CAMDEN GREEN ENERGY (RF) PTY LTD

Proposed Construction of the Camden 1 Green Hydrogen and Ammonia Facility near Ermelo, Mpumalanga Province

Visual Impact Assessment Report – EIA Phase

DEA Reference: (To be announced)
Issue Date: 19 May 2022
Version No.: 1
Project No.: 15875

Date:	19 05 2022
Document Title:	Proposed Construction of the Camden 1 Green Hydrogen and Ammonia Facility near Ermelo, Mpumalanga Cape Province
Version Number:	1
Author:	Kerry Schwartz BA (Geography), University of Leeds South African Geomatics Council – GTc GISc 1187
Checked by:	Michelle Nevette
Approved by:	Michelle Nevette
Signature:	
Client:	Camden Green Energy (RF) Pty Ltd

Confidentiality Statement

National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) - Requirements for Specialist Reports (Appendix 6)

Regulation GNR 326 of 4 December 2014, as amended 7 April 2017, Appendix 6	**Section of Report**
(a) details of the specialist who prepared the report; and the expertise of that specialist to compile a specialist report including a *curriculum vitae*;	**Section 1.2.** **Appendix B**
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	**Appendix B**
(c) an indication of the scope of, and the purpose for which, the report was prepared;	**Section** Error! Reference source not found. **Appendix A**
(cA) an indication of the quality and age of base data used for the specialist report;	**Section** Error! Reference source not found.. **Section** Error! Reference source not found..
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	**Section 6.** **Section 8.**
(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	**Section 1.4** **Section** Error! Reference source not found..
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	**Section** Error! Reference source not found.. **Appendix C**
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	**Section 6.**
(g) an identification of any areas to be avoided, including buffers;	**Section** Error! Reference source not found.. **Section** Error! Reference source not found..
(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	**Section** Error! Reference source not found..
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	**Section** Error! Reference source not found..
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives on the environment or activities;	**Section** Error! Reference source not found. **Section** Error! Reference source not found.

(k) any mitigation measures for inclusion in the EMPr;	**Section** Error! Reference source not found.**.**
(l) any conditions for inclusion in the environmental authorisation;	No specific conditions relating to the visual environment need to be included in the environmental authorisation (EA)
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	**Section** Error! Reference source not found.
(n) a reasoned opinion— i. whether the proposed activity, activities or portions thereof should be authorised; iA. Regarding the acceptability of the proposed activity or activities; and ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr or Environmental Authorization, and where applicable, the closure plan;	**Section 11.1**
(o) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	No feedback has yet been received from the public participation process regarding the visual environment
(p) any other information requested by the competent authority	No information regarding the visual study has been requested from the competent authority to date.
(2) Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	**N/A**

CAMDEN GREEN ENERGY (RF) PTY LTD

PROPOSED CONSTRUCTION OF THE CAMDEN 1 GREEN HYDROGEN AND AMMONIA FACILITY NEAR ERMELO, MPUMALANGA PROVINCE

VISUAL IMPACT ASSESSMENT REPORT – EIA PHASE

Executive Summary

Camden Green Energy (RF) Pty Ltd (hereafter referred to as "Camden Green Energy") is proposing to develop a green hydrogen and ammonia facility ("Facility") near Ermelo in Mpumalanga Province. The proposed Facility is intended to obtain green energy from the nearby planned Camden renewable energy complex comprising two Wind Energy Facilities and one Solar PV Facility (the Camden Renewable Energy Complex), including their respective grid connection infrastructure.

The proposed Facility will be subject to a full Environmental Impact Assessment (EIA) process in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) as amended and EIA Regulations, 2014 (as amended). Accordingly, an EIA process as contemplated in terms of the EIA Regulations (2014, as amended) is being undertaken in respect of the proposed Facility. The competent authority for this EIA is the provincial Department of Economic Development, Environment and Tourism.

The VIA has determined that the study area has a somewhat mixed visual character, transitioning from the heavily transformed urban / industrial landscape associated with Camden Power Station, Camden residential area and Mooiplaats Colliery in the north-east to a more rural / pastoral character across the remainder of the study area. Hence, although the proposed Facility would alter the visual character and contrast with this rural / pastoral character, the location of the proposed Facility in close proximity to Camden Power Station and the associated power lines, mining activity and rail infrastructure will significantly reduce the level of contrast.

A broad-scale assessment of visual sensitivity, based on the physical characteristics of the study area, economic activities and land use that predominates, determined that the area would have a **low** visual sensitivity. However, an important factor contributing to the visual sensitivity of an area is the presence, or absence of visual receptors that may value the aesthetic quality of the landscape and depend on it to produce revenue and create jobs.

One formal protected area (Langcarel Private Nature Reserve) was identified within the study area, although the area is entirely managed for commercial agriculture with no conservation activities present and no evidence of public access to the site. Any landscape value or visual appeal has therefore been reduced. The broader area is not typically valued for its tourism

significance and relatively few leisure-based tourism facilities (lodges/accommodation facilities) were identified inside the study area. This factor in conjunction with the high levels of transformation in the north-east have reduced the overall visual sensitivity of the broader area.

A total of ten (10) potentially sensitive receptors were identified in the combined study area for the two site alternatives, none of which was found to be sensitive. All of the identified receptors are believed to be farmsteads that are regarded as *potentially* sensitive visual receptors as the proposed development will likely alter natural or semi-natural vistas experienced from these locations. Six of the receptor locations are outside the viewshed for both site alternatives, and the remaining receptors would experience either moderate, low or no visual impacts as a result of Facility development on Site Option 1 or Site Option 2. However, all but two of these receptors are located within the Camden I Wind Energy Facility (WEF) project area and it has been confirmed by the Proponent that the relevant land owners are in support of the overall Camden Renewable Energy Complex project. As such, they are not expected to perceive the proposed development in a negative light and this would reduce the level of visual impact experienced at these locations.

A preliminary assessment of overall impacts revealed that impacts associated with all the proposed Camden I Green Hydrogen and Ammonia Facility (post mitigation) are of low significance during both construction and decommissioning phases. During operation however, visual impacts (post mitigation) from the Camden I WEF would be of moderate significance with relatively few mitigation measures available to reduce the visual impact.

Considering the presence of existing and proposed mining activity and electrical generation and distribution infrastructure, the introduction of this type of facility in the area will result in further change in the visual character of the area and alteration of the inherent sense of place, extending an increasingly industrial character into the broader area and resulting in significant cumulative impacts. It is however anticipated that these impacts could be mitigated to acceptable levels with the implementation of the recommended mitigation measures. In light of this, cumulative impacts have been rated as moderate.

A comparative assessment of site alternatives for the Facility was undertaken in order to determine which of the alternatives would be preferred from a visual perspective. No fatal flaws were identified for either of the proposed site alternatives and both alternatives were found to be favourable.

From a visual perspective therefore, the proposed Camden I Green Hydrogen and Ammonia Facility is deemed acceptable and the Environmental Authorisation (EA) should be granted. SiVEST is of the opinion that the visual impacts associated with the construction, operation and decommissioning phases can be mitigated to acceptable levels provided the recommended mitigation measures are implemented.

CAMDEN GREEN ENERGY (RF) PTY LTD

PROPOSED CONSTRUCTION OF THE CAMDEN 1 GREEN HYDROGEN AND AMMONIA FACILITY NEAR ERMELO, MPUMALANGA PROVINCE

VISUAL IMPACT ASSESSMENT REPORT – EIA PHASE

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GLOSSARY OF TERMS

ABBREVIATIONS

BA	Basic Assessment
BESS	Battery Energy Storage System
DBAR	Draft Basic Assessment Report
DEIAR	Draft Environmental Impact Assessment Report
DFFE	Department of Forestry, Fisheries and Environment
DM	District Municipality
DMRE	Department of Mineral Resources and Energy
DSR	Draft Scoping Report
DTM	Digital Terrain Model
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
FEIAR	Final Environmental Impact Assessment Report
FSR	Final Scoping Report
GIS	Geographic Information System
I&AP	Interested and/or Affected Party
IPP	Independent Power Producer
LM	Local Municipality
kV	Kilovolt
MW	Megawatt
NGI	National Geo-Spatial Information
REF	Renewable Energy Facility
REIPPP	Renewable Energy Independent Power Producer Programme
SACAA	South African Civil Aviation Authority
SANBI	South African National Biodiversity Institute
SEF	Solar Energy Facility
VIA	Visual Impact Assessment
VR	Visual Receptor
WEF	Wind Energy Facility

DEFINITIONS

Anthropogenic feature: An unnatural feature resulting from human activity.

Cultural landscape: A representation of the combined worlds of nature and of man illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal (World Heritage Committee, 1992).

Sense of place: The unique quality or character of a place, whether natural, rural or urban. It relates to uniqueness, distinctiveness or strong identity.

Scenic route: A linear movement route, usually in the form of a scenic drive, but which could also be a railway, hiking trail, horse-riding trail or 4x4 trail.

Sensitive visual receptors: An individual, group or community that is subject to the visual influence of the proposed development and is adversely impacted by it. They will typically include locations of human habitation and tourism activities.

Sky Space: The area in which the turbine rotors would rotate.

Slope Aspect: Direction in which a hill or mountain slope faces.

Study area / Visual Assessment Zone: The area with a zone of 10km from the outer boundary of the proposed WEF application site, and 5km from the proposed grid connection corridor alternatives.

Viewpoint: A point in the landscape from where a particular project or feature can be viewed.

Viewshed / Visual Envelope: The geographical area which is visible from a particular location.

Visual character: The pattern of physical elements, landforms and land use characteristics that occur consistently in the landscape to form a distinctive visual quality or character.

Visual contrast: The degree to which the development would be congruent with the surrounding environment. It is based on whether or not the development would conform with the land use, settlement density, forms and patterns of elements that define the structure of the surrounding landscape.

Visual exposure: The relative visibility of a project or feature in the landscape.

Visual impact: The effect of an aspect of the proposed development on a specified component of the visual, aesthetic or scenic environment within a defined time and space.

Visual receptors: An individual, group or community that is subject to the visual influence of the proposed development but is not necessarily adversely impacted by it. They will typically include commercial activities, residents and motorists travelling along routes that are not regarded as scenic.

Visual sensitivity: The inherent sensitivity of an area to potential visual impacts associated with a proposed development. It is based on the physical characteristics of the area (visual character), spatial distribution of potential receptors, and the likely value judgements of these receptors towards the new development, which are usually based on the perceived aesthetic appeal of the area.

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VISUAL IMPACT ASSESSMENT REPORT – EIA PHASE

1 INTRODUCTION

Camden Green Energy (RF) Pty Ltd (hereafter referred to as "Camden Green Energy") is proposing to develop a green hydrogen and ammonia production facility ("Facility") near Ermelo in Mpumalanga Province. The proposed Facility is intended to obtain green energy from the nearby planned Camden renewable energy complex comprising two Wind Energy Facilities and one Solar PV Facility (the Camden Renewable Energy Complex). The proposed development will be subject to a full Environmental Impact Assessment (EIA) process in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) as amended and EIA Regulations, 2014 (as amended). Accordingly, an EIA process as contemplated in terms of the EIA Regulations (2014, as amended) is being undertaken in respect of the proposed Facility. The competent authority for this EIA is the provincial Department of Economic Development, Environment and Tourism.

Specialist studies have been commissioned to assess and verify the proposed development under the new Gazetted specialist protocols[1].

1.1 Scope and Objectives

This Visual Impact Assessment (VIA) is being undertaken as part of the EIA process. The aim of the VIA is to identify potential visual issues associated with the development of the proposed Facility, as well as to determine the potential extent of visual impacts. This will be achieved by determining the character of the visual environment and identifying areas of potential visual sensitivity that may be subject to visual impacts. The visual assessment focuses on the potentially sensitive visual receptor locations, and provides an assessment of the magnitude and significance of the visual impacts associated with the Facility.

[1] Formally gazetted on 20 March 2020 (GN No. 320)

1.2 Specialist Credentials

This VIA was undertaken by Kerry Schwartz, a GIS specialist with more than 20 years' experience in the application of GIS technology in various environmental, regional planning and infrastructural projects. Kerry's GIS and spatial analysis skills have been extensively utilised in projects throughout South Africa and in other Southern African countries. Kerry has also undertaken many VIAs in recent years and the relevant VIA project experience is listed in the table below.

A Curriculum Vitae and a signed specialist statement of independence are included in Appendix- A of this specialist assessment.

Table 1: Relevant Project Experience

Environmental Practitioner	Kerry Schwartz (for and on behalf of SiVEST SA)
Contact Details	klschwartz@slrconsulting.com
Qualifications	BA (Geography), University of Leeds 1982
Expertise to carry out the Visual Impact Assessment.	**Visual Impact Assessments:** ▪ VIA (EIA) for the proposed Oya Energy Facility near Matjiesfontein, Western Cape Province; ▪ VIA (BA) for the proposed construction of 132kV power lines to serve the authorised Loeriesfontein 3 PV Solar Energy Facility near Loeriesfontein, Northern Cape Province; ▪ VIA (BA) for the proposed construction of the Oya 132kV power line near Matjiesfontein, Northern and Western Cape Provinces; ▪ VIAs (BA) for the proposed Gromis WEF and associated Grid Connection Infrastructure, near Komaggas, Northern Cape Province. ▪ VIAs (BA) for the proposed Komas WEF and associated Grid Connection Infrastructure, near Komaggas, Northern Cape Province. ▪ VIAs (EIA) for the proposed Koup 1 and Koup 2 WEFs, near Beaufort West, Western Cape Province; ▪ VIAs (Scoping and Impact Phase) for the proposed Mooi Plaats, Wonderheuvel and Paarde Valley solar PV plants near Noupoort in the Northern and Eastern Cape Provinces. ▪ VIAs (Scoping and Impact Phase) for the proposed Sendawo 1, 2 and 3 solar PV energy facilities near Vryburg, North West Province. ▪ VIAs (Scoping and Impact Phase) for the proposed Tlisitseng 1 and 2 solar PV energy facilities near Lichtenburg, North West Province. ▪ VIA for the proposed Nokukhanya 75MW Solar PV Power Plant near Dennilton, Limpopo Province. ▪ VIAs (Scoping and Impact Phase) for the proposed Helena 1, 2 and 3 75MW Solar PV Energy Facilities near Copperton, Northern Cape Province.

	▪ VIA (EIA) for the proposed Paulputs WEF near Pofadder in the Northern Cape Province. ▪ VIA (EIA) for the proposed development of the Rondekop WEF near Sutherland in the Northern Cape Province. ▪ VIA (BA) for the proposed development of the Tooverberg WEF near Touws Rivier in the Western Cape Province. ▪ VIA (BA) for the proposed development of the Kudusberg WEF near Sutherland, Northern and Western Cape Provinces. ▪ VIA (Scoping and Impact Phase) for the proposed development of the Kuruman Wind Energy Facility near Kuruman, Northern Cape Province. ▪ VIA (Scoping and Impact Phase) for the proposed development of the Phezukomoya Wind Energy Facility near Noupoort, Northern Cape Province. ▪ VIA (Scoping and Impact Phase) for the proposed development of the San Kraal Wind Energy Facility near Noupoort, Northern Cape Province. ▪ VIAs (Scoping and Impact Phase) for the proposed Graskoppies Wind Farm near Loeriesfontein, Northern Cape Province. ▪ VIAs (Scoping and Impact Phase) for the proposed Hartebeest Leegte Wind Farm near Loeriesfontein, Northern Cape Province. ▪ VIAs (Scoping and Impact Phase) for the proposed Ithemba Wind Farm near Loeriesfontein, Northern Cape Province. ▪ VIAs (Scoping and Impact Phase) for the proposed Xha! Boom Wind Farm near Loeriesfontein, Northern Cape Province ▪ Visual Impact Assessments for 5 Solar Power Plants in the Northern Cape ▪ Visual Impact Assessments for 2 Wind Farms in the Northern Cape ▪ Visual Impact Assessment for Mookodi Integration Project (132kV distribution lines)

1.3 Assessment Methodology

This VIA is based on a combination of desktop-level assessment supported by field-based observation.

1.3.1 Physical landscape characteristics

Physical landscape characteristics such as topography, vegetation and land use are important factors influencing the visual character and visual sensitivity of the study area. Baseline information about the physical characteristics of the study area was initially sourced from spatial databases provided by NGI, the South African National Biodiversity Institute (SANBI) and the

South African National Land Cover Dataset (Geoterraimage – 2018). The characteristics identified via desktop means were later verified during the site visit.

1.3.2 Identification of sensitive receptors

Visual receptor locations and routes that are sensitive and/or potentially sensitive to the visual intrusion of the proposed development were identified and assessed in order to determine the impact of the proposed development on these receptor locations.

1.3.3 Fieldwork and photographic review

A two (2) day site visit was undertaken between the 17th and the 18th of September 2019 (late winter). The purpose of the site visit was to:

- verify the landscape characteristics identified via desktop means;
- conduct a photographic survey of the study area;
- verify, where possible, the sensitivity of visual receptor locations identified via desktop means;
- eliminate receptor locations that are unlikely to be influenced by the proposed development;
- identify any additional visually sensitive receptor locations within the study area; and
- inform the impact rating assessment of visually sensitive receptor locations (where possible).

1.3.4 Visual / Landscape Sensitivity

GIS technology was used to identify any specific areas of potential visual sensitivity affecting the site alternatives for the Facility. These would be areas where the placement of the proposed facility will result in the greatest probability of visual impacts on potentially sensitive visual receptors.

In addition, the National Environmental Screening Tool[2] was examined to determine any relative landscape sensitivity in respect of the proposed development.

1.3.5 Impact Assessment

A rating matrix was used to provide an objective evaluation of the significance of the visual impacts associated with the proposed development, both before and after implementing mitigation measures. Mitigation measures were identified (where possible) in an attempt to minimise the visual impact of the proposed development. The rating matrix considers a number of different factors including geographical extent, probability, reversibility, irreplaceable loss of

[2] https://screening. environment.gov.za/screeningtool/

resources, duration and intensity, in order to assign a level of significance to the visual impact of the project.

A separate rating matrix was used to assess the visual impact of the proposed development on each visual receptor location as identified. This matrix is based on three (3) parameters, namely the distance of an identified visual receptor from the proposed development, the presence of screening factors and the degree to which the proposed development would contrast with the surrounding environment.

1.3.6 Consultation with I&APs

Continuous consultation with Interested and Affected Parties (I&APs) undertaken during the public participation process will be used (where available) to help establish how the proposed development will be perceived by the various receptor locations and the degree to which the impact will be regarded as negative. Although I&APs have not yet provided any feedback in this regard, feedback received during the EIA phase will be addressed in later updates of this report.

1.4 Sources of Information

The main sources of information utilised for this VIA included:

- Project description for the proposed development provided by the proponent;
- Elevation data from 25m Digital Elevation model (DEM) from the National Geo-Spatial Information (NGI);
- 1:50 000 topographical maps of South Africa from the NGI;
- Land cover and land use data extracted from the 2020 South African National Land-Cover Dataset provided by GEOTERRAIMAGE;
- Vegetation classification data extracted from the South African National Biodiversity Institute's (SANBI's) VEGMAP 2018 dataset;
- Google Earth Satellite imagery 2021;
- South African Renewable Energy EIA Application Database from DFFE (incremental release Quarter 2 2021);
- South African Protected Areas Database from DFFE (incremental release Quarter 2 2021);
- The National Web-Based Environmental Screening Tool, Department of Forestry, Fisheries and Environment (DFFE);

2 ASSUMPTIONS AND LIMITATIONS

- Given the nature of the receiving environment and the assumed height of certain components of the Facility, the study area or visual assessment zone is assumed to encompass an area of 5km from the two proposed site alternatives. This limit on the

visual assessment zone relates to the fact that visual impacts decrease exponentially over distance. Thus although the higher elements of the Facility may theoretically still be visible beyond 5km, the degree of visual impact would diminish considerably. As such, the need to assess the impact on potential receptors beyond this distance would not be warranted.

- The identification of visual receptors involved a combination of desktop assessment as well as field-based observation. Initially Google Earth imagery was used to identify potential receptors within the study area. Where possible, these receptor locations were verified and assessed during a site visit which was undertaken in mid-September 2019. Due to the extent of the study area however and the number of receptors that could potentially be sensitive to the proposed development, it was not possible to visit or verify every potentially sensitive visual receptor location. As such, a number of broad assumptions have been made in terms of the likely sensitivity of the receptors to the proposed development.
- It should be noted that not all receptor locations would necessarily perceive the proposed development in a negative way. This is usually dependent on the use of the facility, the economic dependency of the occupants on the scenic quality of views from the facility and on people's perceptions of the value of "Green Energy". Sensitive receptor locations typically include sites such as tourism facilities and scenic locations within natural settings which are likely to be adversely affected by the visual intrusion of the proposed development. Thus, the presence of a receptor in an area potentially affected by the proposed development does not necessarily mean that any visual impact will be experienced.
- The potential visual impact at each sensitive visual receptor location was assessed using a matrix developed for this purpose. The matrix is based on three main parameters relating to visual impact and, although relatively simplistic, it provides an indicative assessment of the degree of visual impact likely to be experienced at each receptor location as a result of the proposed development. It is however important to note the limitations of quantitatively assessing a largely subjective or qualitative type of impact and as such the matrix should be seen merely as a representation of the likely visual impact at a receptor location.
- As stated, the exact status of all the receptors could not be verified during the field investigation and as such the receptor impact rating was largely undertaken via desktop means. Where details of the levels of leisure / tourism activities on different sectors of the relevant farms are not known, the impact rating matrix for these receptors is based on the assumed location of the main accommodation complex on each property.
- Where receptors have been identified within the Camden I Renewable Energy project area, it has been assumed that the land owners or residents at these locations support the proposed WEF development and would not view the project in a negative light.
- Based on the project description provided by the Proponent, all analysis for this VIA is based on a worst-case scenario where the highest structure associated with the Facility (Air Separation Unit) is assumed to be 40m.

- Due to the varying scales and sources of information; maps may have minor inaccuracies. Terrain data for this area, derived from the National Geo-Spatial Information (NGI)'s 25m Digital Elevation Model (DEM), is fairly coarse and somewhat inconsistent and as such, localised topographic variations in the landscape may not be reflected on the DEM used to generate the viewshed(s) and visibility analysis conducted in respect of the proposed development.
- In addition, the viewshed / visibility analysis does not take into account any existing vegetation cover or built infrastructure which may screen views of the proposed development. This analysis should therefore be seen as a conceptual representation or a worst-case scenario.
- No feedback regarding the visual environment has been received from the public participation process to date. Any feedback from the public during the review period of the Draft EIA Report (DEIR) for the Facility will however be incorporated into further drafts of this report, if relevant.
- At the time of undertaking the visual study no information was available regarding the type and intensity of lighting that will be required for the proposed Facility and therefore the potential impact of lighting at night has not been assessed at a detailed level. General measures to mitigate the impact of additional light sources on the ambiance of the nightscape have however been provided.
- In the light of the fact that green hydrogen and ammonia facilities are still relatively new in South Africa, this report is based on assumptions as to the likely generic impacts associated with the proposed development.
- This study includes an assessment of the potential cumulative impacts of other renewable energy and infrastructural / mining developments on the existing landscape character and on the identified sensitive receptors. This assessment is based on the information available at the time of writing the report and where information has not been available, broad assumptions have been made as to the likely impacts of these developments.
- It should be noted that the fieldwork for this study was undertaken in mid-September 2019, during late winter which is characterised by low levels of rainfall and reduced vegetation cover. In these conditions, increased levels of visual impact will be experienced from receptor locations in the surrounding area.
- The overall weather conditions in the study area have certain visual implications and are expected to affect the visual impact of the proposed development to some degree. In clear weather conditions, the Facility would present a greater contrast with the surrounding environment than they would on an overcast day. Although the field investigation was conducted during clear weather conditions, localised pollution in the study area resulted in relatively hazy skies which would reduce the visibility of the Facility.

3 TECHNICAL DESCRIPTION

3.1 Project Location

The proposed Facility is located between 16km and 18km south-east of Ermelo in Mpumalanga Province (**Figure 1**) and is within the Msukaligwa Local Municipality, in the Gert Sibande District Municipality.

Two possible sites are presently being considered for the Facility (**Figure 2**), each of which is ~25 hectares in extent. The affected land parcels are as follows:

Facility Option 1: Portion 1 of the Farm Welgelegen No 322; and
Facility Option 2: Portion 2 of the Farm Welgelegen No 322.

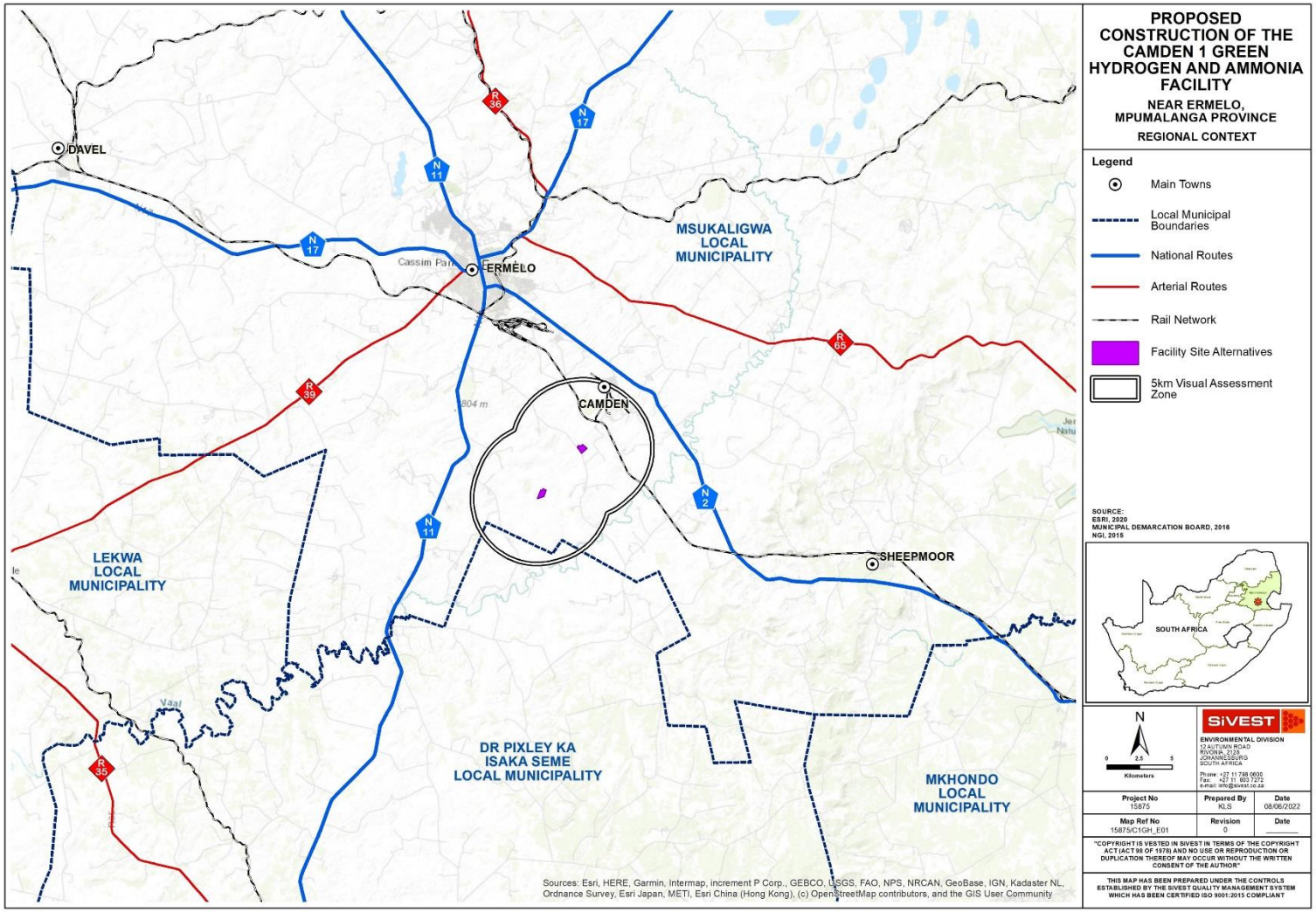


Figure 1: Proposed Facility in the Regional Context

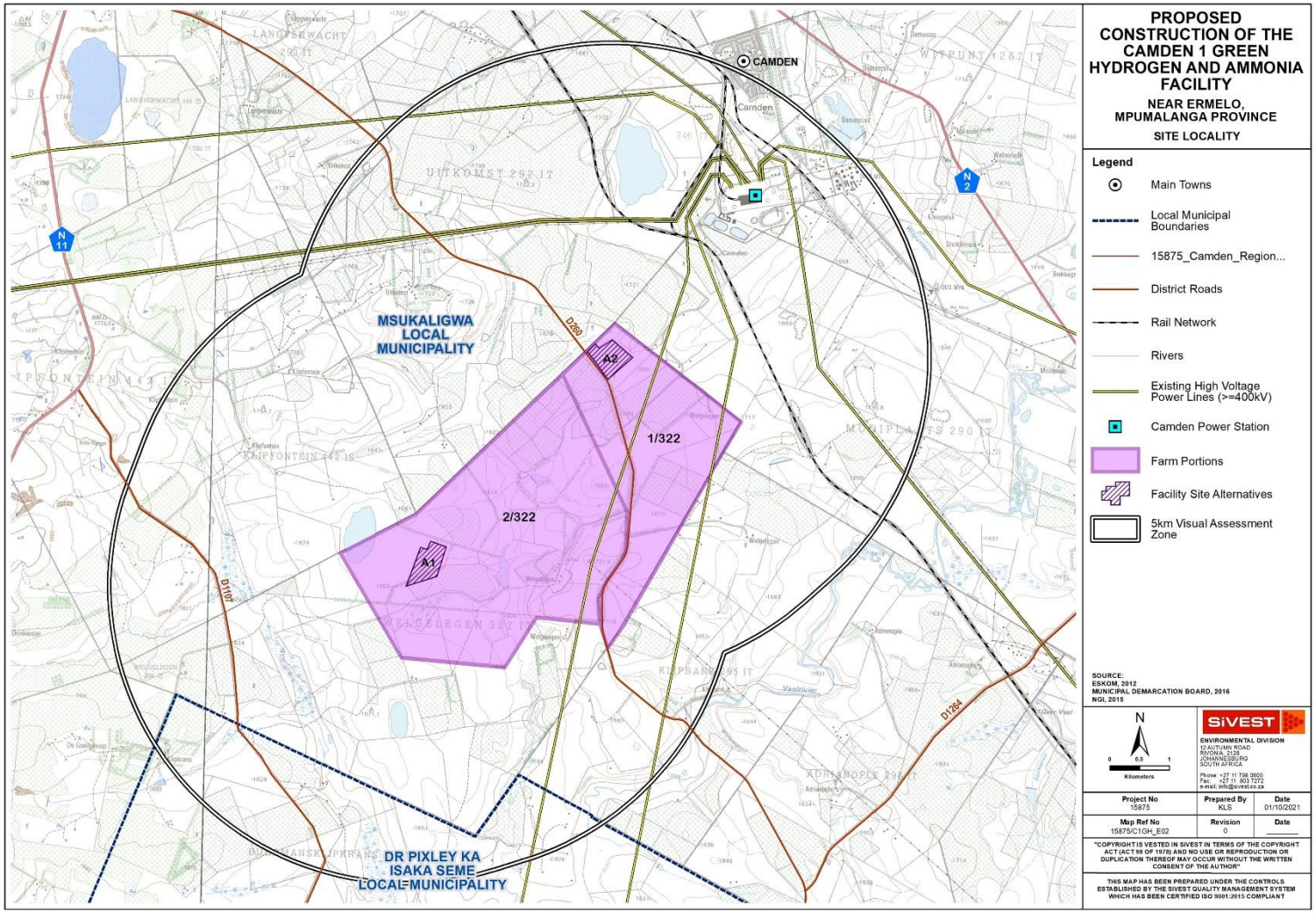


Figure 2: Site Locality

3.2 Project Technical Details

The proposed Facility is being developed for the production of commercially usable green hydrogen and ammonia. “Green” Hydrogen and ammonia production differs from traditional production technologies in that the process relies exclusively on renewable resources to provide the energy required for the process. This development is intended to obtain Renewable Energy from the adjacent proposed Camden Renewable Energy Complex development towards a green energy supply.

The production, storage and transport of hydrogen and ammonia is an industry that is undergoing research and development and technological solutions are constantly being improved. Accordingly, the Facility description provided below is based on technological solutions presently available.

The Facility is expected to comprise the following components

- Water reservoir;
- Water treatment unit;
- Electrolyser unit;
- Air separation unit;
- Ammonia processing unit;
- Liquid air storage system;
- Liquid ammonia storage tank; and
- Hydrogen storage tank;Feedstock and product storage;
- Utilities;
- Gantry and loading bay;
- On-site substation, Battery Energy Storage System and 132kV overhead power line linking the Facility to the Camden I Collector Substation. in turn connecting to the Eskom Camden power station.

In addition, the following ancillary infrastructure is associated with the proposed Facility:

- Electrical infrastructure required for power supply to the facility.
- Temporary and permanent laydown areas required for temporary storage and assembly of components and materials.
- Access road/s to the site and internal roads between project components, with a width of up to up to 6m wide respectively.
- A temporary concrete batching plant (if necessary).
- Temporary staff accommodation.
- Fencing and lighting.
- Lightning protection.
- Telecommunication infrastructure.
- Stormwater channels.
- Water pipelines.
- Offices.

- Operational control centre.
- Operation and Maintenance Area / Warehouse / workshop.
- Ablution facilities.
- A gate house.
- Control centre, offices, warehouses.
- Security building.

3.2.1 Site Alternatives

Two possible sites are being considered for the Facility, both of which are located close to the Camden I Collector substation site alternatives serving the proposed Camden I WEF and SEF. (**Figure 3**).

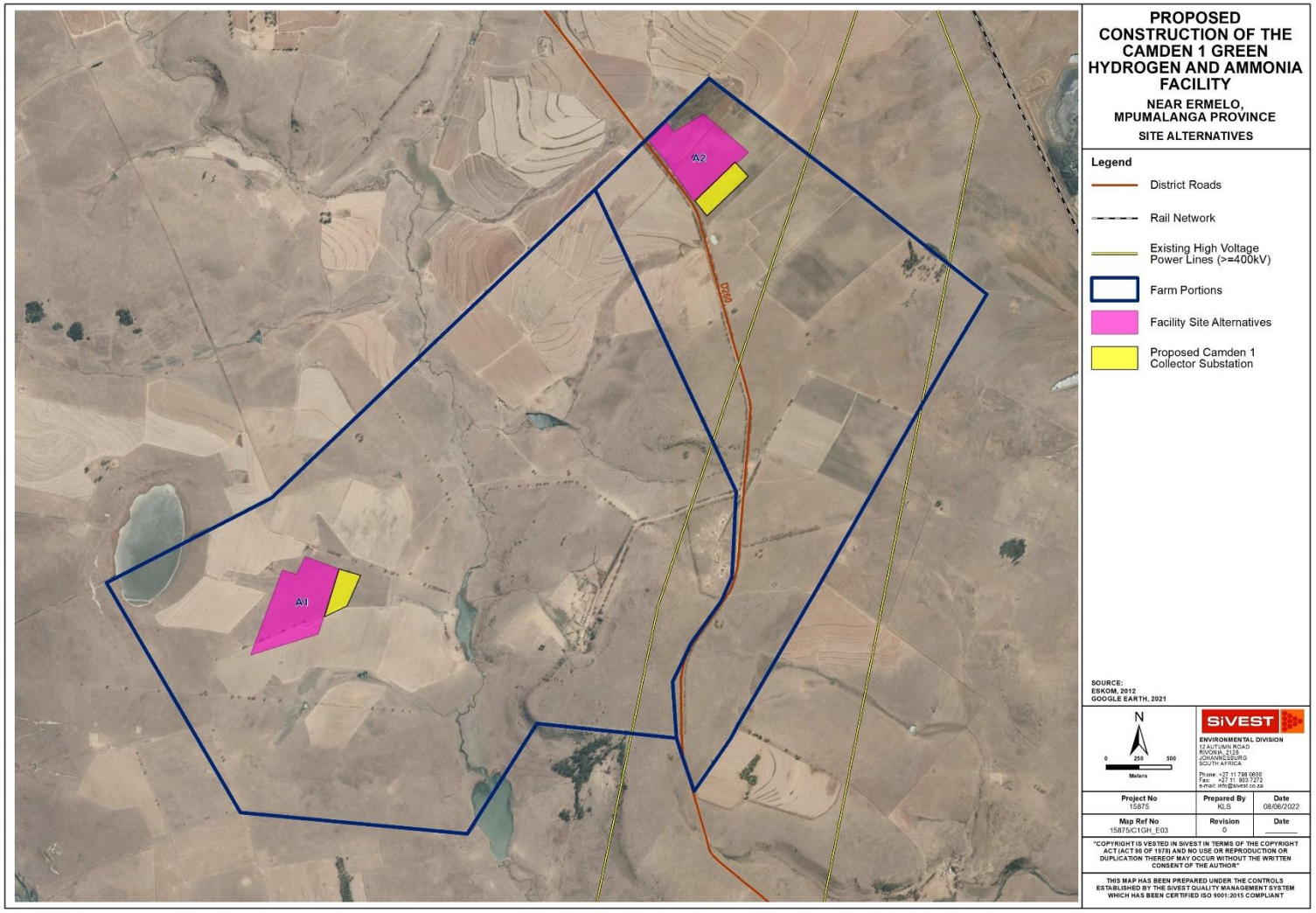


Figure 3: Facility site alternatives

4 LEGAL REQUIREMENTS AND GUIDELINES

Key legal requirements pertaining to the proposed development are outlined below.

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), (NEMA) and the EIA Regulations 2014 (as amended), the proposed development includes listed activities which require a full Environmental Impact Assessment (EIA) to be undertaken. As part of the EIA process, the need for a VIA to be undertaken has been identified in order to assess the visual impact of the proposed Facility.

There is currently no legislation within South Africa that explicitly pertains to the assessment of visual impacts, however in addition to NEMA the following legislation has relevance to the protection of scenic resources:

- National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
- National Heritage Resources Act, 1999 (Act No. 25 of 1999)

Based on these Acts protected or conservation areas and sites or routes with cultural or symbolic value have been taken into consideration when identifying sensitive and potentially sensitive receptor locations and rating the sensitivity of the study area.

Accordingly, this specialist visual assessment has been undertaken in compliance with Appendix 6 of 2014 NEMA EIA Regulations (as amended).

5 FACTORS INFLUENCING VISUAL IMPACT

The degree of visibility of an object informs the level and intensity of the visual impact, but other factors also influence the nature of the visual impact. The landscape and aesthetic context of the environment in which the object is placed, as well as the perception of the viewer are also important factors

5.1 Visual environment

Green hydrogen and ammonia production facilities are not features of the natural environment but are rather a representation of human (anthropogenic) alteration. As such, these developments are likely to be perceived as visually intrusive when placed in largely undeveloped landscapes that have a natural scenic quality and where tourism activities are practised that are dependent on the enjoyment of, or exposure to, the scenic or aesthetic character of the area. Residents and visitors to these areas could perceive the development to be highly incongruous in this context and may regard the development as an unwelcome intrusion which degrades the natural character and scenic beauty of the area, and which could potentially even compromise the practising of tourism activities in the area. In this instance however, significant transformation in parts of the study area has resulted in considerable degradation of the scenic quality of the landscape.

The presence of other anthropogenic features associated with the built environment may not only obstruct views but also influence the perception of whether a development is a visual impact. In industrial areas for example, where other infrastructure and built form already exists, the visual environment could be considered to be 'degraded' and thus the introduction of a green hydrogen and ammonia production facility into this setting may be considered to be less visually intrusive than if there was no existing built infrastructure visible.

5.2 Subjective experience of the viewer

The perception of the viewer / receptor toward an impact is highly subjective and involves 'value judgements' on behalf of the receptor. The viewer's perception is usually dependent on the age, gender, activity preferences, time spent within the landscape and traditions of the viewer (Barthwal, 2002). Thus certain receptors may not consider this Facility to be a negative visual impact as this type of development could be associated with employment creation, social up-liftment and the general growth and progression of an area.

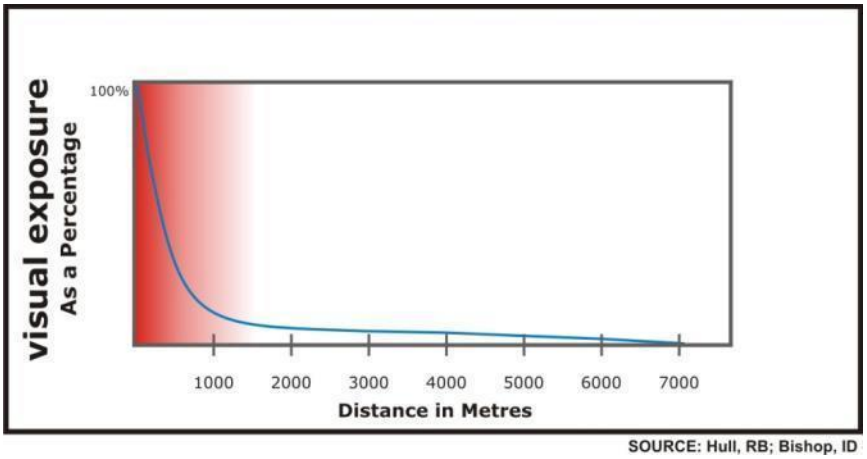
5.3 Type of visual receptor

Visual impacts can be experienced by different types of receptors, including people living or working, or driving along roads within the viewshed of the proposed development. The receptor type in turn affects the nature of the typical 'view', with views being permanent in the case of a residence or other place of human habitation, or transient in the case of vehicles moving along a road. The nature of the view experienced affects the intensity of the visual impact experienced.

It is important to note that visual impacts are only experienced when there are receptors present to experience this impact. Thus where there are no human receptors or viewers present, there are not likely to be any visual impacts experienced.

5.4 Viewing distance

Viewing distance is a critical factor in the experiencing of visual impacts, as beyond a certain distance, even large developments tend to be much less visible, and difficult to differentiate from the surrounding landscape. The visibility of an object is likely to decrease exponentially as one moves away from the source of impact, with the impact at 1 000m being considerably less than the impact at a distance of 500m **(Figure 4)**.



SOURCE: Hull, RB; Bishop, ID

Figure 4: Conceptual representation of diminishing visual exposure over distance

6 VISUAL CHARACTER AND SENSITIVITY OF THE STUDY AREA

Defining the visual character of an area is an important part of assessing visual impacts as this establishes the visual baseline or existing visual environment in which the development would be constructed. The visual impact of a development is measured by establishing the degree to which the development would contrast with, or conform to, the visual character of the surrounding area. The inherent sensitivity of the area to visual impacts or visual sensitivity is thereafter determined, based on the visual character, the economic importance of the scenic quality of the area, inherent cultural value of the area and the presence of visual receptors.

Physical and land use related characteristics, as outlined below, are important factors contributing to the visual character of an area.

6.1 Physical and Land Use Characteristics

6.1.1 Topography

The sites proposed for the Facility are located in an area largely characterised by a mix of undulating plains (**Figure 5**) and some greater relief in the form of higher lying plateaus intersected by river valleys ((**Figure 6**). Slopes across the study area are relatively gentle to moderate, with steeper slopes being largely associated with the more incised river valleys. The main water course in the study area is the Vaal River on the south-eastern boundary of the study area.

Both site alternatives are characterised by flat to gently undulating terrain.

Maps showing the topography and slopes within and in the immediate vicinity of the combined assessment area are provided in **Figure 7** and **Figure 8.**

Figure 5: View south-east from the D260 District Road in the north-western of the study area showing undulating terrain.

Figure 6: Areas of greater relief along the Vaal River to the south of the project area.

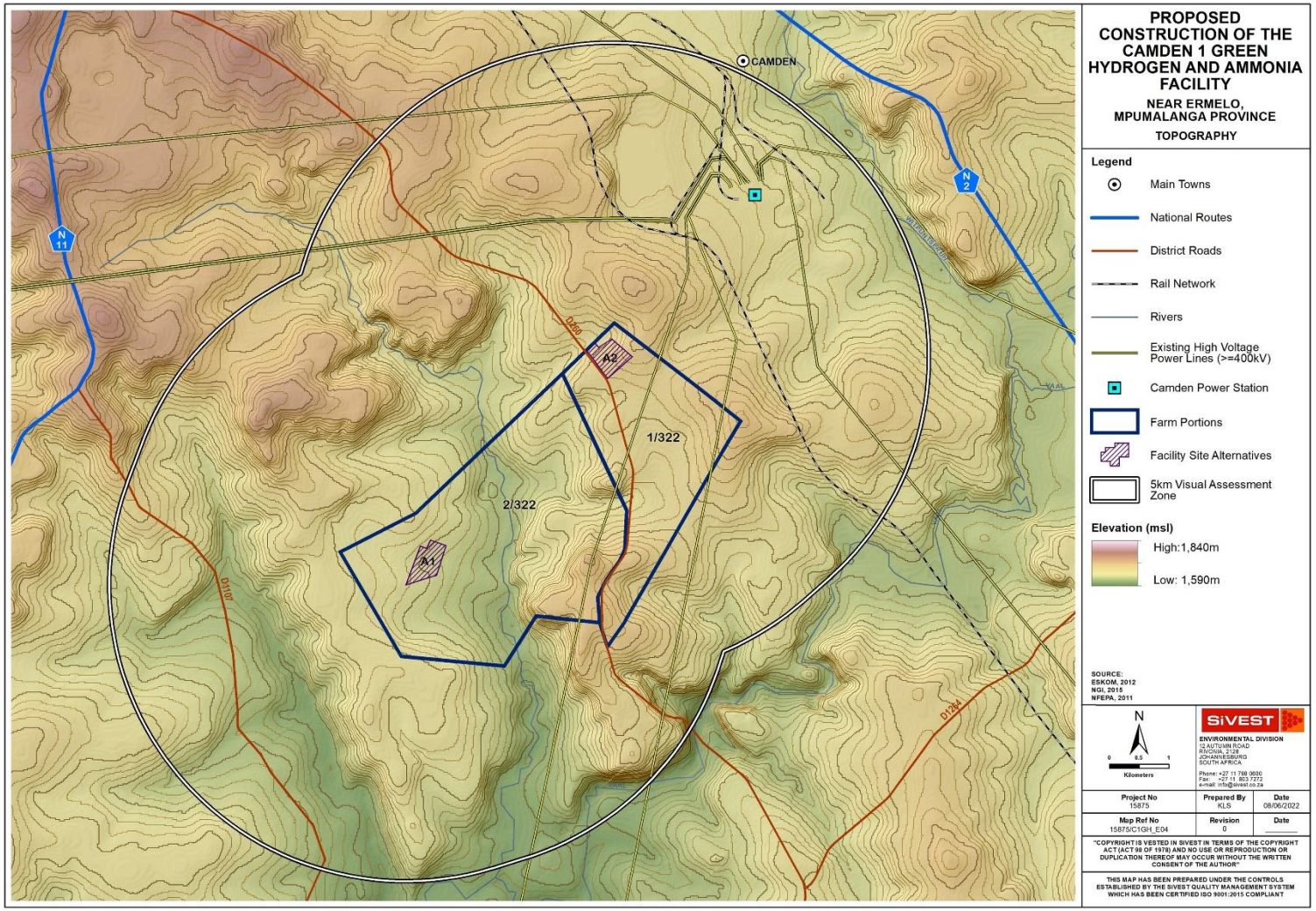


Figure 7: Topography of the study area

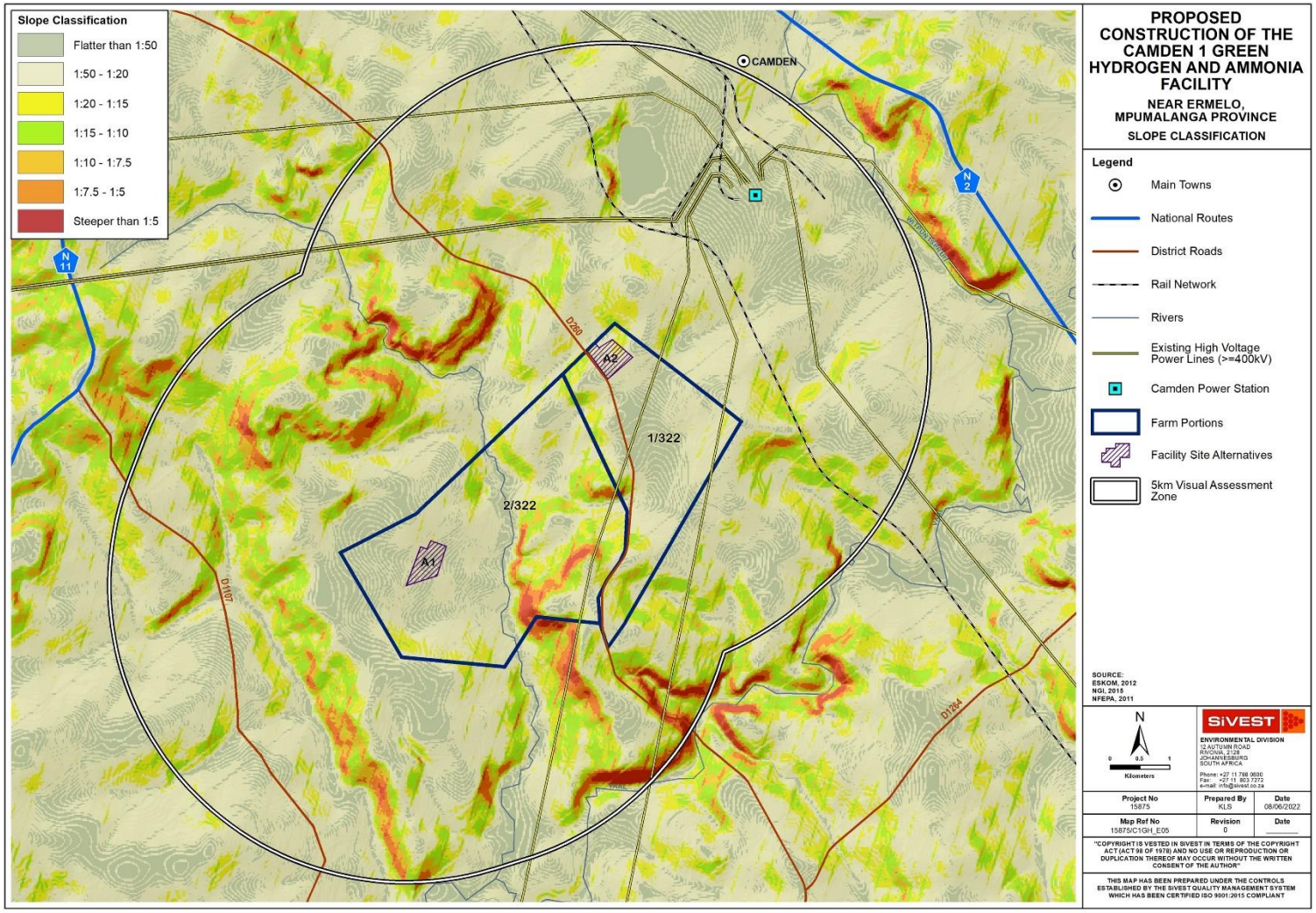


Figure 8: Slope classification

Visual Implications

The nature of the topography and the position of the viewer within the landscape are strong factors influencing the types of vistas typically present. Wider vistas will typically be experienced from higher-lying areas or hilltops and as such the view will be directly dependent on whether the viewer is within a valley bottom or in an area of higher elevation. Importantly in the context of this study, the same is true of objects placed at different elevations and within different landscape settings. Objects placed on high-elevation slopes or ridge tops would be highly visible, while those placed in valleys or enclosed plateaus would be far less visible.

The Facility will not however be located on high elevation slopes or on ridgelines and as such there will be minimal impact on the skyline. Localised topographic variations may limit views of the Facility from some parts of the study area, but across the remainder of the study area there would be limited topographic shielding to reduce the visibility of the taller elements of the proposed Facility from many of the locally occurring receptor locations.

GIS technology was used to undertake a preliminary visibility analysis for the proposed Facility based on the project information provided by the Proponent. Considering that, at present, there is very little detailed information regarding the actual layout of the components on site, or the actual height of each component, the analysis was based on a worst-case scenario where the assumed height of the tallest structure is 40m. The combined viewshed for both site alternatives is shown in **Figure 9**. From this it is evident that the taller structures on both site alternatives would be not be visible from many parts of the study are. Areas of highest visibility are largely contained within 2 to 3 km of the site alternatives.

Detailed topographic data was not available for the broader study area and as such the visibility analysis does not take into account any localised topographic variations which may constrain views. Additionally, the visibility analysis is based entirely on topography and does not consider any existing vegetation cover or built infrastructure which may screen views of the proposed development. This analysis should therefore be seen as a conceptual representation or a worst-case scenario.

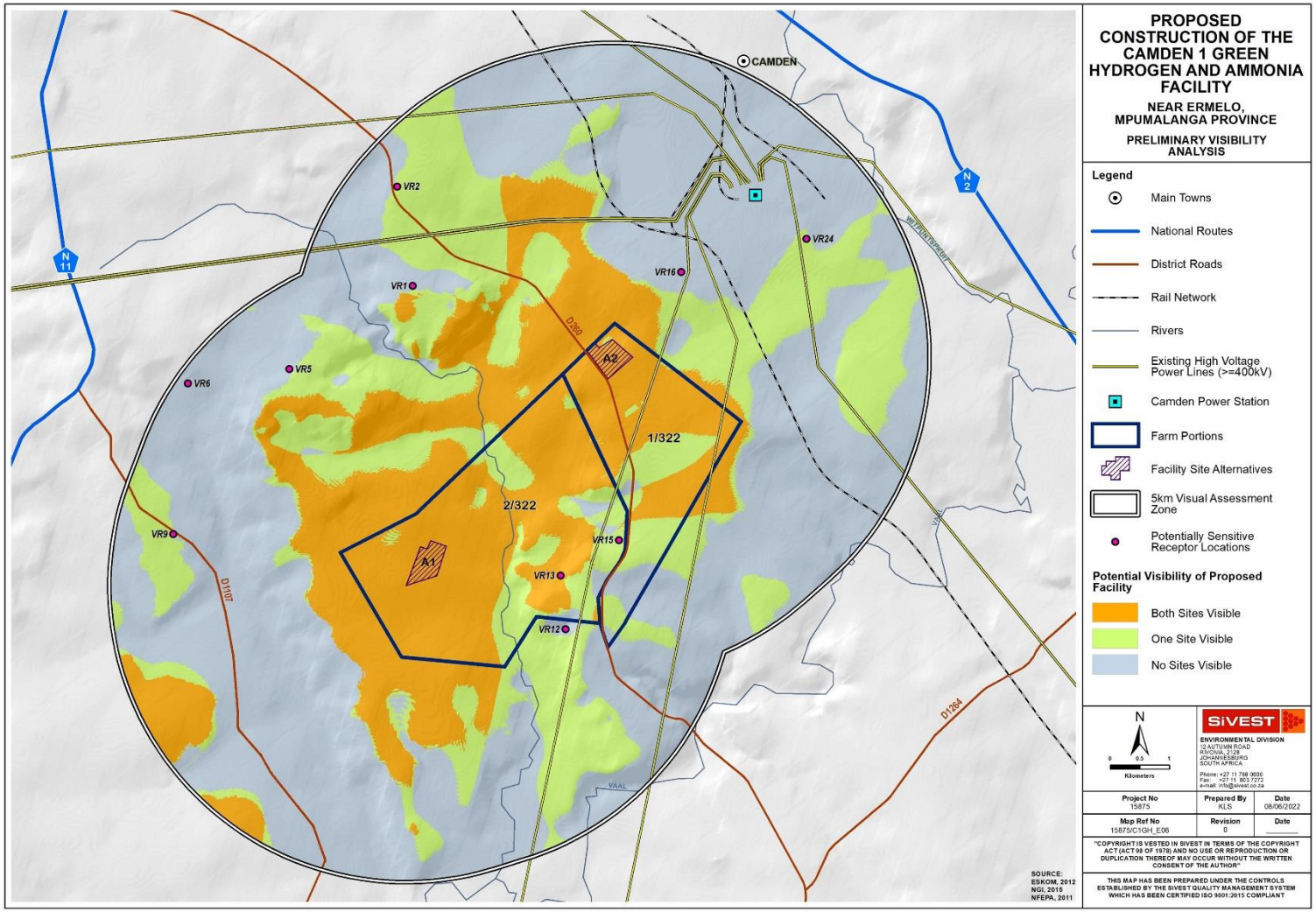


Figure 9: Potential visibility of the proposed Facility

6.1.2 Vegetation

According to Mucina and Rutherford (2006), the study area is largely dominated by two vegetation types, namely the Amersfoort Highveld Clay Grassland and the Eastern Highveld Grassland vegetation types (**Figure 10**). Amersfoort Highveld Clay Grassland in the north-western section of the study area (**Figure 11)** is associated with undulating grassland plains, largely dominated by a dense *Themeda triandra* sward, often forming a short lawn as a result of grazing. The Eastern Highveld Grassland, in much of the remainder of the study area is characterised by a short dense grassland with scattered rocky outcrops where some woody species occur.

Much of the natural vegetation cover has however been partly removed or transformed by cultivation as well as the presence of tall exotic trees scattered in clusters across the study area and around farmsteads **(Figure 12**).

Visual Implications

Although the proposed development will contrast significantly with the predominant vegetative cover in the area, scattered trees and shrubs will provide some degree of screening thus potentially reducing impacts experienced by the potentially sensitive receptors in the area. In addition, tall trees planted around farmhouses in the area may restrict views from these receptor locations.

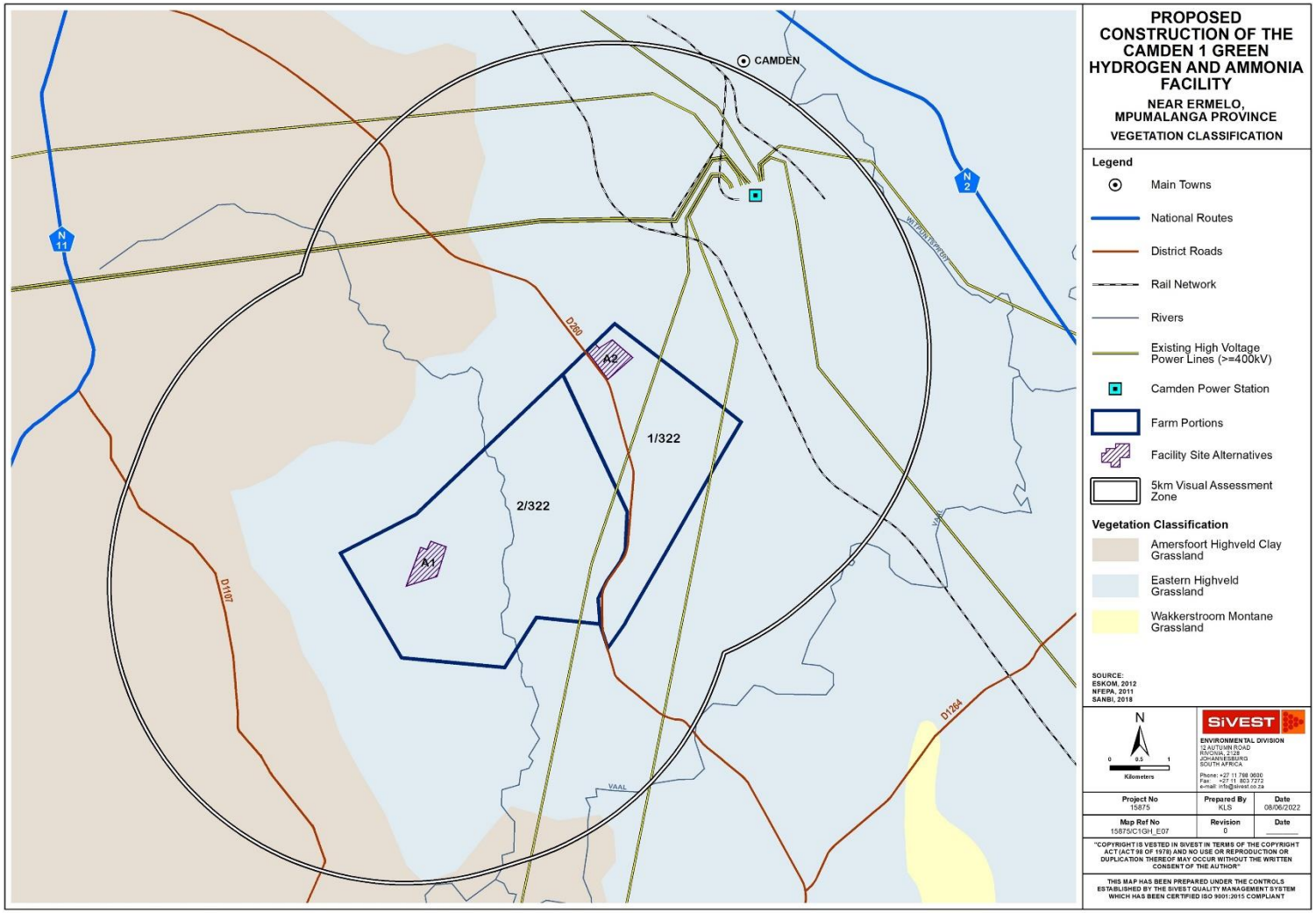


Figure 10: Vegetation Classification in the Study Area

Figure 11: Grasslands in the northern sector of the study area.

Figure 12: Clusters of trees scattered across the study area.

6.1.3 Land Use

According to the South African National Land Cover dataset (Geoterraimage 2020), much of the visual assessment area is classified as “Grassland” interspersed with significant areas of “Cultivation”. Small tracts of forested land and numerous water bodies are scattered throughout the study area (**Figure 13**).

Commercial agriculture is the dominant activity in the study area, with the main focus being maize cultivation (**Figure 14**) and livestock grazing (**Figure 15**). Although there are several farm portions in the study area, the density of rural settlement is relatively low, and farmsteads are scattered across the study area. Built form in much of the study area comprises farmsteads, ancillary farm buildings and workers’ dwellings (**Figure 16**), gravel access roads, telephone lines, fences and windmills.

High levels of human influence are however visible in the northern-eastern sector of the study area caused by the presence of Camden Power Station (**Figure 17**) and the adjacent Camden residential area and associated high voltage power lines (**Figure 18**). Mooiplaats Colliery, located north-east of the Site Option 2 also forms a distinctive anthropogenic feature in the otherwise pastoral landscape.

Other evidence of significant human influence includes road, rail, telecommunications and a network of high voltage electricity infrastructure (**Figure 19**).

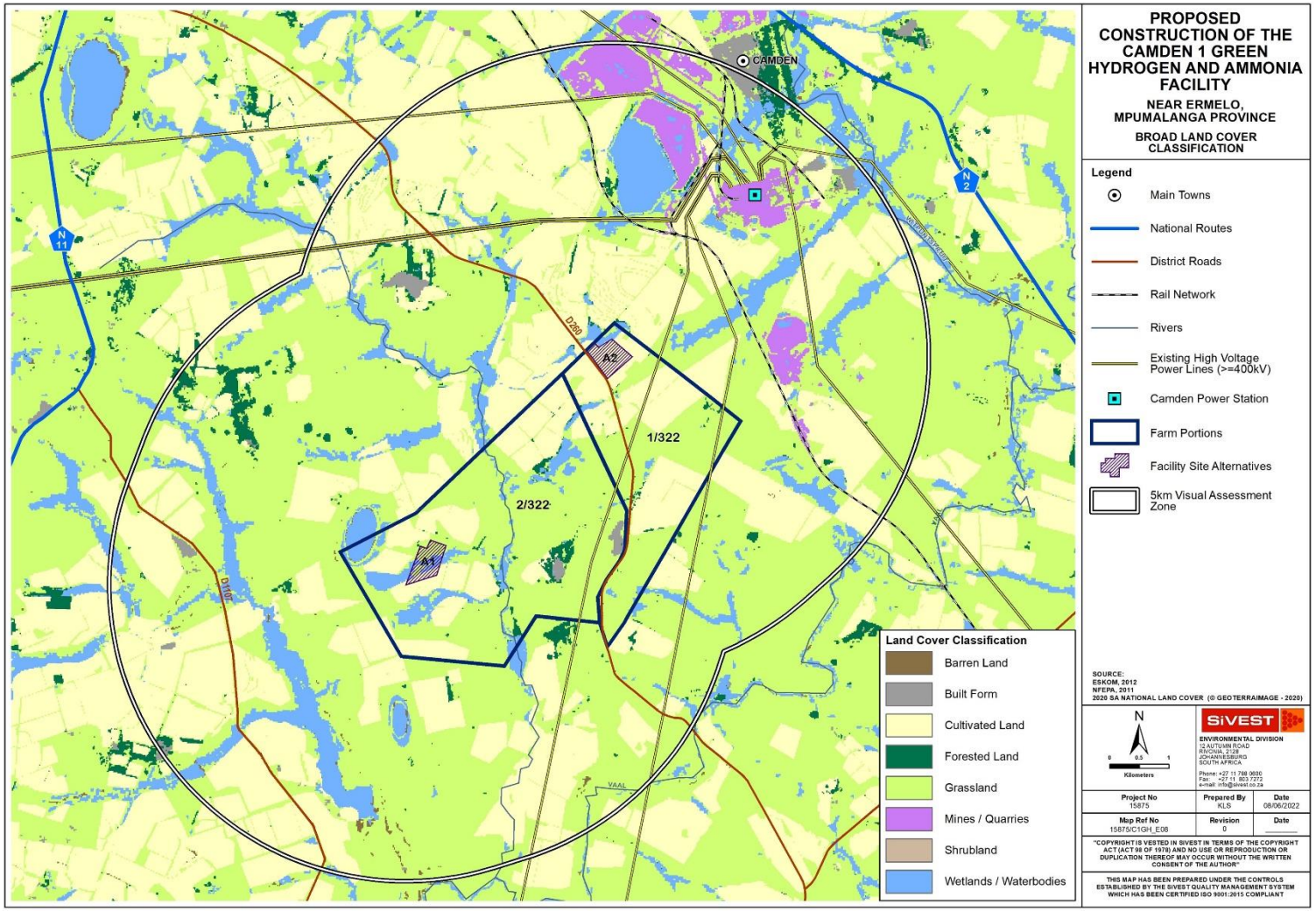


Figure 13: Land Cover Classification (as per South African National Land Cover dataset)

Figure 14: Maize cultivation to the north of the Facility site alternatives.

Figure 15: Livestock grazing is common in the study area.

Figure 16: Farm workers dwellings and associated farm infrastructure in the study area.

Figure 17: View of Camden Power Station to the west of the N2 national route.

Figure 18: High voltage power lines feeding into Camden Power Station.

Figure 19: Rail infrastructure and power lines to the south-east of the study area.

Visual Implications

The predominance of cultivated land in conjunction with the remaining natural grassland cover across much of the study area would give the viewer the general impression of a largely rural / pastoral setting. Thus, the proposed Facility would alter the visual character and contrast significantly with the typical land use and/or pattern and form of human elements present across the development site and across much of the study area.

High levels of human transformation and visual degradation are however evident in the north-east where Camden Power Station and associated residential and infrastructural development

as well as mining activity dominate the landscape. In addition, roads, railways and power lines have further degraded the visual character of the study area to some degree. This transformation has already altered the visual character across much of the north-eastern sector of the study area, thus reducing the level of contrast of the proposed development.

The influence of the level of human transformation on the visual character of the area is described in more detail below.

6.2 Visual Character and Cultural Value

The physical and land use-related characteristics of the study area as described above contribute to its overall visual character. Visual character largely depends on the level of change or transformation from a natural baseline in which there is little evidence of human transformation of the landscape. Varying degrees of human transformation of a landscape would engender differing visual characteristics to that landscape, with a highly modified urban or industrial landscape being at the opposite end of the scale to a largely natural, undisturbed landscape. Visual character is also influenced by the presence of built infrastructure including buildings, roads and other objects such as telephone or electrical infrastructure. The visual character of an area largely determines the **sense of place** relevant to the area. This is the unique quality or character of a place, whether natural, rural or urban which results in a uniqueness, distinctiveness or strong identity.

The predominant land use in the area (maize and soybean cultivation, along with cattle grazing) has significantly transformed the natural landscape across much of the study area. In addition, the landscape becomes progressively more transformed towards the north-eastern boundary of the study area where Camden Power Station and mining activities have resulted in a high degree of visual degradation. The more industrial character of the landscape is an important factor in this context, as the introduction of the proposed Facility would result in less visual contrast where other anthropogenic elements are already present, especially where the scale of those elements is similar to that of the proposed development.

The scenic quality of the landscape is also an important factor that contributes to the visual character or inherent sense of place. Visual appeal is often associated with unique natural features or distinct variations in form. As such, the pastoral landscape and rolling hills in parts of the study area are important features that could increase the visual appeal and visual interest in the area.

Cultural landscapes are becoming increasingly important concepts in terms of the preservation and management of rural and urban settings across the world. The concept of ‘cultural landscape’ is a way of looking at a place that focuses on the relationship between human activity and the biophysical environment (Breedlove, 2002). In this instance, the rural / pastoral landscape represents how the environment has shaped the predominant land use and economic activity practiced in the area, as well as the patterns of human habitation and interaction. The presence of small towns, such as Ermelo, engulfed by an otherwise rural / pastoral environment, form an integral part of the wider landscape.

In light of this, it is important to assess whether the introduction of the Facility as proposed would be a degrading factor in the context of the prevailing character of the cultural landscape. Broadly speaking, visual impacts on the cultural landscape in the area around the proposed development would be reduced by the fact that the visual character in much of the area has been significantly transformed and degraded by mining and infrastructural development.

6.3 Visual Sensitivity Analysis and Verification

Visual sensitivity can be defined as the inherent sensitivity of an area to potential visual impacts associated with a proposed development. It is based on the physical characteristics of the area (i.e. topography, landform and land cover), the spatial distribution of potential receptors, and the likely value judgements of these receptors towards a new development (Oberholzer: 2005). A viewer's perception is usually based on the perceived aesthetic appeal of an area and on the presence of economic activities (such as recreational or nature-based tourism) which may be based on this aesthetic appeal.

In order to assess the visual sensitivity of the area, SiVEST has developed a matrix based on the characteristics of the receiving environment which, according to the Guidelines for Involving Visual and Aesthetic Specialists in the EIA Processes, indicate that visibility and aesthetics are likely to be 'key issues' (Oberholzer: 2005).

Based on the criteria in the matrix (**Table 2**), the visual sensitivity of the area is broken up into a number of categories, as described below:

i) **High** - The introduction of a new development such as a green hydrogen and ammonia production facility would be likely to be perceived negatively by receptors in this area; it would be considered to be a visual intrusion and may elicit opposition from these receptors.
ii) **Moderate** – Receptors are present, but due to the nature of the existing visual character of the area and likely value judgements of receptors, there would be limited negative perception towards the new development as a source of visual impact.
iii) **Low** - The introduction of a new development would not be perceived to be negative, there would be little opposition or negative perception towards it.

The table below outlines the factors used to rate the visual sensitivity of the study area. The ratings are specific to the visual context of the receiving environment within the study area.

Table 2: Environmental factors used to define visual sensitivity of the study area

FACTORS	DESCRIPTION	RATING									
		1	2	3	4	5	6	7	8	9	10
Pristine / natural / scenic character of the environment	Study area is largely natural with areas of scenic value and some pastoral elements.										
Presence of sensitive visual receptors	Relatively few sensitive receptors have been identified in the study area, and a number of landowners at potentially sensitive receptor locations are known to support the development.										
Aesthetic sense of place / visual character	Visual character is a typical rural / pastoral landscape.										
Irreplaceability / uniqueness / scarcity value	Although there are areas of scenic value within the study area, these are not rated as highly unique.										
Cultural or symbolic meaning	Much of the area is a typical rural / pastoral.										
Protected / conservation areas in the study area	No protected or conservation areas were identified in the study area.										
Sites of special interest present in the study area	No sites of special interest were identified in the study area.										
Economic dependency on scenic quality	Relatively few tourism/leisure based facilities in the area										
International / regional / local status of the environment	Study area is typical of rural / pastoral landscapes										
**Scenic quality under threat / at risk of change	Introduction of a green hydrogen and ammonia facility and associated infrastructure will alter the visual character and sense of place. In addition, the development of other renewable energy facilities in the broader area as planned will introduce an increasingly industrial character, giving rise to significant cumulative impacts										

**Any rating above '5' for this specific aspect will trigger the need to undertake an assessment of cumulative visual impacts.

Low				Moderate					High
10	20	30	40	50	60	70	80	90	100

Based on the above factors, the total score for the study area is 39, which according to the scale above, would result in the area being rated as having a low visual sensitivity. It should be stressed however that the concept of visual sensitivity has been utilised indicatively to provide a broad-scale indication of whether the landscape is likely to be sensitive to visual impacts, and is based on the physical characteristics of the study area, economic activities and land use that predominates. An important factor contributing to the visual sensitivity of an area is the presence, or absence of visual receptors that may value the aesthetic quality of the landscape and depend on it to produce revenue and create jobs and this has been factored into the sensitivity rating above. The presence of visual receptors is examined in more detail in **Section 8** of this report.

The rating has also taken into account the Langcarel Private Nature Reserve identified in the South African Protected Areas Database (incremental release Quarter 2 2021). Field investigation found no outward indication of the presence of a nature reserve in this area and much of the land within the demarcated reserve is utilised for commercial cultivation, while the land parcels involved are all managed for agricultural purposes (commercial farming). The reserve boundaries include the farm properties that the site alternatives are located on and it is known that the land owners support the proposed development. Accordingly, visual sensitivities normally associated with nature reserves will be reduced in this instance.

During the initial stages of the EIA, a site sensitivity assessment was undertaken to assess the relative sensitivities of each site alternative. The aim of this exercise was to indicate any areas of the site alternatives which should be precluded from the development footprint. From a visual perspective, sensitive areas would be areas where the establishment of establishment of a green hydrogen and ammonia production facility would result in the greatest probability of visual impacts on sensitive or potentially sensitive visual receptors.

Using GIS-based visibility analysis, it was possible to determine which sectors of the study area would be visible to the highest numbers of receptors in the study area. However, this analysis found that no areas are *significantly* more visible than the remainder of the site. As such, in terms of visibility, no areas were found to be more sensitive than others.

In determining visual sensitivity, consideration must also be given to the direct visual impact of the Facility on any nearby farmsteads or receptors. However, investigation determined that there are no sensitive or potentially sensitive receptors within 500 m of either of the site alternatives that would be affected by the development and as such, no areas of visual sensitivity were identified in relation to either of the site alternatives.

6.3.1 Sensitivities identified by the National Screening Tool:

In assessing visual sensitivity, the proposed development was examined in relation to the Landscape Theme of the National Environmental Screening Tool to determine the relative landscape sensitivity for this type of development. The tool does not however identify any landscape sensitivities in this respect.

6.4 Visual Absorption Capacity

Visual absorption capacity is the ability of the landscape to absorb a new development without any significant change in the visual character and quality of the landscape. The level of absorption capacity is largely based on the physical characteristics of the landscape (topography and vegetation cover) and the level of transformation present in the landscape.

Although the undulating topography in the study area and the areas of cultivation and grassland would reduce the visual absorption capacity, this would be offset to some degree by the presence of Camden Power Station, mining and infrastructural development in the vicinity of the proposed Facility.

Visual absorption capacity in the study area is therefore rated as **moderate**.

7 TYPICAL VISUAL IMPACTS ASSOCIATED WITH INDUSTRIAL FACILITIES

In this section, the typical visual issues related to the establishment of a green hydrogen and ammonia production facility as proposed are discussed. It is important to note that this type of development is still relatively new in South Africa and as such this section of the report can only make assumptions as to the likely generic impacts associated with the proposed development.

The production facility is likely to be quite large and relatively industrial in character. Some elements of the Facility, such as the Air Separation Unit and the 132kV overhead power line, include relatively tall structures which are expected to be highly visible from the surrounding area. As the Facility is not a feature of the natural or pastoral environment, but is representative of human (anthropogenic) alteration, it will be perceived to be incongruous when placed in a largely natural or pastoral landscape. Conversely, the presence of other anthropogenic objects associated with the built environment, including other industrial-type developments or even agricultural infrastructure, may result in the visual environment being considered to be 'degraded'. Thus the introduction of a Facility as proposed into this setting may be less of a visual impact than if there was no existing built infrastructure visible. In this instance, the Facility is related to the Camden WEF and SEF projects and will be located directly adjacent the proposed Collector substation serving these projects. As such, the facility is likely to be perceived as part of the greater Camden Renewable Energy Complex. Thus, the visual impact of the Facility will be relatively minor when compared to the visual impact associated with the WEF and SEF development as a whole.

Other potential impacts may result from surface clearance on the site, resulting in the increased visual prominence of the Facility and increasing the level of contrast with the surrounding landscape. In addition, security lighting on the site may impact on the nightscape (**Section 0**).

8 SENSITIVE VISUAL RECEPTORS

A sensitive visual receptor location is defined as a location where receptors would potentially be impacted by a proposed development. Adverse impacts often arise where a new development is seen as an intrusion which alters the visual character of the area and affects the 'sense of place'. The degree of visual impact experienced will however vary from one receptor to another, as it is largely based on the viewer's perception.

A distinction must be made between a receptor location and a sensitive receptor location. A receptor location is a site from where the proposed development may be visible, but the receptor may not necessarily be adversely affected by any visual intrusion associated with the development. Less sensitive receptor locations include locations of commercial activities and certain movement corridors, such as roads that are not tourism routes. More sensitive receptor locations typically include sites that are likely to be adversely affected by the visual intrusion of

the proposed development. They include tourism facilities, scenic sites and residential dwellings in natural settings.

The identification of sensitive receptors is typically based on a number of factors which include:

- the visual character of the area, especially taking into account visually scenic areas and areas of visual sensitivity;
- the presence of leisure-based (especially nature-based) tourism in an area;
- the presence of sites or routes that are valued for their scenic quality and sense of place;
- the presence of homesteads / farmsteads in a largely natural setting where the development may influence the typical character of their views; and
- feedback from interested and affected parties, as raised during the public participation process conducted as part of the EIA study.

As the visibility of the development would diminish exponentially over distance (refer to **section 5.4** above), receptor locations closer to the Facility would experience greater adverse visual impacts than those located further away.

The degree of visual impact experienced will however vary from one inhabitant to another, as it is largely based on the viewer's perception. Factors influencing the degree of visual impact experienced by the viewer include the following:

- Value placed by the viewer on the natural scenic characteristics of the area.
- The viewer's sentiments toward the proposed development. These may be positive (a symbol of progression toward a less polluted future) or negative (foreign objects degrading the natural landscape).
- Degree to which the viewer will accept a change in the typical landscape character of the surrounding area.

8.1 Receptor Identification

Preliminary desktop assessment of the study area identified ten (10) potentially sensitive visual receptor locations within a five km radius of either one of the Facility site alternatives, most of which appear to be existing farmsteads. Although the findings of the desktop assessment were largely confirmed during the field investigation, it was not possible to confirm the presence of receptors at all the identified locations due to access restrictions. Notwithstanding this limitation, all the identified receptor locations were assessed as part of the VIA as they were still regarded as being potentially sensitive to the visual impacts associated with the proposed development. None of these receptor locations was found to be sensitive however.

Although the ten (10) receptor locations are all believed to be farmsteads, they are regarded as *potentially* sensitive visual receptors as the proposed development will likely alter natural or semi-natural vistas experienced from these locations. However, seven (7) of these receptor

locations are in the Camden I WEF project area and as it is known that the relevant landowners support the proposed development, the level of visual sensitivity would be reduced.

In many cases, roads along which people travel, are regarded as sensitive receptors. The primary thoroughfare in the study area is the D260 district road which traverses the study area in a north-south direction. This road, in conjunction with the minor roads in the area, is primarily used as a local access road and does not form part of any scenic tourist routes. As such, the road is not specifically valued or utilised for its scenic or tourism potential and is therefore not regarded as visually sensitive.

As previously stated, the South African Protected Areas Database identifies the Langcarel Private Nature Reserve within the Facility study area. The area is however entirely managed for commercial agriculture with no conservation activities present, and therefore any visual appeal has been reduced. Accordingly, the reserve is not considered to be a sensitive receptor. Furthermore, the reserve includes the farm properties that form part of the Camden I Renewable Energy Complex, and it is known that the land owners support the proposed development.

The identified potentially sensitive visual receptor locations for the proposed Facility are indicated in **Figure 20**.

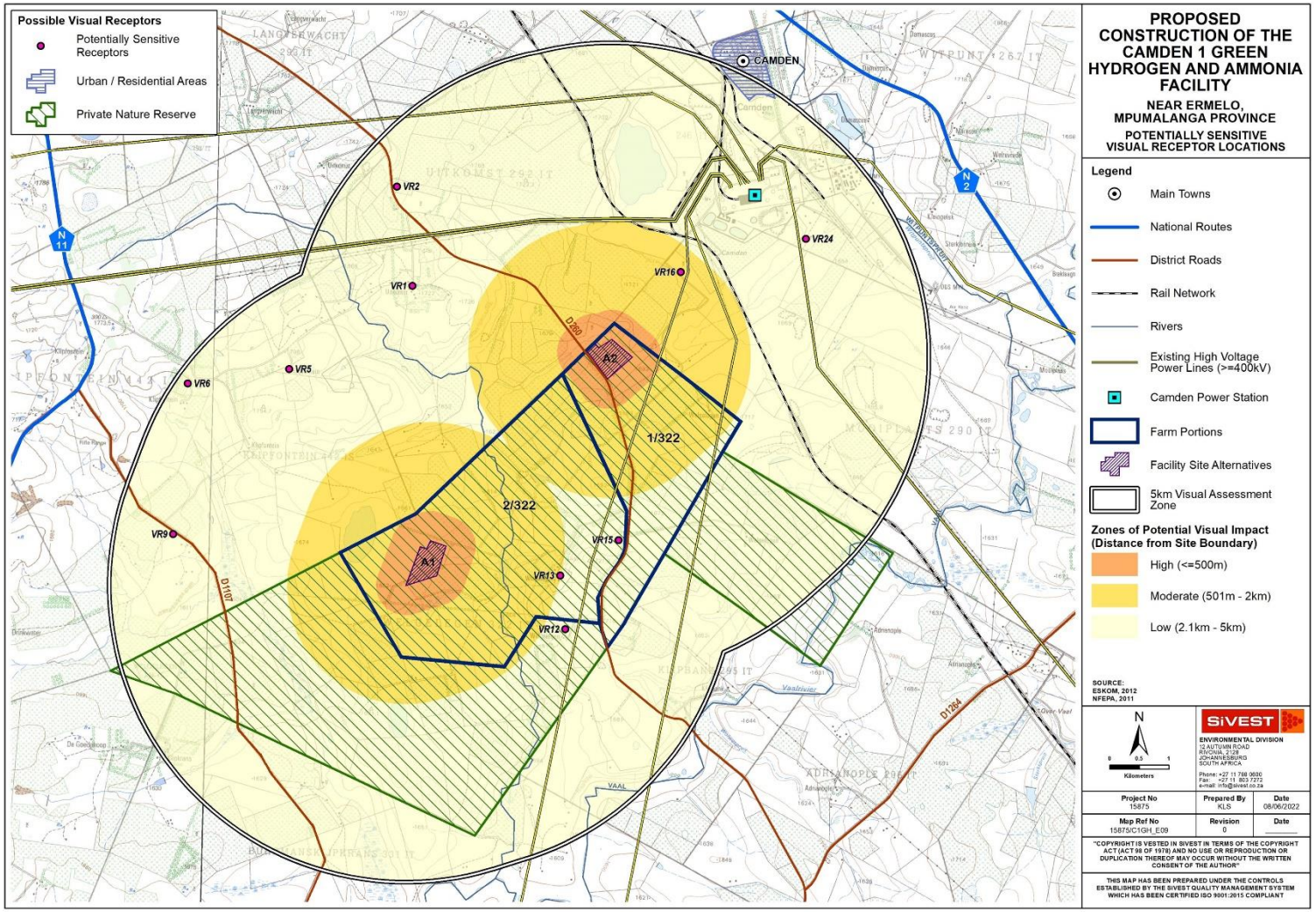


Figure 20: Potentially sensitive receptor locations within the Facility study area

8.2 Receptor Impact Rating

In order to assess the impact of the proposed Facility on the identified potentially sensitive receptor locations, a matrix has been developed that takes into account a number of factors and is applied to each receptor location.

The matrix is based on the factors listed below:

- Distance of a receptor location away from the proposed development (zones of visual impact)
- Presence of screening elements (topography, vegetation etc.)
- Visual contrast of the development with the landscape pattern and form

These are considered to be the most important factors when assessing the visual impact of a proposed development on a potentially sensitive receptor location in this context. It should be noted that this rating matrix is a relatively simplified way of assigning a likely representative visual impact, which allows a number of factors to be considered. Experiencing visual impacts is however a complex and qualitative phenomenon and is thus difficult to quantify accurately. The matrix should therefore be seen as a representation of the likely visual impact at a receptor location. Part of its limitation lies in the quantitative assessment of what is largely a qualitative or subjective impact.

8.2.1 Distance

As described above, distance of the viewer / receptor location from the development is an important factor in the context of experiencing visual impacts which will have a strong bearing on mitigating the potential visual impact. A high impact rating has been assigned to receptor locations that are located within 500m of the Facility site alternatives. The visual impact of the proposed facility beyond 5km would be negligible as the development would appear to merge with the elements on the horizon. Any visual receptor locations beyond these distance limits have therefore not been assessed as they fall outside the study area and would not be visually influenced by the proposed development.

At this stage of the process, zones of visual impact for the proposed Facility have been delineated according to distance from the site boundaries. Based on the assumed height and scale of the Facility, the distance intervals chosen for the zones of visual impact, as shown in **Figure 20**, are as follows:

- 0 – 500m (high impact zone);
- 500m –2km (moderate impact zone);
- 2km - 5km (low impact zone).

8.2.2 Screening Elements

The presence of screening elements is an equally important factor in this context. Screening elements can be vegetation, buildings and topographic features. For example, a grove of trees or a series of low hills located between a receptor location and an object could completely shield the object from the receptor.

8.2.3 Visual Contrast

The visual contrast of a development refers to the degree to which the development would be congruent with the surrounding environment. This is based on whether or not the development would conform to the land use, settlement density, structural scale, form and pattern of natural elements that define the structure of the surrounding landscape. Visual compatibility is an important factor to be considered when assessing the impact of the development on receptors within a specific context. A development that is incongruent with the surrounding area could change the visual character of the landscape and have a significant visual impact on sensitive receptors.

In order to determine the likely visual compatibility of the proposed development, the study area was classified into the following zones of visual contrast:

- **High –** undeveloped / natural / rural areas.
- **Moderate –**
    - areas within 500m of existing power lines (>=88kV);
    - areas within 500m of railway infrastructure;
    - cultivated areas and smallholdings.
- **Low –**
    - areas within 500m of urban / built-up areas;
    - areas within 500m of quarries / mines etc;
    - areas within 500m of Camden Power Station;

These zones are depicted in **Figure 21** below.

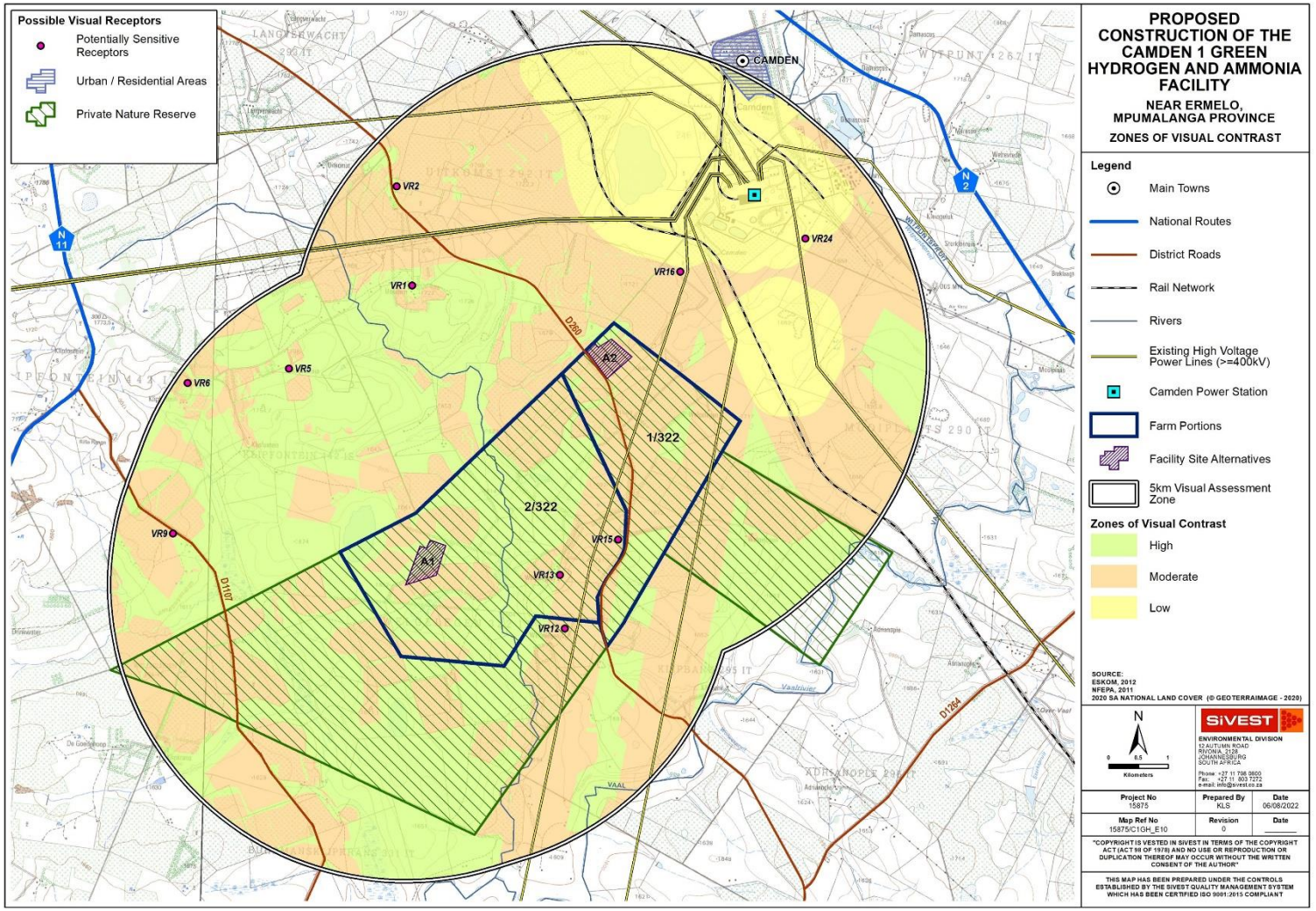


Figure 21: Zones of Visual Contrast

8.2.4 Impact Rating Matrix

The receptor impact rating matrix returns a score which in turn determines the visual impact rating assigned to each receptor location (**Error! Reference source not found.**) below.

Table 3: Rating scores

Rating	Overall Score
High Visual Impact	8-9
Moderate Visual Impact	5-7
Low Visual Impact	3-4
Negligible Visual Impact	(overriding factor)

An explanation of the matrix is provided in **Table 4** below.

Table 4: Visual assessment matrix used to rate the impact of the proposed development on potentially sensitive receptors

	VISUAL IMPACT RATING			
VISUAL FACTOR	**HIGH**	**MODERATE**	**LOW**	**OVERRIDING FACTOR: NEGLIGIBLE**
Distance of receptor away from proposed development	<= 500m **Score 3**	500m - 2km **Score 2**	2km - 5km **Score 1**	>5km
Presence of screening factors	No / almost no screening factors – development highly visible **Score 3**	Screening factors partially obscure the development **Score 2**	Screening factors obscure most of the development **Score 1**	Screening factors completely block any views towards the development, i.e. the development is not within the viewshed
Visual Contrast	**High contrast** with the pattern and form of the natural landscape elements (vegetation and land form), typical land use and/or human elements (infrastructural form) **Score 3**	**Moderate contrast** with the pattern and form of the natural landscape elements (vegetation and land form), typical land use and/or human elements (infrastructural form) **Score 2**	**Corresponds** with the pattern and form of the natural landscape elements (vegetation and land form), typical land use and/or human elements (infrastructural form) **Score 1**	

Considering the distance between the two site alternatives and the distribution of the receptor locations, separate receptor impact ratings have been presented for each site alternative.

Table 5 below presents a summary of the overall visual impact of the proposed Facility on each of the potentially sensitive visual receptor locations identified within 5kms of the boundary of the **Site Option 1.**

Table 5: Receptor impact rating for the proposed Facility (Site Option 1)

Receptor Location	Distance to Site 1		Screening	Contrast	OVERALL IMPACT RATING
	KMs	Rating	Rating	Rating	Rating
*VR1 – Farmstead**	*NIL*				
VR2 - Farmstead#	*NIL*				
*VR5 - Farmstead**	*NIL*				
*VR6 - Farmstead**	*NIL*				
*VR9 – Farmstead**	*NIL*				
*VR12 - Farmstead**	*NIL*				
VR13 - Farmstead	1.9	Mod 2	Low 1	Mod 2	MODERATE 5
*VR15 – Farmstead**	*NIL*				
*VR16 - Farmstead**	*NIL*				
VR24 - Farmstead#	*NIL*				

** Receptor is outside the preliminary viewshed and as such the overall impact rating is **"NIL"***
*# Receptor is more than 5km from Site Option 1 and as such the overall impact rating is **"NIL"***

The table above shows that seven of the identified receptors are outside the viewshed for the Facility, while two receptors are more than 5km from the Site Option 1. As such none of these receptors is expected to experience any visual impacts as a result of the proposed facility.

Based on this matrix, the remaining receptor (VR13) would experience moderate levels of visual impact as a result of the Facility development. However this receptor is located within the Camden I WEF project area and the relevant land owners are involved in the overall Camden Renewable Energy Complex project. As such, they are not expected to perceive the proposed development in a negative light and this would reduce the level of visual impact.

Table 6 below presents a summary of the overall visual impact of the proposed Facility on each of the potentially sensitive visual receptor locations identified within 5kms of the boundary of the **Site Option 2.**

Table 6: Receptor impact rating for the proposed Facility (Site Option 2)

Receptor Location	Distance to Site 2			Screening		Contrast		OVERALL IMPACT RATING	
	KMs	Rating		Rating		Rating		Rating	
*VR1 – Farmstead**	*NIL*								
VR2 - Farmstead	4.2	Low	1	Mod	2	Mod	2	MODERATE	5
*VR5 - Farmstead**	*NIL*								
*VR6 - Farmstead**	*NIL*								
VR9 - Farmstead#	*NIL*								
*VR12 - Farmstead**	*NIL*								
VR13 - Farmstead	3.4	Low	1	Low	1	Mod	2	LOW	4
VR15 - Farmstead	2.7	Low	1	High	3	Mod	2	MODERATE	6
*VR16 - Farmstead**	*NIL*								
VR24 - Farmstead	3.5	Low	1	Mod	2	Low	1	LOW	4

** Receptor is outside the preliminary viewshed and as such the overall impact rating is **"NIL"***
*# Receptor is more than 5km from Site Option 2 and as such the overall impact rating is **"NIL***

The table above shows that five of the identified receptors are outside the viewshed for the Facility, while one receptor is more than 5km from Site Option 2. As such none of these receptors is expected to experience any visual impacts as a result of the proposed facility.

Based on this matrix, two receptors would experience moderate levels of visual impact as a result of the Facility development, while the remaining two receptors will experience only low levels of visual impact. However all but one of these receptors are located within the Camden I WEF project area and the relevant land owners are involved in the overall Camden Renewable Energy Complex project. As such, they are not expected to perceive the proposed development in a negative light and this would reduce the level of visual impact.

Although the Langcarel Private Nature Reserve is within the Facility study area, it has not been included in these impact rating matrices due to the fact that the area is entirely managed for commercial agriculture with no conservation activities present or planned, and there is no evidence of any public access to this reserve. As such, this site is not considered visually sensitive.

As stated above, none of the roads in the area is considered to be visually sensitive.

8.3 Night-time Impacts

The visual impact of lighting on the nightscape is largely dependent on the existing lighting present in the surrounding area at night. The night scene in areas where there are numerous light sources will be visually degraded by the existing light pollution and therefore additional light sources are unlikely to have a significant impact on the nightscape. In contrast, introducing new light sources into a relatively dark night sky will impact on the visual quality of the area at night. It is thus important to identify a night-time visual baseline before exploring the potential visual impact of the proposed Facilityat night.

Camden Power Station and the adjacent Camden residential area, as well as Mooiplaats Colliery to the north-east of the proposed Facility are the main sources of light within the study area. These elements are expected to have a significant impact on the night scene in the north-eastern sector of the study area.

Other light sources in the broader area would largely emanate from the farmsteads dotted across the study area, and also from vehicles travelling along the district roads.

Overall, the visual character of the night environment within the study area is considered to be moderately 'polluted' and will therefore not be regarded as pristine. While the operational and security lighting required for the proposed Facility is likely to intrude on the nightscape, the impact of the additional lighting is expected to be reduced by the significant amount of light already present within the surrounding area at night.

However, farmsteads located in areas characterised by lower levels of disturbance / transformation would be moderately sensitive to the impact of additional lighting.

8.4 Cumulative Impacts

Although it is important to assess the visual impacts of the proposed production facility specifically, it is equally important to assess the cumulative visual impact that could materialise as a result of this development. Cumulative impacts occur where existing or planned developments, in conjunction with the proposed development, result in significant incremental changes in the broader study area. In this instance, such developments would include:

- existing and proposed mining / quarrying activities,
- electrical infrastructure including Camden Power Station and associated power lines; and
- proposed renewable energy facilities comprising the Camden Renewable Energy Complex (Wind, Solar and associated grid connection infrastructure).

Existing mining / quarrying and electrical infrastructure have already resulted in large scale visual impacts, mostly along the N2 national route, extending south-eastwards from Ermelo to Camden Power Station. These developments have significantly altered the sense of place and visual character in the broader region.

In assessing cumulative impacts, consideration must also be given to any planned renewable energy facilities (REFs). These facilities have the potential to cause large-scale visual impacts, and although the level of transformation already present in the landscape will reduce the contrast and overall visual impact of the new development, the incremental change in the landscape will be increased and the visual impacts on surrounding visual receptors would be exacerbated. Although the South African Renewable Energy EIA Application Database from DFFE does not record any existing or proposed renewable projects within 35kms of the Facility, a cumulative assessment must include all elements of the proposed Camden Renewable Energy Complex. This complex, including wind and solar facilities as well as associated grid connection infrastructure, will affect a large portion of the study area.

From a visual perspective, the concentration of renewable energy facilities, in conjunction with the green hydrogen and ammonia production facilities as proposed will further change the visual character of the area and alter the inherent sense of place, extending an increasingly industrial character into the broader area, and resulting in significant cumulative impacts. It is however anticipated that these impacts could be mitigated to acceptable levels with the implementation of the recommended mitigation measures. In addition, it is possible that these developments in close proximity to each other could be seen as one large Renewable Energy Facility rather than several separate developments. Although this will not necessarily reduce impacts on the visual character of the area, it could potentially reduce the cumulative impacts on the landscape.

8.5 Identification of Potential Impacts

Potential visual issues / impacts resulting from the proposed Facility are outlined below.

8.5.1 Construction Phase

Nature of the impact

- Potential visual intrusion resulting from large construction vehicles and equipment;
- Potential visual effect of construction laydown areas and material stockpiles.
- Potential impacts of increased dust emissions from construction activities and related traffic;
- Potential visual scarring of the landscape as a result of site clearance and earthworks; and
- Potential visual pollution resulting from littering on the construction site

Significance of impact

The significance of visual impacts during construction are expected to be **Moderate** but will be reduced to **Low** with the implementation of mitigation measures.

8.5.2 Operational Phase

Nature of the impact

- Potential alteration of the visual character of the area;
- Potential visual intrusion resulting from the various components of the Facility;

- Potential visual effect on surrounding farmsteads; and
- Potential visual impact on the night time visual environment.

Significance of impact

The significance of visual impacts during operation are expected to be **Moderate**, and although mitigation measures will result in some minor reduction of visual impacts, the degree of significance will remain **Moderate.**

8.5.3 Decommissioning Phase

Nature of the impact

- Potential visual intrusion resulting from vehicles and equipment involved in the decommissioning process;
- Potential impacts of increased dust emissions from decommissioning activities and related traffic;
- Potential visual scarring of the landscape as a result of decommissioning activities; and
- Potential visual intrusion of any remaining infrastructure on the site.

Significance of impact

The significance of visual impacts during decommissioning are expected to be **Moderate** but will be reduced to **Low** with the implementation of mitigation measures.

8.5.4 Cumulative Impacts

Nature of the impact

- Combined visual impacts from mining, industrial, infrastructural and renewable energy development in the broader area could potentially alter the sense of place and visual character of the area; and
- Combined visual impacts from mining, industrial, infrastructural and renewable energy development in the broader area could potentially exacerbate visual impacts on visual receptors.

Significance of impact

The significance of cumulative visual impacts are **Moderate**, and although mitigation measures will result in some minor reduction of visual impacts, the degree of significance will remain **Moderate**.

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9 OVERALL VISUAL IMPACT RATING

The EIA Regulations, 2014 (as amended) require that an overall rating for visual impact be provided to allow the visual impact to be assessed alongside other environmental parameters. The tables below present the impact matrix for visual impacts associated with the proposed construction and operation of the proposed green hydrogen and ammonia production facility. Preliminary mitigation measures have been determined based on best practice and literature reviews.

Please refer to **Appendix B** for an explanation of the impact rating methodology.

9.1 Construction Phase

9.1.1 Impact Rating

Table 7: Impact Rating for Camden I Green Hydrogen Ammonia Production Facility during the construction phase

CONSTRUCTION PHASE: DIRECT IMPACTS																		
Impact number	**Aspect**	**Description**	**Stage**	**Character**	**Ease of Mitigation**	**Pre-Mitigation**							**Post-Mitigation**						
						(M+	**E+**	**R+**	**D)x**	**P=**	**S**	**Rating**	**(M+**	**E+**	**R+**	**D)x**	**P=**	**S**	**Rating**
Impact 1:	Visual impacts	▪ Large construction vehicles, equipment and construction material stockpiles will alter the natural character of the study area and expose visual receptors to impacts associated with construction. ▪ Construction activities may be perceived as an unwelcome visual intrusion, particularly in more natural undisturbed settings. ▪ Temporary stockpiling of soil during construction may alter the flat landscape. Wind blowing over these disturbed areas could result in dust which would have a visual impact. ▪ Dust emissions and dust plumes from increased traffic on the gravel roads serving the construction site may evoke negative sentiments from surrounding viewers. ▪ Surface disturbance during construction would expose bare soil resulting in visual scarring of the landscape and increasing the level of visual contrast with the surrounding environment. ▪ Potential visual pollution resulting from littering on the construction site.	Construction	Negative	Moderate	3	2	3	4	3	**40**	**N3**	2	2	3	2	2	**18**	**N2**
					Significance	**N3- Moderate**							**N2 - Low**						

9.1.2 Mitigation Measures

- Carefully plan to minimise the construction period and avoid construction delays.
- Position laydown areas and related storage/stockpile areas in unobtrusive positions in the landscape, where possible.
- Vegetation clearing should take place in a phased manner.
- Make use of existing gravel access roads where possible.
- Limit the number of vehicles and trucks travelling to and from the proposed sites, where possible.
- Ensure that dust suppression techniques are implemented:
    - on all access roads;
    - in all areas where vegetation clearing has taken place;
    - on all soil stockpiles.
- Maintain a neat construction site by removing litter, rubble and waste materials regularly.

9.2 Operation Phase

9.2.1 Operational Phase Impact Rating

Table 8: Impact Rating for Camden I Green Hydrogen Ammonia Production Facility during the operation phase

OPERATION PHASE: DIRECT IMPACTS																		
Impact number	**Aspect**	**Description**	**Stage**	**Character**	**Ease of Mitigation**	**Pre-Mitigation**							**Post-Mitigation**						
						(M+	**E+**	**R+**	**D)x**	**P=**	**S**	**Rating**	**(M+**	**E+**	**R+**	**D)x**	**P=**	**S**	**Rating**
Impact 1:	Visual impacts	▪ The development may be perceived as an unwelcome visual intrusion, particularly in more natural undisturbed settings. ▪ The proposed Facility and associated infrastructure will alter the visual character of the surrounding area and expose potentially sensitive visual receptor locations to visual impacts. ▪ Dust emissions and dust plumes from maintenance vehicles accessing the site via gravel roads may evoke negative sentiments from surrounding viewers. ▪ The night time visual environment will be altered as a result of operational and security lighting at the proposed Facility.	Operation	Negative	Moderate	3	3	3	4	4	**52**	**N3**	3	3	3	4	4	**52**	**N3**
					Significance	**N3- Moderate**							**N3 - Moderate**						

9.2.2 Mitigation Measures

- Restrict vegetation clearance on the site to that which is required for the correct operation of the facility.
- As far as possible, limit the number of vehicles which are allowed to access the site.
- Ensure that dust suppression techniques are implemented on all gravel access roads.
- As far as possible, limit the amount of security and operational lighting present on site.
- Light fittings for security at night should reflect the light toward the ground and prevent light spill.
- Lighting fixtures should make use of minimum lumen or wattage whilst adhering to safety and security requirements.
- Mounting heights of lighting fixtures should be limited, or alternatively foot-light or bollard level lights should be used.
- If economically and technically feasible, make use of motion detectors on security lighting.
- The buildings should not be illuminated at night and should be painted in natural tones that fit with the surrounding environment.
- Non-reflective surfaces should be used where possible.

9.3 Decommissioning Phase

9.3.1 Decommissioning Phase Impact Rating

Table 9: Impact Rating for Camden I Green Hydrogen Ammonia Production Facility during the decommissioning phase

DECOMMISSIONING PHASE: DIRECT IMPACTS																		
Impact number	**Aspect**	**Description**	**Stage**	**Character**	**Ease of Mitigation**	**Pre-Mitigation**							**Post-Mitigation**						
						(M+	**E+**	**R+**	**D)x**	**P=**	**S**	**Rating**	**(M+**	**E+**	**R+**	**D)x**	**P=**	**S**	**Rating**
Impact 1:	Visual impacts	▪ Vehicles and equipment required for decommissioning will alter the natural character of the study area and expose visual receptors to visual impacts. ▪ Decommissioning activities may be perceived as an unwelcome visual intrusion. ▪ Dust emissions and dust plumes from increased traffic on the gravel roads serving the decommissioning site may evoke negative sentiments from surrounding viewers. ▪ Surface disturbance during construction would expose bare soil resulting in visual scarring of the landscape and increasing the level of visual contrast with the surrounding environment. ▪ Temporary stockpiling of soil during decommissioning may alter the flat landscape. Wind blowing over these disturbed areas could result in dust which would have a visual impact.	Decommissioning	Negative	Moderate	3	2	3	4	3	**40**	**N3**	2	2	3	2	2	**18**	**N2**
					Significance	**N3- Moderate**							**N2 - Low**						

9.3.2 Mitigation Measures

- All infrastructure that is not required for post-decommissioning use should be removed.
- Carefully plan to minimize the decommissioning period and avoid delays.
- Maintain a neat decommissioning site by removing rubble and waste materials regularly.
- Ensure that dust suppression procedures are maintained on all gravel access roads throughout the decommissioning phase.
- All cleared areas should be rehabilitated as soon as possible.
- Rehabilitated areas should be monitored post-decommissioning and remedial actions implemented as required, in compliance with the regulatory requirements at the time of decommissioning.

9.4 Cumulative Impact Rating

9.4.1 Impact Rating

Table 10: Cumulative Impact Rating for Camden I Green Hydrogen Ammonia Production Facility

CUMULATIVE IMPACTS																		
Impact number	**Aspect**	**Description**	**Stage**	**Character**	**Ease of Mitigation**	**Pre-Mitigation**							**Post-Mitigation**						
						(M+	**E+**	**R+**	**D)x**	**P=**	**S**	**Rating**	**(M+**	**E+**	**R+**	**D)x**	**P=**	**S**	**Rating**
Impact 1:	Visual impacts	▪ Proposed mining, industrial and renewable energy developments in the broader area will alter the natural character of the study area towards a more industrial landscape and expose a greater number of receptors to visual impacts. ▪ Visual intrusion of mining, industrial and renewable energy developments may be exacerbated, particularly in more natural undisturbed settings. ▪ Additional mining, industrial and renewable energy facilities in the area would generate additional traffic on gravel roads thus resulting in increased impacts from dust emissions and dust plumes. ▪ The night time visual environment could be altered as a result of operational and security lighting serving new developments in the broader area.	All stages	Negative	Moderate	5	3	3	5	4	**64**	**N4**	4	3	3	4	4	**56**	**N3**
					Significance	**N4- High**							**N3 - Moderate**						

9.4.2 Mitigation Measures

- Implementation of the mitigation measures as recommended for each new development by the relevant visual specialists.

10 COMPARATIVE ASSESSMENT OF ALTERNATIVES

A comparative assessment has been undertaken in respect of the facility, substation and power line route alternatives put forward for the EIA phase of this project. The aim of the comparative assessment is to determine which of the alternatives would be preferred from a visual perspective. Preference ratings for each alternative have been based on the following factors:

- The location of each alternative in relation to areas of high elevation, especially ridges, koppies or hills;
- The location of each alternative in relation to sensitive visual receptor locations; and
- The location of each alternative in relation to areas of natural vegetation (clearing site for the development increases the visibility).

The alternatives are rated as preferred; favourable, least-preferred or no-preference described in **Table 11** below.

Table 11: Description of preference ratings applied to alternatives

PREFERRED	The alternative will result in a low impact / reduce the impact
FAVOURABLE	The impact will be relatively insignificant
LEAST PREFERRED	The alternative will result in a high impact / increase the impact
NO PREFERENCE	The alternative will result in equal impacts

The site alternatives for the proposed Facility, as shown in **Figure 3,** are comparatively assessed in **Table 12** below.

In the summary, the assessment showed that no fatal flaws were identified for either of the proposed site alternatives. No preference was determined for either of the site alternatives and both alternatives were found to be **favourable** from a visual perspective**.**

Table 12: Comparative Assessment of Site Alternatives

Alternative	Preference	Reasons (incl. potential issues)
CAMDEN GHAF		
Site Option 1	Favourable	▪ Option 1 is located on slightly sloping terrain but would only be marginally exposed on the skyline. ▪ There are no sensitive receptors within 5km of this alternative. ▪ The closest potentially sensitive receptor to this corridor (VR13) is 1.9km away and is expected to be subjected to moderate levels of visual impact as a result of the facility. However, the proximity of this receptor to the existing transmission lines would reduce the level of impact experienced. In addition, VR13 is located within the Camden I WEF project area and it is known that the land owners support the Camden Renewable Energy Complex project and they are not expected to perceive the proposed development in a negative light. ▪ The remaining receptors are all more than 2km away and would experience low to negligible levels of visual impact. ▪ There are no fatal flaws associated with Option 1 and this alternative is considered **Favourable** from a visual perspective.
Site Option 2	Favourable	▪ Option 2 is located on slightly sloping terrain but would only be marginally exposed on the skyline. ▪ There are no sensitive receptors within 5km of this alternative. ▪ The closest potentially sensitive receptor to this corridor (VR16) is 1.7km away and is expected to be subjected to moderate levels of visual impact as a result of the substation. However, the proximity of this receptor to the existing transmission lines would reduce the level of impact experienced. ▪ The remaining receptors are all more than 2km away and would experience low to negligible levels of visual impact. ▪ There are no fatal flaws associated with Option 2 and this alternative is considered **Favourable** from a visual perspective.

10.1 No-Go Alternative

The ‘no-go’ alternative is the option of not undertaking the proposed project. Hence, if the ‘no-go’ option is implemented, there would be no development. The area would thus retain its visual character and sense of place and no visual impacts would be experienced by any locally occurring receptors. This would result in the simultaneous loss of the facility's potential benefits however.

11 CONCLUSION

A visual study was conducted to assess the magnitude and significance of the potential visual impacts associated with the development of the proposed Camden I Green Hydrogen and Ammonia Facility near Ermelo in Mpumalanga Province. The VIA has demonstrated that the study area has a somewhat mixed visual character, transitioning from the heavily transformed urban / peri-urban landscape associated with Camden Power Station, Camden residential area and Mooiplaats Colliery in the north-east to a more rural / pastoral character across the remainder of the study area. Hence, although the proposed Facility would alter the visual character and contrast with this rural / pastoral character, the location of the proposed Facility in relatively close proximity to Camden Power Station and the associated power lines, mining activity and rail infrastructure will significantly reduce the level of contrast.

A broad-scale assessment of visual sensitivity, based on the physical characteristics of the study area, economic activities and land use that predominates, determined that the area would have a **low** visual sensitivity. However, an important factor contributing to the visual sensitivity of an area is the presence, or absence of visual receptors that may value the aesthetic quality of the landscape and depend on it to produce revenue and create jobs.

One formal protected area (Langcarel Private Nature Reserve) was identified within the study area, although the area is entirely managed for commercial agriculture with no conservation activities present and no evidence of public access to the site. Any landscape value or visual appeal has therefore been reduced. The broader area is not typically valued for its tourism significance and relatively few leisure-based tourism facilities (lodges/accommodation facilities) were identified inside the study area. This factor in conjunction with the high levels of transformation in the north-east have reduced the overall visual sensitivity of the area.

A total of ten (10) potentially sensitive receptors were identified in the combined study area for the two site alternatives, none of which was found to be sensitive. All of the identified receptors are believed to be farmsteads that are regarded as *potentially* sensitive visual receptors as the proposed development will likely alter natural or semi-natural vistas experienced from these locations. Six of the receptor locations are outside the viewshed for both site alternatives, and the remaining receptors would experience either moderate, low or no visual impacts as a result of Facility development on Site Option 1 or Site Option 2. However, all but two of these receptors are located within the Camden I Wind Energy Facility (WEF) project area and it has been confirmed by the Proponent that the relevant land owners are in support of the overall Camden Renewable Energy Complex project. As such, they are not expected to perceive the proposed development in a negative light and this would reduce the level of visual impact experienced at these locations.

A preliminary assessment of overall impacts revealed that impacts associated with all the proposed Camden I Green Hydrogen and Ammonia Facility (post mitigation) are of low significance during both construction and decommissioning phases. During operation however, visual impacts (post mitigation) from the Camden I WEF would be of moderate significance with relatively few mitigation measures available to reduce the visual impact.

Considering the presence of existing and proposed mining activity and electrical generation and distribution infrastructure, the introduction of this type of facility in the area will result in further change in the visual character of the area and alteration of the inherent sense of place, extending an increasingly industrial character into the broader area, and resulting in significant cumulative impacts. It is however anticipated that these impacts could be mitigated to acceptable levels with the implementation of the recommended mitigation measures. In light of this, cumulative impacts have been rated as moderate.

A comparative assessment of site alternatives for the Facility was undertaken in order to determine which of the alternatives would be preferred from a visual perspective. No fatal flaws were identified for either of the proposed site alternatives and both alternatives were found to be favourable.

11.1 Visual Impact Statement

It is SiVEST's opinion that the potential visual impacts associated with the proposed Camden I Green Hydrogen and Ammonia Facility are negative and of moderate significance. Given the relatively low number of potentially sensitive receptors and the significant level of human transformation and landscape degradation in areas near the proposed Facility, the project is deemed acceptable from a visual perspective and the EA should be granted. SiVEST is of the opinion that the impacts associated with the construction, operation and decommissioning phases can be mitigated to acceptable levels provided the recommended mitigation measures are implemented.

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SiVEST Environmental Division
51 Wessels Road, Rivonia. 2128. South Africa
PO Box 2921, Rivonia. 2128. South Africa

Tel + 27 11 798 0600
Fax +27 11 803 7272
Email info@sivest.co.za
www.sivest.co.za

Contact Person: Kerry Schwartz
Tel No.: +27 11 82 469 5850
Email: klschwartz@slrconsulting.com