritage Resources Agency (SAHRA) and/or the relevant Provincial Heritage Resources Authority (PHRA). Such finds must be managed in accordance with the requirements of the NHRA and the approved Chance Find Protocol.

The Hanglip farmhouse was identified as likely being older than 60 years and is therefore automatically protected under the NHRA. If the farmhouse is to be retained, it should be protected from unnecessary disturbance during construction and operation. If demolition, alteration or removal is proposed, the required heritage approval or permit process must be completed before any disturbance occurs.

The palaeontological assessment confirmed that the underlying geology has palaeontological sensitivity due to the presence of formations correlated with fossil-bearing units. However, the proposed PV infrastructure is expected to require relatively shallow ground disturbance, which reduces the likelihood of impacting significant palaeontological material. Although significant fossil material is unlikely to be encountered, a palaeontological Chance Find Protocol must be implemented and incorporated into the EMPr

Based on the current heritage and palaeontological findings, the proposed development is not expected to result in unacceptable impacts on the national estate, provided that the recommended mitigation measures, permit requirements and Chance Find Protocols are implemented. The findings of the heritage and palaeontological assessments will be carried forward into the EIA Phase and incorporated into the EMPr, where applicable.

16 OTHER MATTERS REQUIRED IN TERMS OF SECTIONS 24(4)(A) AND (B) OF THE ACT

In line with sections 24(4)(a) and (b) of the NEMA, this Scoping Report identifies the matters that must be addressed during the EIA Phase. Section 24(4)(b)(i) requires that an investigation be undertaken into the potential consequences or impacts of the proposed activity and its reasonable alternatives, including the “no-go” option, together with an assessment of the significance of such impacts.

At the Scoping stage, the focus is on outlining these alternatives, highlighting potential key issues, and confirming the scope of specialist studies that will investigate them further. The detailed assessment of impacts, significance ratings, and mitigation measures will be undertaken during the EIA Phase, based on the methodologies and criteria described in this Report.

17 UNDERTAKING OR AFFIRMATION BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

I, Paula Jane Tolksdorff, declare that:

- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to I&APs and the public, and that participation by I&APs is facilitated in such a manner that all I&APs will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application.
- I will ensure that the comments of all I&APs are considered and recorded in reports that are submitted to the CA in respect of the application.
- I will ensure that the Plan of Study for undertaking the EIA will be clearly communicated with the I&APs to ensure that everyone involved is aware and in agreement in terms of the Plan of Study.
- I will ensure that all specific information required by the CA is included and addressed in the reports.
- I will ensure that any other matter required in terms of Section 24(4)(a) and (b) of the Act is complied with.



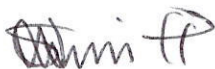
Signature of the registered Environmental Assessment Practitioner

GCS Environment South Africa (Pty) Ltd

Date: 6 July 2026

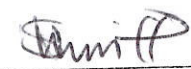
I certify that the DEPONENT has acknowledged that he/she knows and understands the contents of this affidavit, that he/she does not have any objection to taking the oath, and that he/she considers it to be binding on his/her conscience, and which was sworn to and signed before me

at Rivonia on this the 6 day of 7 2026
and that the administering oath complied with the regulations contained in Government Gazette No. R1258 of 21 July 1972 as amended.



Signature of the Commissioner of Oaths:

Date: 6 July 2026


COMMISSIONER OF OATHS (RSA)
Wendy Sherriff CA(SA)
63 Wessel Road, Woodmead
Johannesburg

18 REFERENCES

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- Waterberg DM. (2021). *Waterberg Spatial Development Framework 2021-2031*. Modimolle: Waterberg District Municipality.

APPENDIX A: ENVIRONMENTAL ASSESSMENT PRACTITIONER CURRICULUM VITAE AND QUALIFICATIONS



Paula Tolksdorff

SENIOR TECHNICAL MANAGER

CORE SKILLS

- Environmental Legislation
- Equator Principles, IFC Performance Standards, World Bank EHS Guidelines
- Environmental and Social Impact Assessments
- Stakeholder Engagement and Management
- Environmental Management Programmes
- Operation and Construction Environmental Management Plans and Procedures
- Management Systems and Frameworks incl. ISO 14001
- Compliance Auditing, Due Diligence & Project Management
- Waste & Water Management

DETAILS

Academics

- Baccalaureus Technologiae (B-Tech), Engineering Civil, Urban and Rural Development, University of the Witwatersrand, 1997
- National Higher Diploma: Civil Engineering, University of the Witwatersrand, 1994
- National Diploma: Civil Engineering, University of the Witwatersrand, 1993
- MSc. Environmental Management, University of North West (two years course work complete 2011/2012)

Short Courses

- Certificate in Public Participation, International Association of Public Participation
- Centre of Environmental Management SAATCA approved course in Implementing Environmental Management Systems (ISO 14001)
- IEMA Approved Foundation course in Environmental Auditing
- IEMA Approved Carbon Footprint Management Course
- CESA, Developing Mentorship Skills for Management and Professionals
- Water Governance Course, Carin Bosman Sustainable Solutions

Languages

- English
- Afrikaans

Countries Worked In

Botswana, Democratic Republic of the Congo, Guinea, Liberia, Mozambique, Russia, Saudi Arabia, South Africa, Tanzania, Zambia and Zimbabwe

PROFILE

Paula brings over 30 years of specialised experience in the environmental sector, working across various industries, including global industrial and mining clients, as well as commercial developments. Her career has taken her through significant projects across Africa, where she has gained a deep understanding of how environmental and social licenses to operate impact both operations and project outcomes.

With a strong foundation in sustainability, Paula applies her expertise to integrate and maintain effective, sustainable practices across a wide range of operational contexts. As an Environmental Assessment Practitioner and Professional Natural Scientist, her skills are both robust and multifaceted. She excels in conducting environmental and social (E&S) impact assessments and in developing comprehensive E&S management programs tailored to the specific needs of each project. Her work includes crafting and implementing E&S management systems for both construction and operational phases, ensuring they adhere to international standards, as well as local regulatory requirements.

Paula is also highly experienced in stakeholder engagement, ensuring clear communication and collaboration across all parties involved in a project. Her capabilities extend to due diligence and compliance auditing, where she provides critical oversight to ensure regulatory compliance and operational integrity. Additionally, she has extensive experience managing water and waste resources, promoting responsible and sustainable practices.

Through her well-honed project management skills, Paula effectively leads complex projects, consistently ensuring that sustainability goals are met. Her career and diverse background demonstrate a deep commitment to advancing environmental stewardship and sustainable development across challenging and diverse environments.

Professional Affiliations:

- Environmental Assessment Practitioners Association of South Africa (2019/509)
- South African Council for Natural Scientific Professions (152904)
- International Association for Impact Assessment South Africa (1745)
- International Association Public Participation (IAP2SA014)

Period	Employer	Position	Role/ Responsibility
Oct 24 - Current	GCS	Senior Technical Manager - Environmental Group	As Technical Manager, Paula is responsible for overseeing the development and growth of environmental services. She leads business development efforts, builds and maintains client relationships, and develops and implements business strategies to drive the organisation's success. Paula manages a wide range of responsibilities, including overall project management, team leadership, and financial oversight, ensuring that projects are delivered on time and within budget while aligning with the organisation's long-term goals. In her technical capacity, Paula conducts environmental and social impact assessments, designs and implements environmental management programmes, and develops operational and construction environmental management plans and procedures. She plays a key role in establishing environmental management systems and engages with stakeholders to foster collaboration and ensure compliance. Her duties also include conducting compliance audits, due diligence assessments, and managing water and waste programs. Additionally, Paula provides environmental training and oversees project management from inception to completion. Her combined experience in technical and managerial roles equips her with a deep understanding of environmental practices and strategic leadership in various operational contexts.
Sep 2023 - Jun 2024	OMI Solutions (Pty) Ltd, Pretoria	Principal Environmental Assessment Practitioner	As a Principal Environmental Assessment Practitioner, Paula was responsible for leading business development efforts, managing client relationships, and developing business strategies to ensure the growth and success of the environmental services offered. She oversaw project management, guiding teams through the delivery of projects, and maintained financial oversight to ensure budgets and timelines were adhered to. In her technical capacity, Paula's role as an Environmental Assessment Practitioner and Professional Natural Scientist involved conducting environmental and social impact assessments, designing environmental management programmes, and developing both operational and construction environmental management plans. She was also responsible for implementing environmental management systems, managing stakeholder engagement, conducting compliance audits, performing due diligence assessments, and overseeing water and waste management. Her work included delivering environmental training and managing projects through their entire lifecycle, providing strategic guidance and ensuring regulatory compliance throughout.
Nov 2022 - Aug 2023	Digby Wells Environmental (Pty) Ltd	Principal Environmental Assessment Practitioner	As a Principal Environmental Assessment Practitioner, Paula was responsible for leading business development efforts, managing client relationships, and developing business strategies to ensure the growth and success of the environmental services offered. She oversaw project management, guiding teams through the delivery of projects, and maintained financial oversight to ensure budgets and timelines were adhered to. In her technical capacity, Paula's role as an Environmental Assessment Practitioner and Professional Natural Scientist involved conducting environmental and social impact assessments, designing environmental management programmes, and developing both operational and construction environmental management plans. She was also responsible for implementing environmental management systems, managing stakeholder engagement, conducting compliance audits, performing due diligence assessments, and overseeing water and waste management. Her work included delivering environmental training and managing projects through their entire lifecycle, providing strategic guidance and ensuring regulatory compliance throughout.

Period	Employer	Position	Role/ Responsibility
Nov 2019-Aug 2022	Current Hatch Africa (Pty) Ltd, Johannesburg	Regional Director Africa for the Environmental Services Group	As Regional Director, Paula was tasked with leading the development and growth of the Environmental Services Group across Africa. This role involved overseeing business development efforts, building and maintaining client relationships, and developing and implementing the business strategy to drive the organisation's success in the region. She managed a broad spectrum of responsibilities, including overall project management, team leadership, and financial oversight, ensuring that projects were delivered on time and within budget, while aligning with the group's long-term goals. In her role as an Environmental Practitioner, Paula was deeply involved in conducting environmental and social impact assessments, designing and implementing environmental management programmes, and developing operational and construction environmental management plans and procedures. She also played a key role in establishing environmental management systems and engaging with stakeholders to foster collaboration and ensure compliance. Her duties further extended to conducting compliance audits, due diligence assessments, and managing water and waste programs. Paula's work also encompassed delivering environmental training and overseeing the management of various projects from inception to completion. Her experience in both technical and managerial capacities equipped her with a comprehensive understanding of environmental practice and strategy in diverse operational contexts.
2005-2019	Terra Pacis Environmental (Pty) Ltd	Managing Director (founding member)	As a Director of Terra Pacis, Paula was responsible for the development of the Environmental Impact Assessment discipline, the management of business development, client relationship management, the development of the business strategy, overall project management, team management and financial management. As an Environmental Practitioner, Paula duties included: environmental and social impact assessments, environmental management programmes, operation and construction environmental management plans and procedures, environmental management systems, stakeholder engagement and stakeholder management, compliance auditing, due diligence, water and waste management, environmental training and project management.
2006-2009	Cymbian Environmental and Social Consulting Services	Director (founding member)	As a Director of Cymbian, Paula was responsible for the development of the Environmental Impact Assessment discipline, the management of

Period	Employer	Position	Role/ Responsibility
			business development, client relationship management, the development of the business strategy, overall project management, team management and financial management. As an Environmental Practitioner, Paula duties included: environmental and social impact assessments, environmental management programmes, operation and construction environmental management plans and procedures, environmental management systems, stakeholder engagement and stakeholder management, compliance auditing, due diligence, water and waste management, environmental training and project management.
2005-2008	Contract to: Golder Associates Africa Pty Ltd	Environmental Consultant	Paula assisted on environmental and social impact assessments and environmental management programmes.
2005	ERM Southern Africa, Johannesburg	Snr Environmental Consultant	As an Environmental Practitioner, Paula duties included: environmental and social impact assessments, environmental management programmes, operation and construction environmental management plans and procedures, environmental management systems, stakeholder engagement and stakeholder management, compliance auditing, due diligence, water and waste management, environmental training and project management.
1998-2005	Contract to Anglo Gold Ashanti Limited, Johannesburg	Environmental Consultant	As an Environmental Practitioner, Paula duties included: environmental and social impact assessments, environmental management programmes, operation and construction environmental management plans and procedures, environmental management systems, stakeholder engagement and stakeholder management, compliance auditing, due diligence, water and waste management, environmental training and project management.
1996-1998	Anglo American, Johannesburg	Civil Engineering Technician and Environmental Consultant	As an Environmental Practitioner, Paula duties included: environmental and social impact assessments, environmental management programmes, operation and construction environmental management plans and procedures, environmental management systems, stakeholder engagement and stakeholder management, compliance auditing, due diligence, water and waste management, environmental training and project management.
1996-1996	Hamilton Associates, Rosebank	Civil Engineering Technician	Assisted civil engineers plan, design, and build residential development projects including services (access roads/ water/sewage/stormwater).



Work Experience

Period	Employer	Position	Role/ Responsibility
1990-1996	Stuart Scott Incorporated, Sandton	Civil Engineering Technician	Assisted civil engineers plan, design, and build highways, bridges, and services (water/sewage/stormwater). Worked on the site of a large highway construction project and a infrastructure development project.

Key Experience

Environmental and social impact assessments (including the development of environmental and social management programmes/plans/systems)
- Environmental Management Plan Update for North Mara Gold Mine Limited, Tanzania, Barrick Gold Corporation. - Environmental Impact Study and Management Plan Kisanfu Project, Democratic Republic of the Congo, Phelps Dodge Congo SPRL. - Environmental and Social Impact Assessment for the Proposed Chirundazi Dam and Associated Supporting Infrastructure, Karo Platinum, Zimbabwe. - Environmental and Social Impact Assessment for the Opencast Expansion Project, Karo Platinum, Zimbabwe. - Scoping and Environmental Impact Assessment for the Sasol Destoning Project, Mpumalanga Province, South Africa. - Scoping and Environmental Impact Assessment for the Sasol Syferfontein Tweedraai Expansion, Mpumalanga Province, South Africa. - Scoping and Environmental Impact Assessment for the 100 MW Namane Solar PV Plant, South Africa, Namane Generation (Pty) Ltd. - Environmental Authorisation and Atmospheric Emissions Licence for the Copper Nickel Recovery Plant, Rand Refinery Limited, South Africa. - Environmental Authorisation and Water Use Licence (by way of a Basic Assessment) for the Light Industrial Development on proposed Kya Sand Extension 104, Randburg, South Africa. - Environmental Authorisation and Atmospheric Emissions Licence (by way of Scoping and Environmental Impact Assessment) for Mamatwan Mine New Sinter Plant, Samancor Manganese (Pty) Limited (BHP Billiton), South Africa. - Environmental Authorisation, Waste Management Licence and Atmospheric Emissions Licence (by way of Scoping and Environmental Impact Assessment) for the M14 Furnace, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton), South Africa. - Environmental Authorisation and Waste Management Licence (by way of Scoping and Environmental Impact Assessment) for the upgrade of the existing Pelletising Plant to an Agglomeration Plant, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton), South Africa. - Environmental Authorisation and Atmospheric Emissions Licence (by way of Scoping and Environmental Impact Assessment) for the Medium Carbon Ferro Manganese Converter Project, Transalloys (Pty) Ltd, South Africa. - Environmental Authorisation and Atmospheric Emissions Licence (by way of Scoping and Environmental Impact Assessment) for the Construction and Operation of Two Furnaces and Associated Infrastructure, Transalloys (Pty) Ltd. - Environmental Authorisation and Atmospheric Emissions Licence (by way of Scoping and Environmental Impact Assessment) for Proposed Phosphoric Acid Plant, Hi-Fos (Pty) Ltd, South Africa. - Waste Management Licence (by way of a Basic Assessment) for the Refurbishment of West Plant Sludge Dam 3 and Associated Mixing facility, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton). - Water Use Licences for the Nyakallong and Virginia Wastewater Treatment Works Upgrade, Matjhabeng Local Municipality, Free State, South Africa. - Water Use License Application, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton), South Africa.
Risk assessments
- Environmental Risk Assessment for the Hard Ice Plant at Mponeng Mine, AngloGold Ashanti, South Africa. - Environmental Risk Assessment for the Surface Cooling System Expansion for Ventersdorp Contact Reef B120 Level Project, West Wits Mponeng Mine, AngloGold Ashanti, South Africa. - Dam Risk Assessment Goedgevonden Colliery, Xstrata Coal, South Africa. - Environmental Risk Assessment for the Coal fired boilers, Newlands, SAB Miller, South Africa.
Feasibility studies
- Zimplats Selous Base Metals Refinery (BMR) Feasibility Study; Supporting Environmental Studies (environmental legal opinion and permitting requirements, environmental impact analysis, energy management and GHG emissions reduction study, water management study), Zimplats, Zimbabwe. - Water Supply Feasibility Study (environmental legal opinion and permitting requirements), for Mondi South Africa (Pty) Ltd, South Africa. - Port Durnford Prefeasibility Study Project, Tronox KZN Sands (Pty) Ltd, Richards Bay, South Africa. - Prefeasibility study for the construction of a new converting facility, (environmental design criteria, regulatory review and permitting requirements, emissions

modelling for technology selection, opportunities to improve GHG emissions and energy management), Confidential Project, South Africa.

- Establishment of an Aluminium Recycling Plant (site sensitivity analysis, regulatory review and permitting requirements, provision of cost estimates to obtain environmental permits and licences), (Confidential Project), South Africa.
- Feasibility study for the processing of a by-product in the platinum industry, (environmental design criteria, environmental legal opinion and permitting strategy, environmental legal register, environmental and human health impact analysis, water management, contractor social management plan, construction environmental management plan), Confidential Project, South Africa.

Environmental engineering and monitoring

- Review of Environmental Design Criteria for the Development of an Iron Ore Mine in Mauritania, El Aouj Mining Company, Northern Africa.
- Review of the Environmental Protection Measures developed for the construction and operation of a Gold Mine in Russia with particular focus on identifying relevant monitoring requirements, Kinross Gold.
- Environment Design Criteria for an SO₂ Abatement Plant, Anglo American Platinum, South Africa.
- Sustainable design options study for the Nimba Iron Ore Project, Société des Mines de Fer de Guinée (SMFG) Guinea and Liberia.
- Onshore and offshore environmental baseline studies, compilation of environmental monitoring/management plans and procedures, and environmental compliance monitoring for the construction of a LNG plant in the Afungi Peninsula in the Palma District of Cabo Delgado Province, CCSJV, Mozambique.
- Product and waste storage areas upgrade project at the Port of Durban, Bidvest Tank Terminals, KwaZulu-Natal, South Africa.
- Salvage Yard Layout, Detailed Design and Stormwater Management, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton), South Africa.
- Development of Water Balances for 1) Free State Operations, 2) Vaal River Operations and 3) West Wits Operations, AngloGold Ashanti, South Africa.
- Clean and Dirty Water Separation Studies for 1) Vaal River Operations (Mines and Processing Plants) and 2) West Wits Operations (Mines and Processing Plants), AngloGold Ashanti, South Africa.

Circular economy

- Scoping exercise to develop and Extended Producer Responsibility Scheme for a multi-national drink and brewing company (Confidential Project), South Africa.
- Concept Study for the Hillside Used Beverage Can (UBC) Recycling Project, South32, South Africa.

Environmental management systems and auditing

- Development of an Environmental Management System at Lumwana Mine, Zambia, Barrick Gold Corporation.
- Development of an Environment Management System (ISO 14001) including assurance of certification for ERGO, AngloGold Ashanti
- Environmental Management System (ISO 14001) development for Scaw Metals.
- Development of an Environment Management System (ISO 14001), Kimberley Mines, De Beers Consolidated Mines.
- Review and updating of the Environmental Management System (ISO 14001) at Newlands, SAB Miller.
- The Development and Implementation of processes and tools to comply with conditions defined in the Waste Management Licences, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton).
- Vegetation Control Procedure; Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton).
- The Development of Standard Operating Procedures for the Materials Management Department, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton).
- Admox Bagging Plant, Admox Bagging Plant, Admox Pelletising Plant and OBC Fume Extraction Operation Environmental Management Plan; Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton).
- Internal ISO 14001 Audit, Venetia Mine, De Beers Consolidated Mines.
- Internal ISO 14001 Audit, Voorspoed Mine, De Beers Consolidated Mines.
- Internal ISO 14001:2015 Audit Report for Harmony Central Gold Plant in the Free State Province.
- Internal ISO 14001:2015 Audit Report for Harmony One Gold Plant in the Free State Province.

Environmental policy and legislation

- Review the NEOM Environmental Standards and Policies, Saudi Arabia.
- Developing a Greenhouse Gas reporting framework for Department of Mineral Resources and the Department of Energy, Northern Cape Province, South Africa.
- Legal Opinion on Requirement for Environmental Authorisation of the Proposed Emergency Diesel Power Generation Project at Wessels Mine, Samancor Manganese (Pty) Limited (BHP Billiton), South Africa.
- Environmental Legal Opinion Proposed Soya and Sunflower Bean Operations, Boksburg, South Africa.
- Strategic Planning on New Furnace Location, Samancor Manganese (Pty) Ltd (BHP Billiton), South Africa.

Due diligence and technical advisory

- Independent Expert Report Roggeveld Wind Farm Phase 1 And Associated Infrastructure, South Africa.
- Technical Advisory services for a Power Purchase Agreement (PPA) for a gas to power plant near Maputo, Mozambique (Confidential Project).
- Environmental Due Diligence for an in-land and port side bauxite facility, Republic of Guinea (Confidential Project).
- Environmental Due Diligence for the Brush-Arc UG2 Smelting at Richards Bay Alloys, Anglo American Marketing Ltd.
- Environmental component of the Independent Engineering Review, for the New Generation Capacity Under the Risk Mitigation IPP Procurement Program (Confidential Project).

Auditing

- Bi-annual Environmental Performance Assessment Audit of the Tailings Facility and associated infrastructure at Harmony Kareerand Operations, Harmony Gold Mining.
- Water Use Licence Compliance Audit at Farms K/Kraal 342 JQ, Rooikoppies 297 JQ and Elandsdrift 467 JQ, south of Marikana in the North West Province, Tharisa Minerals (Pty) Ltd.
- Peer Review of Audits on the Construction Environmental Management Programme for Anglo American Platinum's Polokwane Metallurgical Complex within the province of Limpopo.
- Audit of the Waste Management Practice at Mponeng and Kopanang Mine, AngloGold Ashanti.
- External Audit Reports for the Waste Management Licences, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton).
- Audit of the Water Use Licence held by Goedgevonden Colliery, Xstrata Coal South Africa.
- Annual Internal Audit of the Water Use Licence for Xstrata Coal South Africa (Pty) Ltd Tweefontein Division.
- Annual External Water Use Licence Audit, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton).
- Annual Audit of the Record of Decision and Environmental Management Plan for the Fouriespruit Stream Diversion and Old Slag Area, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton).
- Annual Environmental Performance Audit for the Pelletising Plant, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton).
- Environmental Legal Compliance Assessment for the Construction Phase of the M14 Furnace Project Environmental Authorisation, Metalloys Samancor Manganese (Pty) Ltd (BHP Billiton).
- Waste Management License Audit for the Slagment Operation, AfriSam Southern Africa (Pty) Ltd.
- Environmental-Legal Compliance Assessment Report SCE Ashman (Proprietary) Limited: Vanderbjilpark Plant.
- Environmental-Legal Compliance Assessment of the Waste Management Licence and Atmospheric Emission Licence for A-Thermal Retort Technologies (Pty) Ltd.

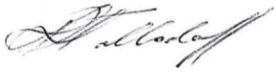
DECLARATION

I, Paula Tolksdorff hereby declare that the details furnished above are true and correct to the best of my knowledge and belief and I



Project Experience

undertake to inform you of any changes therein, immediately. In case any of the above information is found to be false or untrue or misleading or misrepresenting, I am aware that I may be held liable for it.

Signature: 

Date: 17 March 2025

**Environmental Assessment
Practitioners Association
of South Africa**



Registration No. 2019/509

Herewith certifies that
PAULA JANE TOLKSDORFF
is registered as an
Environmental Assessment Practitioner

**Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).**

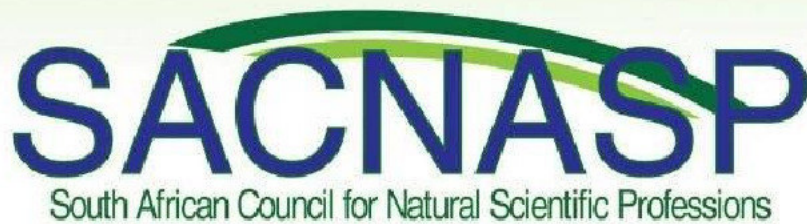
Effective: 01 April 2026

Expires: 31 March 2027

Chairperson

Registrar





herewith certifies that

Paula Jane Tolksdorff

Registration Number: 152904

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)

in the following field(s) of practice (Schedule 1 of the Act)

Environmental Science (Professional Natural Scientist)

Effective **12 June 2024**

Expires **31 March 2027**



President of Council

Chief Executive Officer



TECHNIKON WITWATERSRAND



BACCALAUREUS TECHNOLOGIAE

ENGINEERING: CIVIL
(URBAN)

INGENIEURSWESE: SIVIEL
(STEDELIK)

is awarded to / word toegeken aan

PAULA-JANE LEWIS

Date of Birth / Geboortedatum

1971-01-24

Student Number / Studentenommer

8913463

with effect from / met ingang van

1997-07-01

I certify that this document is a true copy of the original which was examined by me and that, from my observations, the original has not been altered in any manner.

SIGNATURE

Commissioner of Oaths - **Ryan Harold Currie**

BD No: **38232** Date: **7 Sept 2024**

New Life Church, 1 Grosvenor Road, Bryanston,
Johannesburg, 2191

Vice-Chancellor & Principal
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Curriculum Code : N824P ENVIRONMENTAL ANALYSIS AND MANAGEMENT

<u>Date</u>	<u>Module Name</u>	<u>Module Code</u>	<u>Module Type</u>	<u>Mark</u>	<u>Result</u>
201111	ENVIRONMENTAL MANAGEMENT II	OMBO 8 78	Core module	69	Passed

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Method of Delivery : PART TIME

<u>Date</u>	<u>Module Name</u>	<u>Module Code</u>	<u>Module Type</u>	<u>Mark</u>	<u>Result</u>
201211	ENVIRONMENT ANALYSIS 2	OMBO 8 79	Core module	75	Distinction

Registration schedule 2013:

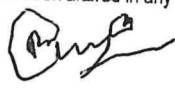
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Centre for Environmental Management

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7101240049089

successfully completed and
passed SAATCA approved examination

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JD No: 38 232 Date: 7 Sept 2024

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Johannesburg, 2191

Implementing Environmental Management Systems (ISO 14001)

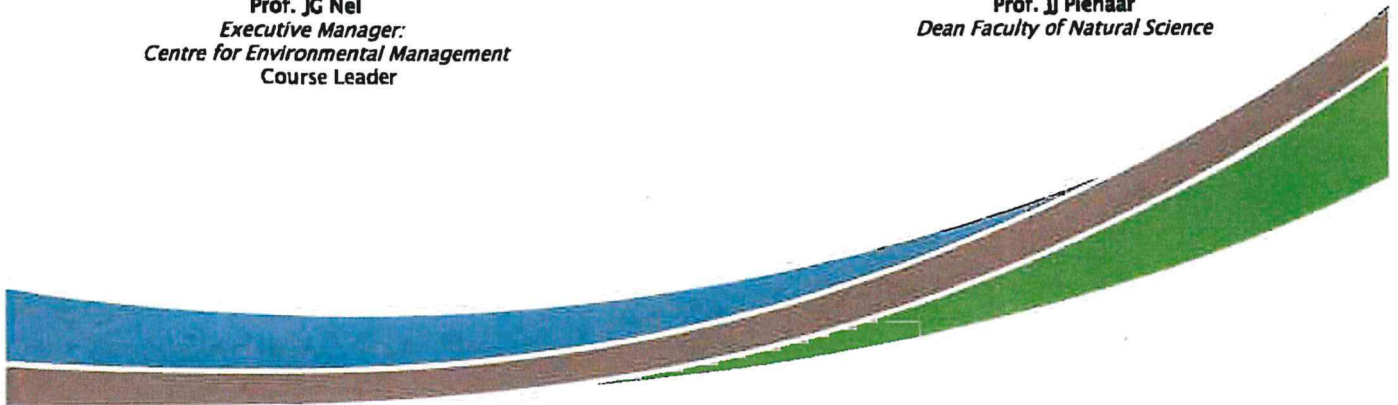
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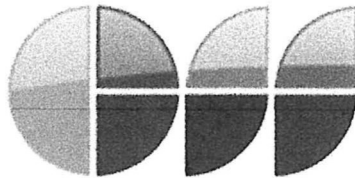
22-24 June 2011

NQF Level: 7

Prof. JG Nel
Executive Manager:
Centre for Environmental Management
Course Leader

Prof. JJ Pienaar
Dean Faculty of Natural Science





Carin Bosman
Sustainable Solutions

This Certificate is issued to
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Paula Tolksdorff

has attended a 3 day Training Workshop entitled

Water Governance in South Africa

held on

9-11 May 2023



**Water Institute of
Southern Africa**

Carin Bosman, Director: CBSS

SACNASP: WISA2023-0412-002542

ECSA: WISA2023-0412-002542 (3pt)

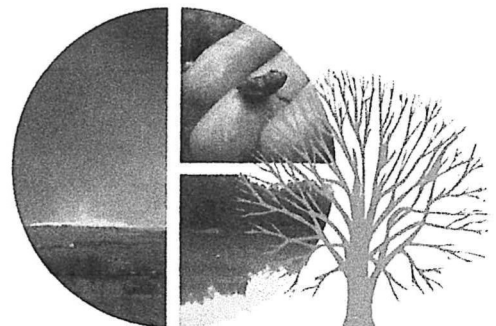
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*This is to acknowledge that
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On 21-22 February 2022*

*This qualifies for 2 CPD Points
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CESA-2049-11/2024*

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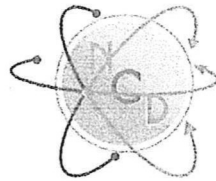
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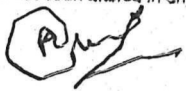
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115753 Conduct outcomes-based assessment NQF Level 5 Credits 15

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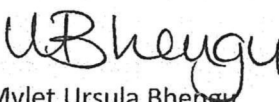


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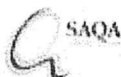
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Mylet Ursula Bhengu
Chief Executive Officer

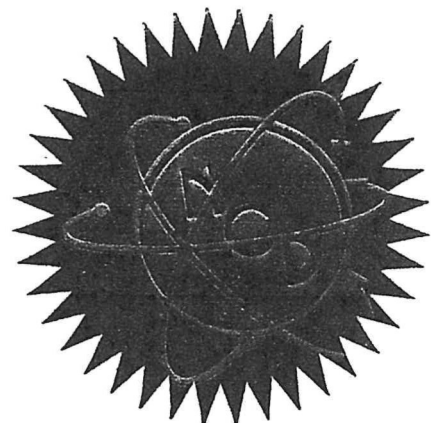
29 November 2019

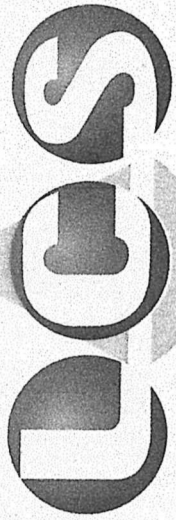
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ETDP SETA Accreditation Number: 10222





LEGISLATIVE COMPLIANCE SPECIALISTS

REG NO. 2006/014854/07

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P. Tolktsdorff

Name

710124 0049 089

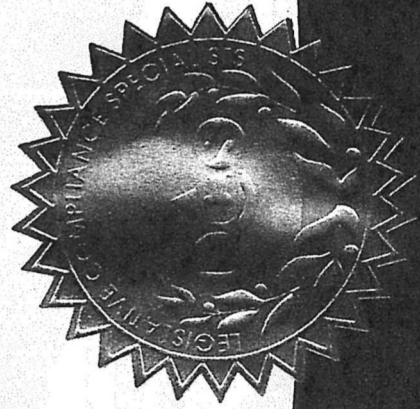
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31 May 2021

Date



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growth through knowledge

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This is to certify that

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Attended and Successfully Completed
the above Training Programme on

19 - 23 October 2009

and achieved 87% at Examination

Signed

J. Macnamara

Chief Examiner

Certificate No: SA/0911/9
Issue Date 05/11/09



Signed

W. M.

Course Tutor

ASP/FL/EA/01109/SOUTH AFRICA

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2000, Darley, Harrogate, HG3 2PX

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Course Tutor

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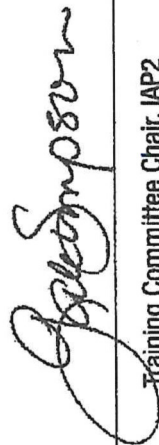
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has completed IAP2's

Communication for Effective Public Participation

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This is to certify that

P Tolksdorff

during the period

16 January 2007

has attended and participated in the course

1 Day Report Back from the 1st International Seminar on Mine Closure, Perth Australia 2006

Head, School of Mining Engineering

**Dean, Faculty of Engineering
& the Built Environment**

Date of Issue: 16th January 2007

AFRICAN ENVIRONMENTAL CENTRE

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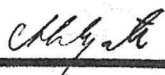
GD No: 38232 Date: 7 Sept 2006

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NEMA EIA Regulations

on the

23 October 2006



Director



CC reference number 2006/212059/23

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NEMA EIA Regulations

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23 October 2006

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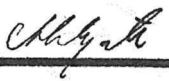


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Johannesburg, 2191


Director



CC reference number 2006/212059/23

APPENDIX B: SITE SCREENING VERIFICATION REPORT

Nyakallo Solar Park (Pty) Ltd, Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province Site Screening Verification Report

Version - Final

25 June 2026

GCS Project Number: 23-0646

Client Reference: Nyakallo Solar Park (Pty) Ltd



**Nyakallo Solar Park (Pty) Ltd, Lephalale Local Municipality, Waterberg District
Municipality, Limpopo Province
Site Screening Verification Report
Version - Final**



25 June 2026

DOCUMENT ISSUE STATUS

Report Issue	Final		
GCS Reference Number	23-0646		
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Title	Nyakallo Solar Park (Pty) Ltd, Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province Site Screening Verification Report		
	Name	Signature	Date
Author	Paula Tolksdorff EAP Reg 2019/509 Pr Sci Nat 152904	 Paula Tolksdorff	25 June 2026
Document Reviewer			
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EXECUTIVE SUMMARY

Nyakallo Solar Park (Pty) Ltd proposes to develop the Nyakallo Solar Park, a utility-scale renewable energy facility comprising a solar photovoltaic (PV) power plant and associated Battery Energy Storage System (BESS), on Portions 1, 2 and the Remainder of Portion 3 of Farm Hanglip No. 508 LQ, situated within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province.

The proposed facility will have an installed generation capacity of up to 315 megawatts, with a maximum export capacity of 262 megawatts alternating current. The solar facility will be developed within an application area of approximately 723 hectares (ha), with a proposed development footprint of approximately 414.55 ha. The Project will include PV arrays, inverters, transformers, on-site substations, switching infrastructure, BESS infrastructure, internal roads, laydown areas and staging areas, internal electrical reticulation, waste segregation area(s), operations and maintenance facilities, stormwater management and drainage infrastructure, security infrastructure and associated monitoring and communication infrastructure.

GCS Environment South Africa (Pty) Ltd has been appointed as the independent Environmental Assessment Practitioner to manage the Environmental Authorisation process in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014, as amended.

This Site Screening Verification Report has been prepared to verify the environmental sensitivities identified by the National Web-Based Environmental Screening Tool, generated for the proposed Nyakallo Solar Park and associated infrastructure on 29 April 2026. The purpose of the report is to confirm or dispute the current land use and environmental sensitivities identified by the Screening Tool, based on desktop analysis, available specialist information, site verification and relevant Project-specific findings.

The Screening Tool identified several environmental themes with medium to very high sensitivity across the proposed development area. Very High sensitivity was identified for the Aquatic Biodiversity, Terrestrial Biodiversity, Avian, Landscape (Solar), Palaeontology and Agriculture themes. Medium sensitivity was identified for the Animal Species, Civil Aviation (Solar PV) and Radio Frequency Interference themes. Low sensitivity was identified for the Archaeological and Cultural Heritage, Plant Species and Defence themes.

In addition to the environmental sensitivity themes, the Screening Tool identified relevant preliminary development incentives, restrictions, exclusions and regulatory considerations applicable to the Project site. These include the site's location within the Waterberg District Municipality Environmental Management Framework area and the Air Quality - Waterberg-

Bojanala Priority Area, which must be considered during the assessment process. The Screening Tool also identified the site as being located within an area associated with main electricity transmission and distribution substation infrastructure. Furthermore, several renewable energy developments with approved Environmental Authorisations occur within 30 km of the proposed Project area, including multiple Solar PV projects located within or very close to the proposed area. These factors do not preclude the proposed development but highlight the need to consider cumulative impacts, the broader renewable energy and infrastructure context, and applicable regulatory requirements during the Environmental Authorisation process.

The Screening Tool sensitivities are indicative and have therefore been verified against the proposed development footprint, available specialist findings and site-specific conditions. These sensitivities informed the scope of specialist assessments, layout refinement and the application of the mitigation hierarchy during the Environmental Authorisation process.

A suite of specialist studies was identified by the Screening Tool and undertaken or reviewed to verify the preliminary sensitivities. These included aquatic biodiversity, terrestrial biodiversity, avifaunal, landscape / visual, palaeontological, agricultural, animal species, archaeological and cultural heritage, plant species, civil aviation / glint and glare, radio frequency interference, defence, geotechnical and socio-economic considerations.

The verification process confirmed that several of the Screening Tool sensitivities are valid at a screening level, while others were refined based on specialist findings. Key confirmed sensitivities include the presence of an ephemeral wetland / wash system and associated buffer, natural woodland and hydromorphic habitat, avifaunal species of conservation concern, protected tree species, potential faunal habitat, visual receptors, palaeontological sensitivity and heritage chance find considerations.

The Aquatic Biodiversity sensitivity remains high due to the confirmed ephemeral wetland / wash system, Freshwater Ecosystem Priority Area sub-catchment context and required buffer. Terrestrial biodiversity sensitivity remains high to medium, with higher sensitivity associated with wetland and hydromorphic habitat and medium sensitivity associated with woodland habitats. The avian sensitivity remains very high due to recorded species of conservation concern, raptor activity, waterbird use and the need for continued monitoring.

Agricultural sensitivity was refined from very high to moderate-low based on site-specific specialist findings. Plant species sensitivity was identified as low by the Screening Tool; however, site verification confirmed that protected trees and mature woodland areas require elevated management attention. Civil aviation sensitivity was reduced to low / very low based on the glint and glare assessment, which found no glare exposure to assessed aviation receptors.

Overall, the site sensitivity verification confirms that the proposed development area contains environmental features and regulatory considerations requiring avoidance, mitigation and specialist management. Subject to the implementation of the mitigation hierarchy, avoidance of confirmed sensitive features, consideration of the Screening Tool and Environmental Management Framework requirements, incorporation of specialist recommendations into the Environmental Management Programme, and compliance with applicable regulatory requirements, the proposed Nyakallo Solar Park can proceed to the Environmental Authorisation assessment phase.

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LIST OF ABBREVIATIONS

Abbreviation	Description
AC	Alternating Current
Aol	Area of Influence
BESS	Battery Energy Storage System
CBA	Critical Biodiversity Area
CCTV	Closed-Circuit Television
DC	Direct Current
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
FEPA	Freshwater Ecosystem Priority Area
GCS	GCS Environment South Africa (Pty) Ltd
GN R	Government Notice Regulation
KBA	Key Biodiversity Area
NBA	National Biodiversity Assessment
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)
NSS	Natural Scientific Services
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PES	Present Ecological State
PV	Photovoltaic
RFI	Radio Frequency Interference
SAHRIS	South African Heritage Resources Information System
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SSVR	Site Screening Verification Report

UNITS OF MEASUREMENT

Unit of Measure	Description
ha	Hectare
ha/LSU	Hectares per Large Stock Unit
km	Kilometre
km ²	Square kilometre
kV	Kilovolt
m	Metre
mamsl	Metres above mean sea level
MW	Megawatt
MWac	Megawatt alternating current
MWh	Megawatt hour
MWp	Megawatt peak

1 INTRODUCTION

Nyakallo Solar Park (Pty) Ltd proposes to develop the Nyakallo Solar Park, a utility-scale renewable energy facility comprising a solar photovoltaic (PV) power plant and associated Battery Energy Storage System (BESS), on Portions 1, 2 and the Remainder of Portion 3 of Farm Hanglip No. 508 LQ, situated within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province.

GCS Environment South Africa (Pty) Ltd (GCS) has been appointed as the independent Environmental Assessment Practitioner (EAP) to manage and submit the application for Environmental Authorisation (EA) in terms of Sections 24 and 240 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2014 (Government Notice Regulation (GN R) 982 as amended¹), read together with the applicable Listing Notices (GN R 983², GN R 984³ and GN R 985⁴ of 2014, as amended).

1.1 Purpose of the Report

Regulation 16(1)(b)(v) of the EIA Regulations, 2014, requires that a Screening Report generated by the National Web-Based Environmental Screening Tool (Screening Tool) for the specific site and activity must accompany any application for EA. The Screening Report identifies preliminary development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmentally sensitive features on the site based on the site sensitivity screening. On the basis of the sensitivities identified in the site sensitivity screening, a list of preliminary specialist studies required to be considered in the EIA process are provided. Prior to commencing with a specialist assessment identified in the Screening Report, the current use of the land and the environmental sensitivity of the site, must be confirmed by undertaking a site sensitivity verification. The site sensitivity verification must be undertaken by an EAP or a specialist. The site sensitivity verification must be undertaken through the use of:

- A desk top analysis, using satellite imagery.
- A preliminary site inspection.
- Any other available and relevant information.

¹ EIA Regulations, 2014, GN R 982 in GG 38282 of 4 December 2014, promulgated under sections 24(5) and 44 of the NEMA, with effect from 8 December 2014, as amended.

² EIA Regulations Listing Notice 1 of 2014, GN R 983 in GG 38282 of 4 December 2014, promulgated under sections 24(2), 24(5), 24D and 44 of the NEMA, with effect from 8 December 2014, as amended.

³ EIA Regulations Listing Notice 2 of 2014, GN R 984 in GG 38282 of 4 December 2014, promulgated under sections 24(2), 24(5), 24D and 44 of the NEMA, with effect from 8 December 2014, as amended.

⁴ EIA Regulations Listing Notice 3 of 2014, GN R 985 in GG 38282 of 4 December 2014, promulgated under sections 24(2), 24(5), 24D and 44 of the NEMA, with effect from 8 December 2014, as amended.

This Site Sensitivity and Verification Report (SSVR) is a record of the outcome of the site sensitivity verification in compliance with the requirements of the 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 NEMA.

The SSVR aims to:

- Confirm or disputes the current use of the land and the environmental sensitivity as identified by the Screening Tool, such as new developments or infrastructure, the change in vegetation cover or status etc.
- Contain motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity.
- Be submitted together with the relevant assessment report prepared in accordance with the requirements of the EIA Regulations, 2014.

2 LOCATION AND DESCRIPTION OF THE PROPERTY

2.1 Project Location

The proposed Nyakallo Solar Park will be located on Portions 1, 2 and the Remainder of Portion 3 of Farm Hanglip No. 508 LQ within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province.

The Project site is situated approximately 3.53 kilometres (km) south-west of Marapong, 8.26 km south-west of Onverwacht and 12.85 km south-west of Lephalale (Figure 2-1). The site falls within Ward 3 of the Lephalale Local Municipality and is located within an area characterised by agricultural activities, game farming, natural bushveld vegetation and existing energy-related infrastructure.

The application area comprises approximately 723 hectares (ha), of which approximately 414.55 ha is proposed for development. The site is located in proximity to existing Eskom transmission infrastructure and forms part of the broader Lephalale energy hub, making it well suited for integration into the national electricity grid.

Access to the site will be obtained via the existing provincial and municipal road network, which provides connectivity to Marapong, Onverwacht and Lephalale.

Table 2-1 provides a summary of the land uses surrounding the Project site.

Table 2-1: Position of the Project site with surrounding land uses

Direction	Land Uses
North	Matimba Power Station, Marapong Town
East	Natural Vegetation
South	Natural Vegetation, Matimba Ash Facility
West	Medupi Power Station, Powerline network

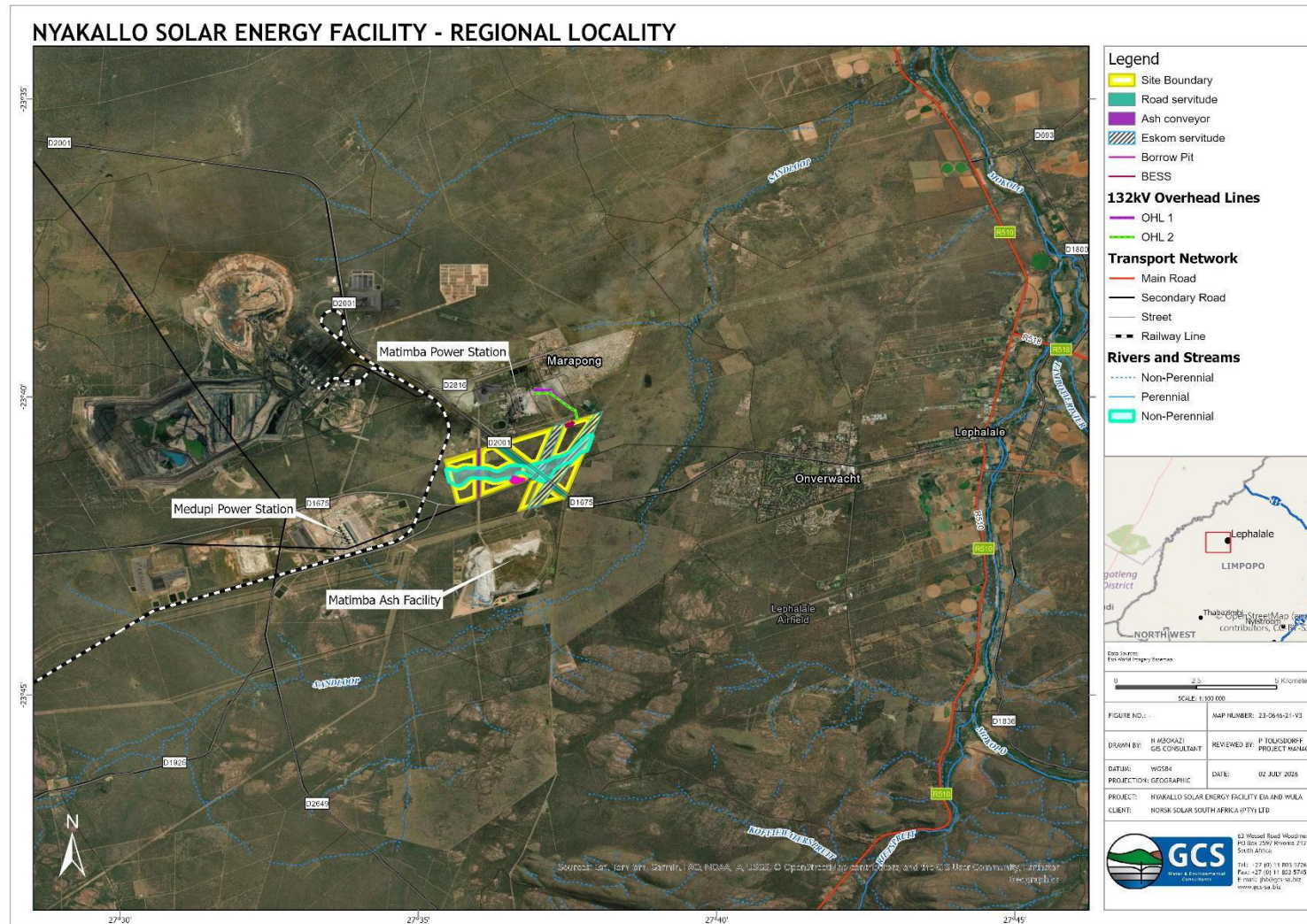


Figure 2-1: Project Locality

2.2 Property Description

Table 2-2 provides a summary of the properties comprising the application area.

Table 2-2: Property Description

Description	Details
Farm Name	Farm Hanglip No. 508 LQ
Affected Portions	Portion 1, Portion 2 and the Remainder of Portion 3
Application Area	Approximately 723 ha
Development Footprint	Approximately 414.55 ha
Magisterial District	Waterberg District Municipality
Nearest Settlements	Marapong (~3.53 km), Onverwacht (~8.26 km) and Lephalale (~12.85 km)
Surveyor-General Codes	TOLQ00000000508000001 TOLQ00000000508000002 TOLQ00000000508000003

2.3 General Land Use and Cover

The Project area comprises a mixture of natural vegetation, livestock farming areas, previously cultivated agricultural fields, and existing infrastructure servitudes (Figure 2-2). The property is bisected by road, conveyor and powerline servitudes, which have contributed to habitat disturbance and fragmentation (Figure 2-3).

Historically (Figure 2-5), the site and surrounding area were largely natural, with some areas used for crop-based agriculture. Industrial and energy-related land use in the broader area increased from the 1980s, with the construction of Matimba Power Station, the associated railway line, ash disposal infrastructure, ash conveyor and powerline servitudes. Further land use change occurred from approximately 2008 onwards with the construction of Medupi Power Station to the south-west of the Project area.

By 2011, the Marapong settlement had expanded southwards towards the Project area. In 2012, portions of the Project area were transformed through temporary infrastructure associated with Medupi Power Station, including construction camps and laydown areas. During this period, agricultural fields to the west were no longer actively cultivated and began to regenerate towards a more natural habitat state. Pivot-based agricultural activities were also noted north of the Project area from around 2015.

Overall, the current land use reflects a combination of natural bushveld, agricultural use, regenerating former agricultural land, and substantial energy-related infrastructure associated with the broader Lephalale energy hub (Figure 2-3 and Figure 2-4).



Figure 2-2: Land uses associated with the Project area (A: Livestock; B: Crop farming; C: Servitudes- Ash belt; D: Past construction camp areas) (Natural Scientific Services, 2025d)



Figure 2-3: Aerial view of the servitudes present within the western portion of the Project site



Figure 2-4: Aerial view of the western portion of the Project site

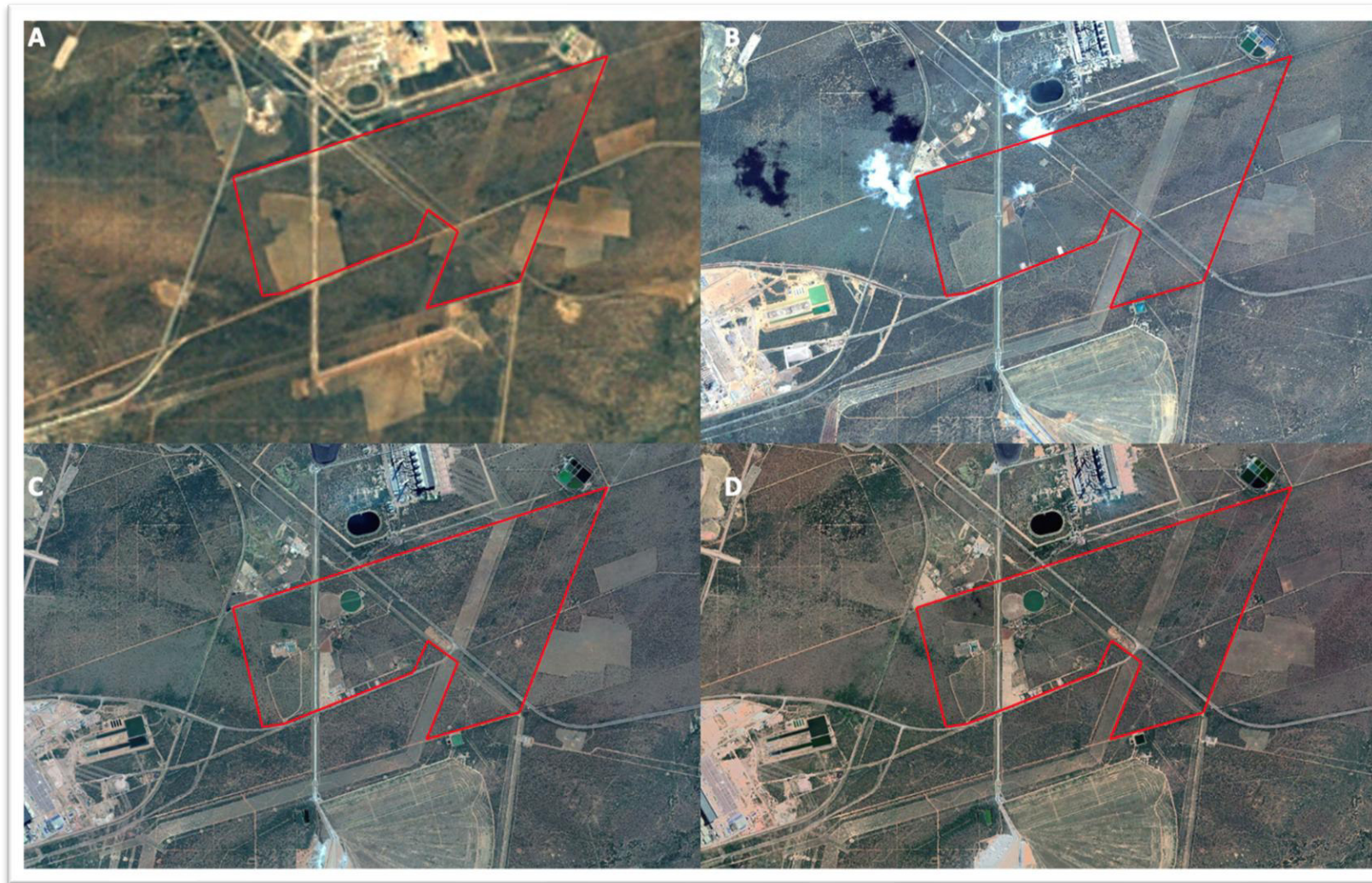


Figure 2-5: Historic aerial imagery from 1985 till 2020, particularly showing the construction of Medupi and associated construction camps in Nyakallo (a: 1985; B: 2010; C: 2017; D: 2020) (Natural Scientific Services, 2025d)

3 PROJECT DESCRIPTION

The proposed Nyakallo Solar Park will comprise a hybrid renewable energy facility integrating PV generation technology with a BESS to improve energy reliability, dispatchability and grid stability.

The facility will have an installed generation capacity of up to 315 megawatts (MW), with a maximum export capacity of 262 megawatts alternating current (MWac). Electricity generated by the facility will be evacuated via a new 132 kilovolts (kV) grid connection to Eskom's existing Matimba Substation. The associated transmission infrastructure does not form part of the current application and will be assessed through a separate EA process, where required.

The solar facility will be developed within an application area of approximately 723 ha and will occupy a development footprint of approximately 414.55 ha. The solar array will comprise up to 500,000 bifacial PV modules mounted on single-axis tracking structures to optimise solar energy capture and maximise electricity generation.

The Project will incorporate a containerised lithium-ion BESS with a storage capacity of approximately 600 MW hours (MWh). The BESS may be deployed in either a centralised or distributed configuration and will facilitate energy storage, peak demand support and enhanced grid stability during periods of reduced solar generation.

The proposed development will include the following primary infrastructure components:

- PV arrays comprising bifacial PV modules and mounting structures;
- Inverters, transformers and associated electrical reticulation infrastructure;
- On-site substations and switching infrastructure;
- BESS infrastructure;
- Operations and maintenance facilities, including offices, workshops and storage areas;
- Internal access roads, laydown areas and temporary construction infrastructure;
- Stormwater management and drainage infrastructure;
- Security infrastructure, including perimeter fencing, access control systems and Closed-Circuit Television (CCTV) monitoring; and
- Communication, monitoring and meteorological infrastructure;
- Waste Management / Segregation area(s).

4 SCREENING TOOL OUTCOMES

The Screening Tool Report was generated for the proposed Nyakallo Solar Park on 29 April 2026. The Screening Tool identified several environmental themes with medium to very high sensitivity across the proposed development area. These sensitivities indicate the presence of potentially environmentally important features within or near the site, which require verification and assessment by suitably qualified specialists.

The results are summarised in Table 4-1 and the Screening Tool Report dated 29 April 2026 is attached in Appendix A.

Table 4-1: Screening Tool Sensitivity Outcomes

Theme	Sensitivity Rating
Aquatic Biodiversity	Very High
Terrestrial Biodiversity	Very High
Avian	Very High
Landscape (Solar)	Very High
Palaeontology	Very High
Agriculture	Very High
Animal Species	Medium
Archaeological and Cultural Heritage	Low
Plant Species	Low
Civil Aviation (Solar PV)	Medium
Radio Frequency Interference (RFI)	Medium
Defence	Low

The Aquatic Biodiversity Theme was identified as having very high sensitivity due to the presence of wetland depression features and the site's location within a Freshwater Ecosystem Priority Area (FEPA) sub-catchment. The Terrestrial Biodiversity Theme was also identified as very high due to the FEPA sub-catchment. The Avian Theme was identified as very high due to the site being located within 50 km of colonies and within 20 km of known Cape Vulture restaurant sites.

The Landscape (Solar) Theme was identified as very high due to the proximity of the site to nearby towns or villages, including areas within 500 metres (m) of a town or village. The Palaeontology Theme was identified as very high due to features with very high palaeontological sensitivity. The Agriculture Theme was also identified as very high, with sensitivity features including pivot irrigation, rainfed annual crop cultivation or planted pastures, and areas of moderate to high agricultural potential.

The Animal Species Theme was identified as medium sensitivity and includes several avifaunal and mammal species sensitivity features, including species such as *Podica senegalensis* (African Finfoot), *Terathopius ecaudatus* (Bateleur), *Hydroprogne caspia* (Caspian Tern), *Gyps africanus* (White-backed Vulture), *Aquila rapax* (Tawny Eagle), *Dasymys robertsii* (Roberts Shaggy Rat) and *Lycaon pictus* (African Wild Dog), as well as a sensitive species identified by a unique species number. The Plant Species Theme was identified as low sensitivity. The Archaeological and Cultural Heritage Theme and Defence Theme were also identified as low

sensitivity. The Civil Aviation Theme was identified as medium sensitivity due to the site being located within 8 km of another civil aviation aerodrome. The Radio Frequency Interference (RFI) Theme was identified as medium sensitivity due to portions of the site being located within 1 km of a telecommunication facility.

Based on these outcomes, the Screening Tool identified a suite of specialist assessments required to support the EA application. These studies are summarised in Table 4-2 and are considered necessary to verify the Screening Tool sensitivities, assess potential environmental impacts, apply the mitigation hierarchy, inform layout optimisation, and support decision-making by the competent authority.

Table 4-2: Specialist Studies Recommended by the Screening Tool

Environmental Theme	Required Specialist Study
Aquatic Biodiversity	Aquatic Biodiversity Impact Assessment
Terrestrial Biodiversity	Terrestrial Biodiversity Impact Assessment
Avian	Avifaunal Impact Assessment
Landscape (Solar)	Landscape/Visual Impact Assessment
Palaeontology	Palaeontology Impact Assessment
Agriculture	Agricultural Impact Assessment
Animal Species	Animal Species Assessment
Archaeological and Cultural Heritage	Archaeological and Cultural Heritage Impact Assessment
Plant Species	Plant Species Assessment
Civil Aviation (Solar PV)	Glint and Glare Assessment and Civil Aviation Assessment
Radio Frequency Interference (RFI)	RFI Assessment
Defence	Defence Assessment
Geotechnical	Geotechnical Assessment
Socio-Economic	Socio-Economic Assessment

In addition to identifying environmental sensitivities and specialist assessment requirements, the Screening Tool highlights the following development incentives, restrictions, exclusions and regulatory considerations applicable to the Project site:

- The site falls within the Waterberg District Municipality Environmental Management Framework area, which must be considered during the assessment process.
- The site falls within the Air Quality - Waterberg-Bojanala Priority Area, which may have implications for air quality management and cumulative impact consideration.
- The site is located within an area associated with main electricity transmission substation infrastructure.
- The site is located within an area associated with main electricity distribution substation infrastructure.
- Several renewable energy developments with approved Environmental Authorisations occur within 30 km of the proposed Project area, including multiple Solar PV projects located within or very close to the proposed area. This indicates that cumulative impacts associated with renewable energy development must be considered in the assessment.

- The Screening Tool did not identify a specific development footprint, and therefore the identified sensitivities must be verified against the final proposed development footprint and layout.
- The Screening Tool confirms that the identified environmental sensitivities are indicative and must be verified on site by suitably qualified specialists.
- Where sensitive species are identified only by a unique species number, the EAP or relevant specialist must request the species information from the South African National Biodiversity Institute, where required, to ensure that the species is appropriately assessed and protected.

5 SITE SENSITIVITY VERIFICATION METHODOLOGY

The site sensitivity verification was undertaken to confirm the current land use and environmental sensitivities of the proposed development area as identified by the Screening Tool. The methodology followed a structured and integrated approach, combining desktop-based analysis with onsite verification to ensure that the screening outputs accurately reflect on-the-ground conditions and to inform the scope of specialist investigations required for the EIA process.

5.1 Desktop Assessment

A comprehensive desktop assessment was undertaken prior to the site visit to establish a baseline understanding of the Project area and its surrounding environmental context. This assessment made use of recent high-resolution satellite imagery and available spatial datasets to identify and characterise:

- Current and historical land use and land cover, including evidence of agricultural activities, disturbed areas, and existing infrastructure.
- Topography and terrain, including slope, elevation, and areas of potential development constraint.
- Vegetation cover and habitat types, with reference to areas of natural, modified, or transformed vegetation.
- Surface water features, including drainage lines, watercourses, wetlands, and potential aquatic buffers.
- Known or mapped environmental sensitivities, including biodiversity priority areas, ecological corridors, and protected or sensitive landscapes.
- The broader regional context, including proximity to settlements, industrial infrastructure, and transport networks.

The desktop assessment also included a review of the outputs of the Screening Tool, with particular attention given to the sensitivity ratings assigned to the various environmental

themes. These findings were used to inform the focus areas for on-site verification and to identify aspects requiring confirmation or further investigation during the site visit.

5.2 Site Visit

A site visit was conducted on 7 May 2025 by Paula Tolksdorff of GCS. The purpose of the site visit was to ground-truth the Screening Tool outputs and desktop assessment findings, and to confirm the current condition of the site.

During the site visit, the following activities were undertaken:

- Visual inspection of the general site condition, including land use practices, disturbance patterns, and evidence of ongoing or historical activities.
- Verification of vegetation cover and habitat condition, including the presence of transformed, degraded, or relatively intact areas.
- Identification and confirmation of aquatic features, such as drainage lines or wetland areas, including their extent, condition, and apparent hydrological connectivity.
- Identification of existing infrastructure, access routes, and any physical constraints relevant to the proposed development.
- Observation of any environmentally sensitive features not clearly reflected in the Screening Tool or desktop datasets.
- Photographic documentation of representative site conditions and key features to support the verification findings.

The site visit was undertaken as a preliminary verification.

In addition, the Project site was visited on several occasions during 2024 and 2025 by various specialists, and observations from these subsequent site visits have been incorporated into this report to ensure that the site sensitivity verification reflects evolving site conditions and provides an accurate and current understanding of the receiving environment.

5.3 Evaluation

The findings of the desktop assessment, site visit and initial specialist site visit findings were evaluated collectively to determine the extent to which the environmental sensitivities identified by the Screening Tool accurately reflect the current on-site conditions.

This evaluation focused on:

- Confirming or refining the sensitivity ratings assigned to each environmental theme.
- Identifying any discrepancies between mapped sensitivities and observed site conditions.
- Assessing whether additional or refined specialist studies are required to adequately assess potential impacts.

- Ensuring that the proposed suite of specialist investigations is proportionate, defensible, and aligned with regulatory requirements.

The outcomes of this evaluation inform the motivation for specialist study requirements and support informed decision-making during the EIA process, in line with the principles of the mitigation hierarchy and sustainable development.

6 DESKTOP AND SITE VISIT FINDINGS

6.1 Aquatic Biodiversity

6.1.1 Screening Tool Outcome

The Screening Tool identified the Aquatic Biodiversity Theme as having very high sensitivity for the proposed development area. The sensitivity is associated with the presence of mapped aquatic biodiversity features, including a FEPA sub-catchment, rivers and wetlands associated with the Central Bushveld Bioregion, including depression wetland features.

Based on the Screening Tool outcome, an Aquatic Biodiversity Impact Assessment was identified as a required specialist assessment.

6.1.2 Desktop Assessment and Site Visit Findings

A Terrestrial and Wetland Assessment (Natural Scientific Services, 2025d) was undertaken for the proposed Nyakallo Solar Park. The assessment included a desktop review, field verification, wetland delineation and functional assessment of the water resource features within the Project area and surrounding Area of Influence (AoI).

The Project area falls within the Limpopo Water Management Area 1 and is situated within the Mokolo River Catchment. The Mokolo River, also known as the Mogol or Mogolo River, rises in the Waterberg and flows through the broader catchment before joining the Limpopo River. The Project area is associated with the Sandloop system, which is a tributary of the Mokolo River within the Lower Mokolo catchment. The Sandloop system is ephemeral in nature and generally only flows following heavy rainfall events.

The Sandloop system occurs within a FEPA sub-catchment and is considered an important freshwater feature within the broader catchment. FEPAs were identified through the National Freshwater Ecosystem Priority Areas programme to support the conservation of freshwater ecosystems based on ecological criteria such as ecosystem representation, water yield, connectivity, unique features and threatened taxa. These priority areas are intended to guide biodiversity planning and support the implementation of the objectives of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA).

The freshwater sensitivity of the broader Project area is further supported by the National Biodiversity Assessment (NBA) 2018, led by the South African National Biodiversity Institute (SANBI). The NBA 2018 provides an updated national assessment of South Africa's biodiversity, including freshwater ecosystems such as rivers, wetlands and freshwater species. The NBA

2018 updates and expands on earlier FEPA mapping, including updated wetland mapping and refined hydrogeomorphic classifications. In terms of the NBA 2018, the Sandloop ephemeral system is classified as a Class C: Moderately Modified system and has an Endangered Ecosystem Threat Status.

The Sandloop system is located approximately 2.2 km to 2.5 km east of the Project area at its closest point. Although the Sandloop itself is not located within the proposed development footprint, it is fed by a number of episodic and ephemeral wash-based systems. These systems may not always display distinct watercourse channels and can be difficult to identify without detailed desktop review and field verification. The episodic and ephemeral wash-based systems contribute to seasonal flow, sediment movement, nutrient transfer and ecological connectivity within the broader catchment. They therefore play an important role in supporting the hydrological and ecological functioning of the Sandloop system. The Sandloop system is characterised by seasonal flows over sandy and gravelly beds and is associated with riparian vegetation, including *Spirostachys africana* (Tamboti) and *Ziziphus mucronata* (Buffalo Thorn).



Figure 6-1: The Sandloop system during the wet season after heavy rains (December 2024) (Natural Scientific Services, 2025d)

The assessment identified an ephemeral wash system within the Project area. The system is classified as a Level 3 Plain system in terms of the Ollis et al. wetland classification approach. Although the system is typically dry, it flows seasonally following heavy rainfall and supports wetland indicators, including hydric soils and hydrophytic vegetation such as *Typha capensis*

(Bulrush) and *Schoenoplectus* species.

The report notes that, although wetland indicators are partially limited by transformation and disturbance, the available soil, terrain and vegetation evidence confirms that the system retains ecological functionality. The system provides seasonal habitat for biodiversity, including bird Species of Conservation Concern (SCC), amphibians and aquatic species adapted to ephemeral and episodic flow conditions.

The wetland system's Present Ecological State was assessed as Moderately Modified, due to changes in hydrology, altered sediment flow, invasive vegetation and surrounding infrastructure. Despite its modified state, the wetland is considered ecologically important because it occurs within a FEPA sub-catchment and provides seasonal habitat and ecological connectivity in a water-scarce landscape.

A buffer was recommended around the delineated ephemeral wetland system to protect its ecological functioning and accommodate species movement. The National Water Act, 1998 (Act No. 36 of 1998) (NWA) Section 21(c) and (i) risk assessment determined that, provided the delineated wetland and its buffer are avoided, residual risks associated with the proposed development are expected to be low.

The Aquatic Biodiversity Theme is therefore confirmed as sensitive due to the Project area's location within a FEPA sub-catchment, the ecological importance of the Sandloop system, and the confirmed presence of an ephemeral wetland / wash system within the Project area. The key aquatic sensitivity requiring management is the delineated ephemeral wash system and its associated buffer. These features must be avoided as far as possible and appropriate mitigation and monitoring measures must be implemented during the construction and operational phases of the proposed development.

6.2 Terrestrial Biodiversity

6.2.1 Screening Tool Outcome

The Screening Tool identified the Terrestrial Biodiversity Theme as having very high sensitivity for the proposed development area. The sensitivity is associated with the site's broader biodiversity context, including its location within an Ecological Support Area (ESA) and its relationship to nearby Critical Biodiversity Areas (CBAs) and freshwater priority features.

Based on the Screening Tool outcome, a Terrestrial Biodiversity Impact Assessment was identified as a required specialist assessment.

6.2.2 Desktop Assessment and Site Visit Findings

The Terrestrial and Wetland Assessment (Natural Scientific Services, 2025d) confirmed that the Project area contains a combination of natural, modified and transformed habitat. The Project area falls within the ecoregion classified as Southern African Bushveld (Figure 6-6) and is located within the Limpopo Sweet Bushveld (SVcd19) vegetation type (Figure 6-7).

Limpopo Sweet Bushveld occurs only in Limpopo Province and is typically associated with plains, sometimes undulating or irregular, traversed by tributaries of the Limpopo River. The vegetation type is generally characterised by short open woodland, with woodland often dominated by *Terminalia sericea* (Silver Cluster Leaf), *Combretum apiculatum* (Red Bushwillow) and *Dichrostachys cinerea* (Sickle Bush). Other tree species of ecological interest include *Sclerocarya birrea* subsp. *afra* (Marula), *Senegalia nigrescens* (Knob Thorn), *Vachellia erioloba* (Camel Thorn), *Senegalia burkei* (Black Monkey Thorn), *Senegalia mellifera* (Black Thorn Acacia) and *Combretum imberbe* (Leadwood).

Vegetation and habitat units identified within the Project area include Thornveld and Bushveld Woodlands, Hydromorphic Systems and Transformed Areas, including crop fields, dwellings, servitudes and historically disturbed areas. The dominant vegetation units include *Senegalia nigrescens* (Knob Thorn) - *Vachellia erioloba* (Camel Thorn) Open Thornveld and *Sclerocarya birrea* subsp. *afra* (Marula) Broadleaf Woodland. These habitats support a diverse indigenous woody and herbaceous species assemblage.



Figure 6-2: *Sclerocarya* Broadleaf Woodland⁵ (Natural Scientific Services, 2025d)

⁵ This vegetation type covers approximately 20% of the study area and is dominated by a mix of both fine-leaf and broad-leaf species including *Sclerocarya birrea* subsp. *afra* and *Senegalia nigrescens*. It is located within the northern region of the Project area adjacent to Matimba Power station. The *Sclerocarya birrea* subsp. *afra* trees in this unit are mostly mature and present in large stands. A mat carpet of *Xerophyta humilis* was present in patches where limited grass cover was present.



Figure 6-3: *Senegalia nigrescens* - *Vachellia erioloba* Open Thornveld⁶ (Natural Scientific Services, 2025d)



Figure 6-4: *C. apiculatum* - *V. erioloba* - *C. imberbe*⁷ Mixed Woodland (Natural Scientific Services, 2025d)



Figure 6-5: *Sclerocarya* Broadleaf Woodland⁸ (Natural Scientific Services, 2025d)

⁶ This vegetation type covers approximately 33% of the study area and is dominated by tall *Senegalia nigrescens* trees, with a relatively sparse understory.

⁷ This vegetation type covers approximately 12.34% of the study area and is dominated by a mix of broad leaf species such as *Combretum apiculatum* and *C. hereroense*. The understory shows more cover than the *Senegalia nigrescens* - *Vachellia erioloba* Open Thornveld.

⁸ This vegetation type covers approximately 20% of the study area and is dominated by a mix of both fine-leaf and broad-leaf species including *Sclerocarya birrea* subsp. *afra* and *Senegalia nigrescens*. It is located within the northern region of the Project area adjacent to Matimba Power station. The *Sclerocarya birrea* subsp. *afra* trees in this unit are mostly mature and present in large stands. A mat carpet of *Xerophyta humilis* was present in patches where limited grass cover was present.

The report notes that certain vegetation units remain relatively intact, although they are subject to varying levels of degradation from historical land use, existing servitudes, wood harvesting, alien invasive species and other anthropogenic pressures.

The Project area is located within an ESA, with CBAs located to the east of the Project area (Figure 6-8). The Sandloop ephemeral system, which traverses the neighbouring farm, is classified as Endangered under the NBA and provides important ecological functions and habitat for SCC.

Site ecological importance was assessed for the habitat units within the Project area. The wetland habitats were rated as High Site Ecological Importance, while Closed Woodland and Open Woodland habitats were rated as Medium Site Ecological Importance. These ratings reflect the conservation importance, functional integrity and receptor resilience of the habitats present.

The assessment further considered the International Finance Corporation Performance Standard 6 Critical Habitat framework. No definitive Critical Habitat was identified within the Aol. However, the report notes that species such as *Gyps africanus* (White-backed Vulture), *Lycaon pictus* (African Wild Dog) and potential occurrence of *Corchorus psammophilus* indicate biodiversity sensitivities requiring ongoing consideration and monitoring.

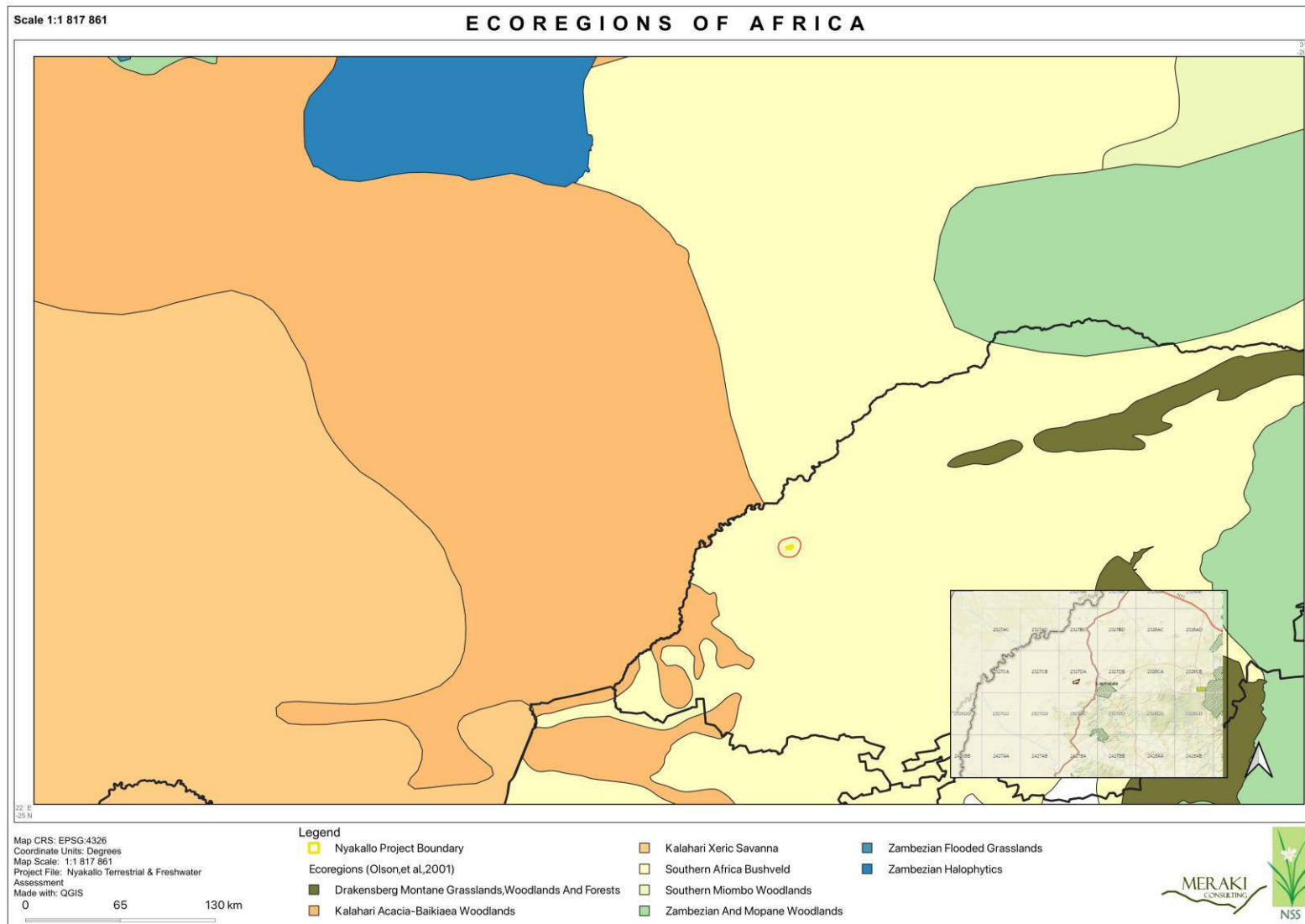


Figure 6-6; Terrestrial Ecoregion (Project area encircled in red) (Natural Scientific Services, 2025d)

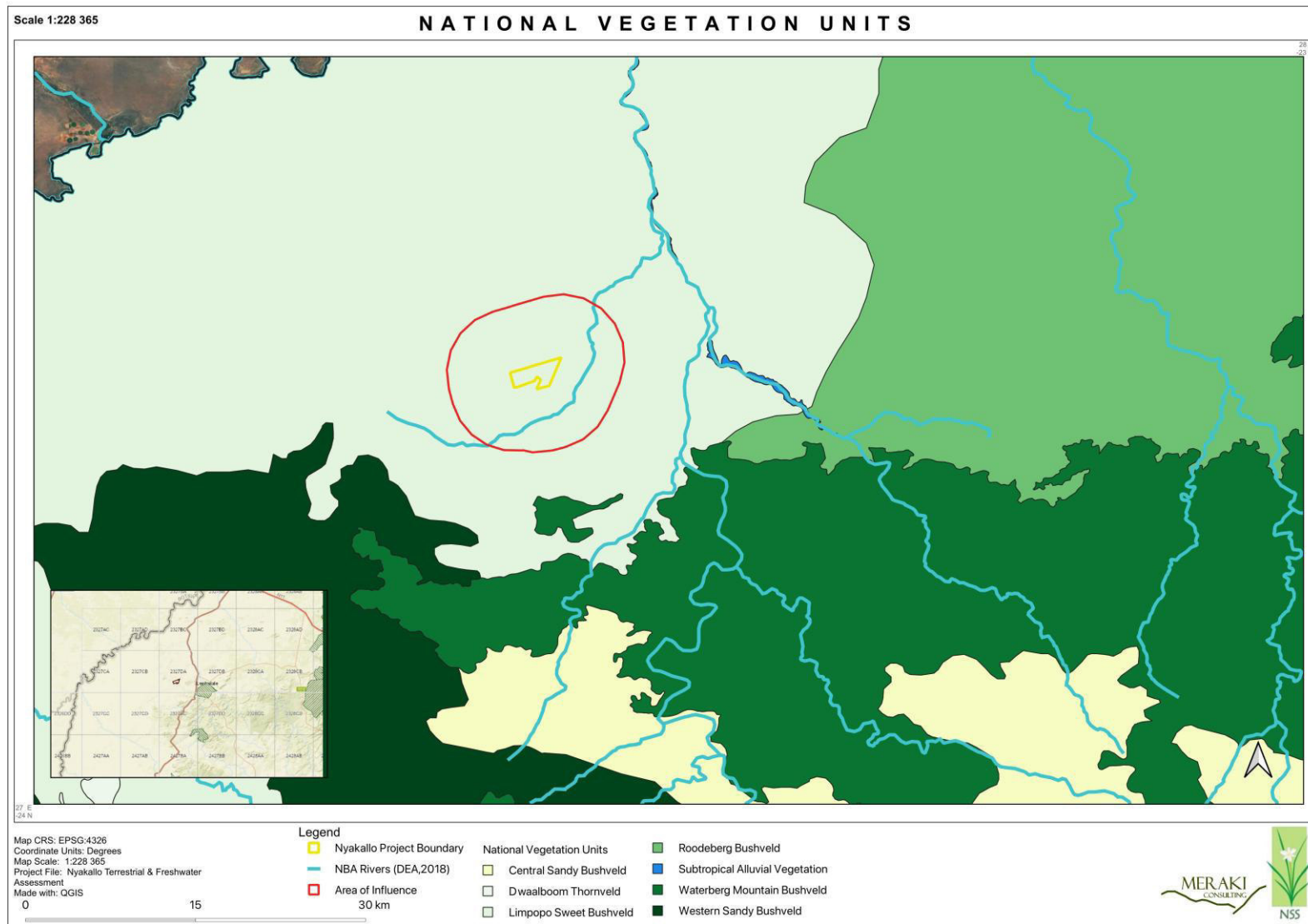


Figure 6-7: Broad vegetation units (Natural Scientific Services, 2025d)

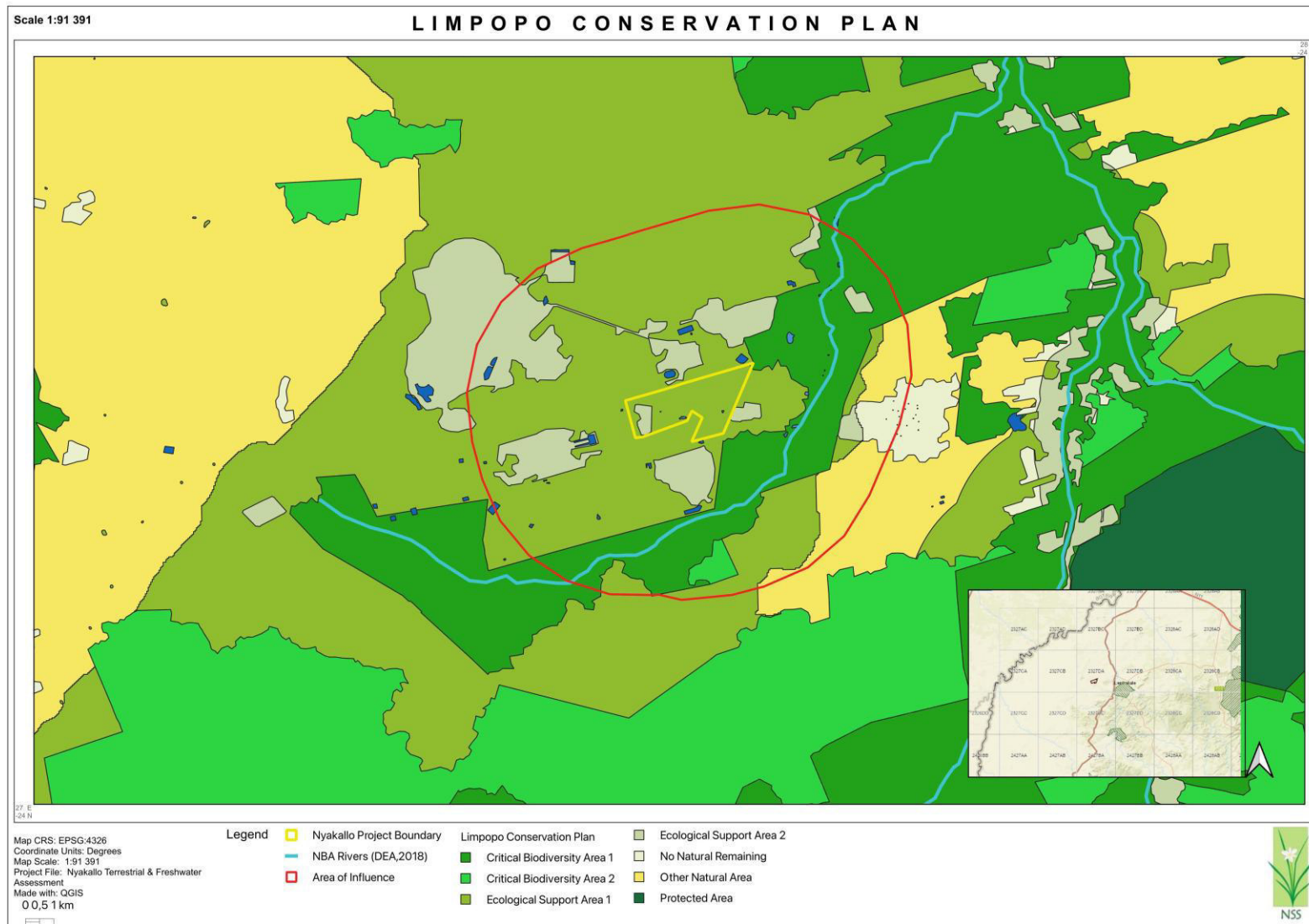


Figure 6-8: Limpopo Conservation Plan in relation to the Project area (Natural Scientific Services, 2025d)

6.3 Plant Species

6.3.1 Screening Tool Outcome

The Screening Tool identified the Plant Species Theme as having low sensitivity for the proposed development area. However, the Screening Tool also identified *Corchorus psammophilus* as a flora species of potential concern in the broader sensitivity assessment.

Based on the Screening Tool outcome, and because vegetation clearance will be required for the proposed development, a Plant Species Assessment was identified as a required specialist assessment

6.3.2 Desktop Assessment and Site Visit Findings

The Terrestrial and Wetland Assessment (Natural Scientific Services, 2025d) recorded a diverse vegetation assemblage within the Project area and Aol, including Open Thornveld, Broadleaf Woodland and transformed vegetation units.

A separate pre-clearance survey undertaken by Natural Scientific Services (NSS) recorded 4 708 individual records of four protected tree species. The most abundant protected species recorded were *Sclerocarya birrea* subsp. *afra* (Marula) and *Vachellia erioloba* (Camel Thorn). Other protected tree species recorded within the Project area included *Combretum imberbe* (Leadwood) and *Boscia albitrunca* (Shepherd's Tree).

The assessment identified the *Sclerocarya* Broadleaf Woodland as an important vegetation unit, particularly where mature stands occur. These mature woodland areas contribute to habitat structure and ecological functioning, including providing shelter, nesting opportunities and resources for fauna.

Alien and invasive plant species were also recorded within the Project area (Figure 6-9). The report specifically identifies *Cereus jamacaru* (Queen of the Night), a Category 1b alien invasive species under NEMBA, as a significant threat to the ecological functioning of natural systems. Other alien invasive species recorded included *Agave sisalana* (Sisal) and *Opuntia species* (Prickly Pear).



Figure 6-9: Alien Invasive Species found in the Aol: A) *Cereus jamacaru*; B) *Agave sisalana*; C) *Opuntia* spp (Prickly Pear) (Natural Scientific Services, 2025d)

Although the Screening Tool mapped the Plant Species Theme as low sensitivity, the field findings confirm that protected plant species and ecologically important woodland habitat occur within the Project area. These features require consideration in the final layout, permitting process and EMPr.

6.4 Animal Species

6.4.1 Screening Tool Outcome

The Screening Tool identified the Animal Species Theme as having medium sensitivity for the proposed development area. The sensitivity is associated with the potential occurrence of animal SCC, including avifaunal and mammal species.

The Screening Tool identified species including *Podica senegalensis* (African Finfoot), *Terathopius ecaudatus* (Bateleur), *Hydroprogne caspia* (Caspian Tern), *Gyps africanus* (White-backed Vulture), *Aquila rapax* (Tawny Eagle), *Dasymys robertsii* (Roberts Shaggy Rat) and *Lycaon pictus* (African Wild Dog), as well as other sensitive species information requiring specialist consideration.

Based on the Screening Tool outcome, an Animal Species Assessment was identified as a required specialist assessment

6.4.2 Desktop Assessment and Site Visit Findings

The Terrestrial and Wetland Assessment (Natural Scientific Services, 2025d) confirmed that the Project area and Aol support a diverse faunal assemblage across five broad faunal habitat types:

- Closed Broadleaf Woodland;
- Open Broadleaf Woodland;
- Open Thornveld;
- Wetlands, including artificial and natural systems; and
- Anthropogenic or transformed habitats.

The Closed and Open Broadleaf Woodland habitats support diverse fauna, including arboreal mammals, insectivores and ground-dwelling birds. Open Thornveld provides habitat for larger nesting birds, grazers and browsers, while wetland habitats provide refugia, water and food resources for amphibians and other fauna in an otherwise water-scarce woodland landscape.

The assessment recorded more than 207 bird species within the Aol, including 36 SCC. These included *Gyps africanus* (White-backed Vulture), *Ephippiorhynchus senegalensis* (Saddle-billed Stork), *Ardeotis kori* (Kori Bustard) and *Ciconia nigra* (Black Stork). The report confirms that avifaunal sensitivity remains an important consideration for the Project, particularly in relation to waterbirds, large-bodied birds, raptors and species vulnerable to collision or displacement.

Thirty-one mammal species were recorded, including several globally and nationally Red-listed species. The report notes the presence or potential occurrence of threatened, wide-ranging species such as *Smutsia temminckii* (Ground Pangolin), *Leptailurus serval* (Serval) and *Lycaon pictus* (African Wild Dog), which are sensitive to habitat fragmentation, persecution and disturbance. The assessment also notes *Mellivora capensis* (Honey Badger) as a wide-ranging mammal relevant to the Aol.

Twelve reptile species were recorded, including *Python natalensis* (Southern African Python), which is a Specially Protected Species. Other reptile species recorded included *Dendroaspis polylepis* (Black Mamba), *Stigmochelys pardalis* (Leopard Tortoise), *Chamaeleo dilepis* (Flap-neck Chameleon), *Pelomedusa subrufa* (African Helmeted Terrapin), *Heliobolus lugubris* (Bushveld Lizard), *Trachylepis varia* (Eastern Variable Skink) and *Acanthocercus atricollis* (Southern Tree Agama).

Nine amphibian species were recorded, including *Pyxicephalus edulis* (African Bullfrog). *Pyxicephalus adspersus* (Giant Bullfrog) was previously confirmed by NSS in the broader region and remains a key SCC. Other amphibians recorded included *Hildebrandtia ornata* (Ornate Frog), *Ptychadena anchietae* (Plain Grass Frog), *Kassina senegalensis* (Bubbling Kassina),

Chiromantis xerampelina (Southern Foam Nest Frog), *Sclerophrys garmani* (Olive Toad) and *Phrynomantis bifasciatus* (Banded Rubber Frog).

Twenty-three butterfly species were also recorded. None are currently threatened, but their diversity reflects the biodiversity value of the Aol. Species recorded included *Acraea natalica* (Black-based Acraea), *Acraea anemosa* (Broad-bordered Acraea), *Acraea eponina* (Small Orange Acraea), *Byblia ilithyia* (Joker), *Junonia oenone* (Blue Pansy), *Danaus chrysippus* (African Monarch), *Hamanumida daedalus* (Guineafowl) and *Eurema brigitta* (Broad-bordered Grass Yellow).

The assessment concluded that the Project area supports a diverse faunal assemblage, including SCC and species dependent on woodland and ephemeral wetland habitats. Faunal impacts requiring management include habitat loss, habitat degradation, displacement, disturbance, mortality risk, fragmentation and potential impacts associated with the operational solar infrastructure.



Figure 6-10: Examples of some of the avifaunal species photographed in the Aol; A: Red-crested Korhaan (*Lophotis ruficrista*); B: Helmeted Guineafowl (*Numida meleagris*); C:

Double-banded Sandgrouse (*Pterocles bicinctus*); D: Southern Red-billed Hornbill (*Tockus rufirostris*) E: Southern Yellow-billed Hornbill (*Tockus leucomelas*); F: Kori Bustard (*Ardeotis kori*) (all photos taken onsite/Aol) (Natural Scientific Services, 2025d)



Figure 6-11: Examples of some of the avifaunal species photographed in the Aol; A: Village Indigobird (*Vidua chalybeate*); B: Southern Black Tit (*Melaniparus niger*); C: Bearded Woodpecker (*Chloropicus namaquus*); D: Cardinal Woodpecker (*Dendropicos fuscescens*); E: Diederik Cuckoo (*Chrysococcyx caprius*); F: Jacobin Cuckoo (*Clamator jacobinus*); G:

Chinspot Batis (*Batis molitor*); H: (all photos taken onsite or in the Aol) (Natural Scientific Services, 2025d)



Figure 6-12: Examples of Mammal evidence within the Project area and Aol: A: Serval (*Leptailurus serval*); B: Steenbok (*Raphicerus campestris*); C: Dwarf Mongoose (*Helogale parvula*); D: Southern Lesser Galago (*Galago moholi*) (all pictures taken onsite) (Natural Scientific Services, 2025d)



Figure 6-13: Examples of Reptile evidence within the Aol: A: Bushveld Lizard (*Heliobolus lugubris*); B: African Helmeted Terrapin (*Pelomedusa subrufa*); C: Southern African Python (*Python natalensis*); D: Eastern Variable Skink (*Trachylepis varia*); E: Black Mamba (*Dendroaspis polylepis*); F: Southern Tree Agama (*Acanthocercus atricollis atricollis*); H: Flap-neck Chameleon (*Chamaeleo dilepis*); I: Leopard Tortoise (*Stigmochelys pardalis*) (all pictures taken onsite) (Natural Scientific Services, 2025d)



Figure 6-14: Examples of Amphibians evidence within the Aol: A: Ornate Frog (*Hildebrandtia ornata*); B: Plain Grass Frog (*Ptychadena anchietae*) C: Bubbling Kassina (*Kassina senegalensis*); D: Southern Foam Nest Frog (*Chiromantis xerampelina*); E: Olive Toad (*Sclerophrys garmani*); G: Banded Rubber Frog (*Phrynomantis bifasciatus*); F: African Bullfrog (*Pyxicephalus edulis*), (all pictures taken onsite) (Natural Scientific Services, 2025d)



Figure 6-15: Examples of butterfly species observed within the Aol: A: Black-based Acraea (*Acraea natalica*); B: Broad-bordered Acraea (*Acraea anemosa*); C: Small Orange Acraea (*Acraea eponina*); D: Joker (*Byblia ilithyia*) (All pictures taken onsite) (Natural Scientific Services, 2025d)

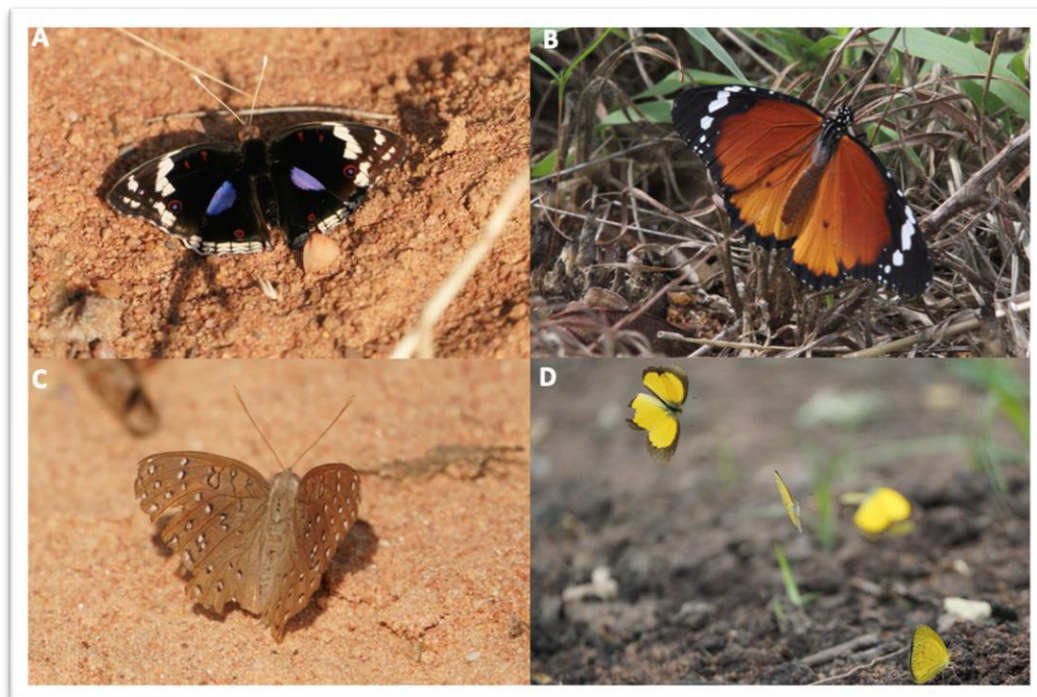


Figure 6-16: Examples of butterfly species observed within the Aol: A: Blue Pansy (*Junonia oenone*); B: African Monarch (*Danaus chrysippus*); C: Guineafowl (*Hamanumida daedalus*); D: Broad-bordered Grass Yellow (*Eurema brigitta*) (All pictures taken onsite) (Natural Scientific Services, 2025d)

6.5 Avian

6.5.1 Screening Tool Outcome

The Screening Tool identified the Avian Theme as having very high sensitivity for the proposed development area. The sensitivity is associated with the presence or potential occurrence of avifaunal SCC within the broader Project area and surrounding landscape.

The Screening Tool identified the following avifaunal sensitivity features:

- High sensitivity: *Polemaetus bellicosus* (Martial Eagle) - Endangered;
- High sensitivity: *Gyps africanus* (White-backed Vulture) - Critically Endangered;
- Medium sensitivity: *Podica senegalensis* (African Finfoot) - Vulnerable;
- Medium sensitivity: *Terathopius ecaudatus* (Bateleur) - Endangered;
- Medium sensitivity: *Hydroprogne caspia* (Caspian Tern) - Vulnerable; and
- Medium sensitivity: *Aquila rapax* (Tawny Eagle) - Endangered.

The Screening Tool also identified avifaunal sensitivity associated with the proposed solar development due to the Project area being located within 50 km of breeding White-backed Vulture colonies and within 20 km of a vulture restaurant.

Based on the Screening Tool outcome, an Avifaunal Impact Assessment / Avifaunal Pre-construction Monitoring Assessment was identified as a required specialist assessment.

6.5.2 Desktop Assessment and Site Visit Findings

NSS was appointed to undertake avifaunal pre-construction monitoring for the proposed Nyakallo Solar Facility. The monitoring programme includes desktop assessment and active field sampling to assess avifaunal species, SCC, priority species, endemic species, and potential Project-related impacts on avifauna.

The avifaunal monitoring included the following fieldwork periods:

- 28 November to 2 December 2024 - Stage 1: Avifaunal in-field scoping (Natural Scientific Services, 2025a);
- to 15 March 2025 - Stage 2: Trip 1 Avifaunal pre-construction monitoring (Natural Scientific Services, 2025b);
- 21 to 25 July 2025 - Stage 2: Trip 2 Avifaunal pre-construction monitoring (Natural Scientific Services, 2025b); and
- 25 to 29 September 2025 - Stage 2: Trip 3 Avifaunal pre-construction monitoring (Natural Scientific Services, 2025c).

Additional biodiversity fieldwork was undertaken during December 2024, January 2025, March 2025 and May 2025, during which noteworthy avifaunal species were also recorded.

The avifaunal assessment considered the Project area and surrounding Aol. The Project area is surrounded by mixed land uses, including Matimba Power Station and Marapong Town to the north, natural woodland and a landfill site to the east, natural woodland and the Matimba Ash Facility to the south, and Medupi Power Station and powerline infrastructure to the west.

Five broad faunal habitat types were identified within the Aol, namely:

- Open Thornveld;
- Open Broadleaf Woodland;
- Closed Broadleaf Woodland;
- Wetlands, including artificial and natural wetland features; and
- Anthropogenic / transformed habitats.

The monitoring approach included fixed point counts, walked transects, large species surveys, road counts, focal site surveys, checklist surveys, and the investigation of wetlands, evaporation ponds and other relevant avifaunal habitat features. Sampling points were located across the different habitat types within the Project area and Aol.

During the first avifaunal monitoring period, a total of 207 species were recorded within the Aol. This represented approximately 51.6% of the potentially occurring species and was considered representative of the typical bird assemblage for the area. The presence of water within the Project area and surrounding landscape attracted a variety of waterbirds, and evidence of breeding at ephemeral waterbodies was recorded.

During the mid-winter field survey, a total of 104 species were recorded within the Aol, with 81 species recorded on Nyakallo. This was considered representative of the typical mid-winter bird assemblage. Water availability was reduced during this period, although some water remained within borrow pits and due to discharge from the west. As a result, fewer waterbird species were recorded during the mid-winter survey.

SCC recorded during the monitoring included flyovers by *Phoeniconaias minor* (Lesser Flamingo), *Phoenicopiterus roseus* (Greater Flamingo) and *Gyps africanus* (White-backed Vulture). SCC recorded within the Aol included *Ephippiorhynchus senegalensis* (Saddle-billed Stork), *Ciconia nigra* (Black Stork) and *Ardeotis kori* (Kori Bustard). Breeding waterbird species recorded within the Aol included *Dendrocygna viduata* (White-faced Whistling Duck) and *Anas erythrorhynchos* (Red-billed Teal).

The monitoring also recorded secretive and sparsely distributed species such as *Botaurus sturmii* (Dwarf Bittern) and *Paragallinula angulata* (Lesser Moorhen), as well as a stable presence of raptor species including *Hieraaetus wahlbergi* (Wahlberg's Eagle) and *Aquila spilogaster* (African Hawk-Eagle) within the Project area. An out-of-range *Lophaaetus occipitalis* (Long-crested Eagle) was also recorded within the powerline servitude on site. Owls

were prevalent during night surveys and were captured on motion cameras, including *Tyto alba* (Barn Owl), *Ptilopsis granti* (White-faced Owl), *Glaucidium perlatum* (Pearl-spotted Owlet), *Otus senegalensis* (African Scops Owl) and *Bubo africanus* (Spotted Eagle-Owl).

The spring survey recorded *Hieraaetus wahlbergi* (Wahlberg's Eagle) nesting within the Nyakallo Project area, confirming the importance of continued monitoring of breeding raptors and nesting activity within the Aol. The avifaunal reports also note the importance of continued focus on species such as *Certhilauda chuana* (Short-clawed Lark), a localised endemic species detected during earlier surveys in the Aol.

The assessment further notes that waterbirds are considered priority species for solar energy developments due to the potential for "lake effect" impacts, where migratory waterbirds may confuse Solar PV panels with waterbodies, increasing the risk of collision, injury or mortality.

Based on the desktop assessment and field monitoring completed to date, the Project area and surrounding Aol support a diverse avifaunal assemblage, including several SCC, waterbirds, raptors and woodland-associated species. Continued avifaunal monitoring remains important to confirm seasonal use of the site, breeding activity, and potential risks associated with the proposed Nyakallo Solar Park.

6.6 Landscape (Solar)

6.6.1 Screening Tool Outcome

The Screening Tool identified the Landscape (Solar) Theme as having very high sensitivity for the proposed development area. The sensitivity is attributed to the proximity of the proposed development area to nearby towns, villages and a nature reserve.

The Screening Tool identifies the following Landscape (Solar) sensitivity features:

- Very High sensitivity: Within 500 m of a town or village;
- High sensitivity: Between 500 m and 1 000 m of a town or village;
- Medium sensitivity: Between 1 km and 2 km of a town or village; and
- Medium sensitivity: Between 3 km and 5 km of a nature reserve.

Based on the Screening Tool outcome, a Landscape / Visual Impact Assessment was identified as a required specialist assessment.

6.6.2 Desktop Assessment and Site Visit Finding

A Visual Impact Assessment (GCS, 2004) was undertaken for the proposed Nyakallo Solar Park. The purpose of the assessment was to determine the potential visual impact of the proposed Nyakallo Solar Park on the surrounding landscape and sensitive visual receptors.

The Visual Impact Assessment identified the proposed development as a Category 5 development in terms of the Oberholzer visual assessment guideline. The receiving

environment was described as an area or route of medium scenic, cultural or historical significance. Based on this categorisation, the proposed development was expected to result in a high visual impact, requiring a Level 3 Visual Impact Assessment.

The assessment was informed by a desktop assessment, Geographic Information System-based viewshed analysis and a site walk-over. The site walk-over was undertaken between 24 and 27 June 2024 to establish the existing sense of place and to document views from surrounding communities and roads, particularly the D1675 and D2001, which pass through and near the Project area.

The receiving landscape is characterised by gradually elevating topography, with no steep hills or mountains in the immediate surrounding area. Elevation within a 10 km radius of the proposed development ranges from approximately 820 metres above mean sea level (mamsl) to 920 mamsl, gradually increasing from east to west.

The vegetation in the Project area and surrounding environment is predominantly Limpopo Sweet Bushveld. The Visual Impact Assessment notes that vegetation in the area has some potential to provide visual screening, particularly for the Marapong community located to the north of the proposed development area.

The broader landscape surrounding the site includes natural grasslands, an Eskom powerline servitude, Matimba Power Station, Grootegeluk Coal Mine, a dump site, the Marapong community and various homesteads. The proposed development is expected to be visible along portions of the D2001, which may detract from the existing sense of place.

Sensitive visual receptors identified in the Visual Impact Assessment include:

- Nearby residents and homesteads;
- Educational facilities;
- Mine workers; and
- Motorists using the surrounding road network.

Residents, schools and mine workers within 10 km of the affected environment were classified as visual receptors of high sensitivity, due to their sustained visual exposure and interest in their living and working environment. Motorists were classified as receptors of low sensitivity, as their exposure is typically brief and views from moving vehicles are dynamic.

A viewshed analysis was undertaken for the proposed Solar PV panels using a 10 km Potential Zone of Influence. The analysis was based on the topography of the surrounding area and the distance between the observer and the proposed development.

The viewshed results indicated that higher visual impacts are expected approximately 5 km east of the Nyakallo Solar Park. Visual exposure is expected to reduce with increasing distance from the Project area. The assessment found that portions of the D1675 and D2001 roads are

anticipated to experience medium to high levels of visual exposure over limited sections of approximately 2 km. The assessment further noted that no visual impacts are expected on the nearby nature reserve.

The Visual Impact Assessment recommends mitigation measures to reduce visual impacts during both construction and operation. These include good housekeeping, minimising vegetation clearance, controlling dust, limiting unnecessary lighting, rehabilitating disturbed areas, and retaining or establishing visual screening where practical.

Based on the desktop assessment, site visit and viewshed analysis, the proposed development will result in visual change to the surrounding landscape, particularly along nearby roads and for certain surrounding receptors. However, with appropriate mitigation, the visual impacts can be managed to acceptable levels.

6.7 Palaeontology

6.7.1 Screening Tool Outcome

The Screening Tool identified the Palaeontology Theme as having very high sensitivity for the proposed development area. The sensitivity is attributed to the presence of geological features mapped as having very high palaeontological sensitivity.

The palaeontological sensitivity of the proposed development area is shown in Figure 6-17. The figure is based on the South African Heritage Resources Information System (SAHRIS) palaeosensitivity mapping and indicates that portions of the proposed development area are mapped as very high and moderate palaeontological sensitivity. In terms of the SAHRIS sensitivity categories, areas mapped as very high require a field assessment and a Chance Find Protocol, while areas mapped as moderate require a desktop study.

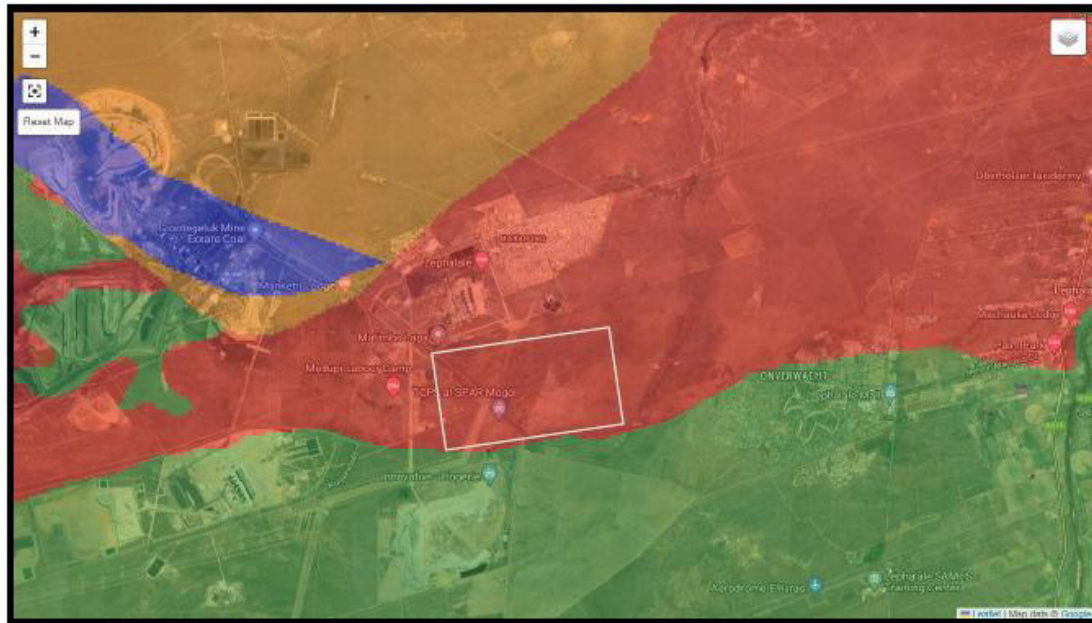


Figure 6-17: Palaeontological sensitivity of the proposed Nyakallo Solar Park area (A Smith, 2024)

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, South African Heritage Resources Agency will continue to populate the map.

Based on the Screening Tool outcome and the palaeontological sensitivity mapping, a Palaeontology Impact Assessment was identified as a required specialist assessment.

6.7.2 Desktop Assessment and Site Visit Finding

A palaeontological desktop assessment (A Smith, 2024) was undertaken as part of the Heritage Impact Assessment for the proposed Nyakallo Solar Park. The assessment identified that the site is underlain by the Swartrant Formation, Grooteegeluk Formation and possibly Karoo Dolerite.

The Karoo Dolerite is intrusive igneous rock and is therefore not fossiliferous. The Swartrant and Grooteegeluk Formations are associated with the Ellisras Coal Beds and are correlated with the Vryheid Formation. These formations may contain trace fossils and plant fossil material, particularly fossil plant material associated with coal seams. However, these fossil materials are described as common and are not considered to be of high palaeontological significance in the context of the proposed development.

The palaeontological assessment further notes that the proposed PV footprint will be shallow,

which reduces the likelihood of impacting palaeontological material. The on-site geology is also likely to be weathered, further reducing the likelihood of significant palaeontological material being encountered.

Although the likelihood of encountering significant palaeontological material is considered low, the assessment recommends that a Chance Find Protocol be included in the Environmental Management Programme (EMPr). This will ensure that any fossil material unexpectedly uncovered during construction is appropriately managed.

6.8 Agriculture

6.8.1 Screening Tool Outcome

The Screening Tool identified the Agriculture Theme as having very high sensitivity for the proposed development area. The mapped sensitivity is associated with agricultural sensitivity features including pivot irrigation, rainfed annual crop cultivation or planted pastures, areas of moderate to high agricultural sensitivity, and areas of low to moderate agricultural sensitivity.

The Screening Tool identifies the following Agriculture Theme sensitivity features:

- Very High sensitivity: Pivot irrigation;
- High sensitivity: Rainfed annual crop cultivation / planted pastures;
- High sensitivity: Moderate-high agricultural sensitivity;
- High sensitivity: Moderate agricultural sensitivity;
- Medium sensitivity: Low-moderate agricultural sensitivity; and
- Low sensitivity: Low agricultural sensitivity.

Based on the Screening Tool outcome, an Agricultural Impact Assessment was identified as a required specialist assessment.

6.8.2 Desktop Assessment and Site Findings

A Soils, Land Capability and Land Use Specialist Assessment (Jackson, 2024) was undertaken by Eco-Assist for the proposed Nyakallo Solar Park. The assessment included a desktop assessment, field verification and detailed soil survey to confirm the agricultural sensitivity of the site.

The Screening Tool results considered in the specialist assessment showed that the Project area is dominated by medium agricultural sensitivity, with a portion in the western part of the Project area rated as high agricultural sensitivity. The specialist noted that the Screening Tool is based on coarse datasets and that field verification is required to confirm or dispute the mapped sensitivities.

The desktop assessment considered climate, terrain, geology, land types, soil capability, land

capability and grazing capacity. The climate capability for the Project area was determined to be Low-Moderate, with a C6 climate class, indicating severe limitations associated with a moderately restricted growing season due to low temperatures, frost and/or moisture stress. These climatic limitations reduce the potential for sustainable crop yields.

The terrain assessment found that the Project area is relatively flat, with elevations ranging from approximately 830 metres above sea level (masl) to 900 masl. Slopes are generally shallow, ranging between 0% and 5%, and the Project area is situated mainly on a crest landscape unit. The terrain capability was rated as high, mainly due to the shallow slopes and landscape position.

The desktop soil capability assessment found that most of the Project area has low soil capability, with portions along the western edge and a small portion of the south-eastern edge classified as moderate-high. The desktop land capability assessment rated the majority of the Project area as Low-Moderate, with portions along the western and south-eastern edges classified as moderate. The long-term sustainable grazing capacity for the Project area was rated as 12 ha per Large Stock Unit (ha/LSU).

A detailed soil survey was undertaken in March 2024 using a hand-held auger and GPS to record soil observation points. The soil forms identified on site included:

- Hutton / Ermelo soils: deep, freely draining soils, accounting for approximately 755.4 ha of the assessment area (Figure 6-18);
- Pinedene soils: occurring in midslope to footslope positions, accounting for approximately 6.1 ha (Figure 6-19);
- Wetland areas: accounting for approximately 0.7 ha;
- Disturbed areas: accounting for approximately 49.3 ha; and
- Infrastructure areas: accounting for approximately 26.5 ha.



Figure 6-18: The Hutton/Ermelo soil form found on site (Jackson, 2024)



Figure 6-19: The Pinedene soil form found on site (Jackson, 2024)

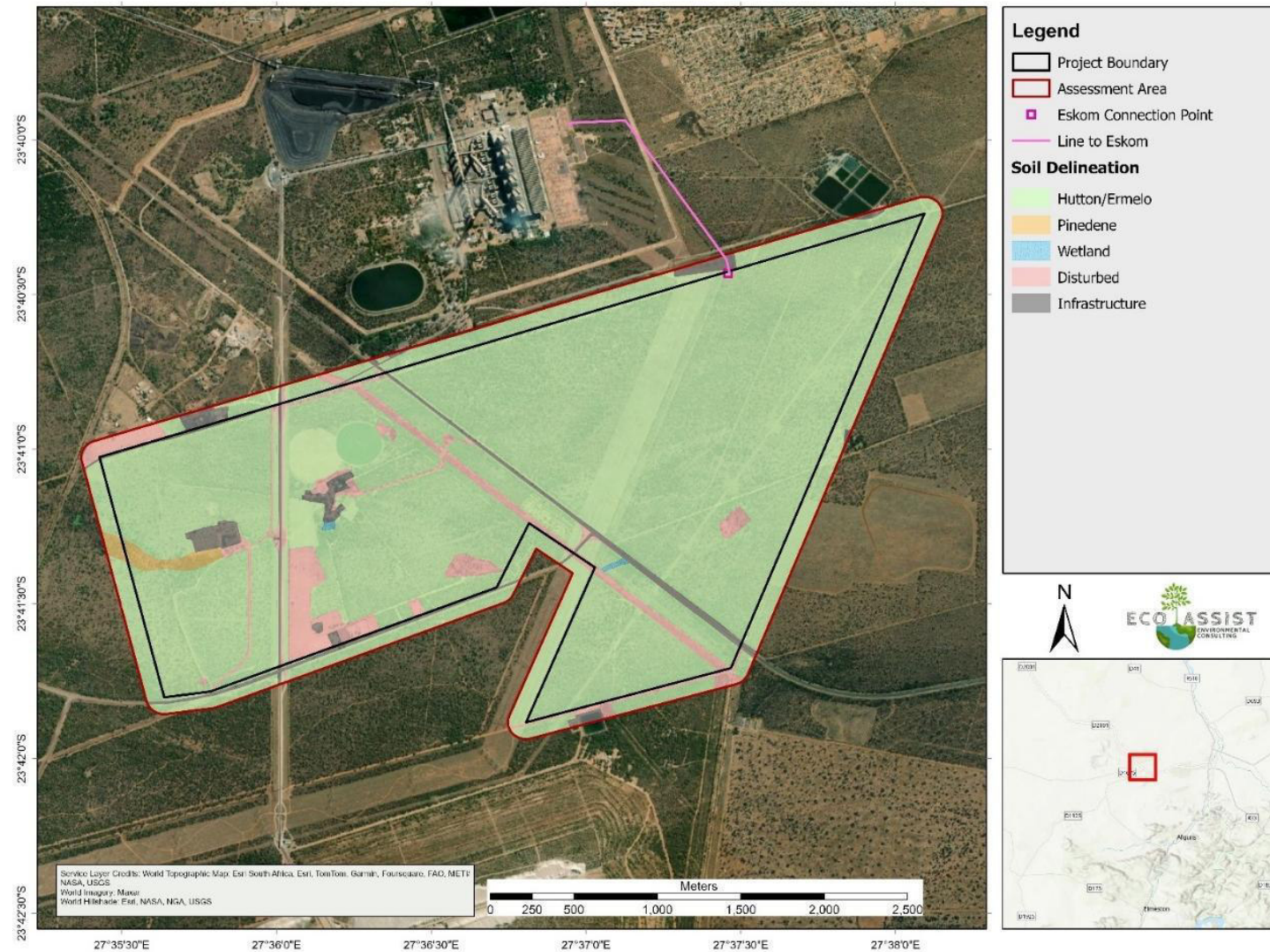


Figure 6-20: The soil delineation for the Project area (Jackson, 2024)

The site assessment confirmed that the Project area is dominated by deep, freely draining Ermelo and Hutton soil forms, located mainly in midslope to upper-slope landscape positions. The Pinedene soils occur in areas influenced by water movement through the landscape.

The land capability assessment classified the Ermelo, Hutton and Pinedene soil forms as Class III, indicating moderate cultivation capability. Class III land capability is dominant across the assessment area, accounting for approximately 761.5 ha, or 91% of the area assessed. Disturbed areas were classified as Class VIII, while wetter areas were classified as Class V.

The land potential assessment classified most of the site as L4, indicating moderate agricultural potential. The L4 land potential class accounts for approximately 748.8 ha, or 89% of the assessment area. A smaller area of approximately 12.7 ha was identified as irrigated land. This irrigated area is used for cattle feed supplementation and was classified as L4 (Irrigated). The specialist did not increase the land potential rating for the irrigated area because it is not used for crop production, the feed produced is not crucial to the farmer's operations, and the irrigation infrastructure has been earmarked to be moved to the farmer's other farming operations.

The specialist assessment concluded that the agricultural potential of the site is medium to low, primarily due to climatic restrictions limiting sustainable yields. The land capability and sensitivity were rated as moderate-low, and the specialist indicated that the allowable limits for solar development support the development of solar projects in the region.

6.9 Archaeological and Cultural Heritage

6.9.1 Screening Tool Outcome

The Screening Tool identified the Archaeological and Cultural Heritage Theme as having low sensitivity for the proposed development area. The Screening Tool did not identify any high or very high archaeological or cultural heritage sensitivity features within the proposed development area.

Based on the Screening Tool outcome, an Archaeological and Cultural Heritage Impact Assessment was nevertheless identified as a required specialist assessment.

6.9.2 Desktop Assessment and Site Visit Finding

A Heritage Impact Assessment (Anderson, 2024) was undertaken by Umlando: Archaeological Surveys and Heritage Management for the proposed Nyakallo Solar Park. The assessment included both a desktop study and a field survey of the proposed development area.

The desktop study included a review of available heritage information, previous heritage surveys, historical aerial imagery and topographical mapping. Previous surveys undertaken in the broader area recorded Middle Stone Age scatters, 20th century graves, 19th century pottery, artefact scatters, structures and graves on nearby properties. However, a previous survey undertaken within part of the study area recorded no heritage sites.

The 1937 aerial imagery showed the proposed development area as general bushveld without structures. The 1969 aerial imagery identified the Hanglip farmstead, three possible kraals and three possible houses, likely associated with farm labourer occupation. The Hanglip main farmhouse is possibly older than 60 years and is therefore protected in terms of heritage legislation.

A field survey was undertaken over three days during the last week of January 2024. Some areas were densely vegetated; however, paths and open areas allowed for an adequate sample survey. All potential sites identified during the desktop assessment were visited.

The field survey confirmed that isolated stone tools (Figure 6-21) occur across the study area as a lag deposit on top of the calcrete layer. The stone tools are mostly quartz and quartzite and date to the Middle Stone Age and Late Stone Age. The assessment concluded that these stone tool scatters are of low significance and require no further mitigation.

The three possible kraal areas identified during the desktop assessment were surveyed, but no surviving structures were identified. A Marula tree with old cut marks, likely associated with traditional medicine use, was recorded near one of the possible house locations. A fragment of a lower grinding stone was also recorded near one of the possible house locations.

The Hanglip farmhouse (Figure 6-23) was identified as likely being between 60 and 80 years old and is therefore automatically protected in terms of heritage legislation. A destruction permit has been obtained for the farmhouse. Accordingly, no further built environment assessment is required in respect of the proposed demolition, subject to compliance with the conditions of the approved permit. Other structures identified in the area are more recent and are not protected.

The Heritage Impact Assessment concluded that it is highly unlikely that significant archaeological artefacts will occur within the study area. No Iron Age sites were identified, and the absence of pottery supports this conclusion. No further archaeological mitigation is required, subject to the implementation of the recommendations of the Heritage Impact Assessment and the Chance Find Protocol.

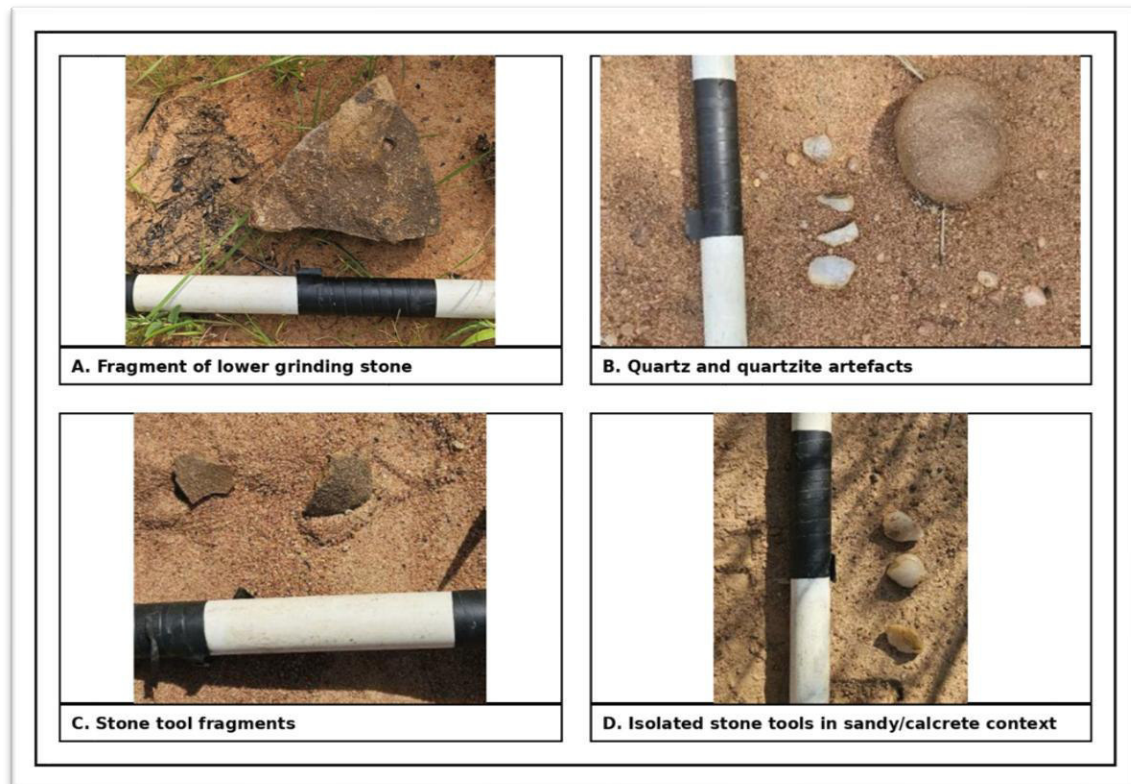


Figure 6-21: Stone tools noted in the study area



Figure 6-22: *Sclerocarya birrea* subsp. *afra* (Marula) tree used for traditional medicine



Figure 6-23: Hanglip farmhouse

6.10 Civil Aviation (Solar PV)

6.10.1 Screening Tool Outcome

The Screening Tool identified the Civil Aviation (Solar PV) Theme as having medium sensitivity for the proposed development area. The sensitivity is attributed to the site being located within 8 km of another civil aviation aerodrome.

The Screening Tool identifies the following Civil Aviation (Solar PV) sensitivity features:

- Low sensitivity: No major or other types of civil aviation aerodromes.
- Medium sensitivity: Within 8 km of another civil aviation aerodrome.

Based on the Screening Tool outcome, a Civil Aviation Assessment was identified as a required specialist assessment. Due to the nature of the proposed Nyakallo Solar Park, and the potential for reflected light from PV panels to affect aviation receptors, an Aviation Glint and Glare Assessment was undertaken to assess the potential impact of the proposed development on aviation safety.

6.10.2 Desktop Assessment and Site Findings

An Aviation Glint and Glare Assessment (Future Impact, 2024) was undertaken by Future Impact for the proposed Nyakallo Solar Park. The purpose of the assessment was to determine the potential effect of Solar PV-related glint and glare on aviation receptors associated with the nearby Lephalale Aerodrome.

The assessment focused on aviation receptors, including pilots on final approach to the Lephalale Aerodrome. The Lephalale Aerodrome is described as a small-scale facility with an

asphalt runway of approximately 2.2 km, no Air Traffic Control Tower, and minimal aircraft traffic. The aerodrome is not registered or licensed.

The assessment considered the potential for reflected light from the proposed Solar PV panels to cause glint or glare impacts on aviation receptors. Glint is generally understood as a brief flash of reflected light, while glare is a more continuous source of bright reflected light. If sufficiently intense, glare may result in temporary after-image or flash blindness, which could affect a pilot's ability to safely conduct aviation operations.

The assessment modelled aviation receptors associated with the approach paths to Runway 09/27. Additional modelling was also undertaken for receptors flying a "northern circuit", with three observation point receptors assessed at a height of 304 m, equivalent to 1 000 feet (ft).

The modelling results indicated that aviation receptors along the approach paths to Runway 09/27, as well as receptors associated with the northern circuit, would be exposed to no glint and glare. The yearly exposure time for green, yellow and red glare was modelled as 0 minutes for all assessed receptors, including:

- Runway Approach 09;
- Runway Approach 27;
- Left Base Turn for Runway 09;
- Right Base Turn for Runway 27; and
- Left Downwind Receptor.

The assessment therefore concluded that the glint and glare impacts on aviation receptors would be very low and acceptable in terms of the United States Federal Aviation Authority assessment criteria applied in the study. The specialist recommended that the Project receive authorisation from the Civil Aviation Authority from a glint and glare perspective.

The Visual Impact Assessment further notes that glint and glare may be more noticeable during the morning and late afternoon periods, particularly during winter when the sun is lower. However, this finding relates primarily to visual receptors such as motorists and nearby road users, rather than aviation receptors. As a precautionary measure, signage should be placed along the D1675 and D2001 to warn motorists of the potential for glint and glare from the Nyakallo Solar Park.

Based on the desktop assessment and specialist findings, no unacceptable civil aviation-related glint and glare impacts are anticipated, provided that the Project layout and mitigation measures assessed by the specialist are implemented.

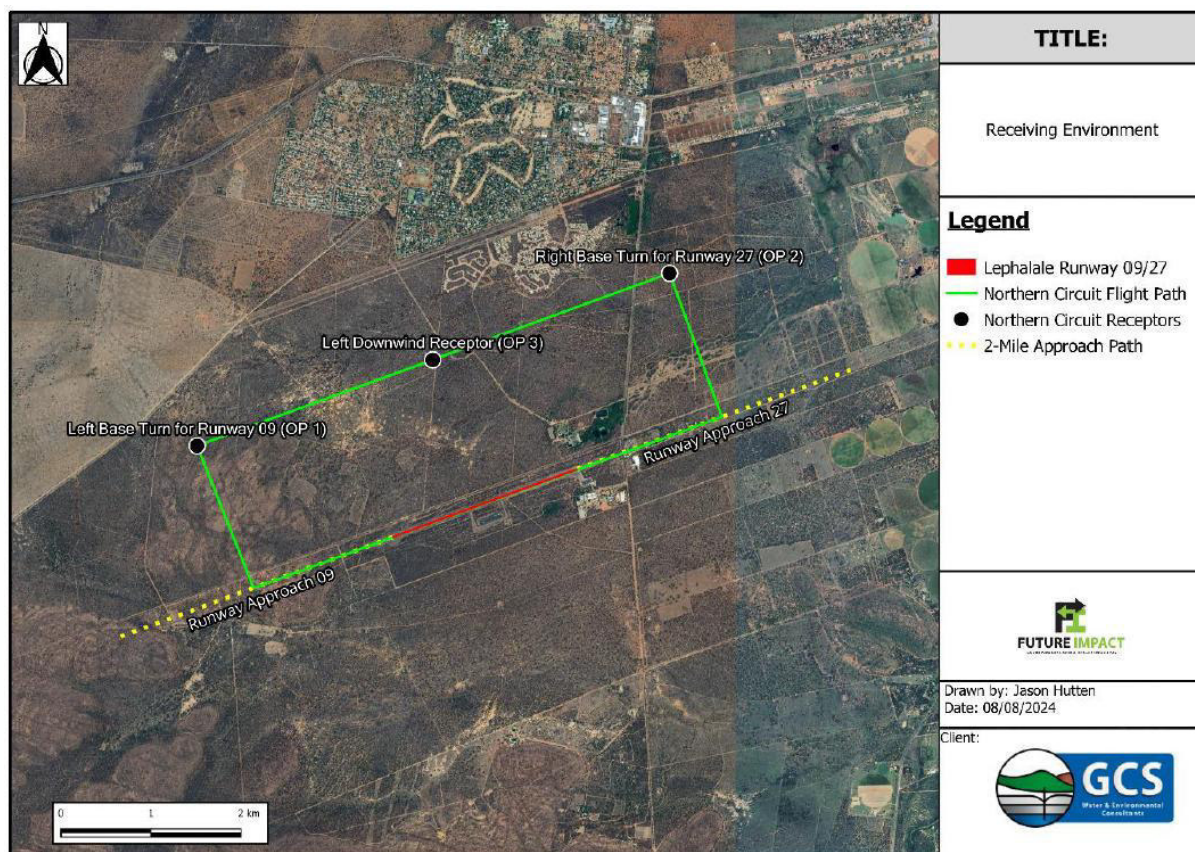


Figure 6-24: Aviation receptors and flight paths assessed for glint and glare impacts

6.11 Radio Frequency Interference

6.11.1 Screening Tool Outcome

The Screening Tool identified the RFI Theme as having medium sensitivity for the proposed development area. The sensitivity is attributed to portions of the site being located within 1 km of a telecommunication facility.

6.12 Defence

6.12.1 Screening Tool Outcome

The Screening Tool identified the Defence Theme as having low sensitivity for the proposed development area. The Screening Tool did not identify any specific defence-related sensitivity features within the proposed development area, and the site is indicated as falling within an area of low defence sensitivity.

7 THEME-BY-THEME VERIFICATION, SENSITIVITY CONFIRMATION, AND SPECIALIST MOTIVATION

7.1 Aquatic Biodiversity

7.1.1 Screening Tool Outcome

The Screening Tool identified the Aquatic Biodiversity Theme as very high sensitivity due to

mapped freshwater features, including a FEPA sub-catchment, rivers and wetland features.

7.1.2 Desktop Assessment and Site Visit Findings

The specialist assessment confirmed the presence of an ephemeral wetland / wash system within the Project area. Although typically dry, the system flows seasonally following rainfall and supports hydric soils, hydrophytic vegetation and seasonal habitat for aquatic and wetland-associated biodiversity, including species such as *Oreochromis mossambicus* (Mozambique Tilapia), *Pyxicephalus edulis* (African Bullfrog) and potentially *Pyxicephalus adspersus* (Giant Bullfrog).

The wetland system was assessed as Moderately Modified, but remains functionally important. A buffer has been recommended to protect the system and maintain ecological function.

7.1.3 Sensitivity Confirmation and Motivation for Specialist Study

The very high sensitivity rating for the Aquatic Biodiversity Theme is confirmed.

A specialist aquatic biodiversity and wetland assessment was required because:

- The Screening Tool identified very high aquatic sensitivity;
- The Project area occurs within a FEPA sub-catchment;
- An ephemeral wetland / wash system occurs within the Project area;
- The wetland provides seasonal ecological function and habitat;
- The system requires delineation and buffering;
- NWA Section 21(c) and (i) risks required assessment; and
- Mitigation measures are required to avoid and manage impacts.

Based on the specialist findings, the delineated wetland system and its **buffer** must be avoided. Provided this avoidance is implemented, residual risks to the aquatic system are expected to be low.

7.2 Terrestrial Biodiversity

7.2.1 Screening Tool Outcome

The Screening Tool identified the Terrestrial Biodiversity Theme as very high sensitivity for the proposed development area.

7.2.2 Desktop Assessment and Site Visit Findings

The specialist assessment confirmed that the Project area contains a mosaic of natural, modified and transformed habitats, including Open Thornveld, Broadleaf Woodland, hydromorphic systems and disturbed areas. Wetland habitats were rated as High Site Ecological Importance, while Open and Closed Woodland habitats were rated as Medium Site Ecological Importance.

The Project area is located within an ESA, with CBAs located to the east. The Sandloop system and associated biodiversity features further contribute to the ecological sensitivity of the broader landscape. Species such as *Gyps africanus* (White-backed Vulture), *Lycaon pictus* (African Wild Dog) and potential occurrence of *Corchorus psammophilus* further support the need for biodiversity management and monitoring.

7.2.3 Sensitivity Confirmation and Motivation for Specialist Study

The very high sensitivity rating for the Terrestrial Biodiversity Theme is confirmed at Screening Tool level.

A specialist terrestrial biodiversity assessment was required because:

- The Screening Tool identified very high terrestrial biodiversity sensitivity;
- The Project area contains natural woodland and hydromorphic habitat;
- The Project area occurs within an ESA;
- Nearby CBAs and the Sandloop system contribute to regional ecological sensitivity;
- Vegetation clearance and habitat transformation are required for the proposed development;
- Site ecological importance needed to be assessed; and
- Mitigation measures are required to inform layout planning and the EMPr.

Although no definitive Critical Habitat was identified, the presence of sensitive habitats and SCC requires careful avoidance, management and monitoring.

7.3 Plant Species

7.3.1 Screening Tool Outcome

The Screening Tool identified the Plant Species Theme as low sensitivity, although the broader sensitivity assessment identified *Corchorus psammophilus* as a potential flora SCC.

7.3.2 Desktop Assessment and Site Visit Findings

The specialist assessment confirmed the presence of protected tree species and important woodland habitat within the Project area. A total of 4 708 protected tree records were recorded during the pre-clearance survey, with *Sclerocarya birrea* subsp. *afra* (Marula) and *Vachellia erioloba* (Camel Thorn) being the most abundant. Other protected trees recorded included *Combretum imberbe* (Leadwood) and *Boscia albitrunca* (Shepherd's Tree).

The assessment also identified alien invasive plant species, particularly *Cereus jamacaru* (Queen of the Night), which requires control due to its potential to degrade natural systems. Additional alien invasive species included *Agave sisalana* (Sisal) and *Opuntia* species (Prickly Pear).

7.3.3 Sensitivity Confirmation and Motivation for Specialist Study

The Screening Tool low sensitivity rating for the Plant Species Theme is not fully supported by the site findings, as protected tree species and ecologically important woodland habitat were confirmed within the Project area.

A specialist Plant Species Assessment was required because:

- Vegetation clearance will be required;
- Protected tree species occur within the Project area;
- Mature woodland stands provide ecological function;
- Potential flora SCC, including *Corchorus psammophilus*, required consideration;
- Alien invasive species require management; and
- Permitting, avoidance, relocation or offset considerations may be required where protected species are affected.

The site-specific plant sensitivity should therefore be treated as elevated in areas supporting protected trees and mature woodland habitat, despite the low Screening Tool rating.

7.4 Animal Species

7.4.1 Screening Tool Outcome

The Screening Tool identified the Animal Species Theme as medium sensitivity, associated with the potential occurrence of SCC, including avifaunal and mammal species.

7.4.2 Desktop Assessment and Site Visit Findings

The specialist assessment confirmed that the Project area and Aol support a diverse faunal assemblage, including birds, mammals, reptiles, amphibians and butterflies. The assessment recorded more than 207 bird species, 31 mammal species, 12 reptile species, nine amphibian species and 23 butterfly species.

SCC and protected species recorded or considered relevant include *Gyps africanus* (White-backed Vulture), *Ephippiorhynchus senegalensis* (Saddle-billed Stork), *Ardeotis kori* (Kori Bustard), *Ciconia nigra* (Black Stork), *Smutsia temminckii* (Ground Pangolin), *Leptailurus serval* (Serval), *Lycaon pictus* (African Wild Dog), *Python natalensis* (Southern African Python), *Pyxicephalus edulis* (African Bullfrog) and *Pyxicephalus adspersus* (Giant Bullfrog).

7.4.3 Sensitivity Confirmation and Motivation for Specialist Study

The medium sensitivity rating for the Animal Species Theme is confirmed and, in some habitat areas, may require elevated management attention due to the presence or potential occurrence of SCC.

A specialist animal species assessment was required because:

- The Screening Tool identified medium Animal Species sensitivity;
- The Project area supports multiple faunal habitat types;
- SCC were recorded or are likely to occur;
- Wetland habitats provide important seasonal resources;
- Woodland habitats provide nesting, refuge and foraging opportunities;
- Wide-ranging threatened mammals, including *Lycaon pictus* (African Wild Dog), *Smutsia temminckii* (Ground Pangolin) and *Leptailurus serval* (Serval), are vulnerable to fragmentation and disturbance;
- Protected reptiles and amphibians, including *Python natalensis* (Southern African Python), *Pyxicephalus edulis* (African Bullfrog) and *Pyxicephalus adspersus* (Giant Bullfrog), may occur; and
- Construction and operational impacts may result in habitat loss, displacement, disturbance and mortality.

The specialist assessment confirms that faunal mitigation, monitoring and pre-construction management measures are required for inclusion in the EMPr.

7.5 Avian

7.5.1 Screening Tool Outcome

The Screening Tool identified the Avian Theme as very high sensitivity for the proposed development area. The sensitivity is associated with the potential occurrence of priority avifaunal species, including Martial Eagle and White-backed Vulture, as well as the Project area's proximity to White-backed Vulture breeding colonies and a vulture restaurant.

7.5.2 Desktop Assessment and Site Visit Findings

The avifaunal pre-construction monitoring confirmed that the Project area and surrounding Aol support a diverse bird assemblage. The surveys recorded a range of woodland, wetland, waterbird and raptor species across different seasonal sampling periods.

Several SCC were recorded within the Aol or as flyovers, including White-backed Vulture, Lesser Flamingo, Greater Flamingo, Saddle-billed Stork, Black Stork and Kori Bustard. The presence of water within the Project area and surrounding landscape was confirmed to attract waterbirds, with evidence of breeding recorded at ephemeral waterbodies.

The monitoring also confirmed raptor activity within the Project area, including the stable presence of Wahlberg's Eagle and African Hawk-Eagle, and nesting Wahlberg's Eagles within the Nyakallo Project area during the spring survey.

7.5.3 Sensitivity Confirmation and Motivation for Specialist Study

The very high sensitivity rating for the Avian Theme is confirmed. Although the Screening Tool

sensitivity is precautionary, the avifaunal monitoring undertaken to date confirms that the Project area and surrounding Aol provide habitat for a diverse avifaunal assemblage, including several SCC and priority species.

A specialist avifaunal assessment was required because:

- The Screening Tool identified the Avian Theme as very high sensitivity;
- High sensitivity species, including Martial Eagle and White-backed Vulture, are known or likely to occur in the broader area;
- The Project area is located within 50 km of breeding White-backed Vulture colonies and within 20 km of a vulture restaurant;
- The Project area and surrounds support wetland and artificial waterbody habitat that attracts waterbirds;
- SCC were recorded during monitoring;
- Raptor activity and nesting were recorded within the Project area;
- Solar PV developments may pose collision, displacement, disturbance and “lake effect” risks to certain bird groups; and
- Seasonal monitoring is required to understand site use across different periods of the year.

Based on the available monitoring findings, the Avian Theme remains confirmed as very high sensitivity. The specialist study and ongoing pre-construction monitoring are therefore considered necessary to inform the final layout, identify any areas requiring avoidance or management, assess seasonal avifaunal use of the site, and develop mitigation measures for inclusion in the EMPr.

7.6 Landscape (Solar)

7.6.1 Screening Tool Outcome

The Screening Tool identified the Landscape (Solar) Theme as very high sensitivity for the proposed development area. The sensitivity is associated with the proximity of the Project area to towns, villages and a nature reserve.

7.6.2 Desktop Assessment and Site Visit Findings

The Visual Impact Assessment (GCS, 2004) verified the Screening Tool outcome through a desktop assessment, GIS-based viewshed modelling and a site walk-over. The site visit confirmed that the proposed development is located in a landscape influenced by existing infrastructure, including powerline servitudes, the Matimba Power Station, Grooteegeluk Coal Mine, roads, a dump site, nearby communities and homesteads.

The assessment confirmed that sensitive visual receptors occur within the 10 km Potential

Zone of Influence. Residents, schools and mine workers were considered high sensitivity receptors, while motorists were considered low sensitivity receptors due to the temporary nature of their views.

The viewshed analysis confirmed that the proposed development will be visible from parts of the surrounding landscape. Higher visual exposure is expected to the east of the site, while limited sections of the D1675 and D2001 are expected to experience medium to high visual exposure. No visual impacts are expected on the nearby nature reserve.

7.6.3 Sensitivity Confirmation and Motivation for Specialist Study

The very high sensitivity rating for the Landscape (Solar) Theme is confirmed at Screening Tool level due to the proximity of the proposed development to nearby towns, villages and a nature reserve.

A specialist Visual Impact Assessment was required because:

- The Screening Tool identified the Landscape (Solar) Theme as very high sensitivity;
- The proposed development comprises large-scale Solar PV infrastructure;
- The Project will introduce visible infrastructure into the landscape;
- Sensitive receptors occur within the 10 km Potential Zone of Influence;
- The D1675 and D2001 roads pass through or near the Project area;
- Viewshed modelling was required to confirm the extent of visual exposure; and
- Mitigation measures were required to reduce potential visual impacts.

The Visual Impact Assessment confirmed that visual impacts are expected, particularly for surrounding receptors and road users. However, the site is located within an already modified landscape that includes existing power infrastructure, mining activity, roads and settlements. The visual sensitivity therefore remains confirmed as very high at Screening Tool level, while the Project-specific impacts can be managed through the mitigation measures recommended in the Visual Impact Assessment and EMP.

7.7 Palaeontology

7.7.1 Screening Tool Outcome

The Screening Tool identified the Palaeontology Theme as very high sensitivity for the proposed development area.

7.7.2 Desktop Assessment and Site Visit Finding

The palaeontological desktop assessment confirmed that the site is associated with geological units that may contain fossil material, particularly plant fossils associated with coal-bearing formations. However, the fossils likely to occur are common and are not considered to be of high palaeontological significance.

The proposed Nyakallo Solar Park infrastructure footprint is shallow, and the weathered nature of the near-surface geology further reduces the likelihood of significant palaeontological material being affected.

7.7.3 Sensitivity Confirmation and Motivation for Specialist Study

The very high sensitivity rating for the Palaeontology Theme is confirmed at Screening Tool level due to the mapped palaeontological sensitivity of the geological units underlying the site.

A specialist palaeontological assessment was required because:

- The Screening Tool identified the theme as very high sensitivity;
- The site is underlain by geological formations associated with fossil-bearing coal measures;
- The development involves ground disturbance; and
- The potential for chance fossil finds required assessment and management.

The specialist assessment concluded that significant palaeontological impacts are unlikely. No further palaeontological work is required unless the Chance Find Protocol is triggered during construction. The Chance Find Protocol must be included in the EMPr.

7.8 Agriculture

7.8.1 Screening Tool Outcome

The Screening Tool identified the Agriculture Theme as having very high sensitivity for the proposed development area, with sensitivity features including pivot irrigation, rainfed annual crop cultivation / planted pastures, and areas of moderate to high agricultural sensitivity.

7.8.2 Desktop Assessment and Site Visit Finding

The Agricultural Impact Assessment (Jackson, 2024) verified the Screening Tool outcome through desktop analysis and field-based soil assessment. The specialist assessment found that, although the Screening Tool identified agricultural sensitivity features, the Project area is generally characterised by medium to low agricultural potential, largely due to climatic limitations.

The detailed soil survey confirmed that the site is dominated by Hutton and Ermelo soils, with most of the assessed area classified as Class III land capability and L4 moderate land potential. A small irrigated area was identified, but this is used for animal feed supplementation rather than crop production and does not materially increase the agricultural sensitivity of the site.

7.8.3 Sensitivity Confirmation and Motivation for Specialist Study

The Agriculture Theme sensitivity is confirmed as requiring specialist assessment due to the presence of mapped agricultural sensitivity features, including irrigated land and areas

identified by the Screening Tool as having agricultural value.

However, based on the specialist assessment, the site-specific agricultural sensitivity is considered moderate-low. This is because:

- The site is constrained by climate, with a Low-Moderate climate capability and C6 climate class;
- The majority of the site has L4 moderate land potential;
- The irrigated area is used for cattle feed supplementation and not crop production;
- The irrigated feed production is not crucial to the farmer's operations;
- The irrigation infrastructure is intended to be moved to other farming operations;
- Disturbed and infrastructure areas are already present within the assessment area; and
- The proposed solar development falls within land that is not considered crucial for food production.

A specialist agricultural assessment was therefore required to verify the Screening Tool sensitivity, confirm the actual soil and land capability conditions on site, determine the agricultural potential of the site, and assess whether the proposed development would result in unacceptable loss of agricultural resources.

Based on the specialist findings, the proposed Project can be considered acceptable from an agricultural and soils perspective, subject to implementation of the recommended mitigation and soil management measures.

7.9 Archaeological and Cultural Heritage

7.9.1 Screening Tool Outcome

The Screening Tool identified the Archaeological and Cultural Heritage Theme as low sensitivity for the proposed development area.

7.9.2 Desktop Assessment and Site Visit Finding

The Heritage Impact Assessment confirmed that the site has low archaeological sensitivity. Isolated Middle Stone Age and Late Stone Age stone tools were identified across the study area, but these occur as low significance scatters within a lag deposit and do not require further mitigation.

No Iron Age sites were identified, and the absence of pottery supports the conclusion that significant Iron Age heritage resources are unlikely to occur within the study area. The Hanglip farmhouse may be older than 60 years and is therefore protected in terms of heritage legislation.

7.9.3 Sensitivity Confirmation and Motivation for Specialist Study

The low sensitivity rating for the Archaeological and Cultural Heritage Theme is confirmed. The field survey supports the Screening Tool outcome, as no significant archaeological or cultural heritage resources were identified within the proposed development footprint.

A specialist heritage assessment was required because:

- The Screening Tool identified an Archaeological and Cultural Heritage specialist assessment;
- Previous surveys in the broader area recorded heritage resources;
- Historical imagery identified possible former structures and kraals within the study area;
- The Hanglip farmhouse may be older than 60 years; and
- The proposed development may involve ground disturbance.

The specialist assessment concluded that the archaeological sensitivity of the site is low and that no further archaeological mitigation is required. Should the Hanglip farmhouse be demolished, a built environment specialist assessment must be undertaken. A Chance Find Protocol must be implemented during construction.

7.10 Civil Aviation (Solar PV)

7.10.1 Screening Tool Outcome

The Screening Tool identified the Civil Aviation (Solar PV) Theme as medium sensitivity due to the proximity of the proposed development area to another civil aviation aerodrome.

7.10.2 Desktop Assessment and Site Visit Findings

The desktop assessment confirmed that the proposed Nyakallo Solar Park is located near the Lephalale Aerodrome. The Aviation Glint and Glare Assessment (Future Impact, 2024) assessed the potential for reflected light from the proposed Solar PV panels to affect aviation receptors associated with the aerodrome, including runway approach paths and northern circuit receptors.

The specialist modelling found that the assessed aviation receptors would experience 0 minutes of green, yellow or red glare exposure annually. The aviation-related glint and glare impact was therefore assessed as very low.

The Visual Impact Assessment site visit confirmed that glint and glare may be perceptible to certain ground-based visual receptors, particularly motorists, during specific times of day and year. However, these findings do not change the aviation-specific conclusion that no unacceptable glint and glare impacts are anticipated for aviation receptors.

7.10.3 Sensitivity Confirmation and Motivation for Specialist Study

The medium sensitivity rating for the Civil Aviation (Solar PV) Theme is confirmed, as the site falls within the Screening Tool sensitivity trigger relating to proximity to another civil aviation aerodrome.

A specialist assessment was required because:

- The Screening Tool identified the theme as medium sensitivity;
- The proposed development comprises Solar PV infrastructure;
- Solar PV panels may result in reflected light;
- The site is located within proximity to the Lephalale Aerodrome; and
- Aviation safety required Project-specific verification.

Although the theme remains confirmed as medium sensitivity, the specialist assessment concluded that the actual aviation-related glint and glare impact is very low. No unacceptable impacts on aviation receptors are anticipated, subject to implementation of the assessed Project layout and any requirements of the relevant aviation authority.

7.11 Radio Frequency Interference

7.11.1 Screening Tool Outcome

RFI sensitivity is classified as medium, associated with telecommunications infrastructure located within approximately 1 km of the Project area.

7.11.2 Sensitivity Confirmation and Motivation for Specialist Study

The medium sensitivity rating identified for the RFI Theme remains unchanged following the site sensitivity verification. In lieu of a standalone specialist study, an RFI evaluation will be formally requested from the relevant existing telecommunications infrastructure operators to confirm the presence, operational status, and potential vulnerability of nearby radio and telecommunications installations.

7.12 Defence

7.12.1 Screening Tool Outcome

The Defence Theme reflects low sensitivity, with no defence-related constraints identified within the Project area.

7.12.2 Sensitivity Confirmation

The low defence sensitivity rating remains unchanged, and no further specialist investigation is required beyond procedural confirmation.

8 CONCLUSION

This Site Sensitivity Verification Report has been prepared to verify the environmental sensitivities identified by the National Web-Based Environmental Screening Tool for the proposed Nyakallo Solar Park, located on Portions 1, 2 and the Remainder of Portion 3 of Farm Hanglip No. 508 LQ, within the Lephalale Local Municipality, Waterberg District Municipality, Limpopo Province.

The Screening Tool identified several environmental themes with medium to very high sensitivity, including Aquatic Biodiversity, Terrestrial Biodiversity, Avian, Landscape (Solar), Palaeontology and Agriculture. These ratings were verified through a combination of desktop assessment, review of available specialist studies, site-based findings and theme-specific specialist assessments.

The verification process confirmed that a number of the Screening Tool sensitivities are valid at a screening level; however, several site-specific sensitivities were refined through specialist assessment. In particular, the Aquatic Biodiversity Theme remains highly sensitive due to the confirmed presence of an ephemeral wetland / wash system and associated buffer. The Terrestrial Biodiversity Theme remains sensitive due to the presence of natural woodland, hydromorphic systems, the broader ESA context and nearby CBAs. The Avian Theme remains very high sensitivity due to the diversity of avifauna recorded, the presence of SCC, and the importance of continued avifaunal monitoring.

The Agriculture Theme was reduced from the Screening Tool very high sensitivity rating to a site-specific moderate-low sensitivity, based on the specialist assessment which confirmed that the site is constrained by climatic limitations and is not considered critical for food production. The Plant Species Theme was identified as low by the Screening Tool; however, site verification confirmed the presence of protected tree species and ecologically important woodland habitat, requiring the plant sensitivity to be elevated in areas where protected trees and mature woodland occur. The Animal Species Theme remains medium sensitivity, with specific management attention required in wetland, woodland and habitat areas supporting SCC.

The Landscape (Solar), Palaeontology, Archaeological and Cultural Heritage, Civil Aviation, RFI and Defence themes were also verified. The Landscape (Solar) Theme remains sensitive due to the scale of the proposed Nyakallo Solar Park infrastructure and the presence of surrounding receptors, although the surrounding landscape is already influenced by energy, mining and settlement infrastructure. The Palaeontology Theme remains sensitive at a desktop screening level, but the specialist assessment confirmed that significant palaeontological impacts are unlikely, provided the Chance Find Protocol is implemented. Archaeological and Cultural Heritage sensitivity is confirmed as low, subject to management of chance finds and further built environment assessment should the Hanglip farmhouse be affected. Civil Aviation

sensitivity was reduced to low / Very low based on the glint and glare assessment, which found no glare exposure to assessed aviation receptors.

Overall, the site sensitivity verification confirms that the proposed development area contains environmental features requiring avoidance, mitigation and specialist management. The most important confirmed constraints include the delineated ephemeral wetland / wash system and its buffer, areas of higher ecological importance, protected trees and mature woodland, faunal habitat areas, avifaunal sensitivities, and heritage chance find considerations.

The specialist studies undertaken are considered appropriate and sufficient to verify the Screening Tool outcomes, refine the site-specific sensitivities, inform the proposed layout, and guide the mitigation measures to be included in the EMPr. Subject to the implementation of the mitigation hierarchy, avoidance of confirmed sensitive features, compliance with specialist recommendations, and inclusion of all relevant management measures in the EMPr, the proposed Nyakallo Solar Park can be taken forward for assessment in the EA process.

Table 8-1 provides a consolidated summary of the Screening Tool sensitivity ratings, the specialist studies identified and undertaken, and the final verified sensitivities for each environmental theme.

Table 8-1: Summary of Screening Tool Outcomes, Specialist Studies and Final Verified Sensitivities

Environmental Theme	Screening Tool Sensitivity Rating	Recommended Specialist Study	Final Verified Sensitivity
Aquatic Biodiversity	Very high	Aquatic Biodiversity Impact Assessment / Wetland Assessment	High / very high. Confirmed due to the ephemeral wetland / wash system, Freshwater Ecosystem Priority Area sub-catchment context and required buffer.
Terrestrial Biodiversity	Very high	Terrestrial Biodiversity Impact Assessment	High to medium. High in wetland / hydromorphic habitat and medium in woodland habitats; lower in transformed areas.
Avian	Very high	Avifaunal Impact Assessment / Avifaunal Pre-construction Monitoring	Very High. Confirmed due to recorded Species of Conservation Concern (SCC), raptor activity, waterbird use and required ongoing monitoring.
Landscape (Solar)	Very high	Landscape / Visual Impact Assessment	Very High at Screening Tool level; site-specific impacts are manageable with mitigation within an already modified landscape.
Palaeontology	Very high	Palaeontology Impact Assessment	Very High at desktop screening level; site-specific impact risk is reduced subject to implementation of the Chance Find Protocol.
Agriculture	Very high	Agricultural Impact Assessment	Moderate-Low. Specialist assessment confirmed climatic limitations, moderate land potential and limited agricultural production value.
Animal Species	Medium	Animal Species Assessment	Medium, with elevated management attention required in wetland, woodland and habitat areas supporting SCC.

Environmental Theme	Screening Tool Sensitivity Rating	Recommended Specialist Study	Final Verified Sensitivity
Archaeological and Cultural Heritage	Low	Archaeological and Cultural Heritage Impact Assessment	Low. No significant archaeological resources requiring mitigation were identified; Chance Find Protocol required. Built environment input required if the Hanglip farmhouse is affected.
Plant Species	Low	Plant Species Assessment	Low to medium. Low generally, but medium in areas supporting protected trees and mature woodland habitat.
Civil Aviation (Solar PV)	Medium	Glint and Glare Assessment / Civil Aviation Assessment	Low / Very low. Glint and glare assessment found no glare exposure to assessed aviation receptors.
Radio Frequency Interference (RFI)	Medium	RFI Assessment	Medium at Screening Tool level. Sensitivity retained pending confirmation of any infrastructure-specific RFI requirements.
Defence	Low	Defence Assessment	Low. No defence sensitivity requiring further specialist assessment was identified.
Geotechnical	Not rated as a sensitivity theme	Geotechnical Assessment	Not applicable to Screening Tool sensitivity; geotechnical findings to inform engineering design and construction management.
Socio-Economic	Not rated as a sensitivity theme	Socio-Economic Assessment	Not applicable to Screening Tool sensitivity; socio-economic considerations to inform the broader Environmental Impact Assessment process.

9 REFERENCES

- A Smith. (2024). *Nyakallo Solar PV, Lephalale: Desk-top Palaeontological Impact Assessment*.
- Anderson, G. (2024). *Heritage Survey of the Proposed Nyakallo Solar PV, Lephalale, Limpopo*.
- Future Impact. (2024). *Aviation Glint and Glare Assessment for the Proposed Nyakallo Solar Park near Lephalale, Limpopo Province*.
- GCS. (2004). *Visual Impact Assessment for the Nyakallo Solar Park on Portions 1, 2 and 3 of the Farm Hanglip No. 508 near Lephalale, Limpopo Province*.
- Jackson, W. (2024). *Soils, Land Capability, and Land Use Specialist Assessment for the Proposed Nyakallo Solar Energy Facility near Lephalale, Limpopo Province*.
- Natural Scientific Services. (2025a). *Avifaunal Pre-construction Monitoring for the Proposed Nyakallo Solar Facility, Lephalale, Limpopo: Progress Report, Stage 2: Survey 1*.
- Natural Scientific Services. (2025b). *Avifaunal Pre-construction Monitoring for the Proposed Nyakallo Solar Facility, Lephalale, Limpopo: Progress Report, Stage 2: Survey 2*.
- Natural Scientific Services. (2025b). *Avifaunal Pre-construction Monitoring for the Proposed Nyakallo Solar Facility, Lephalale, Limpopo: Progress Report, Stage 2: Survey 2*.
- Natural Scientific Services. (2025c). *Avifaunal Pre-construction Monitoring for the Proposed Nyakallo Solar Facility, Lephalale, Limpopo: Progress Report, Stage 2: Survey 2*.
- Natural Scientific Services. (2025d). *Terrestrial and Wetland Assessment for the Proposed Nyakallo Solar Facility, Lephalale, Limpopo*.

APPENDIX A: SCREENING TOOL REPORT

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS
REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE
ENVIRONMENTAL SENSITIVITY**

EIA Reference number: 23-0646

Project name: Nyakallo Solar Park

Project title: Nyakallo Solar Park

Date screening report generated: 29/04/2026 12:11:53

Applicant: Nyakallo Solar Park (Pty) Ltd

Compiler: Paula Tolksdorff

Compiler signature: Paula Tolksdorff

Digitally signed by
Paula Tolksdorff
Date: 2026.05.14
08:25:38 +02'00'

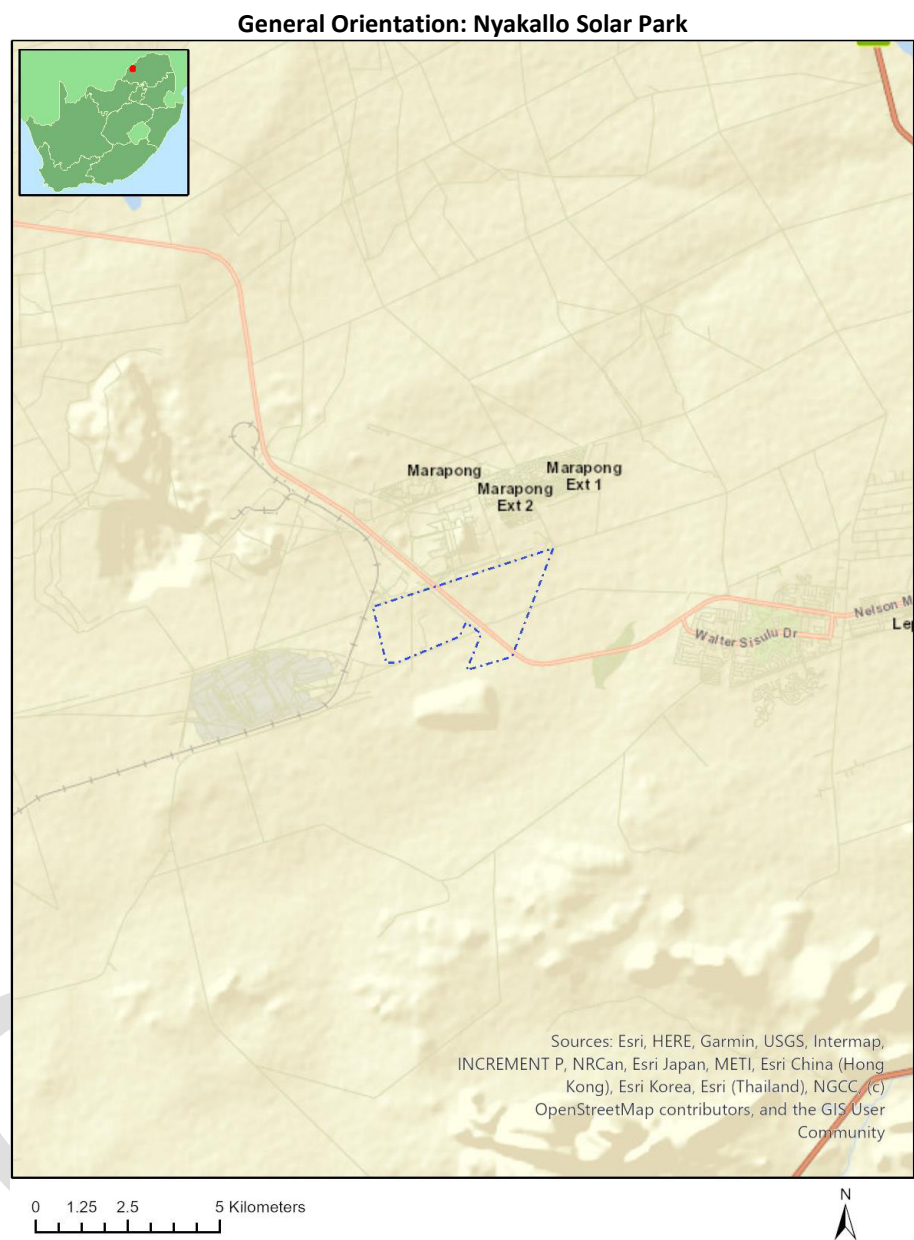
Application Category: Utilities Infrastructure | Electricity | Generation | Renewable | Solar | PV

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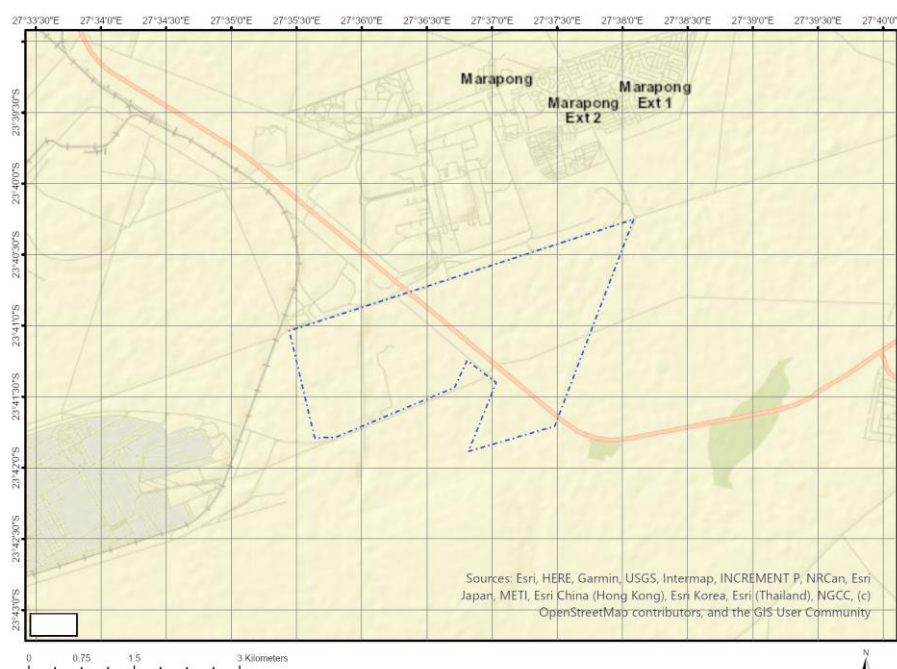
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Proposed Project Location

Orientation map 1: General location



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	ELLISRAS	14731	0	23°41'18.02S	27°36'56.79E	Erven
2	ELLISRAS	14729	0	23°41'18.63S	27°36'50.96E	Erven
3	ELLISRAS	14730	0	23°41'14.86S	27°36'51.62E	Erven
4	ELLISRAS	14732	0	23°41'19.44S	27°37'0.34E	Erven
5	ELLISRAS	13265	0	23°41'42.9S	27°37'30.3E	Erven
6	EENDRACHT	505	0	23°40'37.07S	27°39'3.88E	Farm
7	ZWARTWATER	507	0	23°42'49.22S	27°36'5.38E	Farm
8	GROOTESTRYD	465	0	23°40'2.4S	27°36'26.99E	Farm
9	HANGLIP	508	0	23°41'20.58S	27°36'29.38E	Farm
10	ALTOOSTYD	506	0	23°42'0S	27°38'45.24E	Farm
11	HANGLIP	508	12	23°41'16.98S	27°36'52.05E	Farm Portion
12	HANGLIP	508	13	23°41'19.5S	27°36'59.55E	Farm Portion
13	HANGLIP	508	5	23°41'22.51S	27°36'54.64E	Farm Portion
14	EENDRACHT	505	0	23°40'37.07S	27°39'3.88E	Farm Portion
15	GROOTESTRYD	465	0	23°40'1.21S	27°36'28.57E	Farm Portion
16	GROOTESTRYD	465	3	23°40'27.02S	27°35'26.58E	Farm Portion
17	HANGLIP	508	3	23°41'10S	27°36'31.96E	Farm Portion
18	HANGLIP	508	1	23°41'31.06S	27°37'12.07E	Farm Portion
19	HANGLIP	508	2	23°40'43.08S	27°37'44.01E	Farm Portion
20	ZWARTWATER	507	0	23°42'49.22S	27°36'5.38E	Farm Portion

Development footprint¹ vertices:

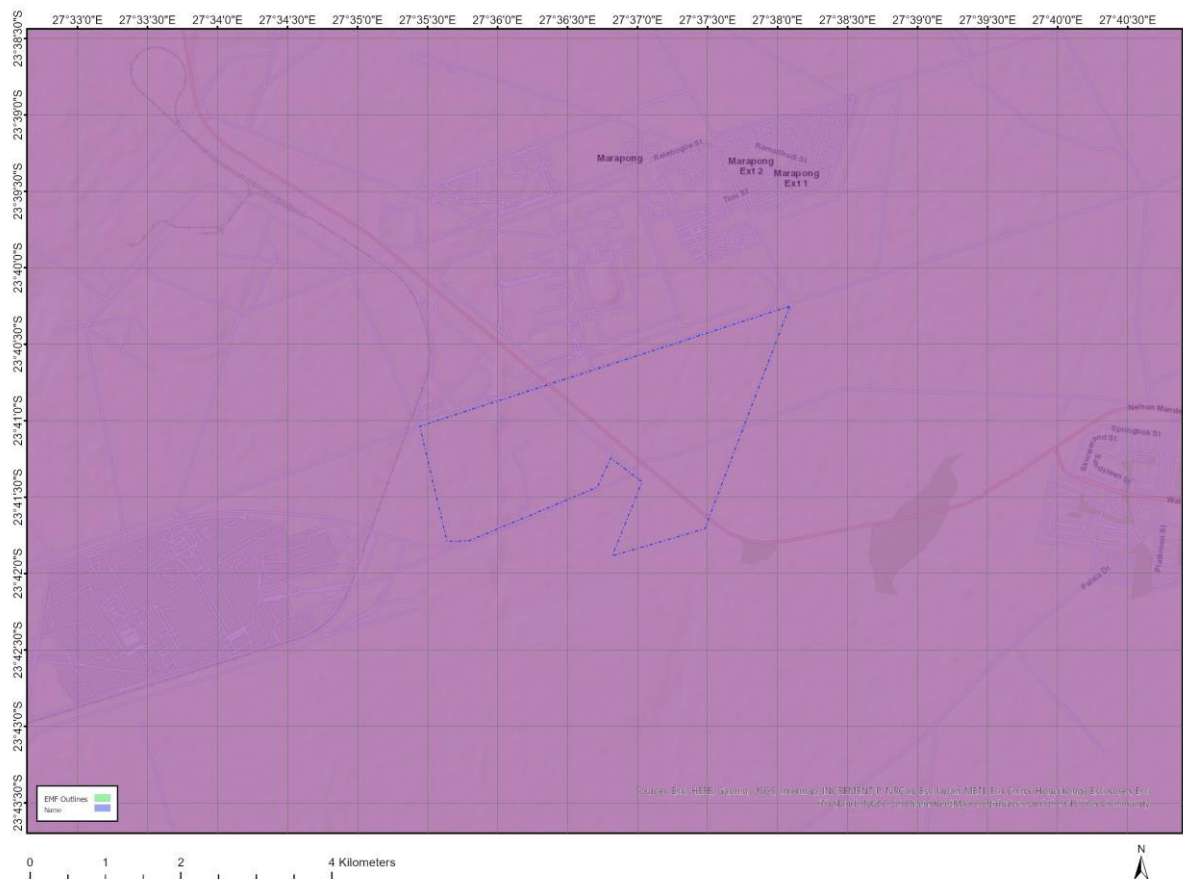
¹ "development footprint", means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	14/12/16/3/3/2/2242	Solar PV	Approved	0
2	14/12/16/3/3/2/2518	Solar PV	Approved	26.3
3	14/12/16/3/3/3/40	Wind	Approved	13.9
4	14/12/16/3/3/2/2652	Solar PV	Approved	2.9
5	14/12/16/3/3/2/2241	Solar PV	Approved	0
6	12/12/20/2152	Solar PV	Approved	18.4
7	14/12/16/3/3/2/2517	Solar PV	Approved	26.3
8	14/12/16/3/3/2/2290	Solar PV	Approved	0
9	14/12/16/3/3/2/444	Solar PV	Approved	28.6
10	12/12/20/2306	Solar PV	Approved	2.2
11	14/12/16/3/3/2/700	Solar PV	Approved	18.6
12	14/12/16/3/3/2/2520	Solar PV	Approved	26.3
13	14/12/16/3/3/2/2521	Solar PV	Approved	26.3
14	14/12/16/3/3/2/2519	Solar PV	Approved	26.3
15	14/12/16/3/3/2/700/AM1	Solar PV	Approved	18.6
16	14/12/16/3/3/2/2521	Solar PV	Approved	26.3
17	14/12/16/3/3/2/444/AM1	Solar PV	Approved	28.6
18	12/1/9/2-W94	Solar PV	Approved	2.2
19	14/12/16/3/3/2/2520	Solar PV	Approved	26.3
20	14/12/16/3/3/2/2518	Solar PV	Approved	26.3
21	14/12/16/3/3/2/2522	Solar PV	Approved	26.5
22	14/12/16/3/3/2/2291	Solar PV	Approved	0
23	14/12/16/3/3/2/2653	Solar PV	Approved	0.3

Environmental Management Frameworks relevant to the application



Environmental Management Framework	LINK
Waterberg District Municipality EMF	https://screening.environment.gov.za/ScreeningDownloads/EMF/WDEM_F_Final_EMF_Report.pdf

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is:

Utilities Infrastructure | Electricity | Generation | Renewable | Solar | PV.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Air Quality-Waterberg-Bojanala Priority Area	https://screening.environment.gov.za/ScreeningDownloads/Developmen

	tZones/gg39489_nn1207a.pdf
Main Electricity Transmission Substation	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Distribution_Transmission.pdf
Main Electricity Distribution Substation	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Distribution_Transmission.pdf

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme			X	
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Avian Theme	X			
Civil Aviation (Solar PV) Theme			X	
Defence Theme				X
Landscape (Solar) Theme	X			
Paleontology Theme	X			
Plant Species Theme				X
RFI Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the known impacts associated with the proposed development, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

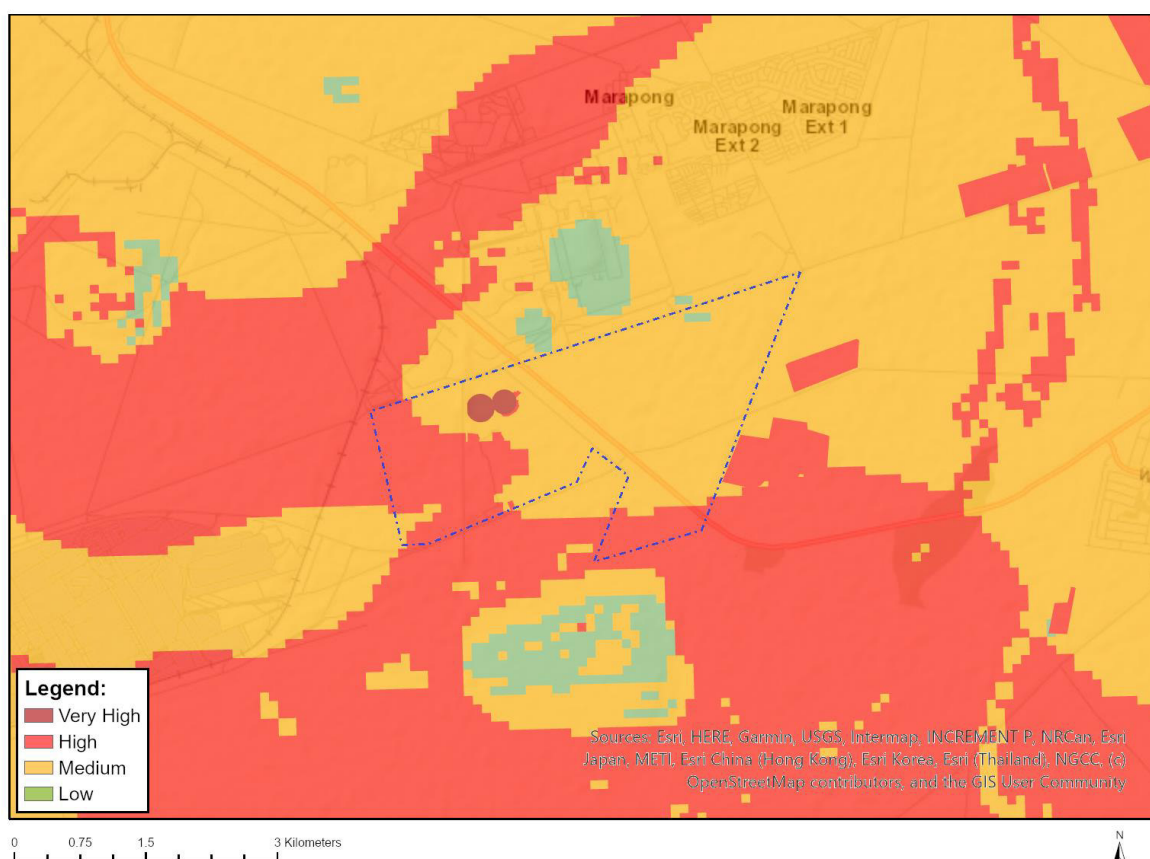
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_WindAndSolar_Agriculture_Assessment_Protocols.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/GuidanceforHIA.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/GuidanceforPIA.pdf
5	Terrestrial Biodiversity	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/GuidanceforTBA.pdf

	Impact Assessment	ssmentProtocols/Gazetted Terrestrial Biodiversity Assessment Protocols.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Aquatic Biodiversity Assessment Protocols.pdf
7	Civil Aviation Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Civil Aviation Installations Assessment Protocols.pdf
8	Defense Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Defence Installations Assessment Protocols.pdf
9	RFI Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
10	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
11	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted General Requirement Assessment Protocols.pdf
12	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Plant Species Assessment Protocols.pdf
13	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted Animal Species Assessment Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

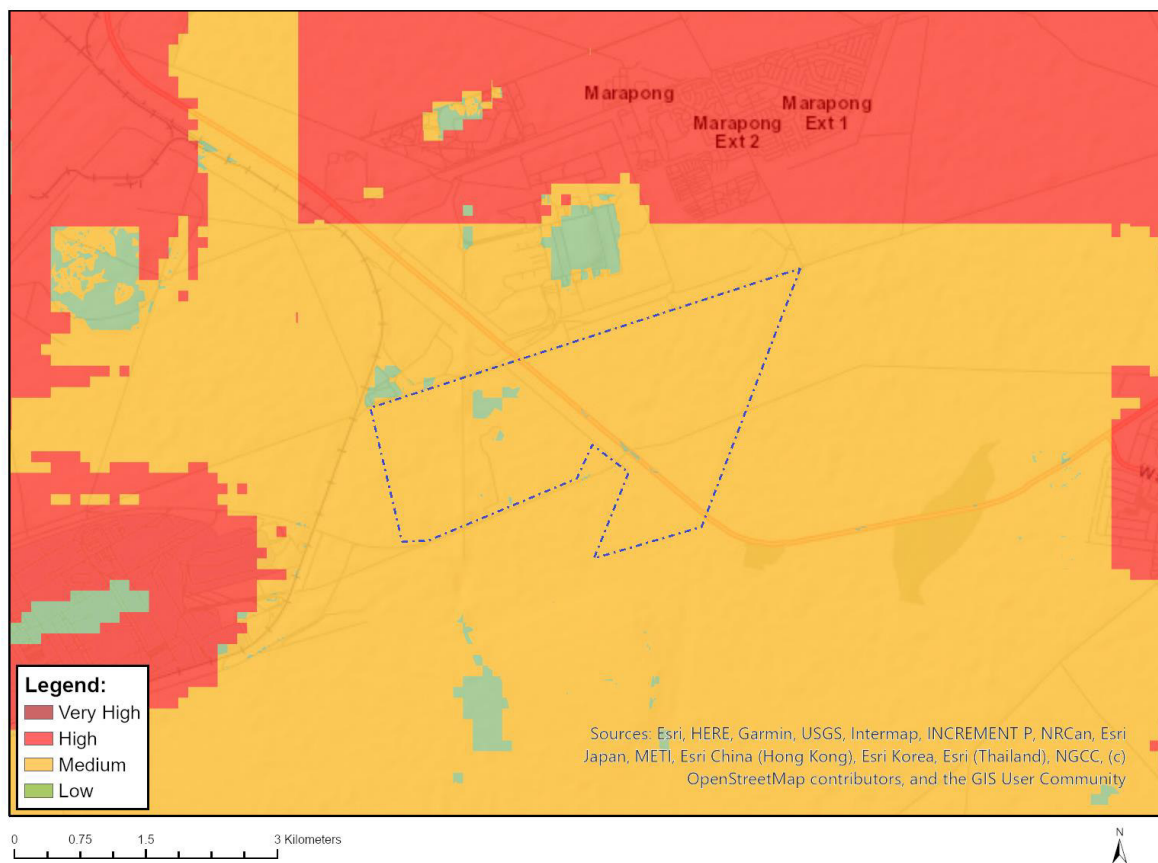


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	Rainfed Annual Crop Cultivation / Planted Pastures
High	09. Moderate-High
High	08. Moderate
Low	05. Low
Medium	07. Low-Moderate
Medium	06. Low-Moderate
Very High	Pivot_Irrigation

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



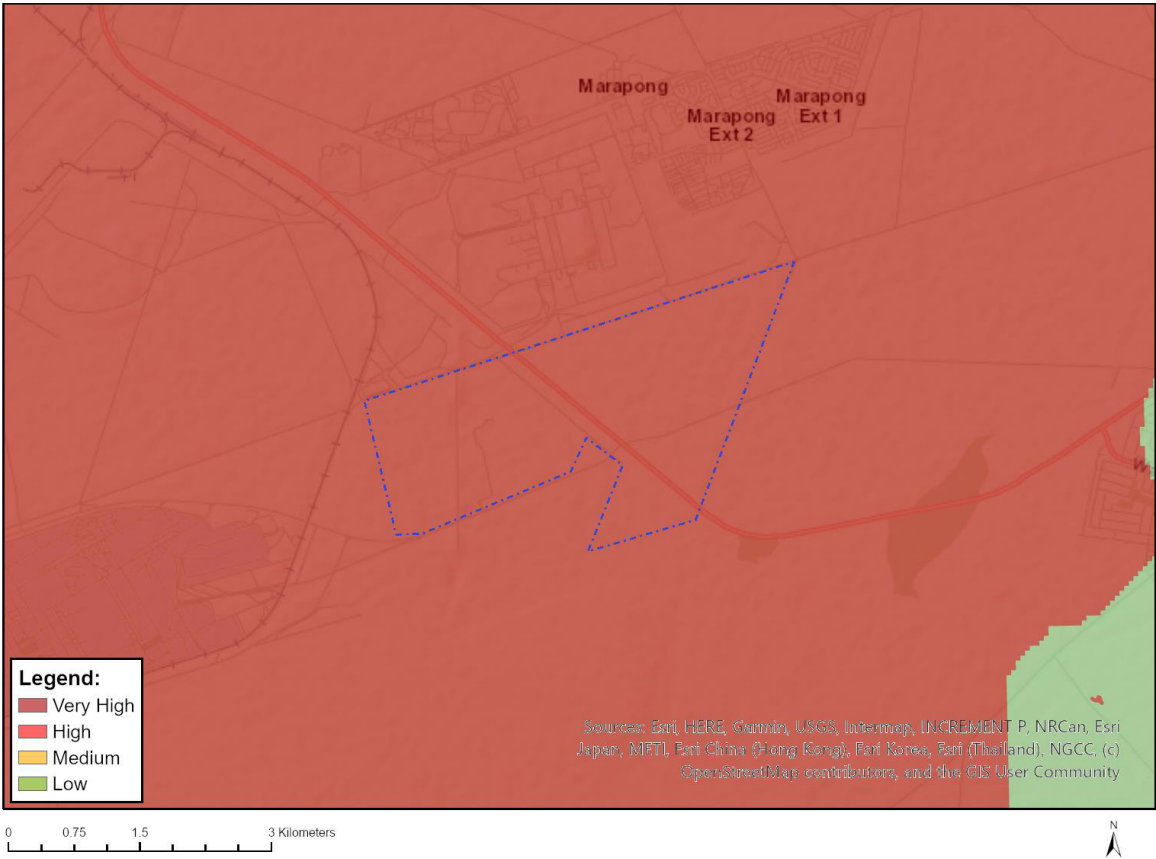
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Subject to confirmation
Medium	Aves-Podica senegalensis
Medium	Aves-Terathopius ecaudatus
Medium	Aves-Hydroprogne caspia
Medium	Aves-Gyps africanus
Medium	Aves-Aquila rapax
Medium	Sensitive species 24
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Lycaon pictus

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

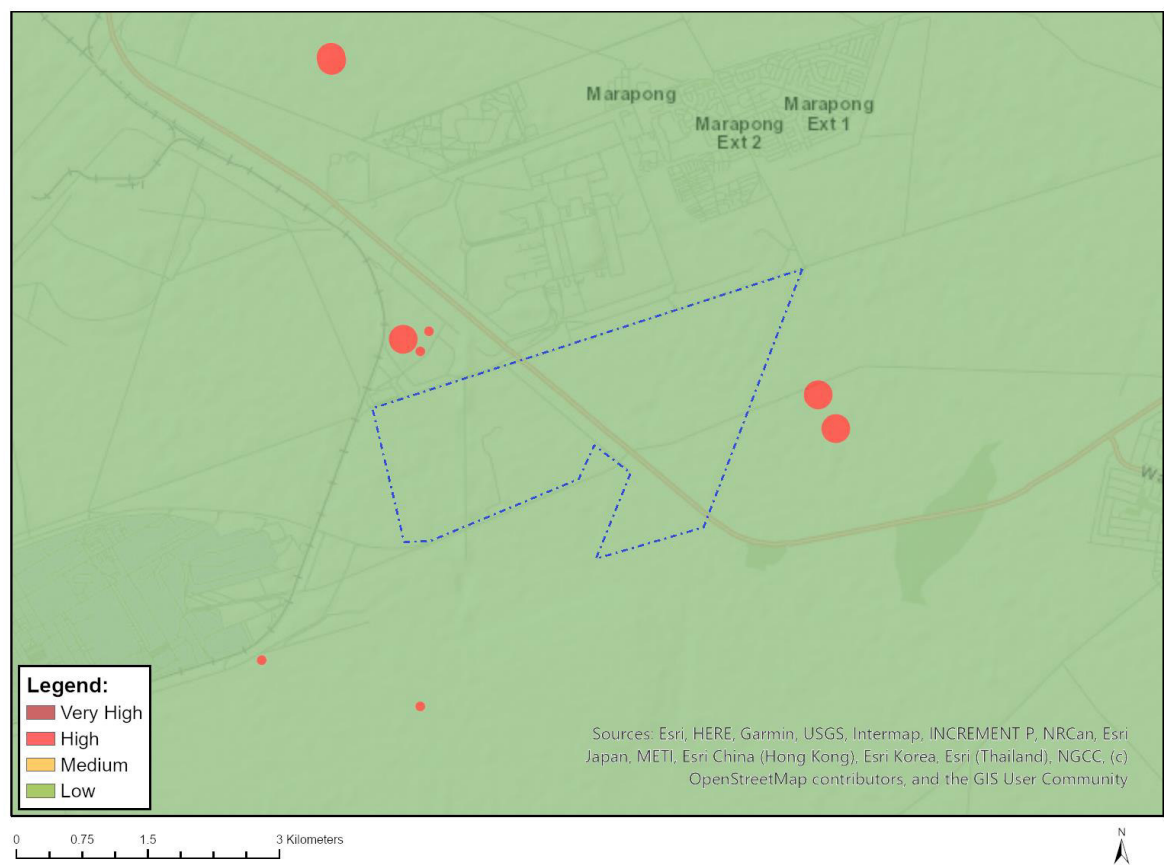


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Wetlands_Depression
Very High	FEPA Subcatchment

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

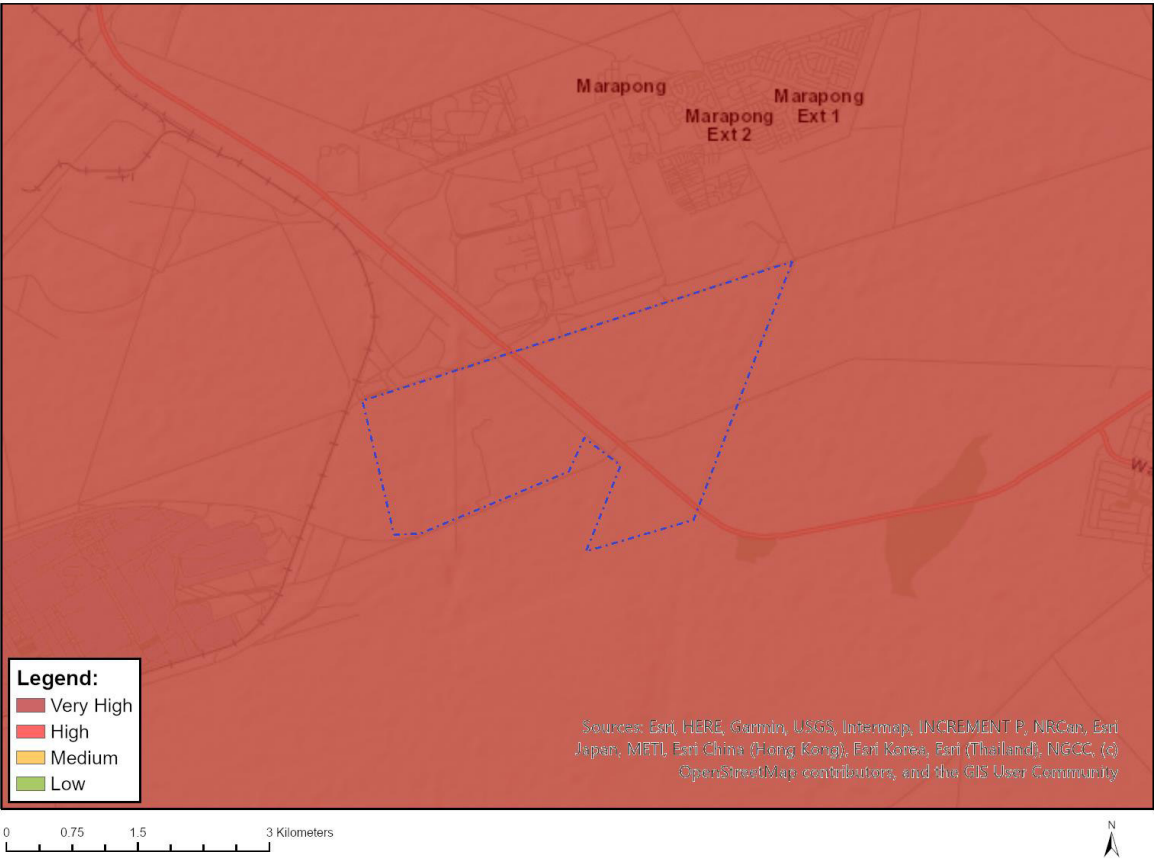


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE AVIAN THEME SENSITIVITY

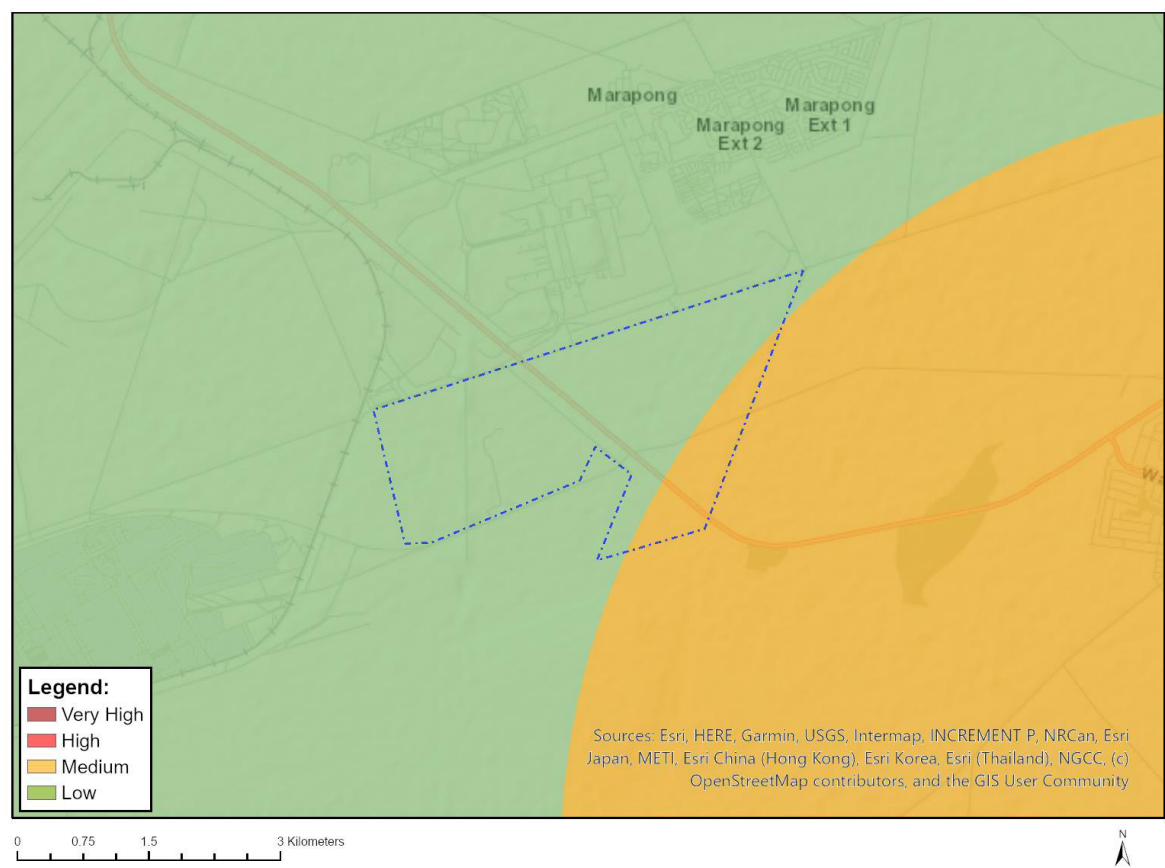


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	within 20 km of known Cape Vulturerestrarants sites
Low	Low Sensitivity
Very High	within 50 km of Colonies

MAP OF RELATIVE CIVIL AVIATION (SOLAR PV) THEME SENSITIVITY

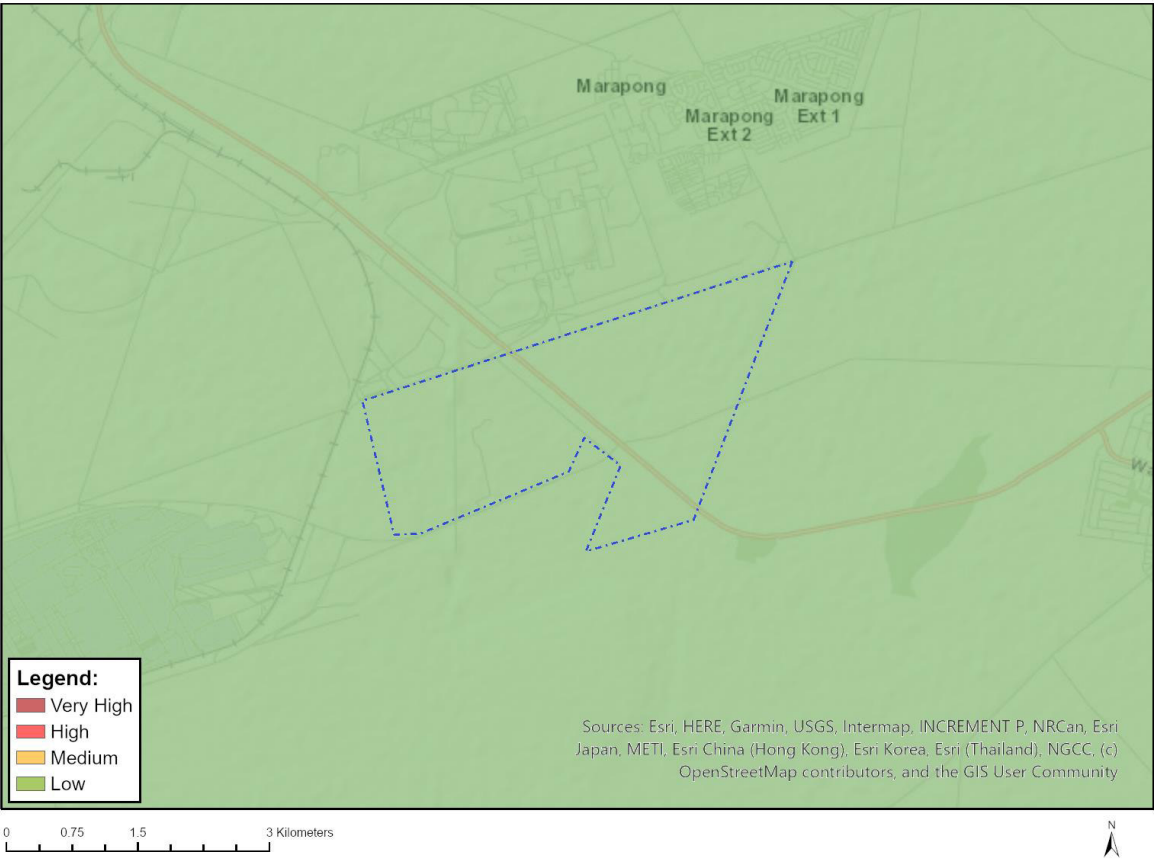


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	No major or other types of civil aviation aerodromes
Medium	Within 8 km of an other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

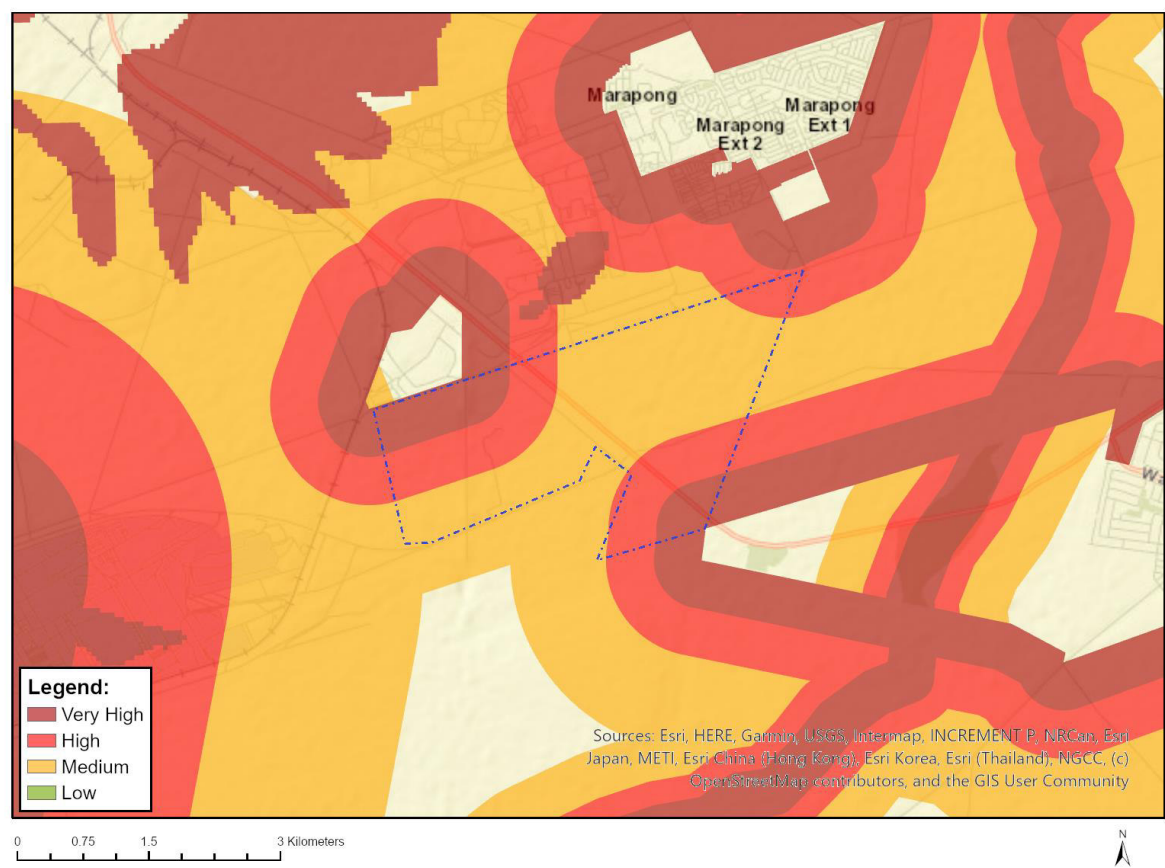


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE LANDSCAPE (SOLAR) THEME SENSITIVITY

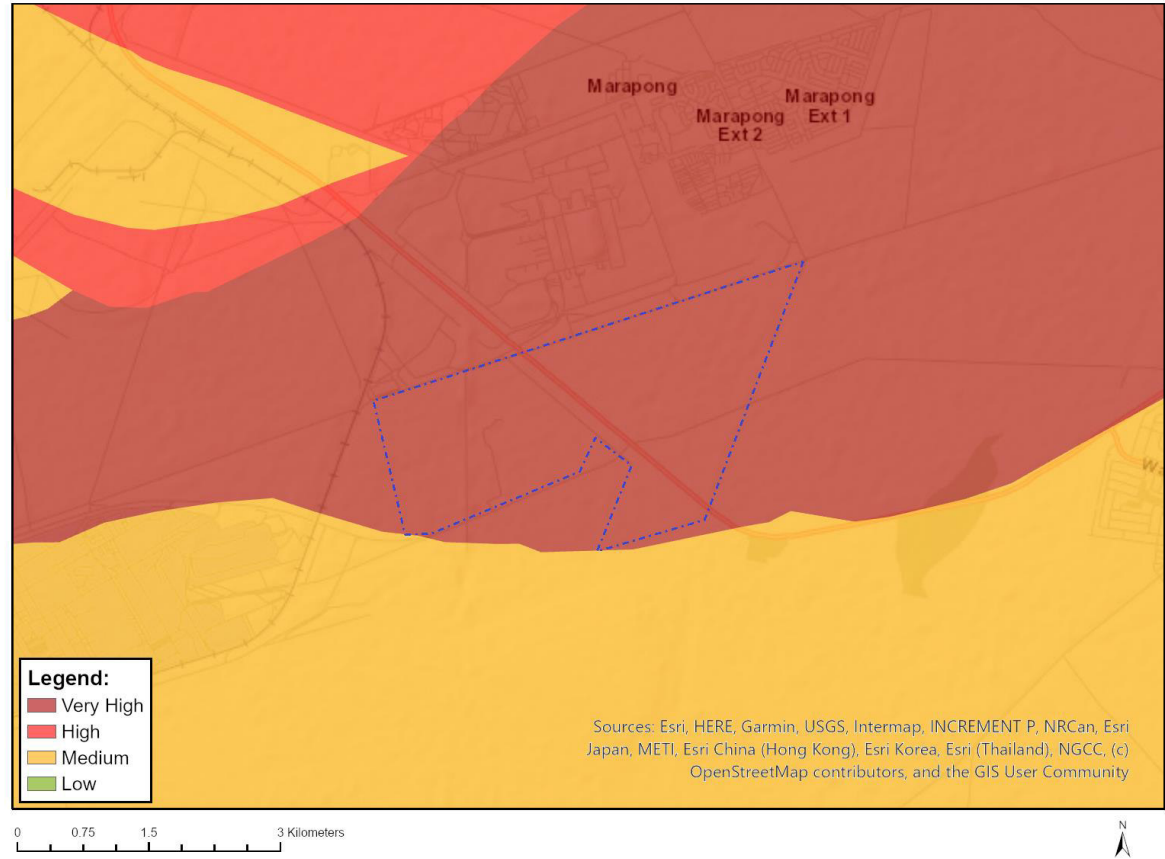


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	Between 500 and 1000 m of a town or village
Medium	Between a and 2 km of a town or village
Medium	Between 3 and 5 km of a nature reserve
Very High	Within 500 m of a town or village

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

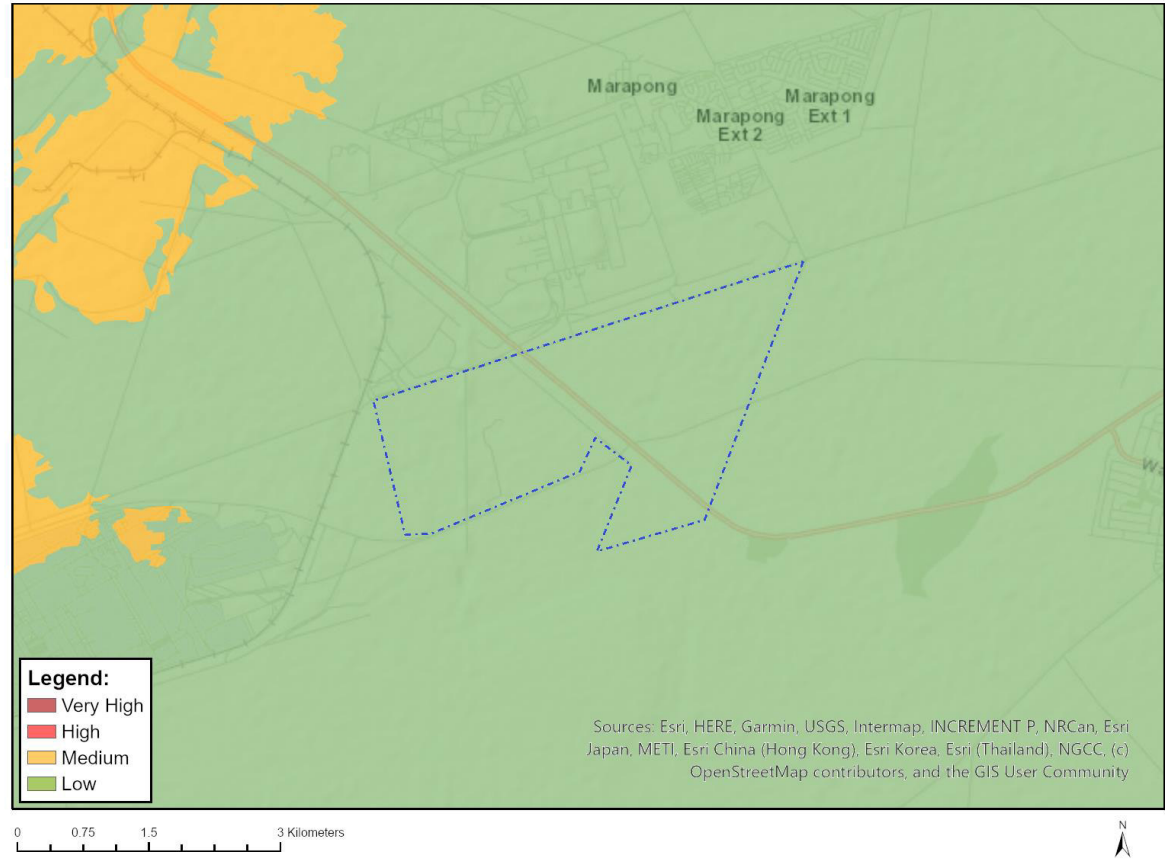


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity
Very High	Features with a Very High paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



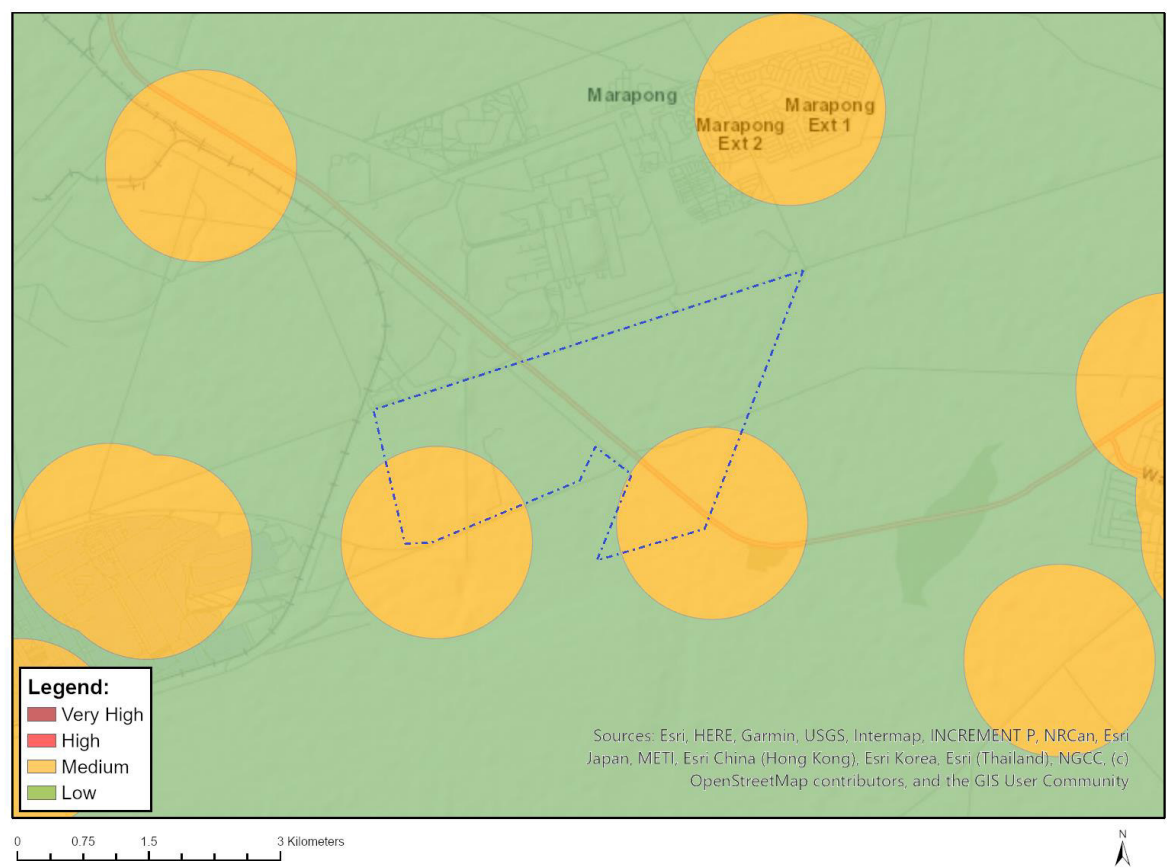
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE RFI THEME SENSITIVITY

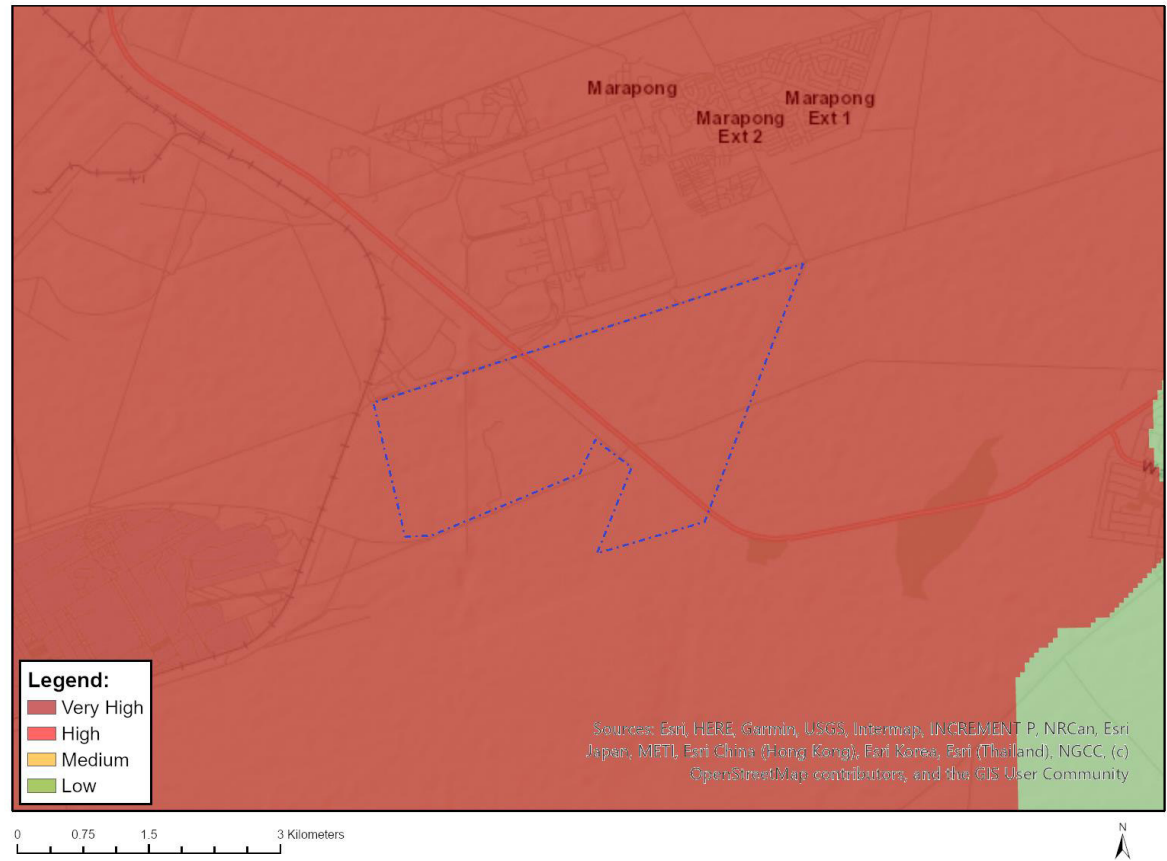


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Medium	Within 1 km of a telecommunication facility

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	FEPA Subcatchment

APPENDIX B: SPECIALIST DECLARATION

I, the undersigned,

Name of Paula Jane Tolksdorff

Specialist:

- Qualifications:
- Baccalaureus Technologiae (B-Tech), Engineering Civil, Urban and Rural Development, University of the Witwatersrand, 1997
 - National Higher Diploma: Civil Engineering, University of the Witwatersrand, 1994
 - National Diploma: Civil Engineering, University of the Witwatersrand, 1993
 - MSc. Environmental Management, University of North West (two years course work complete 2011/2012)
- Professional Registration
- Environmental Assessment Practitioners Association of South Africa (2019/509)
 - South African Council for Natural Scientific Professions (152904)

hereby declare that:

- I act as the Environmental Assessment Practitioner for this application.
- I will perform all work relating to this application objectively, independently, and impartially, even where this may result in findings or conclusions that are not favourable to the applicant.
- I declare that no circumstances exist that may compromise my objectivity or independence in the execution of my duties in respect of this application.
- I possess the requisite expertise, qualifications, and experience to compile this Site Screening Verification Report, including sound knowledge and practical experience in the application of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the Environmental Impact Assessment Regulations, 2014 (Government Notice Regulation 982 of 4 December 2014, as amended).
- I will comply with the provisions of the Act, the EIA Regulations, 2014 and all other applicable environmental legislation relevant to this application.
- I have no conflicting interests, and I will not engage in any activity that may result in a conflict of interest in relation to the proposed development.
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has, or may have, the potential to influence:
 - any decision to be taken by the competent authority in respect of this application; and
 - the objectivity, content, or outcomes of any report, plan, or document prepared by myself for submission to the competent authority.
- I acknowledge that the submission of a false declaration constitutes an offence in terms of Regulation 48 of the EIA Regulations, 2014 and is punishable in terms of section 24F of the NEMA.

Signature:

Date: 25 June 2026

APPENDIX C: STAKEHOLDER DATABASE

Full Name	Organisation	Position
Nyakallo Solar PV Project: Stakeholder Database		
Landowners and lawful occupiers of development site and adjacent properties		
Hendrik Diederick Pieterse		KML Eiendom (Pty) Ltd
Elizabeth Barindina Pieterse		KML Eiendom (Pty) Ltd
Hendrik Diederick Pieterse		Batis Properties 10 BK, Reg. Nr. 2009/100267/23
Hendrik Diederick Pieterse		Batis Properties 10 BK, Reg. Nr. 2009/100267/23
Hendrik Diederick Pieterse		Waterkloof Family Trust: Hendrik Diederick Pieterse
		Limpopo Provincial Government
Mike Taffa		Eskom Holdings
Mike Taffa		Eskom Holdings
Mike Taffa		Eskom Holdings
Mike Taffa		Eskom Holdings
Mike Taffa		Eskom Holdings
Carla Pistorius		Exxaro Coal Pty Ltd
Carla Pistorius		Exxaro Coal Pty Ltd
Francois Campher		Adler Corp (Pty) Ltd
Francois Campher		Adler Corp (Pty) Ltd
Francois Campher		Adler Corp (Pty) Ltd
Department of Forestry, Fisheries and Environment (DFFE) - CA		
Julliet Mahlangu	DFFE	
Salome Mambane	DFFE	
Zama Langa	DFFE	
	DFFE	DFFE Biodiversity Conservation
Nompumelelo Lekalakala	DFFE	B&C: Biodiversity Mainstreaming & EIA
MMatlala Rabothata	DFFE	B&C: Biodiversity Mainstreaming & EIA
Khuliso KKP. Khomani	DFFE	B&C: Biodiversity Mainstreaming & EIA
Mr Seoka Lekota	DFFE	B&C: Biodiversity Mainstreaming & EIA
Limpopo Department: Economic Development, Environment and Tourism (LEDET)		
Matodzi Rathumbu	LEDET	Head of Department (Acting) and Deputy Directors General: Economic Development
Keleabetswe Tlouane	LEDET	Deputy Directors General: Environment and Tourism
	LEDET	20 Hans van Rensburg / 19 Biocard Street, Evridiki Towers, Polokwane, Limpopo, 0700.
Commenting Authorities		
Department of Mineral Resources and Energy (DMRE)		
Azwihangwisi Mulaudzi	DMRE	Regional Manager
Tebogo Mangaba	DMRE	Regional Manager - PA
Thivulawo Cedric Kolani	DMRE	Regional Manager
Thalukanyo Mulaudzi	DMRE	
Sethelole Madonda	DMRE	
	DMRE Limpopo Office	
Department of Water and Sanitation (DWS)		
Pieter Ackerman	Office	Directorate Water Abstraction and Instream Impact
Ramachela Seleka	Department of Water and Sanitation Limpopo Water Management Area	
Fulufhelo Mafelatshuma	Department of Water and Sanitation Limpopo Water Management Area	
Hlekane Love	Department of Water and Sanitation Limpopo Water Management Area	
Mulaudzi Nkhumbudzeni	Department of Water and Sanitation Limpopo Water Management Area	
Lumka Nombewu	Department of Water and Sanitation Limpopo Water Management Area	
Roets Wietsche	Department of Water and Sanitation Limpopo Water Management Area	
David Mulalo Nethengwe	DWS	
South African Civil Aviation Authority		
Simphiwe Masilela	South African Civil Aviation Authority	Inspector: Obstacles; Procedure Design & Cartography
Tebogo Mlambo	South African Civil Aviation Authority	
Winnie Lekabe	South African Civil Aviation Authority	
Yanga Nofuma	South African Civil Aviation Authority	
South African Heritage Resources Agency (SAHRA)		

Nokusho Ngobenii	South African Heritage Resources Agency	
Limpopo Department: Agriculture and Rural Development (LDARD)		
Ramatsimele Jacqueline Maisela	LDARD	Head of Department
Bafedi Mabunda	LDARD	HOD - PA
Makopoi Nkopane	LDARD	Chief Directors: Agricultural Support Services (Acting)
MSJ Nowata	LDARD	Chief Directors: Agricultural Advisory Services
Patience Hlongwa	LDARD	
Zanele Sihlangu	LDARD	
Kgabo Molebo	LDARD	
Patrick Lukhele	LDARD	
Annelize Colett	LDARD	
E Thulari	DALRRD - National Dept	
Mary Mogale	DALRRD - National Dept	
Limpopo Department: Public Works, Roads Infrastructure (DPRI)		
Dikgole Timothy Seroka	DPRI	Head of Department
Nakisanane Mthimkhulu	DPRI	HOD - PA
H Mabasa	DPRI	Senior Management: Construction Management (Acting)
FD Maguga	DPRI	Senior Management: Property and Facilities
RW Mothapo	DPRI	Senior Management: EPWP
	DPRI	MEC's Secretary
N. Moloto	DPRI	Manager
Waterberg District Municipality (WDM)		
Cllr M.J. Maeko	Waterberg District Municipality	Executive Mayor
Lephalale Local Municipality (LLM)		
Feziwe Nogilana-Raphela		Acting Municipal Manager
Cllr Aaron Mokgetle		Mayor
Limpopo Heritage Resources Authority (LIHRA)		
David Monama	LIHRA	
South African National Biodiversity Institute (SANBI)		
	Thohoyandou National Botanical Garden	
	Mokopane Biodiversity Conservation Centre	
National Road Agency (NRA)		
Ria Barkhuizen	NRA	Team Secretary
Community Leaders		
Mshoza Kghosi Seleka	Lephalale Tribal Authority: Seleka	Royal Council
Petros Kgoshi Shongoane	Lephalale Tribal Authority: Shongoane	Royal Council
Langa / Mokuruanyane	Lephalale Tribal Authority: Abortsport	Royal Council
Andries Mocheko	Waterberg Environmental Justice Forum	Director
Seleka Mothiba	Taxi Association	Secretary
Titus Seabi	Radical Economic Transformation	Director
	NAFCOC	
Abafhani Ramolongo	Evergreen NPO	Director
Bafedile Masasa	Evergreen NPO	Director
Grace Peletona	Lephalale Womens forum	Director
Jeanneth Peletona	Lephalale Womens forum	Secretary
Andries Mocheko		Representative
Benny Seleka	Rural Council Youth	Representative
Hendrick Seleka		Representative
NGOs/ CBOs/ Parastatals		
John Davies	Endangered Wildlife Trust	Unit Manager, Birds of Prey Unit
Suzanne Powell	Endangered Wildlife Trust	Unit Manager, Biodiversity & Business Unit
General email	Endangered Wildlife Trust	
Kerri Wolter	VulPro (The Vulture Programme)	Founder & CEO
Conservation / Research Team	VulPro (The Vulture Programme)	Field Projects, Colony Monitoring, Tracking
General email	VulPro (Vulture Conservation & Rehabilitation)	
Meagan Bromfield	Associate	
Mark D Anderson	Birdlife SA	Chief Executive Officer
Hanneline Smit-Robinson	Birdlife SA	Head of Conservation
Morgan Griffiths	Africa	Chief Executive Officer
Christopher Mamabolo	Eskom Matimba	Environmental Manager

Filomaine Swanepoel	Grootegeluk Coal Mine	Senior Specialist Environmental
Mariette Loeffenink	Federation for a Sustainable Environment	Chief Executive Officer
M Newman	Centre for Environmental Rights	
Bobby Peek	Africa	Director
Dudu Hadebe	ACTING SENIOR MANAGER: GRID PLANNING	
General email	Waterberg Women Advocacy Organization (WWAO)	
General email	AgriSA	
Shadrack Moephuli	Agricultural Research Council	President and CEO
Marthinus Erasmus	Agri Bosveld	Chairperson
Sandra Pretorius	Agri South Africa	Secretary: Lephalale
Lize McCourt	SANParks	Chief Operating Officer
Kobus	Ackermann	Grootegeluk Mine
John Geeringh	Eskom Holdings SOC Limited	Senior Environmental Advisor
Ezekiel Matsieng	Radical Economic Transformation and Development	Chairperson
Titus Seabi	Radical Economic Transformation and Development	Secretary
Public Places		
	Marapong Public Library	
	Lephalale Public Library	
Media		

APPENDIX D: BACKGROUND INFORMATION DOCUMENT



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APPLICATION FOR AN ENVIRONMENTAL AUTHORISATION AND WATER USE LICENCE FOR THE CONSTRUCTION AND OPERATION OF THE PROPOSED NYAKALLO SOLAR PARK AND ASSOCIATED INFRASTRUCTURE, LEPHALALE LOCAL MUNICIPALITY, WATERBERG DISTRICT MUNICIPALITY, LIMPOPO PROVINCE

DFFE REF NO. 2026-05-0022

GCS REF. NO: 23-0646

PURPOSE OF THE DOCUMENT

The purpose of this document is to provide Interested and Affected Parties (I&APs) with information regarding the construction and operation of the Nyakallo Solar Park.

The aim of this document is thus to:

- Provide I&APs with background information about the proposed Project;
- Explain the application process followed; and
- Indicate how an I&AP can become involved in the process, receive information, raise issues, and make comments.

LOCATION

The Project is being planned by Nyakallo Solar Park (Pty) Ltd and will be situated on Portions 1, 2 and the Remainder of Portion 3 of the Farm Hanglip No. 508 LQ, located near the town of Lephalale in the Limpopo Province (Figure 1 and Figure 2). The site falls within the jurisdiction of the Lephalale Local Municipality, which forms part of the Waterberg District Municipality.

PROJECT DESCRIPTION

The Nyakallo Solar Park will be a hybrid renewable energy facility that will integrate solar photovoltaic (PV) technology with a Battery Energy Storage System (BESS) to enhance energy reliability and grid support. The proposed Project will have an installed capacity of up to 315 megawatts (MW), with a maximum export capacity of 262 Megawatts alternating current (MWac). It will connect to the Matimba Substation via a 132 kilovolts (kV)

/ 400 kV overhead transmission line. The overhead transmission line does not form part of the proposed Project. A separate application for Environmental Authorisation (EA) will be undertaken for the transmission infrastructure in accordance with relevant legislative requirements.

The site is approximately 723 hectares (ha) in extent, with a development footprint of approximately 414.55 ha. The solar array will comprise up to 500,000 bifacial PV modules, mounted on either single-axis trackers or fixed-tilt structures, depending on final design optimisation to maximise energy yield.

A containerised lithium-ion BESS will provide energy storage, with a total capacity of up to 600 MW hours (MW/h). This system may be deployed in a distributed or centralised configuration and is designed to stabilise energy output, enhance dispatchability, and support the grid during periods of low solar irradiance or peak demand

Key infrastructure components include:

- Bifacial PV modules.
- Inverters, transformers, and substations.
- New Eskom switching and transmission infrastructure.
- Operations and maintenance buildings.
- Internal roads, construction laydown areas, and a batching plant.
- Perimeter fencing, closed-circuit television cameras, weather stations, and communication systems.

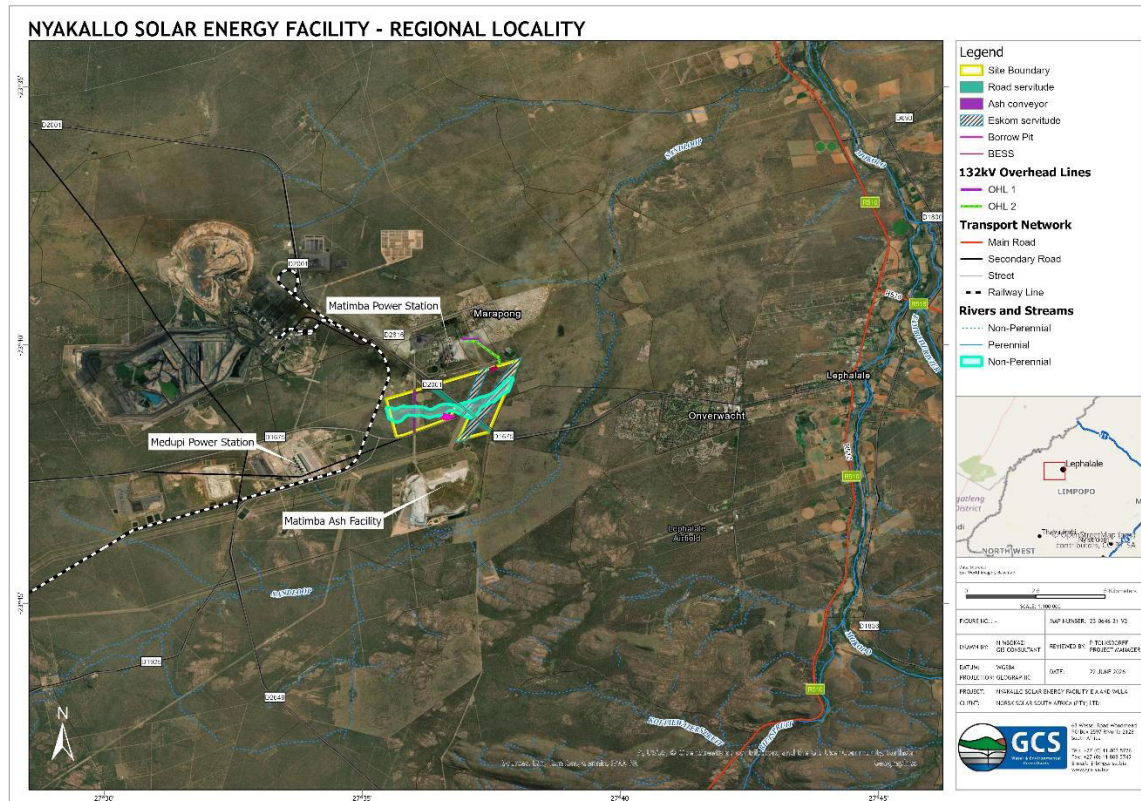


Figure 1: Regional Location of the Nyakallo Solar Park

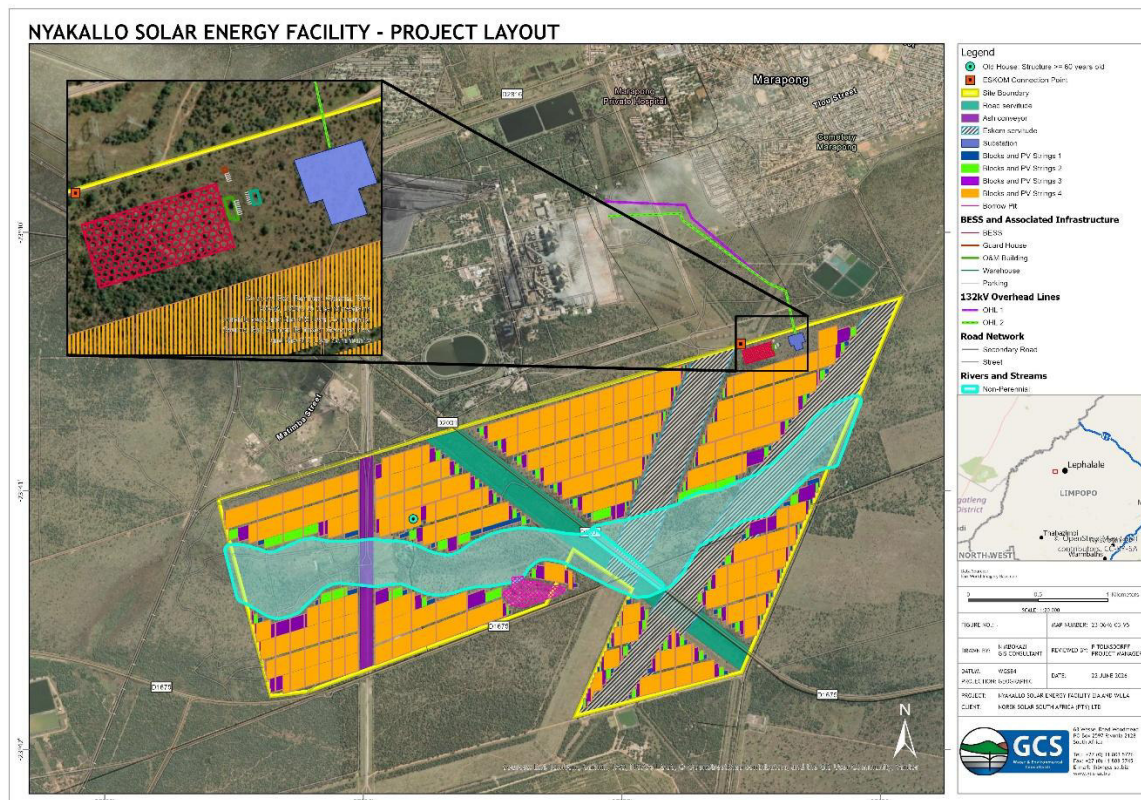


Figure 2: Nyakallo Solar Park Proposed Project Footprint on the Farm Eendracht 505 LQ

LEGISLATIVE CONTEXT

GCS Environment South Africa (Pty) Ltd (GCS) has been appointed as the Independent Environmental Assessment Practitioner to facilitate the application processes to undertake the following application processes for this Project:

ENVIRONMENTAL AUTHORISATION

An EA is required under the National Environmental Management Act, 1998 (No. 107 of 1998) (NEMA) for the following activities:

GNR 983:

Activity 9 (i) and (ii)

The development of infrastructure exceeding 1 000 metres (m) in length for the bulk transportation of water or storm water - (i) with an internal diameter of 0.36 m or more; or (ii) with a peak throughput of 120 litres per second (l/s) or more, excluding where - (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.

Applicability: *The proposed stormwater management plan and infrastructure for the Project has the potential to exceed a length of 1000 m, with an internal diameter of 0.36 m or more and/or a peak throughput of 120 l/s. While the final designs are yet to be confirmed, the Project may trigger this listed activity, necessitating an EA.*

Activity 11 (i)

The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 kilovolts (kV) but less than 275 kV; or (ii) inside urban areas or industrial complexes with a capacity of 275 kV 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 (km) or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.

Applicability: *The proposed Nyakallo Solar Park will require the development of electricity transmission infrastructure to connect the facility to the national grid at Eskom's Matimba Substation. This includes a permanent overhead transmission line and associated electrical infrastructure with a*

connection voltage of approximately 132 kV. The transmission infrastructure will be located outside an urban area or industrial complex and exceeds the 33 kV threshold specified in this listed activity. Accordingly, the proposed development triggers this listed activity and requires EA.

A separate application for EA will be submitted for the Eskom grid connection. The grid connection itself does not form part of this application. This application is limited to the proposed development and the internal connection either overhead or underground from the facility to the future Eskom grid connection point.

Activity 12 (ii) (a) and (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 - (a) within a watercourse or (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 the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; 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 the development and where indigenous vegetation will not be cleared.

Applicability: *Although the preliminary Project layout has been informed by desktop sensitivity mapping and has sought to avoid flood-prone areas associated with the watercourse system, the proposed development includes infrastructure such as*

internal access roads, stormwater management structures, electrical reticulation, inverter stations, and ancillary civil works that may occur within 32 m of a watercourse. Individual infrastructure elements may have a physical footprint exceeding 100 m². These works are located outside urban areas and do not fall within existing road or railway reserves, nor do they constitute temporary infrastructure to be removed within six weeks. Accordingly, the proposed development may trigger this listed activity and requires EA.

Activity 19

The infilling or depositing of any material of more than 10 cubic metres (m³) into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 m³ from a watercourse; 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; (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.

Applicability: *Although the preliminary Project layout has been informed by desktop sensitivity mapping and has sought to avoid flood-prone areas associated with the watercourse system, construction activities associated with the proposed development may require the excavation, removal, movement, infilling, or deposition of soil and other material in excess of 10 m³ within or adjacent to a watercourse. Such activities may be associated with the establishment of internal access roads, stormwater management structures, electrical reticulation crossings, and other ancillary civil works. These works are not limited to maintenance activities and will occur outside existing port or harbour areas. Accordingly, the proposed development may trigger this listed activity and requires EA.*

GNR 984:

Activity 1

The development of facilities or infrastructure for the generation of electricity from a renewable resource where the electricity output is 20 megawatts (MW) 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.

Applicability: *Nyakallo Solar Park is a hybrid electricity generation facility which is a PV and BESS and will have a capacity of up to 300 MWp (equivalent to approximately 262 MWac). This Project falls outside an urban area or existing infrastructure and exceeds the 20 MW electricity output threshold, triggering the need for an EA under this listed activity.*

Activity 4

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 more than 500 m³.

Applicability: *The proposed BESS will comprise containerised lithium-ion battery units and associated power conversion, control, and safety infrastructure. Lithium-ion batteries are classified as a dangerous good due to their chemical and fire risk characteristics. The BESS will have a total energy storage capacity of up to approximately 600 MWh and will be housed within multiple containerised units. The combined volumetric storage capacity of these containers is anticipated to exceed the 500 m³ threshold specified in this listed activity. Accordingly, the development and operation of the BESS triggers the requirement for EA under this listed activity.*

Activity 6

The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding- (i) activities which are identified and included in Listing Notice 1 of 2014; (ii) activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; (iii) the development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater or sewage where such facilities have a daily throughput capacity of 2 000 m³ or less; or (iv) where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 m³ per day.

Applicability: A Water Use Licence (WUL) in terms of Section 21 under the National Water Act, 36 of 1998 (NWA) may be required for the sewage conservancy tank / septic tanks, which triggers the need for an EA under this listed activity.

Activity 15

The clearance of an area of 20 hectares (ha) or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

Applicability: The establishment of the PV facility will require the clearance of indigenous vegetation to accommodate solar panel arrays, inverter stations, internal access roads, substations, the BESS, laydown areas, and associated infrastructure. The total Project area measures approximately 723 ha, with an estimated development footprint of approximately 414.55 ha, which substantially exceeds the 20 ha threshold specified in this listed activity. The vegetation clearance is not associated with a linear activity and does not constitute routine maintenance. Accordingly, the proposed development triggers this listed activity and requires EA.

GNR 985:

Activity 4 (e) (i) (cc) and (ee)

The development of a road wider than 4 m with a reserve less than 13.5 m.

(e) Limpopo:

(i) Outside urban areas: (aa) A protected area identified in terms of National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPAA), excluding disturbed areas; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an Environmental Management Framework (EMF) 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) CBAs 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 km from national parks or world heritage sites or 5 km 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.

Applicability: The proposed Nyakallo Solar Park includes the development of an internal access road network to provide construction, operational, and maintenance access to solar arrays, inverter stations, the BESS, substations, and associated infrastructure. The internal roads will generally be gravel surfaced and up to approximately 6 m wide, with road reserves less than 13.5 m, thereby exceeding the 4 m width threshold. The internal road network will traverse areas mapped as an Ecological Support Areas (ESA) in terms of the Limpopo Conservation Plan, within a Freshwater Ecosystem Priority Area (FEPA)-defined sub-catchment associated with the Sandloop River system, and outside urban areas.

Activity 12 (e) (ii)

The clearance of an area of 300 m² 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 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) 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 (ii) 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.

Applicability: The establishment of the solar PV facility, including solar panel arrays, inverter stations, internal roads, substations, BESS infrastructure, laydown areas, and the construction camp, will require the clearance of indigenous vegetation. The total Project area measures approximately 723 ha, with an estimated development footprint of approximately 414.55 ha, far exceeding the 300 m² threshold. The majority of the development footprint falls within areas classified as ESA in terms of the Limpopo Conservation Plan and within a FEPA sub-catchment, thereby triggering this listed activity.

Activity 14 (ii) (a) and (c), (e) (ii) (dd) and (ff)

The development of- (i) dams or weirs, where the dam or weir, including infrastructure and

water surface area exceeds 10 m²; or (ii) infrastructure or structures with a physical footprint of 10 m² or more; where such development occurs- (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 m 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 EMF 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 km from national parks or world heritage sites or 5 km from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; or (ii) Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose.

Applicability: *The proposed development includes infrastructure such as internal access roads, electrical reticulation, inverter stations, substations, stormwater management structures, and associated civil works, some of which may be located within 32 m of watercourses or traverse and cross watercourses and associated ephemeral and episodic drainage features. Individual infrastructure elements may exceed the 10 m² footprint threshold. These features occur within a FEPA-defined sub-catchment and spatially overlap an ESAs identified in the Limpopo Conservation Plan, outside of urban areas.*

WATER USE LICENCE

A Water Use Licence Application (WULA) is required under the National Water Act, 2004 (No. 36 of 2004) (NWA) for the following water uses identified in section 21:

Section 21 (a): Taking water from a water resource.

Applicability: *Municipal supply will be the first option; however, groundwater may be sourced to meet both domestic needs and the cleaning requirements of the solar panels. To support this, a dedicated water filtration and purification facility will be established, ensuring the provision of potable water for human consumption and suitably treated water for solar module cleaning*

Section 21 (c): Impeding or diverting the flow of water in a watercourse.

Applicability: *While the Project area has been designed to avoid flood-prone areas associated with the watercourse, infrastructure related to the Project will fall within 500 m of the watercourse.*

Section 21 (g): Disposing of waste in a manner that may detrimentally impact a water resource.

Applicability: *Domestic effluent (sewage) will be collected in a conservancy tank, which will be regularly serviced by a licensed waste management provider.*

Section 21 (i): Altering the bed, banks, course, or characteristics of a watercourse.

Applicability: *While the Project area has been designed to avoid flood-prone areas associated with the watercourse, infrastructure related to the Project will fall within 500 m of the watercourse.*

DELEGATED LEAD AUTHORITIES

The delegated lead authorities responsible for administering and implementation of the relevant legislation are:

- Department of Forestry, Fisheries and the Environment (DFFE).
- Department of Water and Sanitation (DWS).

WHAT IS SCOPING AND ENVIRONMENTAL IMPACT REPORTING AND WHY IS IT IMPORTANT?

Scoping and Environmental Impact Reporting (S&EIR) is an assessment of the possible impacts - positive or negative - that a proposed Project may have on the environment, together consisting of the natural, social and economic aspects.

The assessment highlights and predicts any problems before major decisions are made. It also assists the proponent in finding ways to avoid problems and to enhance the positive effects.

The concept of sustainable development serves as the base of such an assessment. In other words, development needs to take place, however it is how we manage the impacts on the environment as a whole, that will determine whether such a Project will bring about positive change.

THE S&EIR PROCESS

The S&EIR process being implemented can be summarised as follows (Please also refer to Figure 3 for a diagrammatic representation of the processes to be followed):

Phase 1: Scoping

The purpose of the Scoping process is to provide sufficient information to decision-making authorities to enable them to reach a decision on the scope of issues to be addressed in the Environmental Impact Reporting (EIR).

The objectives of the Scoping process are to:

- Identify and inform a broad range of stakeholders about the proposed development;
- Clarify the scope and nature of the proposed activities and the alternatives;
- Conduct an open and transparent consultation process and facilitate the inclusion of stakeholders' concerns in the decision-making process; and
- Identify key issues to be addressed in the EIR phase and outline the approach to addressing these issues.

Phase 2: Environmental Impact Reporting

The purpose of the EIR phase of the assessment is to address the issues raised in the Scoping phase.

Specialist studies will be conducted to assess alternatives, identify impacts and determine the significance of impacts as well as formulate mitigatory measures, if required to minimise/avoid negative impacts and maximise positive benefits of the proposed Project.

Public Participation Process

The Public Participation Process (PPP) is an integral part of the S&EIR and continues throughout this process. This Section provides more detail on the PPP.

Step 1: Notify the Authority of S&EIR Process

- Submit an EA for S&EIR to the DFFE.

Step 2: Notify I&APs and Identify Issues

- Notify I&APs of the Project proposal.

- Identify any issues/concerns of I&APs.
- Provide I&APs with a Background Information Document on the Project, including a locality map and a registration/issues form. I&APs are required to register their interest in the Project to receive further Project information.
- One-on-one meetings may be conducted with relevant stakeholders.

Step 3: I&AP Review of Draft Scoping Report (DSR)

- Issues and concerns raised by I&APs are contained in a Comment Response Report (CRR) for inclusion in the DSR.
- The report is released for a 30-day comment period.
- This report will also include the Plan of Study for EIR.
- All registered I&APs on the Project database are notified in writing of the opportunity to comment.
- Copies of the report will be made available at public places and on the GCS website.

You are hereby invited to review and pass comments on the DSR for the Project. The DSR will be available for review at the following locations from 8 July 2026 to 11 August 2026.

Place	Address	Telephone
Lephalale Public Library	Corner of Joe Slovo & Douwater Roads, Civic Centre, Lephalale	+27 (0)14 762 1453
Marapong Library	916 Phukubye Street, Marapong	+27 (0)14 762 1617
GCS Website	https://www.gcs-sa.biz/public-documents/	+27 (0)11 803 5726

Written comments and substantiated issues must be submitted to GCS by 11 August 2026. Early submissions are encouraged to allow the GCS sufficient time to address concerns comprehensively.

Step 4: Final Scoping Report (FSR)

- Comments received from I&APs during the review process are considered in the compilation of the FSR before it is submitted to the DFFE for their decision-making.
- All I&APs on the Project database will be notified in writing of the DFFE's decision on the Scoping Report.
- The FSR will include the Plan of Study for EIR and Terms of Reference for specialist studies to be undertaken as part of the EIR.

Step 5: Draft EIR (DEIR) and Environmental Management Programme (EMPr) for I&AP Review

- Compilation and release of a DEIR, (including the draft EMPr) for a 30-day review period by I&APs.
- All comments received from I&APs and authorities via meetings held or via written correspondence are compiled into a CRR.
- The CRR will indicate the nature of the comment, when and who raised the comment as well as indicate how the comment received has been considered in the Final EIR (FEIR).

Step 6: Final EIR and Draft EMP

- The FEIR, including the CRR and Draft EMP will be compiled for submission to the DFFE for decision-making.

Step 7: Notify I&APs of Environmental Authorisation and Appeal Period

- All I&APs on the Project database will be notified in writing regarding the EA for the Project and the appeal period, as well as the manner of appeal.

WHAT IS THE WATER USE LICENCE APPLICATION AND WHY IS IT IMPORTANT?

The WULA process is required under the NWA to ensure sustainable management of water resources and prevent pollution. It is important for legal compliance, reducing risks of penalties, and promoting environmental stewardship. The process also fosters transparency by involving stakeholders and helps protect South Africa's limited water resources.

THE WATER USE LICENCE APPLICATION PROCESS

Water Use Licence Report

A WUL Report will be prepared, including:

- Description of the proposed Project and associated water uses.
- Findings of specialist studies.
- Proposed mitigation measures to minimise negative impacts on water resources.

- Supporting documentation such as site plans, maps, and proof of stakeholder consultation.

Public Participation Process

Following the approval of the FSR (please refer to Step 4 above), the Draft WUL Report will be made available for a 60-day comment period.

All comments received from I&APs and authorities via meetings held or via written correspondence are compiled into a CRR. The CRR will indicate the nature of the comment, when and who raised the comment as well as indicate how the comment received has been considered in the Final WUL Report.

The Final WUL Report, including the CRR will be compiled for submission to the DWS for decision-making. All I&APs on the Project database will be notified in writing regarding the WUL for the Project and the appeal period, as well as the manner of appeal.

REGISTERING AS AN INTERESTED AND AFFECTED PARTY

By registering as an I&AP, you will be included in the Project stakeholder database and receive further information in future for comment. Your comments will ensure that all relevant issues are incorporated and addressed. Please complete and submit the enclosed registration / comment sheet or contact GCS if you wish to comment or register on the Project. I&APs who wish to participate by contributing comments, or who would like to obtain more information, should please contact:

GCS Environment South Africa (Pty) Ltd
Attention: Paula Tolksdorff / Luyanda
Macheke

Tel: +27 (0)11 803 5726, Fax: +27 (0)11 803 5232

E-mail: ppp@gcs-sa.biz / paulat@gcs-sa.biz / luyandam@gcs-sa.biz

Postal Address: PO Box 2597, Rivonia,
Johannesburg, 2128

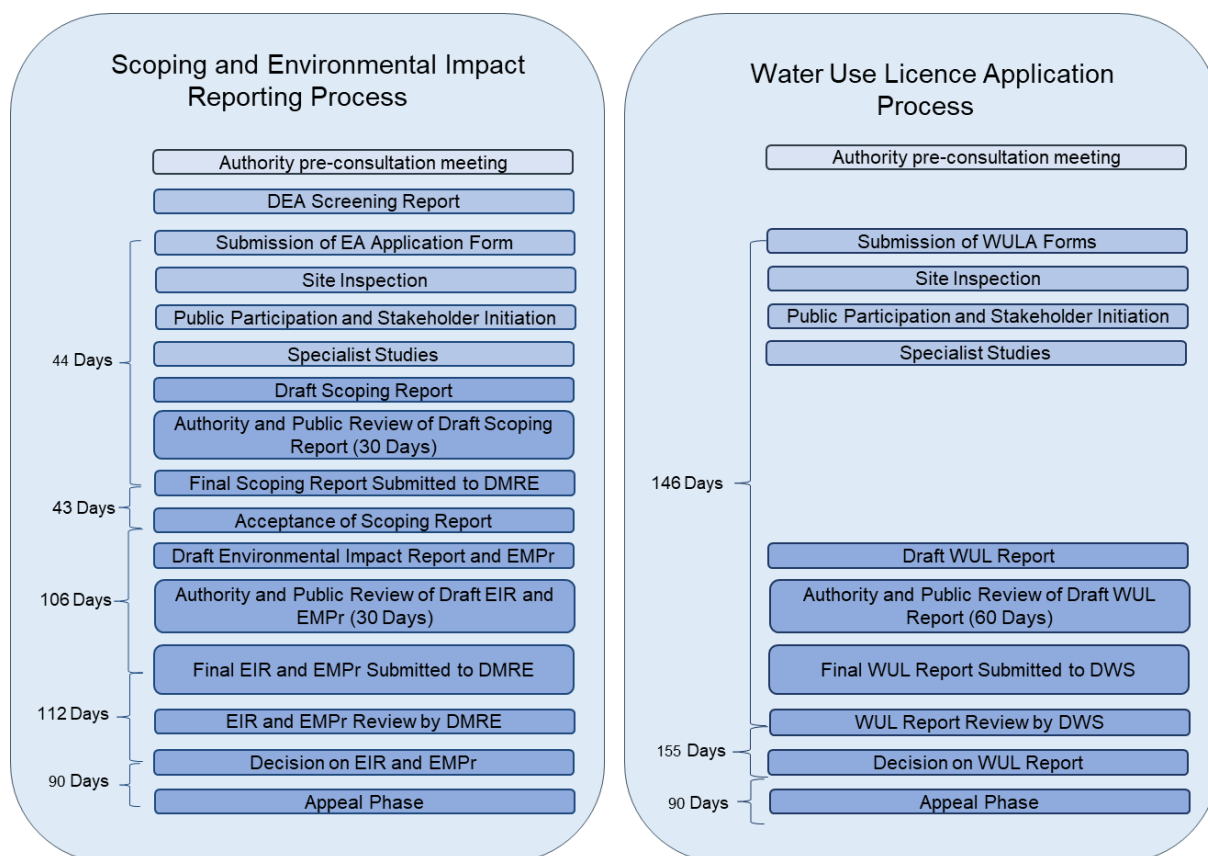


Figure 3: Diagrammatic representation of the processes to be followed



**APPLICATION FOR AN ENVIRONMENTAL AUTHORISATION AND WATER USE LICENCE
FOR THE CONSTRUCTION AND OPERATION OF THE PROPOSED NYAKALLO SOLAR
PARK AND ASSOCIATED INFRASTRUCTURE, LEPHALALE LOCAL MUNICIPALITY,
WATERBERG DISTRICT MUNICIPALITY, LIMPOPO PROVINCE**

DFFE REF NO. 2026-05-0022

GCS Ref. No: 23-0646

REGISTRATION AND COMMENT FORM

Registered Interested and Affected Party (I&AP) will be informed of ongoing developments via their preferred means of communication (SMS, e-mail). Please register as an I&AP and provide comments by sending this form, or other written correspondence, to the contact details provided below:

GCS Environment South Africa (Pty) Ltd

Attention: Paula Tolksdorff / Luyanda Macheke

Tel: +27 (0)11 803 5726, Fax: +27 (0)11 803 5232

E-mail: ppp@gcs-sa.biz / paulat@gcs-sa.biz / luyandam@gcs-sa.biz

Postal Address: PO Box 2597, Rivonia, Johannesburg, 2128

Please formally register me as an Interested and Affected Party	Yes	No
I would like to receive my notifications by	E-mail	SMS

Please indicate which sector you represent and also provide a name

Government Department	
Municipality	
Community	
Non-Government Organisation	
Business	

If you are a *landowner* or *land occupier*, please indicate which farm(s) and portion(s) you reside on

Landowner	
Land occupier	

Please fill in your contact details below for the Project database

Title, Full Name					
Designation					
Cell phone		Fax		Tel	
E-mail					

Postal Address	
----------------	--

Do you have any specific concerns, issues to raise or general comments that the Applicant or Environmental Assessment Practitioner should consider? Please state below:

In compliance with the Protection of Personal Information Act, 2013 (Act No. 4 of 2013) (POPI Act) you are requested to provide consent to GCS Environment South Africa (Pty) Ltd (GCS) in utilising your personal information throughout the process. GCS is obliged to use this information only for the purpose of this Project.

Kindly complete the following section, as permission to engage you in respect of the Public Participation Process that will be undertaken for the Project. If there are any other stakeholders, we should include onto the stakeholder database for the Project, please provide their contact details.

Title, Full Name	
Organisation	
Cell phone	
E-mail	

Signature

Date

APPENDIX E: NEWSPAPER ADVERTISEMENTS

0 1 2 3

APPENDIX F: SMS NOTIFICATIONS

Luyanda Macheke

From: Vasie Naidoo
Sent: Monday, 29 June 2026 16:16
To: Luyanda Macheke
Subject: FW: Bulk SMS: Dear Stakeholder, Please be advised that the Draft Scoping Report will be available for pu

-----Original Message-----

From: Vasie Naidoo [vasien@gcs-sa.biz]
Sent: Monday, 29 June 2026 4:09 PM
To: Copy of 23-0646_PPP_Bulk SMSs (1).xlsx
Subject: Bulk SMS: Dear Stakeholder, Please be advised that the Draft Scoping Report will be available for pu

Dear Stakeholder, Please be advised that the Draft Scoping Report will be available for public review at the Lephalale Public Library, Marapong Library, and on the GCS website at: <https://www.gcs-sa.biz/public-documents/> The public review period will run from 8 July 2026 to 11 August 2026.

APPENDIX G: EMAIL NOTIFICATION

- o (c) Impeding or diverting the flow of water in a watercourse
- o (d) Disposing of waste in a manner that may detrimentally impact a water resource
- o (f) Altering the bed, banks, course, or characteristics of a watercourse

ENVIRONMENTAL ASSESSMENT PRACTITIONER

GCS Environment South Africa (Pty) Ltd (GCS) has been appointed as the Independent Environmental Assessment Practitioner (EAP) to facilitate the application processes with the relevant authorities: Department of Forestry, Fisheries and the Environment (DFFE) and Department of Water and Sanitation.

INVITATION TO PARTICIPATE AND COMMENT ON THE DRAFT SCOPING REPORT

The Draft Scoping Report will be available for public review and comment from 8 July 2026 to 11 August 2026 at the following locations:

Place	Address	Telephone
Lephalale Public Library	Corner of Joe Slovo & Douwater Roads, Civic Centre, Lephalale	+27 (0)14 762 1453
Marapong Library	916 Phukubye Street, Marapong	+27 (0)14 762 1617
GCS Website	https://www.gcs-sa.biz/public-documents/	+27 (0)11 803 5726

Written comments and substantiated issues must be submitted to GCS on or before the closing dates. Early submissions are encouraged to allow GCS sufficient time to address concerns comprehensively.

Interested and Affected Parties who wish to register, participate by contributing comments or who would like to obtain more information, should please contact:

GCS Environment South Africa (Pty) Ltd

Attention: Paula Tolksdorff/Luyanda Macheke

Tel: +27 (0)11 803 5726, Fax: +27 (0)11 803 5232

E-mail: ppp@gcs-sa.biz / paulat@gcs-sa.biz / luyandam@gcs-sa.biz