PROJECT :

THE PROPOSED 10MWAC GROOTFONTEIN AGROVOLTAIC SOLAR ENERGY FACILITY NEAR CALA WITHIN THE SAKHISIZWE LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE.

REPORT:

TERRESTRIAL BIODIVERSITY AND PLANT SPECIES ASSESSMENT REPORT

DATE:

02 October 2026

SPECIALIST:

MBAMBO ECOLOGICAL SERVICES

CLIENT:

ABANTU ENVIRONMENTAL SERVICES

DEVELOPER:

ILINGE ENERGY AUTOMATION (PTY) LTD

iLINGE ENERGY AUTOMATION

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DATE	02 October 2026

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EXECUTIVE SUMMARY

A full Terrestrial Biodiversity Assessment report (this report) has been undertaken as part of the EIA Process for the proposed 10MWac Grootfontein agrovoltaic solar energy facility near Cala within the Sakhisizwe Local Municipality, Eastern Cape Province. The DFFE Online Screening Tool identified the area as having Very High Terrestrial Biodiversity Sensitivity because the proposed development occurs within ESA 2, FEPA Sub-catchment and SWSA Eastern Cape. One plant species of conservation concern (SCC's) within the proposed development footprint was identified by the screening tool. The development will include the Solar Energy Facility, O&M building, IPP switching station, Eskom Macangceni switching station and an internal access road of about 5m wide. The specialist assessment sought to assess the ecological state and current land use of the proposed site, identify potential sensitive ecosystems and plants, and identify potential impacts of the proposed development. A desktop assessment of the site was conducted in terms of current vegetation classifications and biodiversity programmes and plans. Upon completing the desktop assessment, a site visit was conducted in July 2026 to assess the actual condition of the terrestrial ecology within the study area.

In accordance with the terms of reference provided, this assessment aimed to:

- Describe the existing vegetation and habitat types within the development footprint,
- Identify the presence or likelihood of Species of Conservation Concern (SCCs),
- Evaluate the site's terrestrial biodiversity sensitivity based on field and desktop assessments,
- Determine the Site Ecological Importance (SEI),
- Assess the significance of potential impacts, and
- Recommend mitigation and management measures to reduce biodiversity loss.

The development footprint is located within the Endangered Mthatha Moist grassland vegetation type. Field surveys confirmed that the area is heavily modified, with significant disturbance from informal dwellings, domestic animals, widespread alien plant infestations, litter, and scattered remnant thicket patches. The remaining thicket bushclumps are small, fragmented, and disconnected from larger intact vegetation, and no plant species of conservation concern were recorded.

Key Environmental Impacts

- Loss and transformation of secondary grassland
- Loss and reduction of ecosystem functioning and connectivity as a result of vegetation clearance
- Soil and habitat disturbance during construction, including erosion, runoff and alien plant spread, if not properly managed;
- Potential disturbance to nearby wetland;

Key Mitigation Measures

- Minimise the development footprint and restrict vegetation clearance to approved footprint
- Minimise disturbance to the wetland, tributary and associated buffer, and implement appropriate erosion, sediment and stormwater management measures
- Rehabilitate disturbed areas post-construction, including re-vegetation with locally indigenous grass species;
- Implement an alien vegetation management plan to control alien species, and any new invasions following construction;
- Retain surrounding grassland and ecological linkages as far as practicable.

From a terrestrial biodiversity perspective, the residual impacts of the proposed development are considered manageable provided that the recommended mitigation and rehabilitation measures are strictly implemented.

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LIST OF ACRONYMS

AIPS	ALIEN INVASIVE PLANTS
BGIS	BIODIVERSITY GEOGRAPHIC INFORMATION SYSTEMS
CBA	CRITICAL BIODIVERSITY AREA
CREW	CUSTODIANS OF RARE AND ENDANGERED WILDFLOWERS
DEA	DEPARTMENT OF ENVIRONMENTAL AFFAIRS
DEDEAT	DEPARTMENT OF ECONOMIC DEVELOPMENT, ENVIRONMENTAL AFFAIRS AND TOURISM
DFFE	DEPARTMENT OF FORESTRY, FISHERIES AND THE ENVIRONMENT
EA	ENVIRONMENTAL AUTHORISATION
EAP	ENVIRONMENTAL ASSESSMENT PRACTITIONER
ECBCP	EASTERN CAPE BIODIVERSITY CONSERVATION PLAN
ECPAES	EASTERN CAPE PROTECTED AREA EXPANSION STRATEGY
ECO	ENVIRONMENTAL CONTROL OFFICER
EIA	ENVIRONMENTAL IMPACT ASSESSMENT
EMPR	ENVIRONMENTAL MANAGEMENT PROGRAMME
ESA	ECOLOGICAL SUPPORT AREA
FEPA	FRESHWATER ECOSYSTEM PRIORITY AREA
IAS	INVASIVE ALIEN SPECIES
IUCN	INTERNATIONAL UNION FOR CONSERVATION OF NATURE
NEWPOSA	NATIONAL ENVIRONMENTAL WEB PLANT OCCURRENCE SEARCH APP
NPAES	NATIONAL PROTECTED AREA EXPANSION STRATEGY
PAOI	PROJECT AREA OF INFLUENCE
PoO	PROBABILITY OF OCCURRENCE
SACNASP	SOUTH AFRICAN COUNCIL OF NATURAL SCIENTIFIC PROFESSIONS
SANBI	SOUTH AFRICAN NATIONAL BIODIVERSITY INSTITUTE
SCC	SPECIES OF CONSERVATION CONCERN
SEF	SOLAR ENERGY FACILITY
SEI	SITE ECOLOGICAL IMPORTANCE

SWSA	STRATEGIC WATER SOURCE AREA
ToPS	THREATENED OR PROTECTED SPECIES

DETAILS OF SPECIALIST

The details of Specialist are as follows –

Miss Thandwayo Mbambo

PhD Candidate (Botany) - UKZN

Main areas of specialisation:

- Grassland ecology
- Plant biodiversity and ecological monitoring
- Environmental consulting
- Alien plant identification and control
- GIS and remote sensing

Tertiary Qualifications:

- MSc Botany, UKZN
- BSc Botany (Honours), NMMU
- BSc Environmental Sciences (Botany and Geography), NMMU
-

Registrations and memberships:

- Certificated Natural Scientist (Cert. Sci. Nat) (SACNASP) Registration No. 127029
- Institute of Waste Management of Southern Africa (IWMSA) Reg No. 40121001
- Member of the Grassland Society of Southern Africa Reg No. 2447580

Experience with fauna and flora assessments: 5 years

Employment:

- Mbambo Ecological Services : Feb 2025 – present – Director & Lead Ecologist
- Lwethuma : Jan 2025 – 30 Jan 2025 – Environmental Scientist
- Abantu Environmental Services : Jul 2020 – November 2024 – Environmental Scientist
- SANBI : Oct 2020 – April 2021 – Research Assistant (Alien invasives management)
- GIBB (Pty) Ltd: Oct 2019 – Sep 2020 - Graduate Environmental Scientist
- Nelson Mandela University: Geography & Botany Lecturing Assistant - Jul 2015 – Aug 2018

DECLARATION OF INTEREST

I, Thandwayo Mbambo , in my capacity as specialist consultant, hereby declare that I –

- Act as an independent consultant;
- Have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- Do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Have and will not have vested interest in the proposed activity proceeding;
- Have no, and will not engage in, conflicting interests in the proposed activity;
- Undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;
- As a registered member of the South African Council for Natural Scientific Professions, will undertake my profession in accordance with the Code Of Conduct of the Council, as well as any other societies to which I am a member;
- Based on information provided to me by the project proponent and in addition to information obtained during this study, have presented the results and conclusion within the associated document to the best of my professional ability;
- Reserve the right to modify aspects about the present investigation should additional information become available through ongoing research and/or further work in this field; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.

Terrestrial Ecologist

October 2026

1. INTRODUCTION

Mbambo Ecological Services has been appointed by Abantu Environmental Services to conduct a terrestrial biodiversity and plant species assessment for the proposed 10MWac Grootfontein agrovoltaic solar energy facility near Cala. This report follows on from the site verification screening report completed for the project area.

Although the DFFE online screening tool identified the site as having Very High Terrestrial Biodiversity Sensitivity and Medium Plant Species Sensitivity, the actual site sensitivity is considered low due to existing disturbances. As per the assessment protocols identified in the DFFE Screening Report, a plant species and terrestrial biodiversity impact assessment were required. These assessments were conducted following the relevant protocols:

- Protocol for the Specialist Assessment and minimum report content requirements for environmental impacts on Terrestrial Biodiversity (GN 320, published 20 March 2020)
- Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species (GN 1150 published on 30 October 2020).

The impact assessment methodology of the Species Impact Assessment Guidelines (SANBI 2020) was utilised to determine the impact of the proposed development on floral species.

The objectives of the assessment are to:

- Identify the Environmental Sensitivity of the site using desktop and online resources
- Describe the vegetation types on site, and identify sensitivities
- Determine the threat status and sensitivity of the vegetation type and plant species on site
- Describe the level of degradation of the vegetation and habitats on site
- Assess the impact of the proposed development on the vegetation, inclusive of ecological processes and plant Species of Conservation Concern (SCC), of the site
- Provide recommendations to mitigate the negative environmental impacts on the terrestrial biodiversity of the proposed development

1.1. PROJECT DESCRIPTION

iLinge Energy Automation (Pty) Ltd proposes the development of the Grootfontein Agrovoltaic Solar Energy Facility (SEF) near Cala.

The proposed development comprises the following:

- Solar Energy Facility

Associated infrastructure

- O&M Building
- Two switching stations
- Internal Access Road

Grid connection

- Underground 22 kV MV cable
- 2 x Eskom 22 kV overhead lines
- Agrovoltaic Buffer Zone

for the abovementioned infrastructure to be constructed, the following processes need to happen: site clearing and grading which will only be limited to the access road and building pad area; driven or screw-pile foundations for single axis tracker structures; concrete strip or pad foundations for the O&M building and IPP switching station; Gravel internal access road (5m wide) which will surround the site perimeter for maintenance and security access; cable trench excavation for underground cable route; and finally a security perimeter fencing with access control gate.



Figure 1: Locality map of the proposed development.

1.2. LAND USE/COVER

The proposed development area falls within the Drakensberg foothill Moist Grassland vegetation type. The project site occurs mainly in an abandoned maize cropland on a farm; some sections of it are in an area that has eucalyptus trees. There is a dam south of the project area, about 700m away. The immediate area surrounding the site is predominantly covered by secondary grassland, which is relatively continuous with good vegetation cover. The farm is also used for livestock grazing, as evidenced by sheep observed during the site assessment. Weedy and alien invasive plant species are present. No extensive bare areas or visible soil erosion were observed within the proposed footprint.

1.3. ASSUMPTIONS AND LIMITATIONS

The following assumptions and limitations are listed regarding the ecological assessment of the project site:

- The information regarding the proposed development received from the client and EAP is deemed accurate.
- All reasonable measures will be done to compile a species list for the site, including consulting existing species databases and site visit. However, it is not guaranteed that the report will produce a comprehensive species list, as only a single site visit will be done for this assessment.
- The field survey was conducted during the growing season (July 2026), which falls outside the peak flowering period (typically spring to early summer for many Grassland species). As such, the detectability of certain plant species may have been reduced; however, the survey was not intended to record every plant species. Instead, it focused on assessing habitat condition, vegetation structure, ecological functioning, disturbance, and biodiversity sensitivity.

2. LEGAL FRAMEWORK

Environmental Impact Assessments (EIAs) are required in South Africa in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and its' associated EIA Regulations (2014) as amended. Developments likely to have a major impact require scoping and EIA, and those likely to have a lesser impact require a Basic Assessment.

If natural vegetation will be affected by a proposed development, a vegetation survey should be commissioned as part of the environmental assessment process. If a subpopulation of a species of conservation concern is found to occur on the proposed development site, it would be one indicator that the proposed activity is likely to result in loss of biodiversity, bearing in mind that loss of subpopulations of these species will either increase their extinction risk or may in fact result in their extinction. The detection of a threatened species on a site during an environmental assessment should result in an Environmental Authorisation from the competent authority that avoids, mitigates, remedies or offsets loss of habitat for the species in question. The competent authority may also refuse authorisation for the proposed activity.

2.1. RELEVANT LEGISLATION

The proposed development will be subject to the requirements of various items of South African legislation (**Table 1**). These are described below.

Table 1. Legislation applicable to the project

Title of legislation or guideline	Application to the project

Section 24 of the Constitution Act (No. 108 of 1996)	States that: Everyone has the right to:
	• an environment which is not harmful to their health or well-being
	• have the environment protected for the benefit of present and future generations through reasonable legislative and other measures that:
	  • prevent pollution and ecological degradation
	  • promote conservation
	  • secure ecologically sustainable development and use of natural resources, while promoting justifiable economic and social development.
	• Obligation to ensure that the proposed development will not result in pollution and ecological degradation; and
	• Obligation to ensure that the proposed development is ecologically sustainable, while demonstrating economic and social development.

National Environmental Management Act (NEMA) (No. 107 of 1998)	• -The developer must apply the NEMA principles, the fair decision-making and conflict management procedures that are provided for in NEMA; and • -The developer must apply the principles of Integrated Environmental Management and consider, investigate and assess the potential impact of existing and planned activities on the environment, socio-economic conditions and the cultural heritage.
National Environmental Management: Protected Areas Act (No. 57 of 2003)	• The objective of this Act is to provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; and • In terms of Section 50 (1)(a)(ii) of this Act, the management authority may "Carry out or allow an activity in the reserve aimed at raising revenue". However, Section 50 (2) states that such activity may not negatively affect the survival of any species in, or significantly disrupt the integrity of the ecological system of the nature reserve. Furthermore, in terms Section 51 (a), the Minister or MEC is responsible for the regulations or restrictions of the development and other activities in a protected environment, "which may be inappropriate for the area, given the purpose for which the area was declared".

	•
National Environmental Management Act (NEMA) (107 of 1998; as amended), and the Specialist Assessment Protocols (GNR 320 of 2020)	The contents of this specialist report comply with the legislated requirements as described in the following specialist assessment protocols as listed in the projects' Screening Report: Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity.
National Environmental Management: Biodiversity Act (NEMBA), 2004 (Act No. 10 of 2004)	The National Environmental Management: Biodiversity Act (NEMBA), No. 10 of 2004, aims to assist with the management and conservation of South Africa's biological diversity through the use of legislated planning tools. These planning tools include the declaration of bioregions and the associated bioregional plans as well as other mechanisms for managing and conserving biodiversity. The objectives of the Act include inter alia: • The management and conservation of biological diversity within the Republic and of the components of such biological diversity; • The use of indigenous biological resources in a suitable manner; • The fair and equitable sharing of benefits arising from bio-prospecting of genetic material derived from indigenous biological resources; and • To give effect to ratified international agreements relating to biodiversity which are binding on the Republic. • To provide for co-operative governance in biodiversity management and conservation; and • To provide for a South African National Biodiversity Institute to assist in achieving the objectives of the Act. • In addition to this, Sections 50-62 of the Act provide details relating to the protection of threatened or protected ecosystems and species, while Sections 63-77 of the Act provide details relating to alien and invasive species with the purpose of preventing their introduction and spread, managing, controlling and eradicating of alien and invasive species.
National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations 2014 as amended (Act No. 107 of 1998)	The activity triggers activities listed in NEMA EIA Regulations GN R. 327 and GN R. 324.
National Water Act, 1998 (Act No. 36 of 1998)	The proposed development must: Conserve endangered ecosystems and protect and promote biodiversity. Assess the impacts of the proposed development on endangered ecosystems. No protected species may be removed or damaged without a permit; and

	The proposed site must be cleared of alien vegetation using appropriate means.
National Forest Act (84 of 1998)	Requires that a permit be obtained should any forests or protected trees be removed during the construction phase of the project.
Nature and Environmental Conservation Ordinance (No.19 of 1974)	Listing of protected animal species. Permits are required for removal and relocation of any of these listed species in the EC.

2.2. PROTOCOLS REGULATORY REQUIREMENTS

Based on the "Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes in terms of Section 24(5) (a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation" ("the Protocols") (Government Notice No. 320 as published in Government Gazette No. 43110 on 20 March 2020, which came into effect on 09 May 2020 and Government Notice No. 1150 as published in Government Gazette No. 43855 on 30 October 2020, which came into effect on the same date), it is hereby noted that the protocols are applicable to the proposed development. According to the Protocols, before commencing with a specialist assessment, the current use of the land and environmental sensitivity of the site under consideration identified by the screening tool must be confirmed by undertaking site sensitivity verification. A site sensitivity verification was conducted on 12 – 14 August 2025 and a report was compiled, and it is included in the BAR.

The protocols specified in GN 320 (Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity) of the National Environmental Management Act (NEMA; Act No. 107 of 1998), assessment and reporting requirements for terrestrial biodiversity and plant species are associated with a level of environmental sensitivity identified by the national web-based environmental screening tool (screening tool).

The national web-based Environmental screening tool was queried about the erven of the development.

2.2.1. TERRESTRIAL BIODIVERSITY THEME

The terrestrial biodiversity theme indicates that the infrastructure components fall within a **VERY HIGH** area.

Sensitivity features are indicated as follows:

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

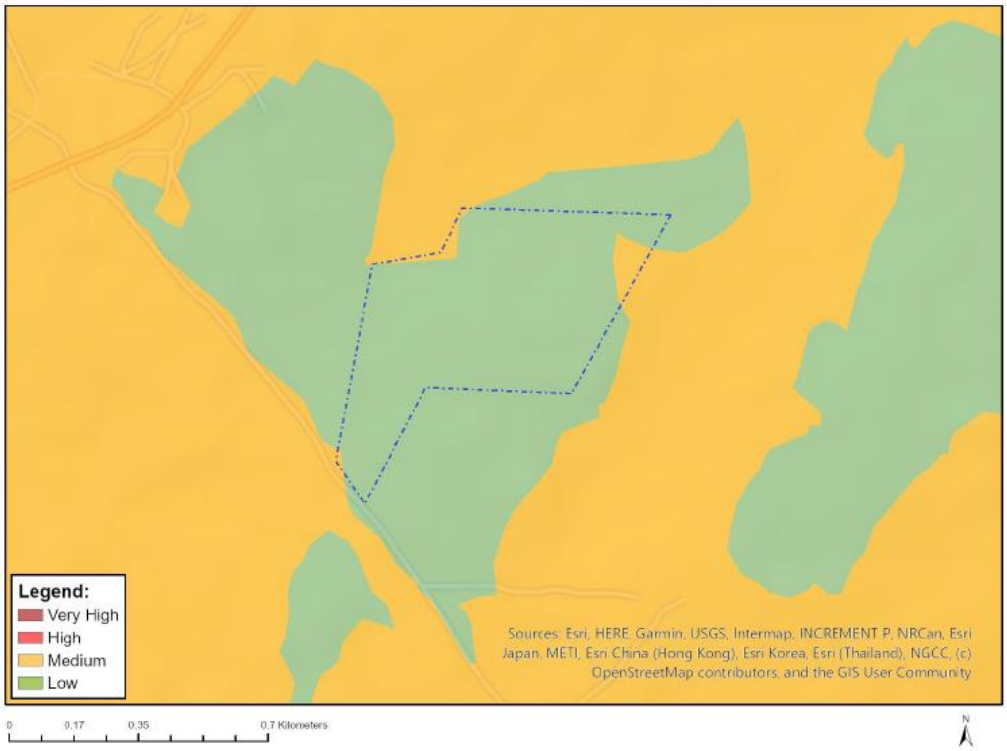
Sensitivity	Feature(s)
Very High	ESA2
Very High	FEPA Subcatchment
Very High	SWSA (sw)_Eastern Cape Drakensberg

Figure 2: DFFE screening tool extract: terrestrial biodiversity theme for the SEF

2.2.2. PLANT SPECIES THEME

Only one plant SCC was identified by the screening tool within the proposed development.

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
Medium	Sensitive species 1144

Figure 3: DFFE screening tool extract: plant species theme for the proposed SEF

2.2. PROJECT ALTERNATIVES

No viable project alternatives were identified or considered for this development.

2.3. TERMS OF REFERENCE

This specialist study is designed to meet the requirements of the Protocol for the Assessment and Reporting of Impacts on Terrestrial Biodiversity and Plant Species themes.

This site sensitivity assessment follows the requirements of The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020.

General information

- An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified on the screening tool as being of "**very high sensitivity**" for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment.
- An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being "**low sensitivity**" for terrestrial biodiversity must submit a Terrestrial Biodiversity Compliance Statement.
- However, where the information gathered from the site sensitivity verification differs from the designation of "very high" terrestrial biodiversity sensitivity on the screening tool and it is found to be of a "low" sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted.
- Similarly, where the information gathered from the site sensitivity verification differs from that identified as having a "low" terrestrial biodiversity sensitivity on the screening tool, a Terrestrial Biodiversity Specialist Assessment must be conducted.
- If any part of the proposed development footprint falls within an area of "very high" sensitivity, the assessment and reporting requirements prescribed for the "very high" sensitivity apply to the entire footprint, excluding linear activities for which impacts on terrestrial biodiversity are temporary and the land in the opinion of the terrestrial biodiversity specialist, based on the mitigation and remedial measures, can be returned to the current state within two years of the completion of the construction phase, in which case a compliance statement applies. Development footprint in the context of this protocol means the area on which the proposed development will take place and includes any area that will be disturbed.

Specific outcomes in terms of this report are outlined below:

- To state the indemnity and terms of use of this report as well as to provide the details of the specialists who prepared the report;

- To outline the legislative requirements that were considered for the assessment;
- Compile a desktop assessment with all relevant information as presented by SANBI's Biodiversity Geographic Information Systems (BGIS) website (http://bgis.sanbi.org) and the Environmental Geographical Information Systems (E-GIS) website (https://egis.environment.gov.za/). The desktop assessment aims to gain background information on the physical habitat and potential floral and faunal ecology associated with the study area;
- To define the Present Ecological State (PES) of the biodiversity of the study area;
- To determine and describe habitats, communities and the ecological state of the study area;
- To conduct a faunal and floral Species of Conservation Concern (SCC) assessment, including the potential of suitable habitat to occur within the study area for SCC;
- To identify and consider all sensitive landscapes, including rocky ridges, wetlands or any other special features such as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs);
- To determine the environmental impacts that the proposed development might have on the biodiversity associated with the study area; and
- To develop mitigation and management measures for all phases of the development.

2.4. PURPOSE OF THE BIODIVERSITY ASSESSMENT REPORT

The report content contains the minimum information and reporting requirements for a Terrestrial Biodiversity Impact Assessment and a Terrestrial Plant Species Specialist Assessment, as prescribed in Section 2 of Table 1 of the Protocol for the Terrestrial Biodiversity Theme (GN 320 of 20 March 2020), and is summarised in Table 2 & Table 3 below.

Table 2: Minimum information and report requirements for a terrestrial biodiversity impact assessment report.

Prescribed content of a Biodiversity Assessment Report	**Reference in this report**
(a) contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae.	Before Section 1
(b) a signed statement of independence by the specialist.	Before Section 1

Prescribed content of a Biodiversity Assessment Report	Reference in this report
(c) a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	Section 3
(d) a description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Section 3
(e) a description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;	Section 1
(f) a location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);	Section 5
(g) additional environmental impacts expected from the proposed development;	Section 5
(h) any direct, indirect and cumulative impacts of the proposed development;	Section 5
(i) the degree to which impacts and risks can be mitigated;	Section 5
(j) the degree to which the impacts and risks can be reversed;	Section 5
(k) the degree to which the impacts and risks can cause loss of irreplaceable resources;	Section 5
(l) proposed impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);	Section 5
(m) a motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a “low” terrestrial biodiversity sensitivity and that were not considered appropriate;	Not applicable
(n) a substantiated statement, based on the findings of the specialist assessment, regarding the acceptability, or not, of the proposed development, if it should receive approval or not; and	Section 6
(o) any conditions to which this statement is subjected.	Section 6
(p) The findings of the Terrestrial Biodiversity Specialist Assessment must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr where relevant.	Section 6
(q) A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	Noted

Table 3: Summary of Terrestrial Plant Species Specialist Assessment Requirements.

Requirement	Section in this report

4.1. Medium sensitivity data represents suspected habitat for SCC based on occurrence records for these species collected prior to 2002 and/or is based on habitat suitability modelling.	2.2.2
4.2. The presence or likely presence of the SCC identified by the screening tool, must be confirmed through a site inspection by a specialist registered with the SACNASP in a field of practice relevant to the taxonomic group ("taxa") for which the assessment is being undertaken.	2.2
4.3. The assessment must be undertaken within the study area.	2.7
4.4. The site inspection to determine the presence or likely presence of SCC must be undertaken in accordance with the *Species Environmental Assessment Guideline*[15].	2.7
4.5. The site inspection is to confirm the presence, likely presence or confirmed absence of a SCC within the site identified as "medium" sensitivity by the screening tool.	2.7
4.6. Where SCC are found on site or have been confirmed to be likely present, a **Terrestrial Plant Species Specialist Assessment** must be submitted in accordance with the requirements specified for "very high" and "high" sensitivity in this protocol.	3.7.2
4.7. Similarly, where no SCC are found on site during the investigation or if the presence is confirmed to be unlikely, a **Terrestrial Plant Species Compliance Statement** must be submitted.	

3. METHODS

The terrestrial biodiversity assessment involved a desktop literature survey, as well as a site assessment that took place on July 2026. A comprehensive observed plant species list was produced and annotated according to the relevant legislation. All Threatened or Protected Species were identified, as well as any Invasive Alien Species (IAS).

The approach used in this terrestrial biodiversity assessment, inclusive of terrestrial plant species, is as follows:

3.1. PROJECT AREA OF INFLUENCE

The Project Area of Influence is defined by the important ecosystem processes and functions that may be affected by the proposed development and its activities. The Species Environmental Assessment Guideline (2020) requires that the EAP and Specialists define the taxon-specific Project Area of Influence (PAOI) based on the spatial location of the project (footprint) and the potential extent of the impacts of the anticipated project activities.

3.2. DESKTOP ASSESSMENT

A desktop assessment of the potential plant species, vegetation types and sensitivities of the site based on data extracted from:

- Mucina and Rutherford's (2009) vegetation map and 2018 updated vegetation map and vegetation descriptions;
- National Environmental Management: Biodiversity Act (Act No. 10 of 2004): Revised National List of Threatened Ecosystems (2022);
- SANBI 2018 final Vegetation map of South Africa, Lesotho and Swaziland
- The IUCN red list category for plant species, as well as supplementary information on habitats and distribution, was obtained from the SANBI threatened species programme (Red List of South African plants, https://redlist.sanbi.org)
- Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019); and

3.3. SITE ASSESSMENT

A site sensitivity verification (SSV) was done to determine whether an impact assessment or compliance statement will be necessary to meet the requirements of the protocols for the terrestrial biodiversity and plant species screening report themes.

The footprint of the proposed 10 MW AC Grootfontein agrovoltaic solar energy facility near Cala, within the Sakhisizwe Local Municipality, Eastern Cape, was assessed. The sites fall within the Grassland biome, which is characterised by summer rainfall, with peak precipitation and flowering typically occurring between October and March. Site sensitivity verification entailed a combination of desktop assessment and field surveys. This method involved walking through the proposed development footprint and recording all plant species and the condition of their habitats on site.

The screening report identified one Species of Conservation Concern (SCC) to occur in the area. However, no SCC individuals were observed during the site visit.

The site visit was considered representative and adequate for an initial assessment of botanical diversity and species composition. Specific features of potential concern were investigated in the field, including the following:

- General vegetation status, i.e. whether the vegetation was natural, disturbed/secondary or transformed;
- Presence of habitats of conservation concern in terms of high biodiversity, presence of species of conservation concern, specific sensitivities (e.g. wetlands), and other indicators of elevated biodiversity or ecological value not evident from the desktop assessment;
- Presence of protected trees; and
- Potential presence of SCC, based on direct observation or presence of suitable habitats for any of the species identified through the desktop screening.

3.4. SITE ECOLOGICAL IMPORTANCE

The species environmental assessment guidelines require that a Site Ecological Importance (SEI) be calculated to determine the importance of a project area for species spatially (SANBI, 2020a). the SEI is considered to be a function of the biodiversity importance (BI) of the receptor (e.g. species of conservation concern, the vegetation/fauna community or habitat type present on the site20) and its resilience to impacts (receptor resilience [RR]).

The detailed methodology is available in the Species Environmental Assessment Guidelines (SANBI, 2020a).

Guidelines for development activities within different importance levels are given in the Table 4 below:

Table 4: Guidelines for interpreting SEI in the context of the proposed development activities.

Site ecological importance	Interpretation to proposed development activities
Very High	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/ not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact are acceptable. Offset mitigation may be required for high-impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium acceptable, followed by appropriate restoration activities.

Low	Minimisation and restoration mitigation - development activities of medium to high acceptable, followed by appropriate restoration activities.
Very low	Minimisation mitigation - development activities of medium to high acceptable, and restoration activities may not be required.

3.5. IMPACT ASSESSMENT METHODOLOGY

Impacts identified were assessed according to the criteria outlined below. Each impact was ranked according to the nature, extent, duration, magnitude, probability, irreplaceable loss of resources and reversibility (Table 5). These criteria are based on the Department of Environmental Affairs and Tourism (DEAT) Guideline Document to the EIA Regulations (1998). A significance rating was calculated as per the methodology outlined below.

The significance rating of each identified impact / effect was further reviewed by the EAP and/or specialist by applying professional judgement. Where possible, mitigatory measures were recommended for the impacts identified.

Table 5. Impact Rating Methodology

Status of impact *The environmental impacts of an activity are those resultant changes in environmental parameters, in space and time, compared with what would have happened had the activity not been undertaken. It is an appraisal of the type of effect the activity would have on the affected environmental parameter. Its description includes what is being affected, and how*	
Indication whether the impact is adverse (negative) or beneficial (positive).	+ ve (positive – a 'benefit')
	– ve (negative – a 'cost')

EXTENT OF THE IMPACT		
This addresses the physical and spatial scale of the impact.	**Site** – The impact area extends only as far as the activity – i.e. within the boundaries of the development site.	1
	Local - The impacted area extends slightly further than the actual physical disturbance footprint and could affect the whole, or a measurable portion of adjacent areas (within approx. 5 km of the development site).	2
	Landscape - The impact could affect all areas generally visible to the naked eye, as well as those areas essentially linked to the site in terms of ecosystem functioning	3
	Regional - The impact could affect the site including the neighbouring areas, transport routes and surrounding towns etc.	4

	Ecosystem - The impact could affect areas essentially linked to the site in terms of significantly impacting ecosystem functioning.	5
	National - The impacted area extends beyond provincial boundaries.	6
	International - The impacted area extends beyond national boundaries.	7
DURATION OF IMPACT		
This describes the predicted lifetime / temporal scale of the predicted impact.	**Short term** - Quickly reversible. Less than the project lifespan. The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than any of the project phases or within 0 -5 years.	1
	Medium term – Some mitigation will be required to reduce the duration of the impact – 6-15 years.	3
	Long term - the impact will cease when the operation stops.	5
	Permanent - no mitigation measure will reduce the impact after construction.	7

MAGNITUDE OF THE IMPACT		
This provides a qualitative assessment of the severity of a predicted impact / effect.	**None** - where the aspect will have no impact on the environment	0
	Minor - The affected environment is altered, but natural function and process continue.	1
	Low - where the impact affects the environment in such a way that the natural, cultural and social functions / processes are slightly affected.	2
	Moderate - where the affected environment is altered but natural, cultural and social functions / processes continue, albeit in a modified way	3
	High - natural, cultural or social functions / processes are altered to the extent that they will temporarily cease.	4
	Very High - natural, cultural or social functions / processes are altered to the extent that they will permanently cease.	5
IRREPLACEABLE LOSS OF RESOURCES		
Environmental resources cannot always be replaced; once destroyed, some may be lost forever. It may be possible to replace, compensate for or reconstruct a lost resource in some cases, but substitutions are rarely ideal. The loss of a resource may become more serious later, and the assessment must take this into account.	**Short-term** – Quickly recoverable. Less than the project lifespan. The resource can be renewed / recovered with mitigation or will be mitigated through natural process in a span shorter than any of the project phases, or in a time span of 0 to 5 years.	1
	Loss of an 'expendable' resource - one that is not deemed critical for biodiversity targets, planning goals, community welfare, agricultural production, or other criteria.	2
	Medium term – The resource can be recovered within the lifespan of the project. The resource can be renewed / recovered with mitigation or will be mitigated through natural process in a span between 5 and 15 years.	3
	Loss of an 'at risk' resource - one that is not deemed critical for biodiversity targets, planning goals, community welfare, agricultural production, or other criteria, but cumulative effects may render such loss as significant.	4
	Long term – The loss of a non-renewable / threatened resource which cannot be renewed / recovered with, or through, natural process in a time span of over 15 years, but can be mitigated by other means.	5
	Permanent – The loss of a non-renewable / threatened resource which cannot be renewed / recovered with, or through, natural process in a time span of over 15 years, or by artificial means.	7

REVERSIBILITY / POTENTIAL FOR REHABILITATION		
The distinction between reversible and irreversible impacts is a very important one and the irreversible impacts not susceptible to mitigation can constitute significant impacts in an EIA (Glasson *et al*, 1999). The potential for rehabilitation is the major determinant factor when considering the temporal scale of most predicted impacts.	**Short term** – The impact / effect will be returned to its benchmark state through mitigation or natural processes in a span shorter than any of the phases of the project, or in a time span of 0 to 5 years.	1
	Medium term – The impact / effect will be returned to its benchmark state through mitigation or natural processes in a span shorter than the lifetime of the project, or in a time span between 5 and 15 years.	3
	Long term - The impact / effect will be returned to its benchmark state through extensive mitigation or natural processes in a time span between 15 and 25 years.	5
	Permanent – The impact/ effect is permanent and will never be returned to is benchmark state	7

PROBABILITY OF OCCURRENCE		
The likelihood of the impact actually occurring.	**Remote possibility / unlikely**	0
	Possibility	1
	Low probability / anticipated	2
	Medium probability / strongly anticipated	3
	High probability / to be expected	4
	Absolute certainty / will occur	5

IMPACT SIGNIFICANCE

The overall significance of an impact / effect has been ascertained by attributing numerical ratings to each identified impact. The numerical scores obtained for each identified impact have been multiplied by the probability of the impact occurring before and after mitigation. High values suggest that a predicted impact / effect is more significant, whilst low values suggest that a predicted impact / effect is less significant.

((Spatial Extent + Magnitude + Duration) * Probability) = Significance.

	Overall Score
Insignificant – the impact is meaningless has no influence on the decision to develop	< 15
Low – the impact would not have a direct influence on the decision to develop in the area;	16 - 35
Medium – the impact could influence the decision to develop in the area unless it is effectively managed / mitigated; and	36 - 65
High - the impact must have an influence on the decision-making process for development in the area.	> 65

MITIGATION

In terms of the assessment process the potential to mitigate the negative impacts is determined and rated for each identified impact and mitigation objectives that would result in a measurable reduction or enhancement of the impact are considered. The significance of environmental impacts has therefore been assessed considering any proposed mitigation measures. The significance of the impact "without mitigation" is therefore the prime determinant of the nature and degree of mitigation required.

Confidence of assessment	
The degree of confidence in predictions based on available information, Specialist's judgment and/or specialist knowledge.	Low
	Medium
	High

Impact Mitigation Hierarchy and Residual Impacts

A residual biodiversity impact is the impact of an activity, or activities, on biodiversity that remains after all efforts have been made to avoid and minimise the impacts of the activity, or activities, and to rehabilitate the affected area to the fullest extent possible (DFFE, 2023).

After specialists and EAPs, as part of an EIA, identify and assess all negative biodiversity impacts of a development, they must investigate alternative project locations, designs, technologies, scales and layouts to determine if and how potentially significant negative impacts on biodiversity could be avoided or minimised, and how effective rehabilitation practices can be.

If the EIA determines that all negative impacts on biodiversity cannot be avoided, and/or that impact minimisation and rehabilitation of the affected area cannot fully mitigate the impacts of the activity/ies on biodiversity, the proposed development would have residual negative biodiversity impacts. The mitigation hierarchy, as illustrated in Figure 4, should be followed to determine if there will likely be residual impacts.

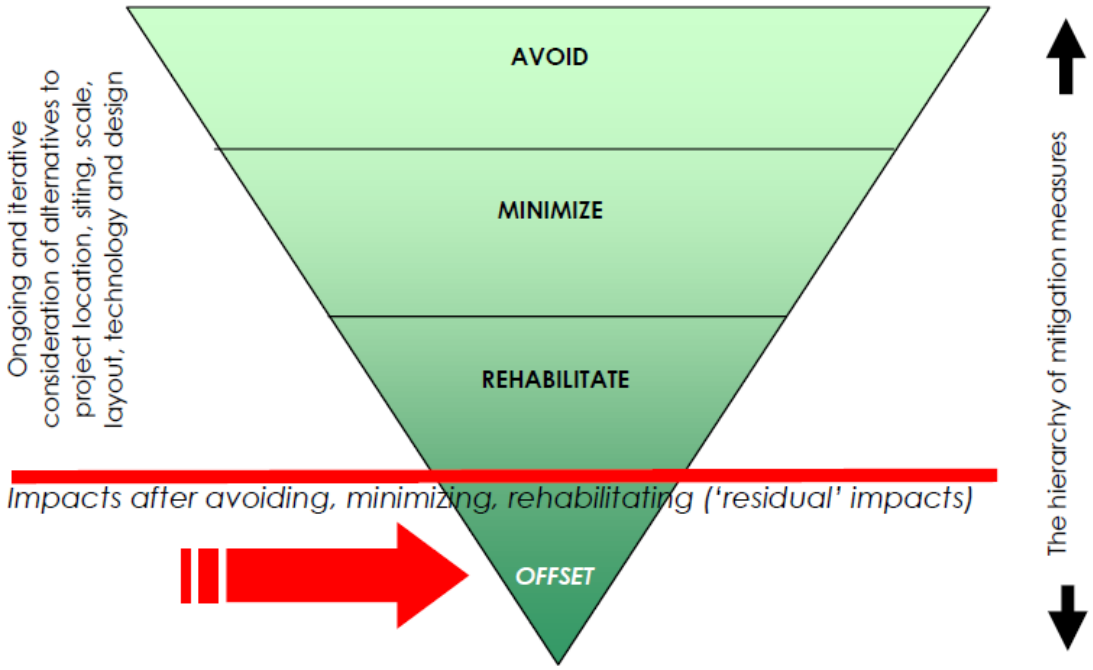


Figure 4: Impact mitigation hierarchy (DFFE, 2023).

Where residual negative biodiversity impacts are evaluated to be of medium or high significance, a biodiversity offset would be required. Impacts of low significance should not require an offset, whereas biodiversity offsets are not deemed appropriated for impacts of very high significance. Very high residual negative impacts that result in the loss or irreplaceable biodiversity should result in the development being considered fatally flawed and avoided

4. STUDY SITE DESCRIPTION

4.1. VEGETATION TYPE

4.1.1. NATIONAL VEGETATION ASSESSMENT

The Vegetation Map for South Africa, Lesotho and Swaziland (VegMap) by Mucina & Rutherford 2006 (Mucina and Rutherford, 2006) is the most widely accepted classification of South Africa's vegetation. It includes information on the conservation status and indicator species for each recognised vegetation type in the country. This biodiversity planning product also forms the basis for the NEM: Biodiversity Act list of Threatened Ecosystems. The project area falls in the Drakensberg foothill moist grassland in the Sub-Escarpment Grassland Bioregion as described by Mucina and Rutherford (2006) in the Grassland biome. The grassland biome in South Africa has a high biodiversity, second only to the Fynbos (SANBI,

2013). The vegetation types described below are from (Mucina et al., 2006) and the dominant species are listed in (Figure 5;Table 6).

Drakensberg foothill Moist Grassland

Distribution

KwaZulu-Natal and Eastern Cape Province: Broad arc of Drakensberg piedmonts covering the surrounds of Bergville in the north, Nottingham Road, Impendle, Bulwer in the east, and Kokstad, Mount Currie, Underberg (KZN) and the surrounds of Mt Fletcher, Ugie, Maclear and Elliot (Eastern Cape) in the southwest at an altitude of 880-1860m.

Vegetation and landscape features

Moderately rolling and mountainous, much incised by river gorges of drier vegetation types and by forest and covered in forb-rich grassland dominated by short bunch grasses including *Themeda triandra* and *Tristachya leucothrix*.

Geology and soils

Mudstones of the Tarkastad and Adelaide Subgroups (Beaufort Group, Karoo Supergroup) and the Molteno Formation (Karoo Supergroup) as well as intrusive dolerites of Jurassic age underlie this area.

Climate

Summer rainfall, with MAP almost 890 mm. The mean annual temperature is 14.6°C and 26 frost days per year.

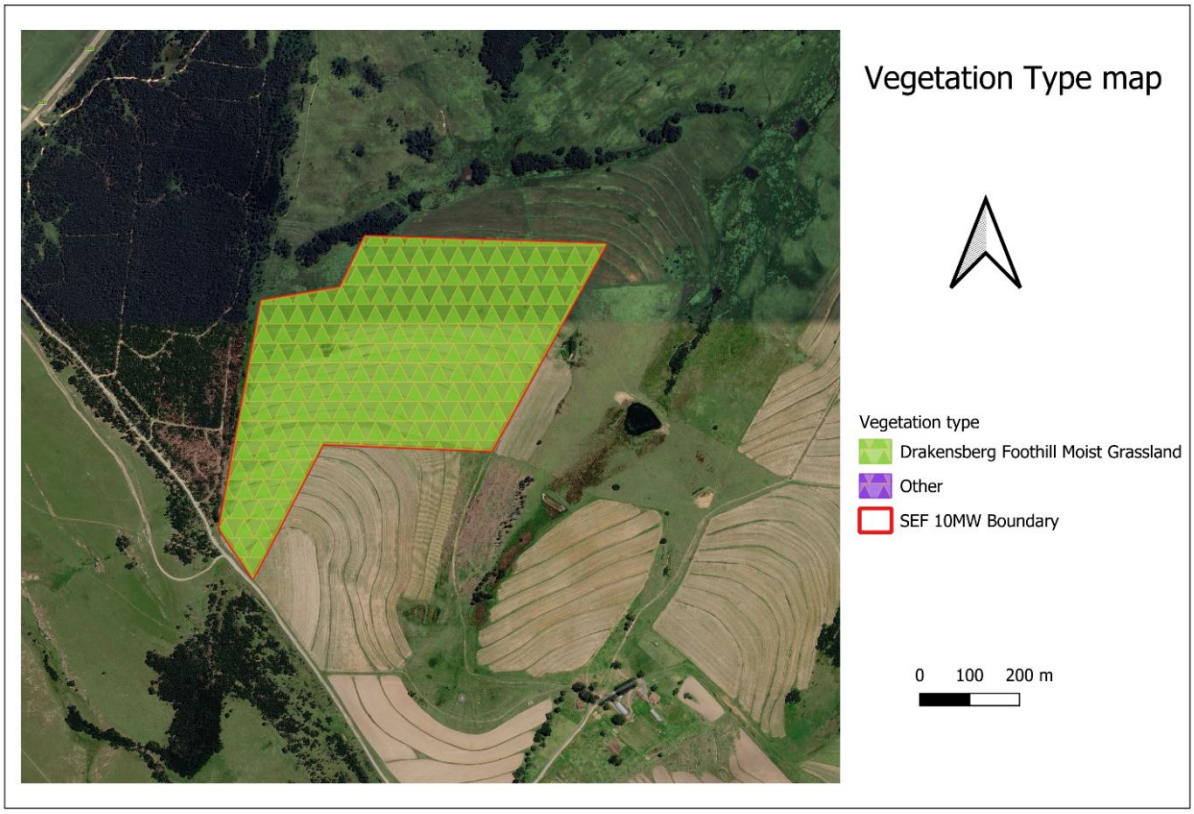


Figure 5: The vegetation map for the proposed development.

Table 6: Common and characteristic plant species of the Drakensberg Foothill Moist Grassland.

Growth form	Species
Small tree	*Protea roupelliae subsp. roupelliae, Encephalartos ghellinckii.*
Graminoid	*Diheteropogon filifolius, Elionurus muticus, Eragrostis capensis, E. chloromelas, E. curvula, E. plana, E. racemosa, Heteropogon contortus , Microchloa caffra , Monocymbium ceresiiforme, Panicum natalense, Rendlia altera, Sporobolus africanus, Themeda triandra , Trachypogon spicatus , Tristachya leucothrix, Agrostis lachnantha, Alloteropsis semialata subsp. eckloniana, Aristida junciformis subsp. galpinii, Brachiaria serrata, Digitaria tricholaenoides, Harpochloa falx, Hyparrhenia hirta, Panicum ecklonii, Paspalum dilatatum*
Herb	*Helichrysum simillimum , Senecio retrorsus , Acalypha depressinerva, Ajuga ophrydis, Berkheya rhapontica subsp. aristosa, Conyza pinnata, Dicoma anomala, Euryops laxus,*

	Haplocarpha scaposa, Helichrysum chionosphaerum, H. cooperi, H. herbaceum, H. nudifolium var. pilosellum, H. subglomeratum, H. umbraculigerum, Hesperantha ingeliensis, Kohautia amatymbica, Mohria caffrorum, Pentanisia prunelloides subsp. latifolia, Schistostephium crataegifolium, Sebaea sedoides var. schoenlandii, S. sedoides var. sedoides, Senecio asperulus, Vernonia natalensis, Wahlenbergia undulata
Low shrub	*Anthospermum rigidum subsp. pumilum, Chrysocoma ciliata, Felicia filifolia subsp. filifolia, Gnidia kraussiana, Helichrysum odoratissimum, H. sutherlandii, Rhus discolor, Senecio burchellii.*
Herbaceous climber	*Rhynchosia totta*
Geophytic Herbs	*Oxalis depressa, Cheilanthes deltoidea, C. hirta, Chlorophytum acutum, Disperis renibractea, Habenaria dregeana, H. lithophila, Haemanthus humilis subsp. hirsutus, Hesperantha coccinea, Hypoxis rigidula var. pilosissima, Ledebouria sandersonii, Moraea modesta, Nerine bowdenii, Oxalis corniculata, Rhodohypoxis baurii var. platypetala, Watsonia pillansii, Xysmalobium tysonianum, Zantedeschia albomaculata subsp. albomaculata*

4.1.2. REGIONAL CONTEXT

4.1.2.1. EASTERN CAPE BIODIVERSITY CONSERVATION PLAN (ECBCP, 2019)

The Eastern Cape Biodiversity Conservation Plan (ECBCP 2019) is a regional systematic biodiversity conservation plan for the Eastern Cape, gazetted in October 2020. It aims to avoid further loss or degradation of biodiversity priority areas and ecological support areas. The plan sets certain development guidelines based on a calculated biodiversity score for different landscapes. Basically, the terrestrial areas covered by the plan are designated as Critical Biodiversity 1, 2, or 3 areas, each with specific development recommendations.

The proposed development site falls within terrestrial CBA 1 and ESA 2 in the Albany centre of plant endemism. According to the ECBCP, ~62% of the Drakensberg Foothill moist grassland in the Eastern Cape is natural, and the remaining 40% is degraded or transformed (Berliner and Desmet, 2007). This vegetation type is not a threatened vegetation type, and therefore none of it is formally conserved. Terrestrially, the project area falls under BLMC 2, these areas are near natural landscapes. The recommended land use objective for these areas is to maintain biodiversity in a near-natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be allowed. In terms of Aquatic CBAs identified by the ECBCP, the appointed aquatic specialist will include them in their assessment.

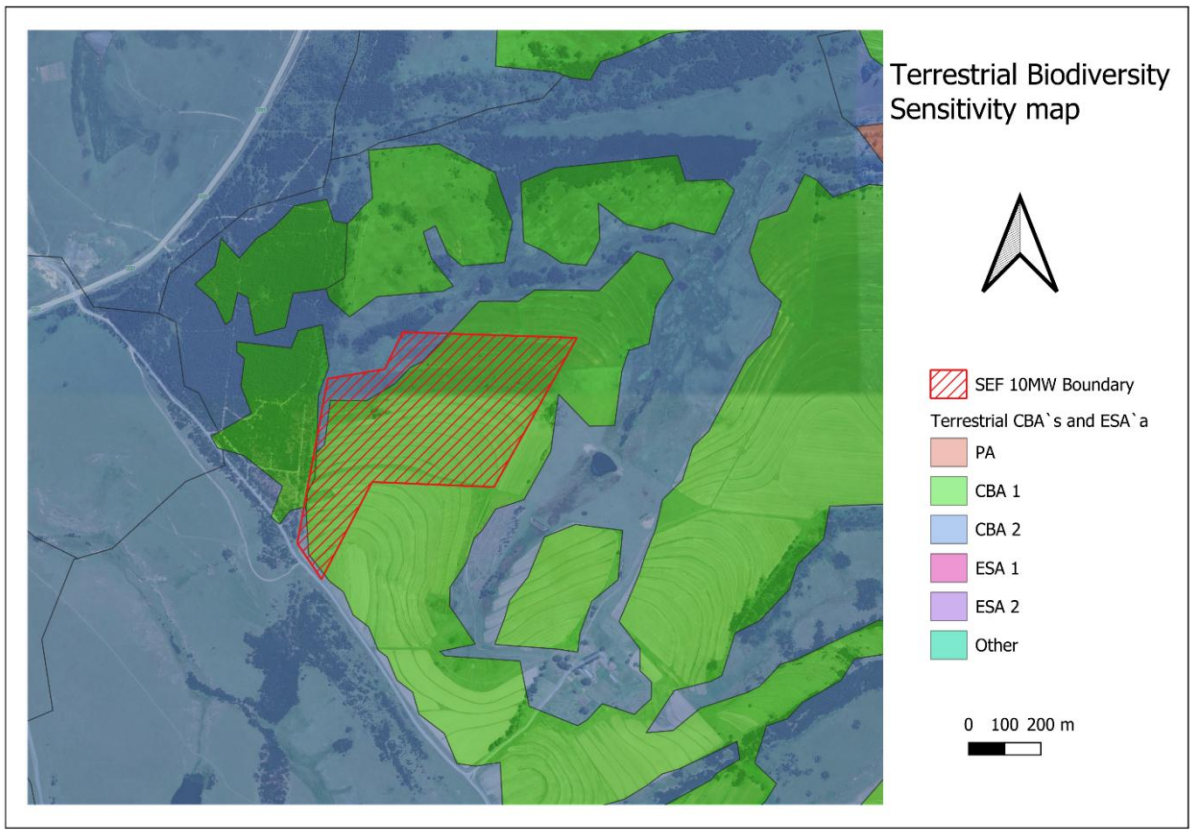


Figure 6: CBAs and ESAs within and surrounding the proposed development site.

4.1.3. LOCAL CONTEXT

The Sakhisiwe Local Municipality 2026- 2027 IDP guides biodiversity conservation targets at a local scale, which relies on the broader regional and district environmental frameworks such as the Chris Hani District SDF and the ECBCP. The Plan also highlights several environmental issues in the region, such as invasion of alien vegetation, firewood collection and soil erosion,

to mention a few. While the area doesn't have many suitable habitats for rare and endangered animal species, it falls under terrestrial CBA 1.

4.2. NATIONAL LIST OF THREATENED ECOSYSTEMS

The NEMBA (Act 10 of 2004) provides for the listing of threatened or protected ecosystems, in one of four categories: Critically Endangered, Endangered, Vulnerable or Protected. Threatened ecosystems are listed to reduce the rate of ecosystem and species extinction by preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to conserve sites of exceptionally high conservation value (SANBI, Biodiversity Geographic Information Systems (BGIS)). Importantly, any land-use change application occurring within an ecosystem listed as Critically Endangered or Endangered in terms of the Biodiversity Act will automatically require environmental authorisation. The proposed development site is in the Drakensberg Foothill Moist Grassland, which is listed as a Least threatened ecosystem type.

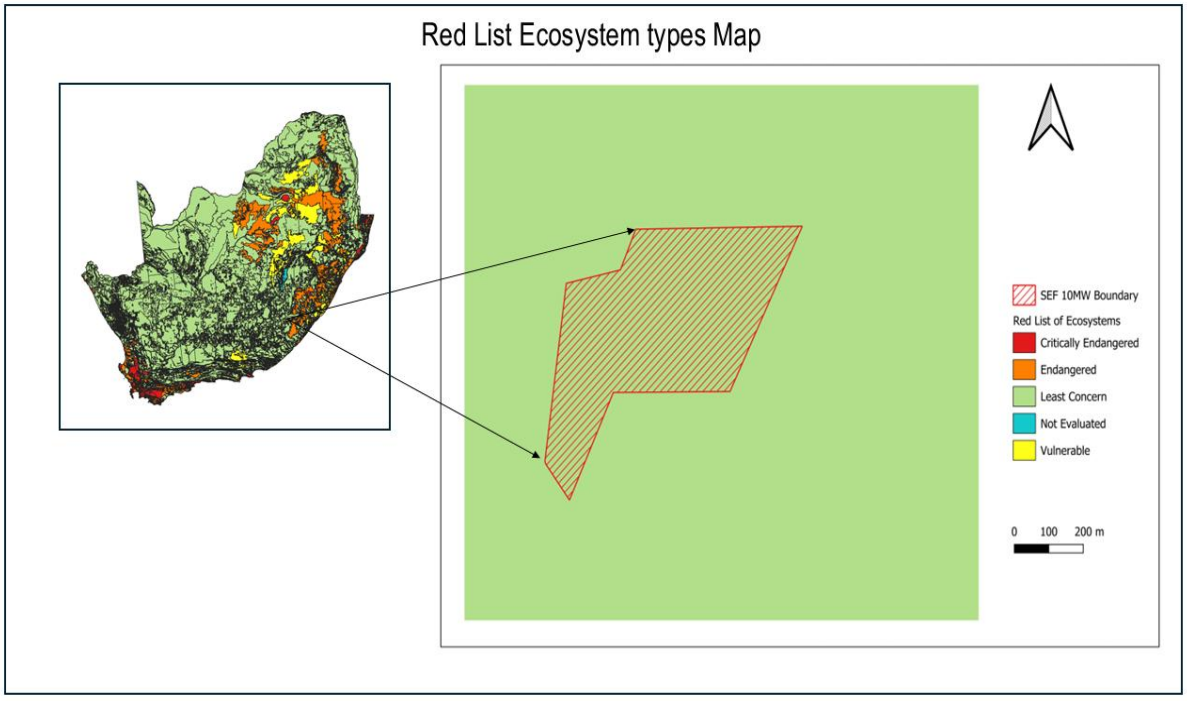


Figure 7: Map showing Red Listed ecosystem types within the proposed development footprint.

4.3. PPROTECTED AREAS

Protected areas are areas of land or sea that are protected by law and managed mainly for biodiversity conservation (NPAES, 2016). Protected areas are declared under the National Environmental Management: Protected Areas Act (Act 57 of 2003). The Protected Areas Act

provides for several categories of protected areas, including special nature reserves, national parks, nature reserves, marine protected areas and protected environments. Development is regulated within protected areas, as well as buffer areas around them.

The National Protected Area Expansion Strategy (NPAES) presents a 20-year strategy for the expansion of protected areas in South Africa, as they currently do not adequately conserve a representative portion of South Africa's biodiversity (DEA 2016). NPAES identifies priority areas where the expansion of protected areas should take place. Similar priority areas have been identified on a provisional scale, namely the Eastern Cape Protected Area Expansion Strategy (ECPAES 2010). The Drakensberg foothill Moist grassland is currently not protected, but the long-term target is to have 23% of the area protected (NPAES, 2018). The proposed development site does not occur within or near any protected area or its formal buffer zone; therefore, direct physical impacts are not expected.

4.4. STRATEGIC WATER SOURCE AREAS

Strategic Water Source Areas (SWSAs) are defined as areas of land that either:

(a) supply a disproportionate (i.e. relatively large) quantity of mean annual surface water runoff concerning their size and so are considered nationally important; or

(b) have high groundwater recharge and where the groundwater forms a nationally important resource; or

(c) areas that meet both criteria (a) and (b) (Le Maitre *et al*., 2018).

They include transboundary Water Source Areas that extend into Lesotho and Swaziland. Several river systems in the Eastern Cape, including the Gamtoos, Keiskamma, Mbashe, and Mzimvubu, are fed by upper catchments that experience disproportionately high rainfall and are considered "water factories" of South Africa (ECBCP, 2019). SWSAs are mapped at a national level and represent areas where 50% of South Africa's rain falls over less than 8% of the land area. Initiatives aimed at managing these SWSAs for enhanced downstream water quality and quantity are underway. Groundwater Strategic Areas with high rates of recharge were identified as well, and cover 9% of SA. The proposed development site falls within the Mzimvubu water management area and the Mbashe sub water management area.

4.5. NATIONAL FRESHWATER ECOSYSTEM PRIORITY AREAS

The National Freshwater Ecosystem Priority Areas (NFEPA) project is a collaborative national initiative that aims to conserve South Africa's freshwater ecosystems and promote the sustainable use of water resources. It does so by identifying Freshwater Ecosystem Priority Areas (FEPAs) and providing strategies to protect them in line with national biodiversity goals for freshwater systems. These goals are guided by the National Water Act (Act 36 of 1998), the National Environmental Management: Biodiversity Act (Act 10 of 2004), and the National Environmental Management: Protected Areas Act (Act 57 of 2003) (Nel et al., 2011).

The proposed development falls within the Mzimvubu to Keiskamma water management area, the Mbashe subwater management area and river FEPA 1. It also occurs within the 500m wetland buffer (Figure 17). NFEPAs will be included in the appointed aquatic specialist's assessment.

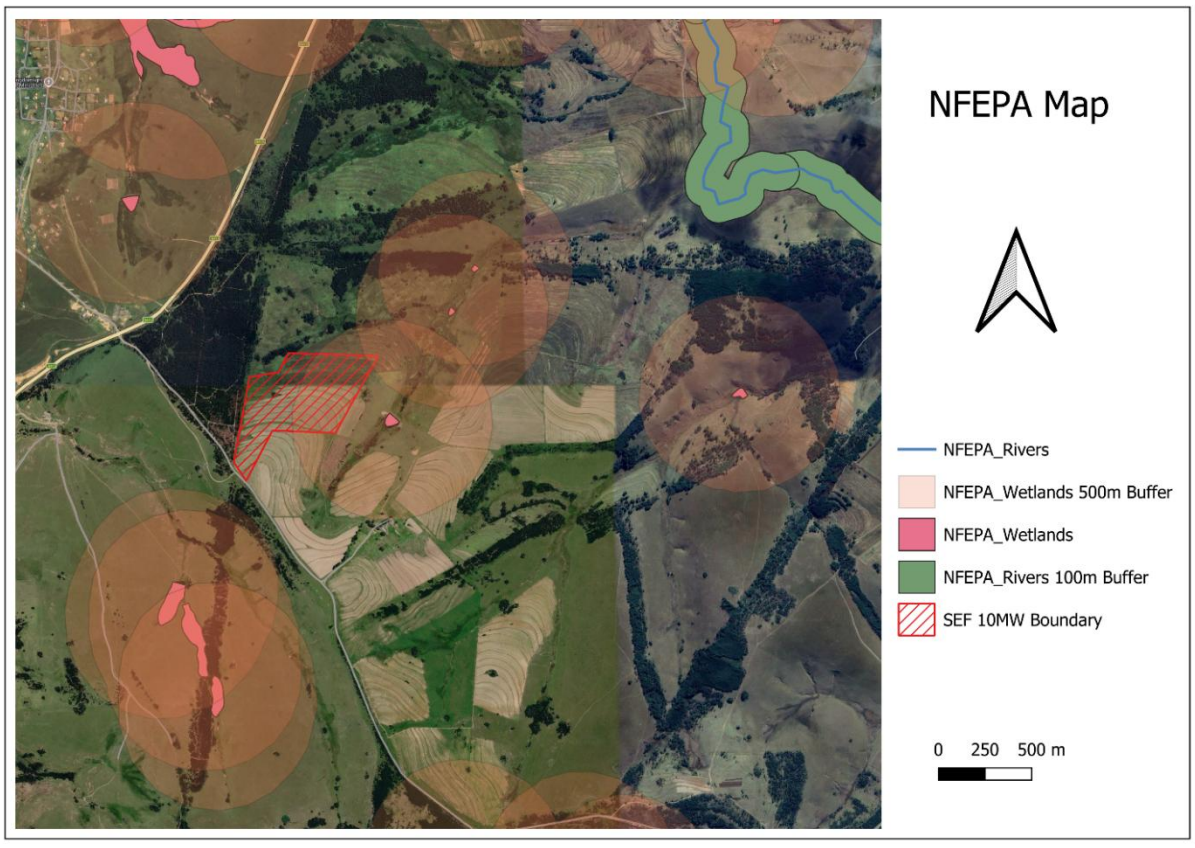


Figure 8: NFEPA around the development site.

4.6. FOREST PATCHES

Forest is protected under the National Forest Act, Act 84 of 1998. A permit is required to disturb the forest. Forest patches have been mapped at various scales in South Africa. There are no forest patches within the development footprint.

4.7. SPECIES OF CONSERVATION CONCERN

4.7.1. CONSERVATION STATUS

South Africa uses the internationally endorsed IUCN Red List Categories and Criteria in the Red List of South African plants (SANBI, 2020b). This scientific system is designed to measure species' risk of extinction. The purpose of this system is to highlight those species that are most urgently in need of conservation action.

Due to its strong focus on determining the risk of extinction, the IUCN system does not highlight species that are at low risk of extinction. Still, it may nonetheless be of high conservation importance. Because the Red List of South African plants is used widely in South African conservation practices such as systematic conservation planning or protected area expansion, we use an amended system of categories (Table 7: National Red List categories) designed to highlight those species that are at low risk of extinction but of conservation concern.

Table 7: National Red List categories

Category	Acronym	Definition
Extinct	EX	A species is Extinct when there is no reasonable doubt that the last individual has died
Extinct in the Wild	EW	A species is Extinct in the Wild when it is known to survive only in cultivation or as a naturalized population (or populations) well outside the past range
Regionally Extinct	RE	A species is Regionally Extinct when it is extinct within the region assessed (in this case, South Africa), but wild populations can still be found in areas outside the region
Critically Endangered, Possibly Extinct	CR PE	Possibly Extinct is a special tag associated with the category Critically Endangered, indicating species that are highly likely to be extinct, but the exhaustive surveys required for classifying the species as Extinct have not yet been completed.

Category	Acronym	Definition
		A small chance remains that such species may still be rediscovered
Critically Endangered	CR	A species is Critically Endangered when the best available evidence indicates that it meets at least one of the five IUCN criteria for Critically Endangered, indicating that the species is facing an extremely high risk of extinction
Endangered	EN	A species is Endangered when the best available evidence indicates that it meets at least one of the five IUCN criteria for Endangered, indicating that the species is facing a very high risk of extinction
Vulnerable	VU	A species is Vulnerable when the best available evidence indicates that it meets at least one of the five IUCN criteria for Vulnerable, indicating that the species is facing a high risk of extinction
Near Threatened	NT	A species is Near Threatened when available evidence indicates that it nearly meets any of the IUCN criteria for Vulnerable, and is therefore likely to become at risk of extinction in the near future
Critically Rare	-	A species is Critically Rare when it is known to occur at a single site, but is not exposed to any direct or plausible potential threat and does not otherwise qualify for a category of threat according to one of the five IUCN criteria
Rare	-	A species is Rare when it meets at least one of four South African criteria for rarity, but is not exposed to any direct or plausible potential threat and does not qualify for a category of threat according to one of the four IUCN criteria: • Restricted range: Extent of Occurrence (EOO) <500 km2, OR • Habitat specialist: Species is restricted to a specialized microhabitat so that it has a very small Area of Occupancy (AOO), typically smaller than 20 km2, OR • Low densities of individuals: Species always occurs as single individuals or very small subpopulations (typically fewer than 50 mature individuals) scattered over a wide area, OR • Small global population: Less than 10 000 mature individuals

Category	Acronym	Definition
Least Concern	LC	A species is Least Concern when it has been evaluated against the IUCN criteria and does not qualify for any of the above categories. Species classified as Least Concern are considered at low risk of extinction. Widespread and abundant species are typically classified in this category
Data Deficient - Insufficient Information	DDD	A species is DDD when there is inadequate information to make an assessment of its risk of extinction, but the species is well defined. Listing of species in this category indicates that more information is required and that future research could show that a threatened classification is appropriate.
Data Deficient - Taxonomically Problematic	DDT	A species is DDT when taxonomic problems hinder the distribution range and habitat from being well defined, so that an assessment of risk of extinction is not possible.
Not Evaluated	NE	A species is Not Evaluated when it has not been evaluated against the criteria. The national Red List of South African plants is a comprehensive assessment of all South African indigenous plants, and therefore all species are assessed and given a national Red List status. However, some species included in Plants of southern Africa: an online checklist are species that do not qualify for national listing because they are naturalized exotics, hybrids (natural or cultivated), or synonyms. These species are given the status Not Evaluated and the reasons why they have not been assessed are included in the assessment justification.

Threatened species are species that are facing a high risk of extinction. Any species classified in the IUCN categories Critically Endangered, Endangered or Vulnerable is a threatened species (Figure 9: Threatened species categories (SANBI, 2020a).). Species of conservation concern (SCC) are species that have a high conservation importance in terms of preserving South Africa's high floristic diversity and include not only threatened species, but also those classified in the categories Extinct in the Wild (EW), Regionally Extinct (RE), Near Threatened (NT), Critically Rare, Rare, Declining and Data Deficient - Insufficient Information (DDD). All South African plant species have been rated, according to their extinction threat, using criteria adapted by SANBI.

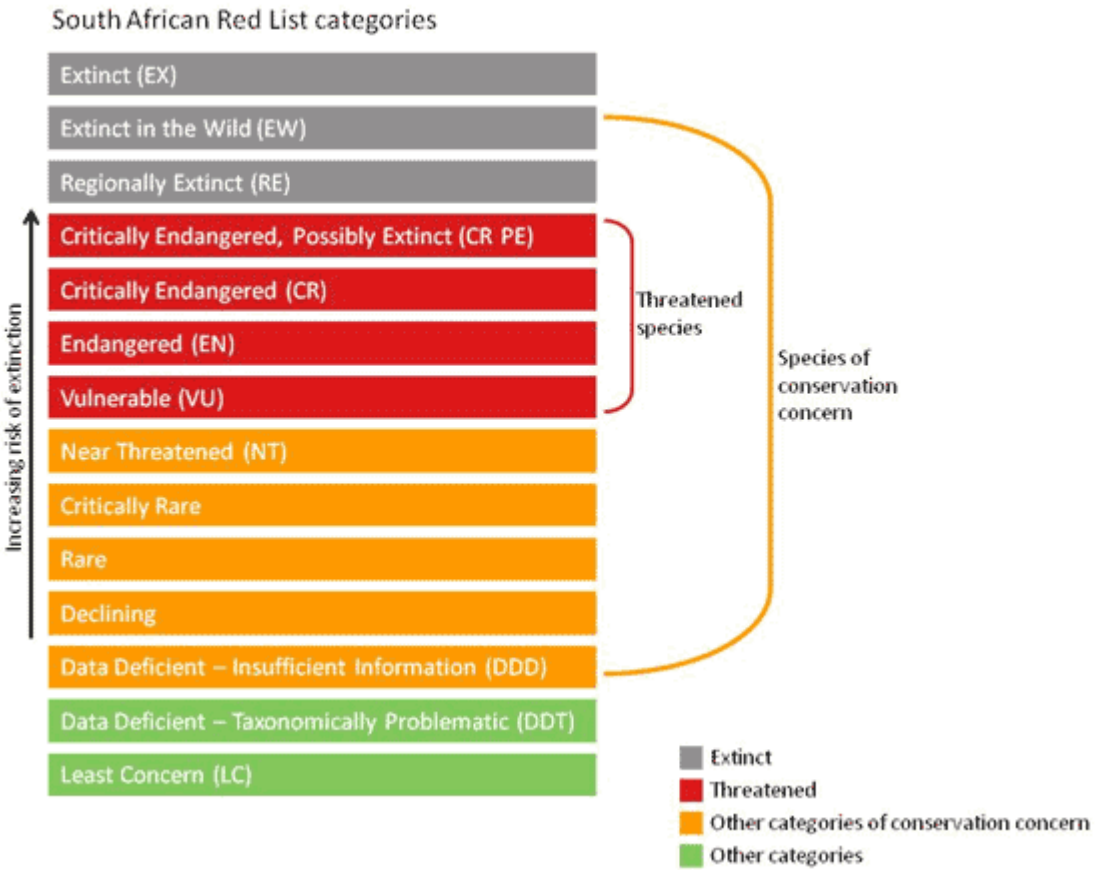


Figure 9: **Threatened species categories (SANBI, 2020a).**

4.7.2. PLANT SPECIES

Several data sources exist to identify the location of SCCs. The Threatened Species Programme (TSP) has a database of locations of SCCs. This is based on herbarium records, as well as recent searches by experts, and volunteer programmes such as the Custodians of Rare and Endangered Wildflowers (CREW). iNaturalist, a citizen science electronic platform for posting pictures of species to be identified by experts, is also a source.

The Probability of Occurrence (PoO) is rated according to the availability of suitable habitat (Table 8), and whether the species has been previously recorded in the general vicinity of the assessed area. Data for habitat requirements was based on the species descriptions of the Red List (SANBI, 2020b). The Probability of Occurrence was rated as:

Table 8: Criteria for Determining the Probability of Species Occurrence.

Probability of Occurrence	Description
Low	No suitable habitat or confirmed records of the species occur within the proposed area of influence (PAOI), and targeted searches for easily identifiable species yielded no observations.
Medium	Unclear/unknown habitat requirements are but species recorded within 20 kms of PAOI; or degraded habitat occurs within PAOI; or habitat occurs within PAOI but no identification records within the vicinity of the PAOI
High	Suitable habitat occurs within the PAOI, and the species has been recorded nearby.
Confirmed	Species was identified within the PAOI

The web-based Screening Tool identified one plant Species of Conservation Concern (SCCs) with a medium sensitivity rating, indicating that the site may contain modelled habitat for threatened species. However, according to the NEWPOSA, there are no confirmed (recorded) or predicted (modelled) SCC occurrences within the proposed development footprint, beyond those flagged by the Screening Tool. This suggests that, apart from the Screening Tool predictions, there is no additional evidence of SCCs expected or known to occur in the area.

4.8. PREDICTED AREA OF IMPACT

The Predicted Area of Influence (PAOI) is defined according to important ecosystem processes and functions that may be plausibly affected by the proposed development and its associated activities.

5. ECOLOGICAL ASSESSMENT

5.1. VEGETATION COMMUNITY COMPOSITION

The proposed SEF is mostly in an abandoned maize field and the remaining portions on secondary grassland and within an Eucalyptus plantation area in a farm located near Cala, south of the R410. The surrounding area is agricultural land and secondary grassland. Domestic animals such as sheep and cows were seen at the site. A flock of Black-Headed Heron was also seen in the proposed development footprint. The vegetation type is Drakensberg foothill moist grassland, which is dominated by grasses and a few forbs. Common plant species identified in the area were: *Themeda triandra*, *Juncus* sp, *Aristida* sp, *Helichrysum nudifolium*, *Heteropogon contortus, Hypoxis* sp, *Eragrostis* sp and *Bidens pilosa* bare soil.



















5.2. SPECIES OF CONSERVATION CONCERN

After uploading the project area onto the National Web-Based Environmental Screening Tool, a list of potentially occurring and confirmed Species of Conservation Concern (SCC) was generated. In addition, the NEWPOSA database was consulted, which indicated that no SCC are expected to occur within the project area. During the site visit, no plant SCC were recorded; however, the survey was conducted outside the peak flowering season. One SCC has been flagged by the Screening Tool as potentially occurring in the area (Table 10). Therefore, it is recommended that a follow-up botanical survey be conducted during the appropriate flowering period to confirm the presence or absence of these species before construction.

FAMILY	SPECIES NAME	THREATENED STATUS	SCREENING REPORT PoO	HABITAT REQUIREMENTS	PROBABILITY OF OCCURRENCE	REASON
AMARYLLIDACEAE	*Sensitive species 1144*	Vulnerable	Medium	It occupies high-altitude grasslands, wedged between rocks	Very low	Habitat is not present on site and species not identified

5.3. THREATENED OR PROTECTED SPECIES

The following legislation was consulted to determine whether a species is protected by Legislation:

- National Environmental Management: Biodiversity Act 10 of 2004 – Regulations pertaining to Threatened or Protected Terrestrial Species and Freshwater Species (GNR 3009 of 2023);
- Nature and Environmental Conservation Ordinance of 1974; and
- National Forests Act No. 84 of 1998 – List of Protected Trees (published 8 September 2017).

The plant species recorded on site were: *Themeda triandra*, *Juncus* sp., *Aristida* sp., *Helichrysum nudifolium*, *Heteropogon contortus, Hypoxis* sp.*, Eragrostis* sp., and *Bidens pilosa*. All of these are classified as Least Concern according to the SANBI Red List.

5.4. ALIEN INVASIVE PLANTS

A landowner must remove or manage all Invasive Alien Species (IAS) on their property. AIS are defined by the National Environmental Management: Biodiversity Act, Act 10 of 2004: Alien and Invasive Species Lists of 2020. Three alien species were identified on site, and both are listed as Alien Invasive Species (AIS). A list of AIS on-site is included in Table 9. All Category 1a and 1b species must be controlled and removed from the property. A permit is required to keep Category 2 species. Category 3 species may remain but must be controlled, and no further planting is allowed.







Table 9: List of invasive alien species (IAS) on site.

Species	Category
Solanum viarum Dunal.	Not listed
Datura stramonium L.	1b
Acacia mearnsii De Wild.	2

5.5. ECOLOGICAL SENSITIVITY AND SITE ECOLOGICAL IMPORTANCE

The sensitivity map was derived by identifying the conservation and biodiversity priorities of the site and ground-truthing them during a site visit. The desktop assessment considered the following conservation tools and plans:

- Online Screening Tool Report;
- Provincial Biodiversity Plans (CBAs, ESAs, PAs); and
- NEMBA Threatened Ecosystems.

According to a desktop assessment of the site's ecological sensitivity, using datasets identified in the Terrestrial Biodiversity Impact Assessment Protocols (2020), and the site visit, the proposed development at the site would not be considered to be sensitive, because the proposed development occurs within the Drakensberg Foothill Moist grassland, which is a least concern vegetation type, and there are no recorded plant SCC's neither are they expected within the proposed footprint. However, the site occurs in terrestrial CBA 1 and ESA 1 and 2; and within the Mzimvubu to Keiskamma water management area, as well as the Mbashe subwater management area and river FEPA 1. Two wetlands also occur adjacent to the proposed development area, one which is about 200m away and the other is ~ 650m; for this reason, the mapped wetland buffer extends into the proposed development footprint. There were also a notable number of birds observed in the area. These features make the ecological sensitivity of the site high, since the area maintains hydrological and ecological processes.

The proposed SEF is on a farm, where most of the proposed development footprint lies in an abandoned maize field. The rest of the development footprint is in secondary grassland, which is mainly used for Eucalyptus plantation towards the north, and the remaining vegetation is secondary grassland. The area outside of the footprint, to the south, is disturbed because there's a dirt road and several Black wattle individuals. The vegetation to the west of the footprint is characterised by dense woody cover. The site sensitivity of the area is considered low because the Drakensberg foothill moist grassland vegetation type is a least concern vegetation type, and it is largely transformed by the maize field and did not contain any SCCs (and none are expected); and it does not have proper habitat connectivity.

Table 10: Evaluation of SEI of vegetation communities and other habitats in the PAOI for the proposed 10MWAC Grootfontein agrovoltaic solar energy facility per SANBI (2020). (BI = biodiversity importance, RR = receptor resilience).

Infrastructure	Area (ha)	Description	SEI
Proposed SEF	25.7	BI = CI + FI CI = Very low because there are no confirmed or expected populations of SCC, and the occurrence of range-restricted species is highly unlikely. Furthermore, the footprint contains no remaining natural habitat, because it is largely situated within an abandoned maize field. FI= Very low, because the footprint is an abandoned maize field and has no intact natural grassland habitat remaining and there is no meaningful habitat connectivity and the area has major past disturbance (e.g. ploughing/cultivation). Furthermore, there is very little rehabilitation potential because of the	SEI = BI + RR SEI= Very Low + Very Low = **Low**

Infrastructure	Area (ha)	Description	SEI
		changed soil properties and loss of natural seedbank. BI = Very Low + Very Low = Very Low	
Total area	**25.7**		

6. IMPACT ASSESSMENT

6.1. POTENTIAL IMPACTS

The largest potential impact of the proposed development is the loss of vegetation and habitat transformation. The potential impact will mostly be limited to the footprint of the SEF. Recommendations are provided below to mitigate and/or minimise the impact of these issues in sensitive areas mapped within the development footprint.

6.1.1. CONSTRUCTION PHASE IMPACTS

6.1.1.1. DIRECT IMPACTS

i. Loss of vegetation and habitat transformation

The proposed development will result in the loss of portions of the Drakensberg Foothill moist grassland, particularly in the sections of the SEF that occupy the secondary grassland. Construction activities will also lead to topsoil removal and compaction, with associated risks of altered surface hydrology, soil disturbance, and increased erosion. Disturbance from noise and vibration is expected to affect both wildlife and domestic animals on the farm.

Table 11: Potential impacts of the construction phase - vegetation and habitat transformation.

Direct loss of vegetation and habitat transformation				
	PHASE		CONSTRUCTION	
	TYPE		NEGATIVE, DIRECT, CUMULATIVE	
	SIGNIFICANCE		**WITH MITIGATION**	
EXTENT	1	Medium (52)	1	Medium (44)

DURATION	4		4	
MAGNITUDE	8		6	
PROBABILITY	4		4	
Irreplaceable Loss	The resource will be lost			
Reversibility	Irreversible			
Impact Significance	Medium			
MITIGATION:	1. Minimise natural vegetation clearance: Limit the footprint of disturbance by maximising the use of existing tracks, roads, and infrastructure corridors wherever possible. 2. Environmental supervision: Appoint a competent Environmental Control Officer (ECO) for the construction phase to ensure all recommendations in this report are implemented. 3. Restrict access: Limit all construction and maintenance access to demarcated areas to prevent disturbance to vegetation outside the development footprint. 4. Protect natural resources: Prohibit collection of plants, wood, or other natural resources outside the approved development footprint. 5. Laydown areas: Restrict laydown, storage, and temporary work areas to sites of low ecological sensitivity to reduce unnecessary habitat loss. 6. Selective clearing: Only clear vegetation that is essential for construction, such as for pipelines and avoid unnecessary widening of access routes, laydown areas, material storage areas and construction camps. 7. Topsoil management: Remove and stockpile topsoil carefully during construction for use in the rehabilitation of disturbed areas. 8. Rehabilitation timing: Undertake rehabilitation immediately after construction activities cease in a given area to reduce erosion and promote ecosystem recovery. 9. Rehabilitation methods: Allow mostly passive regeneration of vegetation, supplemented initially with indigenous grass mixes to stabilise soils and accelerate recovery.			

Only one plant SCC was flagged by the Screening Tool for the assessment area, and no plant SCCs were recorded during the site visit. Based on the observed habitat condition and field and desktop assessment, no SCCs are expected to occur within the proposed development footprints. Consequently, no direct loss of plant SCCs is expected as a result of the proposed development.

ii. Loss of Ecosystem Function and Connectivity

While the proposed development footprint is already transformed (abandoned maize field), clearing and preparing the area won't remove intact grassland. But it will permanently prevent natural vegetation recovery of that land back into a functioning grassland.

Table 12: Potential impact of loss of ecosystem functioning.

Loss of Ecosystem function and connectivity				
	PHASE		CONSTRUCTION	
	TYPE		NEGATIVE, DIRECT	
	SIGNIFICANCE		**WITH MITIGATION**	
EXTENT	2	High (56)	1	Medium (44)
DURATION	4		4	
INTENSITY	8		6	
PROBABILITY	4		4	
Irreplaceable Loss	Resource will be permanently lost			
Reversibility	irreversible			
Mitigation Potential	Low			
MITIGATION:	1. Minimise natural vegetation clearance as far as possible by: minimising the development footprint; avoiding unnecessary clearing or disturbance of surrounding grassland; and avoiding unnecessary widening of the road ; 2. Secondary and Tertiary PAOI are no-go areas, and no development activities are allowed.			

iii. Disturbance of the surface resulting in increased risk of AIPs

Clearing for the construction phase of the project will result in soil disturbance and reduced cover of indigenous vegetation, greatly increasing the chance of the establishment of alien invasive plants (Table 10). Several species, including *Solanum viarum, Datura stramonium*, and *Acacia mearnsii,* are likely to invade the disturbed areas.

Table 13: Potential risk of spread and invasion of AIPs

IMPACT	**Natural vegetation is negatively affected by the increased risk of invasion by AIPs due to the construction of the proposed development**		
NATURE	NEGATIVE	TYPE	DIRECT, CUMULATIVE

PHASE		SIGNIFICANCE		WITH MITIGATION	
Construction	EXTENT	2	Medium (48)	2	Insignificant (8)
	DURATION	2		1	
	INTENSITY	8		1	
	PROBABILITY	4		2	
	Irreplaceable Loss	Moderate loss			
	Reversibility	High reversibility			
	Mitigation Potential	High			
	MITIGATION:	1. Monitor alien invasive plant species during construction and implement routine removal of the species 2. Where required, rehabilitate and revegetate areas as soon as possible using indigenous plant species			

6.1.2. OPERATIONAL PHASE IMPACTS

6.1.2.1. DIRECT IMPACTS

i. Direct Increase in Anthropogenic Disturbance

The operation of the development will result in increased anthropogenic influences on the surrounding natural vegetation. These impacts may manifest as edge effects, including increased disturbance, noise, littering, and plant collection, which could lead to further loss or disruption of species and ecosystem processes on site. Other disruptive activities such as dumping, clearing of natural vegetation, overgrazing, and the creation of uncontrolled footpaths may also increase the risk of invasion by Invasive Alien Plants.

Table 14: Potential risk of increased anthropogenic disturbances

IMPACT	**Direct Increase in Anthropogenic Disturbance during operation of the developed area**				
NATURE	NEGATIVE		TYPE	DIRECT, CUMULATVE	
PHASE		SIGNIFICANCE		WITH MITIGATION	
Operation	EXTENT	2	Low (30)	2	Low (20)
	DURATION	2		1	
	INTENSITY	6		2	
	PROBABILITY	3		2	
	Irreplaceable Loss	Moderate loss			
	Reversibility	High reversibility			
	Mitigation Potential	High			

	MITIGATION:	1. Implement the Open Space Maintenance Plan 2. Limit the use of pesticides and herbicides during the operation phase, particularly with the control of AIS; 3. Access should be limited to prevent further disturbance to the vegetation outside of the development footprint; 4. No fires should be allowed on site; 5. No plant or wood collection should be allowed outside of the proposed development footprint;

6.1.3. CUMULATIVE IMPACTS

Even though the proposed development footprint itself is already transformed and mostly disconnected from surrounding grassland, cumulative impacts may arise through reinforcement of existing pressures. Alien invasive species (black wattle), which is already a problem in the area, may increase due to soil disturbance. Woody encroachment may expand due to fire suppression. These activities interact cumulatively to reduce grassland resilience, fragment ecological linkages, and reduce the potential for natural recovery of the ecosystem. This is particularly true in ecosystems that need fire, as it is not allowed close to solar energy facilities for safety reasons. Cumulative impacts can be mitigated by applying an alien clearing programme.

Table 15: Potential impact of cumulative loss of natural vegetation.

IMPACT	**Cumulative increase in alien invasion and permanent loss of rehabilitation potential**					
NATURE	NEGATIVE		TYPE	DIRECT, CUMULATVE		
PHASE		SIGNIFICANCE		WITH MITIGATION		
Construction Operation	EXTENT	2	Medium (33)	2	Low (18)	
	DURATION	3		3		
	INTENSITY	6		4		
	PROBABILITY	3		3		
	Irreplaceable Loss	Moderate loss				
	Reversibility	Low reversibility				
	Mitigation Potential	Moderate				

	MITIGATION:	1. Prevent development from occurring within the identified No Go Areas (i.e surrounding vegetation).

6.1.4. NO-GO OPTION

Under the No-Go Option, the proposed solar energy facility and associated infrastructure would not be developed, and the footprint would remain in its current degraded condition as abandoned cropland. In the absence of the proposed development, the site would continue to support limited ecological use, with opportunistic faunal activity (such as birds) observed, but without functioning grassland processes. Existing pressures, particularly alien invasive black wattle and woody encroachment next to the footprint, are likely to persist under the current land use.

7. IMPACT STATEMENT

According to the Screening Report, the Terrestrial Biodiversity theme for the Solar Energy facility is classified as VERY HIGH but was revised to LOW after the Site Sensitivity Verification (SSV), due to the current ecological condition of the proposed development footprint. The proposed Solar Energy Facility is situated mainly within an abandoned maize field. The footprint is highly transformed and does not represent intact natural grassland habitat. No terrestrial plant SCCs were recorded during the site assessment, and no suitable habitat for the SCC identified by the Screening Tool was observed within the proposed development footprint.

The ecological impacts of the proposed development have been assessed and considered to be acceptable, provided that the construction is limited to the approved development footprint, and appropriate erosion and stormwater management to prevent water sedimentation on the nearby watercourses.

8. CONCLUSION

The construction of the proposed SEF and associated infrastructure will result in the direct loss of portions of secondary grassland associated with the Drakensberg foothill Moist grassland. Endangered Mthatha Moist Grassland vegetation type. This vegetation type is classified as Least Concern; however, due to the project site being located mainly in an abandoned maize cropland, the site sensitivity is Low.

The impacts of the development can be managed if construction is strictly limited to the approved footprint, with no further loss of surrounding grassland. Key mitigation requirements include preventing soil erosion and sedimentation into nearby wetlands and dams, and implementing effective control of alien invasive species, particularly black wattle.

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10. APPENDICES

APPENDIX 1. LIST OF TERRESTRIAL EXPECTED AND CONFIRMED PLANT SPECIES ON THE SITE