

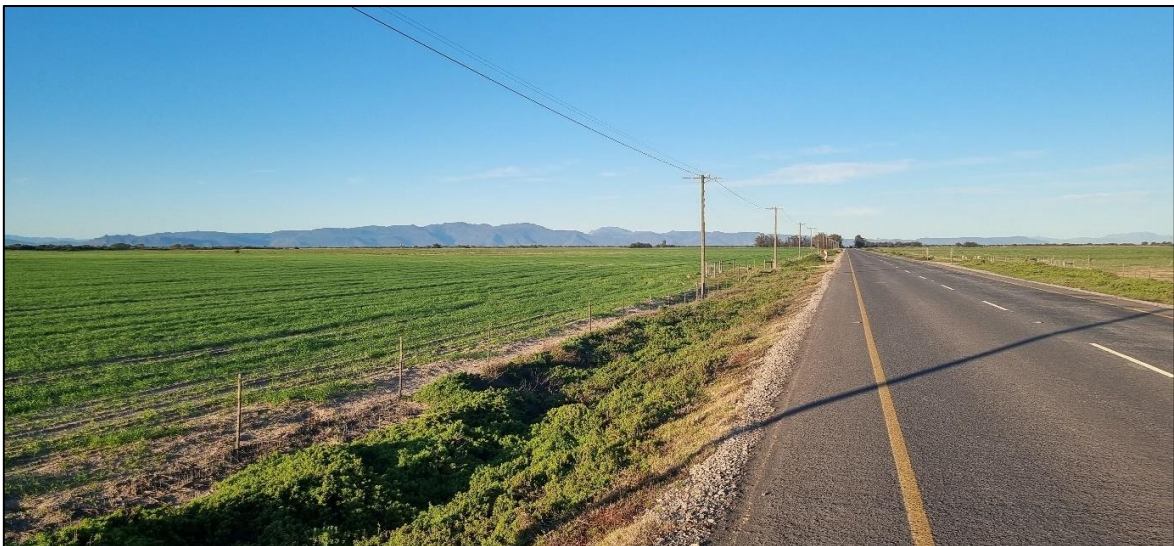
# THE PROPOSED SUNVELD ENERGY PV FACILITY, WESTERN CAPE PROVINCE, SOUTH AFRICA

## Visual Impact Assessment: Site Sensitivity Verification Report

**Draft v\_2**

DATE: 14 September 2023

Document prepared for Cape EAPrac  
On behalf of Sunveld Energy (Pty) Ltd



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## 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

<b>Technical Terms</b>	<b>Definition (Oberholzer, 2005)</b>
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.

<b>Technical Term</b>	<b>Definition (USDI., 2004)</b>
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 the 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

The DFFE specialist declaration of independence has been signed and provided to Cape EAPrac.

Table 1. Specialist declaration of independence.

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.

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.



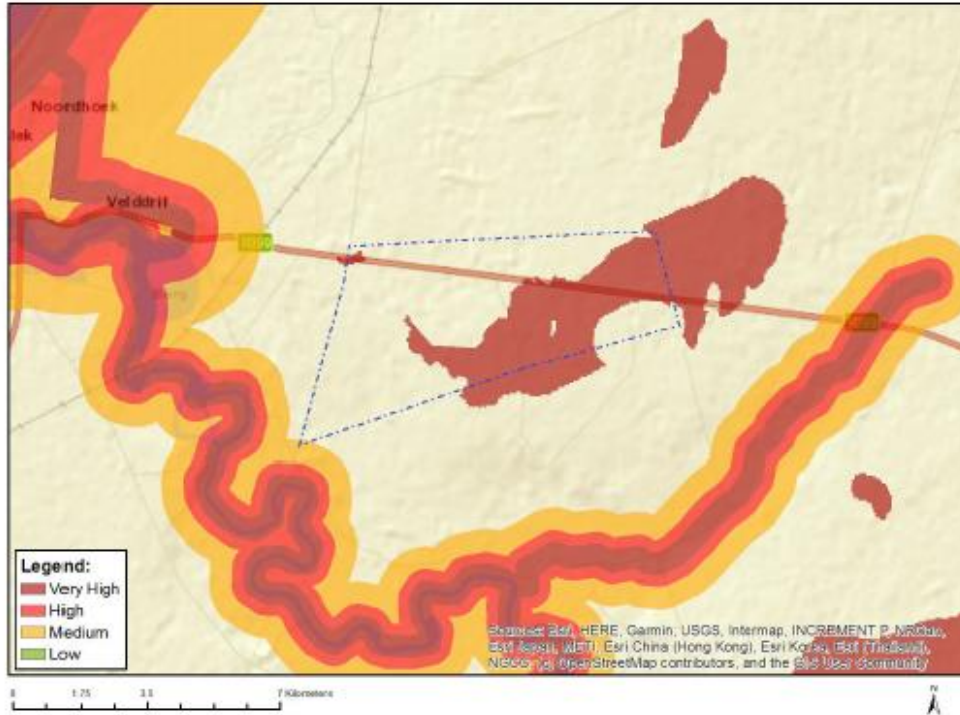
Stephen Stead  
*APHP accredited VIA Specialist*

## 1.2 Site Sensitivity Verification

In order to assess the site sensitivity pertaining to landscape and visual resources, a **site visit that was undertaken on 10 June 2023**. During the survey, photographs and comments were recorded and can be viewed in Annexure A, with the associated map of the survey points as well as the survey tracks. The following maps and tables outline the risks as informed by DFFE Screening Tool as well as the site visit.

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).

MAP OF RELATIVE LANDSCAPE (SOLAR) THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
x			

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Within 1000 m of a wetland
Very High	Mountain tops and high ridges

Figure 1. DFFE Screening Tool for Landscape.

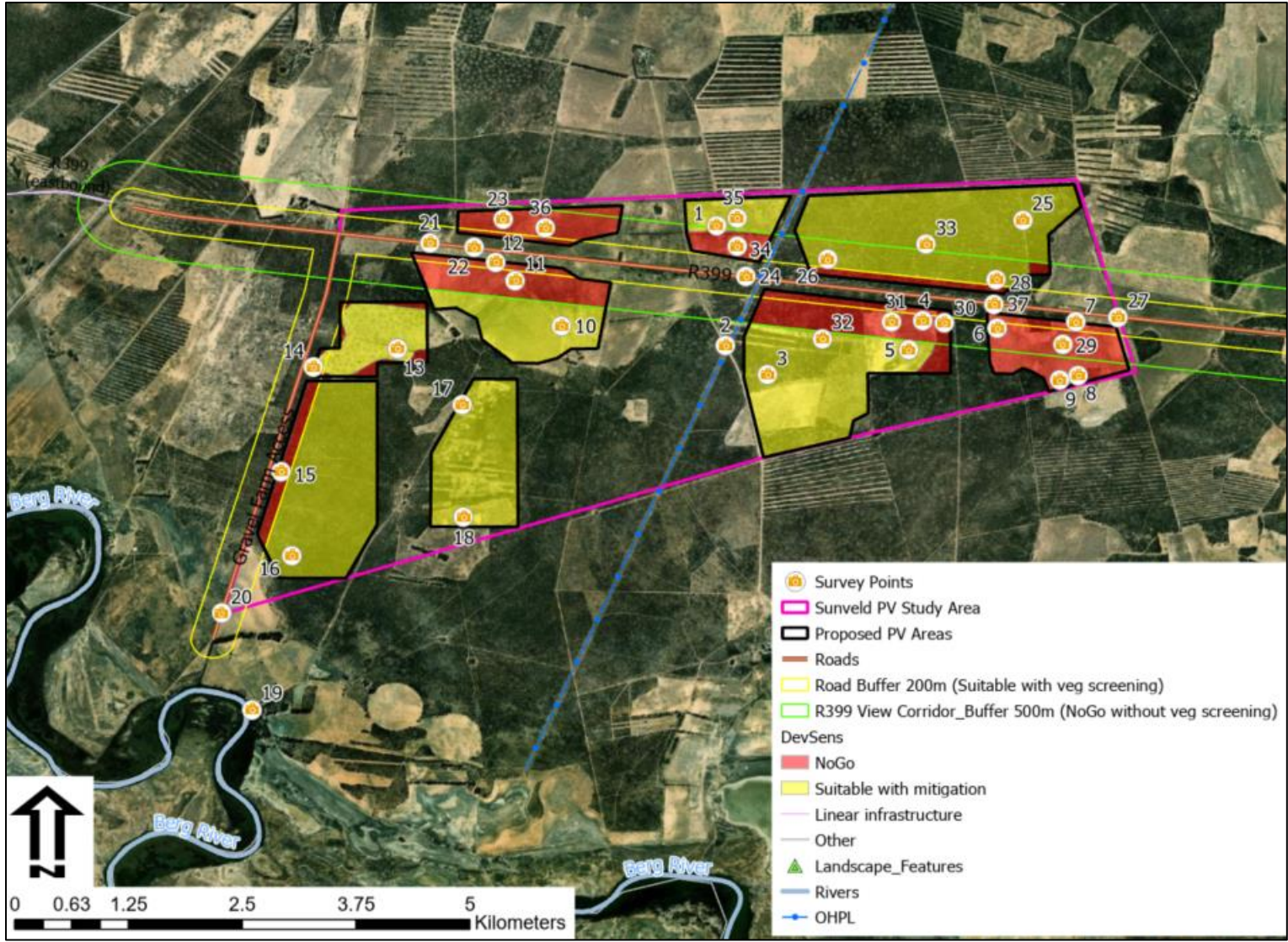


Figure 2: Site survey point and preliminary development sensitivity map.

Table 2. Site Survey Issue and Risk Table.

ID	Remarks	Time	Geometry	Risk	Motivation
1	site pv	06/10/2023 13:50:43.596 GMT+02:00	POINT Z (18,28331295 - 32,79417566 0,000)	Medium	Low prominence and some veg screening. Mitigation requires pv north of existing tree line for Medium to Low VI. Planting of similar windrow to the west of the PV area along the gravel road access. 50m buffer from road.
2	Powerline 220kV	06/10/2023 13:59:38.999 GMT+02:00	POINT Z (18,28424451 - 32,80604409 78,287)	Low	Existing Eskom lattice tower OHPL with local landscape degradation as not visually dominating.
3	Site pv	06/10/2023 14:05:06.000 GMT+02:00	POINT Z (18,28838579 - 32,80888877 79,827)	Medium	Low prominence and Medium exposure with natural vegetation partially degraded.
4	Site pv	06/10/2023 14:17:52.822 GMT+02:00	POINT Z (18,30368869 - 32,80355763 0,000)	High	NoGo for development. Retain pv south of survey point 5 on low lying lands so dune topo screening to R399 road receptor takes place. 3m height restriction for Medium VI.
5	Site pv	06/10/2023 14:20:41.011 GMT+02:00	POINT Z (18,30226444 - 32,80646868 0,000)	Medium	Low lying lands with Medium VE. Mit for 3m height for Medium to Low VI.
6	Site pv	06/10/2023 14:27:08.999 GMT+02:00	POINT Z (18,31106423 - 32,80433835 82,321)	High	Very High exposure to tourist view corridor with agrarian landscape a key component of the sense of place. NoGo.
7	Site pv	06/10/2023 14:33:15.999 GMT+02:00	POINT Z (18,31877687 - 32,80371800 77,220)	High	Very High exposure to tourist view corridor with agrarian landscape a key component of the sense of place. NoGo.
8	Pan	06/10/2023 14:37:59.999 GMT+02:00	POINT Z (18,31903887 - 32,80897134 75,519)	High	Retain small pan as NoGo for landscape integrity.
9	Site pv	06/10/2023 14:40:26.187 GMT+02:00	POINT Z (18,31717148 - 32,80945319 0,000)	Low	Although outside of R399 500m NoGo buffer, retain the complete field area as NoGo as landscape patch to retain agrarian landscape sense of place.



10	Site pv	06/10/2023 15:08:38.999 GMT+02:00	POINT Z (18,26805744 - 32,80410668 71,369)	Medium	Low prominence and Medium exposure. Height mitigation required to retain R399 sense of place as well as low screening mound 3m in height with natural veg rehab.
11	Site pv	06/10/2023 15:14:12.999 GMT+02:00	POINT Z (18,26350496 - 32,79960302 69,659)	High	Very High exposure to tourist view corridor with agrarian landscape a key component of the sense of place. NoGo.
12	Site pv	06/10/2023 15:17:50.999 GMT+02:00	POINT Z (18,26158288 - 32,79778526 68,613)	High	Very High exposure to tourist view corridor with agrarian landscape a key component of the sense of place. NoGo.
13	Site pv	06/10/2023 15:23:38.000 GMT+02:00	POINT Z (18,25186870 - 32,80631117 70,111)	Medium	Low prominence and exposure. with existing veg screening. Mitigate with 3m height restriction for Medium to Low VI.
14	Site pv	06/10/2023 15:31:32.000 GMT+02:00	POINT Z (18,24356664 - 32,80817164 65,737)	High	Within 200m Berg River access road and natural vegetation. NoGo.
15	Site pv	06/10/2023 15:42:13.000 GMT+02:00	POINT Z (18,24038308 - 32,81842478 53,041)	High	Within 200m Berg River access road and natural vegetation. NoGo.
16	Site pv	06/10/2023 15:51:25.034 GMT+02:00	POINT Z (18,24143596 - 32,82674480 0,000)	Medium	Medium exposure and low prominence but with likely High Sens vegetation. Mitigation with 3m height restriction to ensure low impacts to Berg River visual resources.
17	Site pv	06/10/2023 16:18:37.999 GMT+02:00	POINT Z (18,25825230 - 32,81186191 65,430)	Low	Low prominence and exposure and partially degraded veg. Suitable with 4m height restriction.
18	Site pv	06/10/2023 16:25:36.820 GMT+02:00	POINT Z (18,25839724 - 32,82295451 0,000)	Low	Low prominence and exposure and partially degraded veg. Suitable with 4m height restriction.
19	Berg River camp site	06/10/2023 16:36:27.000 GMT+02:00	POINT Z (18,23750953 - 32,84193538 38,687)	Medium	Medium risk to visual resources if PV well back from resource with height restriction to ensure Low VI to resource.

20	KOP gravel road	06/10/2023 16:43:34.000 GMT+02:00	POINT Z (18,23446335 - 32,83244173 33,262)	Medium	Access road to Berg River. 200m setback to retain local landscape resource.
21	KOP R399	06/10/2023 16:53:59.999 GMT+02:00	POINT Z (18,25507272 - 32,79588639 70,805)	High	Tourist view corridor access to Velddrif with very high visual exposure to pv on both sides of the road. Mitigation to reduce VI to M removal of northern PV area to allow mountain views to NE, and 500m buffer setback to south PV. Retain agrarian sense of place.
22	KOP R399 NB 2	06/10/2023 17:01:33.999 GMT+02:00	POINT Z (18,25940756 - 32,79635666 68,736)	High	As for R399 NB1 but retain views unchanged within 500m buffer
23	Site pv	06/10/2023 17:04:43.934 GMT+02:00	POINT Z (18,26225460 - 32,79354292 0,000)	High	Very high visual exposure with agrarian land uses a key component of the R399 sense of place. NoGo for development.
24	KOP R399 EB3	06/10/2023 17:10:58.999 GMT+02:00	POINT Z (18,28625513 - 32,79922597 79,191)	Medium	Port Jackson vegetation adjacent to road provides some visual screening. Retain along the northern portion of the road.
25	Site pv	06/10/2023 17:24:38.000 GMT+02:00	POINT Z (18,31355788 - 32,79364440 83,843)	Medium	Alien vegetation but with some elevation prominence. Mitigation with height for Medium VI. 4m max height.
26	Site pv	06/10/2023 17:38:18.525 GMT+02:00	POINT Z (18,29427246 - 32,79754838 0,000)	Low	Low prominence and well screened by alien veg. Retain 200m buffer 4m height PV.
27	KOP R399 WB1	06/11/2023 10:03:45.999 GMT+02:00	POINT Z (18,32297824 - 32,80323318 78,626)	High	High visual exposure to view corridor with agrarian landscape adjacent route adding value. Due to massing effect degrading route, mitigated with 500m setback unless veg screened (then 200m).
28	Site pv	06/11/2023 10:11:41.728 GMT+02:00	POINT Z (18,31096116 - 32,79948312 0,000)	High	Low prominence and well screened by alien veg. Retain 200m buffer 4m height PV.

29	Site pv	06/11/2023 10:13:47.331 GMT+02:00	POINT Z (18,31746753 - 32,80592903 0,000)	High	Massing effects and landscape degradation as seen from R399 view corridor. NoGo.
30	Site pv	06/11/2023 10:14:15.663 GMT+02:00	POINT Z (18,30579121 - 32,80378843 0,000)	High	Indigenous vegetation in close proximity to the R399 view corridor. Retain as NoGo area.
31	Site PV	06/11/2023 10:14:57.934 GMT+02:00	POINT Z (18,30061287 - 32,80367712 0,000)	Medium	Transformed lands but with limited screening. Retain as NoGo as within the 500m R399 buffer.
32	Site PV	06/11/2023 10:15:05.082 GMT+02:00	POINT Z (18,29380073 - 32,80534654 0,000)	Medium	Partially transformed and Medium VE to R399. Mitigation with 3m PV height and 2.5m sand berm rehabilitated to natural veg (angle reposed 1 in10m).
33	Site PV	06/11/2023 10:15:52.317 GMT+02:00	POINT Z (18,30404174 - 32,79603437 0,000)	Medium	Suitable for PV development as alien invaded and has vegetation screening. Retain alien road buffer 200m with long-term rehab to natural bush vegetation that includes small trees and shrubs such that visual screening can take place.
34	Site PV	06/11/2023 10:18:38.098 GMT+02:00	POINT Z (18,28534104 - 32,79624124 0,000)	High	Agrarian sense of place is degraded from massing effects. Retain as NoGo.
35	Site PV	06/11/2023 10:19:17.381 GMT+02:00	POINT Z (18,28533098 - 32,79344202 0,000)	Medium	Outside of 500m R399 buffer and partially screened by windrow of trees. Suitable for development with 4m height restriction for PV.
36	KOP R399	06/11/2023 10:19:52.760 GMT+02:00	POINT Z (18,26647237 - 32,79440395 0,000)	High	Agrarian sense of place is degraded from massing effects. Retain as NoGo.
37	KOP R399 EB2	06/11/2023 10:20:59.000 GMT+02:00	POINT Z (18,31073653 - 32,80193746 80,453)	High	Retain existing sense of place along the R399 tourist view corridor with 500m NoGo buffer on either side of the road as well as NoGo for key focus areas along the road.

Based on the site visit and a review of the landscape related planning for the region, the following table outlines the relevance of the risks raised in the SSV with motivation.

Table 3. Landscape Risk Table.

<b>DFFE Feature</b>	<b>DFFE Sensitivity</b>	<b>Risk Verification</b>	<b>Motivation</b>
<b>Within 1000m of a wetland</b>	<b>Medium</b>	<b>Low</b>	The development sites are outside of the 1000m buffer.
<b>Mountain tops and high ridgelines</b>	<b>Very High</b>	<b>Medium</b>	While the project area is regionally elevated, the area in question does not form a prominent ridgeline or mountain top. Care would need to be taken to ensure that skyline intrusion does not take place.
<b>Landscape Feature</b>	<b>Risk</b>	<b>Mitigated Risk</b>	<b>Motivation</b>
<b>R399 tourist view corridor</b>	<b>High</b>	<b>Medium</b>	With a suitable 500m buffer from the R399 tourist view corridor, and vegetative screening where necessary, the proposed landscape change is likely to Moderately degrade existing landscape resources.
<b>Natural vegetation loss as seen from tourist access road adjacent to the site.</b>	<b>High</b>	<b>Medium</b>	Loss of vegetation is highlighted as a land use change risk. The views of the natural vegetation around the cultivated areas do add value to the scenic quality.

## 2 PRELIMINARY FINDINGS

Visual Resource Management Africa CC (VRMA) was appointed by Cape EAPrac to undertake a **Visual Impact Assessment** for the proposed Sunveld Energy PV VIA on behalf of Sunveld Energy PV (Pty) Ltd. A **site visit that was undertaken on the 10 June 2023**. During the survey, photographs and comments were recorded and can be viewed in Annexure A, with the associated map of the survey points as well as the survey tracks. The DFFE Screening tool indicated Very High Landscape Sensitivity to High Ridgelines and Mountains. The site visit found that this risk is limited as, although the site has some regional elevation, there are no high ridgelines or mountain features on the site. Other risks identified during the site survey were the importance of tourism view corridors associated with the R399 as well as the gravel access road to the Berg River.

**In order to ensure that the above-mentioned landscape and visual resources are not compromised, a Level 3 LVIA is required.**

### **POLICY FIT**

### **Low Positive**

In terms of regional and local planning fit for planned landscape and visual related themes, the **expected visual/ landscape policy fit of the landscape change is rated Low Positive**. While there is clear support for renewable energy sources and the promotion as part of a planning effort to enhance the electricity capacity in the West Coast District, alternative energy facilities such as solar and wind farms are also listed as a risk to have spatial implications relating to visual impacts, environmental impacts, etc, given the importance of tourism for the area where there is a strong planning requirements to “promote and enhance the Bergrivier Municipality as a unique destination for discerning travellers with unrivalled eco-tourism and authentic cultural heritage tourism opportunities”. Given that planning is highlighting the risk to land use change through human intervention, there planned need to address future challenges compromising local landscape and scenic resources through appropriate land use. As the property is large and, in some areas, visually degraded by alien vegetation, there is also a clear need to ensure that visual resources along the R399 road tourist corridor, and the Berg River are not compromised.

### **METHODOLOGY**

### **Bureau of Land Management’s Visual Resource Management (VRM) method**

The methodology for determining landscape significance is based on the United States Bureau of Land Management’s Visual Resource Management (VRM) method (USDI., 2004). This GIS-based method allows for increased objectivity and consistency by using standard assessment criteria to classify the landscape type into four VRM Classes, with Class I being the most valued and Class IV, the least. The Classes are derived from *Scenic Quality*, *Visual Sensitivity Levels*, and *Distance Zones*. Specifically, the methodology involved: site survey; review of legal framework; determination of Zone of Visual Influence (ZVI); identification of Visual Issues and Visual Resources; assessment of Potential Visual Impacts; and formulation of Mitigation Measures. To ensure the landscape and visual resources related to the Berg River and the tourist access routes

to Velddrif are not compromised, a Level 3 LVIA is required (Impacts without photomontages).

**ZONE OF VISUAL INFLUENCE**                      **Regional (pending assessment and PV heights)**

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. There is some regional elevation to the where the viewshed is likely to extend beyond the Foreground/ Mid Ground areas. A large Zone of Visual Influence is expected if higher PV structures are utilised. It is recommended that the PV structures are limited to approximately 3m above ground in most areas.

**RECEPTORS AND KEY OBSERVATION POINTS**                      **Multiple Receptor locations and two Key Observation Points**

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. The main KOPs for the site are:

- The R399 road that is the main access road to the tourist related coastal town of Velddrif.
- Berg River and Berg River gravel access road.

**SCENIC QUALITY**                      **Medium to High**

The scenic quality of the proposed development site is rated Medium to High. This is due to the interplay of the natural and agrarian cultivated areas, as well as the Berg River located within the project ZVI. The terrain is predominately flat and gently undulating, but the backdrop of the mountains to the east and the close proximity to the Berg River valley do add value to the site scenic resources.

**RECEPTOR SENSITIVITY TO LANDSCAPE CHANGE**                      **High**

Receptor sensitivity to landscape changes is rated High as the area is related to tourism, and the R399 road to Velddrif should be considered a tourist view corridor, with the Berg River also an important tourist destination.

**VISUAL RESOURCE MANAGEMENT ASSESSMENT**

The BLM has defined four Classes that represent the relative value of the visual resources of an area and are defined making use of the VRM Matrix:

- Classes I and II** are the most valued.
- Class III** represent a moderate value.
- Class IV** is of least value

- |   |   |
|---|---|
| <b>Class I (No-go)</b>                        | <ul style="list-style-type: none"> <li>• Any river / streams and associated flood lines buffers identified as significant in terms of the WULA process.</li> <li>• Any wetlands identified as significant in terms of the WULA process.</li> <li>• Any ecological areas (or plant species) identified as having a high significance.</li> <li>• Any heritage area identified as having a high significance.</li> <li>• 500m buffer where there is no vegetation screening.</li> </ul> |
| <b>Class II (Not recommended)</b>             | <ul style="list-style-type: none"> <li>• <i>Areas outside the 500m buffer that are key focus areas and landscape elements within the R399 view corridor.</i></li> </ul>   |
| <b>Class III (suitable with mitigation)</b>   | <ul style="list-style-type: none"> <li>• Areas outside of the 500m buffer, or well vegetation screened areas outside of the 200m buffer without resulting in visual intrusion.</li> </ul>   |
| <b>Class IV (suitable without mitigation)</b> | <ul style="list-style-type: none"> <li>• <b>Not applicable</b> as the area has higher levels of scenic quality with expected higher levels of sensitivity to landscape change from tourist receptors located with Very High Visual Exposure to the proposed PV landscape change.</li> </ul>   |

## EXPECTED IMPACT SIGNIFICANCE

**High (-ve)**  
*(without mitigation)*

Without mitigation, High Visual Intrusion is expected as visual and landscape resources associated with the R399 will be lost. Planning for this area emphasises the need for carefully placed RE projects such that landscape resources are not compromised.

**Medium (-ve)**  
*(with mitigation)*

With mitigation, Medium levels of Visual Intrusion are likely with the loss to landscape and visual resources is moderated.

## CUMULATIVE EFFECTS

**High (-ve)**  
*(without mitigation)*

Without mitigation, a negative precedent could be set for development in close proximity to tourist view corridors in the Western Cape.

**Low (-ve)**  
*(with mitigation)*

With mitigation and a suitable setback without resulting in skyline intrusion, a positive precedent could be set for RE development in tourist related areas.

### 3 INTRODUCTION

The proposed development site is located in Western Cape Province, West Coast District Municipality and within the Bergrivier Local Municipality. The Proponent proposes to construct a solar PV facility on a site located 12 km (approx.) east of the town of Velddrif. This assessment is for the PV component only and does not include the grid connection.

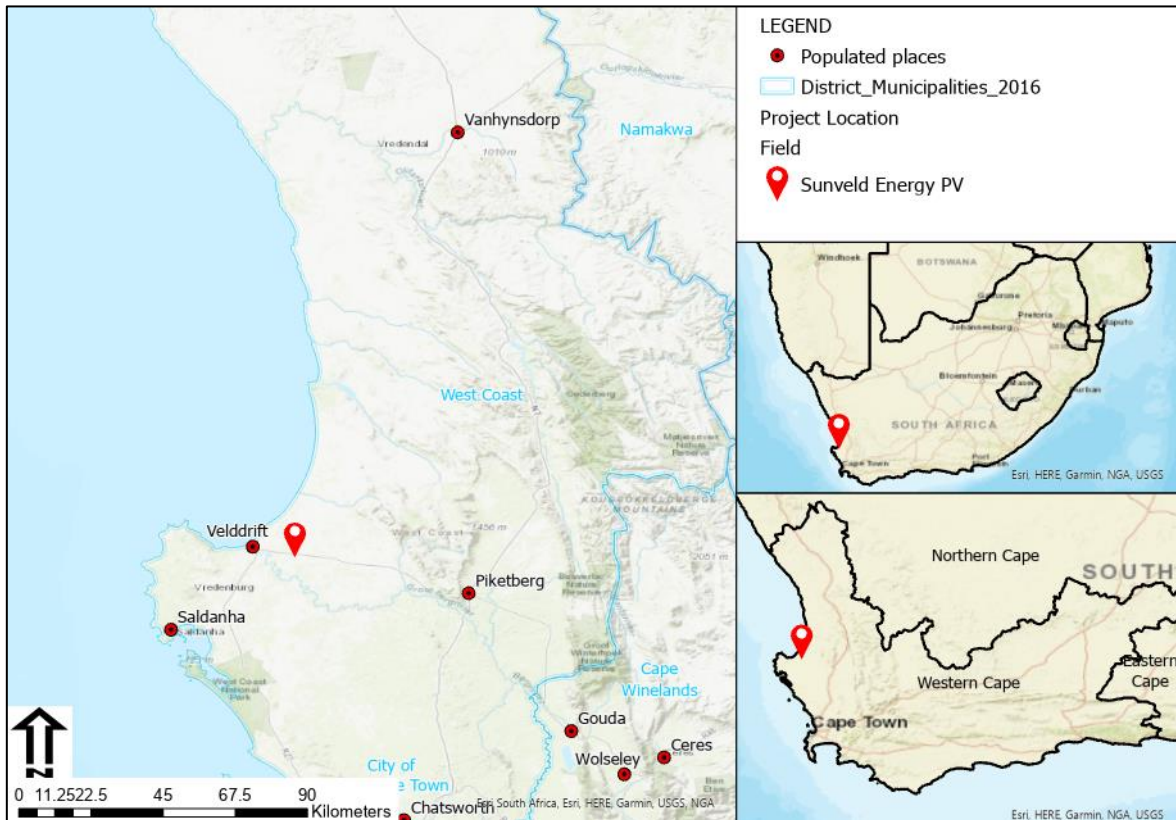


Figure 3: National and regional locality map.

#### 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:

- Collate and analyse all available secondary data relevant to the affected proposed project area. This includes a site visit of the full site extent, as well as of areas where potential impacts may occur beyond the site boundaries.
- Specific attention is to be given to the following:
  - Quantifying and assessing existing scenic resources/visual characteristics on, and around, the proposed site.
  - Evaluation and classification of the landscape in terms of sensitivity to a changing land use.
  - Determining viewsheds, view corridors and important viewpoints in order to assess the visual impacts of the proposed project.
  - Determining visual issues, including those identified in the public participation process.
  - Reviewing the legal framework that may have implications for visual/scenic resources.



- Assessing the significance of potential visual impacts resulting from the proposed project for the construction, operation and decommissioning phases of the proposed project.
- Assessing the potential cumulative impacts associated with the visual impact.
- Generate photomontages of the proposed landscape modification.
- Identifying possible mitigation measures to reduce negative visual impacts for inclusion into the proposed project design, including input into the Environmental Management Programme report (EMPr).

### 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 B.A (Hons) Human Geography, 1991 (UKZN, Pietermaritzburg)	VRMA	<ul style="list-style-type: none"> <li>• Accredited with the Association of Professional Heritage Practitioner and</li> <li>• 16 years of experience in visual assessments including renewable energy, Power lines, roads, dams across southern Africa.</li> <li>• Registered with the Association of Professional Heritage Practitioners since 2014.</li> </ul>

### 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

<b>Action</b>	<b>Description</b>
Site Survey	The identification of existing scenic resources and sensitive receptors in and around the study area to understand the context of the proposed development within its surroundings to ensure that the intactness of the landscape and the prevailing sense of place are taken into consideration.
Project Description	Provide a description of the expected project, and the components that will make up the landscape modification.
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.
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.
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.
Assessing 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

<b>Action</b>	<b>Description</b>
	significance is based on the methodology provided by the Environmental Assessment Practitioner (EAP).
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.

### 3.5 Impact Assessment Methodology

The following impact criteria were used to assess visual impacts. The criteria were defined by the Western Cape *DEA&DP Guideline for involving Visual and Aesthetic Specialists in EIA Processes* (Oberholzer, 2005).

Table 7. DEA&DP Visual and Aesthetic Guideline Impact Assessment Criteria Table.

<b>Criteria</b>	<b>Definition</b>
<u>Extent</u>	The spatial or geographic area of influence of the visual impact, i.e.: <ul style="list-style-type: none"> <li>• <i>site-related</i>: extending only as far as the activity.</li> <li>• <i>local</i>: limited to the immediate surroundings.</li> <li>• <i>regional</i>: affecting a larger metropolitan or regional area.</li> <li>• <i>national</i>: affecting large parts of the country.</li> <li>• <i>international</i>: affecting areas across international boundaries.</li> </ul>
<u>Duration</u>	The predicted life-span of the visual impact: <ul style="list-style-type: none"> <li>• <i>short term</i>, (e.g., duration of the construction phase).</li> <li>• <i>medium term</i>, (e.g., duration for screening vegetation to mature).</li> <li>• <i>long term</i>, (e.g., lifespan of the project).</li> <li>• <i>permanent</i>, where time will not mitigate the visual impact.</li> </ul>
<u>Intensity</u>	The magnitude of the impact on views, scenic or cultural resources. <ul style="list-style-type: none"> <li>• <i>low</i>, where visual and scenic resources are not affected.</li> <li>• <i>medium</i>, where visual and scenic resources are affected to a limited extent.</li> <li>• <i>high</i>, where scenic and cultural resources are significantly affected.</li> </ul>
<u>Probability</u>	The degree of possibility of the visual impact occurring: <ul style="list-style-type: none"> <li>• <i>improbable</i>, where the possibility of the impact occurring is very low.</li> <li>• <i>probable</i>, where there is a distinct possibility that the impact will occur.</li> <li>• <i>highly probable</i>, where it is most likely that the impact will occur.</li> <li>• <i>definite</i>, where the impact will occur regardless of any prevention measures.</li> </ul>
<u>Significance</u>	The significance of impacts can be determined through a synthesis of the aspects produced in terms of their nature, duration, intensity, extent and probability, and be described as: <ul style="list-style-type: none"> <li>• <i>low</i>, where it will not have an influence on the decision.</li> <li>• <i>medium</i>, where it should have an influence on the decision unless it is mitigated.</li> <li>• <i>high</i>, where it would influence the decision regardless of any possible mitigation.</li> </ul>

### 3.6 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.
- As access to farms and private property is often limited due to security reasons, limiting access to private property in order that photographs from specific locations are taken. 3D modelling is used to reflect the expected landscape change area where applicable.
- Mapping makes use of the SANI BGIS webmap (SANBI, 2018)

## 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 8: Project Information Table

PROPONENT SPECIFICATIONS	
Applicant Details	Description
Applicant Name:	Sunveld Energy (Pty) Ltd
Project Name:	Sunveld Energy PV Facility
Needs and desirability	

The proposed project is expected include the following infrastructure:

Table 9: Project Description Table

Project components	Description
To be defined	

The following photographs of existing solar PV developments depict landscape changes that could take place in relation to the proposed land use change.



([www.hawaiiirenewableenergy.org/Villamesias2](http://www.hawaiiirenewableenergy.org/Villamesias2), n.d.)



(Junior Mining Network, n.d.)

Figure 4: Photographic example of what the proposed Sunveld Energy PV could look like as fixed and single portrait model on a tracker.



Figure 5. Example of a Photomontage of #Tesla BESS in landscape.



*Cr: Relay and Power Systems (Green Building Africa, n.d.)*

Figure 6. Example of what a small onsite substation could look like.

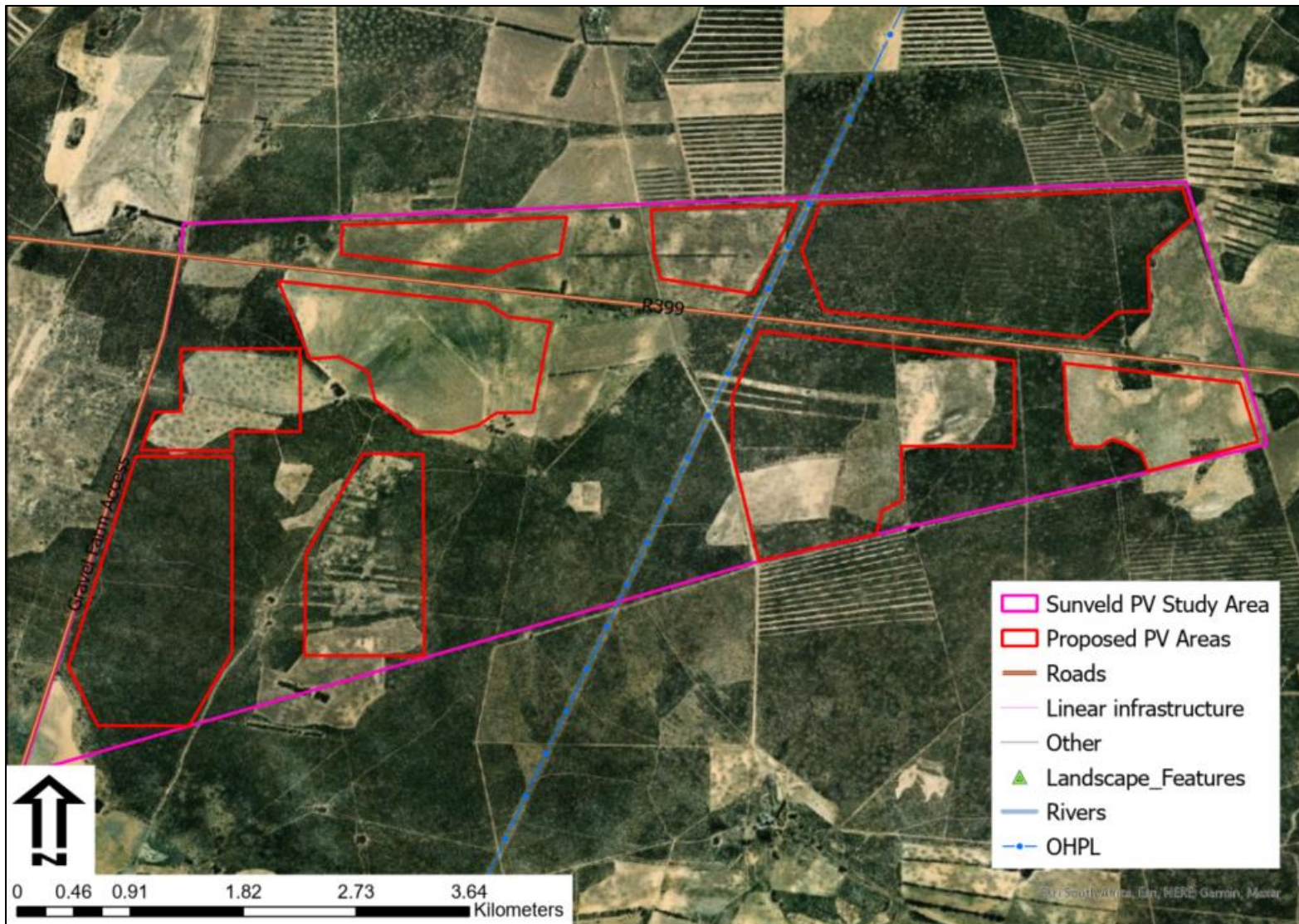


Figure 7: Proposed development area map.



## 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 International Good Practice

For cultural landscapes, the following documentation provides good practice guidelines, specifically:

- Guidelines for Landscape and Visual Impact Assessment (GLVIA), Second Edition.
- International Finance Corporation (IFC).
- Millennium Ecosystem Assessment (MEA).
- United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Convention (WHC).

#### 5.1.1 Guidelines for Landscape and Visual Impact Assessment, Second Edition

The Landscape Institute and the Institute of Environmental Management and Assessment (United Kingdom) have compiled a book outlining best practice in landscape and visual impact assessment. This has become a key guideline for LVIA in the United Kingdom. "The principal aim of the guideline is to encourage high standards for the scope and context of landscape and visual impact assessments, based on the collegiate opinion and practice of the members of the Landscape Institute and the Institute of Environmental Management and Assessment. The guidelines also seek to establish certain principles and will help to achieve consistency, credibility and effectiveness in landscape and visual impact assessment, when carried out as part of an EIA" (The Landscape Institute, 2003);

In the introduction, the guideline states that 'Landscape encompasses the whole of our external environment, whether within village, towns, cities or in the countryside. The nature and pattern of buildings, streets, open spaces and trees – and their interrelationships within the built environment – are an equally important part of our landscape heritage" (The Landscape Institute, 2003: Pg. 9). The guideline identifies the following reasons why landscape is important in both urban and rural contexts, in that it is:

- An essential part of our natural resource base.
- A reservoir of archaeological and historical evidence.
- An environment for plants and animals (including humans).
- A resource that evokes sensual, cultural and spiritual responses and contributes to our urban and rural quality of life; and
- Valuable recreation resources. (The Landscape Institute, 2003).

#### 5.1.2 International Finance Corporation (IFC)

The IFC Performance Standards (IFC, 2012) do not explicitly cover visual impacts or assessment thereof. Under IFC PS 6, ecosystem services are organized into four categories, with the third category related to cultural services which are defined as "the non-material

benefits people obtain from ecosystems” and “may include natural areas that are sacred sites and areas of importance for recreation and aesthetic enjoyment” (IFC, 2012).

However, the IFC Environmental Health and Safety Guidelines for Electric Power Transmission and Distribution (IFC, 2007) specifically identifies the risks posed by power transmission and distribution projects to create visual impacts to residential communities. It recommends mitigation measures to be implemented to minimise visual impact. These should include the siting of powerlines and the design of substations with due consideration to landscape views and important environmental and community features. Prioritising the location of high-voltage transmission and distribution lines in less populated areas, where possible, is promoted.

IFC PS 8 recognises the importance of cultural heritage for current and future generations and aims to ensure that projects protect cultural heritage. The report defines Cultural Heritage as “(i) tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values; (ii) unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls” (IFC, 2012). The IFC PS 8 defines Critical Heritage as “one or both of the following types of cultural heritage: (i) the internationally recognized heritage of communities who use or have used within living memory the cultural heritage for long-standing cultural purposes; or (ii) legally protected cultural heritage areas, including those proposed by host governments for such designation” (IFC, 2012).

Legally protected cultural heritage areas are identified as important in the IFC PS 8 report. This is for “the protection and conservation of cultural heritage, and additional measures are needed for any projects that would be permitted under the applicable national law in these areas”. The report states that “in circumstances where a proposed project is located within a legally protected area or a legally defined buffer zone, the client, in addition to the requirements for critical cultural heritage, will meet the following requirements:

- Comply with defined national or local cultural heritage regulations or the protected area management plans.
- Consult the protected area sponsors and managers, local communities and other key stakeholders on the proposed project; and
- Implement additional programs, as appropriate, to promote and enhance the conservation aims of the protected area”. (IFC, 2012).

### 5.1.3 Millennium Ecosystem Assessment

In the Ecosystems and Human Well-being document compiled by the Millennium Ecosystem Assessment in 2005, Ecosystems are defined as being “essential for human well-being through their provisioning, regulating, cultural, and supporting services. Evidence in recent decades of escalating human impacts on ecological systems worldwide raises concerns about the consequences of ecosystem changes for human well-being”. (Millennium Ecosystem Assessment, 2005)

The Millennium Ecosystem Assessment defined the following non-material benefits that can be obtained from ecosystems:

- Inspiration: Ecosystems provide a rich source of inspiration for art, folklore, national symbols, architecture, and advertising.

- Aesthetic values: Many people find beauty or aesthetic value in various aspects of ecosystems, as reflected in the support for parks, scenic drives, and the selection of housing locations.
- Sense of place: Many people value the “sense of place” that is associated with recognised features of their environment, including aspects of the ecosystem.
- Cultural heritage values: Many societies place high value on the maintenance of either historically important landscapes (“cultural landscapes”) or culturally significant species; and
- Recreation and ecotourism: People often choose where to spend their leisure time based in part on the characteristics of the natural or cultivated landscapes in a particular area. (Millennium Ecosystem Assessment, 2005)

The Millennium Ecosystem Assessment Ecosystems and Human Well-being: Synthesis report indicates that there has been a “rapid decline in sacred groves and species” in relation to spiritual and religious values, and aesthetic values have seen a “decline in quantity and quality of natural lands”. (Millennium Ecosystem Assessment, 2005)

## 5.2 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 8 below.

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

Table 10: List of key planning informants to the project.

Theme	Requirements
Province	Western Cape
District Municipality	West Coast
Local Municipality	Bergrivier
REDZ	Not applicable

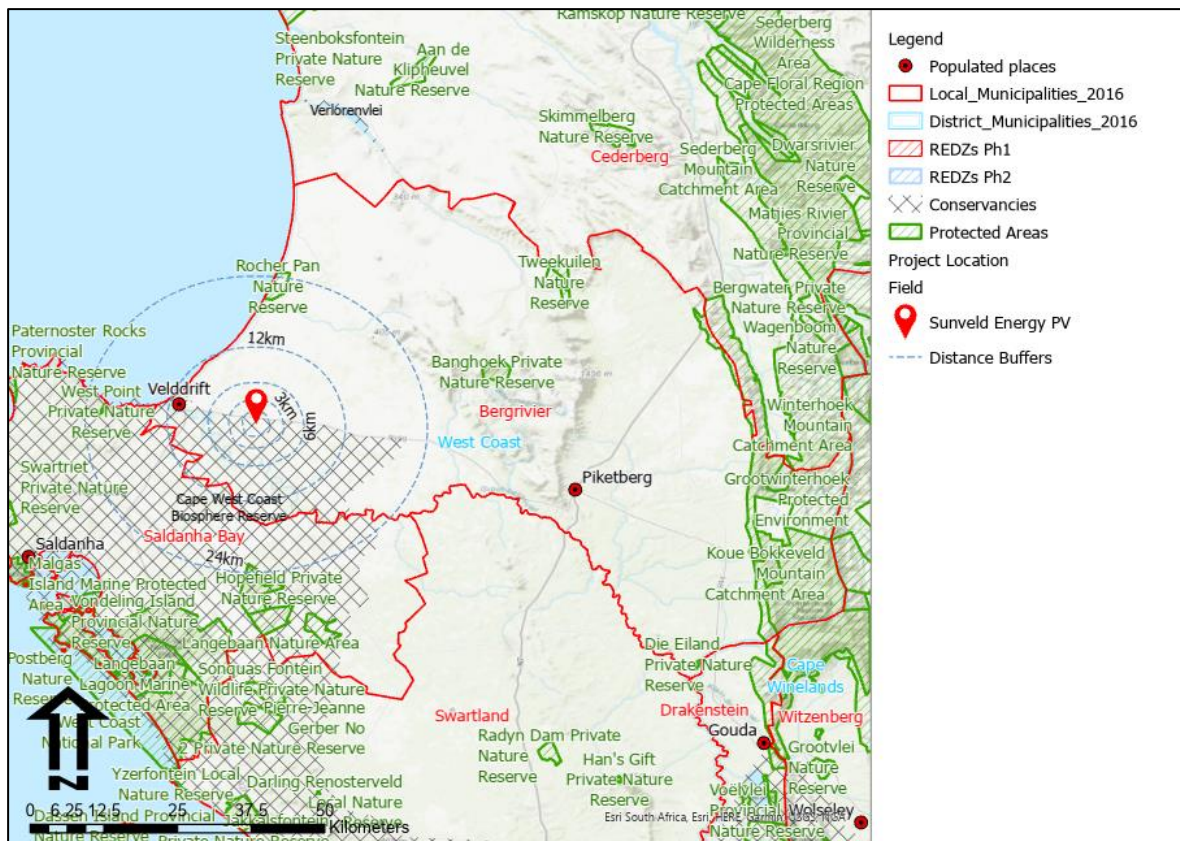


Figure 8: Planning locality map depicting the local, district and national planning zones.

### 5.2.1 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)

### 5.2.2 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 not within a proclaimed REDZ.**

### 5.2.3 Other Renewable Energy Projects

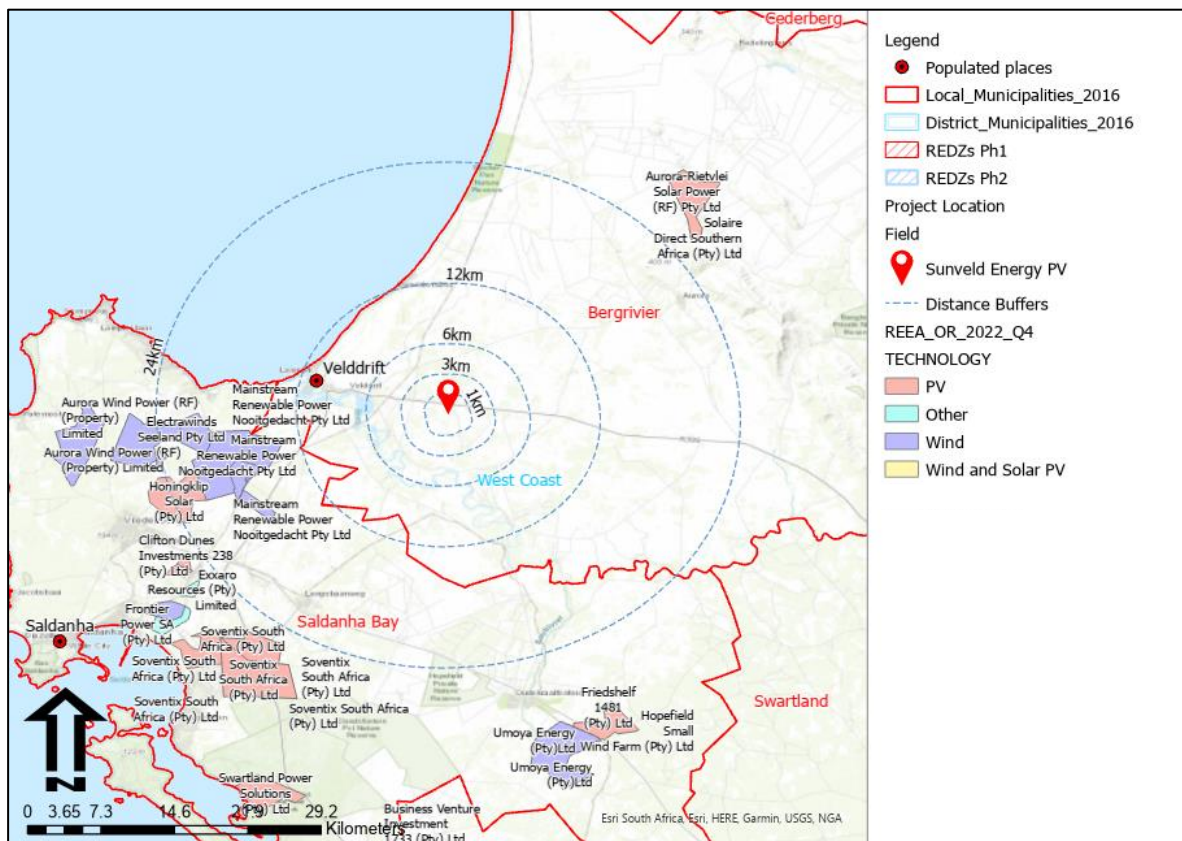


Figure 9: Map depicting DEA Renewable Energy project status.

There are no other Renewable Energy projects within a 12km radius of the proposed project. However, within a 24km radius the following renewable Energy projects are currently underdevelopment or built but are authorised:

- Mainstream Renewable Power (wind)
- Electrawinds (wind)
- Honingklip Solar (solar)

Due to the gentle undulation of the terrain, the proposed PV landscape change is unlikely to result in intervisibility such that a larger massing effect takes place that significantly degrades local landscape resources. **Risk to massing effects from intervisibility is thus rated Low.**

### 5.2.4 Conservation and Tourism Planning

As can be seen in Figure 8 above, the proposed project lies on the border of the Cape West Coast Biosphere Reserve. Within a 24km radius lie the Rocher Pan Nature Reserve to the north and West Point Private Nature Reserve to the south. However, as noted for the RE project intervisibility, the proclaimed conservation areas are well outside of the proposed project ZVI. The only tourism related activities were the small camp site located to the south of the property on the Berg River. This facility that belongs to the property owner (*pending confirmation*), is located outside of the currently PV project ZVI. Velddrif is also an important coastal tourist destination, and the R399 road transects the proposed PV project area where higher levels of visual intrusion to tourist receptors is likely to take place. Care would also need to be undertaken to ensure that visual resources related to the Berg River are not compromised. **Due to the High levels of Visual Exposure to the Berg River landscape resources, the risk to conservation and tourism planning is rated Medium to High.**

### 5.2.5 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. Positive planning aspects pertaining to the proposed development are highlighted in **green**, with possible issues of concern highlighted in **yellow**.

Table 11: District Planning reference table relevant to the project.

Theme	Requirements	Page
<b>Renewable Energy</b>	Policy BE16: Renewable energy sources (wind, solar, gas, etc.) should be promoted to support and enhance the electricity capacity in the West Coast District.	96
	Promote and enhance resource-use efficiency and invest in renewable 'green' energy projects.	11
<b>Landscape</b>	Alternative energy facilities such as solar and wind farms have spatial implications relating to visual impacts, environmental impacts, etc. and its locality should be considered in terms of certain criteria.	49
	Visually obtrusive structures erected on ridgelines and elevated landscapes detract from the natural rural landscapes.	125
<b>Planning</b>	Policy BE17: <ul style="list-style-type: none"> <li>Wind and solar farm locations should be informed by a range of criteria, i.e., environmental considerations, topography, planning and land use considerations as well as infrastructure considerations</li> <li>Wind farms and solar farms should be located where their visual and environmental impact will be the lowest.</li> </ul>	96/ 141

(West Coast District Municipality, 2020)

Table 12: Local Planning reference table relevant to the project.

Theme	Requirements	Page
<b>Renewable Energy</b>	Promote the development of renewable energy plants in the Province and associated manufacturing capability. (Western Cape Infrastructure Framework (WCIF))	22
	Strategic Goal 7: Renewable Energy - ensure that adequate energy is supplied to meet developmental challenges	173
<b>Biodiversity</b>	Just over 58% of the total area of Bergrivier has already been transformed through human intervention, most notably farming and settlement. In the lower lying areas nearly 71% of the landscape is transformed. Habitats most suitable for agriculture are all threatened. The most intensively developed areas are classified as being Critically Endangered, with remaining remnants of natural habitats representing less than the threshold value required to maintain a substantial proportion of original species and ecological function.	34
<b>Tourism</b>	Eco-tourism - capitalising on the significant biodiversity and scenic landscapes of the area supported by training, environmental education and business development.	49
	Promote and enhance the Bergrivier Municipality as a unique destination for discerning travellers with unrivalled eco-tourism and authentic cultural heritage tourism opportunities.	60

Theme	Requirements	Page
Landscape	Future Challenges: Safeguarding local landscape and scenic value through appropriate land use location, scale and form. Visual environment and unique West Coast sense of place mainstreamed in spatial planning decision-making.	49
	The Bergrivier dictates the southern boundary. It links neighbouring municipal areas providing scenic and recreational opportunities before exiting to the ocean via a serpentine wide estuary of tidal flats and wetlands with high scenic, estuarine and recreational value.	47
	The importance of NEMA in Bergrivier Municipality is fundamental in so far as the issues of environmental sustainability, resilience to climate change and wise use of the natural resource base are key to the current and future socio-economic wellbeing of residents in the municipal area. This is especially so because of the fact that sectors such as agriculture, fishing and tourism, which all rely to a great extent on the natural assets of the area, remain of great importance to the local economy and are likely to do so in future.	20
Agriculture	The agricultural sector is an important sector in the economic makeup of the Bergrivier Municipality, forming part of the primary sector but also providing inputs towards processing and manufacturing activities in the secondary sector and representing an important element of the value chain in the tertiary sector, too.	42

(Bergrivier Municipality, 2019)

### 5.3 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 are no significant landscape/ cultural landscape features within the project area there were no significant cultural/ landscape visual resources found on the site or immediate surrounds that are flagged by international landscape guidelines.

*In terms of regional and local planning fit for planned landscape and visual related themes, the expected visual/ landscape policy fit of the landscape change is rated Low Positive.* While there is clear support for renewable energy sources and the promotion as part of a planning effort to enhance the electricity capacity in the West Coast District, alternative energy facilities such as solar and wind farms are also listed as a risk to have spatial implications relating to visual impacts, environmental impacts, etc, given the importance of tourism for the area where there is a strong planning requirements to “promote and enhance the Bergrivier Municipality as a unique destination for discerning travellers with unrivalled eco-tourism and authentic cultural heritage tourism opportunities”. Given that planning is highlighting the risk to land use change through human intervention, there planned need to address future challenges compromising local landscape and scenic resources through appropriate land use. As the property is large and, in some areas, visually degraded by alien vegetation, there is also a clear need to ensure that visual resources along the R399 road tourist corridor, and the Berg River are not compromised.

## 6 BIBLIOGRAPHY

- Bergvriervier Municipality. (2019). *Spatial Development Framework*.
- Department of Environment Affairs. (2013). *DEA National Wind and Solar PV Strategic Environmental Assessment*.
- Green Building Africa. (n.d.). <https://www.greenbuildingafrica.co.za/brics-bank-provides-eskom-with-us-180-million-loan-for-renewable-energy-grid-connection-infrastructure/>.
- 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.
- Sacramento Municipal Utility District. (n.d.). *Sacramento Solar Highways Initial Study and Mitigated Negative Declaration, SCH 011032036*. . Sacramento Municipal Utility District.
- SANBI. (2018). [www.sanbi.org](http://www.sanbi.org). Retrieved from 2018 National Biodiversity Assessment (NBA): <https://www.sanbi.org/link/bgis-biodiversity-gis/>
- 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*.
- SunCalc. (n.d.). [www.suncalc.org](http://www.suncalc.org).
- 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*.
- West Coast District Municipality. (2020). *Spatial Development Framework*. [www.hawaiiirenewableenergy.org/Villamesias2](http://www.hawaiiirenewableenergy.org/Villamesias2). (n.d.).



## 7 ANNEXURE A: SITE VISIT PHOTOGRAPHS AND COMMENTS

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

<b>ID</b>	1
<b>PHOTO</b>	Site PV
<b>RISK</b>	Medium
<b>DIRECTION</b>	N
<b>COMMENT</b>	Low prominence and some veg screening. Mitigation requires PV north of existing tree line for Medium to Low VI. Planting of similar windrow to the west of the PV area along the gravel road access. 50m buffer from road.



<b>ID</b>	2
<b>PHOTO</b>	Site infrastructure powerline 220kV
<b>RISK</b>	Low
<b>DIRECTION</b>	N
<b>COMMENT</b>	Existing Eskom lattice tower OHPL with local landscape degradation as not visually dominating.



<b>ID</b>	3
<b>PHOTO</b>	Site PV
<b>RISK</b>	Medium
<b>DIRECTION</b>	N
<b>COMMENT</b>	Low prominence and Medium exposure with natural vegetation partially degraded.



<b>ID</b>	4
<b>PHOTO</b>	Site PV
<b>RISK</b>	Medium
<b>DIRECTION</b>	W
<b>COMMENT</b>	NoGo for development. Retain pv south of survey point 5 on low lying lands so dune topo screening to R399 road receptor takes place. 3m height restriction for Medium VI.



<b>ID</b>	5
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	SW
<b>COMMENT</b>	Low lying lands with Medium VE. Mit for 3m height for Medium to Low VI.



<b>ID</b>	6
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	NE
<b>COMMENT</b>	Very High exposure to tourist view corridor with agrarian landscape a key component of the sense of place. NoGo.



<b>ID</b>	7
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	E
<b>COMMENT</b>	Very High exposure to tourist view corridor with agrarian landscape a key component of the sense of place. NoGo.



<b>ID</b>	8
<b>PHOTO</b>	Site pan
<b>RISK</b>	High
<b>DIRECTION</b>	E
<b>COMMENT</b>	Retain small pan as NoGo for landscape integrity.



<b>ID</b>	9
<b>PHOTO</b>	Site PV
<b>RISK</b>	Low
<b>DIRECTION</b>	NW
<b>COMMENT</b>	Although outside of R399 500m NoGo buffer, retain the complete field area as NoGo as landscape patch to retain agrarian landscape sense of place.



<b>ID</b>	10
<b>PHOTO</b>	Site PV
<b>RISK</b>	Medium
<b>DIRECTION</b>	N
<b>COMMENT</b>	Low prominence and Medium exposure. Height mitigation required to retain R399 sense of place as well as low screening mound 3m in height with natural veg rehab.



<b>ID</b>	11
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	N
<b>COMMENT</b>	Very High exposure to tourist view corridor with agrarian landscape a key component of the sense of place. NoGo.



<b>ID</b>	12
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	NW
<b>COMMENT</b>	Very High exposure to tourist view corridor with agrarian landscape a key component of the sense of place. NoGo.



<b>ID</b>	13
<b>PHOTO</b>	Site PV
<b>RISK</b>	Low
<b>DIRECTION</b>	W
<b>COMMENT</b>	Low prominence and exposure. with existing veg screening. Mitigate with 3m height restriction for Medium to Low VI.



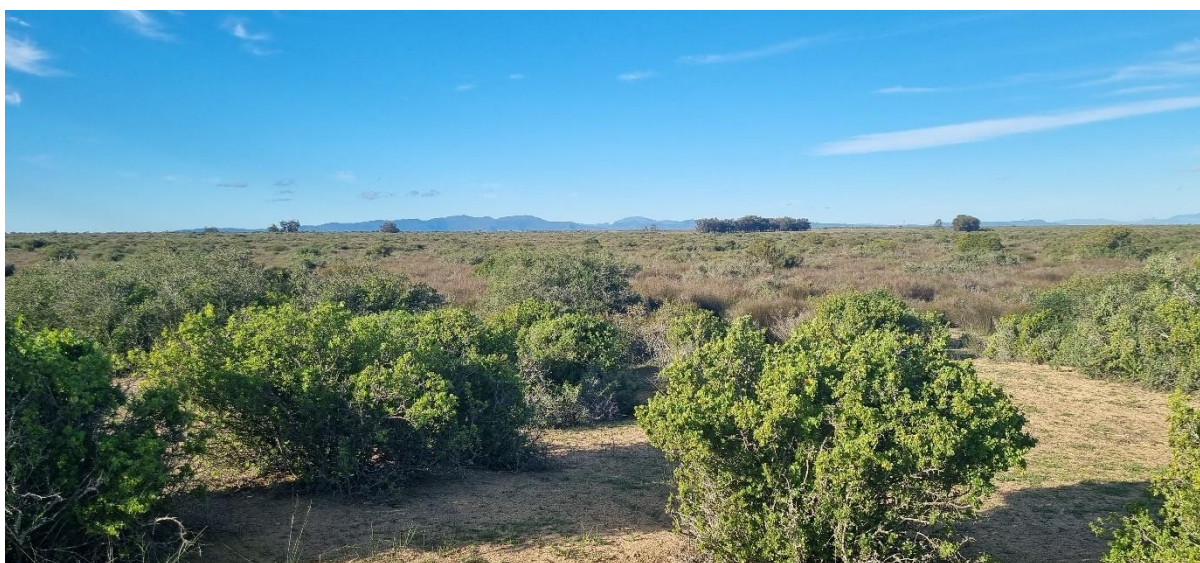
<b>ID</b>	14
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	SE
<b>COMMENT</b>	Within 200m Berg River access road and natural vegetation. NoGo.



<b>ID</b>	15
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	SE
<b>COMMENT</b>	Within 200m Berg River access road and natural vegetation. Some relative prominence. NoGo.



<b>ID</b>	16
<b>PHOTO</b>	Site PV
<b>RISK</b>	Medium
<b>DIRECTION</b>	N
<b>COMMENT</b>	Medium exposure and low prominence but with likely High Sens vegetation. Mitigation with 3m height restriction to ensure low impacts to Berg River visual resources.





<b>ID</b>	17
<b>PHOTO</b>	Site PV
<b>RISK</b>	Low
<b>DIRECTION</b>	NE
<b>COMMENT</b>	Low prominence and exposure and partially degraded veg. Suitable with 4m height restriction.



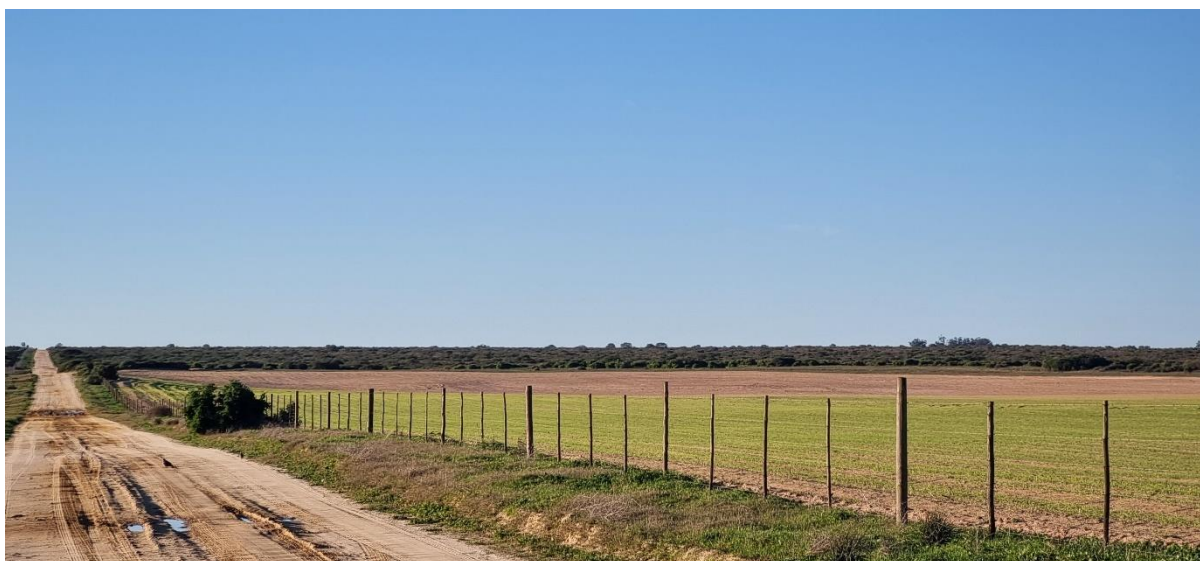
<b>ID</b>	18
<b>PHOTO</b>	Site PV
<b>RISK</b>	Low
<b>DIRECTION</b>	E
<b>COMMENT</b>	Low prominence and exposure and partially degraded veg. Suitable with 4m height restriction.



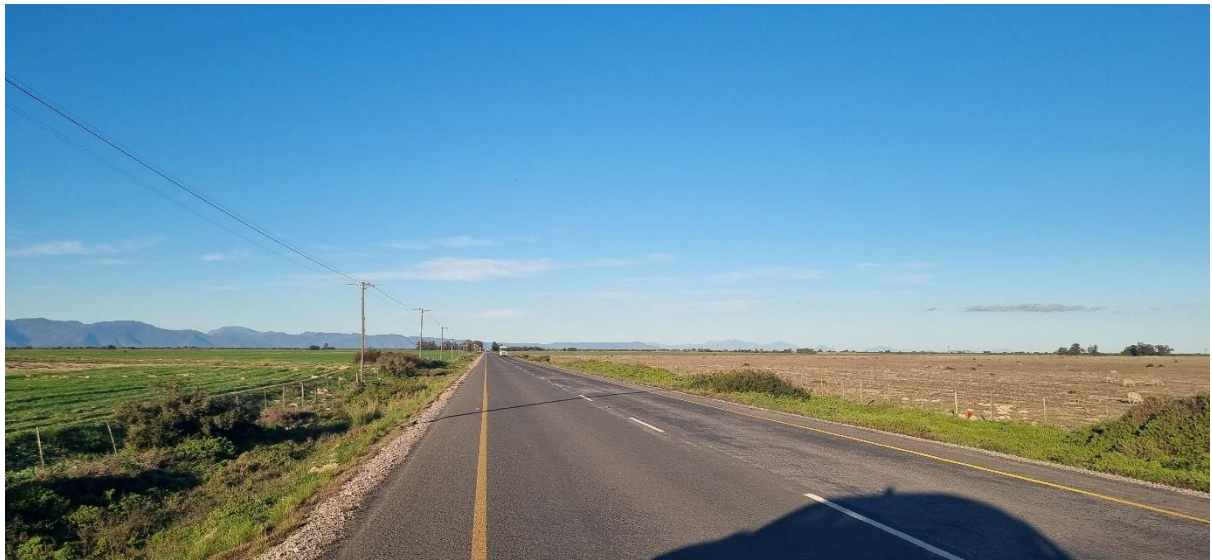
<b>ID</b>	19
<b>PHOTO</b>	Sense of Place camp site ( farmer?)
<b>RISK</b>	Low
<b>DIRECTION</b>	SW
<b>COMMENT</b>	Medium risk to visual resources if PV well back from resource with height restriction to ensure Low VI to resource.



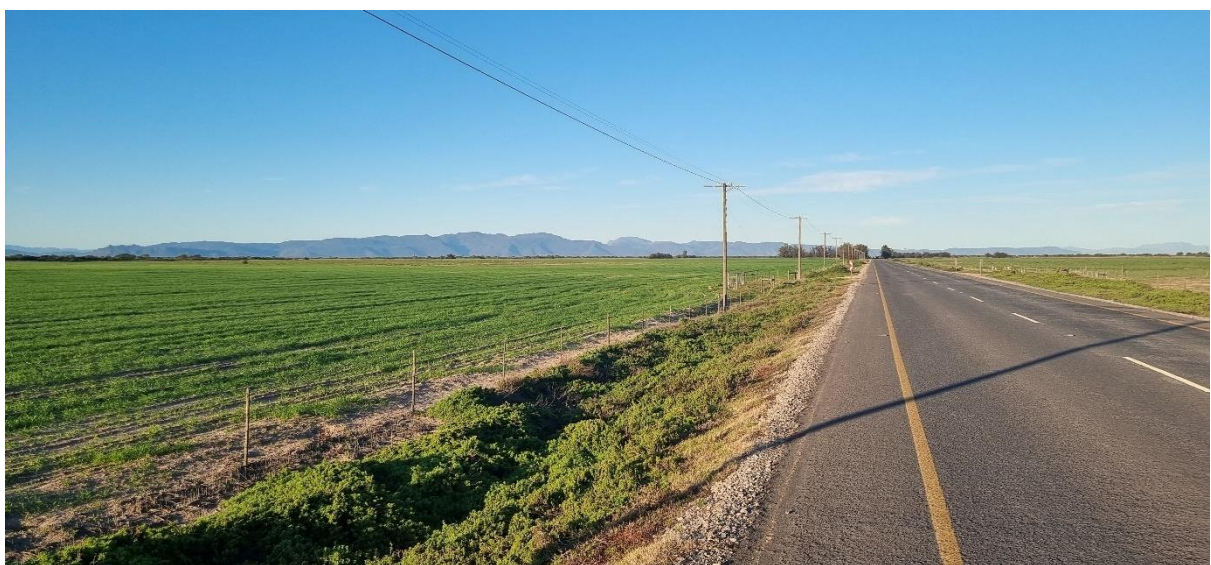
<b>ID</b>	20
<b>PHOTO</b>	KOP gravel road Northbound
<b>RISK</b>	Medium
<b>DIRECTION</b>	N
<b>COMMENT</b>	Access road to Berg River. 200m setback to retain local landscape resource. Restrict height of PV to less than 3m in visible areas along the road.



<b>ID</b>	21
<b>PHOTO</b>	KOP R399 Eastbound
<b>RISK</b>	High
<b>DIRECTION</b>	SE
<b>COMMENT</b>	Tourist view corridor access to Velddrif with very high visual exposure to pv on both sides of the road. Mitigation to reduce VI to M removal of northern PV area to allow mountain views to NE, and 500m buffer setback to south PV. Retain agrarian sense in Foreground area. Max height 3m where no high visual exposure takes place.



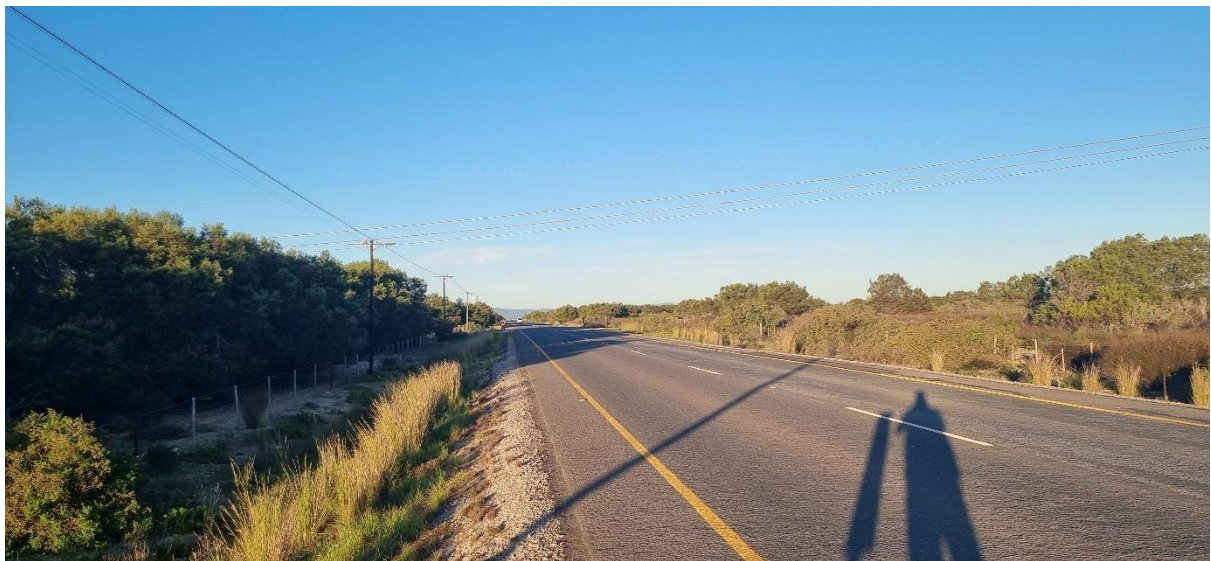
<b>ID</b>	22
<b>PHOTO</b>	KOP R399 Northbound 2
<b>RISK</b>	High
<b>DIRECTION</b>	NE
<b>COMMENT</b>	As for R399 NB1 but retain views unchanged within 500m buffer.



<b>ID</b>	23
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	N
<b>COMMENT</b>	Very high visual exposure with agrarian land uses a key component of the R399 sense of place. NoGo for development.



<b>ID</b>	24
<b>PHOTO</b>	KOP R399 Eastbound 3
<b>RISK</b>	Medium
<b>DIRECTION</b>	E
<b>COMMENT</b>	Port Jackson vegetation adjacent to road provides some visual screening. Retain 200m buffer along the northern portion of the road for alien vegetation screening.



<b>ID</b>	25
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	N
<b>COMMENT</b>	Alien vegetation but with some elevation prominence. Mitigation with height for Medium VI. 4m max height.



<b>ID</b>	26
<b>PHOTO</b>	Site PV
<b>RISK</b>	Low
<b>DIRECTION</b>	SE
<b>COMMENT</b>	Low prominence and well screened by alien veg. Retain 200m buffer 4m height PV.



<b>ID</b>	27
<b>PHOTO</b>	KOP R399 Westbound 1
<b>RISK</b>	High
<b>DIRECTION</b>	SW
<b>COMMENT</b>	High visual exposure to view corridor with agrarian landscape adjacent route adding value. Due to massing effect degrading route, mitigated with 500m setback unless veg screened (then 200m).



<b>ID</b>	28
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	NW
<b>COMMENT</b>	Low prominence and well screened by alien veg. Retain 200m buffer 4m height PV.



<b>ID</b>	29
<b>PHOTO</b>	NOGO massing effects
<b>RISK</b>	High
<b>DIRECTION</b>	N
<b>COMMENT</b>	Massing effects and landscape degradation as seen from R399 view corridor. NoGo.

<b>ID</b>	30
<b>PHOTO</b>	NOGO vis screening
<b>RISK</b>	High
<b>DIRECTION</b>	NE
<b>COMMENT</b>	Indigenous vegetation in close proximity to the R399 view corridor but with skyline intrusion from PV behind vegetation. Retain as NoGo area.



<b>ID</b>	31
<b>PHOTO</b>	Suitable with 200m setback and 3m height
<b>RISK</b>	High
<b>DIRECTION</b>	No photo
<b>COMMENT</b>	Reference point for setback.

<b>ID</b>	32
<b>PHOTO</b>	Suitable with 500m setback and 3m height
<b>RISK</b>	Medium
<b>DIRECTION</b>	No photo
<b>COMMENT</b>	Reference point for setback.

<b>ID</b>	33
<b>PHOTO</b>	Suitable with 200m setback where vegetation screening exists
<b>RISK</b>	Medium
<b>DIRECTION</b>	No photo
<b>COMMENT</b>	Reference point for setback.

<b>ID</b>	34
<b>PHOTO</b>	NOGO
<b>RISK</b>	High
<b>DIRECTION</b>	No photo.
<b>COMMENT</b>	Agrarian landscape degradation and massing effects

<b>ID</b>	35
<b>PHOTO</b>	Suitable north of tree line 3m height
<b>RISK</b>	High
<b>DIRECTION</b>	No photo
<b>COMMENT</b>	Reference point for setback.

<b>ID</b>	36
<b>PHOTO</b>	No-Go
<b>RISK</b>	High
<b>DIRECTION</b>	No photo.
<b>COMMENT</b>	Agricultural landscape degradation and massing effects

<b>ID</b>	37
<b>PHOTO</b>	KOP R399 Eastbound 2
<b>RISK</b>	High
<b>DIRECTION</b>	SW
<b>COMMENT</b>	Retain existing sense of place along the R399 tourist view corridor with 500m NoGo buffer on either side of the road as well as NoGo for key focus areas along the road.





## 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](http://www.vrma.co.za))
3. **Name of Staff:** Stephen Stead
4. **Date of Birth:** 9 June 1967
5. **Nationality:** South African
6. **Contact Details:** **Tel: +27 (0) 44 876 0020**  
**Cell: +27 (0) 83 560 9911**  
**Email: [steve@vrma.co.za](mailto: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: Land use and land use change (submitted pending grading)
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:**
  - 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:

A list of **some** of the large-scale projects that VRMA has assessed has been attached below with the client list indicated per project (Refer to [www.vrma.co.za](http://www.vrma.co.za) for a full list of projects undertaken).

Table 13: VRM Africa Projects Assessments Table

DESCRIPTION	COUNT	DESCRIPTION	COUNT
Dam	2	UISP	8
Mari-culture	1	Structure	9
Port	1	OHPL	11
Railway	1	Industrial	12
Power Station	3	Wind Energy	14
Hydroelectric	4	Battery Storage	15
Resort	4	Mine	20
Golf/Residential	5	Residential	45
Road Infrastructure	5	Solar Energy	61
Substation	5	TOTAL	<b>226</b>

## 9 ANNEXURE C: METHODOLOGY DETAIL

### 9.1 Baseline Analysis Stage

In terms of VRM methodology, landscape character is derived from a combination of **scenic quality**, **receptor sensitivity** to landscape change and **distance** from the proposed landscape change. The objective of the analysis is to compile a mapped inventory of the visual resources found in the receiving landscape, and to derive a mapped Visual Resource sensitivity layer from which to evaluate the suitability of the landscape change.

#### 9.1.1 Scenic Quality

The scenic quality is determined making use of the VRM Scenic Quality Checklist that identifies seven scenic quality criteria which are rated with 1 (low) to 5 (high) scale. The scores are totalled and assigned an A (High), B (Moderate) or C (low) based on the following split:

*A = scenic quality rating of  $\geq 19$ .*

*B = rating of 12 – 18,*

*C = rating of  $\leq 11$*

The seven scenic quality criteria are defined below:

- **Land Form:** Topography becomes more of a factor as it becomes steeper, or more severely sculptured.
- **Vegetation:** Primary consideration given to the variety of patterns, forms, and textures created by plant life.
- **Water:** That ingredient which adds movement or serenity to a scene. The degree to which water dominates the scene is the primary consideration.
- **Colour:** The overall colour(s) of the basic components of the landscape (e.g., soil, rock, vegetation, etc.) are considered as they appear during seasons or periods of high use.
- **Scarcity:** This factor provides an opportunity to give added importance to one, or all, of the scenic features that appear to be relatively unique or rare within one physiographic region.
- **Adjacent Land Use:** Degree to which scenery and distance enhance, or start to influence, the overall impression of the scenery within the rating unit.
- **Cultural Modifications:** Cultural modifications should be considered and may detract from the scenery or complement or improve the scenic quality of an area.

#### 9.1.2 Receptor Sensitivity

Receptor sensitivity to landscape change is determined by rating the following factors in terms of Low to High:

- **Type of Users:** Visual sensitivity will vary with the type of users, e.g., recreational sightseers may be highly sensitive to any changes in visual quality, whereas workers who pass through the area on a regular basis may not be as sensitive to change.
- **Amount of Use:** Areas seen or used by large numbers of people are potentially more sensitive.
- **Public Interest:** The visual quality of an area may be of concern to local, or regional, groups. Indicators of this concern are usually expressed via public controversy created in response to proposed activities.

- **Adjacent Land Uses:** The interrelationship with land uses in adjacent lands. For example, an area within the viewshed of a residential area may be very sensitive, whereas an area surrounded by commercially developed lands may not be as visually sensitive.
- **Special Areas:** Management objectives for special areas such as Natural Areas, Wilderness Areas or Wilderness Study Areas, Wild and Scenic Rivers, Scenic Areas, Scenic Roads or Trails, and Critical Biodiversity Areas frequently require special consideration for the protection of their visual values.
- **Other Factors:** Consider any other information such as research or studies that include indicators of visual sensitivity.

### 9.1.3 Exposure

The area where a landscape modification starts to influence the landscape character is termed the Zone of Visual Influence (ZVI) and is defined by the U.K. Institute of Environmental Management and Assessment's (IEMA) '*Guidelines for Landscape and Visual Impact Assessment*' as 'the area within which a proposed development may have an influence or effect on visual amenity (of the surrounding areas).'

The inverse relationship of distance and visual impact is well recognised in visual analysis literature (*Hull, R.B. and Bishop, I.E., 1988*). According to Hull and Bishop, exposure, or visual impact, tends to diminish exponentially with distance. The areas where most landscape modifications would be visible are located within 2 km from the site of the landscape modification. Thus, the potential visual impact of an object diminishes at an exponential rate as the distance between the observer and the object increases due to atmospheric conditions prevalent at a location, which causes the air to appear greyer, thereby diminishing detail. For example, viewed from 1000 m from a landscape modification, the impact would be 25% of the impact as viewed from 500 m from a landscape modification. At 2000m it would be 10% of the impact at 500 m.

**Distance** from a landscape modification influences the size and clarity of the landscape modification viewing. The Bureau of Land Management defines three distance categories:

- Foreground / Middle ground***, up to approximately 6km, which is where there is potential for the sense of place to change.
- Background areas***, from 6km to 24km, where there is some potential for change in the sense of place, but where change would only occur in the case of very large landscape modifications; and
- Seldom seen areas***, which fall within the Foreground / Middle ground area but, as a result of no receptors, are not viewed or are seldom viewed.

### 9.1.4 Key Observation Points

During the Baseline Inventory Stage, Key Observation Points (KOPs) are identified. KOPs are defined by the Bureau of Land Management as 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. These locations are important in terms of the VRM methodology, which requires that the Degree of Contrast (DoC) that the proposed landscape modifications will make to the existing landscape be measured from these most critical locations, or receptors, surrounding the property. To define the KOPs, potential receptor locations were identified in the viewshed analysis, and screened, based on the following criteria:

- Angle of observation.
- Number of viewers.
- Length of time the project is in view.
- Relative project size.
- Season of use.
- Critical viewpoints, e.g., views from communities, road crossings; and
- Distance from property.

## 9.2 Assessment and Impact Stage

The analysis stage involves determining whether the potential visual impacts from proposed surface-disturbing activities or developments will meet the management objectives established for the area, or whether design adjustments will be required. This requires a contrast rating to assess the expected DoC the proposed landscape modifications would generate within the receiving landscape in order to define the Magnitude of the impact.

### 9.2.1 Contrast Rating

The contrast rating is undertaken to determine if the VRM Class Objectives are met. The suitability of landscape modification is assessed by comparing and contrasting existing receiving landscape to the expected contrast that the proposed landscape change will generate. This is done by evaluating the level of change to the existing landscape by assessing the line, colour, texture and form, in relation to the visual objectives defined for the area. The following criteria are utilised in defining the DoC:

- **None:** The element contrast is not visible or perceived.
- **Weak:** The element contrast can be seen but does not attract attention.
- **Moderate:** The element contrast begins to attract attention and begins to dominate the characteristic landscape.
- **Strong:** The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

As an example, in a Class I area, the visual objective is to preserve the existing character of the landscape, and the resultant contrast to the existing landscape should not be notable to the casual observer and cannot attract attention. In a Class IV area example, the objective is to provide for proposed landscape activities that allow for major modifications of the existing character of the landscape. Based on whether the VRM objectives are met, mitigations, if required, are defined to avoid, reduce or mitigate the proposed landscape modifications so that the visual impact does not detract from the surrounding landscape sense of place.

Based on the findings of the contrast rating, the Magnitude of the Landscape and Visual Impact Assessment is determined.

### 9.2.2 Photomontages

As a component in this contrast rating process, visual representation, such as photo montages are vital in large-scale modifications, as this serves to inform Interested & Affected Parties and decision-making authorities of the nature and extent of the impact associated with the proposed project/development. There is an ethical obligation in this process, as visualisation can be misleading if not undertaken ethically. In terms of adhering to standards for ethical representation of landscape modifications, VRMA subscribes to the Proposed Interim Code of

Ethics for Landscape Visualisation developed by the Collaborative for Advanced Landscape Planning (CALP) (Sheppard, 2000). This code states that professional presenters of realistic landscape visualisations are responsible for promoting full understanding of proposed landscape changes, providing an honest and neutral visual representation of the expected landscape, by seeking to avoid bias in responses and demonstrating the legitimacy of the visualisation process. Presenters of landscape visualisations should adhere to the principles of:

- Access to Information
- Accuracy
- Legitimacy
- Representativeness
- Visual Clarity and Interest

The Code of Ethical Conduct states that the presenter should:

- Demonstrate an appropriate level of qualification and experience.
- Use visualisation tools and media that are appropriate to the purpose.
- Choose the appropriate level of realism.
- Identify, collect and document supporting visual data available for, or used in, the visualisation process.
- Conduct an on-site visual analysis to determine important issues and views.
- Seek community input on viewpoints and landscape issues to address in the visualisations.
- Provide the viewer with a reasonable choice of viewpoints, view directions, view angles, viewing conditions and timeframes appropriate to the area being visualised.
- Estimate and disclose the expected degree of uncertainty, indicating areas and possible visual consequences of the uncertainties.
- Use more than one appropriate presentation mode and means of access for the affected public.
- Present important non-visual information at the same time as the visual presentation, using a neutral delivery.
- Avoid the use, or the appearance of, 'sales' techniques or special effects.
- Avoid seeking a particular response from the audience.
- Provide information describing how the visualisation process was conducted and how key decisions were taken (Sheppard, 2000).