PROPOSED ELECTRICAL GRID INFRASTRUCTURE TO SUPPORT THE MOGOBE BATTERY ENERGY STORAGE SYSTEM, NORTHERN CAPE, SOUTH AFRICA

Basic Visual Impact Assessment Report

DraftV1

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Document prepared for Cape EAPrac (Pty) Ltd
on behalf of Mogobe EGI (Pty) Ltd

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LIST OF ACRONYMS

APHP	Association of Professional Heritage Practitioners
BLM	Bureau of Land Management (United States)
BPEO	Best Practicable Environmental Option
CALP	Collaborative for Advanced Landscape Planning
DEA&DP	Department of Environmental Affairs & Development Planning (South Africa)
DEM	Digital Elevation Model
DoC	Degree of Contrast
EIA	Environmental Impact Assessment
EMPr	Environmental Management Plan
GIS	Geographic Information System
I&APs	Interested and Affected Parties
IEMA	Institute of Environmental Management and Assessment (United Kingdom)
IEMP	Integrated Environmental Management Plan
KOP	Key Observation Point
MAMSL	Metres above mean sea level
NELPAG	New England Light Pollution Advisory Group
NEMWA	National Environmental Management Waste Act (South Africa)
PSDF	Provincial Spatial Development Framework
ROD	Record of Decision
SAHRA	South African National Heritage Resources Agency
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
VAC	Visual Absorption Capacity
VIA	Visual Impact Assessment
VRM	Visual Resource Management
ZVI	Zone of Visual Influence

GLOSSARY OF TECHNICAL TERMS

Technical Terms	**Definition** (Oberholzer, 2005)
Degree of Contrast	The measure in terms of the form, line, colour and texture of the existing landscape in relation to the proposed landscape modification in relation to the defined visual resource management objectives.
Visual intrusion	Issues are concerns related to the proposed development, generally phrased as questions, taking the form of "what will the impact of some activity be on some element of the visual, aesthetic or scenic environment".
Receptors	Individuals, groups or communities who would be subject to the visual influence of a particular project.
Sense of place	The unique quality or character of a place, whether natural, rural or urban.
Scenic corridor	A linear geographic area that contains scenic resources, usually, but not necessarily, defined by a route.
Viewshed	The outer boundary defining a view catchment area, usually along crests and ridgelines. Similar to a watershed. This reflects the area, or the extent thereof, where the landscape modification would probably be seen.
Visual Absorption Capacity	The potential of the landscape to conceal the proposed project.

Technical Term	**Definition** (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.'

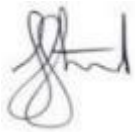
1 DFFE SPECIALIST REPORTING REQUIREMENTS

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. **The Landscape Theme was not flagged as a risk area, and as such, only a Basic Visual Assessment is required that looks the expected Zone of Visual Influence in relation to the surrounding key landscape themes.**

2 EXECUTIVE SUMMARY

Visual Resource Management Africa CC (VRMA) was appointed by Cape EAPrac (Pty) Ltd, on behalf of Mogobe EGI (Pty) Ltd, to undertake a ***Visual Impact Assessment*** for the proposed Electrical Grid Connection for the authorised Mogobe Solar Facility and Battery Energy Storage System (BESS). VRM Africa was previously appointed by Cape EAPrac (Pty) Ltd to undertake a Visual Impact Assessment for the proposed Mogobe Solar PV Energy Facility and associated infrastructure in 2015, with the site visit undertaken on the 12th of May 2015. This PV and BESS development has subsequently been authorised but remains unbuilt. A further site visit was not undertaken as satellite imagery revealed that no significant landscape changes have been made to the receiving landscape.

CONCLUSION

The finding of this Basic landscape and visual impact assessment is that while the local sense of place will be partially altered, and no loss of significant landscapes or visual resources will take place. It is the recommendation that the routing corridor is suitable should be authorised WITH MITIGATION for the following key reasons:

- Moderate Zone of Visual Influence with no active tourism activities within the area.
- The lower levels of landscape character due to the close proximity of the Sishen Mine where there are higher VAC levels from the mine and OHPL infrastructure, where receptor sensitivity to landscape change is likely to be Low.
- The local area is located within the Central Strategic Transmission Corridor, with other planed Eskom 132kV powerlines routed adjacent to the proposed routing.
- No residential receptors located within High Visual Exposure.
- The bushveld vegetation tends to localise vistas and open views are limited.

POLICY FIT: High 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 High Positive for the following reasons:

- There is strong support in the local and regional planning documents for renewable energy projects.
- The proposed project will significantly add to the local and regional economy and provide employment.
- While tourism is emphasised in the planning documents, there are no active eco-tourism activities within the ZVI.
- The local landscape context is strongly informed by the adjacent Sishen Mine as well as the numerous OHPL in the area.
- The surrounding areas do not have significant landforms or high levels of scenic quality that could be utilised for landscape based tourism.

METHODOLOGY

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.

VISUAL ABSORPTION CAPACITY Medium to High

Land use is a crucial factor in determining landscape character, especially regarding the Visual Absorption Capacity (VAC) of the landscapes. Oberholzer defines VAC as the potential of the landscape to conceal the proposed project (Oberholzer, 2005). i.e.

- High VAC – e.g., effective screening by vegetation and structures.
- Moderate VAC - e.g., partial screening by vegetation and structures.
- Low VAC - e.g., little screening by vegetation or structures.

Of relevance to the project is that the VAC is defined as Medium to High as the Kathu Bushveld of the region does tend to contain views. There are also numerous larger OHPL within the local landscape as well as the background view of the Sishen Mine landforms and infrastructure. The area to the west of the N14 National Road is devoid of larger vegetation, and the two Eskom OHPL proposed for this area are yet to be constructed. The current lack of vegetation or infrastructure in this area is likely to increase the probability of visual contrast being generated by the proposed OHPL. This will, however, change over time once the other Eskom OHPL are developed. While this will result in a massing effect, but the multiple OHPLs would be viewed against the backdrop of the Sishen Mine, where the local landscape is degraded, and this level of development would be suitable.

ZONE OF VISUAL INFLUENCE: Local Area

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.

As the terrain is predominantly flat, and the monopoles or lattice structure up to 30m in height, the theoretical viewshed does extend over a wide area that essentially covers the full extent of the 6km Foreground, Mid Ground area around the routing. This is unlikely to be a real visual extent as the monopoles offer limited visual contrast beyond 2km distance due to the relatively small visual footprint of the structures. The area does have a higher VAC level due to existing linear infrastructure in the vicinity, as well as the Kathu Bushveld vegetation. The built nature of the areas to the north of the routing, with many garden trees, would also further reduce the visual exposure to the north. As such, the Zone of Visual Influence of OHPL project landscape modification is likely to be a Locally contained.

RECEPTORS AND KOPS: Two Receptors with 1 KOP

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. While the southern Kathu residential areas would fall within the theoretical viewshed, the 1.7km distance and the location of the Ferrum Substation between the residential areas and the proposed routing, would effective limit clear visibility of the landscape change. The following KOP were located within the expected ZVI:

Name	Theme	Exposure	Motivation

N14	National Road	Very High	The N14 is a National Road and is highly likely to carry tourist traffic.

SCENIC QUALITY: Medium Low

The scenic quality of the proposed development site is rated Medium to Low. While eastern rural areas do offer some landscape appeal, the majority of the local area is degraded by the Sishen Mine and as such is not a scarce resource. While the N14 could carry tourist traffic, the majority of the receptors are Kathu based and as such would have lower sensitivities to landscape change within the Sishen Mine landscape context. Cultural modifications are limited to the east of the road but do include two Eskom 132kV OHPL to the west of the road along which the proposed Mogobe EGI is to be routed.

RECEPTOR SENSITIVITY: Medium Low

The N14 National Road is a well-used road and amount of use would be High. While there is likely to be some tourist traffic, the majority of the receptors are likely Sishen residents and as such, less likely to be sensitive to landscape change within the Sishen landscape context.

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:

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

<u>Class I</u> (No-go)

- Any river / streams and associated flood lines buffers identified as significant in terms of the WULA process.
- Any wetlands identified as significant in terms of the WULA process.
- Any ecological areas (or plant species) identified as having a high significance.
- Any heritage area identified as having a high significance.
- **70m Buffer along the N14 following existing Eskom OHPL routing precedent.**

To retain as much as possible of the remaining landscape integrity along this section of the N14 National Road, the existing Eskom precedent of 70m (centreline) buffer is incorporated to reduce visual contrast to some degree. Should the two Eskom 132kV OHPLs not be constructed, the same 50m buffer from the road reserve should be followed.

<u>Class II</u> (Not recommended)

- **Not applicable.**

With Medium to Low scenic quality and expected Low sensitivity to landscape change, there were no landscapes where receptors are likely to perceive landscape change as highly negative. As such, no Class II areas were defined.

<u>Class III</u> (Suitable with mitigation)

- **Rural Kathu Bushveld**

The Kathu Bushveld areas to the east of the N14 National Road do add to the existing rural landscape context that currently exists. This area would be suitable for development with best practice in mitigation as the general area does have a higher VAC level due to existing OHPL and the Sishen Mine development

<u>Class IV</u> (Suitable without mitigation)

- **Landscape degraded.**

The areas to the west of the N14 National Road, outside of the 70m No-go Buffer, are landscape degraded due to the existing Eskom Routing (planned) as well as the western views of the Sishen Mine degraded landscapes.

LANDSCAPE AND VISUAL IMPACT SIGNIFICANCE

Significance	**Medium to High (-ve)**	**Medium (-ve)**
Comment	Close proximity routing to the N14 would increase the visual intensity of the landscape change and is not recommended.	With mitigation and the setback from the N14 National Road, the Operational Phase impact will be moderated to some degree.

CUMULATIVE EFFECTS

Cumulatives	**Medium (-ve)**	**Low (-ve)**
Comment	The development without mitigation could set a negative precedent for OHPL routings in close proximity to National Roads.	With mitigation and retaining the visual setback buffers, a suitable precedent would be set for OHPL routing following the existing Eskom precedent.

MITIGATIONS MEASURES

Landscape Element	**Mitigation**	**Motivation**
N14 National Road	70m No-Go Buffer (centreline)	Eskom precedent of 70m (centreline) buffer is incorporated to reduce visual contrast to some degree. Should the two Eskom 132kV OHPLs not be constructed, the same 50m buffer from the road reserve should be followed.

3 INTRODUCTION

Visual Resource Management Africa CC (VRMA) was appointed by Cape EAPrac (Pty) Ltd, on behalf of Mogobe EGI (Pty) Ltd, to undertake a ***Visual Impact Assessment*** for the proposed Electrical Grid Connection for the authorised Mogobe Solar Facility & Battery Energy Storage System (BESS). VRM Africa was previously appointed by Cape EAPrac (Pty) Ltd to undertake a Visual Impact Assessment for the proposed Mogobe Solar PV Energy Facility and associated infrastructure in 2015, with the site visit undertaken on the 12th of May 2015. This PV and BESS development has subsequently been authorised but remains unbuilt. A further site visit was not undertaken as satellite imagery revealed that no significant landscape changes have been made to the receiving landscape. The proposed EGI routing is located to the south of the town of Kathu in the Gamagara Local Municipality within the John Taolo Gaetsewe District Municipality.

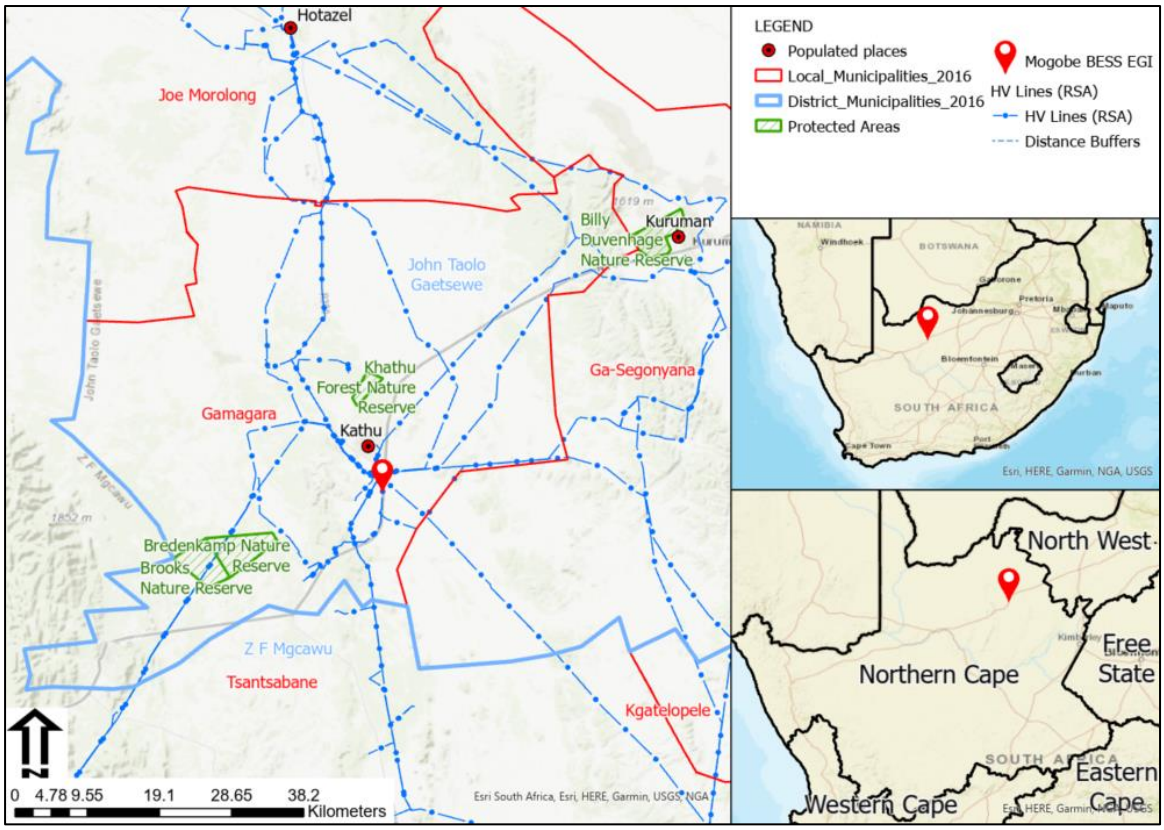


Figure 1: National and regional locality map.

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 Table 2 below.

Table 2: Authors and Contributors to this Report.

Aspect	Person	Organisation / Company	Qualifications
Landscape and Visual Assessment (author of this report)	Stephen Stead MSc Geography, 2023 (UKZN, Pietermaritzburg)	VRMA	• 20 years of experience in visual assessments including 230 large scale landscape changes in five sub-Saharan African countries. • Registered with the Association of Professional Heritage Practitioners since 2014.

3.3 Visual Assessment Approach

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

- *"Different levels of scenic values require different levels of management. For example, management of an area with high scenic value might be focused on preserving the existing character of the landscape, and management of an area with little scenic value might allow for major modifications to the landscape. Determining how an area should be managed first requires an assessment of the area's scenic values".*
- *"Assessing scenic values and determining visual impacts can be a subjective process. Objectivity and consistency can be greatly increased by using the basic design elements of form, line, colour, and texture, which have often been used to describe and evaluate landscapes, to also describe proposed projects. Projects that repeat*

these design elements are usually in harmony with their surroundings; those that don't create contrast. By adjusting project designs so the elements are repeated, visual impacts can be minimized" (USDI., 2004).

Baseline Phase Summary

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

Table 3: 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 4: Methodology Summary Table

Action	***Description***
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

Action	Description
	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 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 5. DEA&DP Visual and Aesthetic Guideline Impact Assessment Criteria Table.

Criteria	Definition
Extent	The spatial or geographic area of influence of the visual impact, i.e.: • *site-related:* extending only as far as the activity. • *local:* limited to the immediate surroundings. • *regional:* affecting a larger metropolitan or regional area. • *national:* affecting large parts of the country. • *international:* affecting areas across international boundaries.
Duration	The predicted life-span of the visual impact: • *short term,* (e.g., duration of the construction phase). • *medium term,* (e.g., duration for screening vegetation to mature). • *long term,* (e.g., lifespan of the project). • *permanent,* where time will not mitigate the visual impact.
Intensity	The magnitude of the impact on views, scenic or cultural resources. • *low,* where visual and scenic resources are not affected. • *medium,* where visual and scenic resources are affected to a limited extent. • *high,* where scenic and cultural resources are significantly affected.
Probability	The degree of possibility of the visual impact occurring: • *improbable,* where the possibility of the impact occurring is very low. • *probable,* where there is a distinct possibility that the impact will occur. • *highly probable,* where it is most likely that the impact will occur. • *definite,* where the impact will occur regardless of any prevention measures.
Significance	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: • *low,* where it will not have an influence on the decision.

	• *medium,* where it should have an influence on the decision unless it is mitigated. • *high,* where it would influence the decision regardless of any possible mitigation.

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 SANBI BGIS webmap (SANBI, 2018)
- The slopes analysis is approximate and is subject to detailed survey and detailed slopes analysis.

4 PROJECT DESCRIPTION

The following project description was provided by the developer:

> *Mogobe EGI (Pty) Ltd ('the Applicant') is proposing the construction of up to 132 kV Electrical Grid Infrastructure (EGI) to support the Mogobe BESS project located on Portion 1 of the Farm Legoko 460, south east of the town of Kathu within the Gamagara Local Municipality in the Northern Cape Province. The EGI will traverse Portion 1 of the Farm Legoko 460 and Farm Sekgame 461. The site is accessible via the existing farm access from the N14.*

The Mogobe EGI will comprise of the following:

- *A 132 kV double circuit monopole and/or lattice tower overhead power line, approximately 9.0 km in length and 30 m in height to connect to the Existing Eskom Ferrum Substation located within an approved corridor of approximately*

200 m wide. The power line will be constructed within an approximately 31 m wide servitude.

- *A service road of approximately 4 m wide below the power line.*
- *An on-site switching station, with an estimated footprint of 1.0 ha and up to 5 m in height, at the Mogobe BESS facility. This refers specifically to Eskom's section of the on-site substation, planned to be at 132 kV, which will be transferred from the IPP to Eskom. Lightning masts of up to 21 m will be installed within the substation yard, and*
- *Associated electrical infrastructure at the Eskom Ferrum Substation. This will include but not limited to a new feeder bay which comprises of the extension to the existing platform and busbars of the 132 kV yard inside Eskom Ferrum Substation.*

Figure 2: Example of monopole transmission lines link to a small substation *(Source: VRMA)*

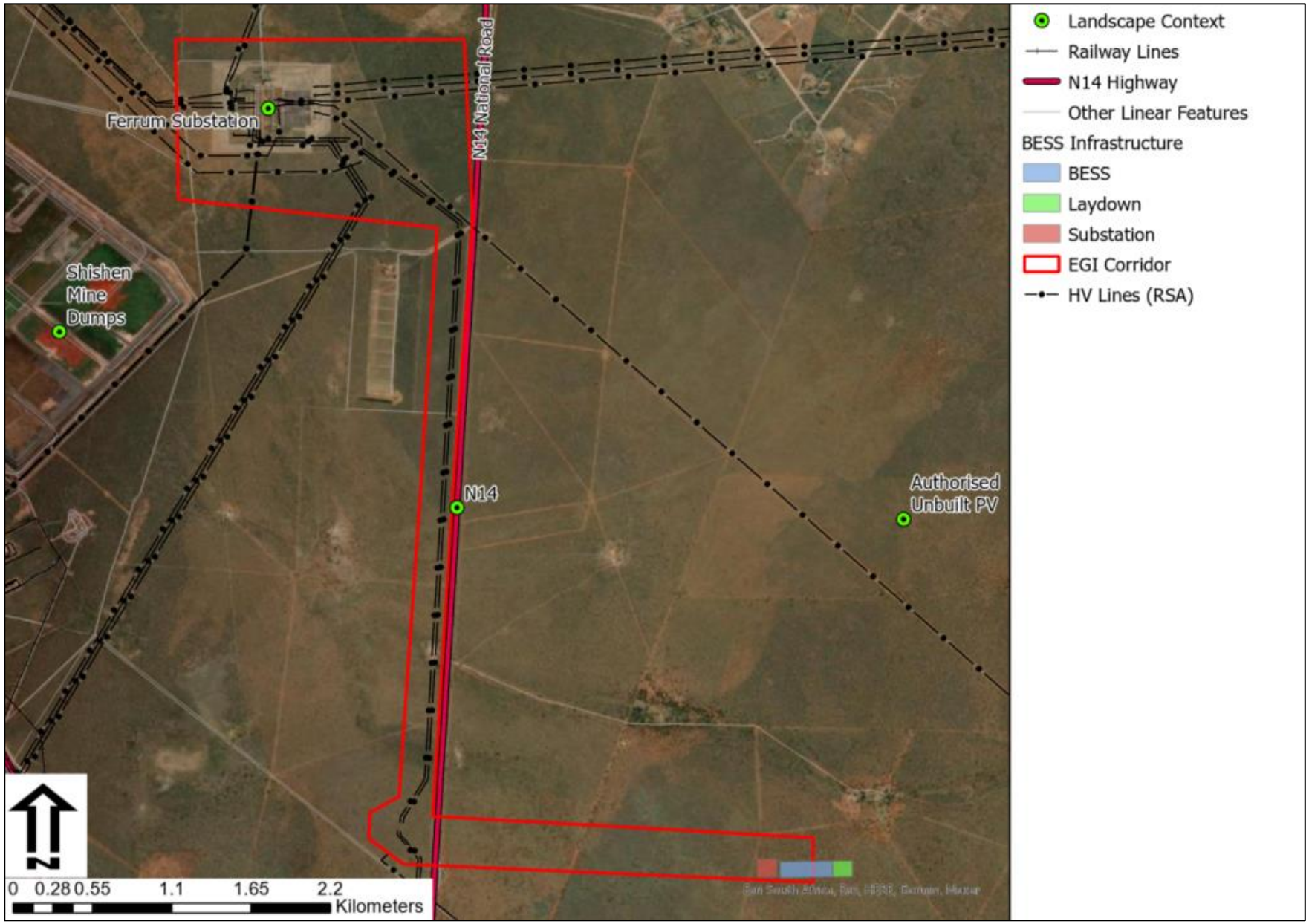


Figure 3. Proposed BESS location within the larger PV layout.

5 LEGAL FRAMEWORK

In order to comply with the Visual Resource Management requirements, it is necessary to evaluate the proposed amendment in terms of 'policy fit'. This requires a review of National and Regional 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.

The proposed project is located on the southern outskirts of the town of Kathu. According to the Gamagara Municipality Spatial Development Plan, Kathu is known as the "town under the trees" due to its close proximity to a camel thorn forest. The town was proclaimed in 1972 "in order to accommodate the large number of miners and their families entering the area". The report indicated that the need for this development "grew out of the massive development associated with the mining activities of the Sishen Mine (run by Kumba today). Mining is still the most important economic sector in the area today, contributing greatly to the GDP of South Africa. Kathu is still experiencing exponential growth today and is rapidly turning into an important economic growth point in the region" (Gamagara Municipality, 2010).

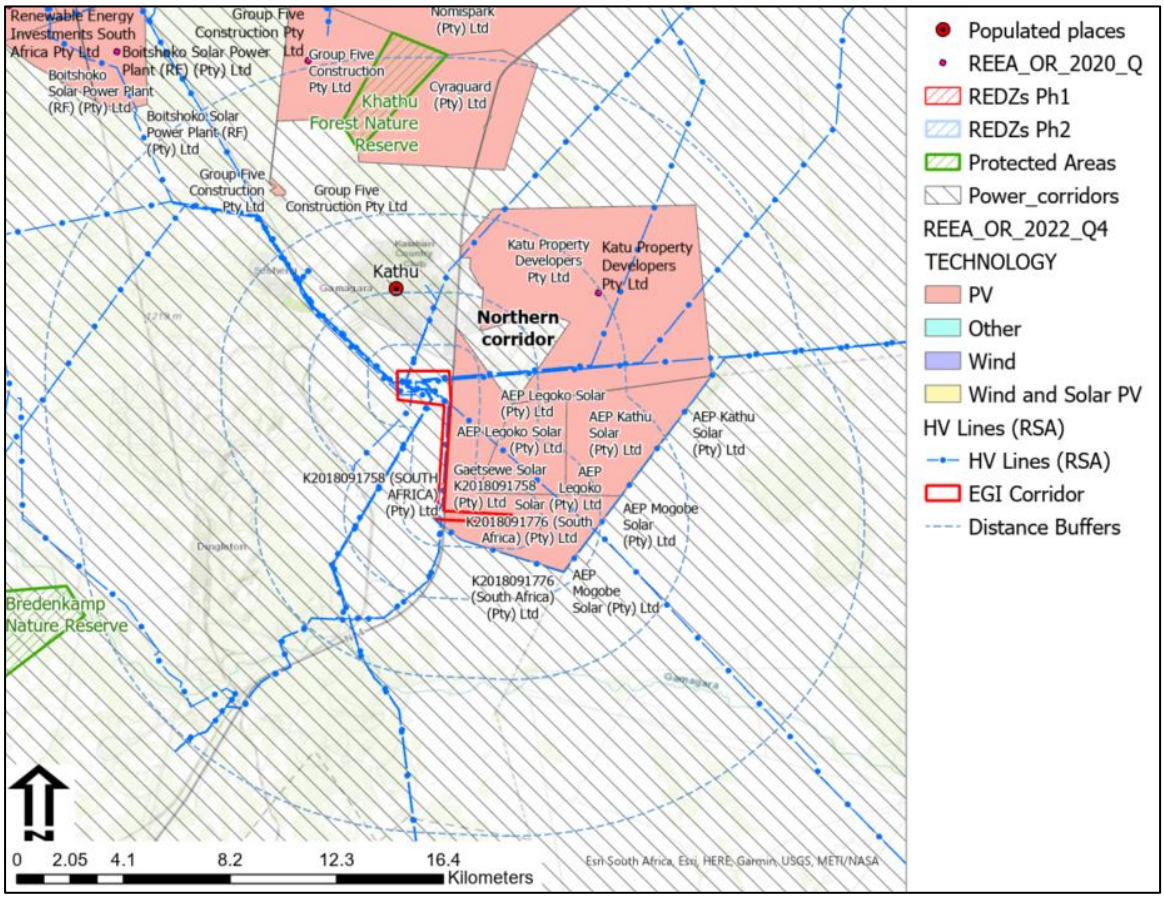


Figure 4. Spatial Planning Context Map.

5.1 Conservation Planning

Three conservation areas are located within the 30km buffer distance from the proposed BESS project. The Khathu Forest Nature Reserve is located approximately 10km to the northwest, and the Bredenkamp and Brooks Nature Reserves are located approximately

12km to the west. Neither of the conservation areas will fall within the project ZVI as the Khathu Nature Reserve is located to the north of the town of Kathu where the built environment would provide visual screening, and the Bredenkamp and Brooks Nature Reserve area located to the east of the Sishen Mine where the large waste rocks dumps located between the powerline and the Nature Reserve, provides topographic screening of any landscape change east of the dumps. Risk to conservation planning is rated Low.

5.2 Renewable Energy Planning

Eight other renewable energy projects are located in the 12km buffer of the proposed OHPL. Located within the foreground areas where landscape changes are more likely to be noticeable are the authorized (unbuilt) Legoko PV, Gaetsewe PV Mogara PV and Mogobe PV. VRMA was involved in the visual and landscape as these PV projects and can confirm that other than the Mogobe PV, the other northern adjacent PV projects will not result in cumulative views due to the bushveld vegetation that effectively screens the lower lying PV panels and most of the associated structures. The other renewable projects are located further to the north, with the built areas of Kathu Town located between, thus also not resulting in intervisibility.

5.3 DEA&DP Guideline for involving Visual and Aesthetic Specialists in EIA Processes

As specific Visual Guidelines are not provided by the area, we have referred to the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) Guideline for involving visual and aesthetic specialists in EIA processes. This 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)

The local landscape character is strongly dominated by the Sishen Mine that is located 1.2km to the west, where the dumps, numerous OHPL and other infrastructure create a mining landscape that does degrade the local landscape context.

5.4 Local and Regional Planning

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

Table 6: District Planning reference table relevant to the project.

John Taolo District Municipality SDF (John Taolo Gaetsewe DIstrict Municipality, 2023)		
Theme	**Requirements**	**Page**
Renewable Energy	Primary drivers for infrastructure development include: • Demographic Trends (e.g. in–migration and population growth); • Economic Growth (e.g., Mining sector and Renewable Energy Sector).	59
	Key Action Areas • To develop JTGM DM as a centre for Renewable Energy and maximise opportunities for local companies and local people • Promote JTGM DM through the activities of Renewable Energy partnership	85
	The provision of alternative sources of energy has major financial implications which are connected to providing the required infrastructure and increasing accessibility. It also has environmental impacts that need to be taken into consideration, according to the following categories: • Highly sensitive areas which may have potential for hydro and solar energy but have been classified as no go areas. • Moderately sensitive areas that can be used for generating hydro and solar energy but will require environmental authorisation and may require certain establishing certain conditions to protect the natural environment. • Locations that are already transformed and do not have major environmental implications that cannot be mitigated against.	85
Open Areas	Open spaces also protect the natural visual quality of the area and maximizes the area's attractiveness, liveability, investment, and tourism potential of the area. It is recommended that valuable environmental components and their buffers be zoned as open space. These areas include: • Wetlands, dams, rivers, streams, watercourses (and their buffers) • Endangered ecosystems • Forests (minimum 50m buffer) • Mountains and ridges	37
Tourism	The following should be taken into consideration pertaining the growth of Tourism sector. • Linkage in terms of national corridors, regional anchors, and gateways, such as along the N14, R31, and R380 and particularly the catalytic projects will expand the tourism value chain within and outside district boundaries and across the border to other SADEC countries; • Initiatives that may contribute to unlocking and stimulating economic growth, economic diversification, and knowledge	63

	economy through the tourism sector, as well as to create niche markets	

Table 7: Local Planning reference table relevant to the project.

Gamagara Local Municipality IDP (Gamagara Local Municipality, 2023)		
Theme	**Requirements**	**Page**
Economic Development (from SDF)	• As far as mines and mining is concerned, the expansion of the mining industry should be supported in such a way that its negative impacts are minimized in distressed mining communities are supported • Managing urban sprawl to protect natural resources and managing the impact from mining on human settlement	183 175
Energy Sustainable Services for Community	Mission: • Provide access to universal, sustainable services for our communities. • Optimum use of available resources • Be a development-focused institution. • Embrace technology	xi
Solar Energy Farms	• The Municipality is located near Solar Farms and the possibility of being provided with electricity directly instead of from Eskom needs to be investigated. • Request more funds or assistance from external funders like Mines, Solar Farms to speed up planned projects	33
Local Economic Development	• Optimize the creation of new economic and business opportunities • Promote the creation of an enabling environment conducive to economic development • Industrial Development is also needed in Gamagara	190
Tourism	Enhance tourism as a more important component integrated in the economy of the district	193

5.5 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 cultural/ landscape visual resources found on the site or immediate surrounds that are flagged by international landscape guidelines. No significant international best practice issues were flagged in relation to the receiving landscape.

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 High Positive for the following reasons:**

- There is strong support in the local and regional planning documents for renewable energy projects.
- The proposed project will significantly add to the local and regional economy and provide employment.
- There are no active eco-tourism activities within the ZVI.
- The local landscape context is strongly informed by the adjacent Sishen Mine as well as the numerous OHPL in the area.
- The surrounding areas do not have significant landforms or high levels of scenic quality that could be utilised for landscape based tourism.

6 LANDSCAPE CONTEXT

Landscape character is defined by the U.K. Institute of Environmental Management and Assessment (IEMA) as the 'distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how this is perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement'. It creates the specific sense of place or essential character and 'spirit of the place' (IEMA, 2002). This section of the VIA identified the main landscape features that define the landscape character, as well as the key receptors that make use of the visual resources created by the landscape.

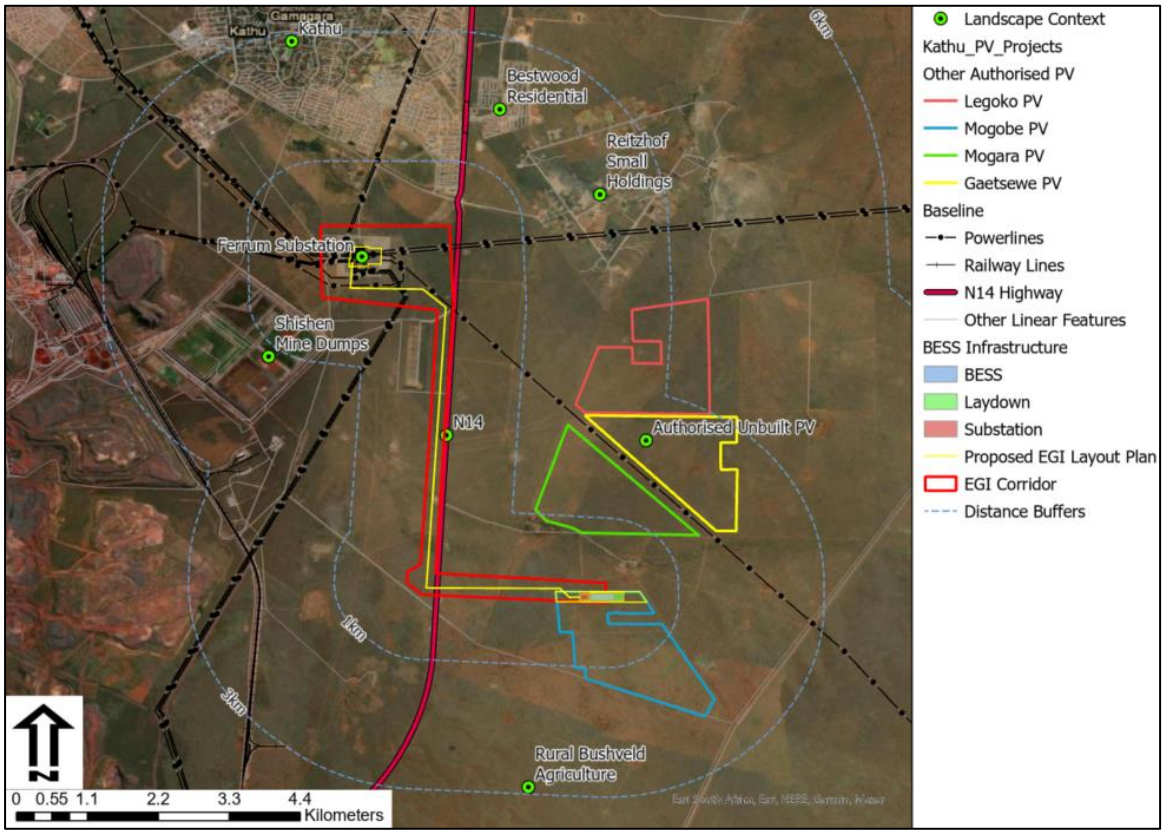


Figure 5. Local Landscape Context Map.

The following key landmarks, falling within the proposed project viewshed, were identified during the VIA assessment as mapped in Figure 5 on the previous page:

- Mining and associated infrastructure.
- Powerline infrastructure and Substations related to the Ferrum Substation.
- Kathu residential.
- Renewable energy (proposed); and
- Other rural land use.

A dominating landscape feature in the local region is the Sishen Mine that is located approximately 1.2km to the west of the site. Featuring many large scale waste rock dumps and mining infrastructure, the local landscape is degraded to some degree. Related to the mining context is the many powerlines routed through the local region, converging on the Ferrum Main Transmission Station (MTS) located at the northern extent of the proposed OHPL.

Figure 6: Photograph of the Ferrum Substation and 400kV powerlines leading to the substation (Source: D. Holder Cape EAPrac 2018).

Figure 7: Photograph depicting the Sishen Mine waste rock dumps and factories.

The town of Kathu is located approximately 3km to the north and northeast of the site. While the southern developments of the town may fall within the project theoretical viewshed, the built nature of the urban space and higher VAC levels of the Sishen Mine, effectively reduce visual intrusion as well as receptor sensitivity to landscape change.

A factor that will increasingly influence the future regional landscape character is renewable energy with the recognition of the area around Kathu as an important renewable energy location. The other key factor defining the regional landscape character is the rural agricultural farming that is taking place in the bushveld vegetation, primarily with dryland beef farming. The bushveld vegetation is key factor influencing the rural sense of place, and with the numerous small trees in this vegetation type, is also a factor reducing the visual intrusion of lower lying developments.

6.1 Visual Absorption Capacity

Land use is a crucial factor in determining landscape character, especially regarding the Visual Absorption Capacity (VAC) of the landscapes. Oberholzer defines VAC as the potential of the landscape to conceal the proposed project (Oberholzer, 2005). i.e.

- High VAC – e.g., effective screening by vegetation and structures.
- Moderate VAC - e.g., partial screening by vegetation and structures.
- Low VAC - e.g., little screening by vegetation or structures.

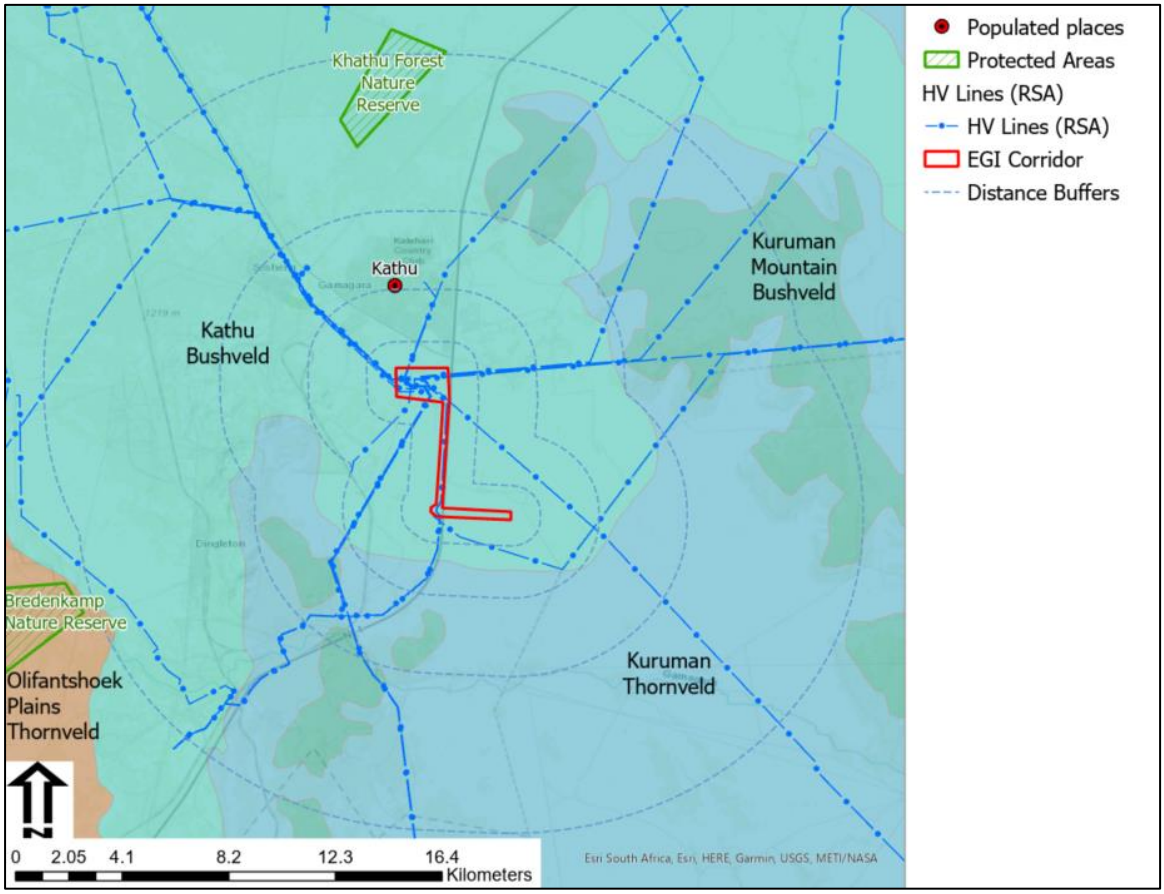


Figure 8. BGIS Biome and Vegetation Type Map (South African National Biodiversity Institute, 2018).

Vegetation type is a large factor in determining the scenic quality or the site in terms of colour and texture, as well as influencing the local ability of the landscape to absorb the

landscape change if larger trees species or prolific vegetation is located on the site or within the local region. The map below outlines the vegetation type based on BGIS mapping (South African National Biodiversity Institute, 2018). According to the South African National Biodiversity Institute (SANBI) 2012 Vegetation Map of South Africa, Lesotho and Swaziland (South African National Biodiversity Institute, 2012) the project area is located in the Savanna Biome. The main vegetation types being Kathu Bushveld that is mainly smaller bushveld trees and veld grasslands.

Of relevance to the project is that the VAC is defined as Medium to High as the Kathu Bushveld of the region does tend to contain views. There are also numerous larger OHPL within the local landscape as well as the background view of the Sishen Mine landforms and infrastructure. The area to the west of the N14 National Road is devoid of larger vegetation, and the two Eskom OHPL proposed for this area are yet to be constructed. The current lack of vegetation or infrastructure in this area is likely to increase the probability of visual contrast being generated by the proposed OHPL. This will, however, change over time once the other Eskom OHPL are developed. While this will result in a massing effect, but the multiple OHPLs would be viewed against the backdrop of the Sishen Mine, where the local landscape is degraded, and this level of development would be suitable.

7 ZONE OF VISUAL INFLUENCE

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 landscape change, a viewshed analysis was undertaken from the proposed site at a specified height above ground level. This is to assess the ***theoretical extent*** where the proposed landscape change could be visible from. This theoretical viewshed excludes vegetation, structural development as well as distance from the location where atmospheric influence would reduce visual clarity over increasing distance. The viewshed analysis makes use of open-source NASA ASTER Digital Elevation Model data (NASA, 2009). Based on the theoretical viewshed and the site visit appraisal of the nature of the landscape, an assessment of the ***Zone of Visual Influence (ZVI)*** is made. The ZVI is the area where the proposed landscape change is most likely to be noticed by the casual observer, taking the site visit into account where vegetation, existing development and distance is taken into consideration. This is a subjective appraisal but informed by the viewshed and the other factors mentioned.

7.1 Viewshed Analysis

As indicated in Figure 9 on the following page, visible incidence is most likely to take place around the site within the 3km distance zone but extending outwards to the northwest due to slightly lower terrain in this direction. As the terrain is predominantly flat, and the monopoles or lattice structure of up to 30m in height, the theoretical viewshed does extend over a wide area that essentially covers the full extent of the 6km Foreground, Mid Ground area around the routing. This is unlikely to be a real visual extent as the monopoles offer limited visual contrast beyond 2km distance due to the relatively small visual footprint of the structures. The switching station adjacent to the BESS is well set back from the road with very limited visual incidence, and the new feeder bay at the Ferrum substation would be visually absorbed by the significant substation infrastructure.

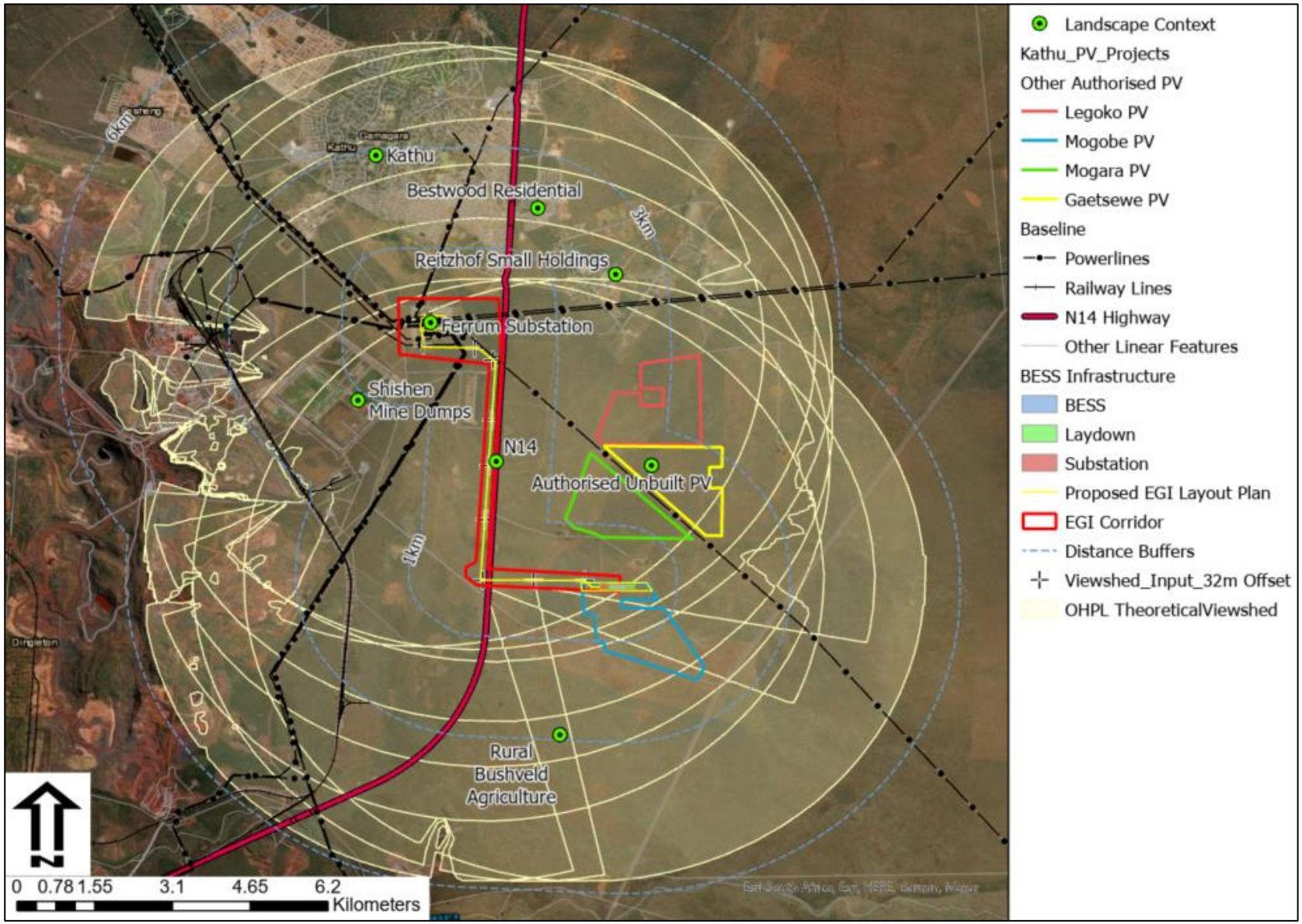


Figure 9: Approximate visibility map generated from a 30m offset reflecting the outer extent of the OHPL structures.

The area does have a higher VAC level due to existing linear infrastructure in the vicinity, as well as the Kathu Bushveld vegetation and mining infrastructure. The built nature of the areas to the north of the routing, with many garden trees, would also further reduce the visual exposure to the north. As such, the **Zone of Visual Influence of OHPL project landscape modification is likely to be a Locally contained. The local landscape features and receptors that would fall within the zone of visual influence are:**

- **Reitzhof Small Holding (Low probability).**
- **The N14 Highway (High probability).**

7.2 Receptors and Key Observation Points

As defined in the methodology, 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. While the southern Kathu residential areas would fall within the theoretical viewshed, the 1.7km distance and the location of the Ferrum Substation between the residential areas and the proposed routing, would effectively limit clear visibility of the landscape change. The following KOP were located within the expected ZVI:

Table 8: KOP Motivation Table.

Name	Theme	Exposure	Motivation
N14	National Road	Very High	The N14 is a National Road and is highly likely to carry tourist traffic.

8 VISUAL RESOURCE MANAGEMENT

In terms of the VRM methodology, landscape character is derived from a combination of scenic quality, receptor sensitivity to landscape change, and distance of the proposed landscape modification from key receptor points. Making use of the key landscape elements defined in the landscape contextualisation sections above, landscape units are defined which are then rated to derive their intrinsic scenic value, as well as how sensitive people living in the area would be to changes taking place in these landscapes.

8.1 Physiographic Rating Units

The Physiographic Rating Units are the areas within the proposed development area that reflect specific physical and graphic elements that define a particular landscape character. These unique landscapes within the project development areas are rated to assess the scenic quality and receptor sensitivity to landscape change, which is then used to define a Visual Resource Management Class for each of the site's unique landscape/s. The exception is Class I, which is determined based on national and international policy / best practice and landscape significance and as such are not rated for scenic quality and receptor sensitivity to landscape change. Based on the SANBI vegetation mapping and the site visit to define key landscape features, the following broad-brush areas were tabled and mapped in Figure 10 below.

Table 9: Physiographic Landscape Rating Units.

Landscapes	Motivation
Infrastructure Degraded	The proposed routing aligns with the existing Eskom OHPL (Sekgame/ Bulkop Sishen 1 132kV Overhead Line) that is located to the west of the N12 National Road. This area, with the background views of the Sishen Mine is landscape degraded.
N14 Road View Corridor	The N14 is an important regional road that could be used by tourist traffic to access tourist areas to the north of Kathu.
Kathu Bushveld	The predominant landscape of the flat areas is Kathu Bushveld.

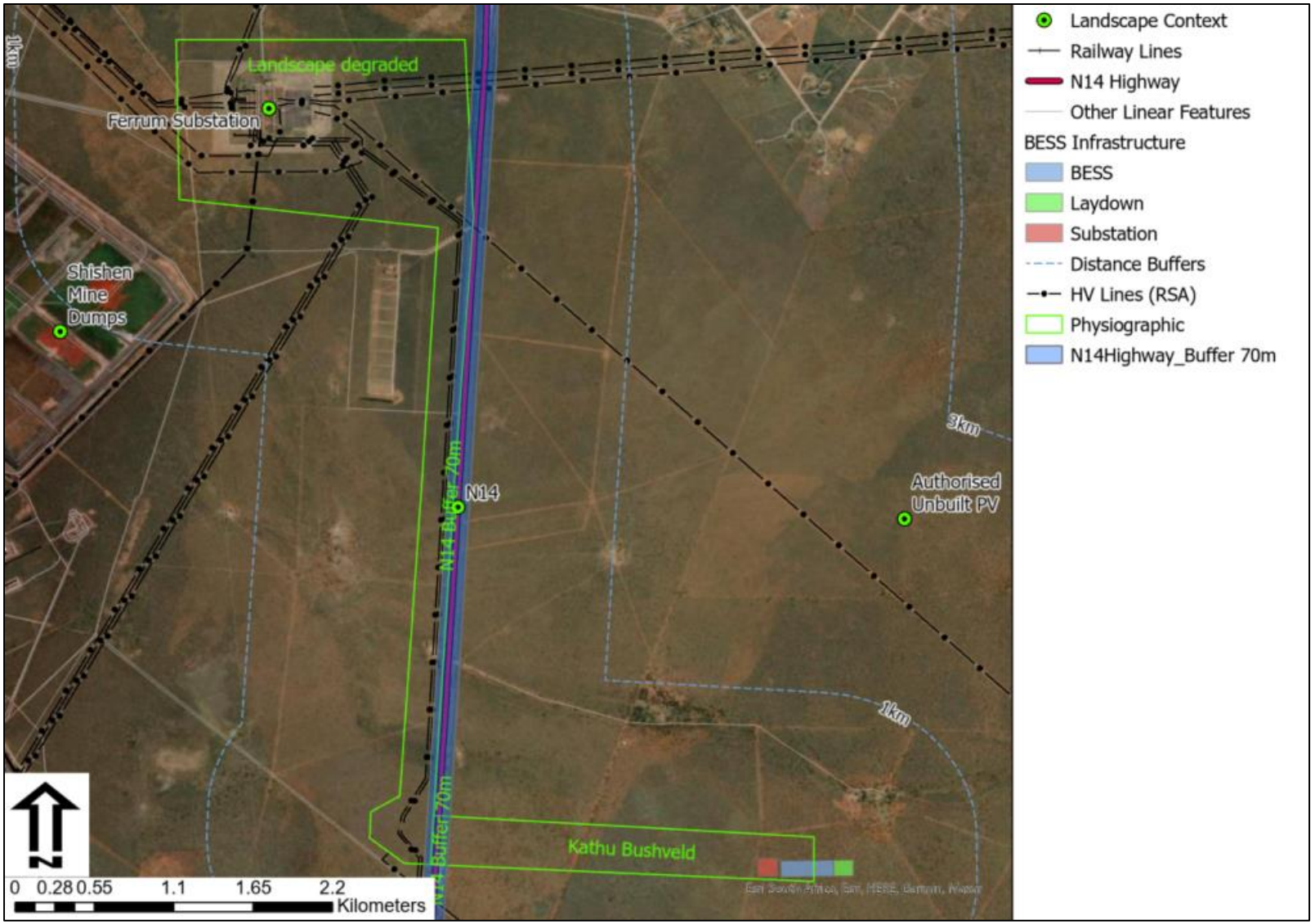


Figure 10: Physiographic Rating Units identified within the defined study area.

Table 10: Scenic Quality and Receptor Sensitivity Rating.

Landscape Rating Units	**Scenic Quality** A= scenic quality rating of ≥19; B = rating of 12 – 18, C= rating of ≤11									**Receptor Sensitivity** H = High; M = Medium; L = Low						**VRM**		
Attribute	**Landform**	**Vegetation**	**Water**	**Colour**	**Scarcity**	**Adjacent Landscape**	**Cultural Modifications**	**Sum**	**Rating**	**Type of Users**	**Amount of Use**	**Public Interest**	**Adjacent Land Uses**	**Special Areas**	**Rating**	**Inventory Class**	**Management Class**	**Development Sensitivity**
In general, significant Heritage / Ecological / Hydrology. With specific reference to the project: • **N14 70m Road buffers**	**(Class I is not rated)**																**I**	**NoGo**
Kathu Bushveld	1	3	0	3	2	2	0	**11**	**C**	M	H	L	L	M	**L**	**IV**	**III**	**With mitigation**
Landscape degraded	1	0	0	2	1	2	-2	**4**	**C**	M	H	L	L	L	**L**	**IV**	**IV**	**Without mitigation**

Red colour indicates change in rating from Visual Inventory to Visual Resource Management Classes motivated in the following section.

The ***Scenic Quality*** scores are totalled and assigned an A (High scenic quality), B (Moderate scenic quality) or C (Low scenic quality) category based on the following split: *A= scenic quality rating of ≥19; B = rating of 12 – 18, C= rating of ≤11* (USDI., 2004).
Receptor Sensitivity levels are a measure of public concern for scenic quality. Receptor sensitivity to landscape change is determined by rating the key factors relating to the perception of landscape change in terms of Low to High (H = High; M = Medium; L = Low).

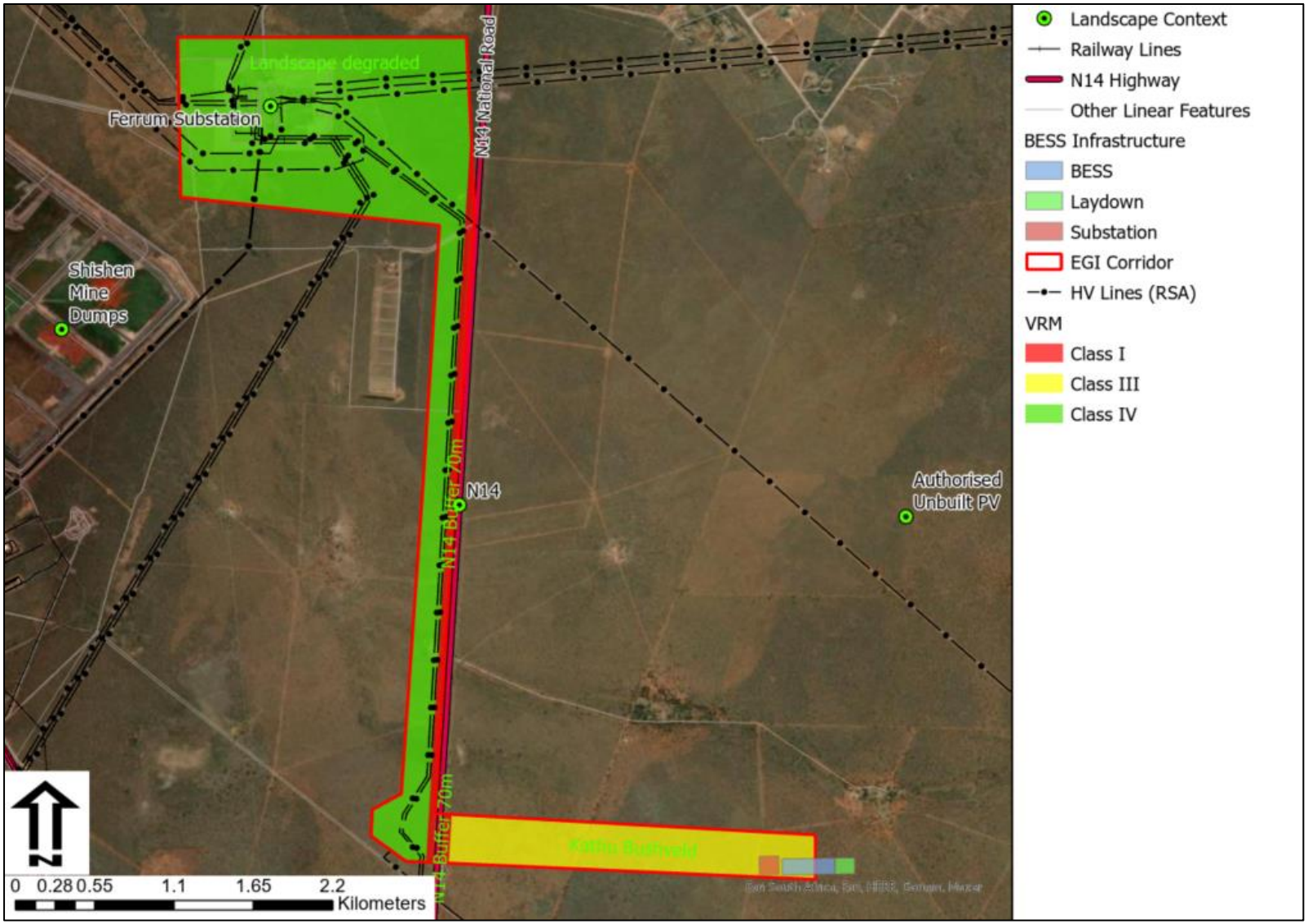


Figure 11: Visual Resource Management Classes map.

8.2 Scenic Quality Assessment

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 ≥19 (High).
B = rating of 12 – 18 (Medium).
C= rating of ≤11 (Low).

Table 11: Scenic Quality Rating Table

Landscapes	Rating	Motivation
Landform	M	While the N14 could carry tourist traffic, the majority of the receptors are Kathu based and as such would have lower sensitivities to landscape change within the Sishen Mine landscape context.
Vegetation	M	The Kathu Bushveld vegetation does offer some landscape value, but this is limited and mainly to the east of the N14 road.
Water	L	Water was not a dominate visual element in the local landscape.
Colour	L	Colour was mainly vegetation related but does reflect a reddish hue due to the proximity to the Sishen Mine.
Scarcity	M	While eastern rural areas do offer some landscape appeal, the majority of the local area is degraded by the Sishen Mine and as such is not a scarce resource.
Adjacent Landscapes	L	The dominating landscape is the Sishen Mine located 1.2km to the west that does degrade the local landscape.
Cultural Modifications	L	Cultural modifications are limited to the east of the road but will include two Eskom 132kV OHPL to the west of the road along which the proposed Mogobe EGI is to be routed.
Scenic Quality	**ML**	While eastern rural areas do offer some landscape appeal, the majority of the local area is degraded by the Sishen Mine and as such is not a scarce resource. While the N14 could carry tourist traffic, the majority of the receptors are Kathu based and as such would have lower sensitivities to landscape change within the Sishen Mine landscape context. Cultural modifications are limited to the east of the road but will include two Eskom 132kV OHPL to the west of the road along which the proposed Mogobe EGI is to be routed.

8.3 Receptor Sensitivity Assessment

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.

Table 12: Receptor Sensitivity Rating Table

Landscapes	Rating	Motivation
Type of Users	ML	While there is likely to be some tourist traffic, the majority of the receptors are likely Sishen residents and as such, less likely to be sensitive to landscape change within the Sishen landscape context.
Amount of use	H	The N14 National Road is a well used road and amount of use would be High.
Public interest	L	Due to the existing Eskom OHPL and the Sishen Mine landscape context, public interest is likely to be Low.
Adjacent land Users	L	
Special Areas	L	The rural Kathu Bushveld areas do add some value, but in general the area depicts no Special Area characteristics.
Receptor Sensitivity	**ML**	The N14 National Road is a well used road and amount of use would be High. While there is likely to be some tourist traffic, the majority of the receptors are likely Sishen residents and as such, less likely to be sensitive to landscape change within the Sishen landscape context.

8.4 Visual Resource Management (VRM) Classes

The BLM has defined four Classes that represent the relative value of the visual resources of an area and are defined in terms of the VRM Matrix as follows:

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

8.4.1 VRM Class I

Class I is assigned when legislation restricts development in certain areas. The visual objective is to preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention. A Class I visual objective was assigned to the following features within the proposed development area due to their protected status within the South African legislation:

- Any river / streams and associated flood lines buffers identified as significant in terms of the WULA process.
- Any wetlands identified as significant in terms of the WULA process.
- Any ecological areas (or plant species) identified as having a high significance.
- Any heritage area identified as having a high significance.
- **70m Buffer along the N14 following existing Eskom OHPL routing precedent.**

To retain as much as possible of the remaining landscape integrity along this section of the N14 National Road, the existing Eskom precedent of 70m (centreline) buffer is incorporated to reduce visual contrast to some degree. Should the two Eskom 132kV OHPLs not be constructed, the same 50m buffer from the road reserve should be followed.

8.4.2 VRM Class II

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.

- **Not applicable.**

With Medium to Low scenic quality and expected Low sensitivity to landscape change, there were no landscapes where receptors are likely to perceive landscape change as highly negative. As such, no Class II areas were defined.

8.4.3 VRM Class III

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. Management activities 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. The following landscape was defined as having Class III Visual Objectives where development would be most suitable:

- **Kathu Bushveld**

The Kathu Bushveld areas to the east of the N14 National Road do add to the existing rural landscape context that currently exists. This area would be suitable for development with best practice in mitigation as the general area does have a higher VAC level due to existing OHPL and the Sishen Mine development.

8.4.4 VRM Class IV

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. Due to the degraded sense of place, the following areas were rated Class IV:

- **Landscape degraded.**

The areas to the west of the N14 National Road, outside of the 70m No-go Buffer, are landscape degraded due to the existing Eskom Routing (planned) as well as the western views of the Sishen Mine degraded landscapes.

9 VISUAL IMPACT ASSESSMENT

Impacts are defined in terms of the standardised impact assessment criteria provided by the environmental practitioner. Using the defined impact assessment criteria, the potential environmental impacts identified for the project were evaluated according to severity, duration, extent and significance of the impact. The potential occurrence and cumulative

impact (as defined in the methodology) was also assessed. In order to better understand the nature of the severity of the visual impacts, a Contrast Rating exercise was undertaken, assuming the view of the defined Key Observation Point (where photomontages are not provided). As this is an assumption, the findings of the Social Impact Assessment would need to be viewed once they are made available. As this is a Basic Assessment, Photomontages were not generated.

9.1 Contrast Rating and Photomontages

As indicated in the methodology, a contrast rating is undertaken to determine if the VRM Class Objectives are met. The suitability of a landscape modification is assessed by comparing and contrasting the 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 degree of contrast (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.

Table 13: Contrast Rating Key Observation Points Table

	Exposure			Landscape Elements					
Key Observation Point	**Distance**	**Exposure**	**Mitigation**	**Form**	**Line**	**Colour**	**Texture**	**Degree of Contrast**	**Visual Objectives Met?**
N14 National Road	50m	Very High	W/Out	M	S	S	S	S	**No**
			With	W	S	W	M	MS	**Yes**

** S = Strong, M = Medium, W = Weak, N = None*

Contrast Rating Findings

Without mitigation, the very close proximity to the N14 road receptors would result in stronger levels of visual contrast. With mitigation and maintaining the existing 70m (centreline) buffer of the Eskom 132kV OHPL, the visual contrast would be reduced to some degree.

Mitigations for the road buffer are the following:

- 70m buffer on either side of the road (centreline).

9.2 Project Impact Ratings and Motivation

The following visual impacts could take place during the lifetime of the project:

Construction:

- Loss of site landscape character due to the removal of vegetation and the construction of the project infrastructure.
- Wind-blown dust due to the removal of large areas of vegetation.
- Possible soil erosion from temporary roads crossing drainage lines.
- Wind-blown litter from the laydown and construction sites.

Operation:

- Massing effect in the landscape from a large-scale landscape modification.
- On-going soil erosion.
- On-going windblown dust.

Decommissioning:

- Movement of vehicles and associated dust.
- Wind-blown dust from the disturbance of cover vegetation / gravel.

Cumulative:

- A long-term change in land use setting a precedent for other similar types of renewable energy projects, resulting in a loss of scenic quality of the local area.

Table 14: Construction Phase Impacts Table

Project phase	**Construction Phase**			
Impact	**Short-term landscape change from the current rural/ mining sense of place due to the OHPL construction.**			
Description of impact	• Loss of site landscape character due to the removal of vegetation and the construction of the OHPL structures and associated infrastructure. • Wind-blown litter from the laydown and construction sites. • Movement of large vehicles and cranes along the routing.			
Mitigation Viability	Medium	The mitigation will partially reduce the significance of the visual and landscape impacts		
Potential mitigation	• Wind blown dust mitigation. • Dust mitigation for moving vehicles. • 50m setback from N14 Highway for the placement of monopoles at the road crossing and the routing located outside of the 70m (centreline) buffer). • Should the two Eskom 132kV OHPLs not be constructed, the same 50m buffer from the road reserve should be followed.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Negative	
Duration	Short term	Impact will last approximately 12 months.	Short term	Impact will last approximately 12 months.
Extent	Local	Contained within the Foreground/ Mid Ground (approx. 6km from site)	Local	Contained within the Foreground/ Mid Ground (approx. 6km from site)

Intensity	Medium	Natural and/ or social functions and/ or processes are clearly altered.	Medium to Low	Natural and/ or social functions and/ or processes are partially altered.
Probability	Likely	The impact is likely to occur	Likely	The impact is likely to occur.
Confidence	Sure	Substantive supportive data exists to verify the assessment	Sure	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The landscape change is reversible but only with time and rehabilitation.	Medium	The landscape change is reversible but only with time and rehabilitation.
Significance	**Medium (-ve)**		**Medium to Low (-ve)**	
Comment on significance	Although for a shorter time period, the full extent development with close proximity to the road receptors, will result in Strong levels of visual contrast during construction.		With mitigation and the reduction in the development area with visual setbacks, the construction phase impact will be Medium.	
Cumulatives	**Medium (-ve)**		**Low (-ve)**	
Cumulative impacts	The development without mitigation will set a precedent for development of grid infrastructure in close proximity to the N14 National Road.			

Table 15: Operation Phase Impacts Table

Project phase	**Operation Phase**			
Impact	**Permanent landscape change from the current rural agricultural sense of place to the semi-industrial RE landscape.**			
Description of impact	• Long-term loss of site landscape character due to the operation of the EGI structures.			
Mitigation Viability	Low	Once the OHPL is constructed there is very limited mitigation potential within this landscape context.		
Potential mitigation	• Not applicable.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Negative	
Duration	Long term	Impact will last approximately 20 years	Long term	Impact will last approximately 20 years
Extent	Local	Contained within the Foreground/ Mid Ground (approx. 6km from site)	Local	Contained within the Foreground/ Mid Ground (approx. 6km from site)
Intensity	Medium	Natural and/ or social functions and/ or processes are clearly altered.	Medium to Low	Natural and/ or social functions and/ or processes are partially altered.
Probability	Likely	The impact is likely to occur	Likely	The impact is likely to occur.
Confidence	Sure	Substantive supportive data exists to verify the assessment	Sure	Substantive supportive data exists to verify the assessment

Reversibility	High	The affected landscape will be able to recover from the impact.	Medium	The affected landscape will be able to recover from the impact.
Significance	**Medium to High (-ve)**		**Medium (-ve)**	
Comment	Close proximity routing to the N14 would increase the visual intensity of the landscape change and is not recommended.		With mitigation and the setback from the N14 National Road, the Operational Phase impact will be moderated to some degree.	
Cumulatives	**Medium (-ve)**		**Low (-ve)**	
Comment	The development without mitigation could set a negative precedent for OHPL routings in close proximity to National Roads.		With mitigation and retaining the visual setback buffers, a suitable precedent would be set for OHPL routing following the existing Eskom precedent.	

Table 16: Decommissioning Phase Impacts Table
Not Applicable

10 PRELIMINARY ENVIRONMENTAL MANAGEMENT PLAN

10.1 OHPL Project

10.1.1 Design Phase

50m setback from N14 Highway for the placement of monopoles at the road crossing and the routing located outside of the 70m (centreline) buffer). **Should the two Eskom 132kV OHPLs not be constructed, the same 50m buffer from the road reserve should be followed.**

10.1.2 Construction Phase

- Following the removal of the vegetation, wind-blown dust during construction should be monitored by the ECO to ensure that it does not become a nuisance factor to the local receptors. Should excessive dust be generated from the movement of vehicles on the roads such that the dust becomes visible to the immediate surrounds, dust-retardant measures should be implemented under authorisation of the ECO.
- Topsoil from the footprints of the road and structures should be dealt with in accordance with EMP.

10.1.3 Operation Phase

- Continued maintenance for erosion control.

11 OPPORTUNITIES AND CONSTRAINTS

11.1 OHPL Project: Preferred Alternative

11.1.1 Opportunities

- The ZVI is contained to the local area with Foreground/ Mid Ground distancing due to Kathu Bushveld vegetation and high ground to the north and west.
- No tourist activities within the project ZVI.
- The landscape context is strongly associated with the Sishen Mine as well as the existing Eskom OHPL along the routing.
- National energy objectives for renewable energy and job creation will be met.

- Located within the Northern Strategic powerline Corridor where linear infrastructure projects would be expected.

11.1.2 Constraints

- The area is not within the REDZ area.
- The proposed routing with within High Visual Exposure of the N14 National Road.

11.2 No-Go Option

11.2.1 Opportunities

- The current rural agricultural land uses within the routing corridor to add to the rural agricultural landscape character.

11.2.2 Constraints

- National energy objectives for renewable energy and job creation will not be met.

12 CONCLUSION

The finding of this Basic landscape and visual impact assessment is that while the local sense of place will be partially altered, and no loss of significant landscapes or visual resources will take place. It is the recommendation that the routing corridor is suitable should be authorised WITH MITIGATION for the following key reasons:

- Moderate Zone of Visual Influence with no active tourism activities within the area.
- The lower levels of landscape character due to the close proximity of the Sishen Mine where there are higher VAC levels from the mine and OHPL infrastructure, where receptor sensitivity to landscape change is likely to be Low.
- The local area is located within the Central Strategic Transmission Corridor, with other planed Eskom 132kV powerlines routed adjacent to the proposed routing.
- No residential receptors located within High Visual Exposure.
- The bushveld vegetation tends to localise vistas and open views are limited.

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14 ANNEXURE A: SPECIALIST INFORMATION

14.1 Professional Registration Certificate

APHP

Association of Professional Heritage Practitioners

MEMBERSHIP CERTIFICATE

THIS CERTIFIES THAT

Stephen Stead

MEMBERSHIP NUMBER: PHP0063

has been awarded membership as a

PROFESSIONAL MEMBER (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 Professional may be found at: www.aphp.org.za/membership

Please contact us via info@aphp.org.za should further information be required.

THIS CERTIFICATE IS VALID FROM 1 JUNE 2023 – 1 JULY 2024

VICE CHAIRPERSON

[Issued by the Association of Professional Heritage Practitioners Executive Committee]

Watermark Image: Plate XXIII drawn by Mr J F Schofield, A.R.I.B.A.
Watermark Reference: Fouche, L. (1937) *Mapungubwe Ancient Bantu Civilization on the Limpopo* Cambridge University Press: London

Association of Professional Heritage Practitioners
info@aphp.org.za
www.aphp.org.za

14.2 Curriculum Vitae (CV)

1. **Position**: Owner / Director

2. **Name of Firm**: Visual Resource Management Africa cc *(www.vrma.co.za)*

3. **Name of Staff**: Stephen Stead

4. **Date of Birth**: 9 June 1967

5. **Nationality:** South African

6. **Contact Details:** **Tel: +27 (0) 44 876 0020**
   Cell: +27 (0) 83 560 9911
   Email: steve@vrma.co.za

7. **Educational qualifications**:
   - University of Natal (Pietermaritzburg):
   - Bachelor of Arts: Psychology and Geography
   - Bachelor of Arts (Hons): Human Geography and Geographic Information Management Systems

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:**
    - IAIAsa 2012
    - IAIAsa 2011
    - IAIA International 2011 (Mexico)
    - IAIAsa 2010
    - IAIAsa 2009
    - IAIAsa 2007

11. **Continued Professional Development:**
    - Integrating Sustainability with Environment Assessment in South Africa (IAIAsa 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 for a full list of projects undertaken).

Table 17: VRM Africa Projects Assessments Table

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

15 ANNEXURE B: 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 mine, without jeopardising mine 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" (more blue and green) 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 Center. 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.

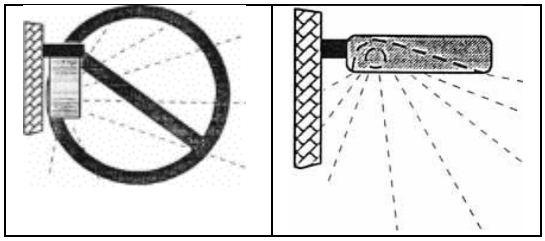
Glare Here’s the basic rule of thumb: If you can see the bright bulb from a distance, it’s a bad light. With a good light, you see lit ground instead of the dazzling bulb. “Glare” is light that beams directly from a bulb into your eye. It hampers the vision of pedestrians, cyclists, and drivers.

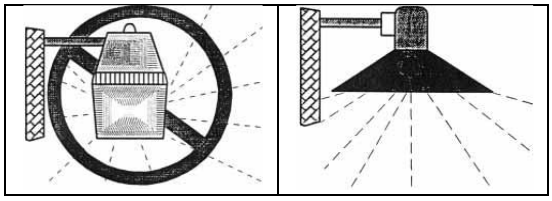
Light Trespass Poor outdoor lighting shines onto neighbours’ properties and into bedroom windows, reducing privacy, hindering sleep, and giving the area an unattractive, trashy look.

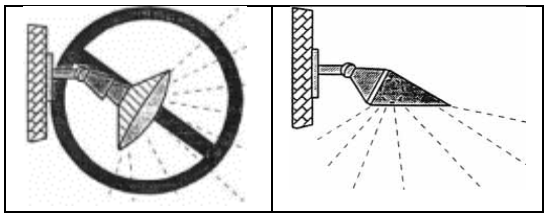
Energy Waste Many outdoor lights waste energy by spilling much of their light where it is not needed, such as up into the sky. This waste results in high operating costs. Each year we waste more than a billion dollars in the United States needlessly lighting the night sky.

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

Good and Bad Light Fixtures

Typical “Wall Pack”	**Typical “Shoe Box” (forward throw)**
	
BAD Waste light goes up and sideways	**GOOD** Directs all light down

Typical “Yard Light”	**Opaque Reflector (lamp inside)**
	
BAD Waste light goes up and sideways	**GOOD** Directs all light down

Area Flood Light	**Area Flood Light with Hood**
	
BAD Waste light goes up and sideways	**GOOD** Directs all light down

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.

- Aim lights down. Choose "full-cutoff shielded" fixtures that keep light from going uselessly up or sideways. Full-cutoff fixtures produce minimum glare. They create a pleasant-looking environment. They increase safety because you see illuminated people, cars, and terrain, not dazzling bulbs.

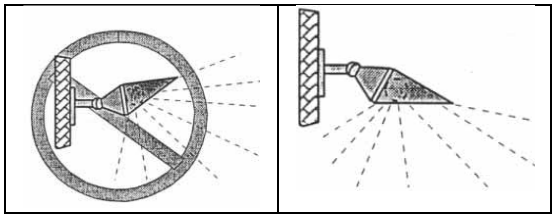
- Install fixtures carefully to maximize their effectiveness on the targeted area and minimize their impact elsewhere. Proper aiming of fixtures is crucial. Most are aimed too high. Try to install them at night, when you can see where all the rays actually go. Properly aimed and shielded lights may cost 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!

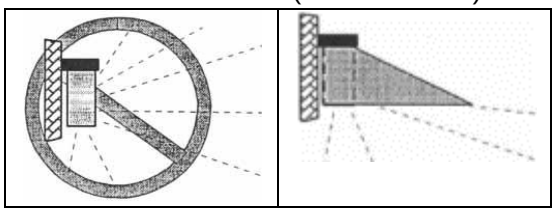
What You Can Do To Modify Existing Fixtures

Change this . . . to this (aim downward)



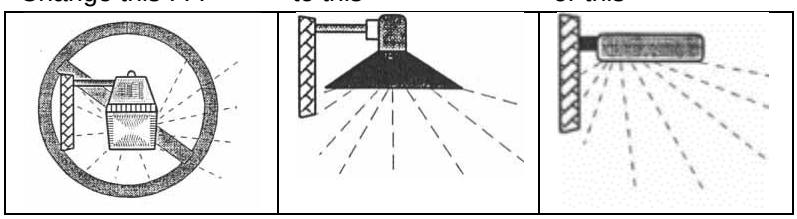
Floodlight:

Change this . . . to this (aim downward)



Wall Pack

Change this . . . to this or this



Yard Light | Opaque Reflecter | 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.

16 ANNEXURE C: METHODOLOGY DETAIL

16.1 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.

16.1.1 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 ≥19;
B = rating of 12 – 18,
C= rating of ≤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.

16.1.2 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.

16.1.3 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:

i. ***Foreground / Middle ground***, up to approximately 6km, which is where there is potential for the sense of place to change;
ii. ***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
iii. ***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.

16.1.4 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.

16.2 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.

16.2.1 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.

16.2.2 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).