

THE PROPOSED BEAUFORT WEST SOLAR PV ENERGY FACILITY PART 2 AMENDMENT ASSESSMENT, WESTERN CAPE PROVINCE, SOUTH AFRICA

Visual Statement

Final v_1

DATE: 13 March 2025

Document prepared for SRK Consulting (South Africa (Pty) Ltd
On behalf of Mulilo Renewable Energy Projects Development (Pty) Ltd



Visual Resource Management Africa cc
P O Box 7233, George, 6531
Cell: +27 (83) 560 9911
E-Mail: steve@vrma.co.za
Web: www.vrma.co.za



TABLE OF CONTENTS

1	DFFE SPECIALIST REPORTING REQUIREMENTS	5
1.1	SPECIALIST DECLARATION OF INDEPENDENCE	5
1.2	SPECIALIST REPORT REQUIREMENTS IN TERMS OF APPENDIX 6 OF THE EIA REGULATIONS (2014), AS AMENDED IN 2017	5
1.3	DFFE SCREENING TOOL SITE SENSITIVITY VERIFICATION	7
2	EXECUTIVE SUMMARY	8
3	INTRODUCTION	12
3.1	TERMS OF REFERENCE.....	12
3.2	STUDY TEAM	13
3.3	VISUAL ASSESSMENT APPROACH.....	13
3.4	VIA PROCESS OUTLINE	15
3.5	ASSUMPTIONS AND UNCERTAINTIES	16
4	PROJECT DESCRIPTION	16
5	LEGAL FRAMEWORK	22
5.1	NATIONAL AND REGIONAL LEGISLATION AND POLICIES	22
5.1.1	<i>DEA&DP Visual and Aesthetic Guidelines</i>	23
5.1.2	<i>REDZ Planning</i>	23
5.1.3	<i>Other Renewable Energy Projects</i>	23
5.1.4	<i>Local and Regional Planning</i>	25
5.2	LANDSCAPE PLANNING POLICY FIT	25
6	BIBLIOGRAPHY	30
7	ANNEXURE A: SITE VISIT PHOTOGRAPHS AND COMMENTS	31
8	ANNEXURE B: SPECIALIST INFORMATION	37
8.1	PROFESSIONAL REGISTRATION CERTIFICATE	37
8.2	CURRICULUM VITAE (CV)	38

TABLE OF FIGURES

FIGURE 1.	DFFE SCREENING TOOL FOR LANDSCAPE AND PV.....	7
FIGURE 2:	NATIONAL AND REGIONAL LOCALITY MAP.	12
FIGURE 3:	PHOTOGRAPHIC EXAMPLE OF WHAT THE PROPOSED PV COULD LOOK LIKE AS FIXED AND SINGLE PORTRAIT MODEL ON A TRACKER.	18
FIGURE 4.	EXAMPLE OF A PHOTOMONTAGE OF TESLA BESS IN LANDSCAPE	18
FIGURE 5:	APPROVED LAYOUT PLAN MAP INCLUSIVE OF GRID CONNECTION ROUTINGS.	19
FIGURE 6:	P2AA PROPOSED LAYOUT PLAN MAP EXCLUSIVE OF GRID CONNECTION ROUTINGS (NOT ASSESSED).	21
FIGURE 7:	PLANNING LOCALITY MAP DEPICTING THE LOCAL, DISTRICT AND NATIONAL PLANNING ZONES.....	22
FIGURE 8:	PREVIOUS SURROUNDING RENEWABLE ENERGY DEVELOPMENTS MAP.....	24
FIGURE 9:	UPDATED SURROUNDING RENEWABLE ENERGY DEVELOPMENTS MAP.	24
FIGURE 10:	APPROVED LAYOUT - VISUAL RESOURCE MANAGEMENT CLASSES MAP.....	27
FIGURE 11:	P2AA UPDATED LAYOUT VISUAL RESOURCE MANAGEMENT CLASSES MAP.	29
FIGURE 12:	SITE SURVEY POINT MAP	31

LIST OF TABLES

TABLE 1.	SPECIALIST DECLARATION OF INDEPENDENCE.....	5
TABLE 2:	SPECIALIST REPORT REQUIREMENTS TABLE.....	5
TABLE 3.	DFFE SSV PV AND LANDSCAPE RISK TABLE (NO CHANGE).....	8

TABLE 4: AUTHORS AND CONTRIBUTORS TO THIS REPORT	13
TABLE 5: VRM CLASS MATRIX TABLE	14
TABLE 6: METHODOLOGY SUMMARY TABLE: P2AA SCOPE OF WORK UNDERTAKEN	15
TABLE 7: PROJECT INFORMATION TABLE	16
TABLE 8: LIST OF KEY PLANNING INFORMANTS TO THE PROJECT.	22
TABLE 9: DISTRICT PLANNING REFERENCE TABLE RELEVANT TO THE PROJECT.....	25
TABLE 10: LOCAL PLANNING REFERENCE TABLE RELEVANT TO THE PROJECT.....	25
TABLE 11: VRM AFRICA PROJECTS ASSESSMENTS TABLE.....	39

LIST OF ACRONYMS

<i>APHP</i>	Association of Professional Heritage Practitioners
<i>BLM</i>	Bureau of Land Management (United States)
<i>BPEO</i>	Best Practicable Environmental Option
<i>CALP</i>	Collaborative for Advanced Landscape Planning
<i>DEM</i>	Digital Elevation Model
<i>DoC</i>	Degree of Contrast
<i>EIA</i>	Environmental Impact Assessment
<i>EMPr</i>	Environmental Management Plan
<i>GIS</i>	Geographic Information System
<i>GPS</i>	Global Positioning System
<i>IDP</i>	Integrated Development Plan
<i>IEMA</i>	Institute of Environmental Management and Assessment (United Kingdom)
<i>KOP</i>	Key Observation Point
<i>LVIA</i>	Landscape and Visual Impact Assessment
<i>MAMSL</i>	Metres above mean sea level
<i>NELPAG</i>	New England Light Pollution Advisory Group
<i>PNR</i>	Private Nature Reserve
<i>SDF</i>	Spatial Development Framework
<i>SEA</i>	Strategic Environmental Assessment
<i>VAC</i>	Visual Absorption Capacity
<i>VIA</i>	Visual Impact Assessment
<i>VRM</i>	Visual Resource Management
<i>VRMA</i>	Visual Resource Management Africa
<i>ZVI</i>	Zone of Visual Influence

GLOSSARY OF TECHNICAL TERMS

Technical Terms Definition (Oberholzer, 2005)

Degree of Contrast	The measure in terms of the form, line, colour and texture of the existing landscape in relation to the proposed landscape modification in relation to the defined visual resource management objectives.
Visual intrusion	Issues are concerns related to the proposed development, generally phrased as questions, taking the form of “what will the impact of some activity be on some element of the visual, aesthetic or scenic environment”.
Receptors	Individuals, groups or communities who would be subject to the visual influence of a particular project.

Sense of place	The unique quality or character of a place, whether natural, rural or urban.
Scenic corridor	A linear geographic area that contains scenic resources, usually, but not necessarily, defined by a route.
Viewshed	The outer boundary defining a view catchment area, usually along crests and ridgelines. Similar to a watershed. This reflects the area, or the extent thereof, where the landscape modification would probably be seen.
Visual Absorption Capacity	The potential of the landscape to conceal the proposed project.

Technical Term	Definition (USDL., 2004)
-----------------------	---------------------------------

Key Observation Point	Receptors refer to the people located in the most critical locations, or key observation points, surrounding the landscape modification, who make consistent use of the views associated with the site where landscape modifications are proposed. KOPs can either be a single point of view that an observer/evaluator uses to rate an area or panorama, or a linear view along a roadway, trail, or river corridor.
Visual Resource Management	A map-based landscape and visual impact assessment method development by the Bureau of Land Management (USA).
Zone of Visual Influence	The ZVI is defined as 'the area within which a proposed development may have an influence or effect on visual amenity.'

1 DFFE SPECIALIST REPORTING REQUIREMENTS

1.1 Specialist declaration of independence

Table 1. Specialist declaration of independence.

<p>All intellectual property rights and copyright associated with VRM Africa's services are reserved, and project deliverables, including electronic copies of reports, maps, data, shape files and photographs, may not be modified or incorporated into subsequent reports in any form, or by any means, without the written consent of the author. Reference must be made to this report, should the results, recommendations or conclusions in this report be used in subsequent documentation. Any comments on the draft copy of the Visual Impact Assessment (VIA) must be put in writing. Any recommendations, statements or conclusions drawn from, or based upon, this report, must make reference to it.</p> <p>This document was completed by Silver Solutions 887 cc trading as VRM Africa, a Visual Impact Study and Mapping organisation located in George, South Africa. VRM Africa cc was appointed as an independent professional visual impact practitioner to facilitate this VIA. I, Stephen Stead, hereby declare that VRM Africa, an independent consulting firm, has no interest or personal gains in this project whatsoever, except receiving fair payment for rendering an independent professional service.</p>  <p>Stephen Stead APHP accredited VIA Specialist</p>
--

1.2 Specialist report requirements in terms of Appendix 6 of the EIA Regulations (2014), as amended in 2017

Table 2: Specialist report requirements table

A specialist report prepared in terms of the Environmental Impact Regulations of 2014 (as amended in 2017) must contain:	Relevant section in report
Details of the specialist who prepared the report	Stephen Stead, owner / director of Visual Resource Management Africa. steve@vrma.co.za Cell: 0835609911
The expertise of that person to compile a specialist report including a curriculum vitae	Registration with Association of Professional Heritage Practitioners. MSc Geography
A declaration that the person is independent in a form as may be specified by the competent authority	Table 1

A specialist report prepared in terms of the Environmental Impact Regulations of 2014 (as amended in 2017) must contain:	Relevant section in report
An indication of the scope of, and the purpose for which, the report was prepared	Terms of Reference
A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	Baseline Assessment
The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	21 Oct 2022. No relevance to seasonal variation.
A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Methodology
Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternative;	Baseline Visual Inventory
An identification of any areas to be avoided, including buffers	Visual Resource Management Classes
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	VRM Map
A description of any assumptions made and any uncertainties or gaps in knowledge;	Assumptions and Limitations
A description of the findings and potential implications of such findings on the impact of the proposed activity or activities	Visual Impact Assessment
Any mitigation measures for inclusion in the EMPr	Environmental Management Plan
Any conditions for inclusion in the environmental authorisation	NA
Any monitoring requirements for inclusion in the EMPr or environmental authorisation	NA
A reasoned opinion as to whether the proposed activity or portions thereof should be authorised	Opportunities and Constraints
Regarding the acceptability of the proposed activity or activities; and	Conclusion
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	It is the recommendation that the proposed development should commence WITH MITIGATION for the key reasons motivated in the Executive Summary.
A description of any consultation process that was undertaken during the course of carrying out the study	EIA Process
A summary and copies if any comments that were received during any consultation process	NA

A specialist report prepared in terms of the Environmental Impact Regulations of 2014 (as amended in 2017) must contain:	Relevant section in report
Any other information requested by the competent authority.	NA

1.3 DFFE Screening Tool Site Sensitivity Verification

In terms of Part A of the Assessment Protocols published in GN 320 on 20 March 2020, site sensitivity verification is required relevant to the DFFE Screening Tool. As indicated in Figure 1 below, the Map of Relative Landscape (Solar) Theme Sensitivity is rated Very High for the eastern portion of the property. The issue identified in the DFFE screening tools was Mountain Tops and High Ridgelines as mapped on the following page. The following table outlines the relevance of the risks raised in the SSV as informed by the site visit.

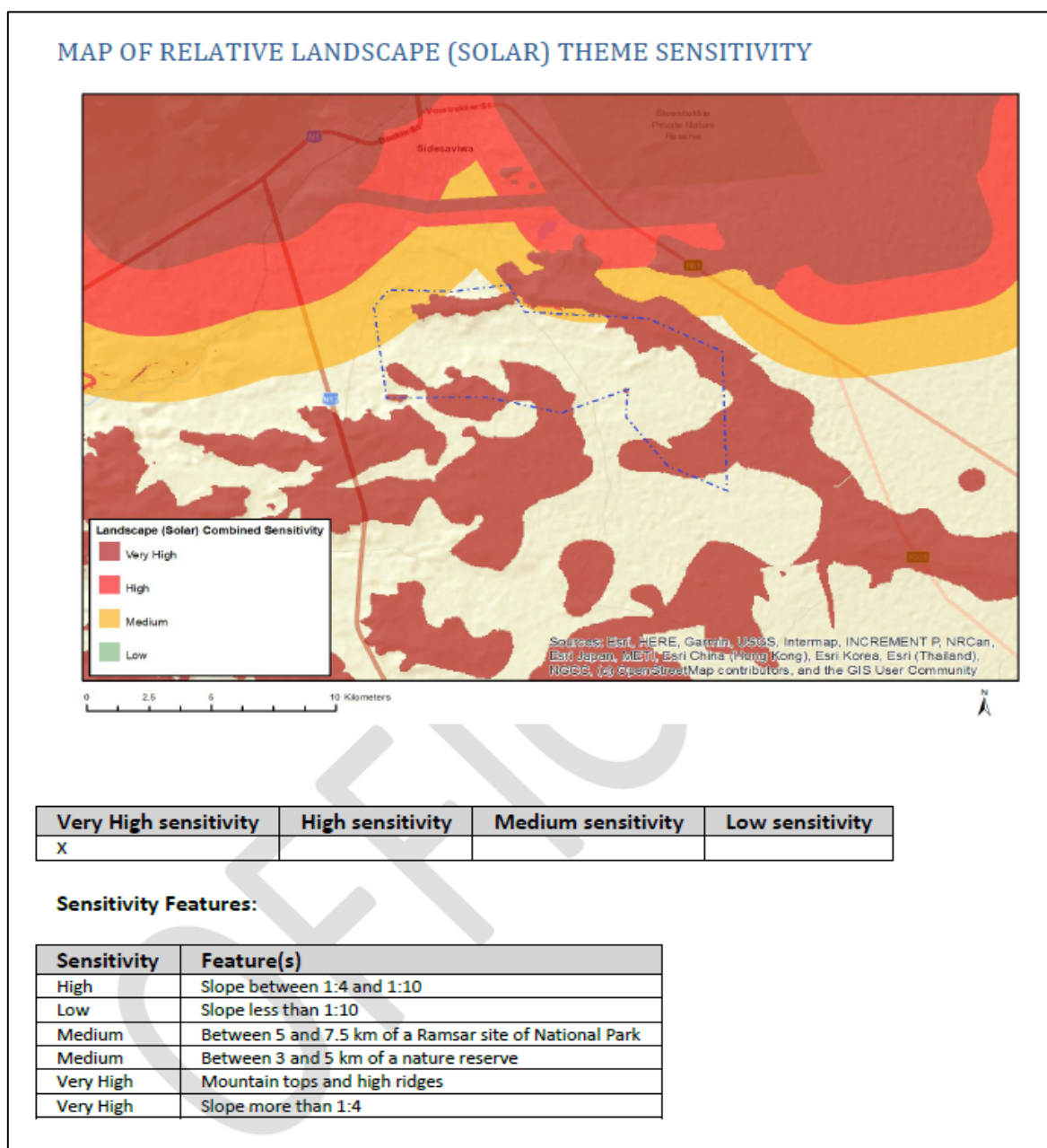


Figure 1. DFFE Screening Tool for Landscape and PV.

The SSV statement was informed by the site visit undertaken on the 21st of October 2022. The survey points and associated photographs can be viewed in Annexure A.

Table 3. DFFE SSV PV and Landscape Risk table (No Change).

DFFE Feature	DFFE Sensitivity	Risk Verification	Motivation
Slope between 1:4 and Mountain tops and high ridges	<i>Very High sensitivity</i>	Low	The slopes analysis and site visit found that the northern ridgeline did depict some steeper slope areas. These areas were not included in the development footprint. The area is also not topographically a Mountain Top.

2 EXECUTIVE SUMMARY

Visual Resource Management Africa CC (VRMA) was appointed by SRK Consulting (South Africa (Pty) Ltd to complete a Part 2 Amendment Assessment (P2AA) for the previously assessed proposed Beaufort West Solar Photovoltaic (PV) Energy Facility (SEF). A Level 3 Landscape and Visual Impact Assessment (LVIA) was undertaken in November 2022 behalf of Upgrade Energy (Pty) Ltd, with a site visit was undertaken on the 21 October 2022. An additional site visit and was not undertaken for the P2AA due to the limited period of time since the previous assessment, as well as the relatively small changes to the development footprint. The previously authorised alignment for the associated grid connection overhead line remains valid and no amendments to that authorisation are proposed. The P2AA therefore does not include the proposed Overhead Powerline routing and pertains to the PV, BESS and associated infrastructure only.

The following changes were identified by SRK that would need to be taken into consideration in the P2AA:

- New temporary laydown areas on the north and west – these will be for construction only and will be rehabilitated after construction.
- Inclusion of construction site camp (note, no accommodation will be provided on site), and the substation footprint changed slightly, but we are still within the approved 2ha footprint.
- The addition of guard houses at various locations around the site (these will be very small).
- Each PV development area will be completely fenced.
- A proposed new access road to the site from the East – this will be addressed as a separate BA process. This will therefore not need to be mentioned in the amendment application – the previously approved access road from the north of the site will remain.
- Minor changes to the development footprint of the PV areas.

P2AA VISUAL STATEMENT CONCLUSION

The finding of the P2AA visual statement is that the proposed amendment would not result in changes to the previous landscape and visual impact significance ratings. The finding of the previous landscape and visual impact assessment remain Moderate without mitigation and Low with mitigation. As there are risks to cumulative, intervisibility effects from security light spillage at night, it is the recommendation that the proposed PV project should be authorised WITH mitigation for dust, colour of structures and well as no overhead security lights. Mitigation as specified in the previous report are all relevant and would need to be implemented. With mitigation, the benefits of the PV related landscape change would outweigh the landscape status quo, where scenic resources are limited. The following key reasons provided as a previous motivation still have relevance:

- The site visual resources are limited with a Medium rating for Scenic Quality and Low rating for Receptor Sensitivity to landscape change.
- Regionally, the viewshed is contained to some degree from topographic screening and has no High or Medium Exposure Receptors. The nearest significant receptor area is the Karoo National Park (KNP) located 12km to the north where massing effects of the combined views of the PV areas will not generate a dominating visual effect.
- National energy objectives for renewable energy and job creation will be met with the site located within the REDZ11 area and there is a good alignment with regional and local planning.
- Due to the raised topography surrounding the site, there is no visual or landscape difference between the Preferred or the Alternative PV development proposals.

LANDSCAPE POLICY FIT **Positive (No Change)**

In terms of the *local and regional planning*, there is clear mention of the economic value that the renewable energy will add to the local and regional economy. While there is a strong emphasis on tourism, the 12km from the Karoo National Park effectively reduces the potential for visual intrusion. The proposed development sites also fall within the REDZ 11 area and as such the policy fit at a local and regional level is also rated **High-Positive**.

ZONE OF VISUAL INFLUENCE **Local (No Change)**

The visible extent, or viewshed, is “the outer boundary defining a view catchment area, usually along crests and ridgelines” (Oberholzer, 2005). In order to define the extent of the possible influence of the proposed project, a viewshed analysis was undertaken from the proposed site at a specified height above ground level. Due to the flat terrain around the site, in relation to the medium height of the proposed PV panels, the Extent of the project is rated **Local**, pre and post mitigation. The Visual Extent of the status quo property is rated Local, as the property is remote with limited views from surrounding areas.

RECEPTORS AND KEY OBSERVATION POINTS **2 Receptor locations and 0 Key Observation Points (No Change)**

Key Observation Points (KOPs) are the people (receptors) located in strategic locations surrounding the property that make consistent use of the views associated with the site where the landscape modifications are proposed. Due to the topographic screening, the nearest receptor is located 12km to the southwest on the N12. Given the similar height and smaller visual scale as seen from this distance, this location was excluded as a KOP. The other viewpoint proposed was the Karoo National Park mountain drive area. As this drive overlooks the town of Beaufort West in the foreground and the proposed development 12km in the background, this location was also excluded as a KOP.

SCENIC QUALITY Medium (No Change)

The scenic quality of the proposed development site is rated Medium. This is due to the flat terrain that has no water features, limited vegetation and associated colours, is not a scarce visual resource but is not degraded by agricultural practice. The only value element is the Adjacent Scenery which includes the escarpment and the low ridgeline to the north that does have value. The overall sense of place is that of a rural, arid agricultural landscape that does not offer much in terms of scenic resources that could be utilised for landscape-based tourism.

RECEPTOR SENSITIVITY Low (No Change) TO LANDSCAPE CHANGE

Receptor sensitivity to landscape changes is rated Low. This is due to the rural farming receptors who are property owners and have provided consent for the proposed landscape change, where the said change would not be visible to the surrounding farmsteads. As the area is fairly remote with local topographic screening, the area does not have many receptors who would be more sensitive to landscape change. Public interest and adjacent land owners sensitivity to landscape change is likely to be Low and no significant landforms were found with the ZVI that could be deemed as having landform significance.

EXPECTED IMPACT SIGNIFICANCE (No Change)

Medium (-ve)
(without mitigation)

Low (-ve)
(with mitigation)

The Significance of the Visual Impact for Construction and Decommissioning Phases is rated Medium without mitigation, and Low with Mitigation. Dust impacts can be effectively curtailed with mitigation. Visual Impact Significance for Operational Phase is rated Medium to High, without mitigation, but could be reduced to Medium with management of dust and lights at night. The Significance is moderated by the lower scenic quality of the site and immediate surrounding landscapes, as well as the REDZ zoning of the area where RE projects are encouraged.

CUMULATIVE EFFECTS (No Change)

Medium (-ve)
(without mitigation)

Negligible (-ve)
(with mitigation)

Within the proposed project zone of visual influence, the landscape character is mainly dominated by flat, rural agricultural landscape with limited visual resources. The Cumulative visual risk to scenic resources was rated **medium negative** with little opportunity for mitigation. The combined views of the multiple solar facilities are limited due to the local topographic screening and, as such, are unlikely to create a strong, *local* visual massing effect within the agriculturally zoned area. However, site visual resources are Medium and with the proposed site located on low lying ground, the zone of visual influence will be contained by elevated terrain to the north. The project is located within the REDZ11 area, where renewable energy projects of scale would be acceptable. With successful rehabilitation of the area back to an agricultural land use on closure, the cumulative visual risk could be reduced to **negligible in the long term**.

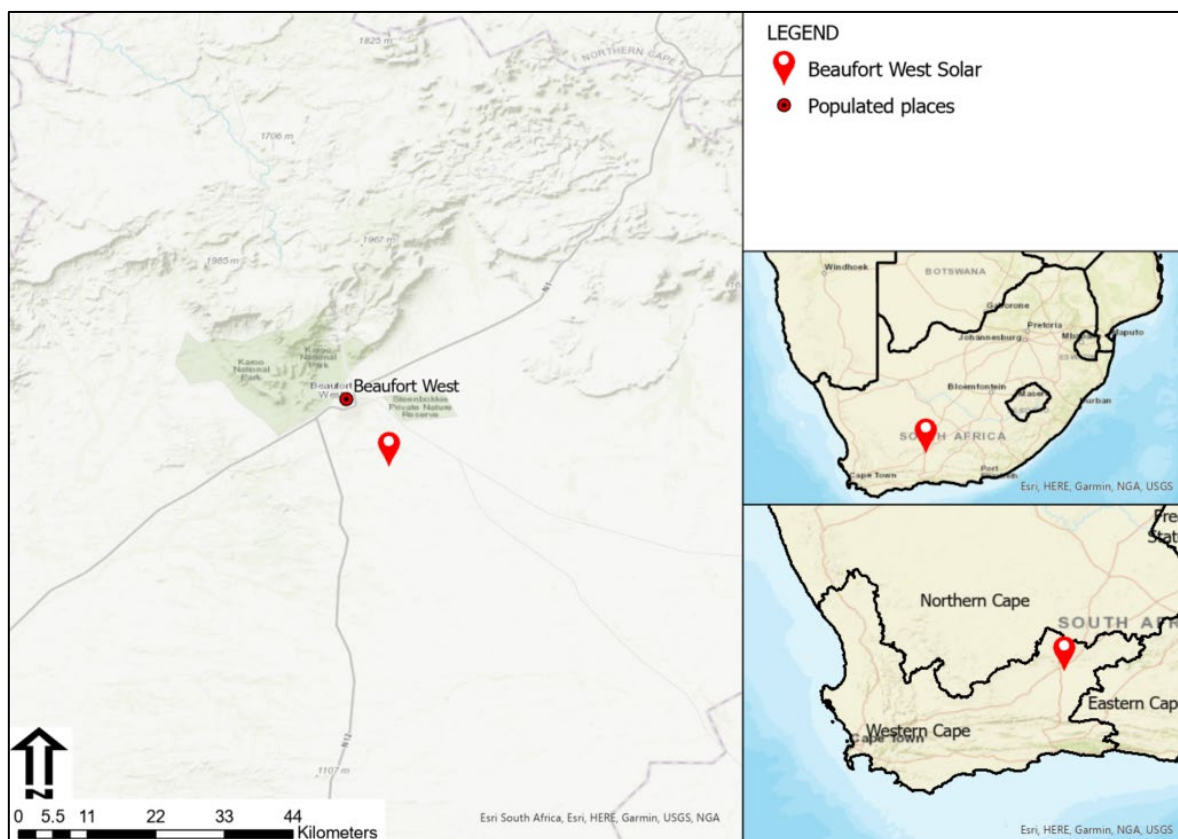
KEY PRELIMINARY MITIGATIONS MEASURES (No Change)

Landscape Element	Mitigation	Motivation
Visual Nuisance	Dust	Dust suppression measures as required.
Cumulative Visual Intrusion	Security lights at night.	Light mitigation of security lights at night with no overhead lighting or uplighting.

3 INTRODUCTION

Visual Resource Management Africa CC (VRMA) was appointed by SRK Consulting (South Africa (Pty) Ltd to complete a Part 2 Amendment Assessment (P2AA) for the previously assessed proposed Beaufort West Solar Photovoltaic (PV) Energy Facility (SEF). A Level 3 Landscape and Visual Impact Assessment (LVIA) was undertaken in November 2022 behalf of Upgrade Energy (Pty) Ltd, with a site visit was undertaken on the 21 October 2022. An additional site visit and was not undertaken for the P2AA due to the limited period of time since the previous assessment, as well as the relatively small changes to the development footprint.

The Proponent proposes to construct a solar energy power station and associated infrastructure on a site located approximately 7km south east of the town Beaufort West. This assessment is for the Solar Photovoltaic (PV) Energy Facility (SEF) and does not include the visual assessment of the Grid infrastructure. The VIA for the Grid Infrastructure was also undertaken by the author.



3.1 Terms of Reference

The scope of this study is to cover the entire proposed project area. The broad terms of reference for the study are as follows:

- Review the amended layout and make comment regarding the suitability of the visual and landscape change to the previous assessed layout and impact assessment findings.

3.2 Study Team

Contributors to this study are summarised in the table below.

Table 4: Authors and Contributors to this Report.

Aspect	Person	Organisation / Company	Qualifications
Landscape and Visual Assessment (author of this report)	Stephen Stead MSc Geography, 2023 (UKZN, Pietermaritzburg)	VRMA	<ul style="list-style-type: none"> • 20 years of experience in visual assessments including 230 large scale landscape changes in five sub-Saharan African countries. • Registered with the Association of Professional Heritage Practitioners since 2014.

3.3 Visual Assessment Approach

The full methodology used in the assessment can be found in Annexure B, with this section outlining the key elements of the assessment process. The process that VRM Africa follows when undertaking a VIA is based on the United States Bureau of Land Management's (BLM) Visual Resource Management method (USDI., 2004). This mapping and GIS-based method of assessing landscape modifications allows for increased objectivity and consistency by using standard assessment criteria.

- *“Different levels of scenic values require different levels of management. For example, management of an area with high scenic value might be focused on preserving the existing character of the landscape, and management of an area with little scenic value might allow for major modifications to the landscape. Determining how an area should be managed first requires an assessment of the area’s scenic values”.*
- *“Assessing scenic values and determining visual impacts can be a subjective process. Objectivity and consistency can be greatly increased by using the basic design elements of form, line, colour, and texture, which have often been used to describe and evaluate landscapes, to also describe proposed projects. Projects that repeat these design elements are usually in harmony with their surroundings; those that don’t create contrast. By adjusting project designs so the elements are repeated, visual impacts can be minimized” (USDI., 2004).*

Baseline Phase Summary

The VRM process involves the systematic classification of the broad-brush landscape types within the receiving environment into one of four VRM Classes. Each VRM Class is associated with management objectives that serve to guide the degree of modification of the proposed site. The Classes are derived by means of a simple matrix with the three variables being the scenic quality, the expected receptor sensitivity to landscape change, and the distance of the proposed landscape modification from key receptor points. The Classes are not prescriptive and are utilised as a guideline to determine visual carrying capacity, where they represent the relative value of the visual resources of an area.

Classes I and II are the most valued, Class III represents a moderate value; and Class IV is of least value. The VRM Classes are not prescriptive and are used as a guideline to determine the carrying capacity of a visually preferred landscape as a basis for assessing the suitability of the landscape change associated with the proposed project.

Table 5: VRM Class Matrix Table

		VISUAL SENSITIVITY LEVELS								
		High			Medium			Low		
SCENIC QUALITY	A (High)	II	II	II	II	II	II	II	II	II
	B (Medium)	II	III	III/IV *	III	IV	IV	IV	IV	IV
	C (Low)	III	IV	IV	IV	IV	IV	IV	IV	IV
DISTANCE ZONES		Fore/middle ground	Background	Seldom seen	Fore/middle ground	Background	Seldom seen	Fore/middle ground	Background	Seldom seen

* If adjacent areas are **Class III** or lower, assign **Class III**, if higher, assign **Class IV**

The visual objectives of each of the classes are listed below:

- The Class I objective is to preserve the existing character of the landscape and the level of change to the characteristic landscape should be very low and must not attract attention. Class I is assigned when a decision is made to maintain a natural landscape.
- The Class II objective is to retain the existing character of the landscape and the level of change to the characteristic landscape should be low. The proposed development may be seen but should not attract the attention of the casual observer, and should repeat the basic elements of form, line, colour and texture found in the predominant natural features of the characteristic landscape.
- The Class III objective is to partially retain the existing character of the landscape, where the level of change to the characteristic landscape should be moderate. The proposed development may attract attention, but should not dominate the view of the casual observer, and changes should repeat the basic elements found in the predominant natural features of the characteristic landscape; and
- The Class IV objective is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the landscape can be high, and the proposed development may dominate the view and be the major focus of the viewer's (s') attention without significantly degrading the local landscape character.

Impact Phase Summary

To determine impacts, a degree of contrast exercise is undertaken. This is an assessment of the expected change to the receiving environment in terms of the form, line, colour and texture, as seen from the surrounding Key Observation Points. This determines if the proposed project meets the visual objectives defined for each of the Classes. If the expected visual contrast is strong, mitigation recommendations are to be made to assist in

meeting the visual objectives. To assist in the understanding of the proposed landscape modifications, visual representation, such as photomontages or photos depicting the impacted areas, can be generated. There is an ethical obligation in the visualisation process, as visualisation can be misleading if not undertaken ethically.

3.4 VIA Process Outline

The following approach was used in understanding the landscape processes and informing the magnitude of the impacts of the proposed landscape modification. The table below lists a number of standardised procedures recommended as a component of best international practice.

Table 6: Methodology Summary Table: P2AA Scope of Work Undertaken

Action	Description
Site Survey	As the site is visually contained and remote, with the LVIA having been undertaken less than 3 years ago where landscape change is limited, no site visit was undertaken for the P2AA.
Project Description	Provide a description of the expected project, and the components that will make up the landscape modification. (Updated)
Reviewing the Legal Framework	The legal, policy and planning framework may have implications for visual aspects of the proposed development. The heritage legislation tends to be pertinent in relation to natural and cultural landscapes, while Strategic Environmental Assessments (SEAs) for renewable energy provide a guideline at the regional scale (No change). To review cumulative effects from intervisibility, the cumulative mapping was updated to the most recent DFFE renewable energy mapping.
Determining the Zone of Visual Influence	This includes mapping of viewsheds and view corridors in relation to the proposed project elements, in order to assess the zone of visual influence of the proposed project. Based on the topography of the landscape as represented by a Digital Elevation Model, an approximate area is defined which provides an expected area where the landscape modification has the potential to influence landscapes (or landscape processes) or receptor viewpoints. (No change). The areas where the proposed PV / BESS and infrastructure are proposed are topographically contained, and remote with no rural residential receptors located in Medium to High Visual Exposure areas.
Identifying Visual Issues and Visual Resources	Visual issues are identified during the public participation process, which is being carried out by others. The visual, social or heritage specialists may also identify visual issues. The significance and proposed mitigation of the visual issues are addressed as part of the visual assessment. (No change).
REVIEW Potential Visual Impacts	An assessment is made of the significance of potential visual impacts resulting from the proposed project for the construction, operational and decommissioning phases of the project. The rating of visual significance is based on the methodology provided by the Environmental Assessment Practitioner (EAP) if Impact Assessment is deemed necessary. (No change). The updated layout was overlaid onto the previous landscape and visual impact constraints areas. While there was some expansion of the development area in some areas, the expansion areas did not intrude into prominent area, or areas that have landscape value. There was also a reduction in development footprint as well.

Action	Description
REVIEW Formulating Mitigation Measures	Possible mitigation measures are identified to avoid or minimise negative visual impacts of the proposed project. The intention is that these would be included in the project design, the Environmental Management Programme report (EMPr) and the authorisation conditions. (No change).

3.5 Assumptions and Uncertainties

- Digital Elevation Models (DEM) and viewsheds were generated using ASTER elevation data (NASA, 2009). Although every effort to maintain accuracy was undertaken, as a result of the DEM being generated from satellite imagery and not being a true representation of the earth's surface, the viewshed mapping is approximate and may not represent an exact visibility incidence. Thus, specific features identified from the DEM and derive contours (such as peaks and conical hills) would need to be verified once a detailed survey of the project area has taken place.
- The use of open-source satellite imagery was utilised for base maps in the report.
- Some of the mapping in this document was created using Bing Maps, Open-Source Map, ArcGIS Online and Google Earth Satellite imagery.
- The project deliverables, including electronic copies of reports, maps, data, shape files and photographs are based on the author's professional knowledge, as well as available information.
- VRM Africa reserves the right to modify aspects of the project deliverables if and when new/additional information may become available from research or further work in the applicable field of practice or pertaining to this study.
- Access to farms and private property is often limited due to security reasons, limiting access to private property in order to take photographs from specific locations. 3D modelling is used to reflect the expected landscape change area where applicable.
- **The P2AA does not include the proposed alignment of the Overhead Powerline routing and the new road access. The report pertains only to the PV, BESS and internal powerline infrastructure.**

4 PROJECT DESCRIPTION

The following table outlines the project information that was provided by the client that will be incorporated into the assessment and proposed infrastructure relating to the project.

Table 7: Project Information Table

PROPONENT SPECIFICATIONS	
Applicant Details	Description
Applicant Name:	Beaufort West Solar PV Energy Facility (Pty) Ltd
Project Name:	Beaufort West Solar PV Energy Facility

The project involves the development of a solar-energy facility with a total generation capacity of approximately 415MW ac electricity from renewable solar energy to be supplied to the national Eskom grid via the existing Droërivier substation, near to the site. The

necessary associated on-site infrastructure, including BESS, access roads, overhead powerlines, substations and control building(s) form a part of this application. The Grid Connection Infrastructure was assessed in a separate VIA. The proposed project will include the following infrastructure:

- PV arrays, arranged in clusters as per Figure x
- 132/33kV substation (IPP Portion), including transformers
- BESS facilities, located next to the 132/33kV SS.
- Internal 33kV lines connecting the substations to the facilities (either underground/above ground).
- Proposed access route shown (existing and new) to connect the facilities.
- The O&M building (orange), and the construction camp and the laydown areas (purple) as per Figure x.

The following changes to the layout that was previously assessed were identified by SRK that would need to be taken into consideration in the P2AA:

- New temporary laydown areas on the north and west – these will be for construction only and will be rehabilitated after construction.
- Inclusion of construction site camp (note, no accommodation will be provided on site), and the substation footprint changed slightly, but remaining within the approved 2ha footprint.
- The addition of guard houses at various locations around the site (these will be very small).
- Each PV development area will be completely fenced.
- The proposed new access road to the site from the East will be addressed as a separate BA process. This will therefore not need to be mentioned in the amendment – the previously approved access road from the north of the site will remain.
- Minor changes to the development footprint of the PV areas.
- BESS and substations consolidated into a single area.



(www.hawaiiirenewableenergy.org/Villamesias2, n.d.)



(Junior Mining Network, n.d.)

Figure 3: Photographic example of what the proposed PV could look like as fixed and single portrait model on a tracker.



Figure 4. Example of a Photomontage of Tesla BESS in landscape

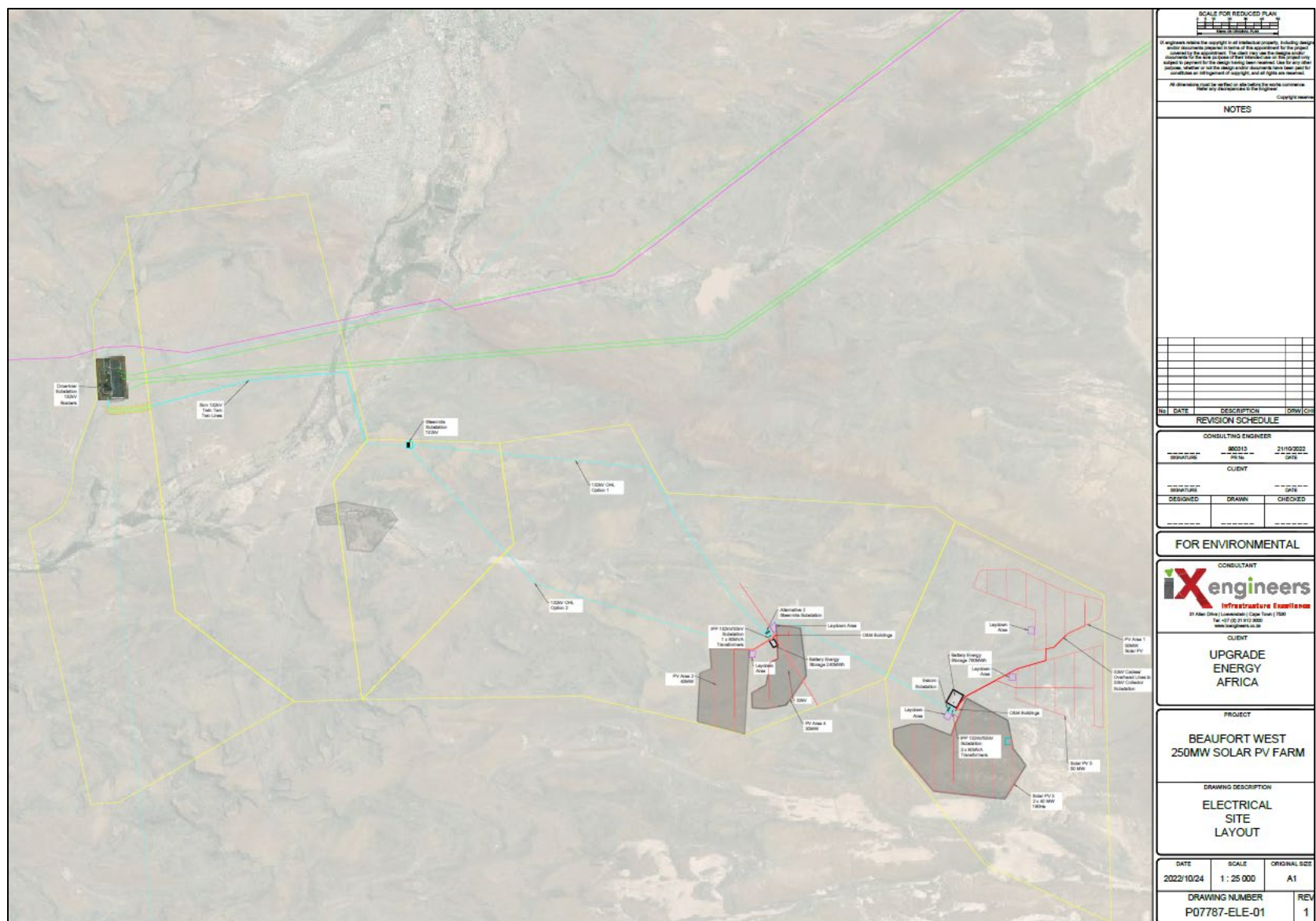


Figure 5: **Approved** layout plan map inclusive of grid connection routings.

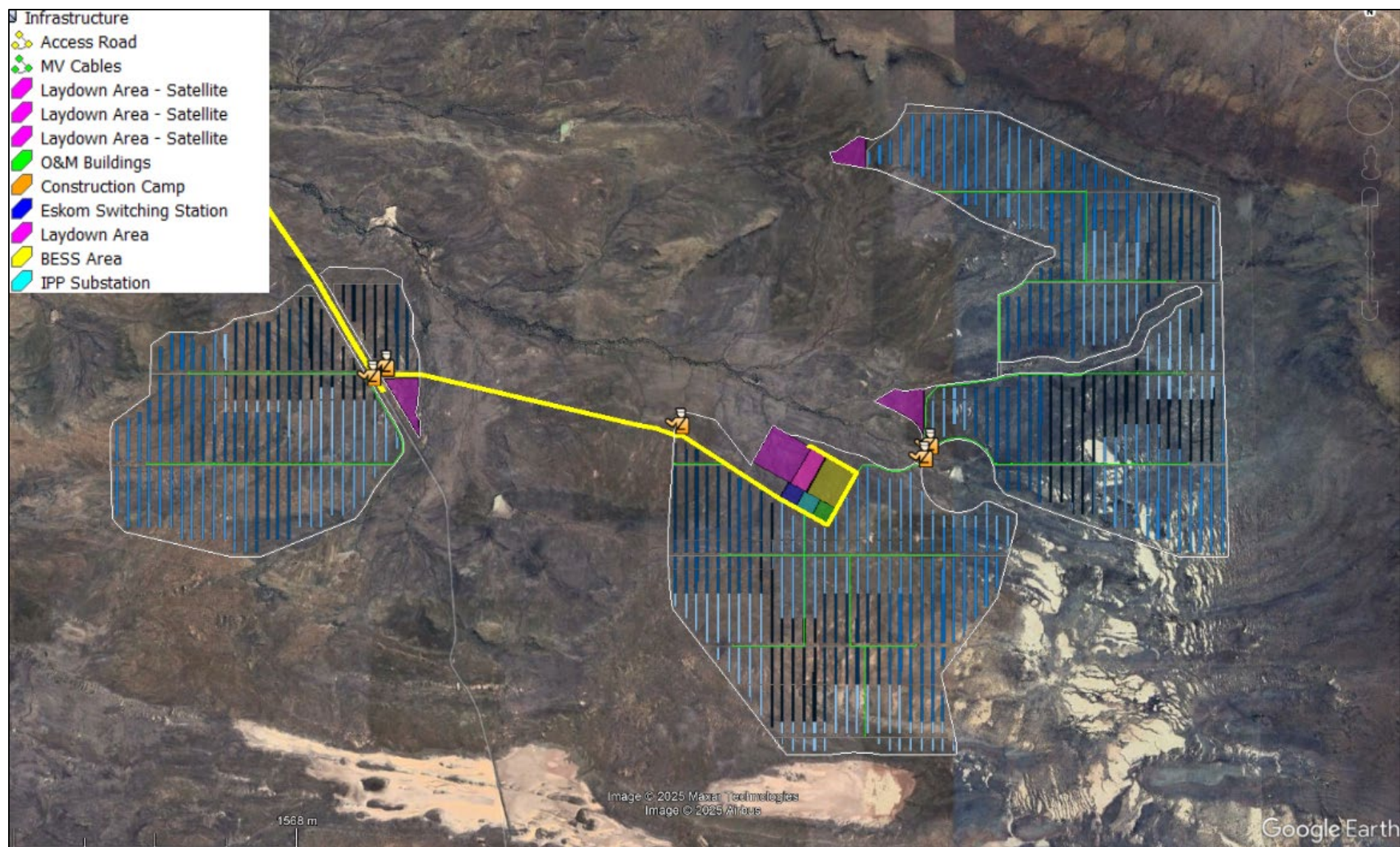


Figure 6: P2AA Proposed Preferred layout plan map exclusive of grid connection routings.

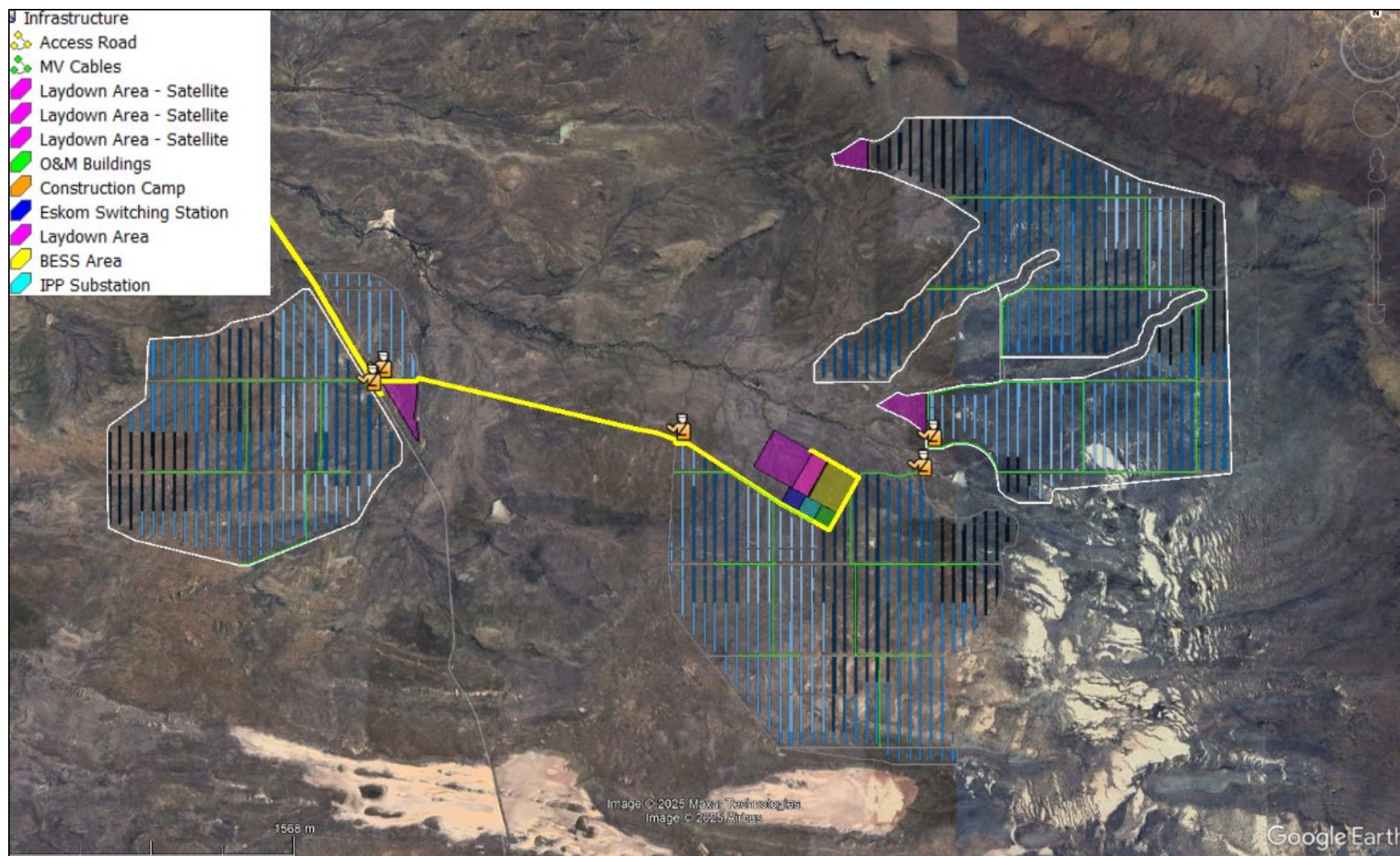


Figure 7: P2AA Proposed Alternative layout plan map exclusive of grid connection routings.

5 LEGAL FRAMEWORK

In order to comply with the Visual Resource Management requirements, it is necessary to relate the proposed landscape modification in terms of international best practice in understanding landscapes and landscape processes. The proposed project also needs to be evaluated in terms of 'policy fit'. This requires a review of International, National and Regional best practice, policy and planning for the area to ensure that the scale, density and nature of activities or developments are harmonious and in keeping with the planned sense of place and character of the area.

5.1 National and Regional Legislation and Policies

In order to comply with the Visual Resource Management requirements, it is necessary to clarify which National and Regional planning policies govern the proposed development area to ensure that the scale, density and nature of activities or developments are harmonious and in keeping with the sense of place and character of the area as mapped in Figure 7 below.

- DEA&DP Visual and Aesthetic Guidelines.
- REDZ Planning.
- Regional and Local Municipality Planning and Guidelines.

Table 8: List of key planning informants to the project.

Theme	Requirements
Province	Western Cape
District Municipality	Central Karoo
Local Municipality	Beaufort West
REDZ	Beaufort West REDZ11

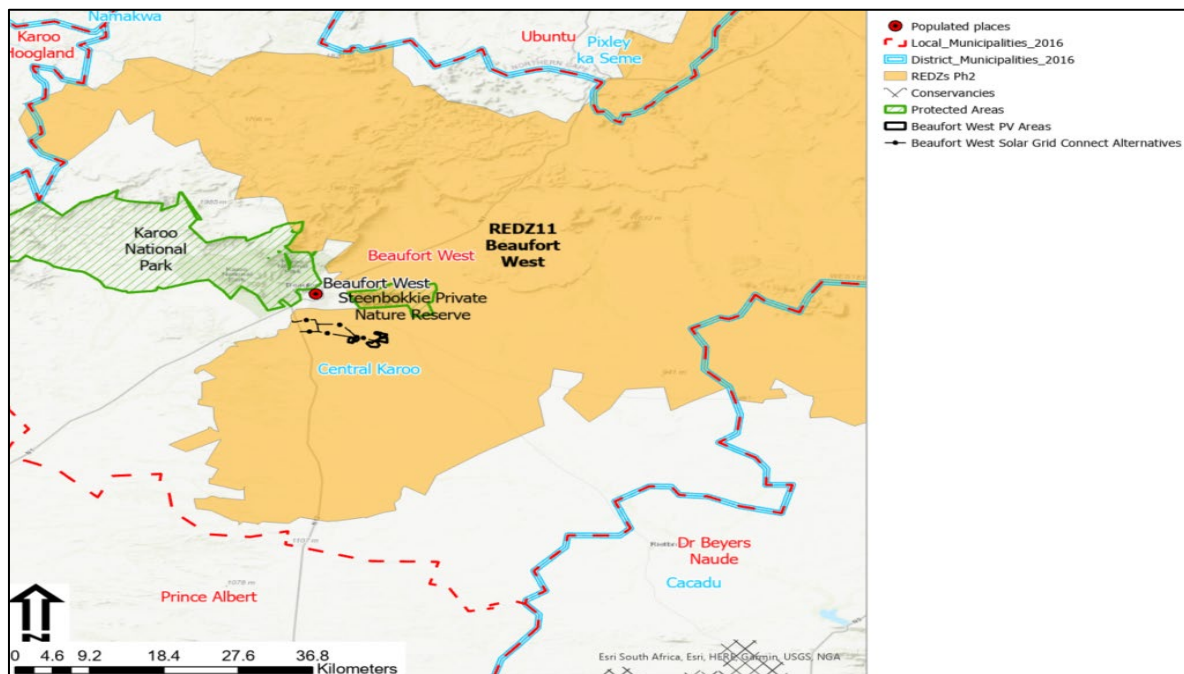


Figure 8: Planning locality map depicting the local, district and national planning zones.

5.1.1 DEA&DP Visual and Aesthetic Guidelines

Reference to the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) Guideline for involving visual and aesthetic specialists in Environmental Impact Assessment (EIA) processes is provided in terms of southern African best practice in Visual Impact Assessment. The report compiled by Oberholzer states that the Best Practicable Environmental Option (BPEO) should address the following:

- Ensure that the scale, density and nature of activities or developments are harmonious and in keeping with the sense of place and character of the area. The BPEO must also ensure that development must be located to prevent structures from being a visual intrusion (i.e., to retain open views and vistas).
- Long term protection of important scenic resources and heritage sites.
- Minimisation of visual intrusion in scenic areas.
- Retention of wilderness or special areas intact as far as possible.
- Responsiveness to the area's uniqueness, or sense of place." (Oberholzer, 2005)

5.1.2 REDZ Planning

A Strategic Environmental Assessment commissioned by the Department of Environmental Affairs, undertaken by the CSIR, identified Renewable Energy Development Zones (REDZs) (Department of Environment Affairs). These are gazetted geographical areas in which several wind and solar PV development projects will have the lowest negative impact on the environment while yielding the highest possible social and economic benefit to the country. The project is situated within the REDZ 11 area.

5.1.3 Other Renewable Energy Projects

As identified in Figure 8 on the following page from the previous assessment, a number of other renewable energy projects have been attracted to the site due to the solar energy potential of the region as well as the REDZ11 planning. The updated map found Jessa Wind Energy Facility to be the only new RE project. This proposed wind farm is located 12km approx. to the southwest of the site. While the Jessa wind turbines will be visible from the site, the PV panels will not be visible to the Jessa WEF site.

The Beaufort West Solar Park is indicated on the map with the status lapsed. There are four other solar energy projects located around the town of Beaufort West that have been approved and none of them have been constructed. Located further to the north is the proposed Beaufort West Wind Farm as well as the Lombaardskraal Wind Farm to the southwest. As these wind farms are located more than 10km away, the combined views of the wind farms and the proposed solar plant are unlikely to result in visual clutter should they all be developed.

As previously stated, once these projects are developed, it is likely that the remaining existing arid Karoo agricultural landscape around the Droërivier Substation will change to one more associated with renewable energy. This change is aligned with National RE policy planning, with the area falling within the Beaufort West REDZ. Care would need to be taken to ensure that the powerline routing does not clutter the landscape as seen from the local farm owners, as well as from the N12 National Road.

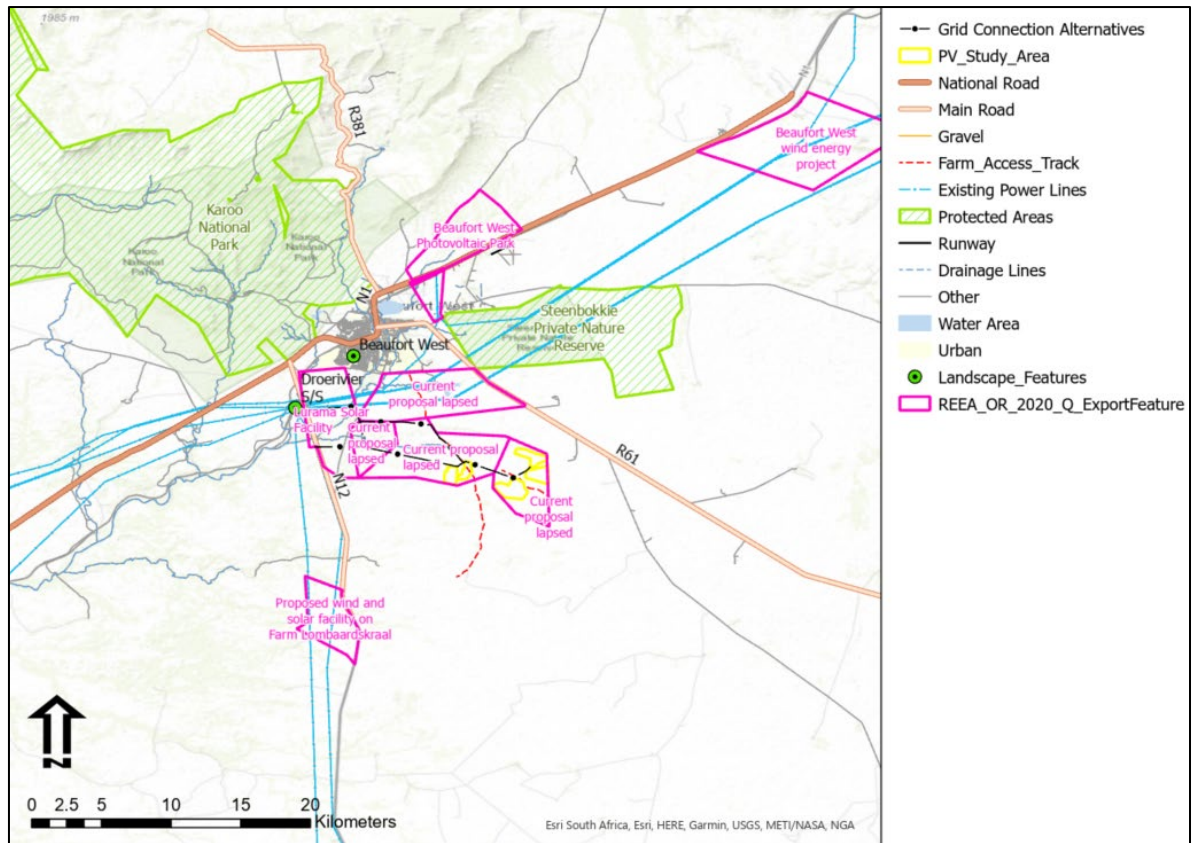


Figure 9: Previous Surrounding Renewable Energy Developments map.

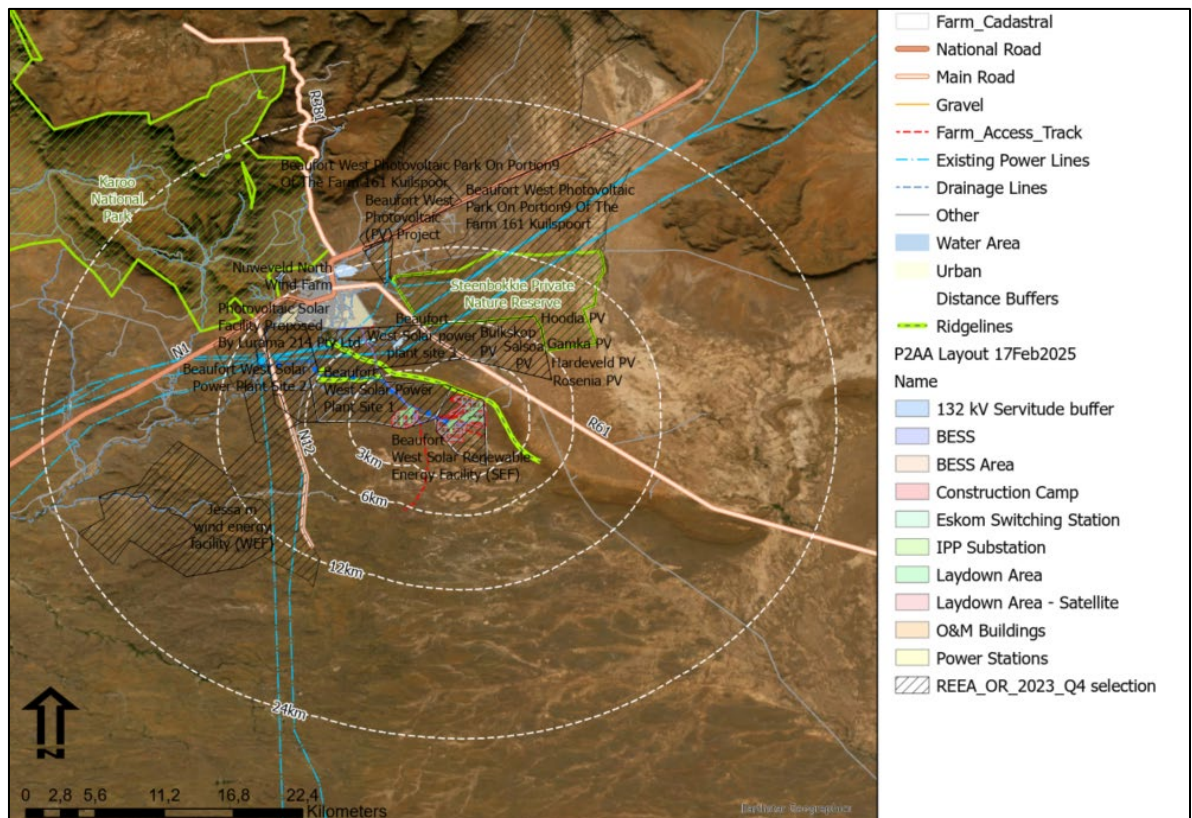


Figure 10: Updated Surrounding Renewable Energy Developments map.

5.1.4 Local and Regional Planning

The following tables list key regional and local planning that has relevance to the project pertaining to landscape-based tourism, and renewable energy projects.

Table 9: District Planning reference table relevant to the project.

Theme	Requirements	Page
General	Non-rural development in rural areas in the Central Karoo can be found in Beaufort West, Laingsburg and Prince Albert. These areas are changing from purist agricultural areas to eco-tourism and game farming areas	56
Renewable Energy	Given the harmful environmental impacts of certain identifiable energy sources, as well as growing energy demand and needs, the use of clean and sustainable energy is becoming increasingly important	49
	Move to a less carbon-intensive electricity production with a focus on renewable energy and solar water heating	144
Tourism	To establish an inclusive tourism industry through sustainable development and marketing which is public sector led, private sector driven, and community based.	77

(Central Karoo District Municipality, 2012)

Table 10: Local Planning reference table relevant to the project.

Theme	Requirements	Page
Landscape Character	Promoting the visual quality of the environment	12
	The scale of development relates to the size of the site the development is planned for. The rural character of the rural areas in the Beaufort West Municipal area should be maintained in all instances – scale should therefore not be too large, compared to the rural character of the area.	16
	The character of the rural nodes forms an integral part of the general rural character. It is therefore important to protect the inherent visual, aesthetic and location qualities of the rural nodes	49

(Beaufort West Municipality, 2015)

Theme	Requirements	Page
Renewable Energy	To make sure that everyone has significant access to electricity, the following is important:	43
	Establish an investment vehicle to attract funding for the provision of electricity by means of alternative energy sources.	43

(Beaufort West Municipality)

5.2 Landscape Planning Policy Fit

Policy fit refers to the degree to which the proposed landscape modifications align with International, National, Provincial and Local planning and policy.

In terms of *international best practice*, the proposed landscape modification will not trigger any issues as there no significant landscape/ cultural landscape features within the project area. The escarpment is a significant feature element in the regional landscape, and a

portion of this visual resource is proclaimed a natural area within the Karoo National Park. However, the park is well set back from the proposed PV site, with the approximately 12km creating a suitable visual buffer for the protection of this significant feature. Also located in the region is the Steenbokkie Private Nature which is located 6km to the north of the proposed site. However, a low ridgeline to the north of the PV area excludes the Steenbokkie Private Nature Reserve from the project viewshed. The numerous power lines and pylons in this transmission corridor also significantly reduce the local sense of place around the Droërivier Substation and Eskom Powerline Corridor.

In terms of the *local and regional planning*, there is clear mention of the economic value that the renewable energy will add to the local and regional economy. While there is a strong emphasis on tourism, the 12km from the Karoo National Park effectively reduces the potential for visual intrusion. The proposed development sites also fall within the REDZ 11 area and as such the policy fit at a local and regional level is also rated **High-Positive**.

The following maps depict the previous Visual Resource Management Class mapping, as well as the updated (and expanded) Class III Visual Management Class mapping.

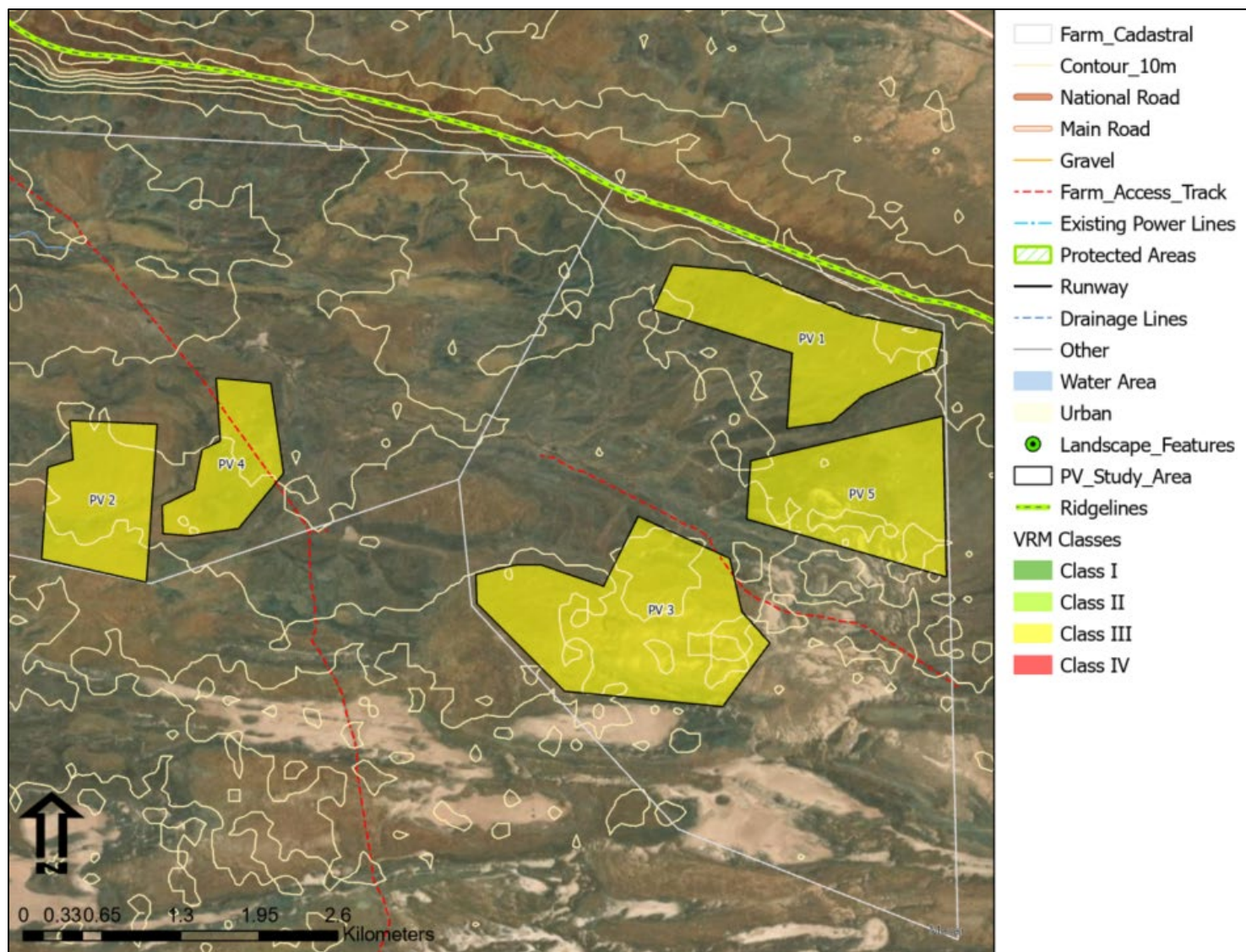


Figure 11: **Approved layout** - Visual Resource Management Classes map.

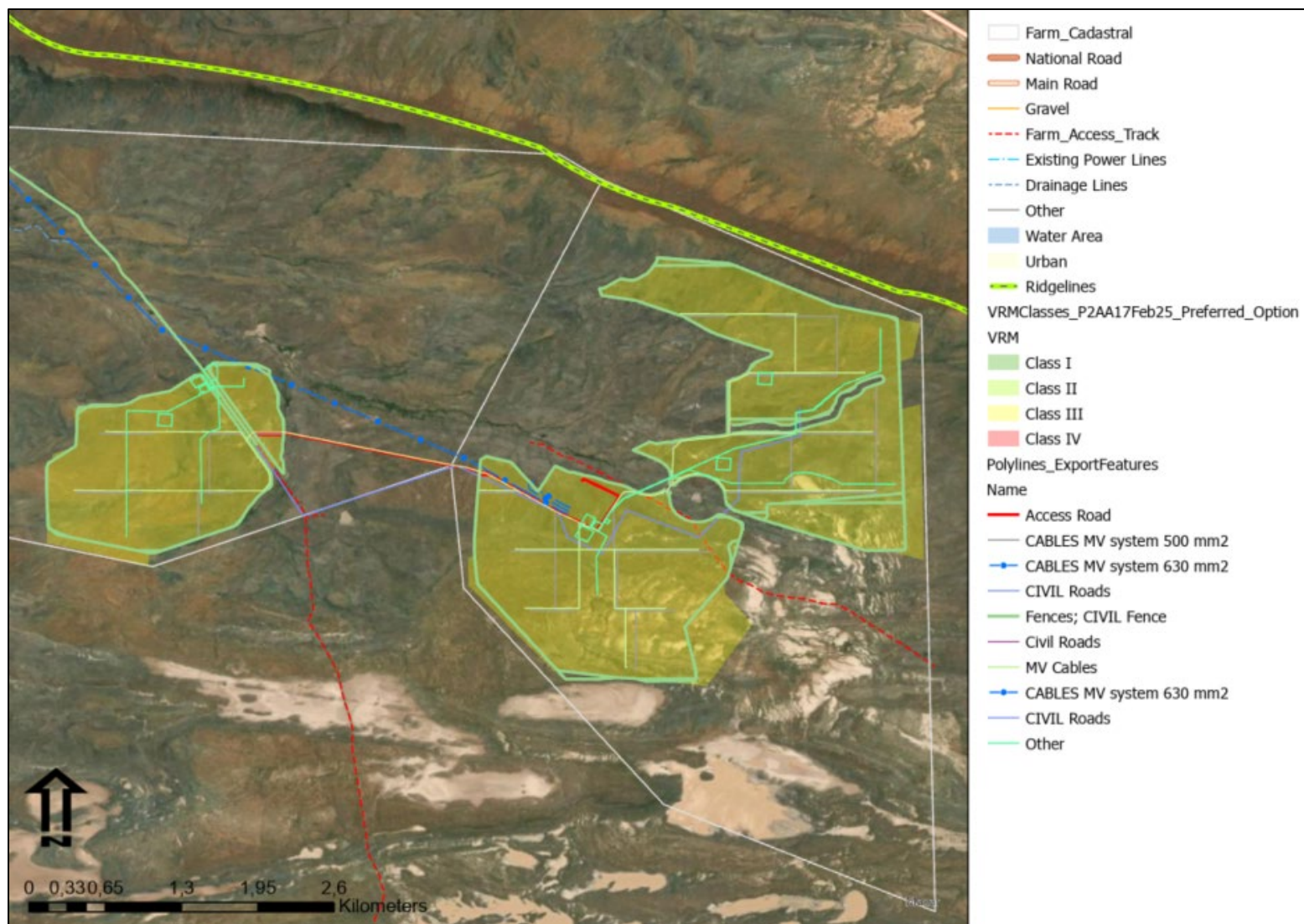


Figure 12: **P2AA Updated Preferred Layout** Visual Resource Management Classes map.

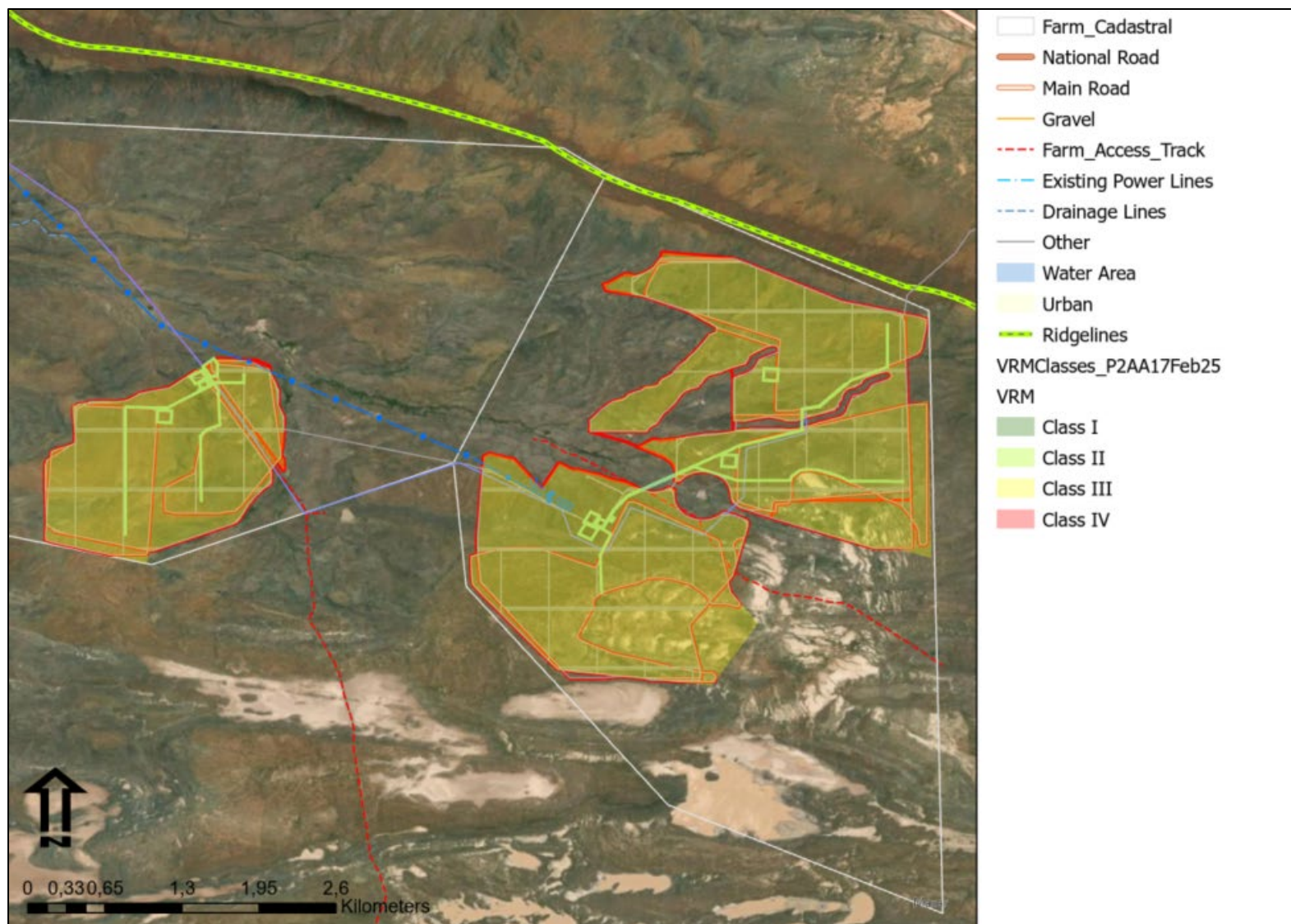


Figure 13: P2AA Updated Alternative Layout Visual Resource Management Classes map.

6 BIBLIOGRAPHY

- Beaufort West Municipality. (2015). *Beaufort West Municipality Spatial Development Framework Volume 2. November 2004. Final Draft.*
- Beaufort West Municipality. (n.d.). *Beaufort West Municipality Intergrated Development Plan.*
- Central Karoo District Municipality. (2012). *Central Karoo District Municipality Integrated Development Plan (2012 – 2017).*
- Department of Environment Affairs. (2013). *DEA National Wind and Solar PV Strategic Environmenal Assessment.*
- <http://www.aridareas.co.za/characteristics.htm>. (n.d.).
- <http://www.beaufortwest.com/>. (n.d.).
- Hull, R. B., & Bishop, I. E. (1988). *Scenic Impacts of Electricity Power Mine: The Influence of Landscape Type and Observer Distance. Journal of Environmental Management.*(27) Pg 99-108.
- IEMA. (2002). *U.K Institute of Environmental Management and Assessment (IEMA). 'Guidelines for Landscape and Visual Impact Assessment' Second Edition, Spon Press. Pg 44.*
- IFC. (2012). *International Finance Corporation (IFC) prescribes eight performance standards (PS) on environmental and social sustainability. Millennium Ecosystem Assessment. 2005.*
- Junior Mining Network. (n.d.). <https://www.juniorminingnetwork.com/junior-miner-news/press-releases/2961-cse/sgd/>.
- Millennium Ecosystem Assessment. (2005). *Ecosystems and Human Well-Being: Synthesis.* Washington D.C: Island Press.
- NASA, A. G. (2009). *Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) Global Digital Elevation Model Version 2 (GDEM V2 2011).* Ministry of Economy, Trade, and Industry (METI) of Japan and United States National Aeronauti.
- NELPAG. (n.d.). *New England Light Pollution Advisory Group (NELPAG) <http://cfa/www.harvard.edu/cfa/ps/nelpag.html> and Sky & Telescope <http://SkyandTelescope.com/>. NELPAG and Sky & Telescope support the International Dark-Sky Association (IDA) (<http://www.darksky.o>.*
- Oberholzer, B. (2005). *Guideline for involving visual and aesthetic specialists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs and Deve.*
- SanParks. (n.d.). *SanParks Karoo National Parks.*
- Sheppard, D. S. (2000). *Guidance for crystal ball gazers: Developing a code of ethics for landscape visualization.* Department of Forest Resources Management and Landscape Architecture Program, University of British Columbia, Vancouver, Canada
- South African National Biodiversity Institute. (2018). *Vegetation Map of South Africa, Lesotho and Swaziland.*
- The Landscape Institute. (2003). *Guidelines for Landscape and Visual Impact Assessment (Second ed.).* Spon Press.
- USDI., B. (2004). *Bureau of Land Management, U.S. Department of Interior. 2004. Visual Resource Management Manual 8400.*
- www.hawaiiirenewableenergy.org/Villamesias2. (n.d.).

7 ANNEXURE A: SITE VISIT PHOTOGRAPHS AND COMMENTS

The following photographs were taken during the field survey as mapped below. The text below the photograph describes the landscape and visual issues of the locality, if applicable.

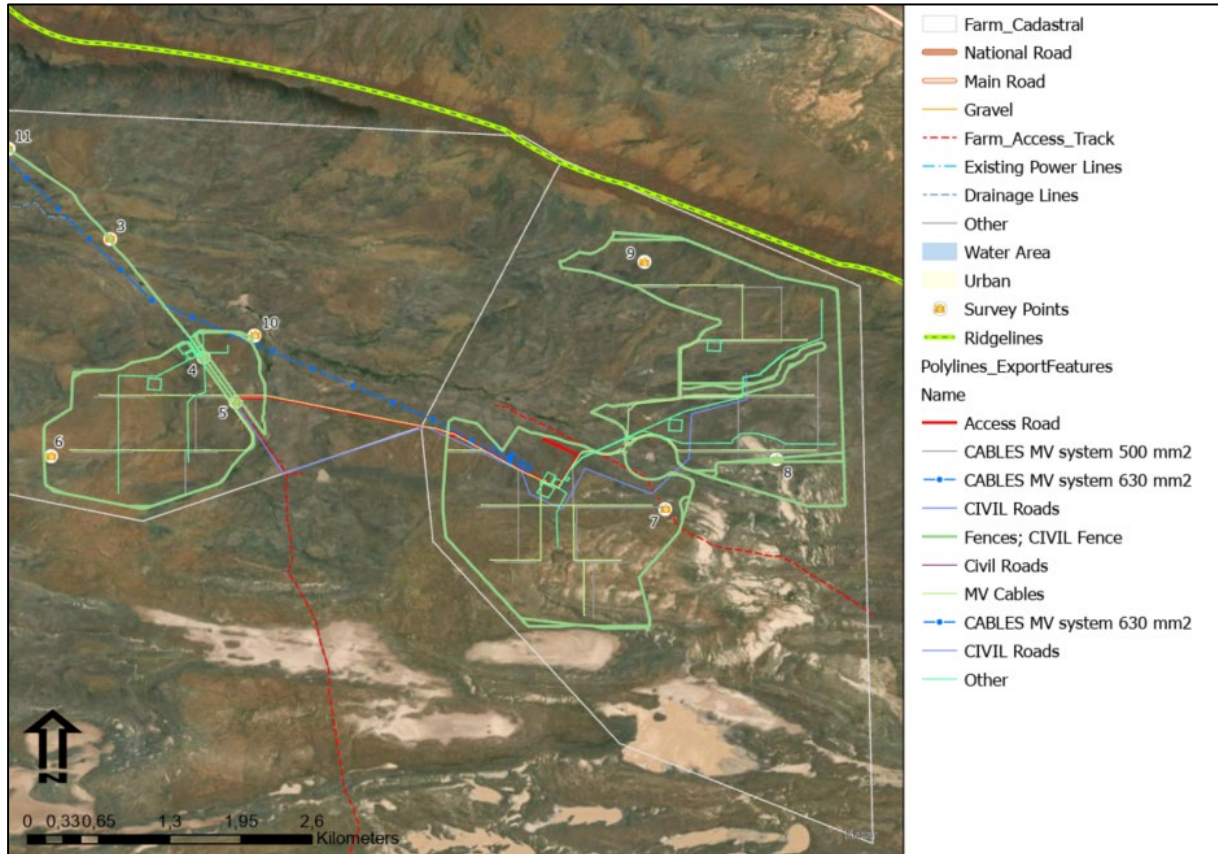


Figure 14: Site Survey Point Map

ID	4
PHOTO	Proposed substation Alternative
DIRECTION	N
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	5
PHOTO	Proposed PV4
DIRECTION	E
COMMENT	Low risk due to low prominence, medium scenic value and very low exposure.



ID	6
PHOTO	Proposed PV2
DIRECTION	N
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	7
PHOTO	Proposed PV3
DIRECTION	SE
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	8
PHOTO	Proposed PV5
DIRECTION	NE
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	9
PHOTO	Proposed PV1
DIRECTION	E
COMMENT	Low risk as low prominence, medium scenic value and very low exposure.



ID	10
PHOTO	Proposed powerline
DIRECTION	W
COMMENT	Low risk as medium prominence, medium scenic value and very low exposure.



ID	11
PHOTO	Proposed preferred powerline
DIRECTION	NE
COMMENT	Medium scenic value and low exposure. Also existing road access increases VAC.



ID	12
PHOTO	Proposed preferred powerline
DIRECTION	E
COMMENT	Medium scenic value and very low exposure. Need to stay off prominent Ridgeline features.



8 ANNEXURE B: SPECIALIST INFORMATION

8.1 Professional Registration Certificate



8.2 Curriculum Vitae (CV)

1. **Position:** Owner / Director
2. **Name of Firm:** Visual Resource Management Africa cc (www.vrma.co.za)
3. **Name of Staff:** Stephen Stead
4. **Date of Birth:** 9 June 1967
5. **Nationality:** South African
6. **Contact Details:** Cell: +27 (0) 83 560 9911
Email: steve@vrma.co.za
7. **Educational qualifications:**
 - University of Natal (Pietermaritzburg):
 - Bachelor of Arts: Psychology and Geography
 - Bachelor of Arts (Hons): Human Geography and Geographic Information Management Systems
 - MSc Geography, University of KwaZulu-Natal (2023)
8. **Professional Accreditation**
 - Association of Professional Heritage Practitioners (APHP) Western Cape
 - Accredited VIA practitioner member of the Association (2011)
9. **Association involvement:**
 - International Association of Impact Assessment (IAIA) South African Affiliate
 - Past President (2012 - 2013)
 - President (2012)
 - President-Elect (2011)
 - Conference Co-ordinator (2010)
 - National Executive Committee member (2009)
 - Southern Cape Chairperson (2008)
10. **Conferences Attended:**
 - International Geographical Congress, Lisbon (2017)
 - IAIAAsa 2012
 - IAIAAsa 2011
 - IAIA International 2011 (Mexico)
 - IAIAAsa 2010
 - IAIAAsa 2009
 - IAIAAsa 2007
11. **Continued Professional Development:**
 - Integrating Sustainability with Environment Assessment in South Africa (IAIAAsa Conference, 1 day)
 - Achieving the full potential of SIA (Mexico, IAIA Conference, 2 days 2011)

- Researching and Assessing Heritage Resources Course (University of Cape Town, 5 days, 2009)

12. Countries of Work Experience:

- South Africa, Mozambique, Malawi, Lesotho, Kenya and Namibia

13. Relevant Experience:

Stephen gained six years of experience in the field of Geographic Information Systems mapping and spatial analysis working as a consultant for the KwaZulu-Natal Department of Health and then with an Environmental Impact Assessment company based in the Western Cape. In 2004 he set up the company Visual Resource Management Africa that specializes in visual resource management and visual impact assessments in Africa. The company makes use of the well-documented Visual Resource Management methodology developed by the Bureau of Land Management (USA) for assessing the suitability of landscape modifications. Stephen has assessed of over 150 major landscape modifications throughout southern and eastern Africa. The business has been operating for eighteen years and has successfully established and retained a large client base throughout Southern Africa which include amongst other, Rio Tinto (Pty) Ltd, Bannerman (Pty) Ltd, Anglo Coal (Pty) Ltd, Eskom (Pty) Ltd, NamSolar and Vale (Pty) Ltd, Ariva (Pty) Ltd, Harmony Gold (Pty) Ltd, Millennium Challenge Account (USA), Pretoria Portland Cement (Pty) Ltd

14. Languages:

- English – First Language
- Afrikaans – fair in speaking, reading and writing.

15. Projects:

Table 11: VRM Africa Projects Assessments Table

DESCRIPTION	COUNT	DESCRIPTION	COUNT
Dam	1	UISP	8
Mari-culture	1	Structure	8
Port	1	OHPL	12
Railway	1	Industrial	12
Power Station	3	Wind Energy	22
Hydroelectric	4	Battery Storage	14
Resort	4	Mine	20
Golf/Residential	1	Residential	45
Road Infrastructure	5	Solar Energy	62
Substation	5	TOTAL	237