

# THE PROPOSED KAREEKLOOF PV FACILITY, NORTHERN CAPE PROVINCE, SOUTH AFRICA

## Visual Impact Assessment: Site Sensitivity Verification Report

**Draft v\_1**

DATE: 26 June 2023

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



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



## TABLE OF CONTENTS

<b>1</b>	<b>DFFE SPECIALIST REPORTING REQUIREMENTS .....</b>	<b>4</b>
1.1	SPECIALIST DECLARATION OF INDEPENDENCE .....	4
1.2	DFFE SCREENING TOOL SITE SENSITIVITY VERIFICATION .....	5
<b>2</b>	<b>PRELIMINARY FINDINGS.....</b>	<b>6</b>
<b>3</b>	<b>INTRODUCTION .....</b>	<b>9</b>
3.1	TERMS OF REFERENCE.....	9
3.2	STUDY TEAM .....	10
3.3	VISUAL ASSESSMENT APPROACH.....	10
3.4	VIA PROCESS OUTLINE .....	12
3.5	IMPACT ASSESSMENT METHODOLOGY .....	13
3.6	ASSUMPTIONS AND UNCERTAINTIES .....	13
<b>4</b>	<b>LEGAL FRAMEWORK .....</b>	<b>14</b>
4.1	INTERNATIONAL GOOD PRACTICE.....	14
4.1.1	<i>Guidelines for Landscape and Visual Impact Assessment, Second Edition</i> .	14
4.1.2	<i>International Finance Corporation (IFC)</i> .....	15
4.1.3	<i>Millennium Ecosystem Assessment</i> .....	16
4.2	NATIONAL AND REGIONAL LEGISLATION AND POLICIES .....	16
4.2.1	<i>DEA&amp;DP Visual and Aesthetic Guidelines</i> .....	17
4.2.2	<i>REDZ Planning</i> .....	17
4.2.3	<i>Other Renewable Energy Projects</i> .....	18
4.2.4	<i>Conservation Planning</i> .....	18
4.2.5	<i>Local and Regional Planning</i> .....	18
4.3	LANDSCAPE PLANNING POLICY FIT.....	20
<b>5</b>	<b>BIBLIOGRAPHY .....</b>	<b>21</b>
<b>6</b>	<b>ANNEXURE A: SITE VISIT PHOTOGRAPHS AND COMMENTS .....</b>	<b>22</b>
<b>7</b>	<b>ANNEXURE B: SPECIALIST INFORMATION .....</b>	<b>36</b>
7.1	PROFESSIONAL REGISTRATION CERTIFICATE .....	36
7.2	CURRICULUM VITAE (CV) .....	37
<b>8</b>	<b>ANNEXURE C: GENERAL LIGHTS AT NIGHT MITIGATIONS.....</b>	<b>44</b>
<b>9</b>	<b>ANNEXURE D: METHODOLOGY DETAIL .....</b>	<b>47</b>
9.1	BASELINE ANALYSIS STAGE .....	47
9.1.1	<i>Scenic Quality</i> .....	47
9.1.2	<i>Receptor Sensitivity</i> .....	47
9.1.3	<i>Exposure</i> .....	48
9.1.4	<i>Key Observation Points</i> .....	48
9.2	ASSESSMENT AND IMPACT STAGE .....	49
9.2.1	<i>Contrast Rating</i> .....	49
9.2.2	<i>Photomontages</i> .....	49
<b>10</b>	<b>ANNEXURE E: DFFE DECLARATION OF INDEPENDENCE .....</b>	<b>51</b>

## TABLE OF FIGURES

FIGURE 1.	DFFE SCREENING TOOL FOR LANDSCAPE. ....	6
FIGURE 2:	PRELIMINARY LVIA CONSTRAINTS MAPPING (PENDING SPECIALIST FINDINGS).....	8
FIGURE 3:	NATIONAL AND REGIONAL LOCALITY MAP. ....	9
FIGURE 4:	PLANNING LOCALITY MAP DEPICTING THE LOCAL, DISTRICT AND NATIONAL PLANNING ZONES.	17
FIGURE 5:	MAP DEPICTING DEA RENEWABLE ENERGY PROJECT STATUS.....	18

FIGURE 6: SITE SURVEY POINT MAP .....	22
---------------------------------------	----

### LIST OF TABLES

TABLE 1. SPECIALIST DECLARATION OF INDEPENDENCE.....	4
TABLE 3. DFFE SSV LANDSCAPE RISK TABLE. ....	5
TABLE 4: AUTHORS AND CONTRIBUTORS TO THIS REPORT. ....	10
TABLE 5: VRM CLASS MATRIX TABLE.....	11
TABLE 6: METHODOLOGY SUMMARY TABLE .....	12
TABLE 7. DEA&DP VISUAL AND AESTHETIC GUIDELINE IMPACT ASSESSMENT CRITERIA TABLE. ....	13
TABLE 8: LIST OF KEY PLANNING INFORMANTS TO THE PROJECT. ....	16
TABLE 9: PIXLEY KA SEME DISTRICT MUNICIPALITY IDP 2022 (PIXLEY KA SEME DISTRICT MUNICIPALITY, 2022).....	19
TABLE 10: RENOSTERBERG MUNICIPALITY (RENOSTERBERG LOCAL MUNICIPALITY IDP, 2019) .....	19
TABLE 11: VRM AFRICA PROJECTS ASSESSMENTS TABLE.....	38

### 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	of	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 (USDI., 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 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

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 DFFE Screening Tool Site Sensitivity Verification

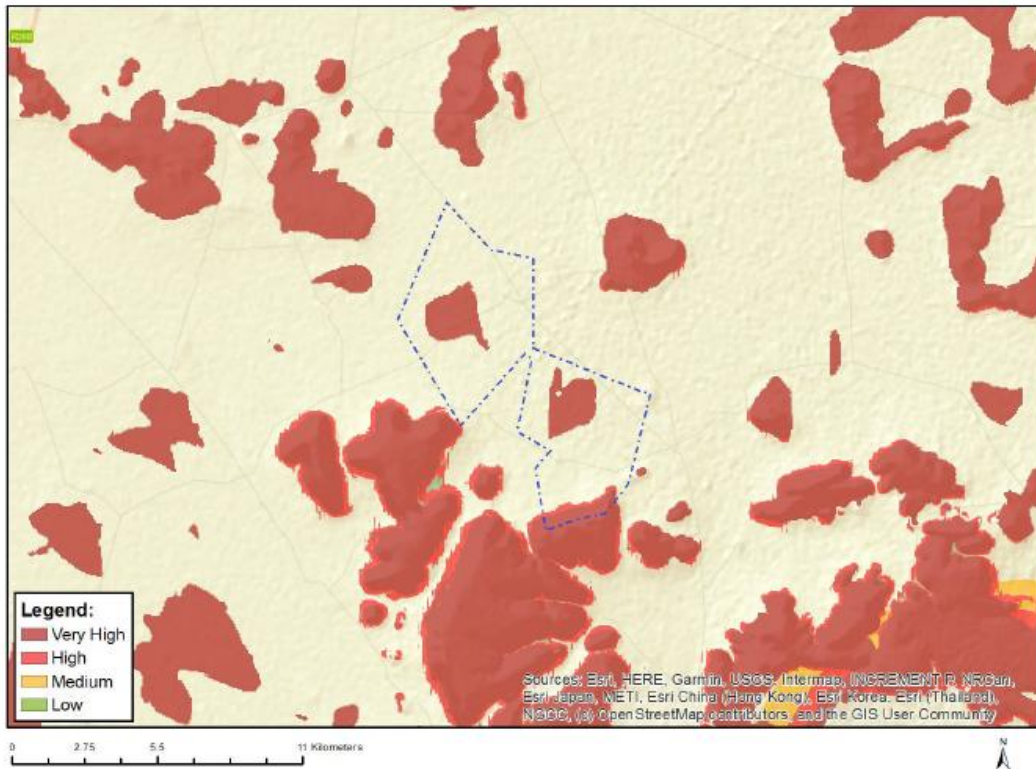
In terms of Part A of the Assessment Protocols published in GN 320 on 20 March 2020, site sensitivity verification is required relevant to the DFFE Screening Tool. As indicated in Figure 1 below, the Map of Relative Landscape (Solar).

The SSV review was informed by the **site visit that was undertaken on the 12 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 table outlines the relevance of the risks raised in the SSV as informed by the site visit.

Table 2. DFFE SSV Landscape Risk table.

DFFE Feature	DFFE Sensitivity	Risk Verification	Motivation
<b>Slope between 1:4 and 1:10</b>	<i>High</i>	<b>High</b>	The southern flat-topped inselbergs are unique mountain features and do have steep slopes on the northern flanks that are included in the proposed project assessment area. These areas and a buffer of 300m from the mountain feature should be retained as a natural landscape. Exclusion of these areas would result in Low risk to slopes and mountain features.
<b>Mountain tops and high ridges</b>	<i>Very High</i>	<b>Very High</b>	
<b>Slope more than 1:4m</b>	<i>Very High</i>	<b>Very High</b>	

MAP OF RELATIVE LANDSCAPE (SOLAR) THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	Slope between 1:4 and 1:10
Very High	Mountain tops and high ridges
Very High	Slope more than 1:4

Figure 1. DFFE Screening Tool for Landscape.

## 2 PRELIMINARY FINDINGS

### Site visit findings

The preliminary finding of the site visit is that with the exclusion of the southern hills and steep slopes areas, the proposed landscape change will not constitute a fatal flaw. Mitigations will be required to protect the following visual and landscape resources:

- 500m buffer from the southern mountains.
- Setback of 50m from the northern rural access road where there a 'walling' effect is created by the proposed location of PV on either side of road.

- Exclusion of the main farm house area of farm Koppie Alleen, and the adjacent small 'koppie' as part of retaining cultural landscape integrity.
- Exclusion around the remaining structures of the abandoned Kareekloof Farm houses (pending heritage specialists findings).
- Exclusion of drainage lines as these areas are unique landscape features of the region (refer to Aquatic Biodiversity Specialist findings).

## **POLICY FIT**

## **Medium to High**

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. No significant, international landscapes are located within the proposed project zone of visual influence.

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 Medium**. While not with a REDZ, there are no other RE projects within the zone of visual influence, and the site is already degraded to some degree from the existing Eskom power line that transect the site. The project is also within a strategic powerline corridor area, and as such, further powerlines are likely to be routing through the vicinity.

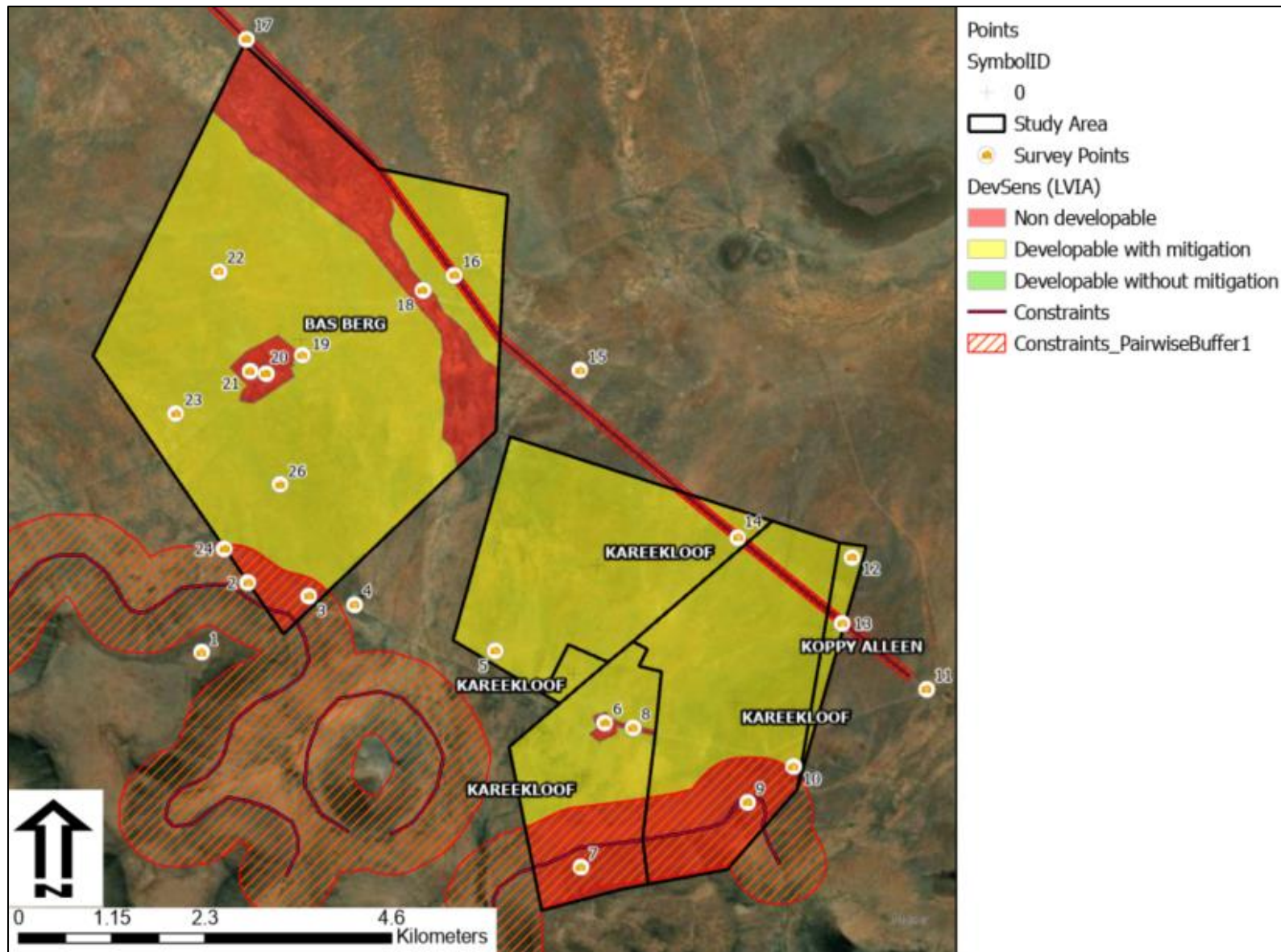


Figure 2: Preliminary LVIA constraints mapping (pending specialist findings).



### 3 INTRODUCTION

Visual Resource Management Africa CC (VRMA) was appointed by Cape EAPrac (Pty) Ltd. to undertake a **Visual Impact Assessment** for the proposed Kareekloof Energy PV and BESS on behalf of Kareekloof Energy (Pty) Ltd. A **site visit that was undertaken on the 12 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.

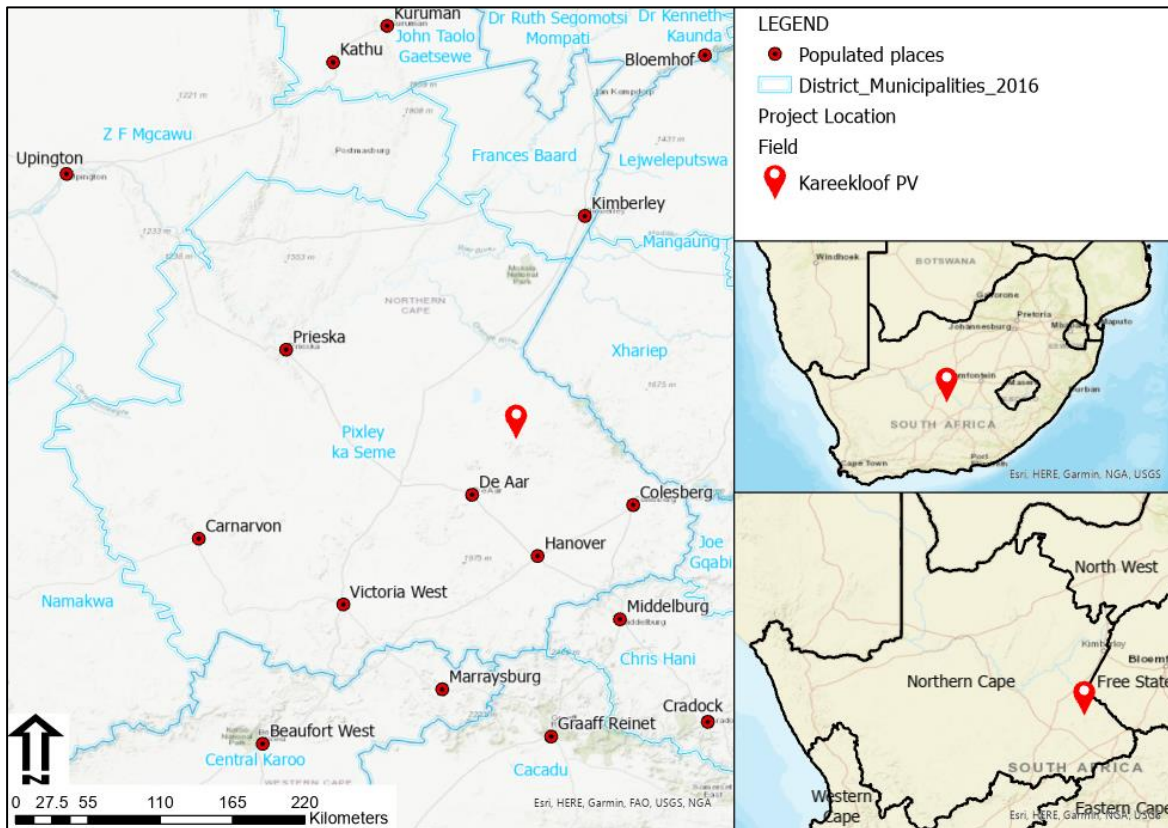


Figure 3: National and regional locality map.

#### 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 3: 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 4: 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 5: 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 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

<b>Action</b>	<b>Description</b>
	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 6. 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 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.

### **4.1 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).

#### **4.1.1 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).

#### 4.1.2 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).

#### 4.1.3 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)

## 4.2 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 4 below.

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

Table 7: List of key planning informants to the project.



Theme	Requirements
Province	Northern Cape
District Municipality	Pixley ka Seme
Local Municipality	Renosterberg
REDZ	Not located in a REDZ

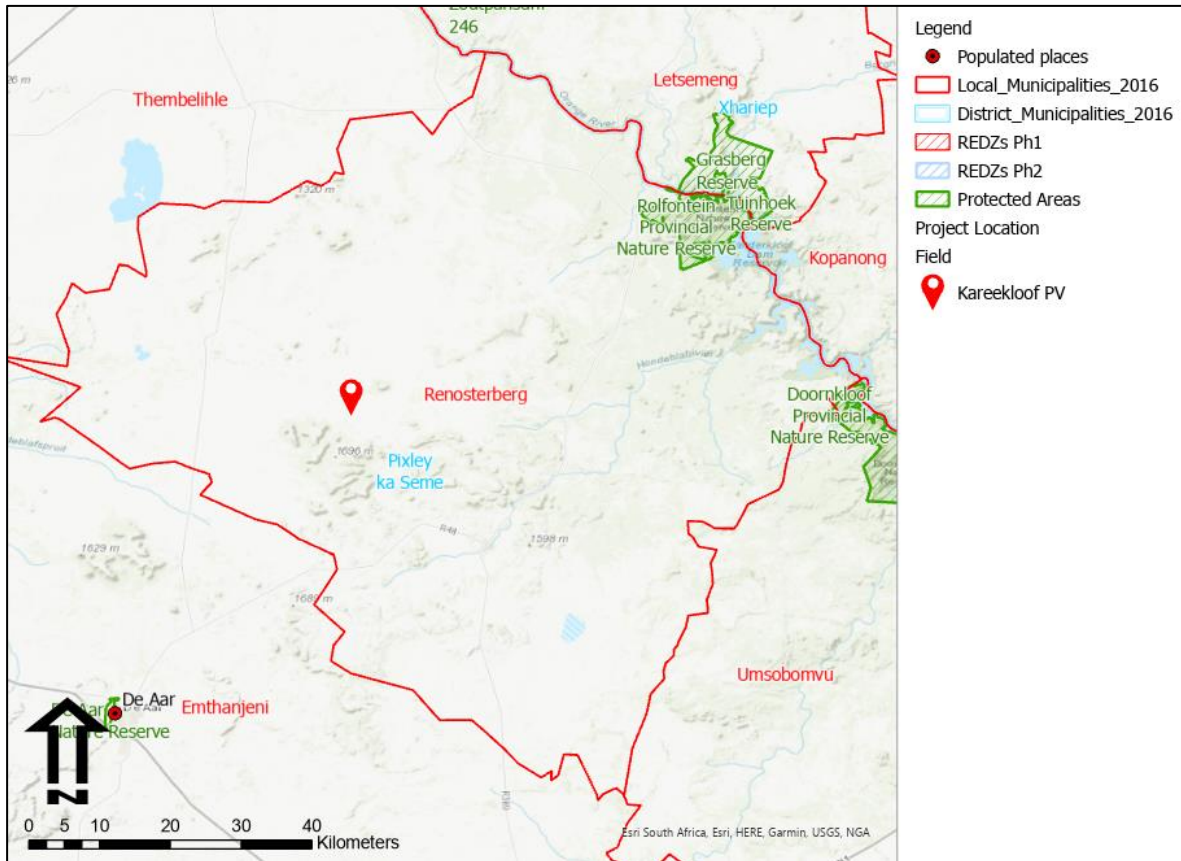


Figure 4: Planning locality map depicting the local, district and national planning zones.

#### 4.2.1 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)

#### 4.2.2 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 located in a REDZ.**

#### 4.2.3 Other Renewable Energy Projects

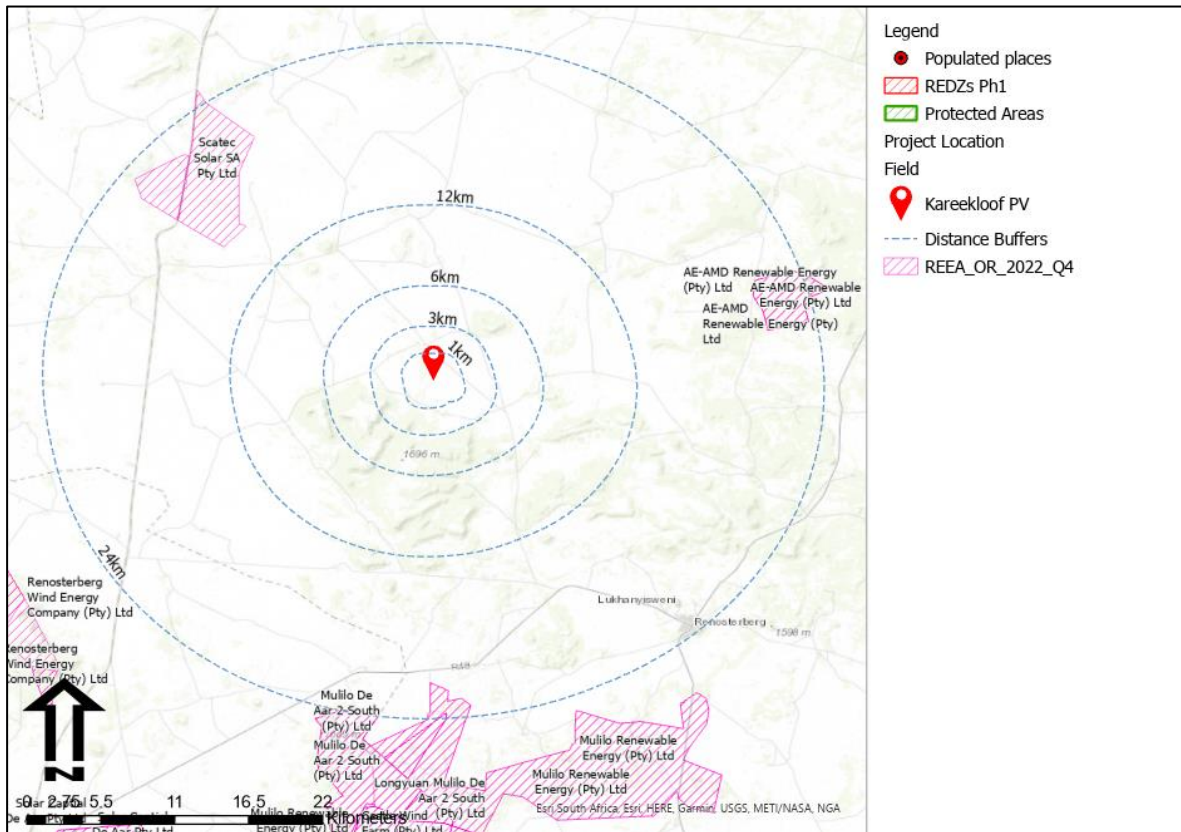


Figure 5: Map depicting DEA Renewable Energy project status.

There are no other Renewable Energy facilities within close vicinity of the project. Within the 12 to 24 km zone are Scatec Solar SA Pty (Risk from intervisibility and cumulative negative effects from RE massing will not take place).

#### 4.2.4 Conservation Planning

As can be seen in Figure 4 above, there are no conservation areas with the vicinity of the proposed Kareekloof Energy PV facility.

#### 4.2.5 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.

Table 8: Pixley ka Seme District Municipality IDP 2022 (Pixley ka Seme District Municipality, 2022)

Theme	Requirements	Page
<b>Opportunities</b>	<ul style="list-style-type: none"> <li>Eco Tourism</li> <li>Solar and Wind Farms</li> <li>Position of being strategically situated (National Roads)</li> <li>SKA</li> </ul>	12
<b>Biophysical Context</b>	<ul style="list-style-type: none"> <li>Possible demand for development that will influence the transformation of land uses</li> <li>SKA</li> <li>Renewable Energy</li> </ul>	34
<b>Renewable Energy</b>	Potential and impact of in renewable energy resource generation	45
	South Africa has embarked in a process of diversifying its energy-mix to enhance energy security while also lowering green-house gas emissions. The country is blessed with a climate that allows Renewable Energy (RE) technologies like solar photovoltaic (PV) and Wind generation to be installed almost anywhere in the country. By successfully attracting a share of the IPPPP portfolio investment, Emthanjeni, Siyathemba, Ubuntu and Renosterberg and Umsobomvu, is benefitting from substantial socio-economic development (SED) and Enterprise development (ED) contributions leveraged by the IPPPP commitments.	75

Table 9: Renosterberg Municipality (Renosterberg Local Municipality IDP, 2019)

Theme	Requirements	Page
<b>Industry</b>	<ul style="list-style-type: none"> <li>A rapid decline in net migration into the Province is predicted.</li> <li>The economy of this region is not well diversified. Irrigation is present along the Orange River and in the semi-arid internal areas of the region small stock and game farming predominates with few alternative employment opportunities outside agriculture and government.</li> </ul>	39
<b>Energy Consumption</b>	The use of wood as energy/fuel source for cooking and heating, to whatever scale, is of major concern. It is almost 100% certain that all the wood used in the municipal area for these purposes comes from the indigenous, and in some cases also protected vegetation, i.e. Camel Thorn ( <i>Acacia erioloba</i> ) trees, and that harvesting is not done in a sustainable way	78
<b>Renewable Energy</b>	The needs that were identified and prioritized by the municipality in collaboration with the representatives forums are as follows: <ul style="list-style-type: none"> <li>Development of Solar Parks <ul style="list-style-type: none"> <li>0.8 Mw Vanderkloof</li> <li>0.4 Mw Petrusville</li> <li>0.4 Mw Philipstown</li> </ul> </li> </ul>	116/132
<b>Agriculture</b>	Renosterberg is a Municipality in which agriculture is the key economic activity. A greater contribution can be made to the economy of the district and Province by this sector.	50
	These extreme climate conditions reduce the study area's agricultural potential. Access to irrigation water will be crucial for any cultivation to occur due to the overall arid conditions and the risk wilting under the	23

Theme	Requirements	Page
	influence of very high temperatures, while frost limits the type of crops that can be cultivated in the study area (PKS IEMP, 2007).	
	(There is) an exponential degradation of the veldt condition, with resulting decreasing stocking potential and animal biomass productivity. If this trend continues, natural vegetation for grazing will soon outstrip stock watering as the region's inherent limiting factor with respect to live-stock	27
<b>Conservation</b>	The diversity of species in itself does not warrant the establishment of a conservation reserve.	26

### 4.3 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. No significant, international landscapes are located within the proposed project zone of visual influence.

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 Medium**. While not with a REDZ, there are no other RE projects within the zone of visual influence, and the site is already degraded to some degree from the existing Eskom power line that transect the site. The projects is also within a strategic corridor area, and as such, further powerlines are likely to be routing through the vicinity.

## 5 BIBLIOGRAPHY

- Department of Environment Affairs. (2013). *DEA National Wind and Solar PV Strategic Environmental Assessment*.
- IFC. (2012). *International Finance Corporation (IFC) prescribes eight performance standards (PS) on environmental and social sustainability. Millennium Ecosystem Assessment. 2005.*
- 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.*
- Pixley ka Seme District Municipality. (2022). *Pixley ka Seme District Municipality IDP 2022*.
- Renosterberg Local Municipality IDP. (2019).
- SANBI. (2018). *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
- 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.*

# 6 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. The 'Risk' reference refers to the sensitivity ratings in the DFFE Screening Tool mapping.

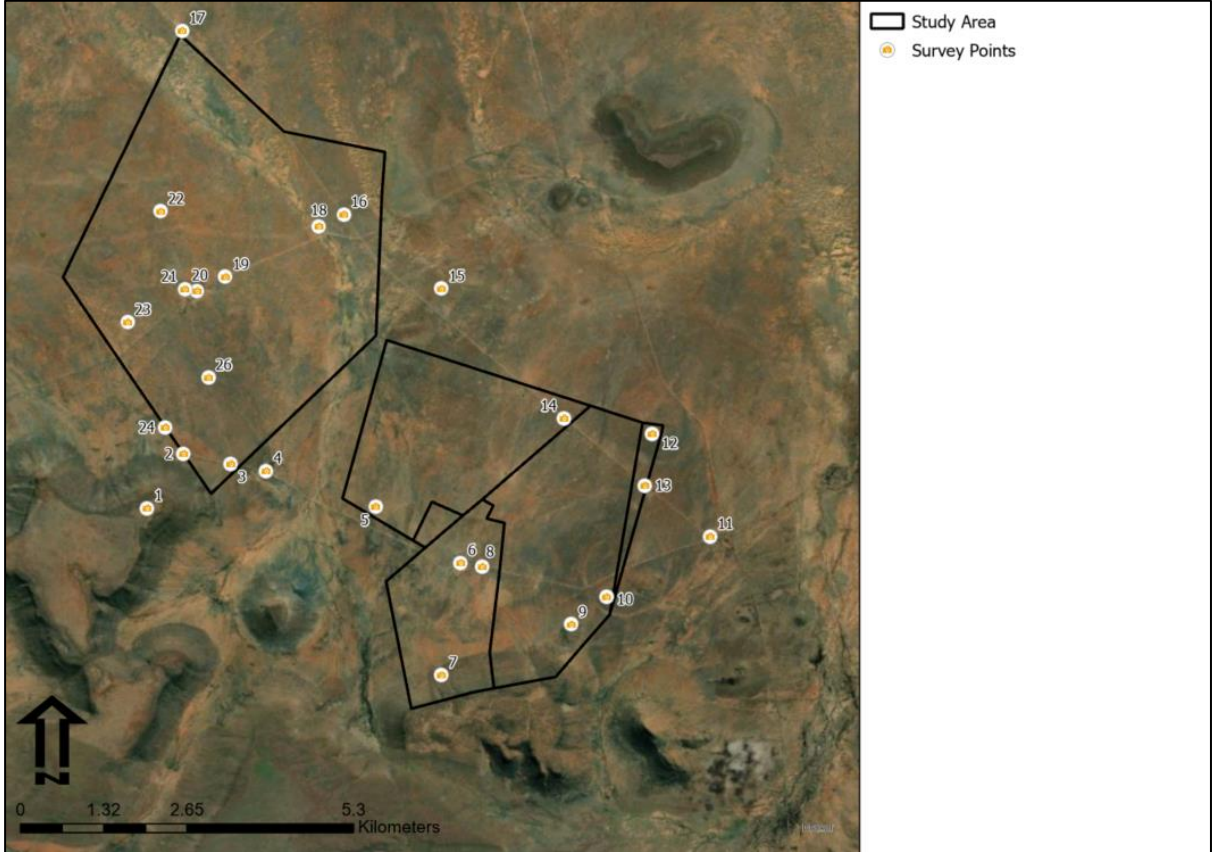


Figure 6: Site Survey Point Map

<b>ID</b>	1
<b>PHOTO</b>	Inselberg hill feature
<b>RISK</b>	Medium
<b>DIRECTION</b>	S
<b>COMMENT</b>	No proposed PV in close proximity to the hill feature as this is the key landform element in the landscape contrasting to the flat plains to the north where the PV is proposed.



<b>ID</b>	2
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	S
<b>COMMENT</b>	Risk to hill landscape with PV located at the base of the slopes. Setback 200m buffer for Low Visual Impact.



<b>ID</b>	3
<b>PHOTO</b>	Site PV
<b>RISK</b>	Medium
<b>DIRECTION</b>	N
<b>COMMENT</b>	Suitable north of road retaining south as agriculture with potential for future agricultural tourism.



<b>ID</b>	4
<b>PHOTO</b>	Kareekloof farmstead
<b>RISK</b>	Low
<b>DIRECTION</b>	N
<b>COMMENT</b>	Suitable buffer from PV and well vegetation screened.





<b>ID</b>	5
<b>PHOTO</b>	Site PV
<b>RISK</b>	Low
<b>DIRECTION</b>	N
<b>COMMENT</b>	Low prominence and well set back from the southern hills.



<b>ID</b>	6
<b>PHOTO</b>	Site abandoned farmhouse
<b>RISK</b>	Low
<b>DIRECTION</b>	NW
<b>COMMENT</b>	Abandoned and in disrepair with no resident



<b>ID</b>	7
<b>PHOTO</b>	Steep slopes and foothills
<b>RISK</b>	High
<b>DIRECTION</b>	S
<b>COMMENT</b>	Landscape degradation. Mitigation no-go for steep slopes and 300m buffer from foothills.



<b>ID</b>	8
<b>PHOTO</b>	Site PV
<b>RISK</b>	Medium
<b>DIRECTION</b>	E
<b>COMMENT</b>	Private farm access with fir tree plantings. Limited landscape value so can be felled and replaced with PV.



<b>ID</b>	9
<b>PHOTO</b>	Hill feature
<b>RISK</b>	High
<b>DIRECTION</b>	SE
<b>COMMENT</b>	No-go for steep slopes with 300m buffer around hill base.



<b>ID</b>	10
<b>PHOTO</b>	Prominent steep slope area
<b>RISK</b>	High
<b>DIRECTION</b>	N
<b>COMMENT</b>	No-go with low impact north of road.



<b>ID</b>	11
<b>PHOTO</b>	KOP rural farm access road Northbound 1
<b>RISK</b>	Medium
<b>DIRECTION</b>	SW
<b>COMMENT</b>	Medium exposure and remote but prominent areas on foothills detracting from hill scenic quality. Mitigation remove PV from slopes for low Visual Impact outcomes.



<b>ID</b>	12
<b>PHOTO</b>	Site PV
<b>RISK</b>	High
<b>DIRECTION</b>	N
<b>COMMENT</b>	Steep slope area for exclusion No-go.



<b>ID</b>	13
<b>PHOTO</b>	KOP Rural access Northbound 2
<b>RISK</b>	Medium
<b>DIRECTION</b>	NE
<b>COMMENT</b>	Walling of PV on either side of road. Setback 50m on either side if road for low Visual Impact. Moderated by remote locality.



<b>ID</b>	14
<b>PHOTO</b>	Site PV
<b>RISK</b>	Low
<b>DIRECTION</b>	SE
<b>COMMENT</b>	Flat lands well set back from hill landforms. Suitable for 50m setback? on road.



<b>ID</b>	15
<b>PHOTO</b>	Sense of Place existing OHPL 400kV
<b>RISK</b>	Medium
<b>DIRECTION</b>	NE
<b>COMMENT</b>	Local landscape degradation



<b>ID</b>	16
<b>PHOTO</b>	KOP Rural farm access Northbound 3
<b>RISK</b>	High
<b>DIRECTION</b>	NW
<b>COMMENT</b>	# visual exposure to PV with walling on either side. Setback PV 50m either side of the road for Medium Visual Impact.



<b>ID</b>	17
<b>PHOTO</b>	KOP Rural access Southbound
<b>RISK</b>	Medium
<b>DIRECTION</b>	SE
<b>COMMENT</b>	PV to south side of road. Setback 50m for reduced intrusion and Low Visual Impact.



<b>ID</b>	18
<b>PHOTO</b>	Site drainage line
<b>RISK</b>	High
<b>DIRECTION</b>	E
<b>COMMENT</b>	No-go exclusion as per surface water hydrologist recommendations.



<b>ID</b>	19
<b>PHOTO</b>	Farmstead
<b>RISK</b>	High
<b>DIRECTION</b>	SE
<b>COMMENT</b>	No-go for farmstead with 50m buffer around cultural landscape areas.



<b>ID</b>	20
<b>PHOTO</b>	Farmstead
<b>RISK</b>	High
<b>DIRECTION</b>	SE
<b>COMMENT</b>	No-go for cultural landscape





<b>ID</b>	21
<b>PHOTO</b>	Small hill
<b>RISK</b>	High
<b>DIRECTION</b>	E
<b>COMMENT</b>	Exclusion as part of farmstead cultural landscape.



<b>ID</b>	22
<b>PHOTO</b>	Site PV
<b>RISK</b>	Low
<b>DIRECTION</b>	SE
<b>COMMENT</b>	Low prominence and exposure. Existing OHPL in the background.



<b>ID</b>	23
<b>PHOTO</b>	Site PV
<b>RISK</b>	Low
<b>DIRECTION</b>	W
<b>COMMENT</b>	Low prominence and exposure.



<b>ID</b>	24
<b>PHOTO</b>	Hill landforms setback point
<b>RISK</b>	Medium
<b>DIRECTION</b>	SE
<b>COMMENT</b>	Flat topped inselberg features unique in landscape. Setback buffer 500m to point for suitable development.



<b>ID</b>	25
<b>PHOTO</b>	Sense of Place Nama Karoo
<b>RISK</b>	High
<b>DIRECTION</b>	NW
<b>COMMENT</b>	Inselberg mountain features contrasting with surrounding flat plains.



<b>ID</b>	26
<b>PHOTO</b>	Site agricultural farming
<b>RISK</b>	Medium
<b>DIRECTION</b>	N
<b>COMMENT</b>	Some landscape value from karoo farm. Not so significant that loss would constitute a fatal flaw. Mitigation requires agriculture continuation. Water holes have value.



## 7 ANNEXURE B: SPECIALIST INFORMATION

### 7.1 Professional Registration Certificate



Association of Professional Heritage Practitioners

### MEMBERSHIP CERTIFICATE

THIS CERTIFIES THAT

**Stephen Stead**

**MEMBERSHIP NUMBER: 0063**

has been awarded membership as a  
**PROFESSIONAL HERITAGE PRACTITIONER (PHP)**

This membership is subject to the *Standards for Membership and Code of Conduct*, referred to in Sections 2 and 3 of the APHP Constitution respectively. The definition of a PHP may be found at: [www.aphp.org.za/membership](http://www.aphp.org.za/membership)

Please contact us via [info@aphp.org.za](mailto:info@aphp.org.za) should further information be required.

**THIS CERTIFICATE IS VALID FROM 1 JUNE 2022 – 1 JULY 2023**

CHAIRPERSON

[Issued by the Association of Professional Heritage Practitioners Executive Committee]  
Image Source: Photographer G McLachlan at central Kouga Mountains

Association of Professional Heritage Practitioners  
[info@aphp.org.za](mailto:info@aphp.org.za)  
[www.aphp.org.za](http://www.aphp.org.za)

## 7.2 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
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 10: VRM Africa Projects Assessments Table

YEAR	NAME	DESCRIPTION	LOCATION
2022	Sea Vista St Francis Bay	Resort	Eastern Cape (SA)
2022	Houthaalboomen PV	Solar Energy	North West (SA)
2022	Pofadder Wind x 3	Wind Energy	Northern Cape (SA)
2022	Lunsklip Wind Amend	Wind Energy	Western Cape (SA)
2022	Lunsklip Wind Grid Connect	Power line	Western Cape (SA)
2022	Elandsfontein PV	Solar Energy	North West (SA)
2022	Erf 1713 1717 UISP	Settlement	Western Cape (SA)
2022	Roan PV x 2	Solar Energy	North West (SA)
2021	Avondale Gordonia 132kV Power Line	Infrastructure	Northern Cape (SA)
2021	Maitland Mines Wedding Venue	Resort	Eastern Cape (SA)
2020	Humansdorp BESS	Battery Storage	Northern Cape (SA)
2020	Bloemsmond PV BESS x 5	Battery Storage	Northern Cape (SA)
2020	Mulilo Prieska BESS x 5	Battery Storage	Northern Cape (SA)
2020	Mulilo De Arr BESS x 3	Battery Storage	Northern Cape (SA)

2020	Sandpiper Estate	Residential	Western Cape (SA)
2020	Obetsebi Lampley Interchange	Infrastructure	Ghana
2019	Wolvedans Megadump Facility	Mining	Mpumalanga (SA)
2019	Port Barry Residential	Settlement	Western Cape (SA)
2019	Gamsberg Smelter	Plant	Northern Cape (SA)
2019	Sandpiper Nature Reserve Lodge	Residential	Western Cape (SA)
2019	Bloemsmond PV 4 - 5	Solar Energy	Northern Cape (SA)
2019	Mphepo Wind (Scoping Phase)	Wind Energy	Zambia
2018	Mogara PV	Solar Energy	Northern Cape (SA)
2018	Gaetsewe PV	Solar Energy	Northern Cape (SA)
2017	Kalungwishi Hydroelectric (2) and power line	Hydroelectric	Zambia
2017	Mossel Bay UISP (Kwanoqaba)	Settlement	Western Cape (SA)
2017	Pavua Dam and HEP	Hydroelectric	Mozambique (SA)
2017	Penhill UISP Settlement (Cape Town)	Settlement	Western Cape (SA)
2016	Kokerboom WEF * 3	Wind Energy	Northern Cape (SA)
2016	Hotazel PV	Solar Energy	Northern Cape (SA)
2016	Eskom Sekgame Bulkop Power Line	Infrastructure	Northern Cape (SA)
2016	Ngonye Hydroelectric	Hydroelectric	Zambia
2016	Levensdal Infill	Settlement	Western Cape (SA)
2016	Arandis CSP	Solar Energy	Namibia
2016	Bonnievale PV	Solar Energy	Western Cape (SA)
2015	Noblesfontein 2 & 3 WEF (Scoping)	Wind Energy	Eastern Cape (SA)
2015	Ephraim Sun SEF	Solar Energy	Northern Cape (SA)
2015	Dyasonsklip and Sirius Grid TX	Solar Energy	Northern Cape (SA)
2015	Dyasonsklip PV	Solar Energy	Northern Cape (SA)
2015	Zeerust PV and transmission line	Solar Energy	North West (SA)
2015	Bloemsmond SEF	Solar Energy	Northern Cape (SA)
2015	Juwi Copperton PV	Solar Energy	Northern Cape (SA)
2015	Humansrus Capital 14 PV	Solar Energy	Northern Cape (SA)
2015	Humansrus Capital 13 PV	Solar Energy	Northern Cape (SA)
2015	Spitzkop East WEF (Scoping)	Solar Energy	Western Cape (SA)
2015	Lofdal Rare Earth Mine and Infrastructure	Mining	Namibia
2015	AEP Kathu PV	Solar Energy	Northern Cape (SA)
2014	AEP Mogobe SEF	Solar Energy	Northern Cape (SA)
2014	Bonnievale SEF	Solar Energy	Western Cape (SA)
2014	AEP Legoko SEF	Solar Energy	Northern Cape (SA)
2014	Postmasburg PV	Solar Energy	Northern Cape (SA)
2014	Joram Solar	Solar Energy	Northern Cape (SA)
2014	RERE PV Postmasberg	Solar Energy	Northern Cape (SA)
2014	RERE CPV Upington	Solar Energy	Northern Cape (SA)
2014	Rio Tinto RUL Desalination Plant	Industrial	Namibia

2014	NamPower PV * 3	Solar Energy	Namibia
2014	Pemba Oil and Gas Port Expansion	Industrial	Mozambique
2014	Brightsource CSP Upington	Solar Energy	Northern Cape (SA)
2014	Witsand WEF (Scoping)	Wind Energy	Western Cape (SA)
2014	Kangnas WEF	Wind Energy	Western Cape (SA)
2013	Cape Winelands DM Regional Landfill	Industrial	Western Cape (SA)
2013	Drennan PV Solar Park	Solar Energy	Eastern Cape (SA)
2013	Eastern Cape Mari-culture	Mari-culture	Eastern Cape (SA)
2013	Eskom Phantom Pass Substation	Substation /Tx lines	Western Cape (SA)
2013	Frankfort Paper Mill	Plant	Free State (SA)
2013	Gibson Bay Wind Farm Transmission lines	Transmission lines	Eastern Cape (SA)
2013	Houhoek Eskom Substation	Substation /Tx lines	Western Cape (SA)
2013	Mulilo PV Solar Energy Sites (x4)	Solar Energy	Northern Cape (SA)
2013	Namies Wind Farm	Wind Energy	Northern Cape (SA)
2013	Rossing Z20 Pit and WRD	Mining	Namibia
2013	SAPPI Boiler Upgrade	Plant	Mpumalanga (SA)
2013	Tumela WRD	Mine	North West (SA)
2013	Weskusfleur Substation (Koeburg)	Substation /Tx lines	Western Cape (SA)
2013	Yzermyn coal mine	Mining	Mpumalanga (SA)
2012	Afrisam	Mining	Western Cape (SA)
2012	Bitterfontein	Solar Energy	Northern Cape (SA)
2012	Kangnas PV	Solar Energy	Northern Cape (SA)
2012	Kangnas Wind	Solar Energy	Northern Cape (SA)
2012	Kathu CSP Tower	Solar Energy	Northern Cape (SA)
2012	Kobong Hydro	Hydro & Powerline	Lesotho
2012	Letseng Diamond Mine Upgrade	Mining	Lesotho
2012	Lunsklip Windfarm	Wind Energy	Western Cape (SA)
2012	Mozambique Gas Engine Power Plant	Plant	Mozambique
2012	Ncondezi Thermal Power Station	Substation /Tx lines	Mozambique
2012	Sasol CSP Tower	Solar Power	Free State (SA)
2012	Sasol Upington CSP Tower	Solar Power	Northern Cape (SA)
2011	Beaufort West PV Solar Power Station	Solar Energy	Western Cape (SA)
2011	Beaufort West Wind Farm	Wind Energy	Western Cape (SA)
2011	De Bakke Cell Phone Mast	Structure	Western Cape (SA)
2011	ERF 7288 PV	Solar Energy	Western Cape (SA)
2011	Gecko Industrial park	Industrial	Namibia
2011	Green View Estates	Residential	Western Cape (SA)
2011	Hoodia Solar	Solar Energy	Western Cape (SA)
2011	Kalahari Solar Power Project	Solar Energy	Northern Cape (SA)
2011	Khanyisa Power Station	Power Station	Western Cape (SA)
2011	Olvyn Kolk PV	Solar Energy	Northern Cape (SA)



2011	Otjikoto Gold Mine	Mining	Namibia
2011	PPC Rheebeek West Upgrade	Industrial	Western Cape (SA)
2011	George Southern Arterial	Road	Western Cape (SA)
2010	Bannerman Etango Uranium Mine	Mining	Namibia
2010	Bantamsklip Transmission	Transmission	Eastern Cape (SA)
2010	Beaufort West Urban Edge	Mapping	Western Cape (SA)
2010	Bon Accord Nickel Mine	Mining	Mpumalanga (SA)
2010	Etosha National Park Infrastructure	Housing	Namibia
2010	Herolds Bay N2 Development Baseline	Residential	Western Cape (SA)
2010	MET Housing Etosha	Residential	Namibia
2010	MET Housing Etosha Amended MCDM	Residential	Namibia
2010	MTN Lattice Hub Tower	Structure	Western Cape (SA)
2010	N2 Herolds Bay Residential	Residential	Western Cape (SA)
2010	Onifin(Pty) Ltd Hartenbos Quarry Extension	Mining	Western Cape (SA)
2010	Still Bay East	GIS Mapping	Western Cape (SA)
2010	Vale Moatize Coal Mine and Railway	Mining / Rail	Mozambique
2010	Vodacom Mast	Structure	Western Cape (SA)
2010	Wadrif Dam	Dam	Western Cape (SA)
2009	Asazani Zinyoka UISP Housing	Residential Infill	Western Cape (SA)
2009	Eden Telecommunication Tower	Structure	Western Cape (SA)
2009	George SDF Landscape Characterisation	GIS Mapping	Western Cape (SA)
2009	George SDF Visual Resource Management	GIS Mapping	Western Cape (SA)
2009	George Western Bypass	Road	Western Cape (SA)
2009	Knysna Affordable Housing Heidevallei	Residential Infill	Western Cape (SA)
2009	Knysna Affordable Housing Hornlee Project	Residential Infill	Western Cape (SA)
2009	Rossing Uranium Mine Phase 2	Mining	Namibia
2009	Sun Ray Wind Farm	Wind Energy	Western Cape (SA)
2008	Bantamsklip Transmission Lines Scoping	Transmission	Western Cape (SA)
2008	Erf 251 Damage Assessment	Residential	Western Cape (SA)
2008	Erongo Uranium Rush SEA	GIS Mapping	Namibia
2008	Evander South Gold Mine Preliminary VIA	Mining	Mpumalanga (SA)
2008	George SDF Open Spaces System	GIS Mapping	Western Cape (SA)
2008	Hartenbos River Park	Residential	Western Cape (SA)
2008	Kaaimans Project	Residential	Western Cape (SA)
2008	Lagoon Garden Estate	Residential	Western Cape (SA)
2008	Moquini Beach Hotel	Resort	Western Cape (SA)
2008	NamPower Coal fired Power Station	Power Station	Namibia
2008	Oasis Development	Residential	Western Cape (SA)
2008	RUL Sulphur Handling Facility Walvis Bay	Mining	Namibia
2008	Stonehouse Development	Residential	Western Cape (SA)
2008	Walvis Bay Power Station	Structure	Namibia

2007	Calitzdorp Retirement Village	Residential	Western Cape (SA)
2007	Calitzdorp Visualisation	Visualisation	Western Cape (SA)
2007	Camdeboo Estate	Residential	Western Cape (SA)
2007	Destiny Africa	Residential	Western Cape (SA)
2007	Droogfontein Farm 245	Residential	Western Cape (SA)
2007	Floating Liquified Natural Gas Facility	Structure tanker	Western Cape (SA)
2007	George SDF Municipality Densification	GIS Mapping	Western Cape (SA)
2007	Kloofsig Development	Residential	Western Cape (SA)
2007	OCGT Power Plant Extension	Structure Power Plant	Western Cape (SA)
2007	Oudtshoorn Municipality SDF	GIS Mapping	Western Cape (SA)
2007	Oudtshoorn Shopping Complex	Structure	Western Cape (SA)
2007	Pezula Infill (Noetzie)	Residential	Western Cape (SA)
2007	Pierpoint Nature Reserve	Residential	Western Cape (SA)
2007	Pinnacle Point Golf Estate	Golf/Residential	Western Cape (SA)
2007	Rheebok Development Erf 252 Appeal	Residential	Western Cape (SA)
2007	Rossing Uranium Mine Phase 1	Mining	Namibia
2007	Ryst Kuil/Riet Kuil Uranium Mine	Mining	Western Cape (SA)
2007	Sedgefield Water Works	Structure	Western Cape (SA)
2007	Sulphur Handling Station Walvis Bay Port	Industrial	Namibia
2007	Trekkopje Uranium Mine	Mining	Namibia
2007	Weldon Kaya	Residential	Western Cape (SA)
2006	Farm Dwarsweg 260	Residential	Western Cape (SA)
2006	Fynboskruin Extension	Residential	Western Cape (SA)
2006	Hanglip Golf and Residential Estate	Residential	Western Cape (SA)
2006	Hansmoeskraal	Slopes Analysis	Western Cape (SA)
2006	Hartenbos Landgoed Phase 2	Residential	Western Cape (SA)
2006	Hersham Security Village	Residential	Western Cape (SA)
2006	Ladywood Farm 437	Residential	Western Cape (SA)
2006	Le Grand Golf and Residential Estate	Residential	Western Cape (SA)
2006	Paradise Coast	Residential	Western Cape (SA)
2006	Paradyskloof Residential Estate	Residential	Western Cape (SA)
2006	Riverhill Residential Estate	Residential	Western Cape (SA)
2006	Wolwe Eiland Access Route	Road	Western Cape (SA)
2005	Harmony Gold Mine	Mining	Mpumalanga (SA)
2005	Knysna River Reserve	Residential	Western Cape (SA)
2005	Lagoon Bay Lifestyle Estate	Residential	Western Cape (SA)
2005	Outeniquabosch Safari Park	Residential	Western Cape (SA)
2005	Proposed Hotel Farm Gansevallei	Resort	Western Cape (SA)
2005	Uitzicht Development	Residential	Western Cape (SA)
2005	West Dunes	Residential	Western Cape (SA)
2005	Wilderness Erf 2278	Residential	Western Cape (SA)

2005	Wolwe Eiland Eco & Nature Estate	Residential	Western Cape (SA)
2005	Zebra Clay Mine	Mining	Western Cape (SA)
2004	Gansevallei Hotel	Residential	Western Cape (SA)
2004	Lakes Eco and Golf Estate	Residential	Western Cape (SA)
2004	Trekkopje Desalination Plant	Structure	Namibia (SA)
1995	Greater Durban Informal Housing Analysis	Photogrammetry	KwaZulu-Natal (SA)

## 8 ANNEXURE C: GENERAL LIGHTS AT NIGHT MITIGATIONS

### Mitigation:

- Effective light management needs to be incorporated into the design of the lighting to ensure that the visual influence is limited to the project, without jeopardising project operational safety and security (See lighting mitigations by The New England Light Pollution Advisory Group (NELPAG) and Sky Publishing Corp in 14.2).
- Utilisation of specific frequency LED lighting with a green hue on perimeter security fencing.
- Directional lighting on the more exposed areas of operation, where point light source is an issue.
- No use of overhead lighting and, if possible, locate the light source closer to the operation.

### Mesopic Lighting

Mesopic vision is a combination of photopic vision and scotopic vision in low, but not quite dark, lighting situations. The traditional method of measuring light assumes photopic vision and is often a poor predictor of how a person sees at night. The light spectrum optimized for mesopic vision contains a relatively high amount of bluish light and is therefore effective for peripheral visual tasks at mesopic light levels. (CIE, 2012)

The Mesopic Street Lighting Demonstration and Evaluation Report by the Lighting Research Centre (LRC) in New York found that the ‘replacement of white light sources (induction and ceramic metal halide) were tuned to optimize human vision under low light levels while remaining in the white light spectrum. Therefore, outdoor electric light sources that are tuned to how humans see under mesopic lighting conditions can be used to reduce the luminance of the road surface while providing the same, or better, visibility. Light sources with shorter wavelengths, which produce a “cooler” (bluer and greener) light, are needed to produce better mesopic vision. Based on this understanding, the LRC developed a means of predicting visual performance under low light conditions. This system is called the unified photometry system. Responses to surveys conducted on new installations revealed that area residents perceived higher levels of visibility, safety, security, brightness, and colour rendering with the new lighting systems than with the standard *High-Purity Standards* (HPS) systems. The new lighting systems used 30% to 50% less energy than the HPS systems. These positive results were achieved through tuning the light source to optimize mesopic vision. Using less wattage and photopic luminance also reduces the reflectance of the light off the road surface. Light reflectance is a major contributor to light pollution (sky glow).’ (Lighting Research Centre. New York. 2008)

### ‘Good Neighbour – Outdoor Lighting’

Presented by the 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.org/>). (NELPAG)

**What is good lighting?** Good outdoor lights improve visibility, safety, and a sense of security, while minimizing energy use, operating costs, and ugly, dazzling glare.

**Why should we be concerned?** Many outdoor lights are poorly designed or improperly aimed. Such lights are costly, wasteful, and distractingly glary. They harm the night-time environment and neighbours' property values. Light directed uselessly above the horizon creates murky skyglow — the "light pollution" that washes out our view of the stars.

**Glare** Here's the basic rule of thumb: If you can see the bright bulb from a distance, it's a bad light. With a good light, you see lit ground instead of the dazzling bulb. "Glare" is light that beams directly from a bulb into your eye. It hampers the vision of pedestrians, cyclists, and drivers.

**Light Trespass** Poor outdoor lighting shines onto neighbours' properties and into bedroom windows, reducing privacy, hindering sleep, and giving the area an unattractive, trashy look.

**Energy Waste** Many outdoor lights waste energy by spilling much of their light where it is not needed, such as up into the sky. This waste results in high operating costs. Each year we waste more than a billion dollars in the United States needlessly lighting the night sky.

**Excess Lighting** Some homes and businesses are flooded with much stronger light than is necessary for safety or security.

**How do I switch to good lighting?**

Provide only enough light for the task at hand; don't over-light, and don't spill light off your property. Specifying enough light for a job is sometimes hard to do on paper. Remember that a full Moon can make an area quite bright. Some lighting systems illuminate areas 100 times more brightly than the full Moon! More importantly, by choosing properly shielded lights, you can meet your needs without bothering neighbours or polluting the sky.

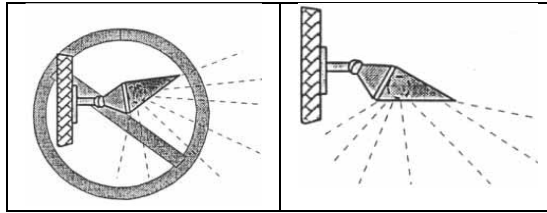
**Good and Bad Light Fixtures**

<p><b>Typical "Wall Pack"</b></p>	<p><b>Typical "Shoe Box" (forward throw)</b></p>
<p><b>BAD</b> Waste light goes up and sideways</p>	<p><b>GOOD</b> Directs all light down</p>
<p><b>Typical "Yard Light"</b></p>	<p><b>Opaque Reflector (lamp inside)</b></p>
<p><b>BAD</b> Waste light goes up and sideways</p>	<p><b>GOOD</b> Directs all light down</p>
<p><b>Area Flood Light</b></p>	<p><b>Area Flood Light with Hood</b></p>
<p><b>BAD</b> Waste light goes up and sideways</p>	<p><b>GOOD</b> Directs all light down</p>

- Aim lights down. Choose “full-cut-off shielded” fixtures that keep light from going uselessly up or sideways. Full-cut-off fixtures produce minimum glare. They create a pleasant-looking environment. They increase safety because you see illuminated people, cars, and terrain, not dazzling bulbs.
- Install fixtures carefully to maximize their effectiveness on the targeted area and minimize their impact elsewhere. Proper aiming of fixtures is crucial. Most are aimed too high. Try to install them at night, when you can see where all the rays actually go. Properly aimed and shielded lights may cost more initially, but they save you far more in the long run. They can illuminate your target with a low-wattage bulb just as well as a wasteful light does with a high-wattage bulb.
- If colour discrimination is not important, choose energy-efficient fixtures utilising yellowish high-pressure sodium (HPS) bulbs. If “white” light is needed, fixtures using compact fluorescent or metal-halide (MH) bulbs are more energy-efficient than those using incandescent, halogen, or mercury-vapour bulbs.
- Where feasible, put lights on timers to turn them off each night after they are no longer needed. Put home security lights on a motion-detector switch, which turns them on only when someone enters the area; this provides a great deterrent effect!

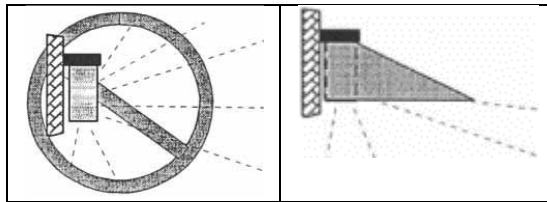
### What You Can Do To Modify Existing Fixtures

Change this . . . to this  
(aim downward)



#### Floodlight:

Change this . . . to this  
(aim downward)

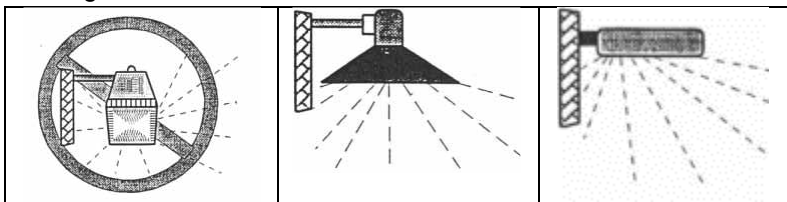


#### Wall Pack

Change this . . .

to this

or this



Yard Light

Opaque Reflector

Show Box

### Replace bad lights with good lights.

You'll save energy and money. You'll be a good neighbour. And you'll help preserve our view of the stars.

## 9 ANNEXURE D: 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).

**10 ANNEXURE E: DFFE DECLARATION OF INDEPENDENCE**

**Project: ##**