DONAWAY
ENVIRONMENTAL

VISUAL IMPACT ASSESSMENT:
Scoping Report

Benya Solar PV Facility & Associated Grid Infrastructure

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PROJECT DETAILS

Project title:	**Visual Impact Assessment –** Benya Solar PV Facility & Associated Grid Infrastructure.
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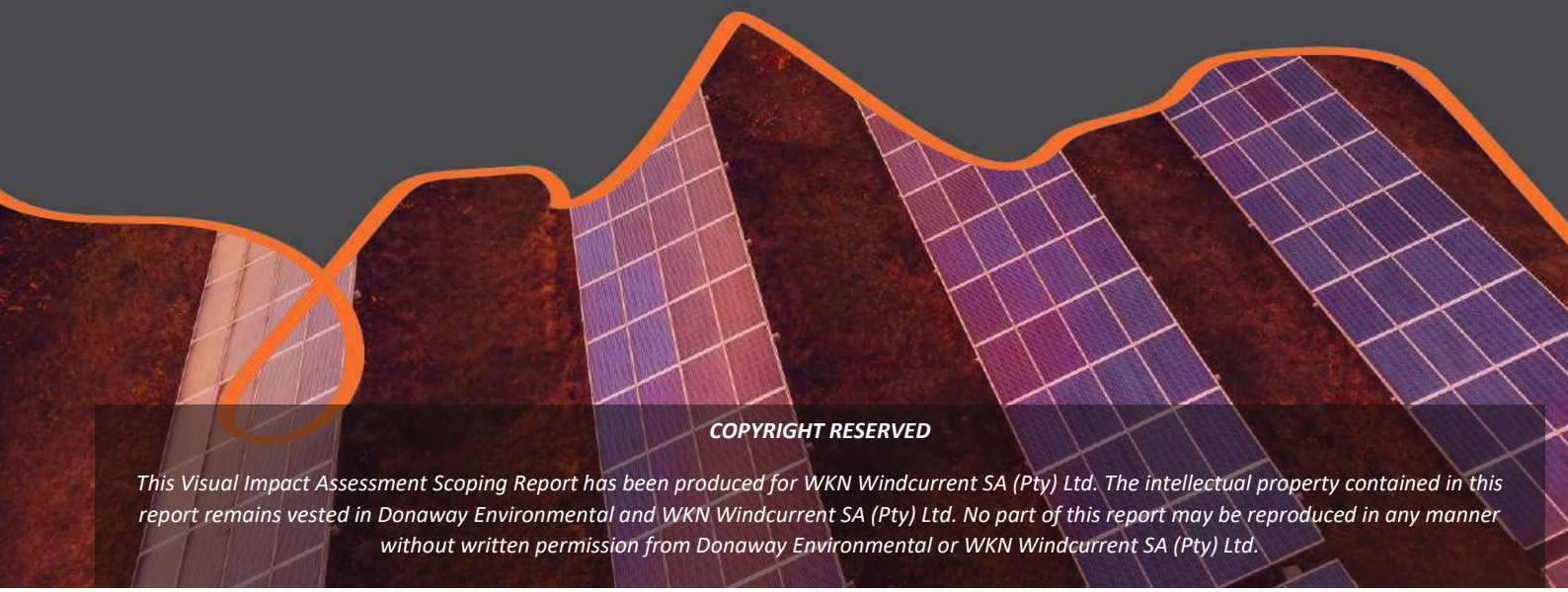

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EXECUTIVE SUMMARY

PROJECT BACKGROUND

The Applicant, WKN Windcurrent SA (Pty) Ltd, proposes the construction of a photovoltaic (PV) solar energy facility, known as the Benya Solar PV Facility, including associated grid connection infrastructure, located on the Remaining Extent of Farm Portugal No. 198 and Farm Napoleon No. 216, approximately 72 km north west of the town of Northam in the Limpopo Province.

The solar PV facility will comprise several arrays of PV panels and associated infrastructure (including associated grid connection infrastructure) and will have a contracted capacity of up to 500 MW.

The development area is situated within the Thabazimbi Local Municipality within the Waterberg District Municipality. The site is accessible via the existing D113 or D1629 district roads.

The proposed Benya PV Facility will cover approximately 863 ha (to be finalised during the EIA phase of the environmental process after taking into account environmental sensitivities identified during the scoping phase) and will include the following key infrastructure:

- PV modules and mounting structures, up to 8m in height.
- Inverters and transformers.
- Operation and Maintenance buildings (up to 6m in height), including a gate house, ablution facilities, security building, control centre, offices, warehouses and workshops for storage and maintenance.
    - An area of up to 10 ha will be occupied by buildings.
- Temporary and permanent laydown areas, situated within the assessed footprint.
    - Temporary laydown areas will occupy up to 10 ha, while 1 ha will remain in place for the permanent laydown area, as required for facility operation.
- Site and internal access roads (between 6m and 8m wide). Existing internal roads will be used as far as possible.
- Perimeter fencing up to 6m in height.
- Battery Energy Storage System (BESS), up to 4 ha in extent. The infrastructure will be located within the assessed development footprint.
- Associated Electrical Grid Connection Infrastructure, including:
    - 33kV cabling between the project components and the on-site facility substation.
    - A 33kV/132kV Independent Power Producer (IPP) Step-up Substation, up to 1.5ha in extent.
    - A 132kV Eskom Switching Substation, up to 1.5ha in extent.
    - A 132kV overhead powerline connecting the on-site switching substation to one of the nearby 132kV Eskom overhead powerlines, via a Loop-In-Loop Out (LILO) connection. A 300m corridor is being proposed to allow flexibility while routing powerline.

KEY FINDINGS

According to **Tables 2.2 to 2.4,** used as guidelines for this study, from Oberholzer (2005), the project's impact was initially predicted to be high. However, considering the findings outlined below, along with the implementation of mitigation measures, this impact could be reduced to a medium.

The landscape within the 10km Project Area of Influence (PAOI) is shaped by a combination of agricultural and bushveld vegetation, with notable features such as the Marico River and nearby kopjes and ridges contributing to the overall sense of place. The Zone of Theoretical Visibility (ZTV) analysis indicates high visibility in the immediate vicinity, with visibility decreasing exponentially beyond the 1km radius. The following key findings summarise the key aspects of the landscape and scoping phase assessment:

1. **Diverse Landforms**: The project area is characterised by a diverse range of landforms, mainly including vast open plain and ridges. This diverse landscape contributes to the region's unique visual appeal.
2. **Limited Industrial and Urban Development**: Within the 10km PAOI, there is no significant industrial development. The main urban development, such as the town of Northam, falls outside this PAOI. This indicates a relatively pristine environment within the project vicinity.
3. **Sparse Sports, but more Recreational Development**: The area has limited sports and recreational developments, with small-scale activities primarily located in Northam although outside the 10km PAOI. Formal and informal hunting are noted as recreational activities in the region.
4. **Predominance of Agricultural Development**: Agriculture is the predominant land use in the region. This indicates a reliance on rural economic activities, with minimal urban encroachment observed within the project area.
5. **Basic Service Infrastructure**: Service development is mainly focused on basic infrastructure such as roads and power, primarily serving the agricultural and rural communities in the surrounding area.
6. **Limited Tourism Development:** Tourism development within the 10km PAOI remains limited, although there are a few game farms and nature reserves such as Doornlaagte Private Nature Reserve and Weltevrede Private Nature Reserve in the area; however, the area is more focused on agriculture. Tourists may use the surrounding roads leading to their destination.
7. **High Visual Sensitivity**: The assessment of visual sensitivity indicates a high sensitivity, primarily due to the visual qualities of a Bushveld landscape.
8. **High Receptor Sensitivity**: Sensitive visual receptors in the area mainly include farmers and their employees, lodging facilities and game farms, with transient visibility for travellers on the district roads.
9. **High Visual Absorption Capacity (VAC)**: The surrounding area boasts a high VAC due to topographical elevation changes and vegetation. This suggests a capacity to absorb visual changes without significant disruption to the overall visual character.

10. **High Visual Intrusion**: The visual landscape surrounding the proposed development is characterised by serene topographical and agricultural features, with general agriculture and game farming as the primary economic activity. The absence of significant industrial developments within the 10km PAOI further emphasises the area's visual integrity.

11. **Site Sensitivity Verification**: The screening tool flagged the area as “Very High” sensitivity due to features such as proximity to rivers, wetlands, nature reserves, steep slopes, and mountains & ridges. Upon specialist review:
    - **Three features** (slope, proximity to 3–5 km of a reserve, and steep slopes) were **confirmed**.
    - **Four features** (proximity to water bodies, nature reserves, wetlands, and ridges) were **disputed** due to low visual appeal or minimal tourism/recreational value.

    The disputes are based on the actual on-site features (e.g., minor creeks rather than rivers) and effective natural screening. Most features required a **Full Assessment**, while one warranted a **Compliance Statement** only.

The need for a visual impact assessment

A Visual Impact Assessment (VIA) is essential for this project due to the region's unique and diverse landscape, which mainly features plains and ridges. This diverse topography plays a crucial role in shaping the area's visual appeal. Additionally, the lack of significant industrial and urban development within the 10km Project Area of Interest (PAOI) highlights the pristine nature of the environment, with only minimal infrastructure present. The region is primarily focused on agriculture and game farming, indicating a rural landscape with minimal urban encroachment. Given the area's high visual sensitivity and high visual absorption capacity (VAC), the topography and vegetation have a natural ability to absorb changes, yet high visual receptor sensitivity exists, particularly among local farmers, game farms and lodging facilities. Therefore, a detailed VIA is necessary to assess the potential visual impacts of the proposed development and ensure that any changes to the landscape will not significantly disrupt its visual integrity or impact sensitive receptors.

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LIST OF ACRONYMS

AMSL	Above Mean Sea Level
AGL	Above Ground Level
BAR	Basic Assessment Report
BESS	Battery Energy Storage System
CLO	Community Liaison Officer
DFFE	Department Forestry, Fisheries and the Environment
DMRE	Department of Mineral Resources and Energy
DM	District Municipality
EA	Environmental Authorisation
ECA	Environment Conservation Act (No. 73 of 1989)
ECO	Environmental Control Officer
EGI	Electrical Grid Infrastructure
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EP	Equator Principles
EPC	Engineering, Procurement and Construction
HA	Hectares
I&APs	Interested and Affected Parties
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
GIS	Geographic Information System
KM	Kilometre
LED	Local Economic Development
LM	Local Municipality
MTS	Main Transmission Substation
MW	Megawatt
NEMA	National Environmental Management Act (No. 107 of 1998)

O&M	Operations and Maintenance
OHS	Occupational Health and Safety
PV	Photovoltaic
REDZ	Renewable Energy Development Zone
SEF	Solar Energy Facility
SSV	Site Sensitivity Verification
ToR	Terms of Reference
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment
ZTV	Zone of Theoretical Visibility

1. INTRODUCTION

1.1. Project Background

The Applicant, WKN Windcurrent SA (Pty) Ltd, is proposing the construction of a photovoltaic (PV) solar energy facility, known as the Benya Solar PV Facility, including associated grid connection infrastructure, located on the Remaining Extent of Farm Portugal No. 198 and Farm Napoleon No. 216, approximately 72km north west of the town of Northam in the Limpopo Province.

The solar PV facility will comprise several arrays of PV panels and associated infrastructure (including associated grid connection infrastructure) and will have a contracted capacity of up to 500 MW.

The development area is situated within the Thabazimbi Local Municipality within the Waterberg District Municipality. The site is accessible via the existing D113 or D1629 district roads.

The proposed Benya Solar PV Facility will cover approximately 863 ha (to be finalised during the EIA phase of the environmental process after taking into account environmental sensitivities identified during the scoping phase) and will include the following key infrastructure:

- PV modules and mounting structures, up to 8m in height.
- Inverters and transformers.
- Operation and Maintenance buildings (up to 6m in height), including a gate house, ablution facilities, security building, control centre, offices, warehouses and workshops for storage and maintenance.
    - An area of up to 10 ha will be occupied by buildings.
- Temporary and permanent laydown areas, situated within the assessed footprint.
    - Temporary laydown areas will occupy up to 10 ha, while 1 ha will remain in place for the permanent laydown area, as required for facility operation.
- Site and internal access roads (between 6m and 8m wide). Exiting internal roads will be used as far as possible.
- Perimeter fencing up to 6m in height.
- Battery Energy Storage System (BESS). The infrastructure will be located within the assessed development footprint.
- Associated Electrical Grid Connection Infrastructure, including:
    - 33kV cabling between the project components and the on-site facility substation.
    - A 33kV/132kV Independent Power Producer (IPP) Step-up Substation, up to 1.5ha in extent.
    - A 132kV Eskom Switching Substation, up to 1.5 ha in extent.
    - A 132kV overhead powerline connecting the on-site switching substation to one of the nearby 132kV Eskom overhead powerlines, via a Loop In – Loop Out (LILO) connection. A 300m corridor is being proposed to allow flexibility while routing powerline.

The proposed project is intended to form part of the Department of Mineral Resources and Energy (DMRE) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme, but the option also exists for other tenders, wheeling or to supply privately, without a generation license from

NERSA. The REIPPP Programme aims to secure new generation capacity from renewable energy sources, while simultaneously diversifying South Africa's electricity mix. In 2022 a Climate Change Bill was introduced that seeks to enable the alignment of policies that influence South Africa's climate change response, to ensure South Africa's transition to a low-carbon economy and climate-resilient economy, and to enhance the country's ability and capacity over time to reduce greenhouse gas emissions. The Climate Change Bill was then announced on October 24, 2023. Furthermore, as part of the 2023 State of the Nation Address, the Energy Action Plans' one year progress report was reflected. Objective 3 in the Energy Action Plan still emphasises fast-tracking the procurement of new generation capacity from renewables, gas and battery storage. South Africa is also responsible for fulfilling their commitments under the United Nations Framework Convention on Climate Change and its Paris Agreement which include the reduction of greenhouse gas emissions. Eskom, our largest greenhouse gas emitter, has committed in principle to net zero emission by 2050 and to increase its renewable capacity.

The proposed development of the Benya Solar PV facility requires Environmental Authorisation (EA) from the National Department of Forestry, Fisheries and the Environment (DFFE) in accordance with the National Environmental Management Act (No. 107 of 1998) (NEMA), and the 2021 Environmental Impact Assessment (EIA) Regulations.

The Visual Impact Assessment (VIA) Scoping Report has been prepared by Donaway Environmental on behalf of WKN Windcurrent SA (Pty) Ltd and is intended to provide input into the Environmental Scoping Report to be submitted to DFFE.

1.2. Project Location

The following approximate distances from certain key points were identified:

- 72km north-west of the town of Northam.
- 22km west of the small town of Dwaalboom
- D133 and D1629 district roads (gravel) traverse the proposed development.

Please refer to **Figure 1.1** below, Locality Map.

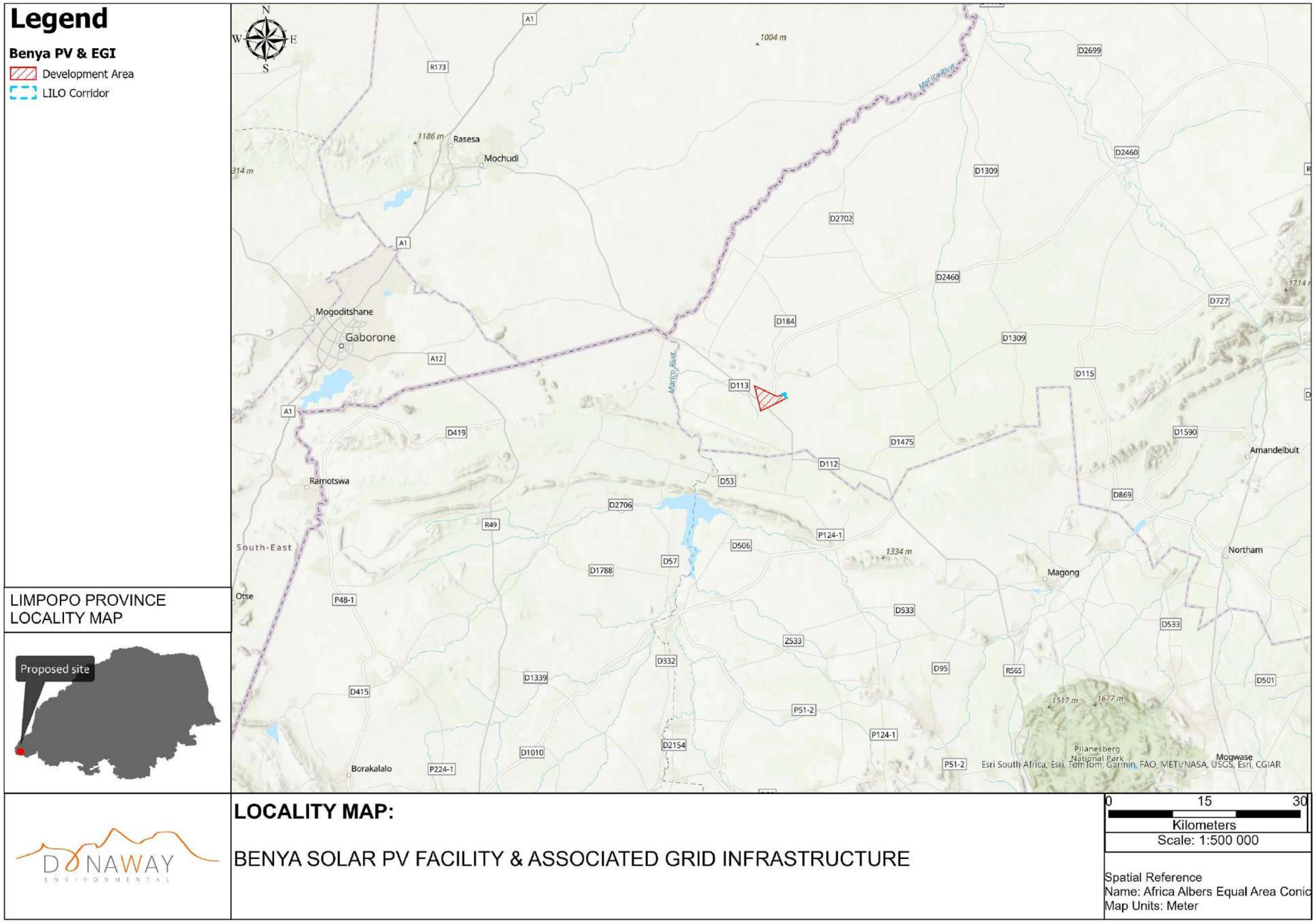

Figure 1.1: Locality Map

1.3. Project Description and Technical Detail

1.3.1. Location of the proposed development

A Study area of 863 ha has been identified within two (02) affected properties for the placement of the development footprint, which will ultimately house the Benya Solar PV Facility and the associated grid infrastructure. A LILO connection corridor has been identified for assessment for the placement of the grid infrastructure to transmit energy generated from the on-site switching station to the existing Eskom powerlines. The details of the location of the Benya Solar PV Facility and associated infrastructure are included in **Table 1.1** below.

Table 1.1: General site and location information

Description of affected farm portions	SEF • Remaining Extent of Farm Portugal No. 198 KP Electrical Grid Infrastructure: • Farm Napoleon No 216 KP
Province	Limpopo Province
Local Municipality (LM)	Thabazimbi LM
District Municipality (DM)	Waterberg DM
Ward numbers	Ward 1
Closest towns	The town of Dwaalboom is approximately 22 km east of the proposed development, while the larger town of Northam is located approximately 72km south-east of the proposed development.
21 Digit Surveyor General codes	SEF • Remaining Extent of Farm Portugal No. 198 KP (T0KP00000000019800000) Electrical Grid Infrastructure: • Farm Napoleon No 216 KP (T0KP00000000021600000)
Area under assessment (Development Area)	863 ha (excluding linear components)

The total area assessed comprises of approximately 863 ha (Development Area) proposed for the PV facility and supporting infrastructure, which includes a LILO grid connection corridor for the placement of the grid infrastructure required to connect the switching station to the existing Eskom powerlines.

The properties on which the facility is to be constructed will be leased by WKN Windcurrent SA (Pty) Ltd from the property owner for the life span of the project (minimum of 25 years).

The development footprint will be defined based on the outcomes of the scoping phase (and results of the independent specialists) and will be further assessed in the EIA phase, which will include the assessment of a detailed facility layout. Please refer to the layout map below, which reflects the layout at the scoping phase

1.3.2. Details of the infrastructure proposed

The development footprint associated with the Benya Solar PV Facility will include specific infrastructure that will be developed as part of the facility layout.

The infrastructure to be developed is specifically related to the preferred technology to be installed to generate and store electricity from the solar resource, which in this case is photovoltaic technology. Photovoltaic solar energy is obtained by converting sunlight into electricity using a technology based on the photoelectric effect. It is a type of renewable, inexhaustible and non-polluting energy that can be produced in installations ranging from small generators for self-consumption to large photovoltaic plants.

The design of the detailed layout will consider and adhere to the limitations of the development area and aspects such as environmentally sensitive areas, roads, fencing and servitudes on site. A detailed layout based on environmental and technical considerations will be presented and assessed as part of the EIA phase (as part of draft EIA report). The total surface area proposed for the layout will include the PV panel arrays (spaced to avoid shadowing), access and maintenance roads and associated infrastructure (buildings, power inverters, powerline, battery energy storage system, on-site substation and switching substation and perimeter fences).

Table 1.2 below provides the technical details of the Benya Solar PV facility available at the Scoping Phase of the development and **Figure 1.2** the layout.

Table 1.2: Technical details for the proposed infrastructure

Component	Description / dimension
Type of technology	Photovoltaic solar facility
Generation capacity	Up to 500 MW
Area of the PV Array	To be confirmed once the development footprint is available. Will be located within the 863 ha development area.
Structure orientation	Monofacial or Bifacial PV panels will be utilised. The panels will either be fixed to a single- and/or double-axis horizontal

	tracking structure, or fixed-tilt structure, where the orientation of the panel varies according to the time of the day, as the sun moves from east to west or tilted at a fixed angle equivalent to the latitude at which the site is located in order to capture the most sun. PV panels with single axis tracking is preferred over fixed-axis or double axis tracking systems due to the potential to achieve higher annual energy yields whilst minimising the balance of system (BOS) costs, resulting in the lowest levelized cost of energy (LCOE). The development of the PV facility will take into consideration during the final design phase the use of either tracker vs fixed tilt mounting structures. Both options are considered feasible for the site.
Structure Height	• PV Panels and mounting structures up to 8 m • Power line up to 40 m
Area of the Battery Storage	Up to 4 ha. The infrastructure will be located within the development footprint. Lithium-ion or other solid-state battery technology proposed for implementation.
Capacity of the Battery Storage	Unspecified. To be confirmed prior to construction activity.
Area of the facility substation and switching station	• On-Site Facility IPP step-up Substation: 1.5 ha • Eskom Switching Substation: 1.5 ha
Capacity of the facility substation and switching station	• On-Site Facility IPP step-up Substation: 33kV/132kV • Eskom Switching Substation: 132kV
Grid connection	• Loop In- Loop Out Powerline with 300m corridor (to allow flexibility while routing powerline)
Length of grid corridor	TBC
Width of grid corridor	TBC
Laydown area dimensions	• Temporary laydown areas will occupy up to 10 ha. • 1 ha will remain in place for the permanent laydown area, as required for facility operation
Area occupied by buildings	Permanent auxiliary building will occupy an area of up to approximately 10 ha, which will include a gate house, ablution facilities, security building, control centre, offices, warehouses and workshops for storage and maintenance

Width of internal roads	Up to 6 m wide
Length of internal roads	To be confirmed for the EIA phase.
Width of main access road	Up to 8 m (inclusive of stormwater infrastructure)
Length of main access road	To be confirmed for the EIA phase.

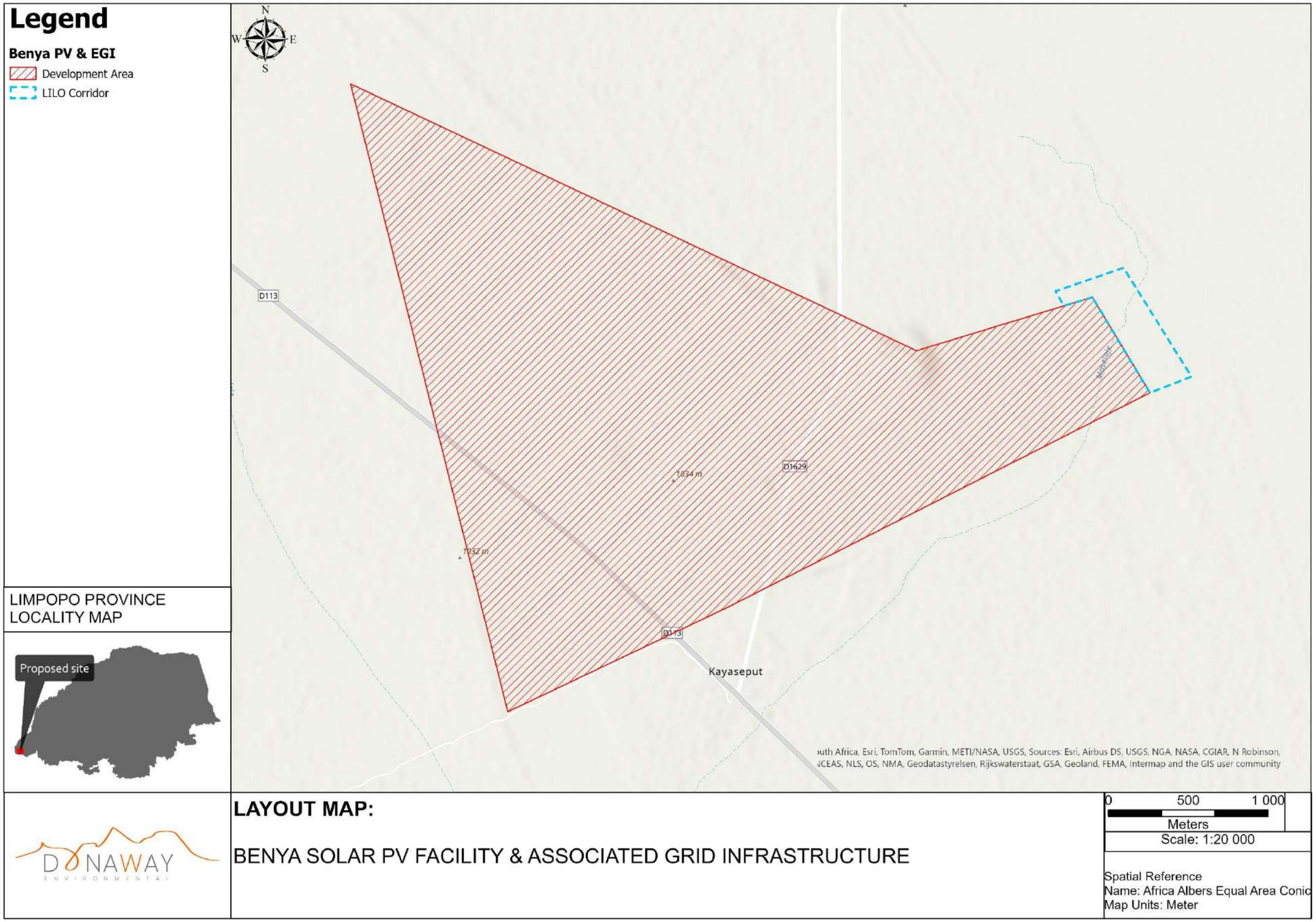

Figure 1.2: Layout Map

1.3.3. Alternatives under assessment

This section describes the alternatives under consideration for the Benya Solar PV facility. In terms of the Regulations only 'feasible' and 'reasonable' alternatives should be considered for development. The process undertaken by the Applicant for the identification of alternatives has been an iterative process and will continue to be an iterative process between the EAP and the Applicant to ensure that the preferred alternative proposed for authorisation is ultimately appropriate from a technical feasibility perspective as well as an environmental perspective. Refer to **Table 1.3** for an overview of the alternatives being considered.

Table 1.3: Summary of the alternatives considered

Alternatives considered	Description of the Alternative relating to the development
Site specific and Layout Alternatives	No site alternatives have been considered, as the project site was chosen due to its suitable climatic conditions, topography (i.e., in terms of slope), environmental conditions (i.e., low agricultural potential, ecological sensitivity and archaeology), proximity to the existing Eskom grid connection infrastructure, and proximity to existing roads (i.e., to facilitate the movement of machinery, equipment, infrastructure and people during the construction phase).TBC No layout alternatives are being considered as the best possible layout for the PV facility will be put forward and will be informed by both environmental and technical considerations. For the scoping phase of the Environmental Process, the full extent of the affected properties are being considered.
Activity Alternatives	Only the development of a renewable energy facility is considered by WKN Windcurrent SA (Pty) Ltd. Due to the location of the site/development area and the suitability of the solar resource, only the development of a solar PV facility is considered feasible, considering the natural resources available to the area and the current land-use activities undertaken within the site (i.e., non-intensive agricultural activities).
Technology Alternatives	Only the development of a photovoltaic solar facility is considered due to the characteristics of the site, including the natural resources available.
Grid Connection Alternatives	No alternative connection points have been identified at this stage.
'Do-nothing' / 'No-Go' Alternative	The option to not construct the Benya Solar PV Facility. No impacts (positive or negative) are expected to occur on the social and environmental sensitive features or aspects located within the

	surrounding areas of the site. The opportunities associated with the development of the solar facility for the surroundings area will however not be realised.

2. METHODOLOGY

A site inspection was conducted on the 17th of March 2025. Most of the visual receptors were determined by using ZTV and geographical imagery within a 10km radius before the site inspection.

2.1. Purpose of the Study

To determine the purpose of the study, one would first have to understand what a visual impact is: Visual impacts occur when changes in the landscape are noticeable to viewers looking at the landscape from their homes or from parks and conservation areas, highways and travel routes, and important cultural features and historic sites.

Visual impacts therefore relate to the changes that arise in the composition of views as a result of:

- Changes to the landscape;
- People's response to those changes; and
- the overall negative effect with respect to the scenic beauty of that landscape, which can be subjective.

Visual impact is therefore measured as the change or contrast to the existing visual environment and the extent to which that change compromises (negative impact) or enhances (positive impact) or maintains the visual quality of the landscape.

Visual impacts can be seen as an issue because it reduces the public's enjoyment and appreciation of the landscape and impair the character or quality of such a place as well as the aesthetic quality of the landscape if it is considered to be a national resource.

VIAs address the importance of the inherent aesthetics of the landscape, the public value of viewing that landscape, and the contrast or change in the landscape derived from the physical presence of a proposed project. For instance, Sensitive Geographical Areas can be classified as sensitive properties that are evaluated for the potential for adverse visual impacts, based on the current land use or enjoyment of the view. The sensitivity of a certain geographical area is the degree to which a particular area can accommodate change. An example of a sensitive geographical area would be when scenic quality was influential in its being. In other words, a geographical area is not sensitive to visual impact if visual aspects of its feeling and setting are not part of what makes it eligible.

A project therefore has a significant visual impact in a certain geographical area when the proximity of the proposed project impairs aesthetic features or attributes of that area in a substantially visual way such that features, or attributes are considered important contributing elements to the value of the resource.

The purpose and objectives of this VIA report is to:

- Give the reader an overview of the aesthetics of the landscape.
- Determine the visual receptors present within the study area.
- Determine the receptors likely to be sensitive to the proposed development.
- Determine the extent and significance of the visual impact.

The scope of the assessment includes the proposed development area and its associated structures and infrastructure.

2.2. Terms of Reference

Specialist reports must comply with Appendix 6 of GNR326 published under sections 24(5), and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and whereby the following are to be included:

Table 2.1: Appendix 6 of GNR326 – Report sections

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report
The details of the specialist who prepared the report and the expertise of that specialist to compile a specialist report including a curriculum vitae.	Section 2.9
A declaration that the specialist is independent in a form as may be specified by the competent authority.	A separate Declaration of Independence is commissioned for each project and sent to the Environmental Assessment Practitioner.
An indication of the scope of, and the purpose for which, the report was prepared.	Section 1
The date and season of the site investigation and the relevance of the season to the outcome of the assessment.	Section 2 states the date of the site visit. Season is not applicable for a Visual Impact Assessment.
A description of the methodology adopted in preparing the report or conducting the specialised process; the specific identified sensitivity of the site related to the activity and its associated structures and infrastructure.	Section 2
An identification of any areas to be avoided, including buffers.	This will be reflected in Section 5 and in Section 8 if applicable.
A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers.	Section 1, Section 3, and Section 5
A description of any assumptions made and any uncertainties or gaps in knowledge.	Section 2.9
A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment.	Section 6 and Section 8
Any mitigation measures for inclusion in the EMPr.	Section 6 and Section 7
Any conditions for inclusion in the environmental authorisation.	Section 7
Any monitoring requirements for inclusion in the EMPr or environmental authorisation.	Section 7

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised, and if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan.	Section 8.2
A description of any consultation process that was undertaken during preparing the specialist report.	N/A. Public Participation Process undertaken as part of the EIA executed by the Environmental Assessment Practitioner (EAP).
A summary and copies of any comments received during any consultation process and where applicable all responses thereto.	N/A. Public Participation Process undertaken as part of the EIA executed by the Environmental Assessment Practitioner (EAP)
Any other information requested by the competent authority.	N/A

In development of the above, specialists are expected to:

- Review the EIA, with specific reference to the Comments and Response Report to familiarize with all relevant issues or concerns relevant to their field of expertise.
- In development of the impacts listed in the EIA, identify any issue or aspect that needs to be assessed and provide expert opinion on any issue in their field of expertise that they deem necessary in order to avoid potential detrimental impacts.
- Assess the degree and extent of all identified impacts (including cumulative impacts) that the preferred project activity and its proposed alternatives, including that of the no-go alternative, may have.
- Identify and list all legislation and permit requirements that are relevant to the development proposal in context of the study.
- Reference all sources of information and literature consulted; and
- Include an executive summary to the report.

The terms of reference for this Visual Impact Assessment Scoping report (VIA) requires providing the following:

- Conduct a desktop review of available information that can support and inform the specialist study;
- Describe the receiving environment and the visual absorption for the proposed project;
- Conduct a field survey to determine the actual or practical extent of potential visibility of the proposed development;

- Conduct a photographic survey of the landscape surrounding the development;
- Identify issues and potential visual impacts for the proposed project, to be considered in combination with any additional relevant issues that may be raised through the public consultation process;
- Identify possible cumulative impacts related to the visual aspects for the proposed project;
- Assess the potential impacts, both positive and negative, associated with the proposed project for the construction, operation, and decommissioning phases;
- Identify management actions to avoid or reduce negative visual impacts; and to enhance positive benefits of the project; and
- Use mapping and photo-montage techniques as appropriate.

2.3. Approach to the Study

The approach to the study followed various guidelines for visual impact assessments that are available. This assessment will be undertaken in accordance with:

- Oberholzer, B. South African Provincial Government (Western Cape Province) – Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (2005);
- United States of America, Texas Department of Transportation - Standard Operating Procedure for Visual Impact Assessments (2012);
- The Landscape Institute with the Institute of Environmental Management and Assessment – Guidelines for Landscape and Visual Impact Assessments, Second Edition (2002); and
- World Bank Group - Environmental, Health, and Safety Guidelines for Wind Energy (2015).

By using the above resources and guidelines, triggers for specialist input are identified.

2.4. Triggers for Visual Specialist Input

A 'trigger' refers to a characteristic of either the receiving environment or the proposed project that indicates the likelihood of visibility and aesthetics becoming significant concerns. In such cases, it may be necessary to engage a qualified and experienced specialist.

The following indicators can suggest the necessity of visual input, taking into account both the nature of the receiving environment and the characteristics of the project at hand.

The nature of the receiving environment:

- Areas with protection status, such as national parks or nature reserves;
- Areas with proclaimed heritage sites or scenic routes;
- Areas with intact wilderness qualities, or pristine ecosystems;
- Areas with intact or outstanding rural or townscape qualities;
- Areas with a recognized special character or sense of place;
- Areas lying outside a defined urban edge line;
- Areas with sites of cultural or religious significance;
- Areas of important tourism or recreation value;

- Areas with important vistas or scenic corridors; and
- Areas with visually prominent ridgelines or skylines.

The nature of the project:

- High intensity type projects including large-scale infrastructure;
- A change in land use from the prevailing use;
- A use that is in conflict with an adopted plan or vision for the area;
- A significant change to the fabric and character of the area;
- A significant change to the townscape or streetscape;
- Possible visual intrusion in the landscape; and
- Obstruction of views of others in the area.

To streamline specialist input, it is essential to identify key issues that necessitate their expertise. These issues encompass questions or concerns regarding the visual or scenic impact of the proposed development. However, in cases where stakeholders lack interest or knowledge in visual matters, these concerns may be overlooked. Hence, involving a visual specialist during the scoping phase becomes crucial, particularly when triggers indicate the potential significance of visibility.

Table 2.2 presents a range of environments, ranging from the most visually sensitive to the least sensitive, along one axis, and various development types, spanning from the least intensive to the most intensive, along the other axis (refer to **Table 2.3** for details).

This correlation between environment types and development types of results in varying levels of expected visual impact, ranging from no impact to very high impact (see **Table 2.4**).

Table 2.2: Categorisation of issues to be addressed by the visual assessment specialist (Oberholzer, B. 2005.)

Type of environment	**Type of development (see Table 2.2) Low to high intensity**				
	Category 1 development	**Category 2 development**	**Category 3 development**	**Category 4 development**	**Category 5 development**
Protected/wild areas of international, national, or regional significance	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected	Very high visual impact expected
Areas or routes of high scenic, cultural, historical significance	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected
Areas or routes of medium scenic, cultural, or historical	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual Impact expected.

Type of environment	Type of development (see Table 2.2) Low to high intensity				
	Category 1 development	Category 2 development	Category 3 development	Category 4 development	Category 5 development
significance					
Areas or routes of low scenic, cultural, historical significance / disturbed	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected
Disturbed or degraded sites / run-down urban areas / wasteland	Little or no visual impact expected. Possible benefits	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected

Explanation of terms used:

Scenic

High scenic **-** landscapes or regions characterised by exceptional natural beauty, often featuring striking landforms like mountains, cliffs, valleys, or areas typically popular with tourists due to their visual appeal, leading to higher visitor numbers, especially during peak seasons. Examples include, but not limited to:

- Table Mountain
- Langeberg Mountains
- Drakensberg Mountains
- Popular coastal areas
- Some parts of the Namaqualand during flowering season
- Kruger National Park
- Richtersveld National Park
- Large areas of the Kalahari

Medium scenic **-** landscapes that have noticeable natural beauty but are less dramatic or striking than high scenic areas. These regions may include rolling hills, forests, or lakes and attract a moderate to low number of tourists. They offer a pleasant visual experience but typically see fewer visitors compared to high scenic areas. Examples include, but not limited to:

- Most of the Karoo, excluding the Klein Karoo
- Most part of the Bushveld
- Some coastal areas
- Some areas in the Free State Province
- Some areas of the Kalahari
- Many parts of Kwazulu-Natal, more inland

Low scenic **-** areas with minimal natural beauty, often characterised by more subtle or less visually striking landscapes, such as flat plains or sparsely vegetated areas. These regions tend to attract very little tourists due to their less dramatic scenery or low visual appeal. Examples include, but not limited to:

- Many agricultural areas (very area specific)
- Areas with views of low scenic towns
- Areas with some industrial backdrop
- Many areas in the Gauteng Province
- More developed areas (very area specific)

Disturbed or degraded **-** areas where natural landscapes have been significantly altered or damaged, often due to human activities like deforestation, mining, or urban development. These regions typically have highly negative impacted visual appeal, leading to tourists avoiding the area.

Table 2.3: Key to Categories of Development (Oberholzer, B. 2005.)

Type of Development	Description
Category 1 development	e.g., nature reserves, nature-related recreation, camping, picnicking, trails, and minimal visitor facilities.
Category 2 development	e.g., low-key recreation/resort / residential type development, small-scale agriculture/nurseries, narrow roads, and small-scale infrastructure.
Category 3 development	e.g., low density resort / residential type development, golf, or polo estates, low to medium-scale infrastructure.
Category 4 development	e.g., medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure.
Category 5 development	e.g., high density township / residential development, retail and office complexes, industrial facilities, refineries, treatment plants, power stations, wind and solar energy farms/facilities, power lines, freeways, toll roads, largescale infrastructure. Large-scale development of agricultural land and commercial tree plantations. Quarrying and mining activities with related processing plants.

Explanation of terms used:

Low-key development – generally small-scale, single-storey domestic structures, usually with more than 75% of the area retained as natural (undisturbed) open space.

Low density development - generally single or double-storey domestic structures, usually with more than 50% of the area retained as natural (undisturbed) open space.

Medium density development - generally 1 to 3-storey structures, including cluster development, usually with more than 25% of the area retained as green open space.

High density development - generally multi-storey structures, or low-rise high density residential development.

Table 2.4: Key to Categories of Issues (Oberholzer, B. 2005.)

Very high visual impact expected:	Potentially significant effect on wilderness quality or scenic resources. Fundamental change in the visual character of the area. Establishes a major precedent for development in the area.
High visual impact expected:	Potential intrusion on protected landscapes or scenic resources. Noticeable change in visual character of the area. Establishes a new precedent for development in the area.
Moderate visual impact expected:	Potentially some effect on protected landscapes or scenic resources. Some change in the visual character of the area. Introduces new development or adds to existing development in the area.
Minimal visual impact expected:	Potentially low level of intrusion on landscapes or scenic resources. Limited change in the visual character of the area. Low-key development, similar in nature to existing development.
Little or no visual impact expected:	Potentially little influence on scenic resources or visual character of the area. Generally compatible with existing development in the area. Possible scope for enhancement of the area.

Explanation of terms used:

Fundamental change – dominates the view frame and experience of the receptor.

Noticeable change – clearly visible within the view frame and experience of the receptor.

Some change – recognisable feature within the view frame and experience of the receptor.

Limited change – not particularly noticeable within the view frame and experience of the receptor.

Generally compatible – Practically not visible or blends in with the surroundings.

Project Specific Category

The project is identified as a **Category 5** development with the potential for a high visual impact. The visual impact can be linked to the potential intrusion on protected landscapes or scenic resources, change in visual character of the area and the establishment of a new precedent for development in the area. Although the project has the potential for a high visual impact, this outcome might be different due to other influential factors and the results of the impact assessment.

2.5. Scoping Evaluation

Table 2.5 below will be utilised as the baseline evaluation for visual impacts during the scoping phase of the project.

Table 2.5: Scoping Evaluation

Impact [description of the impact]			
Issue	**Nature of Impact**	**Extent of Impact**	**No-Go Areas**
Description of expected significance of impact			
Gaps in knowledge & recommendations for further study			

2.6. Visual Impact Assessment Criteria

In order to facilitate decision-making, ensuring consistency in the interpretation of impact assessment criteria is crucial when assessing and reporting potential impacts. **Table 2.6** provides several criteria specifically related to visual impact assessments. It is important to evaluate the proposed project against these criteria before attempting the scoping evaluation set out in **Table 2.5**.

When determining the impacts during the scoping phase, it is essential to consider the projected impact of the proposed development in relation to the envisioned future of the area rather than solely focusing on its effect on the existing baseline conditions.

Table 2.6: Visual Impact Assessment Criteria

Specific Criteria for Visual Impact Assessments **(Oberholzer, B. 2005.)**	
Visibility of the project	The geographic area from which the project will be visible, or view catchment area. (The actual zone of visual influence of the project may be smaller because of screening by existing trees and buildings). This also relates to the number of receptors affected. • ***High visibility*** – visible from a large area (e.g., several square kilometres). • ***Moderate visibility*** – visible from an intermediate area (e.g., several hectares). • ***Low visibility*** – visible from a small area around the project site.
Visual exposure	Based on distance from the project to selected viewpoints. Exposure or visual impact tends to diminish exponentially with distance. • ***High exposure*** – dominant or clearly noticeable (0-1km); • ***Moderate High exposure (included by the visual specialist)*** – somewhat significant and noticeable to the viewer, but not as dominant (1-3km); • ***Moderate exposure*** – recognisable to the viewer (3-5km);

	• ***Low exposure*** – not particularly noticeable to the viewer (5-10km);
Visual sensitivity of the area	The inherent visibility of the landscape, usually determined by a combination of topography, landform, vegetation cover and settlement pattern. This translates into visual sensitivity. • ***High visual sensitivity*** – highly visible and potentially sensitive areas in the landscape. • ***Moderate visual sensitivity*** – moderately visible areas in the landscape. • ***Low visual sensitivity*** – minimally visible areas in the landscape.
Visual sensitivity of Receptors	The level of visual impact considered acceptable is dependent on the type of receptors. • ***High sensitivity*** – e.g., residential areas, nature reserves and scenic routes or trails; • ***Moderate sensitivity*** – e.g., sporting, or recreational areas, or places of work; • ***Low sensitivity*** – e.g., industrial, mining, or degraded areas.
Visual absorption capacity (VAC)	The potential of the landscape to conceal the proposed project, i.e., • ***High VAC*** – e.g., effective screening by topography and vegetation; • ***Moderate VAC*** - e.g., partial screening by topography and vegetation; • ***Low VAC*** - e.g., little screening by topography or vegetation.
Visual intrusion	The level of compatibility or congruence of the project with the particular qualities of the area, or its 'sense of place'. This is related to the idea of context and maintaining the integrity of the landscape or townscape. • ***High visual intrusion*** – results in a noticeable change or is discordant with the surroundings; • ***Moderate visual intrusion*** – partially fits into the surroundings, but clearly noticeable; • ***Low visual intrusion*** – minimal change or blends in well with the surroundings.

2.7. Zone of Theoretical Visibility (ZTV)

The ZTV maps reflects the visibility in term of proximity of viewers to the proposed development within a 10km PAOI. **Table 2.7** below is used for Visual Exposure rating within the different radii:

Table 2.7: Exposure Rating

Distance (km)	Exposure Rating
0-1	High Exposure

Distance (km)	Exposure Rating
1-3	Moderate High Exposure
3-5	Moderate Exposure
5-10	Low Exposure

The distances were calculated using satellite imagery, but the Exposure Rating was determined by using previous experiences, assumptions and opinions, and it is therefore theoretical. The ZTV maps will give a clearer understanding of areas susceptible to line of sight within a 10km PAOI which means, an imaginary line from the eye to a perceived object. The ZTV **did not consider existing screening such as buildings and vegetation cover but rather the terrain's above mean sea level (AMSL) which indicates line of sight**. The receptors which were identified were subject to the scoping evaluation and the ZTV will form part of the Visual Impact Assessment Criteria set out in **Section 2.5** of this report.

2.8. DFFE Screening Tool – Site Sensitivity Verification

This Site Sensitivity Verification (SSV) is compiled in compliance with Government Notice No. 320, dated 20 March 2020, which includes the requirement for initial Site Sensitivity Verification to be produced for a development footprint. The outcome of the Initial Site Verification must be recorded in a form that-

a) Confirms or disputes the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool (DFFE Screening Tool);
b) Contains a motivation and evidence of either the verified or different use of the land and environmental sensitivity; and
c) Is submitted together with the relevant reports prepared in accordance with the requirements of the Environmental Impact Assessment Regulations. The SSV will form part of this VIA scoping report.

2.9. Assumptions and Limitations

2.9.1. Seasonality

Seasonality is not deemed a limiting factor for visual fieldwork and that fieldwork is deemed sufficient for the nature of this project.

2.9.2. Spatial Data Accuracy

Spatial data used for visibility analysis originate from various sources and scales. Inaccuracy and errors are, therefore, inevitable. Where relevant, these are highlighted in the report. Every effort was made to minimize their effect.

2.9.3. Viewer Subjectivity

Viewer subjectivity plays a significant role when assessing the visual impacts of solar PV facilities. Individuals' perceptions and preferences can vary greatly, leading to subjective interpretations of visual impacts. Factors such as personal aesthetics, cultural background, and individual experiences influence how viewers perceive and evaluate the visual effects of solar PV facilities. Some viewers

might appreciate the industrial character and economic benefits associated with renewable energy, while others may view it as an intrusion on natural landscapes.

2.9.4. Site Access and UAV Photos

Access to certain areas of the proposed project can sometimes be difficult due to terrain limitations or access denied by landowners. Thus, site photos are taken at the best possible location.

Photos taken by the Unmanned Arial Vehicle (UAV) are conducted at a certain Above Ground Level (AGL) shown on the UAV's controller. The AGL on the UAV's controller might slightly differ from the real-world AGL.

2.9.5. Photomontage

The photomontage is only a visual representation of visual intrusion and do not reflect the actual scale, location on the property, orientation, aesthetics and layout of the project.

2.9.6. Visual Receptors

All visual receptors are identified as far as practically possible. All homesteads, farmsteads and residential areas identified are assumed to be occupied at the time of the study.

2.10. Project Team and Experience

The project team will consist of Johan Botha and Michael Cloete.

Johan Botha graduated with an Honours degree in 2011 from the North West University in the field of Environmental Sciences specialising in Geography and Environmental Management and has since been involved in the environmental management of substations, powerlines and solar PV plants together with over 150 Visual Impact Assessments (VIA) and 70 Social Impact Assessments (SIA), mostly in the field of Renewable Energy. All the above-mentioned experience accumulated the necessary skills to conduct visual and social impact assessments.

Michael Cloete graduated with a Masters degree in 2020 from the North West University in Geography and Environmental Management with a focus on Geographic Information Systems (GIS) and Visual Impact Assessments (VIA). Accumulating two years of environmental specialist knowledge and reporting in the Hydrogeology field. The accumulated experience provides the necessary skills to conduct visual and social impact assessment.

3. EXISTING LANDSCAPE – BASELINE ENVIRONMENT

This section describes the types of landscape that may be impacted, indicating the likely degree of sensitivity.

Landscape Character

Landscape character is a composite of several influencing factors including:

- Topography and drainage.
- Vegetation patterns.
- Land use / Development.
- Sense of Place.

3.1. Topography and Drainage

The project is situated in a region that includes ridges and plains. The most prominent nearby elevated landforms and ridges are located approximately 1.8 km to the north-west of the PV facility. Another major feature that shapes the landscape is the Marico River, located approximately 12.5km to the west. Within the 10km Project Area of Influence (PAOI), the elevation above mean sea level (AMSL) varies by approximately 36m AMSL. The higher areas reach approximately 1026m AMSL atop a small hill, while the lower regions descend to 990m AMSL within a periodic watercourse. The region, in general, drains towards the north and west.

For a better understanding of the visual landscape surrounding the proposed development, please refer to the Topography map below as well as photos of the surrounding environment.

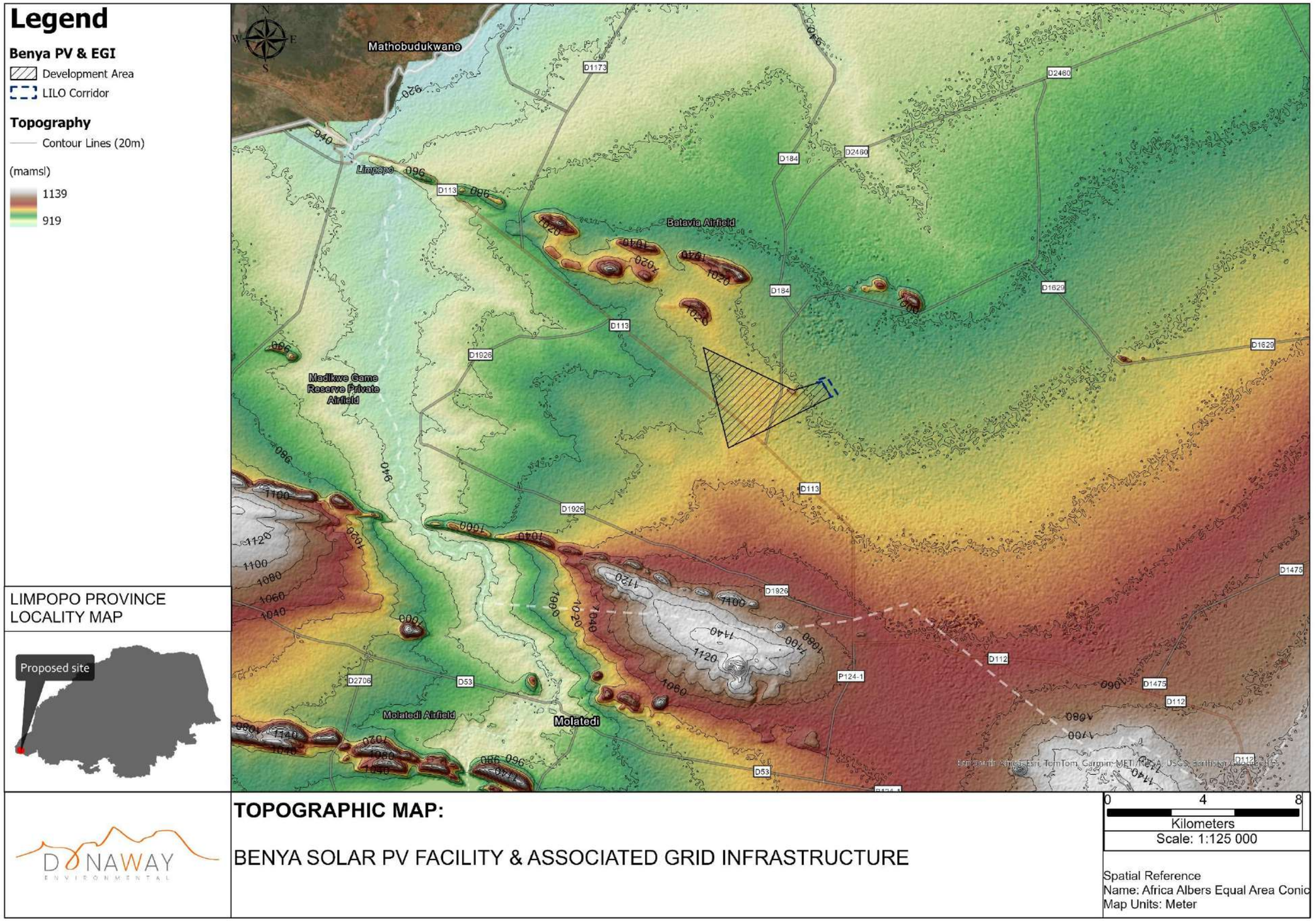

Figure 3.1: Topography Map

Figure 3.2: Landscape photo taken at the eastern section of the site towards the north: AGL 100m

Figure 3.3: Landscape photo taken at the eastern section of the site towards the north-east: AGL 100m

Figure 3.4: Landscape photo taken at the eastern section of the site towards the east: AGL 100m

Figure 3.5: Landscape photo taken at the eastern section of the site towards the south-east: AGL 100m

Figure 3.6: Landscape photo taken at the eastern section of the site towards the south: AGL 100m

Figure 3.7: Landscape photo taken at the eastern section of the site towards the south-west: AGL 100m

Figure 3.8: Landscape photo taken at the eastern section of the site towards the west: AGL 100m

Figure 3.9: Landscape photo taken at the eastern section of the site towards the north-west: AGL 100m

Figure 3.10: Landscape photo taken at the western section of the site towards the north: AGL 100m

Figure 3.11: Landscape photo taken at the western section of the site towards the north-east: AGL 100m

Figure 3.12: Landscape photo taken at the western section of the site towards the east: AGL 100m

Figure 3.13: Landscape photo taken at the western section of the site towards the south-east: AGL 100m

Figure 3.14: Landscape photo taken at the western section of the site towards the south: AGL 100m

Figure 3.15: Landscape photo taken at the western section of the site towards the south-west: AGL 100m

Figure 3.16: Landscape photo taken at the western section of the site towards the west: AGL 100m

Figure 3.17: Landscape photo taken at the western section of the site towards the north-west: AGL 100m

Figure 3.18: Landscape photo taken at the Loop-In-Loop-Out (LILO) Powerline site towards the north: AGL 100m

Figure 3.19: Landscape photo taken at the Loop-In-Loop-Out (LILO) Powerline site towards the north-east: AGL 100m

Figure 3.20: Landscape photo taken at the Loop-In-Loop-Out (LILO) Powerline site towards the east: AGL 100m

Figure 3.21: Landscape photo taken at the Loop-In-Loop-Out (LILO) Powerline site towards the south-east: AGL 100m

Figure 3.22: Landscape photo taken at the Loop-In-Loop-Out (LILO) Powerline site towards the south: AGL 100m

Figure 3.23: Landscape photo taken at the Loop-In-Loop-Out (LILO) Powerline site towards the south-west: AGL 100m

Figure 3.24: Landscape photo taken at the Loop-In-Loop-Out (LILO) Powerline site towards the west: AGL 100m

Figure 3.25: Landscape photo taken at the Loop-In-Loop-Out (LILO) Powerline site towards the north-west: AGL 100m

3.2. Vegetation Patterns

Visual impact extends beyond affecting only sensitive visual receptors; it also leaves its imprint on the surrounding landforms and vegetation. Vegetation can be regarded as a valuable visual asset, underscoring the significance of gaining insights into the specific vegetation that the proposed development may influence. By grasping the character of the vegetation in question, one can also draw preliminary findings of its screening potential in the given area.

The most recent classification of the area by Mucina & Rutherford (2006) shows that the PV facility is located within the *Dwaalboom Thornveld* vegetation type. The distribution includes the Limpopo and North West Provinces: Flats north of the Dwarsberge and associated ridges mainly west of the Crocodile River in the Dwaalboom area, but including a patch around Sentrum. South of the Ridges, it extends eastwards from the Nietverdiend area, north of the Pilanesberg to the Northam area. The altitudes vary between 900m and 1 200m.

The vegetation and landscape features can be described as Plains with a layer of scattered, low to medium high, deciduous microphyllous trees and shrubs with a few broad-leaved tree species and an almost continuous herbaceous layer dominated by grass species. *Vachellia tortilis* (Umbrella thorn) and *Vachellia nilotica* (Thorny Acacia) dominate on the medium clays. On particularly heavy clays, most other woody plants are excluded, and the diminutive *Vachellia tenuispina* (Turf Thorn) dominates at a height of less than 1 m above ground. On the sandy clay loam soils, *Senegalia erubescensis* (Blue Thorn) is the most prominent tree.

The conservation status is classified as “Least threatened”. Statutorily conserved in Madikwe Game Reserve in the west. About 14% of the unit has been transformed, largely due to cultivation and cattle grazing. Erosion is very low to low within the region.

Refer to **Figure 3.26** for an illustration of the vegetation patterns.

3.3. Land Use / Development

Development within the 10km PAOI can be divided into the following types:

- **Industrial Development;** No significant industrial development within the 10km PAOI.
- **Urban Development;** The town of Northam is the main urban development and falls outside the 10km PAOI; No urban developments within the 10km PAOI.
- **Sports and Recreational Development;** Limited sports developments. Small-scale within Northam, although outside the 10km PAOI. Formal and informal hunting in the area can be seen as recreational. Formal hunting is very popular in the area.
- **Agricultural Development;** This development type is a predominant feature in the region, primarily characterised by crop cultivation.
- **Service Development;** Facilities and infrastructure associated with development. These include mostly roads and power infrastructure linked to the surrounding area.
- **Tourism Development;** Tourism development within the 10km PAOI remains limited, although there are a few game farms and nature reserves such as Doornlaagte Private Nature Reserve and Weltevrede Private Nature Reserve in the area; however, the area is more focused on agriculture. Tourists may use the surrounding roads leading to their destination.

Please refer to the **Land Use & Landcover Map** below for an indication of the landcover and developments.

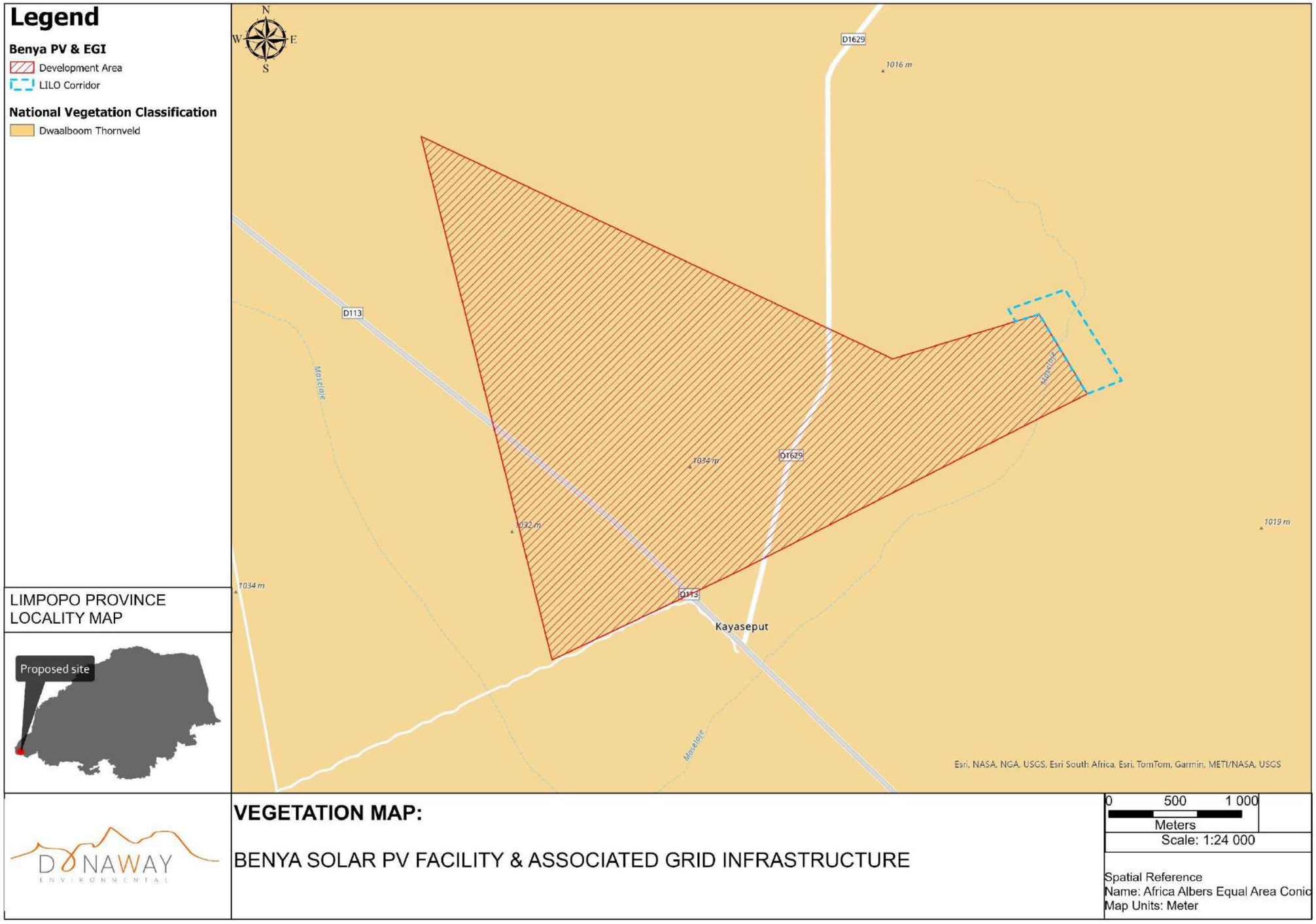

Figure 3.26: Vegetation Map

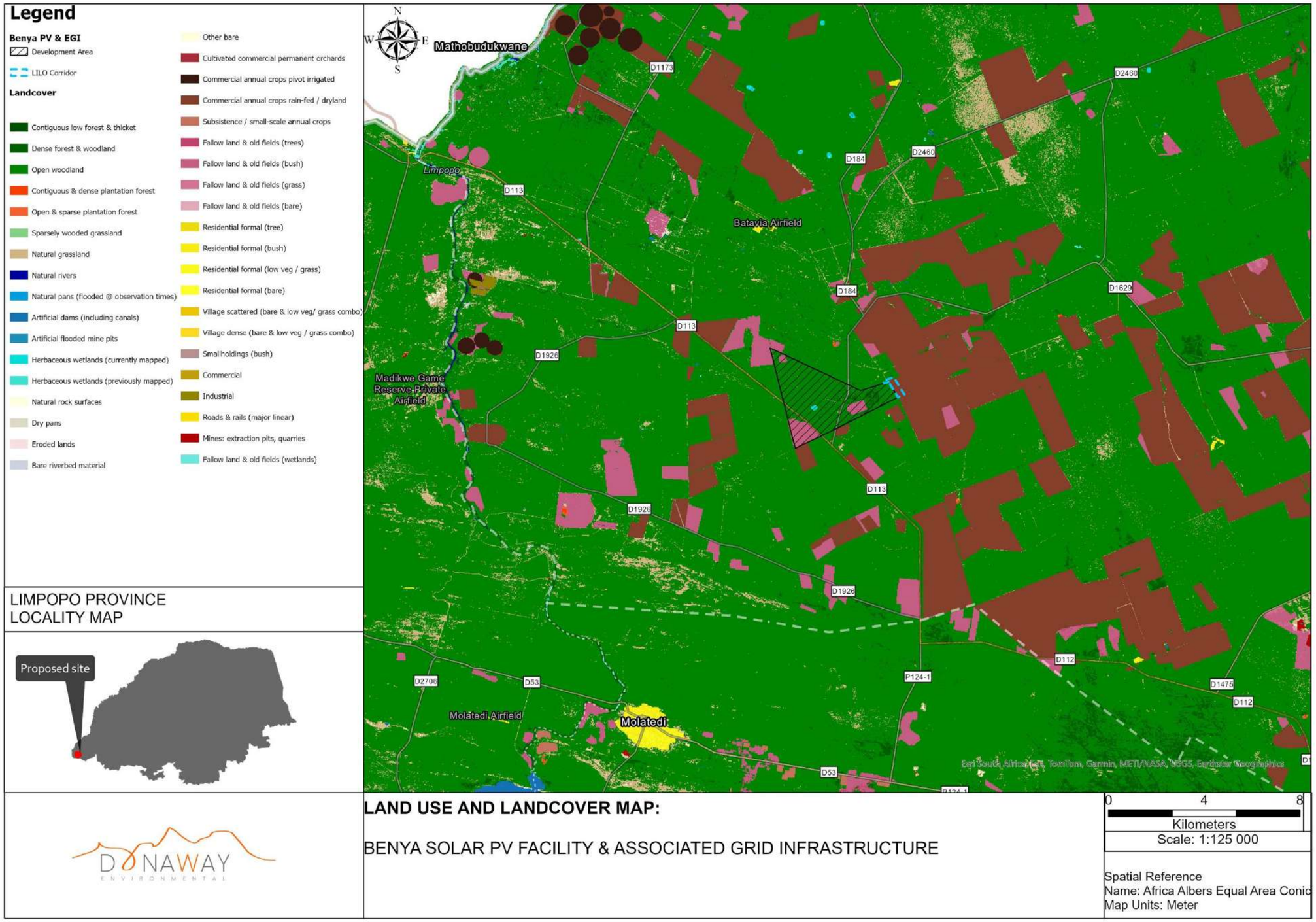

Figure 3.27: Land Use and Landcover Map

3.4. Sense of Place

The proposed development is situated in the Dwaalboom Thornveld, which forms part of the Savanna, which covers a very large part of South Africa. The area encompasses a distinct sense of place that is shaped by its unique blend of agriculture and breathtaking Bushveld surroundings. The allure of the bushveld captivates visitors (mostly hunters) and locals alike. The picturesque scenery, characterised by sprawling plains, dense vegetation, and an abundance of wildlife, draws frequent hunters seeking thrilling adventures in the bushveld wilderness. Yet, it is not only the natural wonders that make the Bushveld special. Amidst the tranquillity and picturesque wilderness that the Bushveld offers, a profound peace washes over visitors, offering respite from the clamour of the modern world.

4. VISUAL FEATURES AND SENSITIVE RECEPTORS – BASELINE ENVIRONMENT

The study area is characterised by some landscape features that possess a visual or scenic value. These natural elements, along with potential sensitive visual receptors, serve as a visual baseline for assessing the surroundings. The following landscape features and potentially sensitive visual receptors can be observed:

Table 4.1: Landscape Features

Scenic Resource	Landscape features within the 10km PAOI (assessment radius).
Topographic Features	Plains and ridges add to a more pleasant visual landscape.
Water Features	Within the 10km PAOI, there are several periodic rivers and tributaries. Only one significant enough to attract attention or tourists, which is the Marico River, but located outside the 10km PAOI.
Vegetation Features	The area surrounding the proposed development consists of some open plains used for crop cultivation and mostly lush, beautiful Bushveld vegetation. Please refer to **section 3.1.2: Vegetation Patterns** for a detailed overview.
Cultural Landscapes	The bushveld landscape links to the more prominent "Africa setting" which boasts a variety of traditional (and newer) African cultures seeing the Bushveld as a cultural source of tradition, sense of place, interaction and co-existence with nature. Furthermore, in many households, hunting is also seen as a tradition and part of the culture. The Bushveld is almost synonymous with the word "hunting", giving the hunter the tranquil setting and feel of Africa and a complete African hunting experience.

Table 4.2: Potential Sensitive Receptors

Sensitive Receptors	Potential sensitive receptors within the 10km PAOI.
Nature reserves and national parks	Two nature reserves are located within the 10km PAOI. • Doornlaagte Private Nature Reserve: Located 6.83km to the north-west. Proclaimed in 1962. Mainly game farming. • Weltevrede Private Nature Reserve: Located 2.14km to the west. Proclaimed in 1962. Game farming and other agricultural ventures.
Human settlements and farmsteads	Only a number of farmsteads and accommodation facilities are located within the 10km radius. The town of Northam is the main urban development; however, it is outside the 10km PAOI.

Sensitive Receptors	Potential sensitive receptors within the 10km PAOI.
	One airfield is located 4.7 km to the north-west with the aerodrome name of "Batavia Airfield".
Scenic routes and arterial roads	There are no arterial roads within the 10km PAOI. The closest regional road is the R49 Regional Road, 39.7km west of the PAOI. The second closest regional road is the R510, which is 71.75km south east of the PAOI. There are a few District Roads in the PAOI, namely: • D112 • D113 • D184 • D1926 • D1629 • D2460 All roads in the area offer some scenic views of the surrounding bushveld landscape.
Cultural and heritage sites	These form part of the heritage study. A development might have a visual impact on cultural or heritage sites only if these sites are visited frequently by tourists or interested parties.
Tourism facilities / sites	No significant tourist facilities are situated within the 10km POAI, with 10 lodging facilities located within the 10km POAI. The area is not known to attract many tourists outside the hunting industry. Many farms in the region are crop farms, but also provide hunting services and facilities to national and international hunters.

4.1. Objects affecting airspace and applicable legislation

Any communications structure, building or other structure, whether temporary or permanent, which has the potential to endanger aviation in navigable airspace, or has the potential to interfere with the operation of navigation or surveillance systems or Instrument Landing Systems, including meteorological systems for aeronautical purposes, is considered an obstacle and shall be submitted to the Commissioner for Civil Aviation for evaluation (refer to SA-CAR Part 139.01.33).

As navigable airspace is any airspace where "heavier than air" craft can operate, it means that any obstacle, anywhere, needs to be evaluated.

The main reason is to control or prevent structures that could have a serious effect on aviation safety, especially in the vicinity of an aerodrome. It also follows that the knowledge of where obstacles are, will add to aviation safety.

Power lines

Power lines, overhead wires and cables are considered as obstacles, and the detail shall be communicated to the Commissioner for Civil Aviation at an early planning stage.

The Commissioner shall require the route of the power line, the co-ordinates (latitude and longitude in degree, minute, seconds and tenth of seconds format) of turning points in the line, the maximum height of the structures above ground level and the name of the power line. The Commissioner shall evaluate the route and require those sections of the line (if any), which is considered a danger to aviation to be marked or rerouted.

Power lines shall be marked when crossing a river, valley or major highway with marker spheres of a diameter of not less than 60 cm. The spheres shall be of one colour and displayed alternately orange/red and white or a colour that is in sharp contrast to the background as seen from an airborne perspective. The spacing between the spheres and between the spheres and the supporting towers shall not exceed 30m. On lines with multiple cables, the spheres shall be fitted to the highest cable.

The marker spheres shall be visible from at least 1000m from an airborne perspective and 300m from the ground.

Where power lines cross a river or valley, the co-ordinates (latitude and longitude in degree, minute, seconds and tenth of seconds format) and the height of the line above the valley or river, shall be communicated to the Commissioner for publication in the appropriate media.

The Commissioner may require that supporting towers be marked and lighted.

Cranes

Where cranes are erected, prior permission shall be obtained from the Commissioner. The co-ordinates (latitude and longitude in degree, minute, seconds and tenth of seconds format), the ground elevation of the site above mean sea level, the height of the crane, the dimensions of the jib as well as the erecting date and duration of the project must be communicated to the Commissioner for evaluation and publication in the relevant media.

The Commissioner shall specify markings, if required.

4.2. Glare

Solar panels are designed to absorb light, and accordingly only reflect a small amount of the sunlight that falls on them compared to most other everyday objects (Refer to Figure 4.1 to 4.4). Most notably, solar panels reflect significantly less light than flat water.

In fact, glass, one of the uppermost and important components of a solar panel, reflects only a small portion of the light that falls on it–about 2-4%, depending on whether it has undergone an anti-reflective treatment. These days, to increase solar panel efficiency and power output, most panels are treated with anti-reflective coating.

The potential glint and glare effects for Bi-facial panels remains the same due to both faces consisting of a reflective surface, it is deemed very unlikely that significant glare effects from the underside are possible for static, single and dual axis trackers. This is because this face will almost always be facing away from the Sun. On static systems (north facing with a 20-degree elevation angle, for example),

the underside of the panel will be angled downward towards the ground. Considering the path of the Sun throughout a typical day in South Africa, any reflections will only ever go towards the floor. The possibility of glare effects for the optimised face (the face orientated towards the Sun) remains the same.

Figure 4.1: Reflection Characteristics of normal glass (left) and PV glass (right)

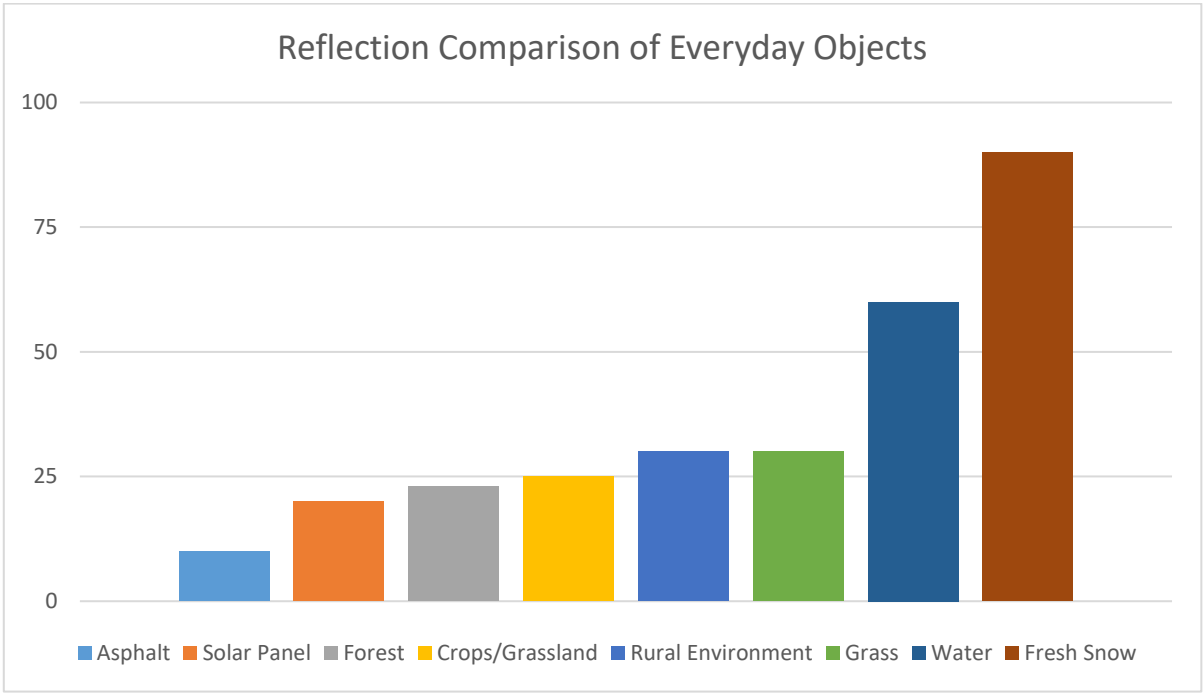

Figure 4.2: Reflection Comparison of everyday objects

Numerous airports around the world have solar installations located on their premises (Refer to Figure 4.3). Airports Company South Africa (ACSA) has commissioned three solar powered airports, George Airport in the Western Cape, followed by Kimberley Airport and Upington International Airport, both in the Northern Cape. Most examples in which solar panels have been installed at, on or near airports are testament to fact that they are not automatically a hazard to pilots.

Figure 4.3: Solar PV Installation at George Airport in the Western Cape Province (www.lifegate.com/george-airport-south-africa-solar-power)

Figure 4.4: View of the Bokamoso PV facility from an airplane at a height of 36000 feet amsl

5. VISUAL IMPACT ASSESSMENT CRITERIA & SSV

Please refer to **Section 2 (Methodology)** of this report for a detailed understanding of the Visual Impact Assessment Criteria.

5.1. VIA Criteria Assessed

Table 5.1: Visual Impact Assessment Criteria - Assessed

Specific Criteria for Visual Impact Assessments	
VISIBILITY OF THE PROJECT	**HIGH VISIBILITY** The rating is solely based on the size of the Zone of Theoretical Visibility (ZTV) and serves as an indicator of the potential visual impacts of the development on the surrounding region according to topography, excluding vegetation and infrastructure screening. A high visibility does not necessarily imply a significant visual impact or exposure, although it may have one if the region has a dense population of sensitive visual receptors together with sparse vegetation and infrastructure screening. The ZTV maps below (**Figures 5.1 and 5.2**) indicate a "High Visibility", according to the Specific Criteria for Visual Impact Assessment (Oberholzer, B. 2005), for the entire 10km radius. Visibility within the 10km PAOI covers thousands of hectares, with a higher exposure percentage within the 1km radius. Visibility percentage up to 1km is high for the grid connection LILO and for the PV facility, but both start to diminish exponentially beyond the 1km radius. Furthermore, air quality and atmospheric conditions play a crucial role in determining visibility levels. Poor air quality, characterized by high levels of pollutants and particulate matter, can significantly reduce visibility by scattering and absorbing light. Fine particulate matter, such as smoke, haze, and smog, can absorb and scatter sunlight, creating a hazy or foggy appearance. Similarly, pollutants like sulphur dioxide and nitrogen dioxide can react with other compounds in the atmosphere to form smog, which further impairs visibility. Atmospheric conditions, such as humidity and temperature inversions, also affect visibility. High humidity levels can lead to the formation of fog and mist, reducing visibility to mere meters. Temperature inversions occur when a layer of warm air traps cooler air near the ground, causing pollutants and

	particulate matter to be trapped closer to the surface and reducing visibility. In summary, air quality and atmospheric conditions are closely linked to visibility, with poor air quality and specific weather phenomena significantly impacting the clarity of our surroundings.
VISUAL EXPOSURE	As mentioned above, the exposure rating is based on the ZTV (line of sight influenced solely by topography) and not existing visual screening such as vegetation cover and/or other infrastructure. The receptors listed below are exclusively those that have the potential to visually observe or perceive the project. Visual exposure diminishes exponentially with distance. Referring to **Figures 5.1 and 5.2,** ZTV maps, the most prominent exposed receptors are farmsteads and a few accommodation facilities. The most prominent receptors exposed within the 1km radius are farmsteads, D113 District Road, and D184 District Road. The rest of the exposed receptors mainly include farmsteads, district roads and accommodation facilities.
VISUAL SENSITIVITY OF THE AREA	**HIGH VISUAL SENSITIVITY** The assessment of visual sensitivity in the area reveals a high sensitivity, primarily attributed to the presence of the Bushveld landscape. Some ridges and plains are located to the north-west and south-west of the SEF, which also contribute to the positive aesthetics of the landscape. There is no settlement of a specific scenic quality.
VISUAL SENSITIVITY OF RECEPTORS	**HIGH RECEPTOR SENSITIVITY** Please refer to the **ZTV maps** below and **Section 4** of this report for an indication of sensitive visual receptors in the area. Receptors mainly encompass farmers and their employees and a few lodging facilities. People travelling on the many district roads will only see the project momentarily.
VISUAL ABSORPTION CAPACITY (VAC)	**HIGH VAC** The area surrounding the proposed development boasts an excellent Visual Absorption Capacity (VAC) in terms of its lush vegetation and some landforms. The area is characterised by dense vegetation, including a variety of trees, which provides effective screening and limits the visibility of surrounding activities. This underscores the robust visual absorption capacity of the area, with its dense vegetation serving as an effective barrier to visually intrusive elements.

	If people are unaware of the project, they will likely only notice its existence and impact when they are physically near it. However, if individuals have prior knowledge and information about the project, they can extend their perception and understanding of it beyond a limited distance. Visibility is mainly concentrated directly to the north, north-east, east and south-east. Furthermore, most farmsteads have good screening in terms of vegetation.
VISUAL INTRUSION	**HIGH VISUAL INTRUSION** The visual landscape surrounding the proposed development is known for its picturesque bushveld landscape. The area's main economic activities are crop cultivation and game farming. No significant industrial developments are located within the 10km PAOI. See **Figures 5.3 and 5.4** for an indication of what the visual intrusion might represent.

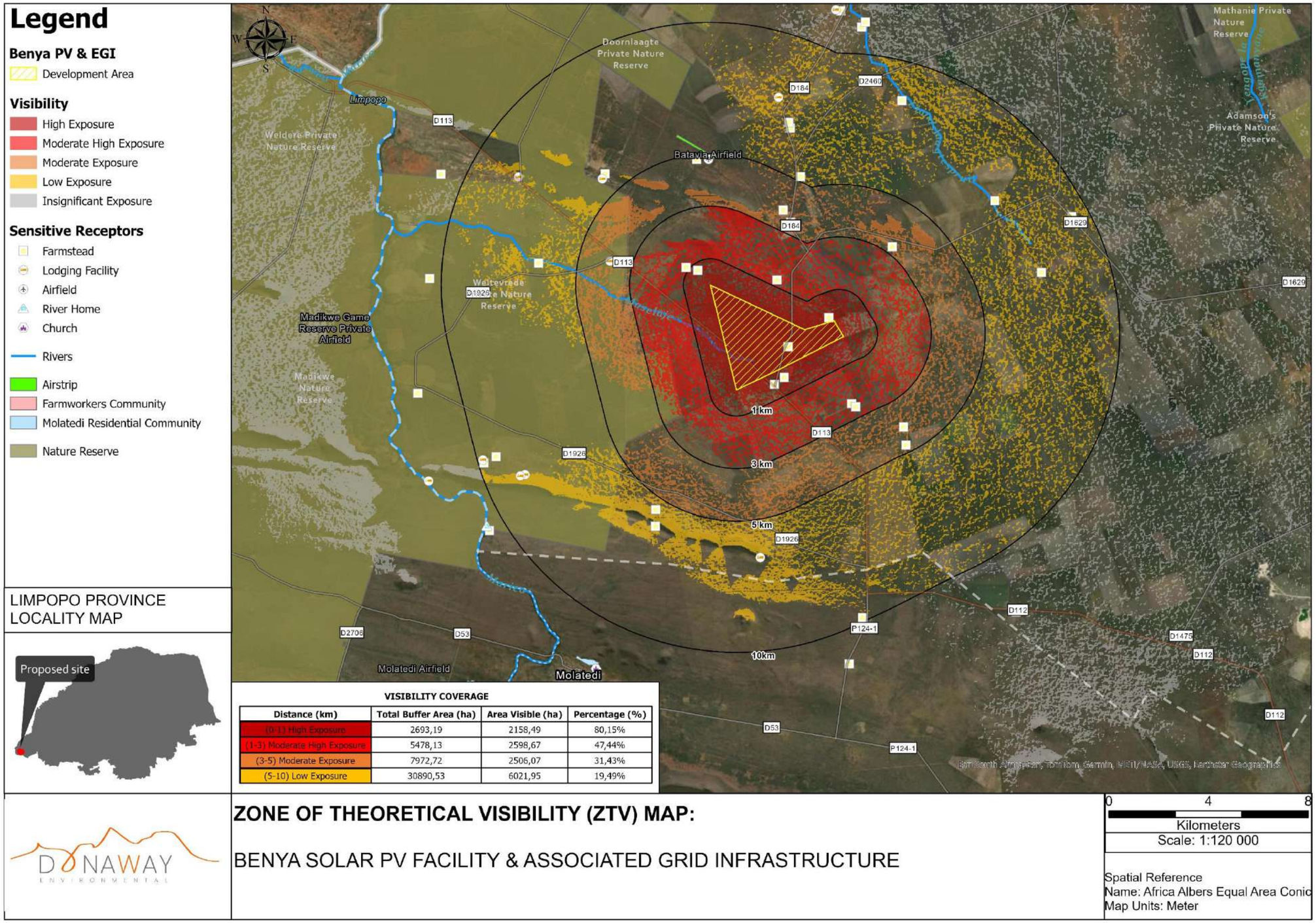

Figure 5.1: ZTV Map: PV Facility

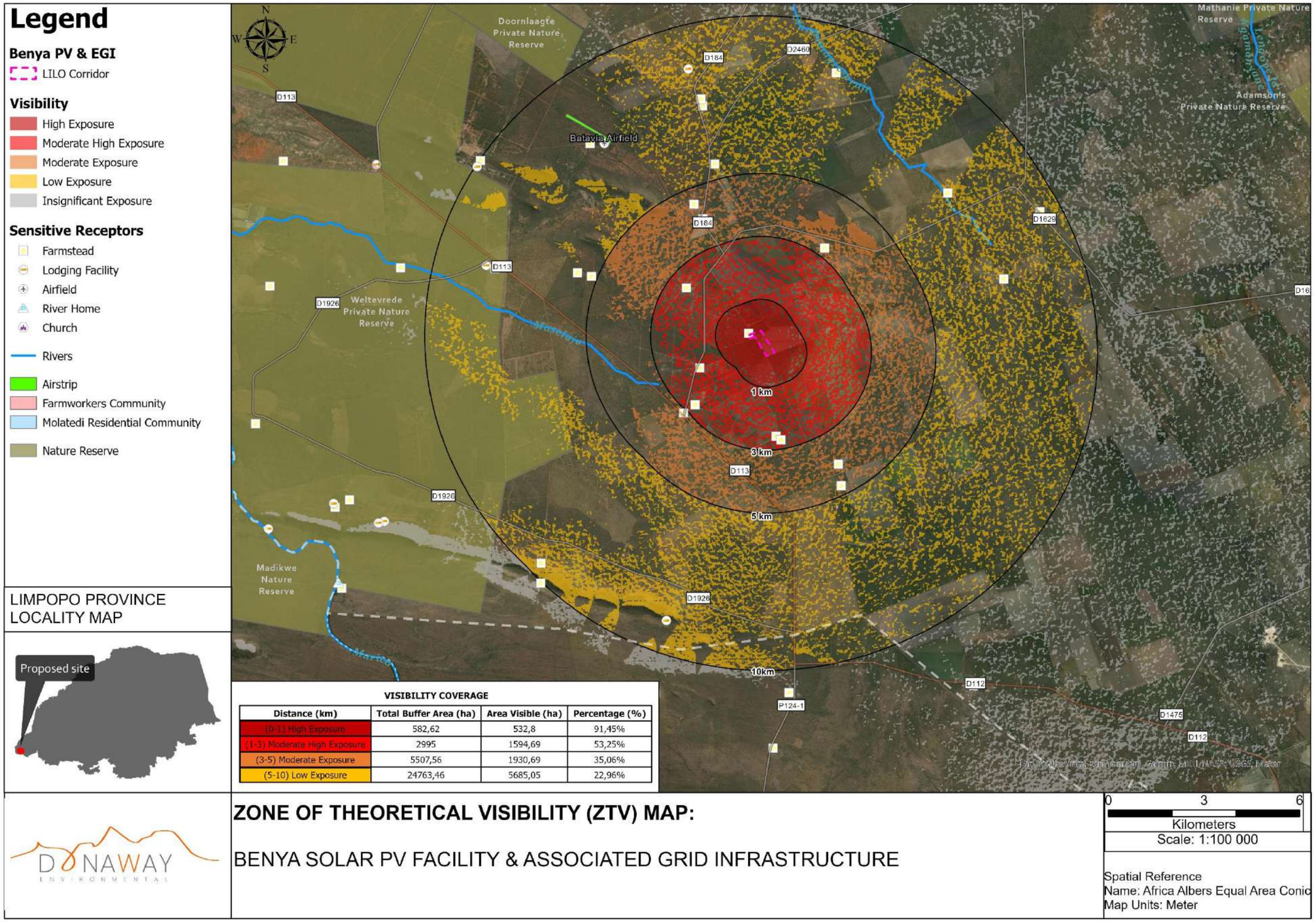

Figure 5.2: ZTV Map: Grid Connection

Figure 5.3: Visual Representation of Visual Intrusion: Before

Figure 5.4: Visual Representation of Visual Intrusion: After[1]

[1] The photomontage is only a visual representation of visual intrusion and do not reflect the actual scale, location on the property, orientation, aesthetics and layout of the project.

5.2. Visual representation of operational PV facilities

The photos in **Figures 5.5 to 5.10** offer a view of the operational 200-hectare Matla A Bokone Solar Power Plant near Kimberley in the Northern Cape Province, formerly known as Droogfontein 2. They were taken from distances of approximately 1km and 2km, with three different angles of 6m, 30m, and 50m above ground level (AGL). These images vividly illustrate the almost negligible visibility of the solar power plant in its operational phase at these distances, together with the absence of substantial screening. In contrast, **Figures 5.11 to 5.13** showcase the Enel Tobivox SEF near Tom Burke in the Limpopo Province. These photographs were taken at eye level (1.8m AGL), 6m AGL, and 30m AGL, and at a distance of approximately 370m. Here, the effectiveness of some vegetation screening becomes evident, in this case primarily attributed to the bush encroaching sickle bush tree (*Dichrostachys cinerea*), a deciduous shrub or small tree. Furthermore, **Figure 5.14** reflects a view of the Aggeneys Solar Power Plant, which is located 71 meters from National Route 14's road surface in the Northern Cape Province.

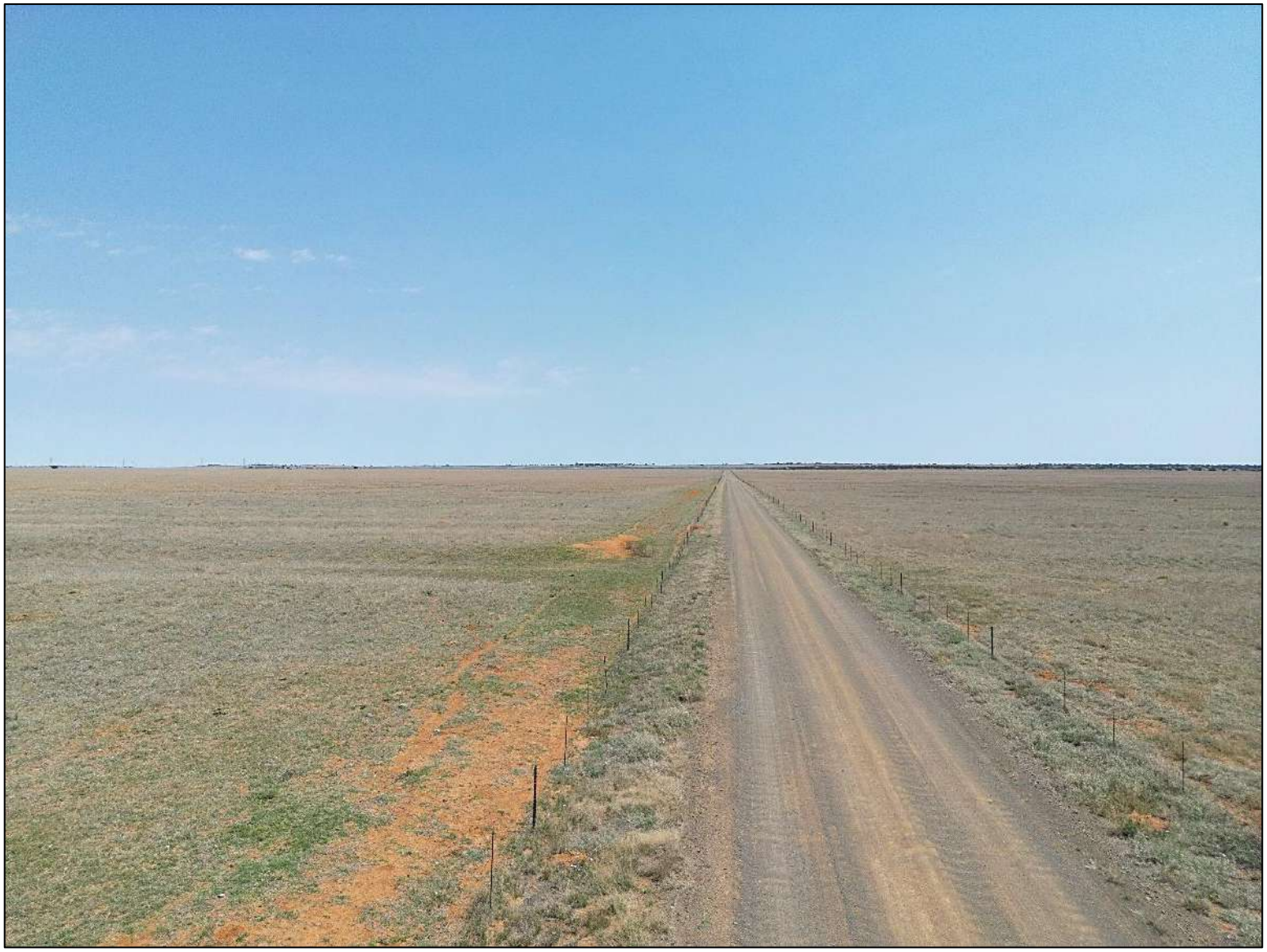

Figure 5.5: View towards the Droogfontein 2 SEF at 2km: 6m AGL

Figure 5.6: View towards the Droogfontein 2 SEF at 2km: 30m AGL

Figure 5.7: View towards the Droogfontein 2 SEF at 2km: 50m AGL

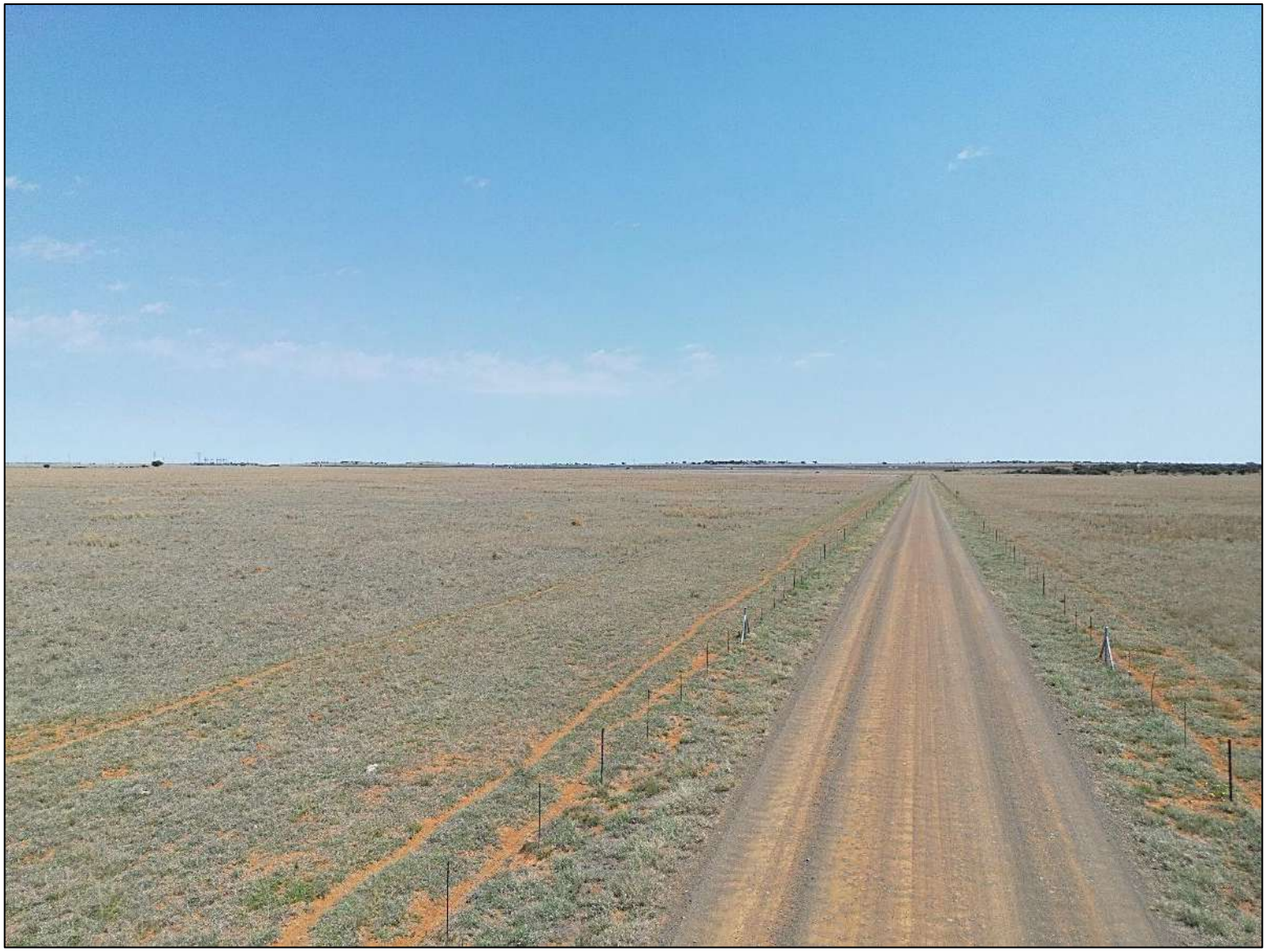

Figure 5.8: View towards the Droogfontein 2 SEF at 1km: 6m AGL

Figure 5.9: View towards the Droogfontein 2 SEF at 1km: 30m AGL

Figure 5.10: View towards the Droogfontein 2 SEF at 1km: 50m AGL

Figure 5.11: View towards the Enel Tobivox SEF at 370m: eye height (1.8m AGL)

Figure 5.12: View towards the Enel Tobivox SEF at 370m: 6m AGL

Figure 5.13: View towards the Enel Tobivox SEF at 370m : 30m AGL

Figure 5.14: View of the Aggeneys Solar Power Plant from National Route 14

5.3. Site Sensitivity Verification

This Site Sensitivity Verification requires the production of a Site Sensitivity Verification for a development footprint. This section must confirm or dispute the current land use and environmental sensitivity identified by the national environmental screening tool (DFFE Screening Tool), provide evidence supporting the verified or different land use and sensitivity. Additionally, the DFFE Screening Report and this Visual Impact Sensitivity Verification specifically address the visual impacts associated with a Solar Energy Facility as identified by the DFFE Screening Tool:

- Landscape (Solar) Theme Sensitivity

Seven sensitivity features were identified in the DFFE Screening Tool associated with the Landscape Theme. The project area landscape theme sensitivity is classified as “Very High”. The following features were identified:

Table 5.2: Landscape Sensitivity Features

Sensitivity	Feature(s)
High	Slope between 1:4 and 1:10
High	Between 1.5 and 3 km of a nature reserve
High	Within 500 m of a river
Medium	Between 3 and 5 km of a nature reserve
Medium	Within 1000m of a wetland
Very High	Mountain tops and high ridges
Very High	Within 250 m of a river

Figure 5.15: DFFE Screening Tool: Landscape Sensitivity Map

Table 5.3: Verification of DFFE Screening Report Sensitivity Ratings for the Landscape Theme

Theme	DFFE Screening Tool Report Sensitivity	Specialist Sensitivity	Rating Confirmed/disputed and Reasons	Compliance Statement or Full Assessment
Landscape	Within 500m of a river – High	Impact on landscape features with a higher visual appeal.	**Disputed**: **Medium** – Not a river, but a creek. This creek does not possess scenic qualities as to attract visitors or tourists.	Full Assessment
	Slope between 1:4 and 1:10 – High	Increase in visibility.	**Confirmed**, although it is unlikely that PV infrastructure will be built on such slope.	Full Assessment
	Between 1.5 and 3 km of a nature reserve – High	Impact on sense of place and possible reduction in visitors.	**Disputed**: **Medium** - The impact will be more prominent during the construction phase, but existing vegetation screening will be very effective.	Full Assessment

Theme	DFFE Screening Tool Report Sensitivity	Specialist Sensitivity	Rating Confirmed/disputed and Reasons	Compliance Statement or Full Assessment
	Between 3 and 5 km of a nature reserve - Medium	Impact on sense of place and possible reduction in visitors.	**Confirmed**. The impact will be more prominent during the construction phase.	Full Assessment
	Within 1000m of a wetland - Medium	Impact on landscape features with a higher visual appeal.	**Disputed**: **Low** – Natural and artificial wetlands. They do not possess scenic qualities as to attract visitors or tourists.	Compliance statement
	Mountain tops and high ridges – Very High	Impact on sense of place and possible reduction in visitors. Increase in visibility.	**Disputed**: **Medium** – Some small ridges to the north-west and to the south. Although it might have an impact on these features, they are not known to attract tourists specifically, neither hikers that visit these landforms.	Full Assessment
	Within 250 m of a river	Impact on landscape features with a higher visual appeal.	**Disputed**: **Medium** – Not a river, but a creek. This creek does not possess scenic qualities as to attract visitors or tourists.	Full Assessment

Please see the maps below for evidence.

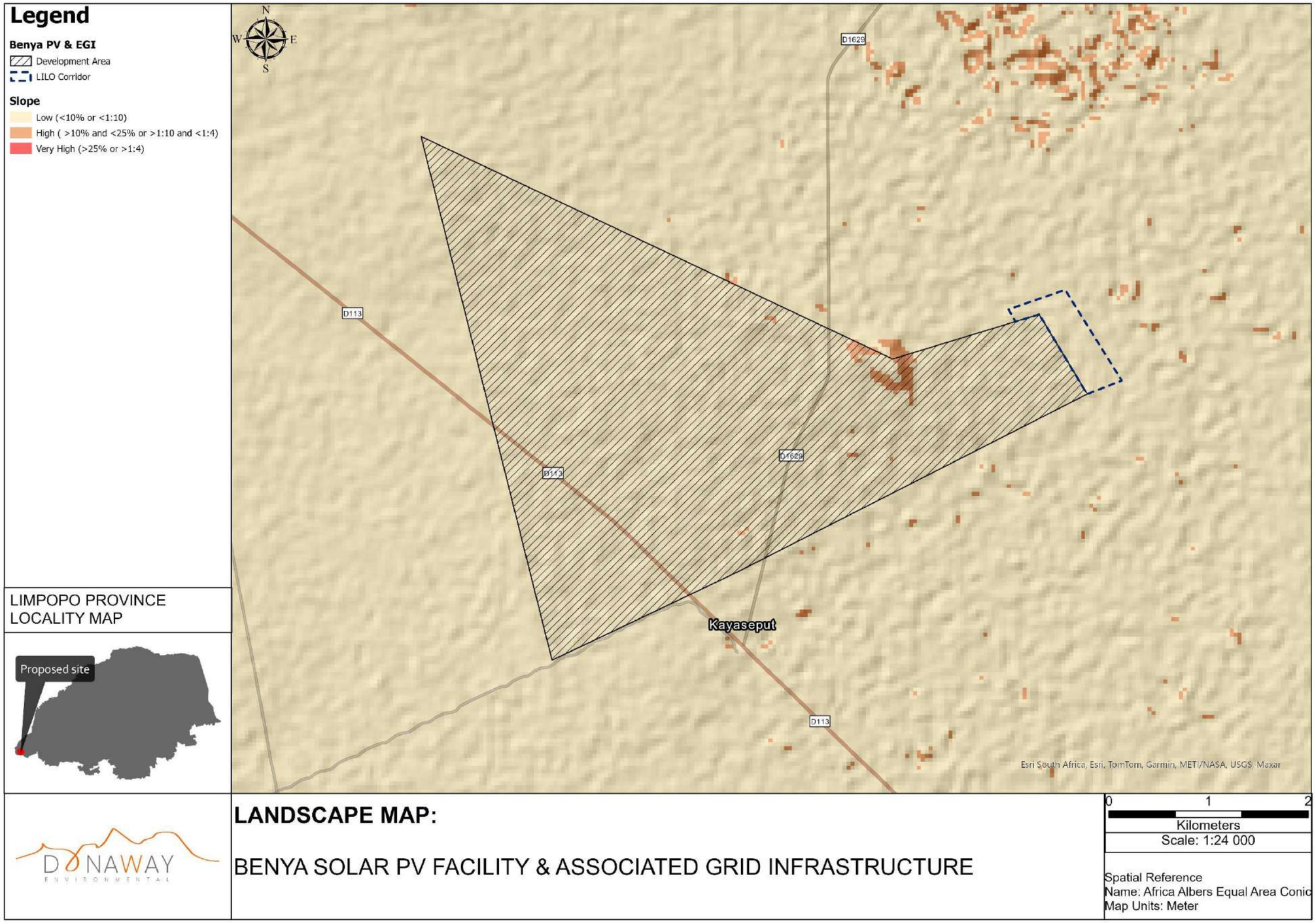

Figure 5.16: Mountain Tops and High Ridges Map: Slope

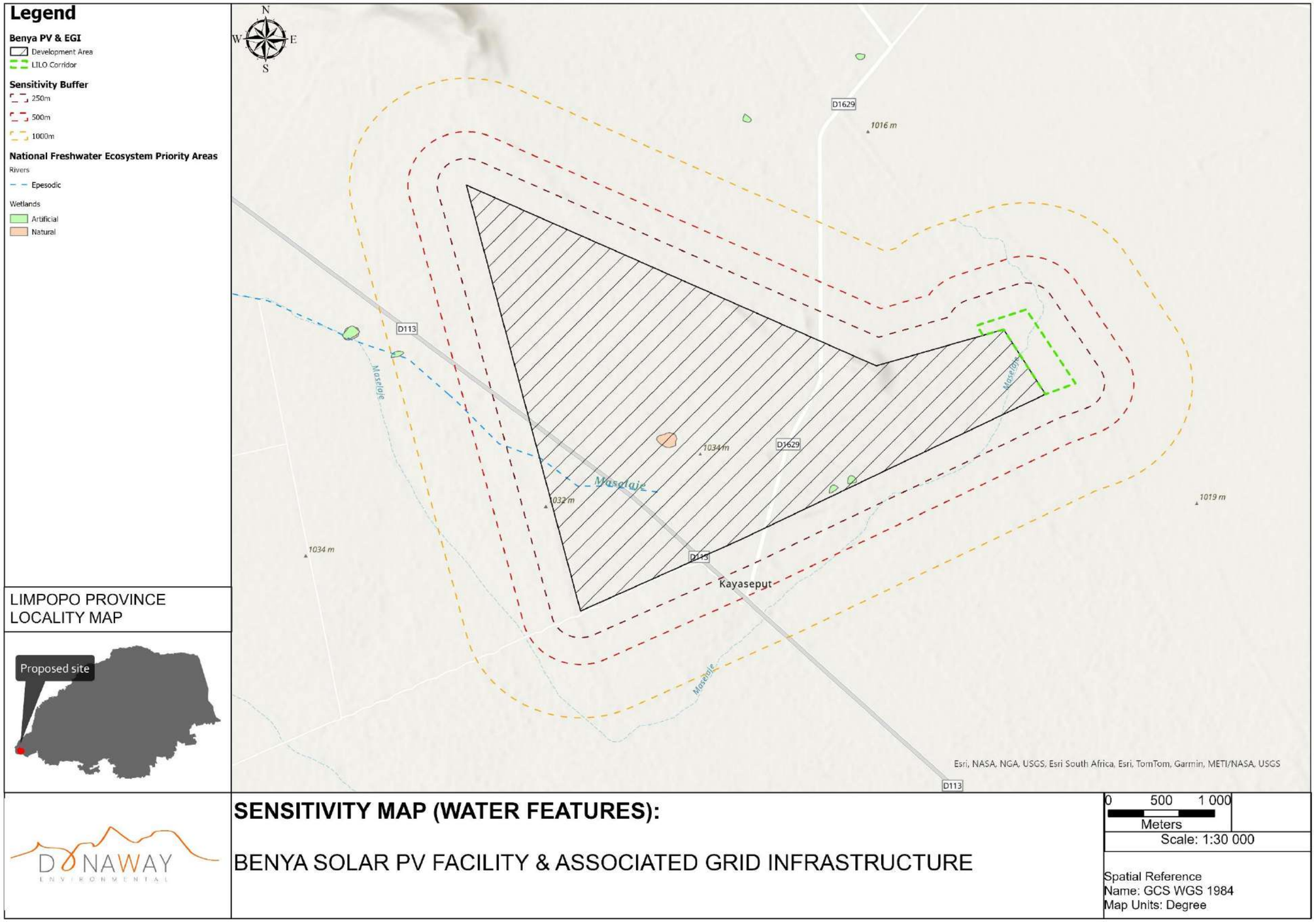

Figure 5.17: Water Features Map

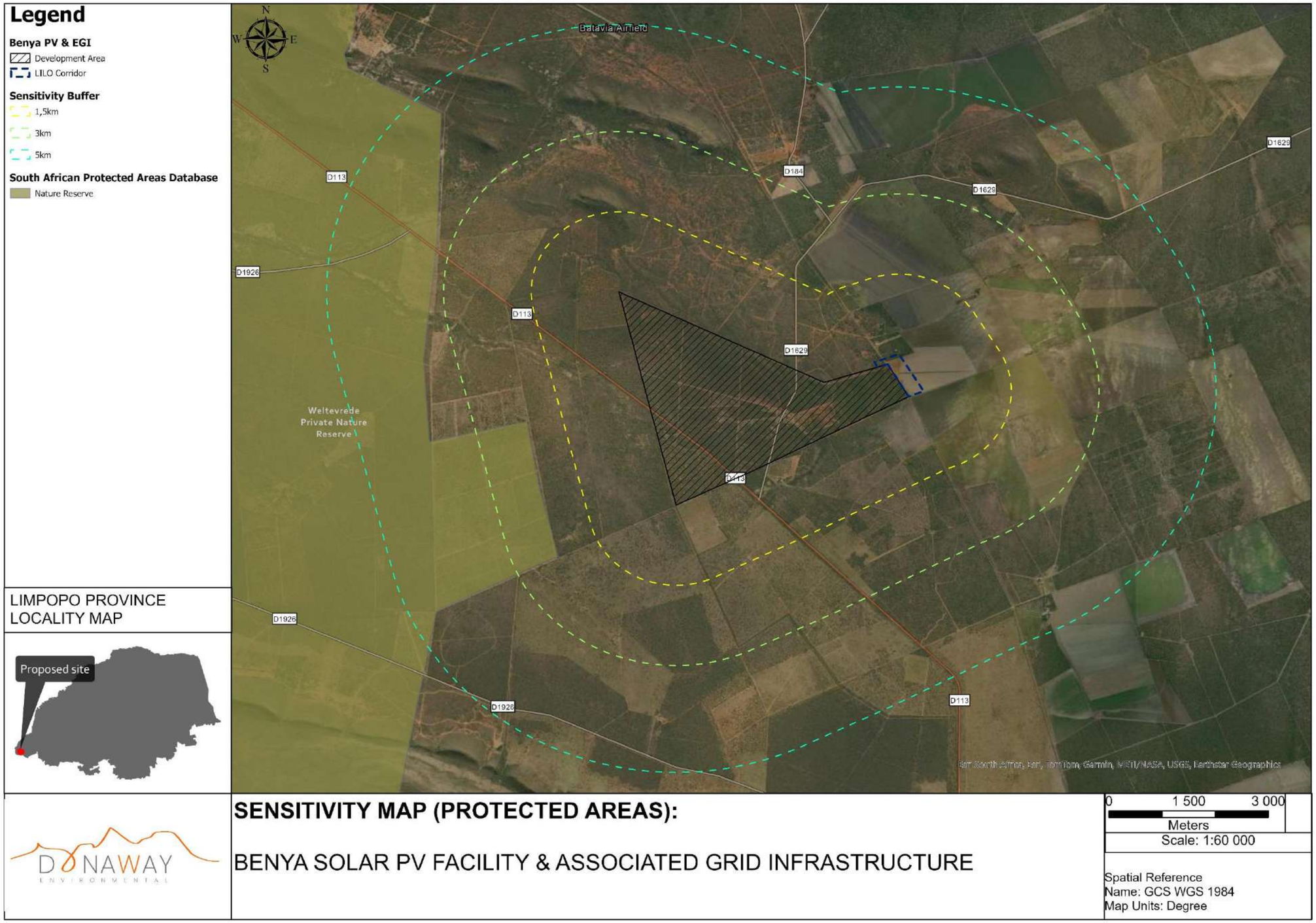

Figure 5.18: Protected Areas Map

6. VISUAL IMPACT ASSESSMENT: SCOPING EVALUATION

6.1. Construction and Operational Phases

This section provides a detailed description and assessment of the potential visual impacts that were identified during the VIA scoping process for the detailed design and construction, operation, and decommissioning phases of the proposed project.

The design and construction phase are expected to take approximately 18 to 24 months to complete, and the operational phase approximately 25 years.

Table 6.1: Scoping Evaluation

Visual Impact The change or contrast to the existing visual environment and the extent to which that change compromises (negative impact) or enhances (positive impact) or maintains the visual quality of the landscape.			
Issue	**Nature of Impact**	**Extent of Impact**	**No-Go Areas**
Visual impact of construction activities on sensitive visual receptors and a rural landscape.	**Direct impacts:** • Intrusion of construction activities within a serene area and impact on sense of place. • Damaging vegetation with aesthetic appeal. • Impact on sensitive receptors. • Visual clutter due to construction material and debris.	Local	Avoid areas with a slope steeper than 1:10.

	Indirect impacts: • Loss of visitors/tourists to the area.		
Visual impact of industrial operational infrastructure on sensitive visual receptors, landscape, and scenic resources. Change in the sense of place of the local area.	**Direct impacts:** • Permanent change in landscape and impact on sense of place. • Impact on sensitive receptors. **Indirect impacts:** • Loss of visitors/tourists to the area.	Local	Avoid areas with a slope steeper than 1:10.
Visual impacts of lighting at night on sensitive visual receptors and the effect of sky glow on a rural landscape.	**Direct impacts:** • Sky glow impacting stargazing and impact on sense of place. • Impact on sensitive receptors. **Indirect impacts:** • Loss of visitors/tourists to the area.	Local	None identified at this stage.

Cumulative visual impacts of other proposed projects.	**Direct impacts:** • Impact on the scenic resources of the Bushveld landscape. • Transformation of a rural landscape to an industrial landscape. • Impact on sensitive receptors. **Indirect impacts:** • Loss of visitors/tourists to the region.	Regional	Avoid areas with a slope steeper than 1:10.

Description of expected significance of impact

The proposed development has the potential to alter the visual aesthetics and sense of place in the surrounding natural landscape. The removal of vegetation and the introduction of industrial infrastructure within a predominantly natural setting can significantly transform the visual character of the area. Given the ample existing vegetation cover in the proposed development region, there should not be challenges in mitigating the visual impact. The natural landscape's inherent features, such as changes in elevation and landforms, provide a level of screening effect, albeit not sufficient to fully mitigate the visual intrusion caused by the large-scale development. The proximity of the development to district roads and surrounding landowners increases the potential visual intrusion. The increased visibility of industrial elements against the backdrop of the natural landscape can compromise the area's scenic qualities and affect the sense of place for residents and visitors alike. The associated impacts of the proposed development can be minimised through the implementation of appropriate mitigation measures. The significance of the project will be confirmed in the EIA phase once the layout has been provided.

Gaps in knowledge & recommendations for further study

- Mapping of the Zone of Theoretical Visibility to determine visual magnitude on the surrounding area.
- Identifying sensitive receptors within the surrounding areas (farmsteads, homesteads, roads, aviation infrastructure, lodging facilities, protected areas, etc.)
- Describe the landscape characteristics and vegetation cover with a focus on defining their visual screening capabilities.
- Viewer subjectivity.

- Actual construction dates of other proposed developments that add to the cumulative impact and whether these projects will be constructed.
- Data on the number of employment opportunities during the construction and operational phase and the duration of the construction phase of the proposed Benya Solar PV Development was not available at the time of writing this report.

The site visit and research have been conducted as well as practically possible. No recommendations or further study are necessary at the moment, except when the layout of the project is finalised after the scoping phase.

6.2. Cumulative Impacts

The EIA Regulations (as amended in 2017) determine that cumulative impacts, "*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*." Cumulative impacts can be incremental, interactive, sequential or synergistic. EIAs have traditionally failed to come to terms with such impacts, largely as a result of the following considerations:

- Cumulative effects may be local, regional or global in scale and dealing with such impacts requires coordinated institutional arrangements;
- Complexity - dependent on numerous fluctuating influencing factors which may be completely independent of the controllable actions of the proponent or communities; and
- Project level investigations are ill-equipped to deal with broader biophysical, social and economic considerations.

According to the DFFE's database (REEA_OR_2024_Q4) there are no other renewable energy applications within a 30 km radius of the project site, however, there is a Petroleum Plant application that has been submitted to the Department within the geographic area of investigation (refer to **Table 6.2** and **Figure 6.1** for an overview of projects within a 30km radius of the project site).

Table 6.2: A summary of related projects, that may have a cumulative impact, in a 30 km radius of the study area

Project name	Distance from study area	Proposed generating capacity	DFFE reference	EIA process	Project status
Projects included in the REEA database (February 2025)					
PPC Dwaalboom Cement Plant Heat Recovery Plant in Thabazimbi, Limpopo Province	8.6 km	19MW	14/12/16/3/3/1/1112	Basic Assessment Application	Approved

***It is unclear whether other projects not related to renewable energy will be constructed in this area, and whether other projects are proposed. In general, development activity in the area is focused on agriculture and game farming. It is quite possible that future renewable energy developments may take place within the general area.*

The potential for cumulative impacts to occur as a result of these projects are therefore likely, but low.

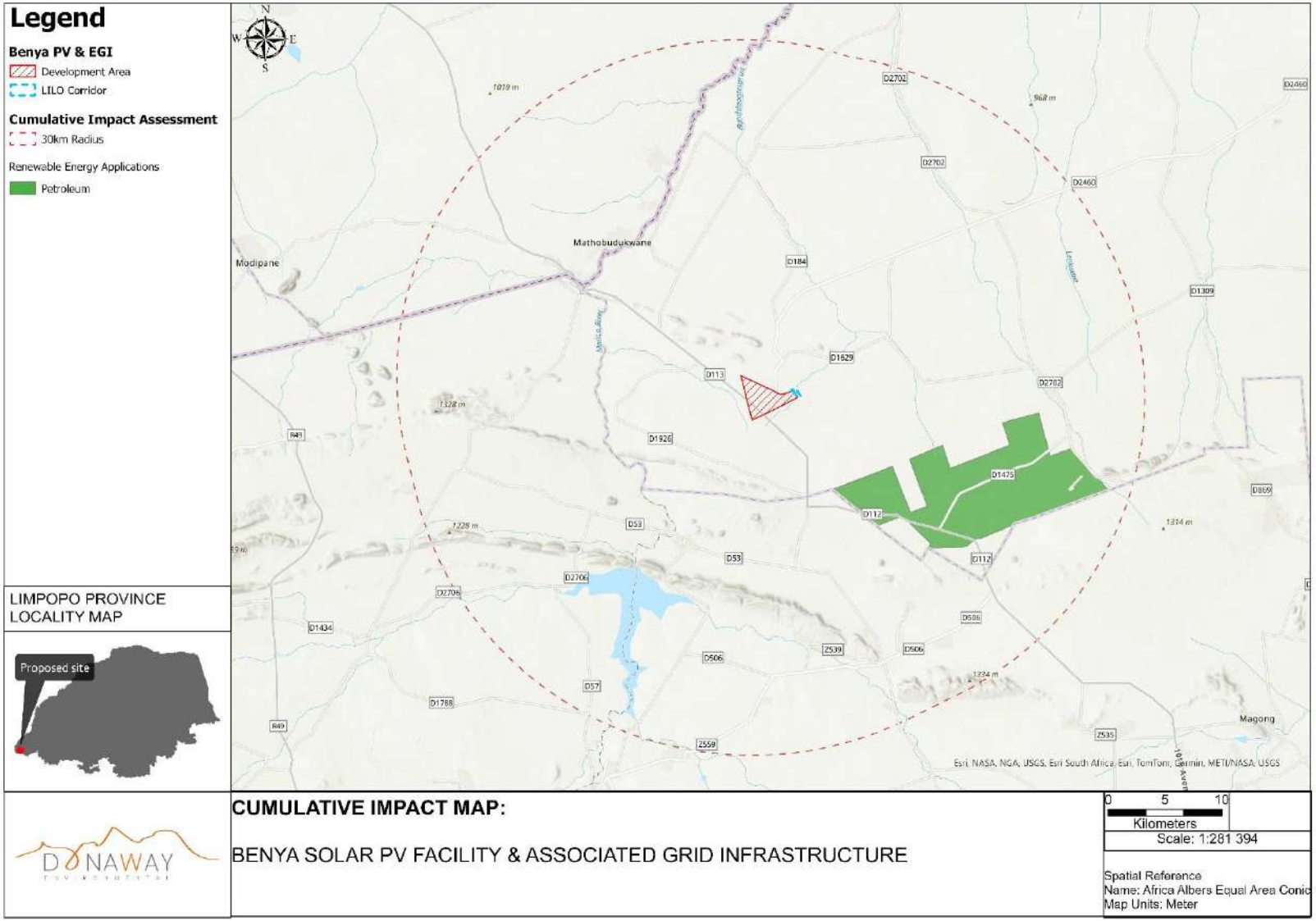

Figure 6.1: Cumulative map showing the location of other developments within 30km of the Benya Solar PV facility

6.3. Decommissioning Phase

The decommissioning phase of the project will result in the same visual impacts experienced during the construction phase of the project. However, it is anticipated that the proposed development will be refurbished and upgraded to prolong its life.

6.4. Assessment of Alternative Sites

The properties proposed for the development are considered suitable for the development by the Applicant, and therefore, the area has been demarcated and indicated as being preferred. No other properties have been identified for development in the area. The proposed project site was chosen due to its suitable climatic conditions, topography (i.e., in terms of slope), environmental conditions (i.e., low agricultural potential, ecological sensitivity and archaeology), proximity to the existing Eskom grid connection infrastructure, and proximity to existing roads (i.e., to facilitate the movement of machinery, equipment, infrastructure and people during the construction phase).

6.5. Assessment of Impacts for the No-Go Alternative

The “no-go” alternative is the option of not constructing the project. The implementation of the development is expected to result in several negative visual impacts, but if the project is not constructed, the following positive impacts will be lost:

- Potential direct and indirect employment opportunities.
- Potential economic multiplier effect.
- Development of processing infrastructure to concentrate income locally.

7. MITIGATION MEASURES

The primary visual impact, which is associated with the layout and appearance of the infrastructure is not mitigatable to the point where the visual impact can be eliminated, but it can be reduced by implementing best practice measures. The functionality of the project cannot be changed to reduce the possible visual impact, but the following measures can be put in place to reduce the possible visual impact:

- It is recommended that vegetation cover (i.e., either natural or cultivated) immediately adjacent to the development footprint, which includes the firebreak, be maintained, during both the construction and operational phases. This will minimise the visual impact through the presence of a buffer screen between the visual receptors and the development.
- Existing roads should be utilised wherever possible. New roads should be planned to take due cognisance of the topography to limit cut and fill requirements. The construction/upgrade of roads should be undertaken properly, with adequate drainage structures in place to minimise the risk of erosion.
- In terms of onsite associated infrastructure and buildings, it is recommended that proper planning is implemented to minimise vegetation clearing. Consolidating infrastructure as much as possible and making use areas that already disturbed, where possible.
- Mitigation of lighting impacts include the pro-active design, planning and specification of lighting for the development. The correct specification and placement of lighting fixtures for the proposed development will go far in containing, rather than spreading the light. As far as practically possible, mitigation measures include:
    - Shielding the sources of light by physical barriers (walls, vegetation, or structures).
    - Limiting mounting heights of lighting fixtures or alternatively using footlights or bollard level lights.
    - Making use of minimum lumen or wattage lights.
    - Making use of downlighters or shielded fixtures.
    - Making use of motion detectors for security lighting. This will allow the site to remain in relative darkness, until lighting is required for security or maintenance purposes.

The following mitigation and monitoring requirements are recommended to ensure the visual impact of the proposed development is limited:

7.1. Mitigation Measures during the Construction and Decommissioning Phases

- An Environmental Control Officer (ECO) should be appointed during the construction and decommissioning phase to oversee environmental compliance.
- Ensure that vegetation is not unnecessarily cleared or removed during the construction period.
- Reduce the construction period through careful logistical planning and productive implementation of resources.
- Plan the placement of lay-down areas and potential temporary construction camps in order to minimise vegetation clearing (i.e., in already disturbed areas) where possible.

- Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.
- Implement good housekeeping through the removal of rubble, litter and construction material, if it is not removed daily to a registered landfill site, then it should be stored appropriately until removal can take place.
- Dust suppression should be implemented during construction especially near roads where dust may cause reduced visibility. Due to a scarcity of water in most parts of South Africa, contractors could source alternative ways to implement dust suppression. One such way could be the use of fine gravel stone on roads with heavy traffic.
- Restrict construction activities to daylight hours in order to negate or reduce the visual impact associated with lighting.
- Rehabilitate all disturbed areas outside the construction footprint immediately after the completion of construction works.

7.2. Mitigation Measures during the Operational Phase

- Maintenance and good housekeeping of the development.
- Roads must be maintained to eliminate erosion and suppress dust.
- Rehabilitated areas must be monitored for rehabilitation failure and remedial action must then be implemented as and when required.

7.3. Monitoring Requirements

The following monitoring requirements are recommended to be included as conditions in the Environmental Authorisation to ensure the visual impact of the proposed development is limited:

- The ECO and/or ELO should monitor the amount of litter on site during construction on a regular basis to ensure litter prevention.
- The ECO and/or ELO should monitor housekeeping during construction to ensure neat and tidy laydown areas.
- The ECO and/or ELO should monitor the amount of dust seen on and surrounding the site during construction. Dust suppression should be implemented as required.
- The ECO and/or ELO should ensure and monitor all rehabilitation after construction for at least the first 6 months to ensure all vegetation is established in a proper and healthy way. This will also depend on the amount of rainfall and season after construction which might shorten the monitoring requirement.
- Permanent workforce should monitor the health and progress of the added vegetation to ensure proper screening is maintained. This monitoring can be implemented for at least the first 3 years after construction **IF** drought tolerant vegetation is added, otherwise on a permanent basis.
- Any other monitoring requirements set out by the EA, EMP and SACAA.

8. KEY FINDINGS AND CONCLUSION

8.1. Key Findings

According to **Tables 2.2 to 2.4** used as guidelines for this study, from Oberholzer (2005), the project's impact was initially predicted to be high. However, considering the findings outlined below, along with the implementation of mitigation measures, this impact could be reduced to a medium and low.

The landscape within the 10km PAOI is shaped by a combination of agricultural and bushveld vegetation, with notable features such as the Marico River and nearby kopjes and ridges contributing to the overall sense of place. The Zone of Theoretical Visibility (ZTV) analysis indicates high visibility in the immediate vicinity, with visibility decreasing exponentially beyond the 1km radius. The following key findings summarise the key aspects of the landscape and scoping phase assessment:

1. **Diverse Landforms**: The project area is characterised by a diverse range of landforms, mainly including vast open plains and ridges. This diverse landscape contributes to the region's unique visual appeal.
2. **Limited Industrial and Urban Development**: Within the 10km Project Area of Interest (PAOI), there is no significant industrial development. The main urban development, such as the town of Northam, falls outside this PAOI. This indicates a relatively pristine environment within the project vicinity.
3. **Sparse Sports, but more Recreational Development**: The area has limited sports and recreational developments, with small-scale activities primarily located in Northam although outside the 10km PAOI. Formal and informal hunting are noted as recreational activities in the region.
4. **Predominance of Agricultural Development**: Agriculture is the predominant land use in the region. This indicates a reliance on rural economic activities, with minimal urban encroachment observed within the project area.
5. **Basic Service Infrastructure**: Service development is mainly focused on basic infrastructure such as roads and power, primarily serving the agricultural and rural communities in the surrounding area.
6. **Limited Tourism Development:** Tourism development within the 10km PAOI remains limited, although there are a few game farms and nature reserves such as Doornlaagte Private Nature Reserve and Weltevrede Private Nature Reserve in the area; however, the area is more focused on agriculture. Tourists may use the surrounding roads leading to their destination.
7. **High Visual Sensitivity**: The assessment of visual sensitivity indicates a high sensitivity, primarily due to the visual qualities of a Bushveld landscape.
8. **High Receptor Sensitivity**: Sensitive visual receptors in the area mainly include farmers and their employees, lodging facilities and game farms, with transient visibility for travellers on the district roads.

9. **High Visual Absorption Capacity (VAC)**: The surrounding area boasts a high VAC due to topographical elevation changes and vegetation. This suggests a capacity to absorb visual changes without significant disruption to the overall visual character.

10. **High Visual Intrusion**: The visual landscape surrounding the proposed development is characterised by serene topographical and agricultural features, with general agriculture and game farming as the primary economic activity. The absence of significant industrial developments within the 10km PAOI further emphasises the area's visual integrity.

11. **Site Sensitivity Verification**: The screening tool flagged the area as “Very High” sensitivity due to features such as proximity to rivers, wetlands, nature reserves, steep slopes, and mountains & ridges. Upon specialist review:
    - **Three features** (slope, proximity to 3–5 km of a reserve, and steep slopes) were **confirmed**.
    - **Four features** (proximity to water bodies, nature reserves, wetlands, and ridges) were **disputed** due to low visual appeal or minimal tourism/recreational value.

    The disputes are based on the actual on-site features (e.g., minor creeks rather than rivers) and effective natural screening. Most features required a **Full Assessment**, while one warranted a **Compliance Statement** only.

8.2. The need for a visual impact assessment

A Visual Impact Assessment (VIA) is essential for this project due to the region's unique and diverse landscape, which mainly features plains and ridges. This diverse topography plays a crucial role in shaping the area's visual appeal. Additionally, the lack of significant industrial and urban development within the 10km Project Area of Interest (PAOI) highlights the pristine nature of the environment, with only minimal infrastructure present. The region is primarily focused on agriculture and game farming, indicating a rural landscape with minimal urban encroachment. Given the area's high visual sensitivity and high visual absorption capacity (VAC), the topography and vegetation have a natural ability to absorb changes, yet high visual receptor sensitivity exists, particularly among local farmers, game farms and lodging facilities. Therefore, a detailed VIA is necessary to assess the potential visual impacts of the proposed development and ensure that any changes to the landscape will not significantly disrupt its visual integrity or impact sensitive receptors.

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ANNEXURE A: CURRICULUM VITAE

Johan Botha

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Personal Information

Date of Birth: 18 February 1985
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Profession: Environmental Consultant
Position: Director & Consultant

Key Qualifications

- Honours in Environmental Management (Hons.Env.Man.), North West University (NWU), SA (2010)
- B. Ed. in Geography & Technology, North West University (NWU), SA (2004–2008)

Contact Information

Johan Botha has extensive knowledge and experience on Renewable Energy projects and more specifically the visual and social impacts surrounding photovoltaic solar energy facilities and wind energy facilities in South Africa. He also has knowledge and experience in environmental management of Eskom power infrastructure projects as well as solar energy facilities, focusing on EA and EMP implementation as well as TOPS counts and permitting. He has completed 150+ Visual Impact Assessments and 70+ Social Impact Assessments for renewable energy projects and mining. Below is a list of the number of projects completed for each field of assessment:

- 6 Environmental Control Officer (ECO) Projects on Eskom Substation and Transmission lines in the Northern Cape Province
- 1 ECO Project on a Solar Power Plant in the Northern Cape Province
- 150+ Visual Impact Assessments for Photovoltaic Solar Energy Projects, Wind Energy and alluvial Diamond Mines across South Africa
- 70+ Social Impact Assessments for Photovoltaic Solar Energy Projects across South Africa
- 12 Threatened or Protected Specie Surveys and Permit Applications.

Michael Cloete

Contact Information

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Personal Information

Date of Birth: 23 March 1996
Nationality: South African
Profession: Environmental Consultant
Position: Visual and Social Specialist

Key Qualifications

- MSc. Geography and Environmental Management North West University (2020)
- Hons. Geography and Environmental Management North West University (2018)
- BSc. Geology and Geography North West University (2017)

Contact Information

Michael Cloete has extensive knowledge and experience in the environmental science field, in particular social impacts, hydrogeology and GIS fields. Visual impacts assessment and the methodological approach formed the basis of his Masters and Honours studies, gaining extensive knowledge in the field. His recent focus involved renewable projects and the social and visual impact assessment studies. Below is a list of the number of projects completed for each field of assessment:

- 50+ Social Impact Assessments, with the majority associated with Photovoltaic Solar Energy Projects in the Free State, Limpopo, North West, Mpumalanga, Northern Cape, Gauteng and Western Cape Provinces. In addition, Battery Energy Storage Facilities and Accommodation camps has formed part of Social Impact Assessment.
- 80+ Hydrogeological Assessments regarding water use licencing for agriculture, industrial and mining activities.
- Hydropedological studies relating to water-feeding systems of wetlands.
- Water use licence auditing and reporting.
- GIS applications for report writing and hydrogeological assessments, ranging from map creation to spatial analyst procedures.