Hercules Solar Cluster Project

VISUAL IMPACT ASSESSMENT BASELINE REPORT

Proposed Hercules Solar Cluster Project, Northern Cape

VISUAL IMPACT ASSESSMENT BASELINE REPORT | 2023-03-04

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Preface

Visual, scenic, and aesthetic components of the environment are valuable resources which contribute to the cultural landscape heritage of an environment. Visual Impact Assessment (VIA) is integral to the management of visual heritage, towards ensuring that the integrity and quality of the visual environments is conserved. The process of assessment begins with an analysis of the spatial context and landscape character of the site, towards establishing visual indicators for planning and design response, and as the basis of the evaluation of the suitability of the proposed development or landscape modification (designed adaption).

Landscape Character Analysis (LCA) is therefore integral to the management of visual resources, and may form part of Strategic Environmental Assessment, and / or Heritage Inventory Mapping and Resource Management; towards ensuring that the integrity and quality of the visual environment is conserved, and that development proposals or landscape modifications can be accommodated in suitable ways. LCA suggests a methodology for identifying, describing, classifying, and mapping what is distinctive about landscapes, their variety, and helps to determine what makes one landscape different from another. LCA provides baseline information that can be used to guide landscape change by informing decisions on proposed land-use management plans, rezoning applications, and development proposals.

As all development proposals have the potential to change the visual character of the environment within which they are located, and to affect people's perceptions of such places, significant visual impact may be expected. Visual Impact Assessment (VIA) may form part of the Basic Assessment, Scoping and Impact assessment phases of the Environmental Assessment process; or integrated within Heritage Impact Assessment (HIA) processes. Visual Impact Assessments endeavour to determine the correct category of expected impact, to illustrate the expected visual impact associated with the proposed development; and to formulate measures or interventions to mitigate any detrimental impacts of the proposal to the extent that the development will meet acceptable visual criteria. Visual Impact Assessment therefore serves to inform planning and design decision-making proactively.

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*['**PROPOSED HERCULES SOLAR CLUSTER PROJECT, EMTHANJENI LOCAL MUNICIPALITY, NORTHERN CAPE**- Visual Impact Assessment Baseline Report]*

S1 Site Name and Location

Site	*"Hercules"*
Address	accessed off the N 10, southeast of De Aar
Farm portion(s)	***Remainder of Portion 6 of the farm Riet Fountain,*** ***Remainder of Portion 28 of the farm Roodekraal*** *and* ***Remainder of Portion 31 of the farm Hartebeest Hoek,***
Situate	*Emthanjeni Local Municipality*
Administrative District:	*Pixley Ka Seme District Municipality*
Province	*Northern Cape*
GPS co-ordinates	**Latitude:** *-30°46'15.06"S* **| Longitude:** 24° 8'31.61"E *(Logical centre point, format based on WGS84)*

S2 Introduction:

Mulilo Renewable Energy (Pty) Ltd proposes to develop the "Hercules Solar Energy Cluster" project" on Farm Portions: Remainder of Portion 6 of Riet Fountain, Remainder of Portion 28 of Roodekraal and Remainder Portion 31 Farm Hartebeest Hoek. Visual Impact Assessment has been required as a component of the Environmental Impact Assessment process associated with the proposal.
This document serves as the Visual Impact Assessment baseline report, incorporating landscape character analysis and determination of visual indicators for planning and design response.

S3 Scope of analysis and approach:

*The site is within a rural **cultural landscape** of **moderate** visual significance and aesthetic value, (given the degree of intactness, integrity, and legibility) with components of distinctive character, valued for tangible as well as intangible attributes. As it is potentially susceptible to the cumulative effects of changes of the types proposed; this assessment will consider the potential impact of the proposal from a **cultural landscape perspective**, with respect to the landscape character analysis of the site within its local context and broader setting.*

The author confirms his compliance with the general requirements for specialists as set out in Regulation 13 of the EIA Regulations 2014 and that the assessment of the development proposal has been conducted as per the criteria, definitions and terminology set out within the CSIR Guideline for involving Visual & Aesthetic Specialists in EIA processes. This report also complies with the relevant aspects of Appendix 6 of the EIA Regulations 2014 (as amended).

S4 Locality Plans

Indicating the location and extent of the subject site within its broader and local contexts

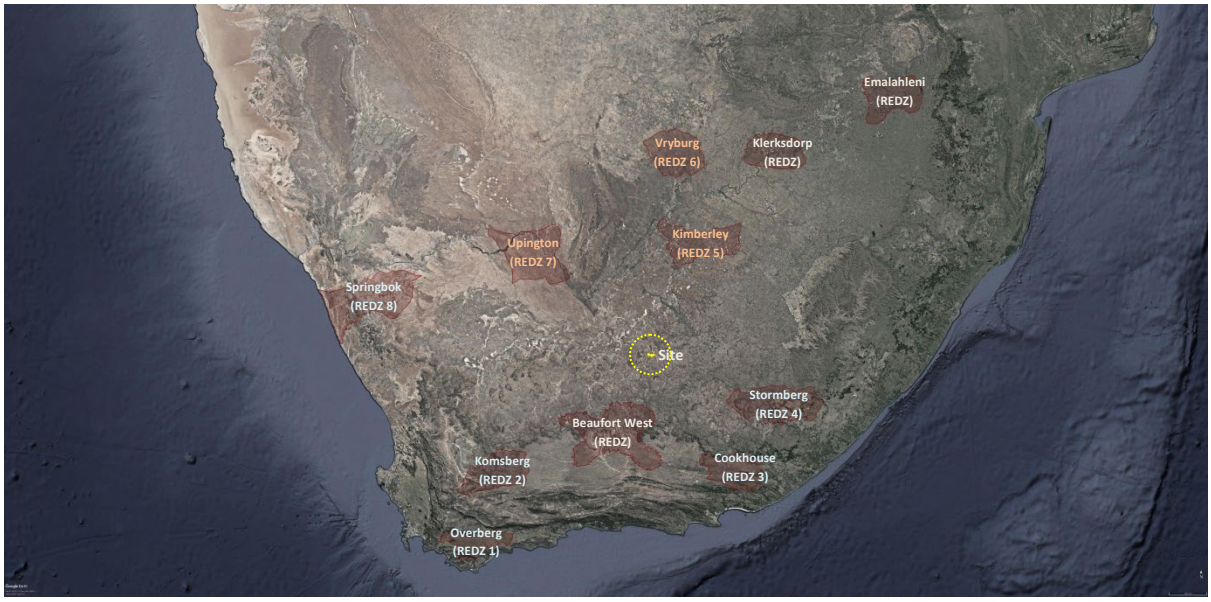


Figure 1: National context: subject site (yellow) outside of any REDZones (Source: GEP)

Renewable Energy Development Zones (REDZs) are geographical areas where wind and solar PV development can occur in concentrated zones, creating priority areas for investment in the electricity grid and thereby increasing South Africa's green energy map by enabling higher levels of renewable power penetration.

Whereas the subject site does not fall within the identified REDZ zones, there are already several solar energy facilities within the immediate proximity of De Aar, which provide for a review of precedent and potential cumulative impact upon the visual quality of the Northern Cape Karoo Landscape.

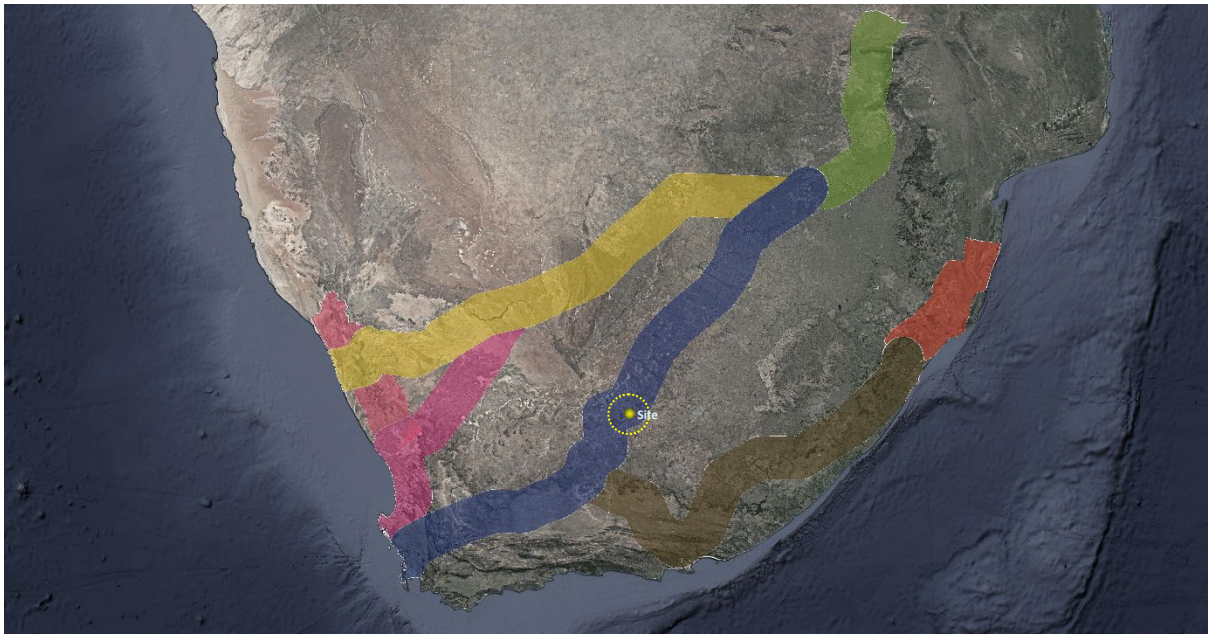


Figure 2: National context: Strategic Transmission Corridors and their Expansions (Source: SES)

Associated with the REDZones are the 5 Strategic Transmission Corridors and their Expansion Corridors, which are geographic areas identified through strategic environmental assessment for the planning and authorization of electricity transmission and distribution infrastructure.

As illustrated within the diagram above, the subject site falls directly within one of the Strategic Transmission Corridors. This implies that the development of electrical infrastructure within the site complies with the strategic plans established for the area.

Figure 3: Regional setting: subject site shaded red (Source: GEP)

After leaving the N1 at Hanover, the Hercules site can be accessed off the N10, travelling northwest towards De Aar. This is well within the **plateau** landscape type of the Northern Cape Karoo, which exists at an elevation of between 1100m and 1600m above mean sea level.

The Karoo is an arid to semi-arid geographic region characterized by the presence of flat-topped hills or “koppies”, capped with hard, erosion-resistant dolerite “sills” rising above the general ‘flatness’ of the arid plains between the koppies.

There is a vast, expansive scale to the landscape, with a certain unyielding relentlessness, which is at first disorientating and overwhelming, until the subtleties and nuances of landform and vegetation are revealed, lending a degree of orientation to the sensing of place.

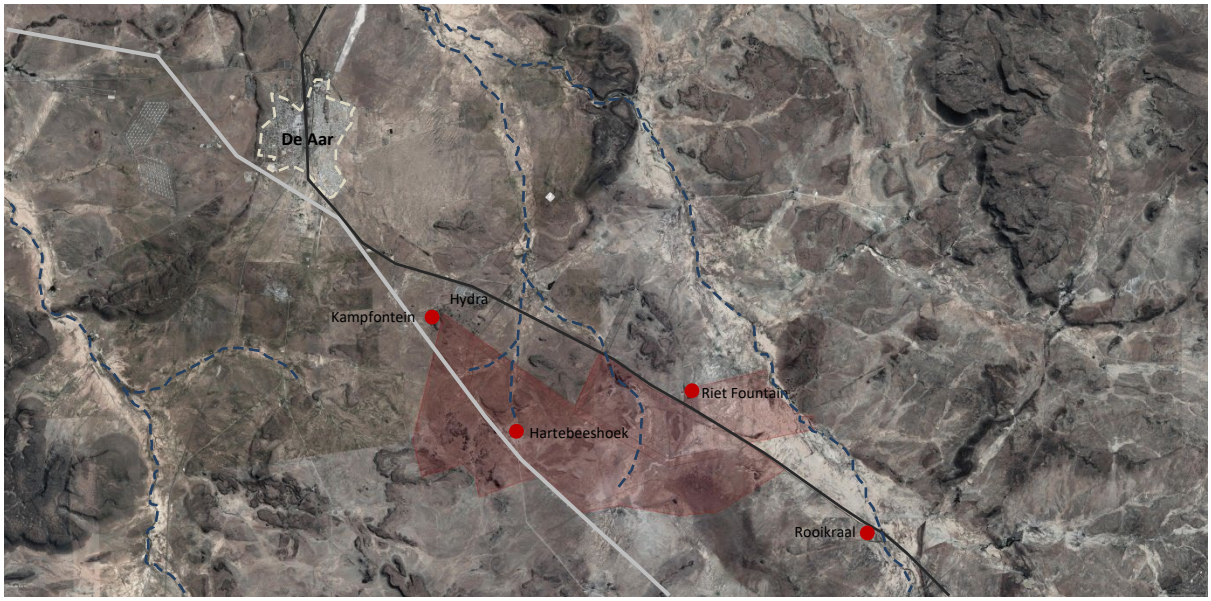


Figure 4: Local Context: subject site shaded red (Source: GEP)

Within the Emthanjeni Local Municipality, the Hercules site lies largely between the N10 and the Cape Midland railway line, with one portion bordered by the R388 to the west of the N10, and a minor portion north or the railway line bordered by the Brakrivier.

The site equates to approximately 7.645Ha and constitutes three farm portions belonging to two separate landowners. However, for the purposes of this analysis, the site has been considered holistically as a single entity.

Sheep farming (including goats and game) predominates over crop farming in this arid climate. Within this landscape, farmstead settlements become points of punctuation, with homesteads and associated outbuildings framed with trees providing some relief from the harshness of the countryside. Further along the N10 at a distance of approximately 7000m to the northwest, the nearest urban centre to the site is De Aar.

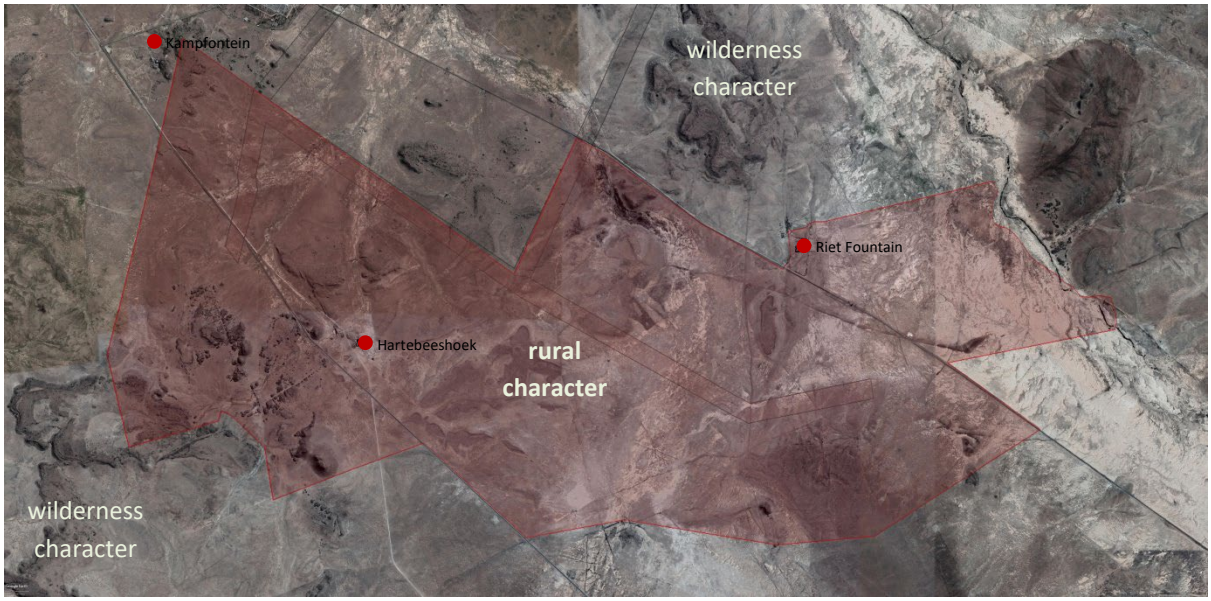


Figure 5: Site Content: subject site shaded red (Source: GEP)

The site is a very typical section of Northern Cape Karoo rural cultural landscape, which although it is fenced along its boundaries, is continuous with the local landscape context and broader landscape setting beyond its boundaries. Fence lines and overhead powerlines are perceived as patterns and textures within the landscape rather than space-defining edges.

Visual thresholds are provided, however, by the dolerite koppies and ridges which characterize this environment. Whereas the site is within a rural cultural landscape, the koppies lend a certain 'wilderness' character as elements within the middle distance and background.

S5 Brief description of proposed development

The Mulilo Renewable Projects Development proposal is for the Hercules Solar PV Cluster to realize a total of approximately 960 MW; consisting of eight (8x) PV facility projects of 'up to 120 MW' per facility, each to obtain a separate Environmental Authorization (i.e., Hercules Solar PV1 – Hercules Solar PV8). Four (4x) Transmissions lines of 132kV Grid connections are planned. The point of connection and connection voltage is still to be determined. The proposals would also include associated structures, buildings, internal roadways, and services.

S6 Development Alternatives / Scenarios

At this stage, the site has been assessed for its visual sensitivity, with a series of visual indicators derived for planning and design response. The alignments of the proposed grid connections have been indicated on plan; however, the configuration of the solar array has been planned in response to the specialist inputs received (visual included).

Subsequent to the submission of the first draft of this report (in October 2022), the proposed layouts for the Hercules 1, 2, 3, and 4 Phase 1 components have been produced and assessed against the visual indicators supplied. (Phase 2 layouts to follow in due course).

S7 Visual Resources Identified

Within the site boundaries there are some interesting landscape features which should be preserved intact, including the farmstead buildings and tree clusters, koppies, ridges and drainage zones, which contribute interest and visual amenity. These are identified as visual resources having greater visual sensitivity to disturbance.

Across the scales, the visual resources identified are summarized as follows:

Regional setting: *(background)*

Geographic landmarks – distant dolerite koppies and ridges

Continuity of agricultural landscape across the Northern Cape

Great Karoo rural cultural landscape character

Local context*: (mid-ground)*

Continuity of landscape and vegetation across cadastral boundaries

Views across rural agricultural landscape

Geographic landmarks – middle distance dolerite koppies

Site content*: (foreground)*

Farmsteads (Hartebeeshoek, Riet Fountain), werf and curtilage

Farm dams, drainage lines,

Foreground koppies and ridges

S8 Potential Impacts on Visual Resources

The introduction of renewable energy infrastructure may impact upon the open space and rural quality of the site and context. Increased activity, including site preparation, construction activity, and increased lighting at night all contribute to change in character. Whereas construction phase impacts tend to be short-term, operational phase impacts tend to be long term, if not permanent.

*Impacts upon the **Regional Setting:***

Gradual reduction in rural character because of cumulative impacts,

Infrastructural infill development within agricultural environment

*Impacts upon the **Local Context:***

Visual intrusion of new infrastructural development within open vistas

Increased aggregation of gridlines, electrical facilities, hostile edge conditions

Change in character due to increased infrastructure.

*Impacts upon the **Site Content:***

Foreground insertion of new facilities overwhelming the openness of the site

Potential intrusion upon the farmstead werf and curtilage areas (500m buffer required)

Potential interruption of landscape continuity

S9 Cumulative Impacts

Cumulative impacts are those which add to or magnify existing or reasonably foreseeable future impacts on the same receiving environment or specific resource.
Whereas existing solar energy facilities already exist within the vicinity of De Aar, the area is not within any of the designated REDZones, which means that similar developments should not be unduly concentrated, as this would lead to cumulative impacts further reducing the rural character of the local context, resulting in an altered sense of place. This could be construed as a loss of quality of visual resources.

S10 Key Findings and recommendations

Whereas the site is set within a continuous rural landscape which is seemingly intact, it has already absorbed electrical gridline infrastructure without substantial loss of character, due to its vast size. The landscape is of good quality and includes certain features of character and identity which have been interpreted as visual indicators for planning and design response. However, it is not of such exceptional quality as to preclude development of the kind proposed. Thus, from a visual impact perspective, the development is permissible, at least in principle, and by responding to the visual indicators, the layout can be manoeuvred to minimize visual intrusion into the landscape and to maximize a comfortable 'fit'.

This would include avoiding development on ridgelines and koppies, locating rather on the flatter portions of the site, though avoiding drainage lines (as far as practically possible), providing sufficient visual buffers from the farmstead settlements to preserve their curtilage and sense of place; and setting back from the visual corridor of the N10 (and the railway line, assuming that the rail is or will be operational). Setting back from all cadastral boundaries is also recommended, so that the site layout may take cues rather from organic site geometries rather than artificial rectilinear geometries.

The inclusion of these planning and design parameters should contribute to the mitigation of adverse visual impacts, towards retaining aspects of the cultural landscape that lend identity and character to the sense of place. Should these visual indicators be onboarded as measures for mitigation, particularly with respect to the refinement of the site layouts, the development proposal should meet with the requirements for approval.

1. Introduction

1.1 Background

Consultant Visual Specialist **David Gibbs** PrLArch has been appointed to conduct visual impact assessment of the Hercules Solar Energy Cluster Project proposed for a site within a rural cultural landscape as part of the environmental authorization processes associated with the proposal.

1.1.1 Terms of Reference

David Gibbs (SACLAP-registered Professional Landscape Architect | Environmental Planner and APHP-endorsed Professional Heritage Practitioner) meets with the requirements for specialists as set out within *Regulation 13 of the EIA Regulations 2014*, and works in accordance with established cultural landscape heritage and visual assessment criteria, definitions and terminologies as set out in the following reference documents:

Oberholzer, B: ***Guideline for involving Visual & Aesthetic Specialists in EIA processes****: Edition 1. CSIR Report No. ENV-S-C 2005 053 F, Republic of South Africa, Provincial Government Western Cape, Department of Environmental Affairs & Development Planning, Cape Town, 2005.*

and:

Bauman, N. & Winter, S: ***Guideline for involving Heritage Specialists in EIA Processes****: Edition 1. CSIR Report No. ENS-S-C 2005 053 F, Republic of South Africa, Provincial Government Western Cape, Department of Environmental Affairs & Development Planning, Cape Town, 2005.*

1.1.2 Independence of Visual Specialist

The author of this report document has no vested interest in the outcome of the approvals process associated with the development proposal assessed in this document; nor does he stand to gain financially from the design, construction, or future management thereof; and therefore, maintains complete independence and impartiality.

1.2 Timing of Visual Specialist Input

This Visual Impact Assessment forms part of the heritage and environmental authorizations processes associated with the proposed development, and endeavours to determine the character and visual absorption capacity of the cultural landscape which contextualizes the site, the visibility of the infrastructural components of the proposal, the potential visual impact on visual resources, and the nature, extent, duration, intensity, probability and significance of these impacts; and to advise with respect to measures for the mitigation of negative impacts and the enhancement of potential benefits.

1.2.1 Type of Visual Impact Assessment

The project site lies **within the rural domain** and is relatively large in extent, contributing to be a good quality **cultural landscape** of **moderate significance**, **Type 'A' Visual Impact Assessment** would apply.

1.2.2 Scope of Visual Impact Assessment

Consistent with NEMA requirements for visual impact assessment; the visual specialist must assess the potential visual impacts of the planning, design & construction phase, and the operational phase for each viable development alternative (or scenario) of the proposal, including the 'no-go' (or no development) option.

The degree of visual impact anticipated is a function of the **development** [**type** and **intensity**] and the **environment** [**type** and **significance**].

In this case, the applicant proposes **category five** development of **medium intensity** within a **cultural landscape** environment of **moderate significance**.

As **high visual impact** will result in **noticeable change**, clearly visible within the view frame and visual experience of the visual receptors, this will require **Level 4 Visual impact assessment**.

1.3 Nature of Proposed Development

The proposal is of **medium intensity** type projects with solar facility infrastructure and associated buildings, private roads, and services. Apart from the presence of the existing powerlines, this does constitute a change in use from the prevailing land use (open farmland to solar PV array).

Whereas the scale of the landscape is certainly compatible with this proposed use, the development will cause a change to the fabric, character, and spatial quality of the immediate area. This may intrude visually into the curtilage and werf space of the farm settlements at Riet Fountain and Haartbeesthoek and may cause obstruction of views from the homestead. It sets a new precedent for development within the site, though not within the local area of De Aar, where similar installations already exist.

1.3.1 Type of Proposed Development

The proposed Hercules Solar Cluster project is a **Category 5 Development,** i.e., **solar energy facility development with powerlines**, associated with roadways and large-scale infrastructure.

1.3.2 Intensity of Proposed Development

The proposed development is of **medium intensity** i.e., 1 to 2-storey structures, including cluster development; usually with more than 25% of the area retained as green open space.

1.4 Nature of Receiving Environment

The site has certain scenic qualities as part of an arid, rural cultural landscape, with rocky outcrops, dolerite ridges and koppies, seasonal wetlands and expansive views towards the 'wilderness' areas on the horizon in all directions. The environment has a certain tranquillity in its vastness and remoteness.

1.4.1 Type of Receiving Environment

The site is a component of a continuous **cultural landscape** (i.e., an area or route of scenic, cultural, or historical significance, including scenic routes). Whereas the site has an agricultural history, it has been used for grazing predominantly, and there is little evidence of cultivation, as the natural vegetation persists. Although the site is traversed by overhead powerlines, the scale of the site, and the distance from publicly accessible viewpoints renders these elements insignificant.

1.4.2 Significance of Receiving Environment

The site includes aspects of a continuing, vernacular **cultural landscape** of **good quality,** within an environment of **moderately valued** scenic, cultural, and historical **significance**, having some components of character, but somewhat lacking in features of unique distinction.
Given this assessment of significance, the site is likely to be **reasonable tolerant** of changes of the type proposed.

1.4.3 Summary Table of the Significance of the receiving environment

Considering the site in context:

Significance (UNESCO) operational Guidelines	Description					
Rural landscape:	***Cultural Landscape Type***					
rural landscape	*Designed Landscape*		*urban / landscape design*		*built environment*	
	(Consciously ordered)		*estates / campuses / gardens*		*constructed landscape*	
Farmsteads, agricultural lands,	**Vernacular Landscape**		*rural settlements /*		*relict vernacular*	
	(Organically evolved)		*traditional farming practices*		**continuing vernacular**	
Mountain 'wilderness' backdrop	*Associative Landscapes*		*events / persons / groups /*		*ethnographic landscape*	
	(Intangible attributes)		*natural places*		*historic rites*	
SIGNIFICANCE CRITERIA	*n/a*	*Low*	*low/med*	*Medium*	*med/high*	*High*
Landscape as resource				**Medium**		
Design Quality			**low/med**			
Scenic Quality				**Medium**		
Unspoilt Character, Authenticity, Integrity				**Medium**		
Sense of Place					**med/high**	
Harmony with Nature				**Medium**		
Cultural Tradition			**low/med**			
Living Traditions			**low/med**			

1.5 Approach

The visual specialist has approached this study from a **Cultural Landscape** perspective.
This approach offers holistic vision for understanding and interpreting whole environments, considering human settlement needs within ecological carrying capacities. This concept endeavours to balance these dynamic systems through responsive conservation, development, and management, to augment each unique identity and spatial quality of these places and to ensure that interventions are located firmly within their contexts. *Cultural Landscapes provide a sense of place and identity, map human relationships with land over time. They are sites associated with significant events, activities, persons, or groups of people; they range in size from extensive tracts of rural land to historic homesteads and individual settlements. They can be grand estates, botanical gardens, parks, university campuses, cemeteries, agri-industrial sites, or scenic drives; they are works of art, narratives of cultures, and expressions of regional identity, constituting visual amenity heritage resources.*

Recognizing and acknowledging the **dynamic quality** of cultural landscapes in that places do change over time (some features endure, certain patterns resonate; others fade, many vanish); and that development is at times necessary (and even desirable) for the continued vitality of place; it is important to *identify*, *protect*, *enhance,* and *integrate* visual qualities which contribute significant value to the character of landscape and lend meaning to the interpretation of place. These can become visual indicators for appropriate design response. Ideally, from a cultural landscape perspective, visual impact assessment is approached ***pro-actively*** – to provide a mechanism for guiding the evolution of development proposals within appropriate visual parameters. This may be achieved by identifying visual resources upfront and, through strategic engagement, by integrating visual considerations into the planning and design phases of projects – and by measuring design proposals against established visual indicators and criteria.

To achieve this, the visual specialist has visited the site and investigated the surrounding areas to understand the site within its context, critical viewpoints, and view corridors.
With respect to the Appendix 6 EIA Regulations requirement, the **duration**, **date,** and **season** of the site inspection was approximately **8 hours**, on Friday **9th September 2022** during a sunny and pleasant day, in **early spring**, which has **relevance** to the outcome of the assessment as representative of the character and quality of the site during a time in which it is likely to be perceived by the public, especially when viewed from the N10.

The visual specialist has provided input into the basic assessment and preliminary planning discussions to advocate for visual issues, and these where applicable; these have been incorporated.

1.6 Methodology

Determined by the Type and Intensity of the **Category of Development** measured against the Type, and Significance of the **Receiving Environment** into which locates, the degree of visual impact expected indicates level of visual impact assessment required.
The introduction of new development associated with urban intensification is likely to be visible clearly within the view frame and visual experience of the receptors, given its proximity to public roads and residential neighbourhoods, and the relative visibility of the site. **High Visual Impact** will result from the development proposal in relation to construction, and operational activities

This requires a **Level 4 Visual Impact Assessment**, which typically involves the following:

- *Site visit and recoding of visual indicators*
- *Identification of issues raised in scoping phase*
- *Description of the receiving environment and the proposed project*
- *Establishment of view catchment area, view corridors, viewpoints, and receptors*
- *Indication of potential visual impacts using established criteria, including potential lighting impacts at night*
- *Description of alternatives, mitigation measures and monitoring programmes (if applicable)*
- *Complete 3D modelling and simulations, with and without mitigation*
- *Review by independent, experienced visual specialist (if required)*

The actual **significance** of the expected visual impacts must be ascertained holistically, considering the proposal in context, and interpreting the visual suitability of the potential changes.

As Author of this report, the visual specialist has considered existing solar energy facilities within the area as useful precedent in terms of representing the form, texture, and scale of the proposed development. The visual specialist has interpreted this within the context of open-source landform information provided by Google Earth Professional, using shapefile modelling integral to software and processed on the author's desktop and laptop computers. The visual specialist has considered the impact of the proposed infrastructure from strategic viewpoints at various distances from the site, using a series of photographs recorded during fieldwork using a hand-held digital camera, towards the articulation of a professional opinion with recommendations for decision–making.

1.7 Assumptions

Assumptions underpinning the visual impact assessment process are as follows:

- Awareness that 'visual' implies the full range of **visual, aesthetic, spatial, cultural,** and **spiritual aspects** of the environment, which together contribute to the local character and 'sense of place' of the area, and that 'visual' considerations are part of the cultural landscape.

- Understanding that 'impact' means a 'noticeable change' to the status quo when perceived under normal conditions; and that change is not necessarily negative, but may contain positive, neutral, and/or negative aspects in varying degrees.

- Identification of all significant visual heritage resources, including protected areas, scenic drives, sites of special interest and tourist destinations, together with their relative importance within the broader context of the region.

- Acknowledging the dynamic nature of landscape processes; including geological, biological, horticultural, and human settlement patterns, which contribute to landscape character, visual heritage attributes and scenic amenity value

- The need to include quantitative criteria, such as 'visibility'; and qualitative criteria, such as 'aesthetic value' or 'sense of place' to achieve a balanced perception of visual impact (i.e., the rational and the intuitive; the measurable and the immeasurable)

- The need to include visual input as an integral part of the project planning and design process, so that the visual findings and recommended measures for mitigation can influence final designs pro-actively

- The need to determine the heritage value and significance of visual and aesthetic resources responsibly through a rigorous process, of which public engagement forms an essential component

1.8 Limitations

Limitations of the visual impact assessment process are as follows:

- The significance of cultural resources is dynamic and multifaceted, and the perception of visual impact may be interpreted subjectively, particularly as interest groups and societal values change over time. Thus, it is not always possible to provide a definitive visual statement of significance.

- Timing and Availability of Information: This report is based on information available at the time of writing and may be subject to review and revision, should additional or more detailed information become available at a later stage

- Accuracy of Material: This report assumes that all material supplied by others (including specialist assessments, historical, planning and land-use background research) is an accurate and true reflection of the issues governing the property and its proposed development

- The geographic aspects of this report rely on a combination of topocadastral maps at scales 1:500 000, 1:250 000 and 1:50 000, together with Google-Earth LIDAR data and GIS information at various scales as recent and as contemporary as possible. However, newer buildings and buildings still under construction may not be reflected

- Detailed LiDAR information of the site context is not always available digitally; therefore, the visual simulations rely on landform as an indication of visibility. At grade, the screening effect of existing trees and buildings may reduce visibility significantly

- With respect to the **quality** and **age** of the base data used, Google Earth Pro high-resolution 2021 aerial photography has served as reliable and accurate source data for three-dimensional mapping; in addition to the ESRI base plan information provided by the Department of Agriculture Enterprise, through *gis.elsenburg.com* Cape Farm Mapper tool

1.9 Visual Resources identified

Within the site boundaries there are some interesting landscape features which should be preserved intact, including the farmstead buildings and tree clusters, koppies, ridges and drainage zones, which contribute interest and visual amenity. These are identified as visual resources having greater visual sensitivity to disturbance.

Across the scales, the visual resources identified are summarized as follows:

Regional setting: *(background)*

Geographic landmarks – distant dolerite koppies

Continuity of agricultural landscape across the Northern Cape

Great Karoo rural cultural landscape character

Local context*: (mid-ground)*

Continuity of landscape and vegetation across cadastral boundaries

Views across rural agricultural landscape

Geographic landmarks – middle distance dolerite koppies

Site content*: (foreground)*

Farmsteads (Hartebeeshoek, Riet Fountain), werf and curtilage

Farm dams, drainage lines,

Foreground koppies and ridges

1.10 Potential Impacts on Visual Resources

The development may impact upon the open space and rural quality of the site by the insertion of increased built infrastructure into landscape. Whereas construction phase impacts tend to be short-term, operational phase impact tend to be more long term, if not permanent.

*Impacts upon the **Regional Setting:***

Gradual reduction in rural character because of cumulative impacts,

Infrastructural infill development within agricultural environment

*Impacts upon the **Local Context:***

Visual intrusion of new infrastructural development within open vistas

Increased aggregation of gridlines, electrical facilities, hostile edge conditions

Change in character due to increased infrastructure.

*Impacts upon the **Site Content:***

Foreground insertion of new facilities overwhelming the openness of the site

Potential intrusion upon the farmstead werf and curtilage areas (500m buffer required)

Potential interruption of landscape continuity

2. The Proposed Development

2.1 Development Description:

(Source: SES)

The Mulilo Renewable Projects Developments proposal includes:

Hercules Solar PV Cluster: (Approximately 960 MW)

- *Approx. 8 x "Up to 120 MW" projects, each to obtain a separate EA. (i.e., Hercules Solar PV1 – Hercules Solar PV8)*
- *132kV Grid connections. The point of connection and connection voltage is to be determined.*
- *The approx. 8 PV projects are proposed to be developed across the 3 farms, i.e., RE/6 – Riet Fountain: RE/28 – Roode Kraal and RE/31 – Hartebeest Hoek.*

Basic preliminary design details for each Approx. 120 MW Solar PV project:

- *Solar Field*
  - *Solar Arrays: PV modules*
  - *Single axis tracking technology maximum height of 5m (aligned north-south).*
  - *Solar module mounting structures comprised of galvanised steel and aluminium.*
  - *Foundations which will likely be drilled and concreted into the ground; and*
  - *Solar measurement and weather stations.*
  - *Central/string Inverters and MV transformers in in field*
  - *DC coupled Battery Energy Storage system (BESS) containers distributed through PV field located adjacent to inverters*
    - *Lithium-Ion battery Cells, Modules, Racks, and containers*
    - *Power Conversion Equipment*
    - *Battery Management System*
    - *Energy Management System*

- *Associated Infrastructure*
  - *Medium Voltage (MV =22/33 kV) overhead powerlines and underground cables.*
  - *MV Collector stations*
  - *Access road.*
  - *Internal gravel roads.*
  - *Fencing.*
  - *General maintenance area.*
  - *Storm water channels and berms.*
  - *Water storage tanks and pipelines.*
  - *Temporary work area during the construction phase (i.e., laydown area).*
  - *O&M buildings, store*

- *Project IPP Substation.*
  - *132kV substation 200m x 200m*
  - *HV transformer*
  - *Substation Control Building*
  - *HV metering, Scada and protection building*
  - *MV collector switchgear buildings*
  - *Compensation equipment (Filters capacitors reactors statcoms)*

- *AC coupled BESS installation (400m x 400m) at project substation and laydown area:*
  - *Solid Sate Battery technology- either Lithium-Ion or Sodium Sulphide (NaS)*
  - *Battery Cells, Modules, Racks, and containers*
  - *Power Conversion Equipment*
  - *Battery Management System*
  - *Energy Management System*
  - *MV transformers*
  - *MV cabling and collector stations*
  - *Fencing*
  - *Offices, workshop*
  - *Fire Protection systems*

The grid connection infrastructure for each project (which will be handed over to Eskom) may include:

- *Onsite Switching Station (SS), adjacent to the IPP Substation.*
- *132kV Overhead Power Line (OHPL) – 30m height from the switching station, with a length of <15km to a yet to be determined connection point.*
  - *Extension of the 132kV Busbar at the MTS*
  - *132kV Feeder Bay at the MTS*
  - *Extension of the 400kV Busbar at the MTS*
  - *Installation of a new 400/132kV Transformer and bay at the MTS.*

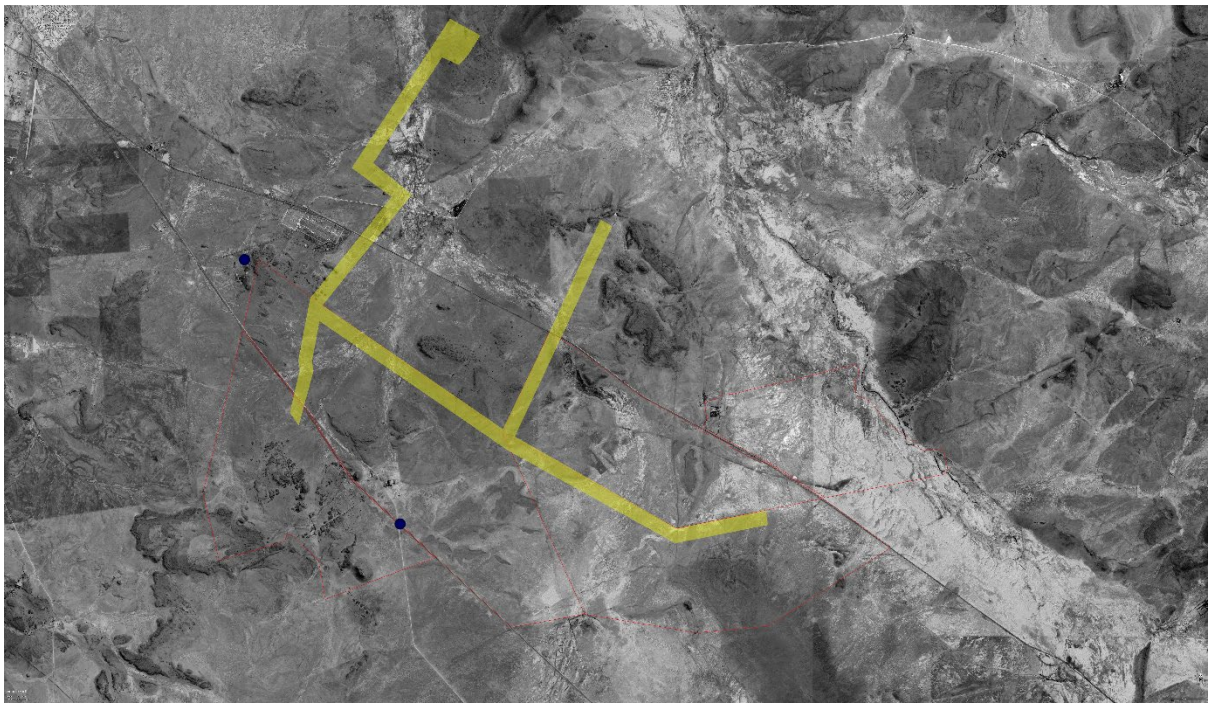


Figure 6: Proposed transmission lines within Strategic Transmission Corridor (Source: SES)

The proposal also contemplates the proposed path of the overhead transmission lines from the facility to reach the proposed substation within an established strategic transmission corridor. The preceding figure indicates this path, noting that the assessment also covers a margin of 50m either side of the corridor, in the event that the lines need to be shifted.

Whereas the transmission lines are integral to the proposal, they will be considered independently within the assessment. Whereas the site already includes existing transmission lines, the scale of the site is sufficient to absorb the proposed transmission lines, taking the most direct route to the proposed substation, without substantial loss of visual quality.

Subsequent to the submission of the draft baseline study the proposed alignment for the transmission corridor has been adjusted as per the diagram that follows.

With respect to **Figure 7 below**, the areas indicated in bright yellow **were NOT included in the original scope of works** (the original areas are indicated in pale yellow). However, the **eastern corridor is now considered the preferred alignment.**

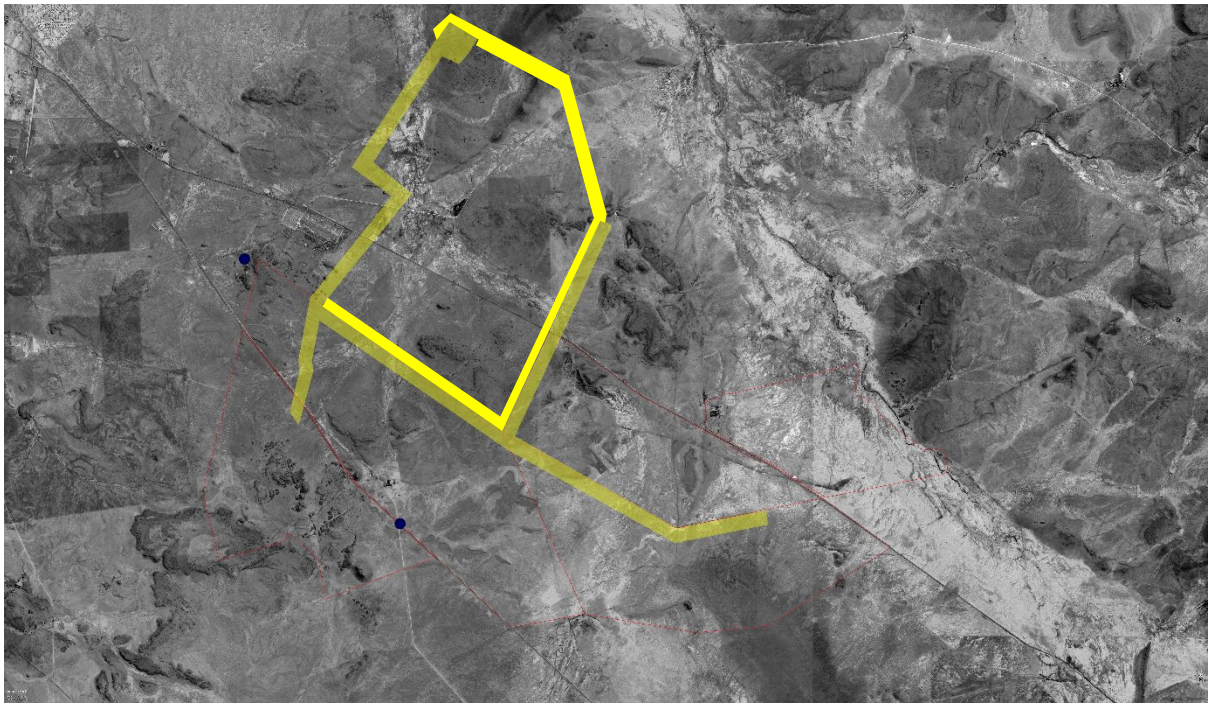


Figure 7: Revised alignment of transmission lines (Source: GE Pro)

The visual impact of this eastern alignment is likely to be similar to the visual impact of the western alignment. Generally speaking, transmission lines are less visually impactful than the solar arrays, and therefore the change in alignment is of negligible concern.

2.1.1 Proposed Layout(s) to be assessed

The baseline study was submitted for planning and design response.

The client (Mulilo) initially decided to separate the proposal into two phases, however, due to Eskom capacity issues, subsequently the project has been placed on hold.

In the interim, the baseline report serves to contextualize the potential visual impacts of the proposal holistically. The phase 1 project layouts have been developed in response to visual indicators supplied and are show as cumulatively as per the Figure 12 diagram below:

Figure 8: Composite: Hercules 1, 2, 3, & 4 Phase 1 (Source: SES)

Descriptions of the proposed phase 1 components have been given separately as follows:

Development of the Hercules 1 Phase 1 Solar PV Facility and associated Grid Connection Infrastructure as part of the Hercules Solar PV Cluster Project near De Aar in the Northern Cape Province – Project Description:

Mulilo Renewable Project Developments (Pty) Ltd ('the Developer') proposes the development of a Photovoltaic (PV) Solar Energy Facility on Remaining Extent of Farm Riet Fountain No. 6 and associated infrastructure on Remaining Extent of Farm Riet Fountain No. 6, Remaining Extent of Farm Wagt en Bittje No. 5, Portion 1 of Farm Riet Fountain No. 6, Portion 3 of Farm Carolus Poort No. 3, and Portion 4 of Farm Riet Fountain No. 6 located approximately 15 km South-East of De Aar within the Emthanjeni Local Municipality in the Northern Cape Province.

The applicant for Environmental Authorisation (EA) will be Hercules 1 Phase 1 a special purpose vehicle (SPV) fully owned by the Developer. The facility will have a contracted capacity of up to 140 MW and will be known as Hercules 1 Phase 1.

The project is planned as part of a cluster of renewable energy facilities known as the Hercules Solar PV Cluster, which includes seven (7) additional Solar PV Facilities Hercules 2 Phase 1, Hercules 3 Phase 1, Hercules 4 Phase 1, Hercules 1 Phase 2, Hercules 2 Phase 2, Hercules 3 Phase 2 and Hercules 4 Phase 2, and grid connection infrastructure connecting the facilities to the approved Wag n Bietjie Main Transmission Substation (MTS).

Infrastructure associated with the Solar PV Facility will include the following:

- *Solar PV array comprising bifacial PV modules and mounting structures, using single axis tracking technology*
- *Inverters and transformers*
- *Cabling between the panels*
- *Battery Energy Storage System (BESS) (Approximately 5 Ha)*
- *Laydown areas (approximately 4 Ha)*
- *Construction camps, site offices,*
- *12 m wide Access Road and entrance gate from the N10 to project site and switching station*
- *6 m wide internal distribution roads*
- *Operations and Maintenance Building, Site Offices, Ablutions with conservancy tanks, Storage Warehouse, workshop, Guard House*
- *Onsite 132 kV Independent Power Producer (IPP) Substation including the HV Step-up transformer, MV Interconnection building (Approximately 100 m x 100 m)*

Infrastructure associated with the Solar PV Facilities Grid Connection, which would be developed by the IPP, for Eskom under a self-build agreement with Eskom, will include the following (Note: This infrastructure will be applied for in a separate EA application, as it is to be handed over to Eskom after construction):

- *Onsite 132 kV Eskom switching station – 100 m x 100 m and 30 m height, metering, relay & control buildings, laydown area, ablutions with conservancy tanks and water storage tanks, and access roads.*
- *132 kV Overhead Power Line (OHPL) – 30 m height from the switching station to the approved Wag n Bietjie Main Transmission Substation (MTS).*

A development footprint of approximately 379 Ha has been identified within the broader project cluster, by the developer for the development of the Hercules 1 Phase 1. Facility, which is proposed in response to the identified objectives of the national and provincial government and local and district municipalities to develop renewable energy facilities for power generation purposes.

It is the developer's intention to bid the proposed project under the Department of Mineral Resources and Energy's (DMRE's) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme (or similar programme), with the aim of evacuating the generated power into the national grid. This will aid in the diversification and stabilisation of the country's electricity supply, in line with the objectives of the Integrated Resource Plan (IRP), with Hercules 1 Phase 1 set to inject up to 140 MW into the national grid.

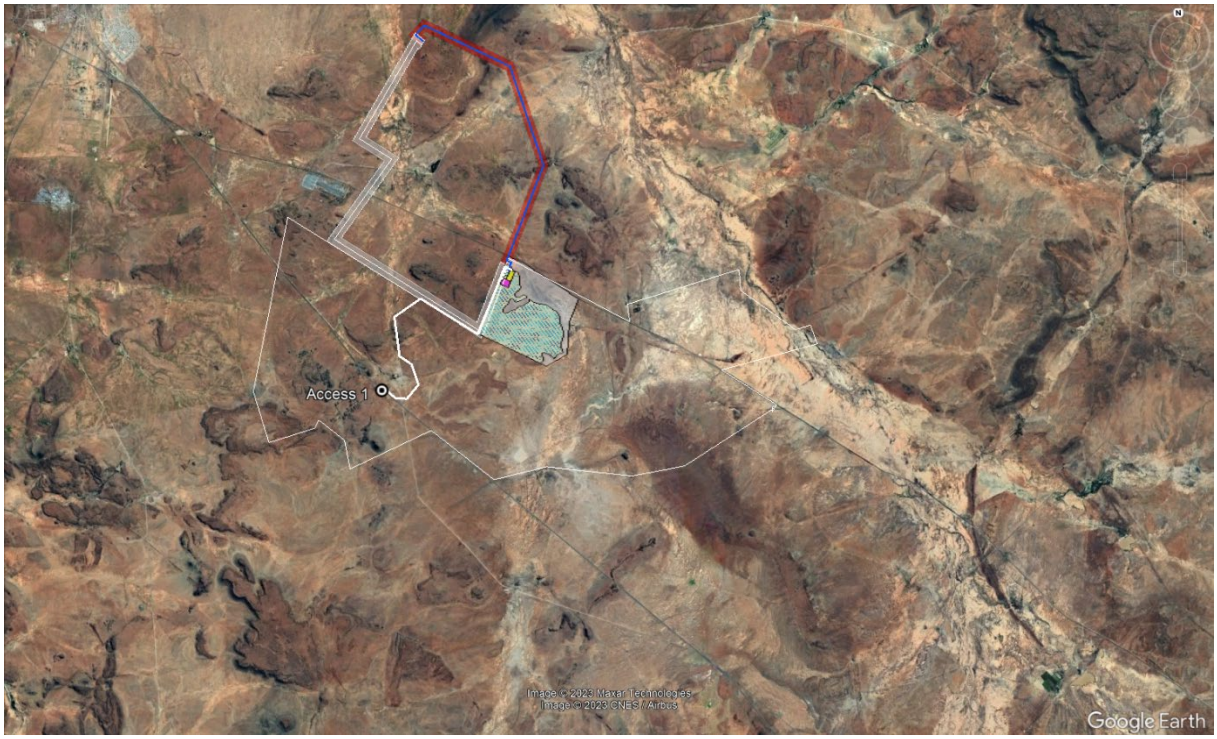


Figure 9: Hercules 1 Phase1 (Source: SES)

Development of the Hercules 2 Phase 1 Solar PV Facility and associated Grid Connection Infrastructure as part of the Hercules Solar PV Cluster Project near De Aar in the Northern Cape Province – Project Description

Mulilo Renewable Project Developments (Pty) Ltd ('the Developer') is proposing the development of a Photovoltaic (PV) Solar Energy Facility on Remaining Extent of Farm Roode Kraal No. 28 and associated infrastructure on Remaining Extent of Farm Riet Fountain No. 6, Remaining Extent of Farm Roode Kraal No. 28, Remaining Extent of Farm Wagt en Bittje No. 5, Portion 1 of Farm Riet Fountain No. 6, Portion 3 of Farm Carolus Poort No. 3, and Portion 4 of Farm Riet Fountain No. 6 located approximately 15 km South-East of De Aar within the Emthanjeni Local Municipality in the Northern Cape Province.

The applicant for Environmental Authorisation (EA) will be Hercules 2 Phase 1 a special purpose vehicle (SPV) fully owned by the Developer. The facility will have a contracted capacity of up to 140 MW and will be known as Hercules 2 Phase 1.

The project is planned as part of a cluster of renewable energy facilities known as the Hercules Solar PV Cluster, which includes seven (7) additional Solar PV Facilities Hercules 1 Phase 1, Hercules 3 Phase 1, Hercules 4 Phase 1, Hercules 1 Phase 2, Hercules 2 Phase 2, Hercules 3 Phase 2 and Hercules 4 Phase 2, and grid connection infrastructure connecting the facilities to the approved Wag n Bietjie Main Transmission Substation (MTS).

Infrastructure associated with the Solar PV Facility will include the following:

- *Solar PV array comprising bifacial PV modules and mounting structures, using single axis tracking technology*
- *Inverters and transformers*
- *Cabling between the panels*
- *Battery Energy Storage System (BESS) (Approximately 5 Ha)*
- *Laydown areas (approximately 4 Ha)*
- *Construction camps, site offices,*
- *12 m wide Access Road and entrance gate from the N10 to project site and switching station*
- *6 m wide internal distribution roads*
- *Operations and Maintenance Building, Site Offices, Ablutions with conservancy tanks, Storage Warehouse, workshop, Guard House*
- *Onsite 132 kV Independent Power Producer (IPP) Substation including the HV Step-up transformer, MV Interconnection building (Approximately 100 m x 100 m)*

Infrastructure associated with the Solar PV Facilities Grid Connection, which would be developed by the IPP, for Eskom under a self-build agreement with Eskom, will include the following (Note: This infrastructure will be applied for in a separate EA application, as it is to be handed over to Eskom after construction):

- *Onsite 132 kV Eskom switching station – 100 m x 100 m and 30 m height, metering, relay & control buildings, laydown area, ablutions with conservancy tanks and water storage tanks, and access roads.*
- *132 kV Overhead Power Line (OHPL) – 30 m height from the switching station to the approved Wag n Bietjie Main Transmission Substation (MTS).*

A development footprint of approximately 437 Ha has been identified within the broader project cluster, by the developer for the development of the Hercules 2 Phase 1. Facility, which is proposed in response to the identified objectives of the national and provincial government and local and district municipalities to develop renewable energy facilities for power generation purposes.

It is the developer's intention to bid the proposed project under the Department of Mineral Resources and Energy's (DMRE's) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme (or similar programme), with the aim of evacuating the generated power into the national grid. This will aid in the diversification and stabilisation of the country's electricity supply, in line with the objectives of the Integrated Resource Plan (IRP), with Hercules 2 Phase 1 set to inject up to 140 MW into the national grid.

Figure 10: Hercules 2 Phase 1 (Source: SES)

Development of the Hercules 3 Phase 1 Solar PV Facility and associated Grid Connection Infrastructure as part of the Hercules Solar PV Cluster Project near De Aar in the Northern Cape Province – Project Description

Mulilo Renewable Project Developments (Pty) Ltd ('the Developer') is proposing the development of a Photovoltaic (PV) Solar Energy Facility on Remaining Extent of Farm Hartebeest Hoek No. 31 and associated infrastructure on Remaining Extent of Farm Riet Fountain No. 6, Remaining Extent of Farm Hartebeest Hoek No. 31, Remaining Extent of Farm Wagt en Bittje No. 5, Portion 1 of Farm Riet Fountain No. 6, Portion 3 of Farm Carolus Poort No. 3, and Portion 4 of Farm Riet Fountain No. 6 located approximately 15 km South-East of De Aar within the Emthanjeni Local Municipality in the Northern Cape Province.

The applicant for Environmental Authorisation (EA) will be Hercules 3 Phase 1 a special purpose vehicle (SPV) fully owned by the Developer. The facility will have a contracted capacity of up to 140 MW and will be known as Hercules 3 Phase 1.

The project is planned as part of a cluster of renewable energy facilities known as the Hercules Solar PV Cluster, which includes seven (7) additional Solar PV Facilities Hercules 1 Phase 1, Hercules 2 Phase 1, Hercules 4 Phase 1, Hercules 1 Phase 2, Hercules 2 Phase 2, Hercules 3 Phase 2 and Hercules 4 Phase 2, and grid connection infrastructure connecting the facilities to the approved Wag n Bietjie Main Transmission Substation (MTS).

Infrastructure associated with the Solar PV Facility will include the following:

- *Solar PV array comprising bifacial PV modules and mounting structures, using single axis tracking technology*
- *Inverters and transformers*
- *Cabling between the panels*
- *Battery Energy Storage System (BESS) (Approximately 5 Ha)*
- *Laydown areas (approximately 4 Ha)*
- *Construction camps, site offices,*
- *12 m wide Access Road and entrance gate from the N10 to project site and switching station*
- *6 m wide internal distribution roads*
- *Operations and Maintenance Building, Site Offices, Ablutions with conservancy tanks, Storage Warehouse, workshop, Guard House*
- *Onsite 132 kV Independent Power Producer (IPP) Substation including the HV Step-up transformer, MV Interconnection building (Approximately 100 m x 100 m)*

Infrastructure associated with the Solar PV Facilities Grid Connection, which would be developed by the IPP, for Eskom under a self-build agreement with Eskom, will include the following (Note: This infrastructure will be applied for in a separate EA application, as it is to be handed over to Eskom after construction):

- *Onsite 132 kV Eskom switching station – 100 m x 100 m and 30 m height, metering, relay & control buildings, laydown area, ablutions with conservancy tanks and water storage tanks, and access roads.*
- *132 kV Overhead Power Line (OHPL) – 30 m height from the switching station to the approved Wag n Bietjie Main Transmission Substation (MTS).*

A development footprint of approximately 360 Ha has been identified within the broader project cluster, by the developer for the development of the Hercules 3 Phase 1. Facility, which is proposed in response to the identified objectives of the national and provincial government and local and district municipalities to develop renewable energy facilities for power generation purposes.

It is the developer's intention to bid the proposed project under the Department of Mineral Resources and Energy's (DMRE's) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme (or similar programme), with the aim of evacuating the generated power into the national grid. This will aid in the diversification and stabilisation of the country's electricity supply, in line with the objectives of the Integrated Resource Plan (IRP), with Hercules 3 Phase 1 set to inject up to 140 MW into the national grid.

Figure 11: Hercules 3 Phase 1 (Source: SES)

Development of the Hercules 4 Phase 1 Solar PV Facility and associated Grid Connection Infrastructure as part of the Hercules Solar PV Cluster Project near De Aar in the Northern Cape Province – Project Description

Mulilo Renewable Project Developments (Pty) Ltd ('the Developer') is proposing the development of a Photovoltaic (PV) Solar Energy Facility on Remaining Extent of Farm Hartebeest Hoek No. 31 and associated infrastructure on Remaining Extent of Farm Riet Fountain No. 6, Remaining Extent of Farm Hartebeest Hoek No. 31, Remaining Extent of Farm Wagt en Bittje No. 5, Portion 1 of Farm Riet Fountain No. 6, Portion 3 of Farm Carolus Poort No. 3, and Portion 4 of Farm Riet Fountain No. 6 located approximately 15 km South-East of De Aar within the Emthanjeni Local Municipality in the Northern Cape Province.

The applicant for Environmental Authorisation (EA) will be Hercules 4 Phase 1 a special purpose vehicle (SPV) fully owned by the Developer.

The facility will have a contracted capacity of up to 140 MW and will be known as Hercules 4 Phase 1. The project is planned as part of a cluster of renewable energy facilities known as the Hercules Solar PV Cluster, which includes seven (7) additional Solar PV Facilities Hercules 1 Phase 1, Hercules 2 Phase 1, Hercules 3 Phase 1, Hercules 1 Phase 2, Hercules 2 Phase 2, Hercules 3 Phase 2 and Hercules 4 Phase 2, and grid connection infrastructure connecting the facilities to the approved Wag n Bietjie Main Transmission Substation (MTS).

Infrastructure associated with the Solar PV Facility will include the following:

- *Solar PV array comprising bifacial PV modules and mounting structures, using single axis tracking technology*
- *Inverters and transformers*
- *Cabling between the panels*
- *Battery Energy Storage System (BESS) (Approximately 5 Ha)*
- *Laydown areas (approximately 4 Ha)*
- *Construction camps, site offices,*
- *12 m wide Access Road and entrance gate from the N10 to project site and switching station*
- *6 m wide internal distribution roads*
- *Operations and Maintenance Building, Site Offices, Ablutions with conservancy tanks, Storage Warehouse, workshop, Guard House*
- *Onsite 132 kV Independent Power Producer (IPP) Substation including the HV Step-up transformer, MV Interconnection building (Approximately 100 m x 100 m)*

Infrastructure associated with the Solar PV Facilities Grid Connection, which would be developed by the IPP, for Eskom under a self-build agreement with Eskom, will include the following (Note: This infrastructure will be applied for in a separate EA application, as it is to be handed over to Eskom after construction):

- *Onsite 132 kV Eskom switching station – 100 m x 100 m and 30 m height, metering, relay & control buildings, laydown area, ablutions with conservancy tanks and water storage tanks, and access roads.*
- *132 kV Overhead Power Line (OHPL) – 30 m height from the switching station to the approved Wag n Bietjie Main Transmission Substation (MTS).*

A development footprint of approximately 324 Ha has been identified within the broader project cluster, by the developer for the development of the Hercules 4 Phase 1. Facility, which is proposed in response to the identified objectives of the national and provincial government and local and district municipalities to develop renewable energy facilities for power generation purposes.

It is the developer's intention to bid the proposed project under the Department of Mineral Resources and Energy's (DMRE's) Renewable Energy Independent Power Producer Procurement (REIPPP) Programme (or similar programme), with the aim of evacuating the generated power into the national grid. This will aid in the diversification and stabilisation of the country's electricity supply, in line with the objectives of the Integrated Resource Plan (IRP), with Hercules 4 Phase 1 set to inject up to 140 MW into the national grid.

Figure 12: Hercules 4 Phase 1 (Source: SES)

2.2 *Implications of the Proposed Development*

Within the field of view, both the Planning Design & Development phase and Operational phase of the project would cause noticeable changes - (i.e., visual impact) to the visual status quo.
These may have either negative, neutral, or positive effects on the visual resources identified, and are summarized as follows:

2.2.1 *Planning, Design and Development phase:*

- Site clearance / removal of certain vegetation
- Earthworks / excavations/ trenching / platforming
- Construction operations – establishment, materials delivery, and storage
- Building activity, personnel and vehicles and tower cranes (machinery and site camp)
- Noise / dust / lighting / temporary services / hoarding

2.2.2 *Operational phase:*

- Transformation of the site from to agricultural to infrastructural (change in 'sense of place')
- New solar energy infrastructure and associated buildings within rural landscape
- Monitoring/maintenance activities
- Increased traffic flows
- Signage, Lighting at night

Note: Whereas many construction phase impacts are significant and immediate, effecting noticeable change to the status quo, they tend to last only as long as construction activity continues. Operational phase impacts tend to be permanent and long-lasting, but may become neutralized over time, as the visual changes become alleviated through the implementation of appropriate mitigation measures, and the maturing of landscape.

3. The Receiving Environment

3.1 Contextual analysis (landscape character)

Visual impact assessment should consider the receiving environment of the development proposal not only at site scale, but also at the broader contextual landscape scale, to understand the role of the site and the impact of its development holistically, and as a contiguous component of a larger system beyond its own cadastral boundaries,

Whereas the site context can be described as a continuing **cultural landscape,** with existing rural vernacular and infrastructural components, layered, modified, and adapted over time. The site has a vast expansiveness to it, set within the continuum of a continuing rural cultural landscape.

Within this context, certain geographic features prevail as defining and structuring elements at the regional scale: notably the dolerite ridges and koppies which provide visual thresholds. At the local scale, the farmsteads with their outbuildings and introduced tree clusters around the werf spaces provides visual anchors as well as a sense of enclose of landscape 'rooms'.

Other features may be more friable or transient, or even obscured; but their meaning reveals itself through the analysis and identification of relationships between elements which contribute to the significance of the whole. The contextual cultural landscape analysis diagrams that follow explore these themes.

3.1.1 Type of Landscape

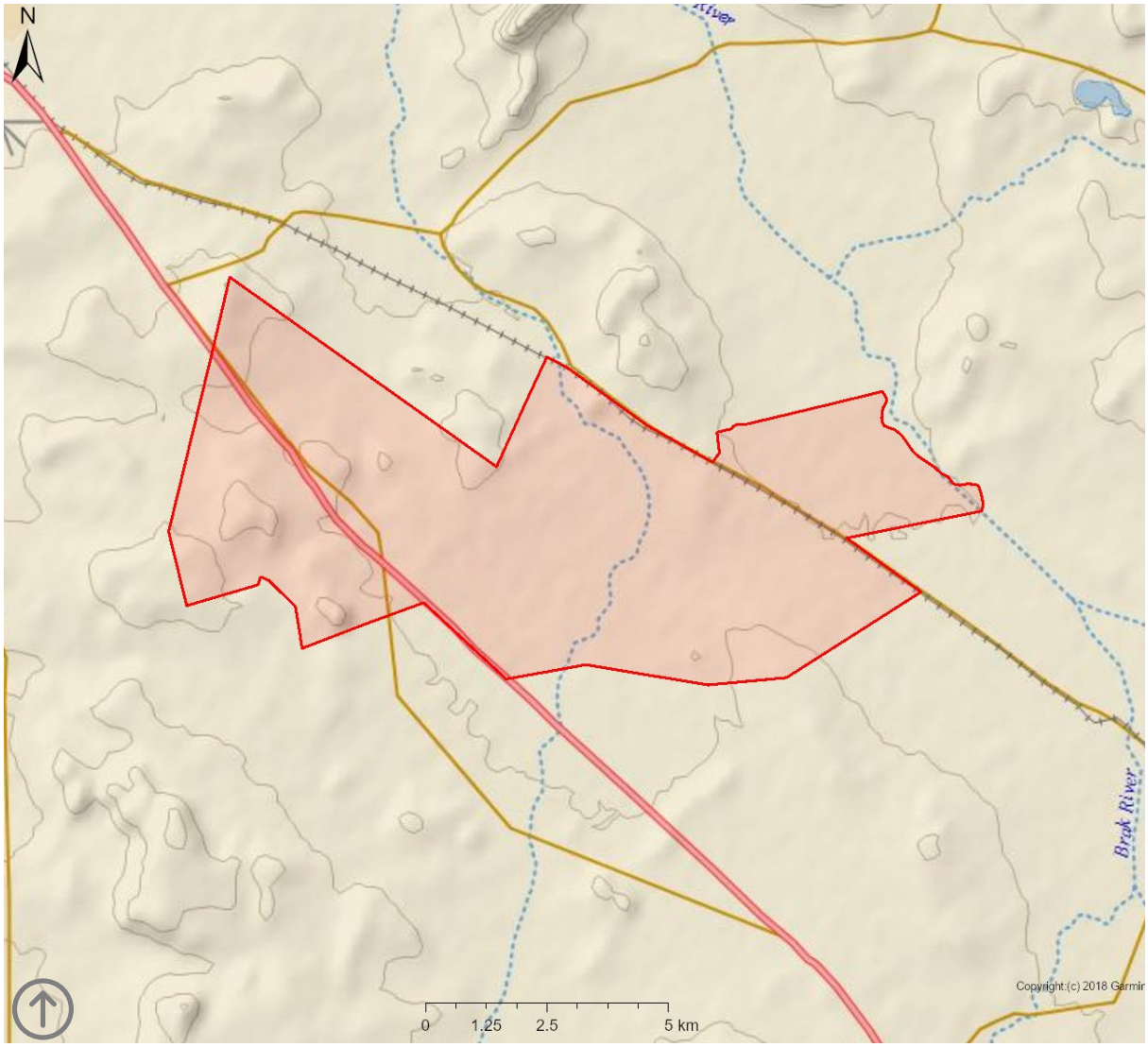


Figure 13: Contours at 20m intervals (Source: Cape Farm Mapper)

The site is situated on underlying geology of the Abrahamskraal Formation, above which 'koppies' of the Karoo Dolerite Suite arise. In this relatively dry environment, vegetation is typical of the Northern Cape Karoo, being a mix of approximately 60% grassland and 40% scrub, with seasonal variation contingent upon rainfall. This typology of landscape is characterised by extensive grazing (sheep, goat, game) with remote farmstead settlements at considerable distances (approximately 7km centres), separated by vast tracts of land. The contour diagram demonstrates how subtly undulated landform is, with koppies and ridges clustered mainly in the western portions of the site. The landform contributes to visual screening, by alternately obscuring or revealing views, depending on viewpoint, yet the landscape remains expansive and 'sky-dominated'.

3.1.2 Topography and Landform

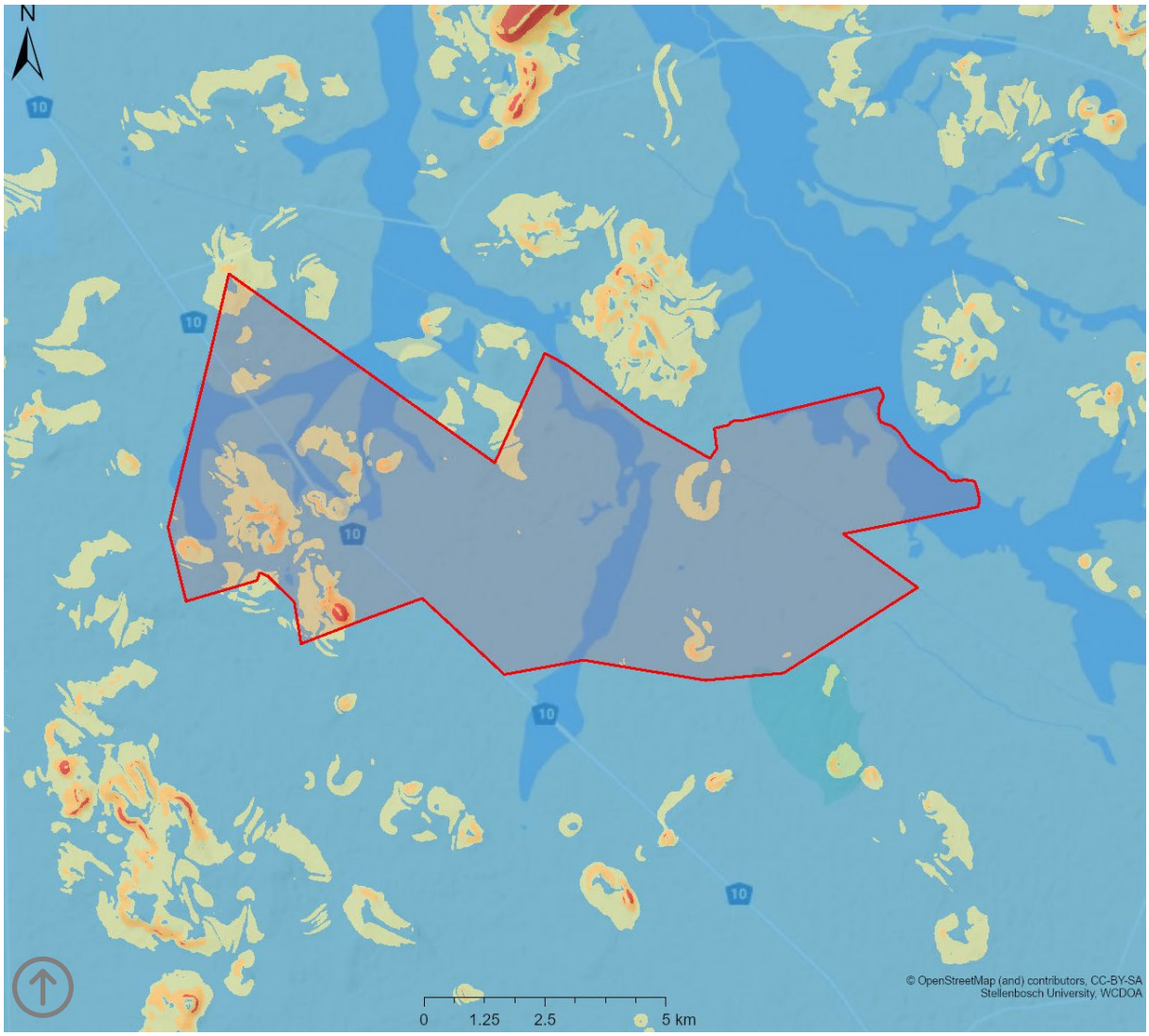


Figure 14: Slope curvature (Source: Cape Farm Mapper)

The site falls gently from approximately 1345m above mean sea level at its western boundary, to approximately 1280m above mean sea level at its eastern boundary. Ancient drainage lines have marked the landscape, with subtle changes in vegetation making the marginally wetter soils within these drainage zones. Areas shaded yellow on the diagram above correspond to the dolerite koppies and ridges, which are more steeply inclined than areas shaded blue, which are flatter or shallow. The darkest blue areas indicate the drainage lines.

3.1.3 Aspect and Orientation

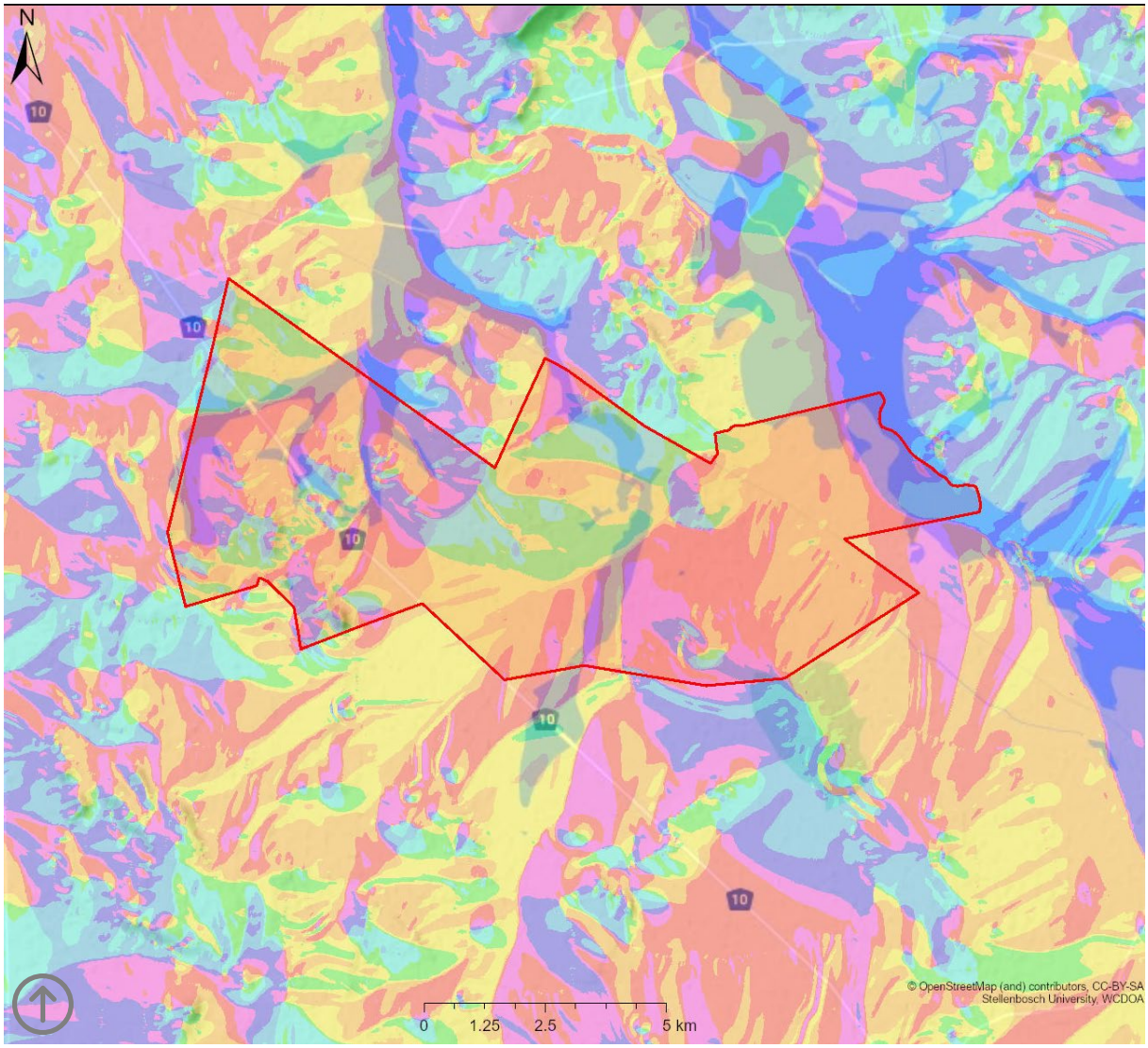
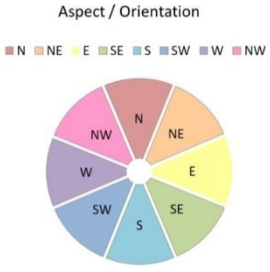


Figure 15: Aspect (Source: Cape Farm Mapper)

The aspect diagram reveals the faceted and nuanced shape of the surface of the site, largely because of the dolerite koppies and ridges, which create a natural visual threshold. Generally, however, there is a greater percentage of northern aspect (including NE and NW) across the site, which is favourable for solar installation.



3.1.4 Hydrology and drainage

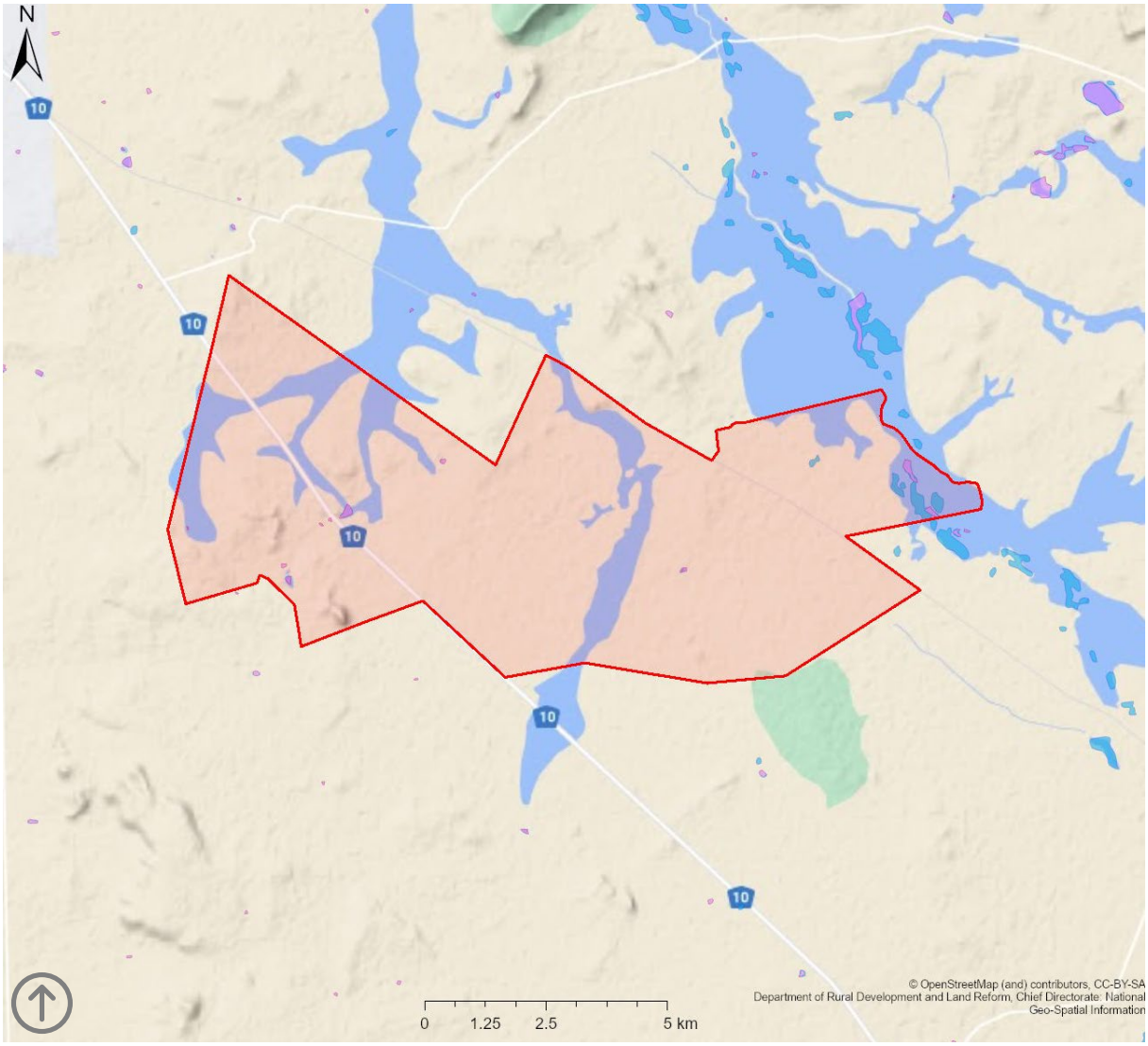


Figure 16: River and drainage systems (Source: Cape Farm Mapper)

Tributary branches of the Brakrivier drain the site northwards, in broad, dry, shallow, dendritic patterns. Weirs and small farm dams have been constructed in certain drainage lines, but for the most part, only a subtle change in vegetation marks the drainage course, and during the dry season, the drainage lines are barely perceptible, however, during the rainy season, surface water will accumulate within these areas, and because of their season hydrological functionality, they have a higher degree of visual sensitivity than the adjacent areas.

3.1.5 Landmarks and elevation

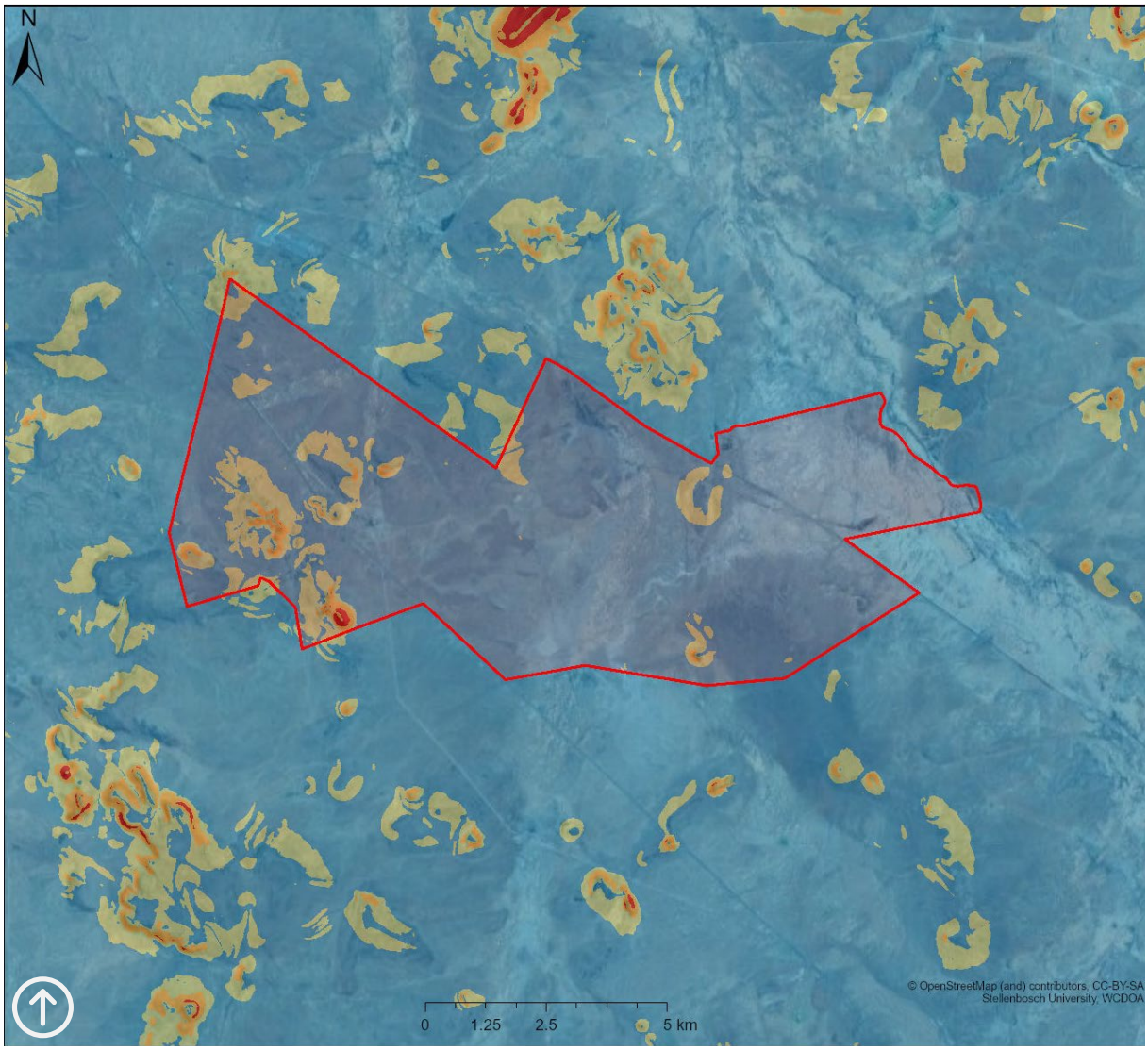


Figure 17: Landmarks and elevation (Source: Cape Farm Mapper)

Within an expansive and subtle landscape, any noticeable change in elevation will catch the eye. The dolerite koppies and ridges of the Northern Cape Karoo become beacons or landmarks within landscape, rising above the veld and offering visual markers for orientation and wayfinding. Because of their visual prominence, they have a higher degree of visual sensitivity than the surrounding areas. Using the language of Christian Norberg-Schultz (towards a Phenomenology of Place), this is a 'cosmic' or 'sky-dominated' landscape, exposed to the elements, and seemingly 'hostile' to settlement

3.1.6 Settlement Patterns & Built Form

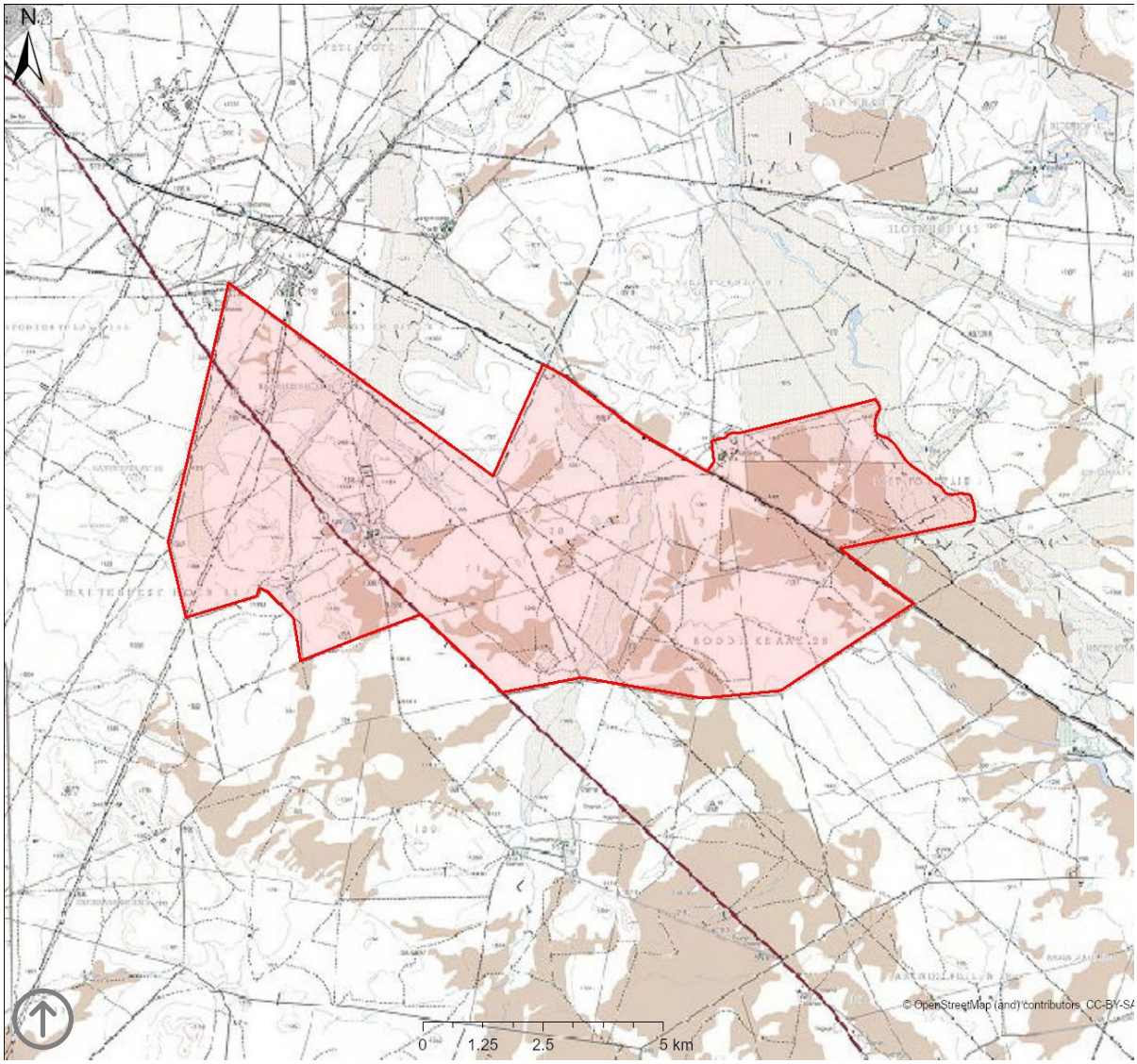


Figure 18: Cadastral patterns (Source: Cape Farm mapper)

It is notable that wherever farmsteads do exist, micro-climate mitigation has been achieved through the introduction of tree planting (often with exotic species) to provide shade and shelter to homesteads and associated outbuildings Overlaid onto the natural topography are the more geometric cadastral patterns of farm boundaries (marked by the wire-fencing so typical of rural South African landscape) as well as the roadways, railways, and existing grid connection overhead powerlines. These provide a network of connections which link across vast distances and inhabit the landscape in their own way. At the intersection of major railway lines, De Aar is the closest town to the site, approximately 7km away.

3.1.7 Landscape patterns and vegetation cover

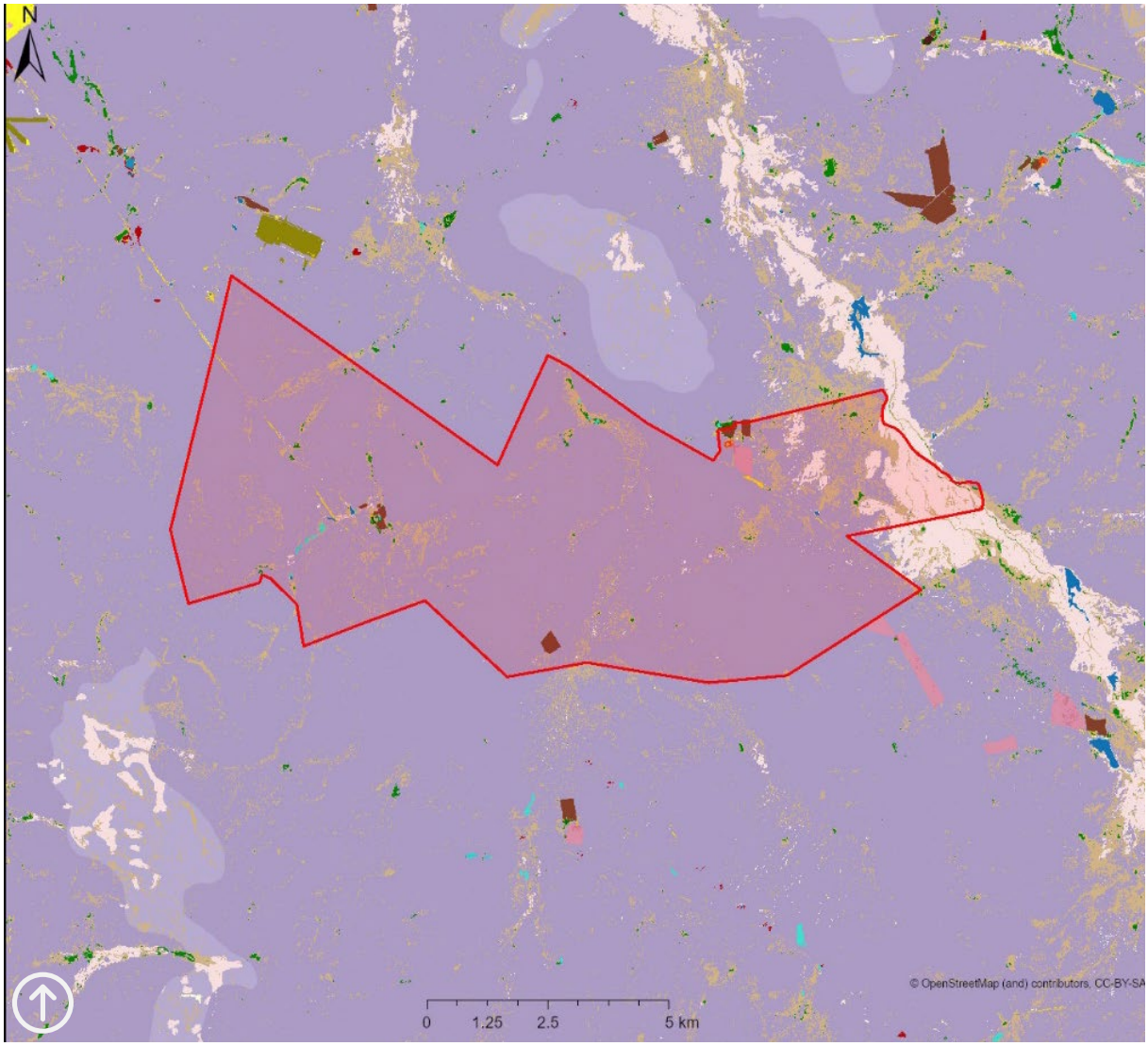


Figure 19: Landscape patterns (Source: Cape Farm Mapper)

Although the landscape is clearly rural, the impact of human activity appears relatively light, and the naturally occurring vegetation types (low shrubland/Nama karoo and natural grassland) are still present in abundance. Small, sporadic patches of annual crops, associated with farmstead settlements, do not present dominant landscape patterns. Notwithstanding the fence lines, the continuity of the vegetation typology across properties serves to unify the landscape across cadastral divisions. Although this is a cultural landscape, the landform and vegetation together with the expansiveness of the environment lend a remote and almost deserted quality to the sense of place.

3.1.8 Landscape Character

Within a broader cultural landscape continuum, the site is an anthropic rural environment in transition, with contemporary infrastructural components overlaid upon a minimally transformed farm landscape. The farmsteads and associated werf features (including the lawn are trees) have visual amenity. There is an open remoteness and tranquil quality to the site; and because of landform and viewing distance, portions of the site are more visually enclosed than others. This means that sections of the site are note clearly visible from publicly accessible areas, such as the N10. This contributes to the sense of remoteness.

3.1.9 Landscape Character Sensitivity

The Landscape Character of the **regional setting** is considered to have **low to moderately sensitivity** to visual impact as it is associated with areas of medium visual / scenic amenity.

The Landscape Character of the **local context** is considered to have **low sensitivity** given the scale of the environment.

The Landscape Character of the **site** is considered **moderately sensitive**, given the proximity of the proposal to the farmsteads.

3.2 Drone aerial perspectives

Figure 20: aerial perspective across mixed scrub and grassland (Source: SES)

Figure 21: aerial perspective across the site, towards dolerite ridges on the horizon (Source: SES)

Figure 22: aerial perspective at higher altitude – note overhead powerlines (Source: SES)

Figure 23: aerial perspective showing perceived 'natural' quality of landscape (Source: SES)

3.3 Drone aerial perspectives

Figure 24: Panoramic view looking south wards from the N10

Figure 25: panoramic view from ridgeline towards existing powerlines

Figure 26: panoramic view across site towards existing powerlines

Figure 27: panoramic view looking north towards Haartbeesthoek

3.4 Site orthophotos

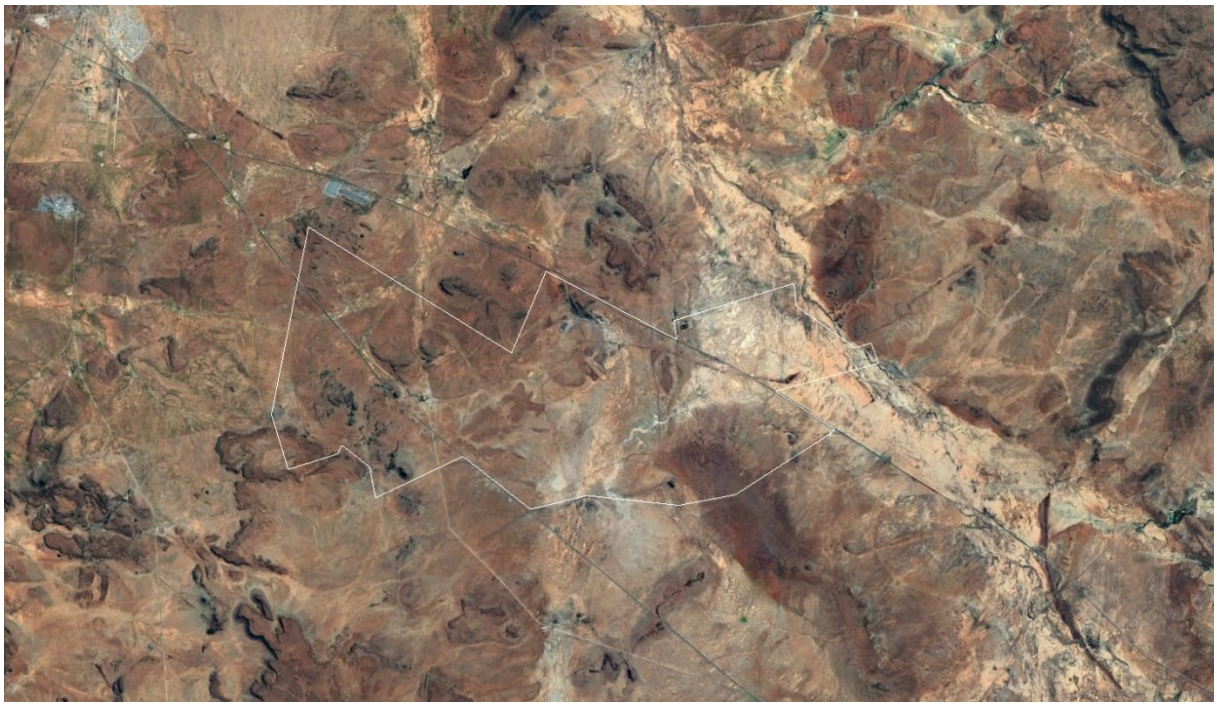


Figure 28: The Site (Source: GE Pro)

Figure 29: Detail: Hartebeesfontein farm werf (Source: GE Pro)

3.5 Visual Scenic Resources

3.5.1 Type of Environment

The site sits within the broader context of a rural **cultural landscape** which includes areas, views, and component resources of moderately valued scenic, cultural, and historical significance, including expansive rural views towards the horizon in all directions.

3.5.2 Landscape Integrity & Quality

The continuity and intactness of the landscape, and lack of visual intrusions enhances visual quality. Although farming and settlement have altered the site minimally from its natural state, its agricultural character and established landscape contribute to the rural quality of the cultural landscape. Although some existing infrastructure existing, it does not overwhelm the site. This designates the site as a good quality landscape.

3.5.3 Views and View Corridors

To a considerable extent, the combined effects of landform and topography obscure large portions the site from external views. However, as the site exists on both sides of the N10, which passes along the southern portion of the site, this route can be considered a visual corridor offering some view into the site. Likewise, the Cape Midland Railway line could be considered a visual corridor passing along the norther portion of the site, assuming it is or will be operational.

3.5.4 Visual resources across scale

At the Regional scale, (back-ground) the dolerite koppies and ridges provide characteristic landmark features, lend a sense of orientation and identity to the agricultural landscape of the Northern Cape Karoo.

At the local scale, (mid-ground), the site is continuous with the surrounding farmland and its borders are virtually indistinguishable. Local koppies and water bodies punctuate the landscape, as do farmstead settlements at discrete distances.

At the site scale, foreground ridges and koppies provide landmark features, as do farm dams, water bodies, and to a certain extent, the drainage courses. The Hartebeeshoek farmstead in the south and Riet Fountain farmstead in the north provide local ‘places’ of human habitation.

4. The Visual Setting

4.1 Visibility of proposed development

Visibility is dependent on factors such as:(a) the **nature** of the proposal; (b) its **placement** within the landscape; (c) the **scale** of the proposal relative to its context; (d) the detailed design (**form**, **massing**, **aggregation**, as well as (e) the **position** and viewing **distance**.

The net effect of these factors is that (at grade) the visual impact of an object will begin to fall away rapidly with increasing distance. Visibility will reduce from 1.5 km distance, and beyond 5 km, visibility is negligible.

4.1.1 View catchment and Viewshed

Theoretically, areas shaded green in the figure that follows have direct views towards the site. The digital 'View Catchment' diagram calculates visibility with respect to topography (i.e., landform) only; whereas the screening effects of surface texture included within LIDAR data (if available) e.g., existing buildings and trees overlaid onto the contour information would give a more precise view and reduce the footprint of the view catchment.

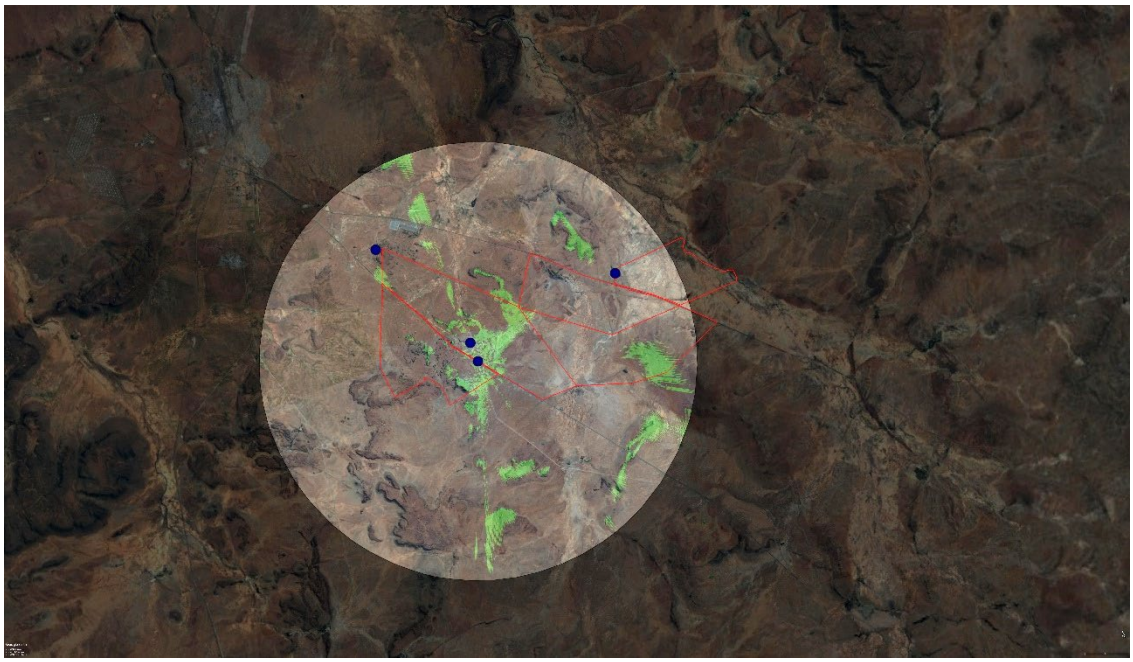


Figure 30: Digital view catchment area from the N10 at site entrance (Source: GEP)

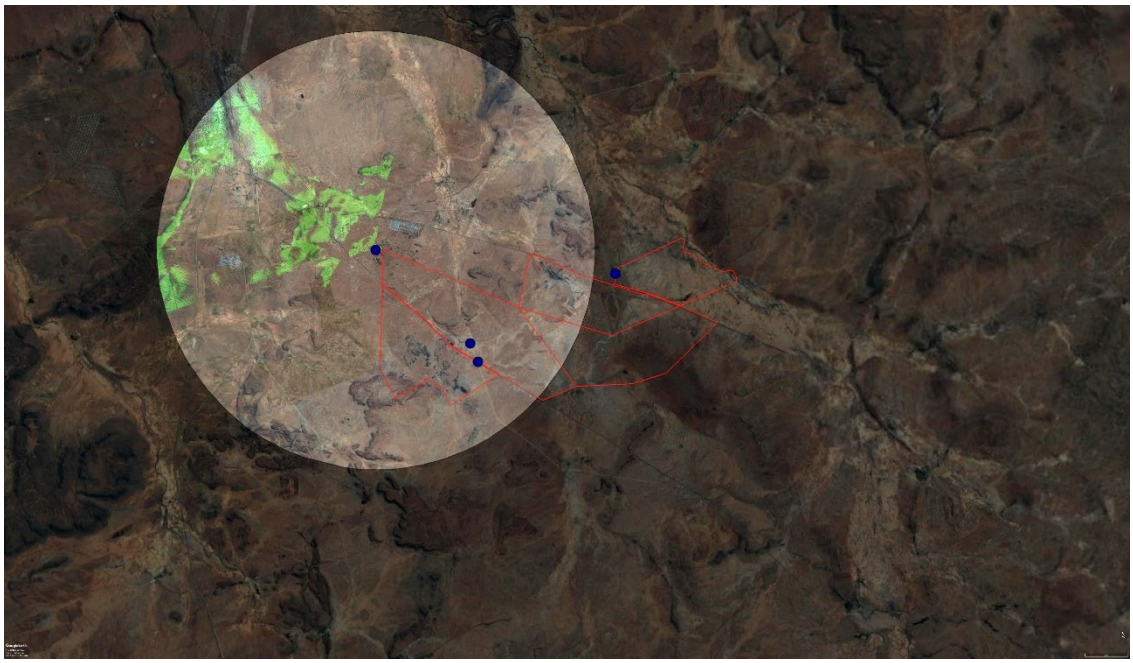


Figure 31: Digital view catchment area from (Source: GEP)

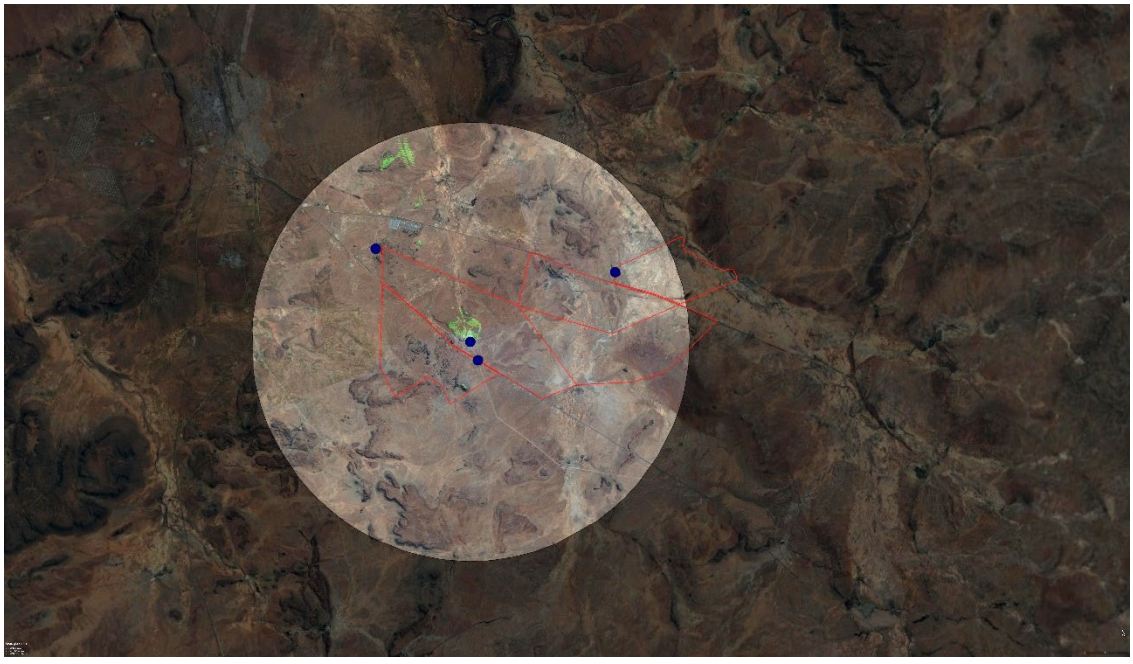


Figure 32: Digital view catchment area from Hartebeeshoek (Source: GEP)

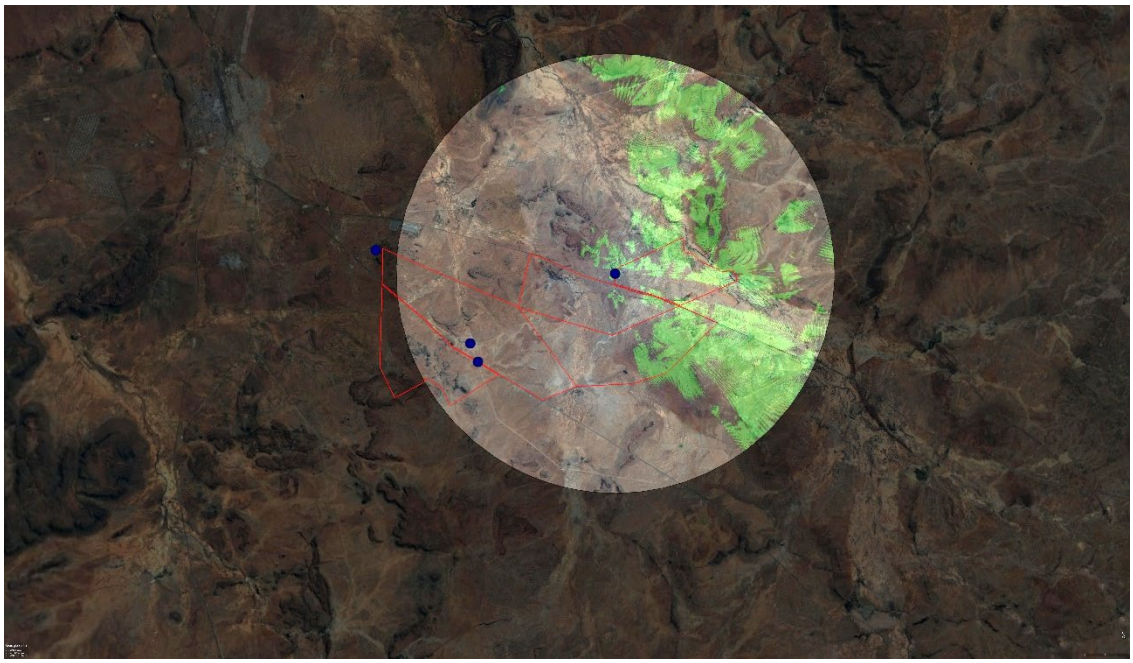


Figure 33: Digital view catchment area from Riet Fountain (Source: GEP)

4.1.2 Zones of Visual Influence

Visibility tends to decrease in direct proportion to increase in distance as individual elements occupy smaller and smaller percentages of the overall field-of-view and become less visually dominant. With respect to the visibility of the subject site; foreground views (inside the red ring, within 500m of the site) are most critical. At distances greater than 5km, visibility decreases significantly, as follows:

- ***5km radius*** *= average clear visual distance to horizon for eye-level (1,7m above ground) The site occupies only a small percentage of the field of view at this distance.*
- ***10km radius*** *= possible clear visual distance, given atmospheric dust, vapour, particles etc. At this distance, the site is barely perceptible within the townscape context.*
- ***20km radius*** *= maximum clear visual distance, given atmospheric dust, vapour, particles, etc. At this distance, the site, and any visual change upon it is negligible, given the scale.*

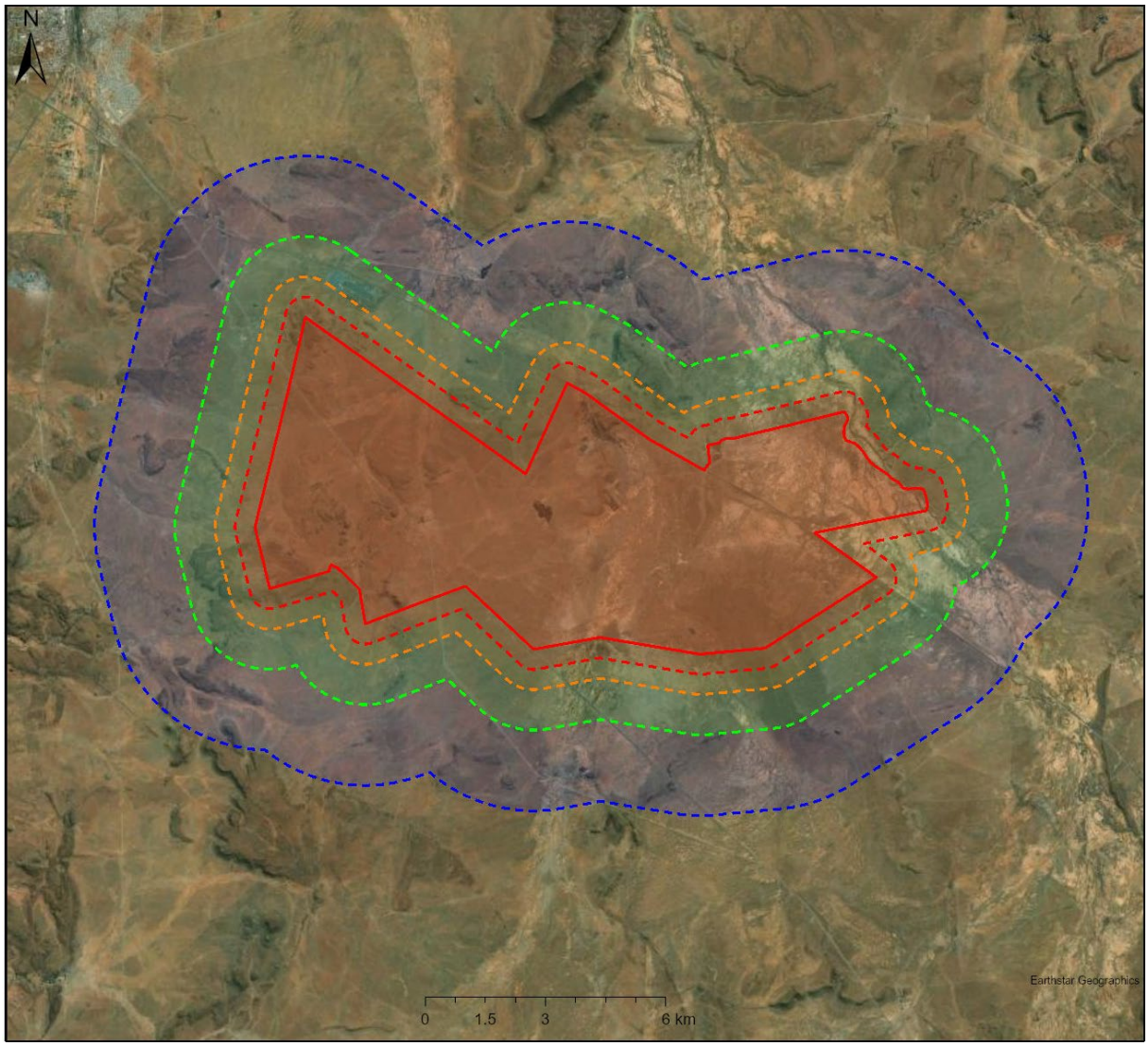


Figure 34: Zones of visual influence (Source: Cape Farm Mapper)

foreground		middle distance		background		Context	
on site	*adjacent*	*near*	*medium*	*long*	*distant*	*far*	*very far*
Highly visible	Within 250m	250m – 500m	500m – 1km	1km – 2km	2km – 4km	4km – 5km	barely visible

4.2 Visual Sensitivity

4.2.1 Visual Sensitivity of Area (Landscape Sensitivity)

The portion of the field-of-view dominated by the proposal decreases substantially at distances beyond 500m from the site, as the proposal become continuous with the existing fabric. The area is therefore considered to have medium or **moderate visual sensitivity**.

4.2.2 Visual Sensitivity of Receptors

The Receptors of the anticipated visual impact include existing residential areas which have **moderate visual sensitivity.** The site falls with the urban edge and locates in continuity with a rural cultural landscape with high visual / scenic amenity value.

4.2.3 Significance of Sensitivity to Visual Change

As a function of **landscape sensitivity** and anticipated **magnitude of change** resulting from the proposed development, the sensitivity to visual change is of **moderate significance.**

4.3 Visual Exposure

4.3.1 Visual Intrusion of Development (Magnitude of visual change)

The development proposes to occupy land already transformed by agriculture. The new development will fit partially into the surroundings but will be noticeable due to the transformation of the site. The proposal would have **moderate visual intrusion.**

4.3.2 Visual Absorption Capacity of Site

Considering the existing vegetation and subtle landform, the Visual Absorption Capacity (VAC) of the site is **Moderate**, with partial screening afforded, but noting that construction activity will entail removal of vegetation (thereby reducing the VAC).

4.3.3 Significance of Anticipated Visual Impacts

As a function of **receptor sensitivity** and **anticipated magnitude of change**, the sensitivity to visual change is of **moderate significance**. This will require mitigation through landscape measures.

5. Site photos

5.1 Photographic record

The site photographs give an impression of the landscape typology, the scale of the landscape, and the effect of the existing infrastructure present on site.

Figure 35: View from the N10 looking southeast

Figure 36: Typical 'koppies' in the middle-distance

Figure 37: access road to Hartebeeshoek

Figure 38: N10 extending northwards from the site entrance

Figure 39: gravel access road travelling northwards

Figure 40: subtle undulations

Figure 41: approaching the farmstead

Figure 42: farm outbuildings

Figure 43: farm dam

Figure 44: waterbody reflecting sky

Figure 45: Existing gridlines crossing the N10

Figure 46: electricity pylons on site

Figure 47: remnant telephone infrastructure

Figure 48: dolerite ridge with existing gridline

Figure 49: distant gridlines almost indistinguishable

Figure 50 : view from ridge looking eastwards across site

Figure 51: existing powerlines

Figure 52: pylons lending a sense of scale

Figure 53: farm track extending northeast

Figure 54: farm track extending underneath the powerlines

Figure 55: pylons in foreground, koppies in middle distance

Figure 56: farm gate at northern boundary

Figure 57: typical farm fence with existing pylons

Figure 58: extent of existing powerlines on site

Figure 59: scale of infrastructure

Figure 60: typical Karoo scrub, with introduced tree

Figure 61: typical site view

Figure 62: farmstead in middle-distance, dolerite koppies beyond

Figure 63: landscape continues across fence lines

Figure 64: karoo scrub in foreground

Figure 65: sheep at farm dam

Figure 66: approaching the farmstead from the southeast

Figure 67: pastoral tranquility, simple farm buildings

Figure 68: horizontality of landscape

6. Landscape Character Analysis

6.1 Appraisal

Whereas the site is set within a continuous rural landscape which is seemingly intact, it has already absorbed electrical gridline infrastructure without substantial loss of character, due to its vast size. The landscape is of good quality and includes certain features of character and identity which have been interpreted as visual indicators for planning and design response. However, it is not of such exceptional quality as to preclude development of the kind proposed. Thus, from a visual impact perspective, the development is permissible, at least in principle, and by responding to the visual indicators, the layout can be manoeuvred to minimize visual intrusion into the landscape and to maximize a comfortable 'fit'.

This would include avoiding development on ridgelines and koppies, locating rather on the flatter portions of the site, though avoiding drainage lines (as far as practically possible), providing sufficient visual buffers from the farmstead settlements to preserve their curtilage and sense of place; and setting back from the visual corridor of the N10 (and the railway line, assuming that the rail is or will be operational). Setting back from all cadastral boundaries is also recommended, so that the site layout may take cues rather from organic site geometries rather than artificial rectilinear geometries.

The inclusion of these planning and design parameters should contribute to the mitigation of adverse visual impacts, towards retaining aspects of the cultural landscape that lend identity and character to the sense of place. Should these visual indicators be onboarded as measures for mitigation, particularly with respect to the refinement of the site layout, the development proposal should meet with the requirements for approval

6.2 Visual Indicators

With the intention to locate the solar energy infrastructure seamlessly into existing cultural landscape patterns, enabling congruence and the continuity of the site within its local and broader context, the following visual indicators are provided for planning and design response:

Landscape and site planning

- Ensure that new development within its environmental context is in sympathy with the topography, drainage patterns and microclimate. Ensure that existing trees are retained as far as is possible and not needlessly destroyed by new development. Reinforce or replace traditional patterns of planting where appropriate with suitable species. The purpose must be to weave the development seamlessly into the existing landscape patterns, enabling congruence and the continuity of the site within its broader context.

- The treatment of the site boundaries and interfaces with adjacent properties will need careful attention to allow for the continued visual continuity of the landscape across cadastral boundaries, particularly along river corridors. Therefore, screen planting is to be used strategically, allowing for filtered views; lighting and signage is to be minimised.

- Views towards notable landforms, agricultural features, green open spaces, and seasonal drainage areas should remain clear of visual 'clutter' (signage, lighting, service infrastructures, etc.) to retain the sense of 'openness' and allow for view corridors to be sufficiently wide to facilitate visual continuity across the site. The landscape response should consider grouping vegetation in relation to established local patterns where these exist, rather than introducing overly formal plantings, except where these are useful in lending legibility to the hierarchy of accessibility networks.

- Screening, planting, and drainage features may be incorporated in a manner sensitive to natural landform, avoiding rectilinear geometries which appear heavily 'engineered'. Distant views towards the 'wilderness' areas should be maintained, and planting should endeavour to promote endemic and indigenous species - for example as a biodiversity corridor within riparian and drainage systems.

Architecture and landscape integration

- The typology of articulated, simple rectangular forms that are characteristic of rural buildings (barns and sheds) placed comfortably within the landscape, in congruence with the established patterns, regardless of scale, is appropriate in this context. This could inform the architectural detail without becoming derivative. Whereas the scale of the proposed buildings varies, forms could reflect an agricultural simplicity and honesty of function to ensure visual clarity. However, the indiscriminate imitation or reproduction of vernacular styles is to be avoided, likewise the introduction of foreign styles.

- With respect to larger buildings, consideration of the horizontal stratification of these is to be encouraged, taking cognisance of the effect of the relative height of the eaves-lines in setting the perceived 'height' of the buildings. (This does not apply to the electrical infrastructure compound, PV arrays or power line pylons).

- With respect to smaller buildings and clusters of related buildings, these could respond to historical patterns in terms of form and placement but should not mimic historic buildings as direct copies. Screen planting, using clusters of indigenous plants could further obscure and filter views of the new buildings from view corridors.

- With respect to buildings, muted colours and 'earth tones' are more subtle and are more easily absorbed (visually) than bright or highly reflective surfaces. Suitable colours include grey, olive green, ochre, brown, etc. – refer to on-site geology, soil, and vegetation types for reference. Rough/textured surfaces are preferable to shiny/highly reflective surfaces in terms of visual absorption (as they minimise reflection / glare).

- Further, tonal, and textural variation contributes to the variegation and visual fragmentation of the development, which helps to reduce cumulative visual impacts. This applies equality to the roof-scape i.e., monotony / ubiquity is to be avoided, and whereas buildings within sub-precincts of the site could share similar features, they should not be identical or repetitive, but should respond to the nuances of context and microclimate, to promote individuality and identity.

Engineering and green infrastructure

- Storm-water management through 'soft' engineering of the site, incorporating the principles of sustainable drainage and water sensitive design, will be environmentally advantageous and further mitigate the visual impact of driveways, service yards and other hardened surfaces (This to be ensured through meaningful engagement between freshwater ecology and storm-water engineering).

- Roadways and parking areas should not be over-scaled and should include tree planting where possible. The detailing of internal access roadways and service yards associated with the development should reflect a green infrastructure approach, which gestures towards the character of the site at the urban periphery, in proximity of a rural cultural landscape, incorporating where possible earth-swales for storm-water run-off rather than heavily engineered concrete channels and drains.

- Where possible, consider 'dissolving' buildings into the environment through subtle transition from building platform to landscape context at the ground level. Use screen/shade planting to soften the interface, whilst keeping the layout compact to minimise the extent of the visual intrusion.

- Apart from Gateway thresholds, no solid masonry boundary wall to the site should be allowed, and no galvanized steel palisade should be allowed, either. Visually transparent fencing (e.g., welded mesh Clearvu or similar), is preferable, especially along drainage areas and farmland boundary edges, noting that dark grey or black fencing is more visually recessive than green.

- Avoid light pollution by reducing lighting to the minimum necessary. Lighting is to be carefully controlled and well-integrated into the design proposal and coordinate with signage. Light sources must be shielded to reduce light spillage. Up-lightning onto the outer sides of the buildings must be used sparingly. Shielded down-lights must be used on all open areas. Neon or unshielded bright security lights may not be used; however shielded security lighting may be used. With respect to the site boundary interface with the adjacent properties, lighting may be permitted at the entrance gateways.

Visual indicator diagrams

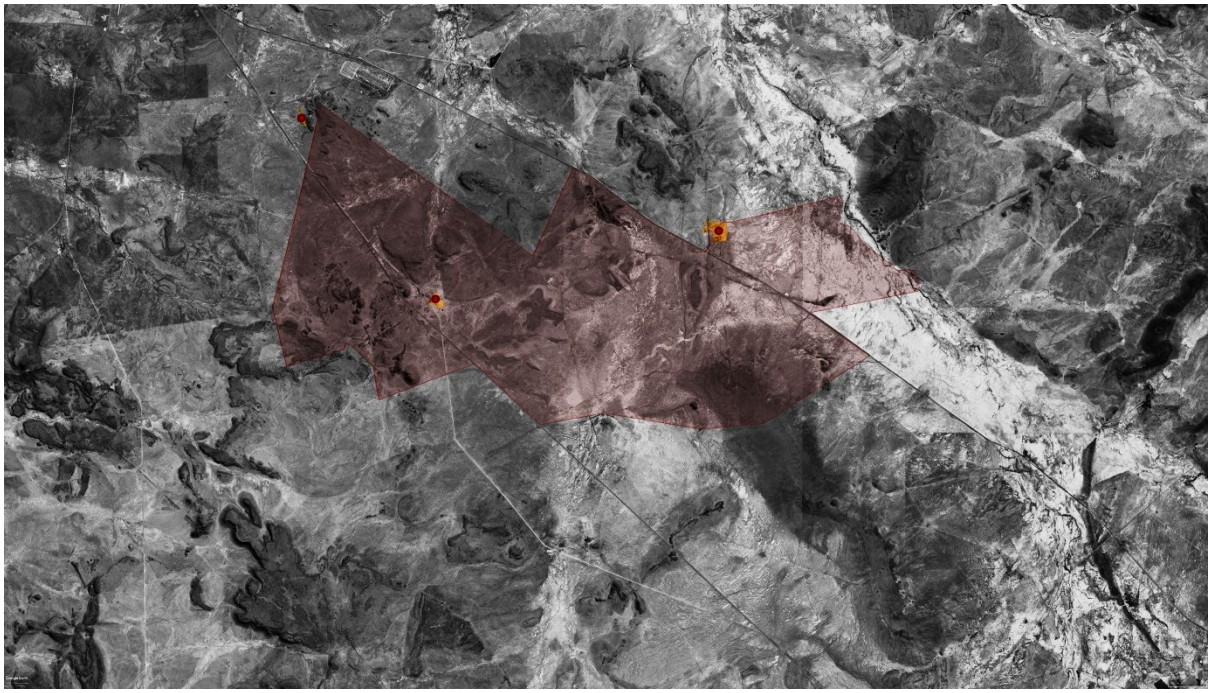


Figure 69: farmstead and werf curtilage

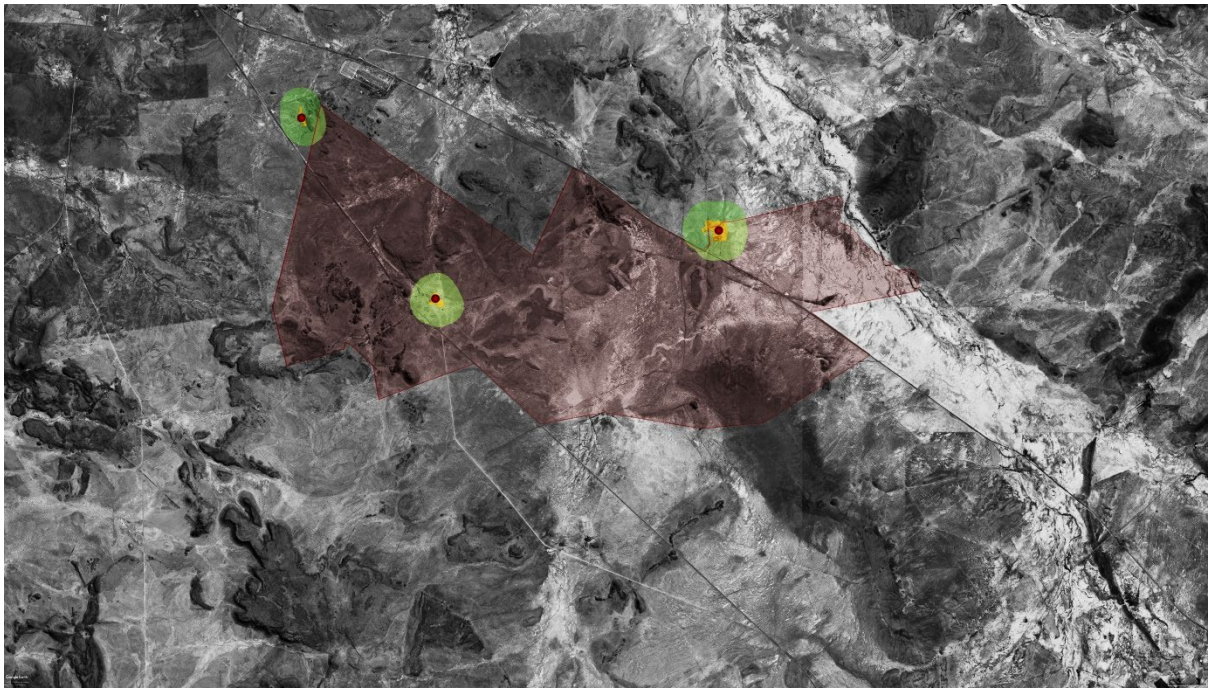


Figure 70: farmsteads with 500m buffer indicated

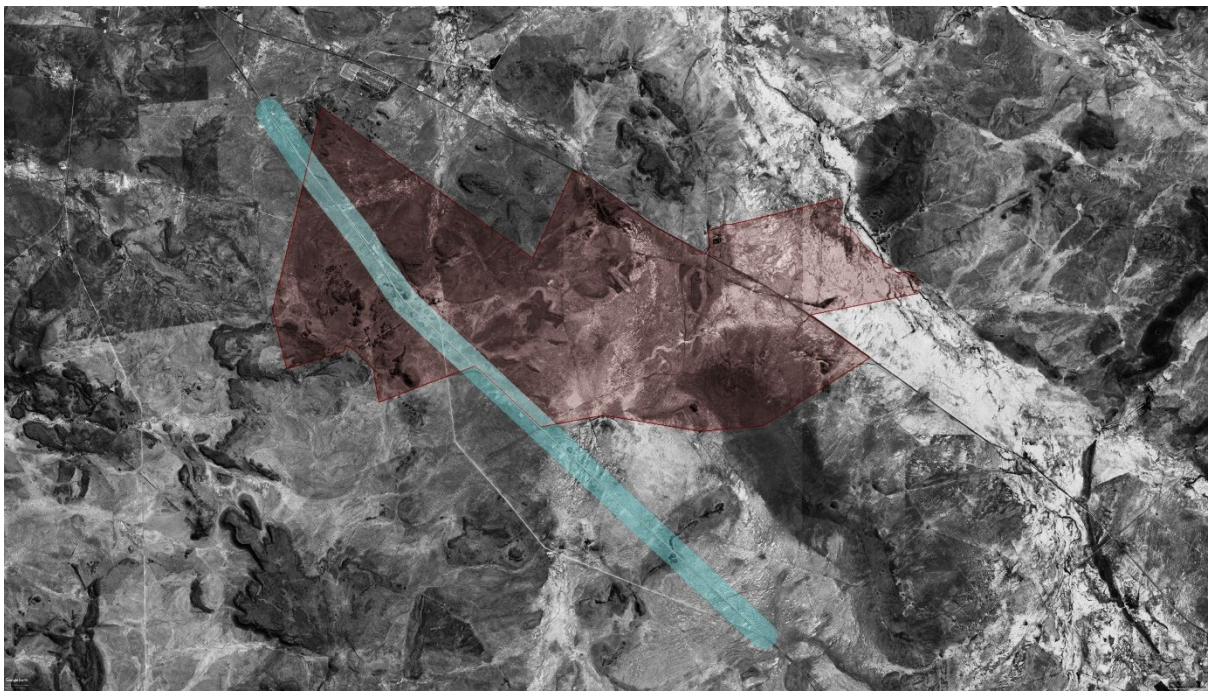


Figure 71: N10 view corridor with 300m buffer indicated either side of roadway

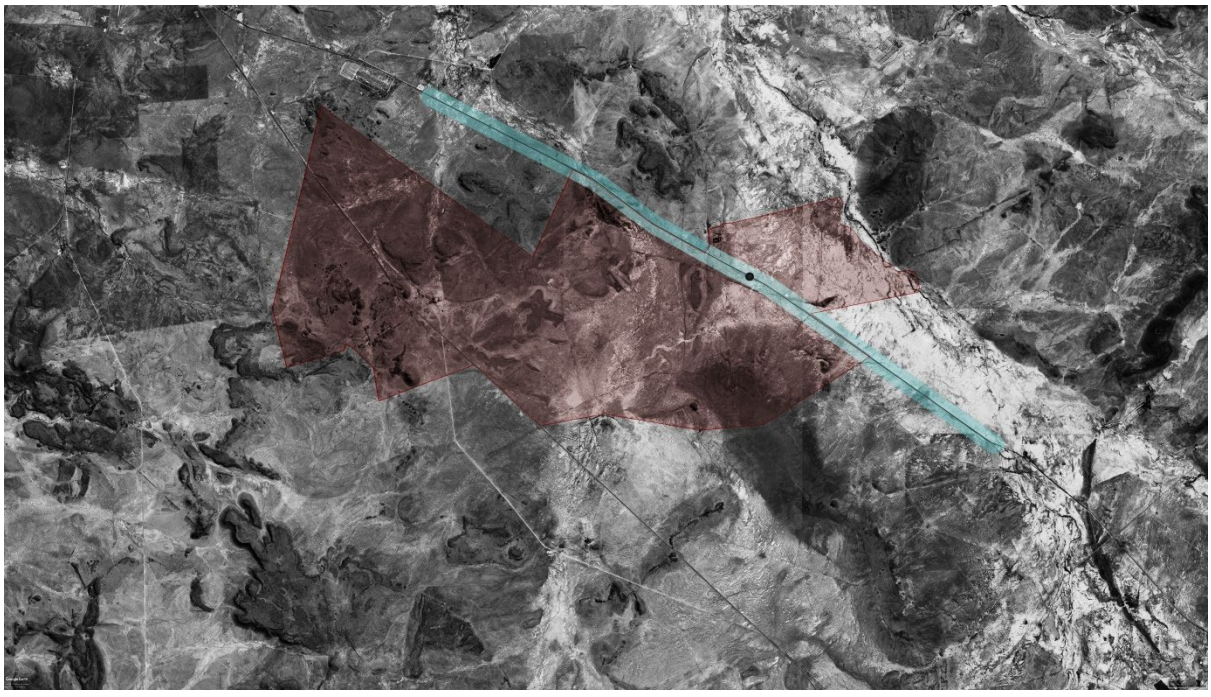


Figure 72: Cape Midland Railway line as visual corridor, with 250m buffer either side indicated

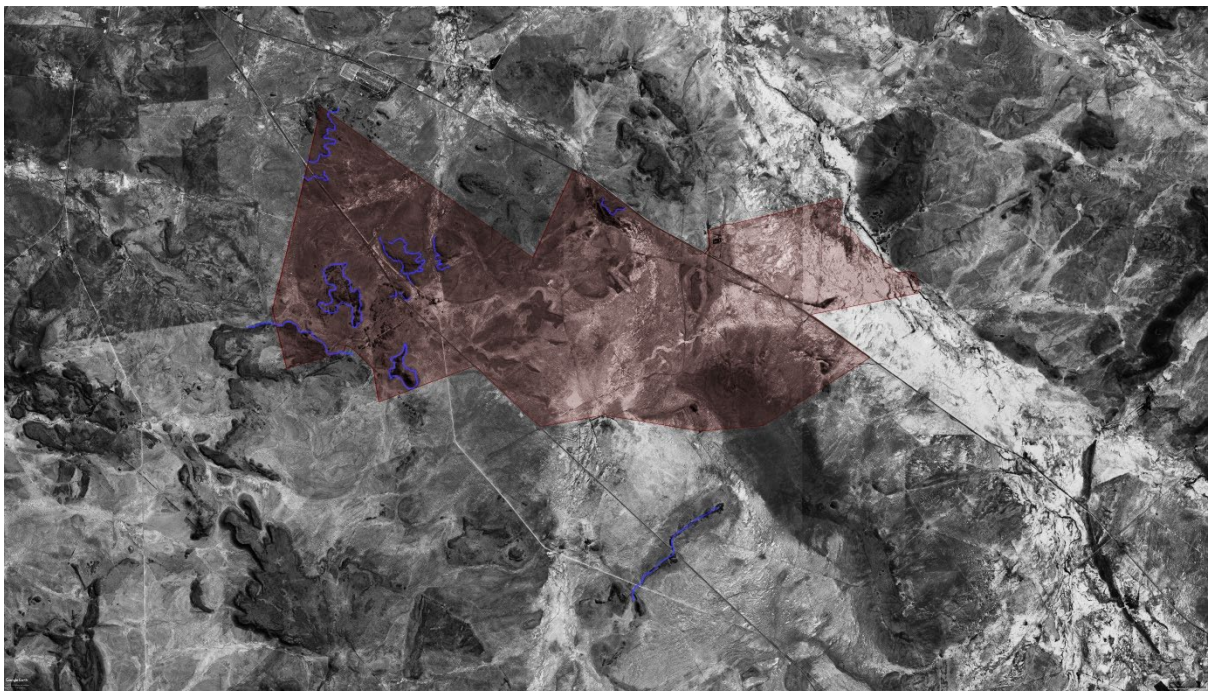


Figure 73: Visually prominent koppies and ridgelines indicated in purple

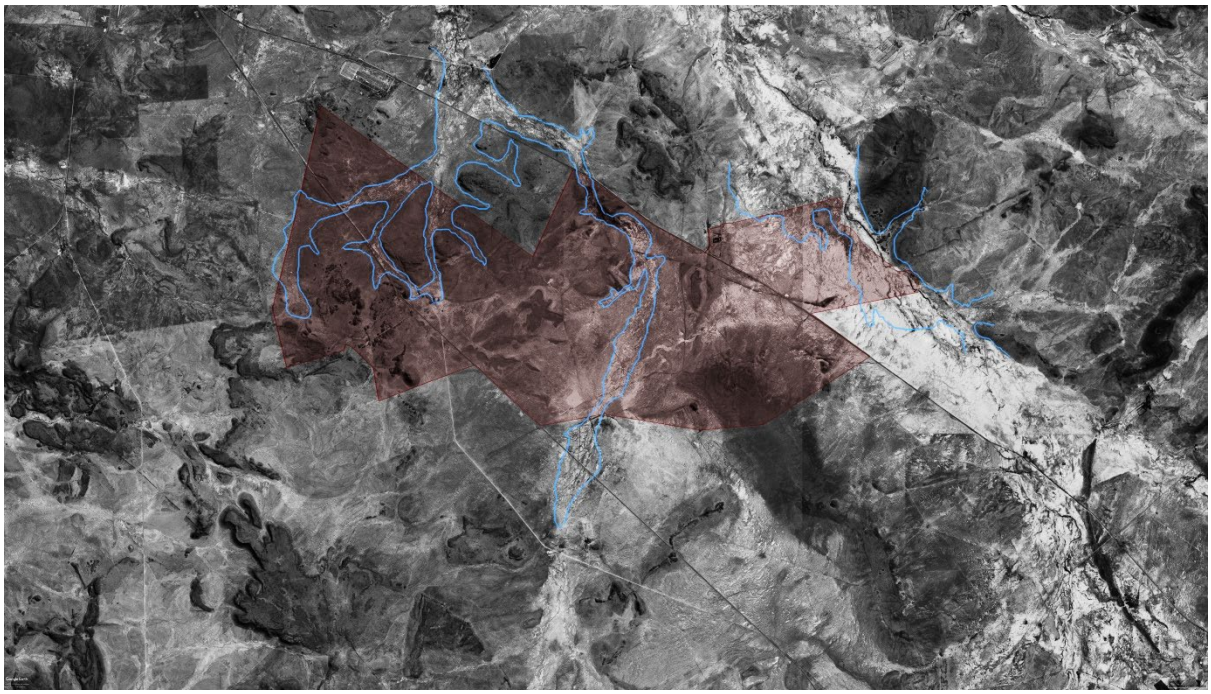


Figure 74: drainage lines indicated in blue

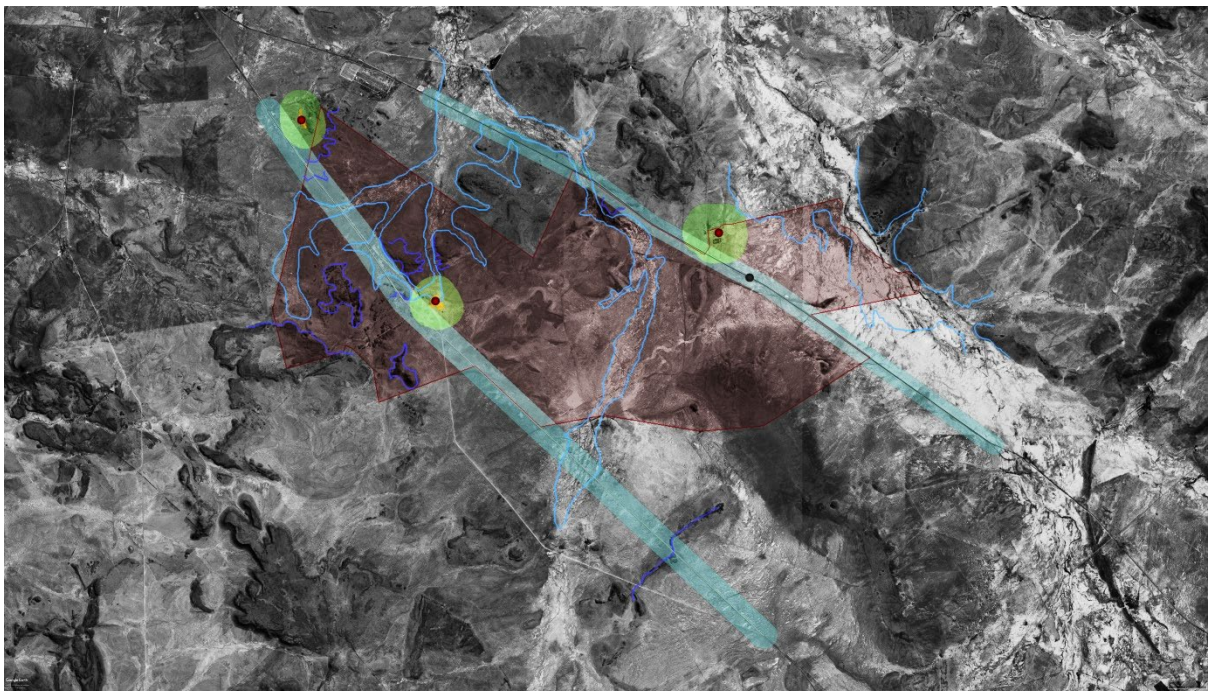


Figure 75: composite visual indicator diagrams

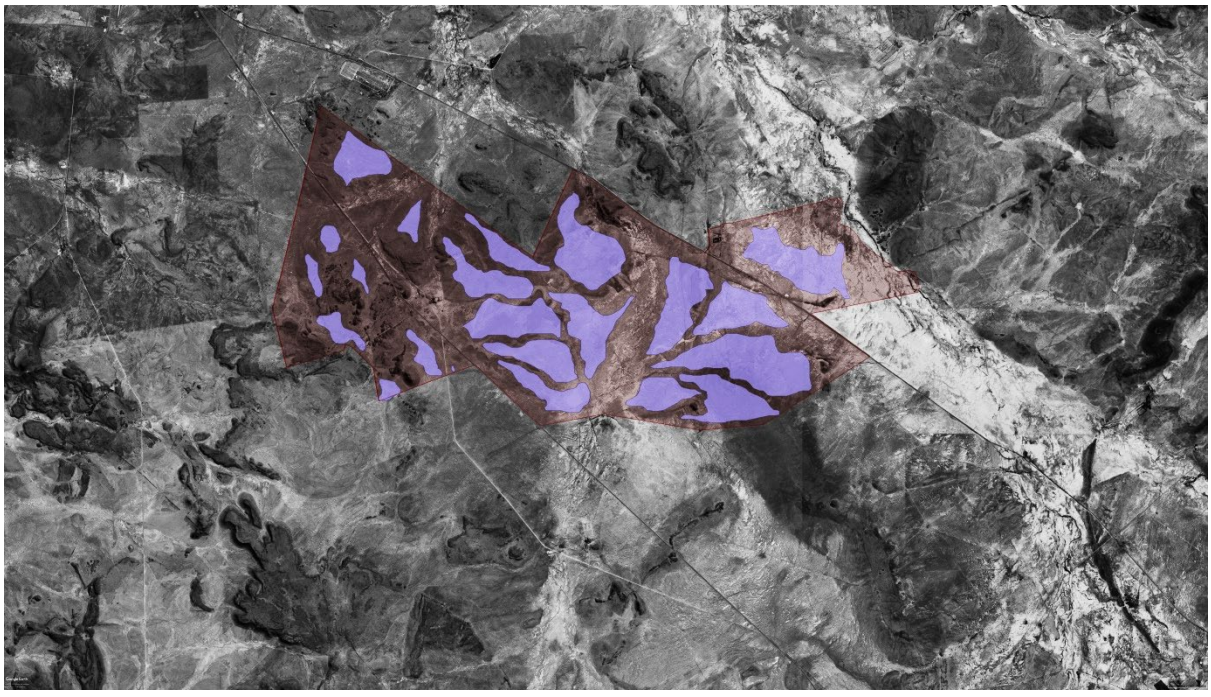


Figure 76: visually recessive areas indicated in violet (i.e., low visual sensitivity)

6.3 Visual indicator Recommendations

*The visual specialists recommend that the proposed **development draw reference from the set of visual indicators for planning and design response** and that the site-planning be refined with consideration to place-making, supported by the development of a detailed **landscape plan** during the detailed design phase (for implementation).*

7. Planning and Design Response

7.1 Hercules 1 Phase 1

Figure 77: Hercules 1 Phase 1 proposed layout (including alternative routes). Source: SES

Figure 78: Layout responds well to visual indicators supplied (Source: GE Pro)

7.2 Hercules 2 Phase 1

Figure 79: Hercules 2 Phase 1 layout (including alternative routes). Source: SES

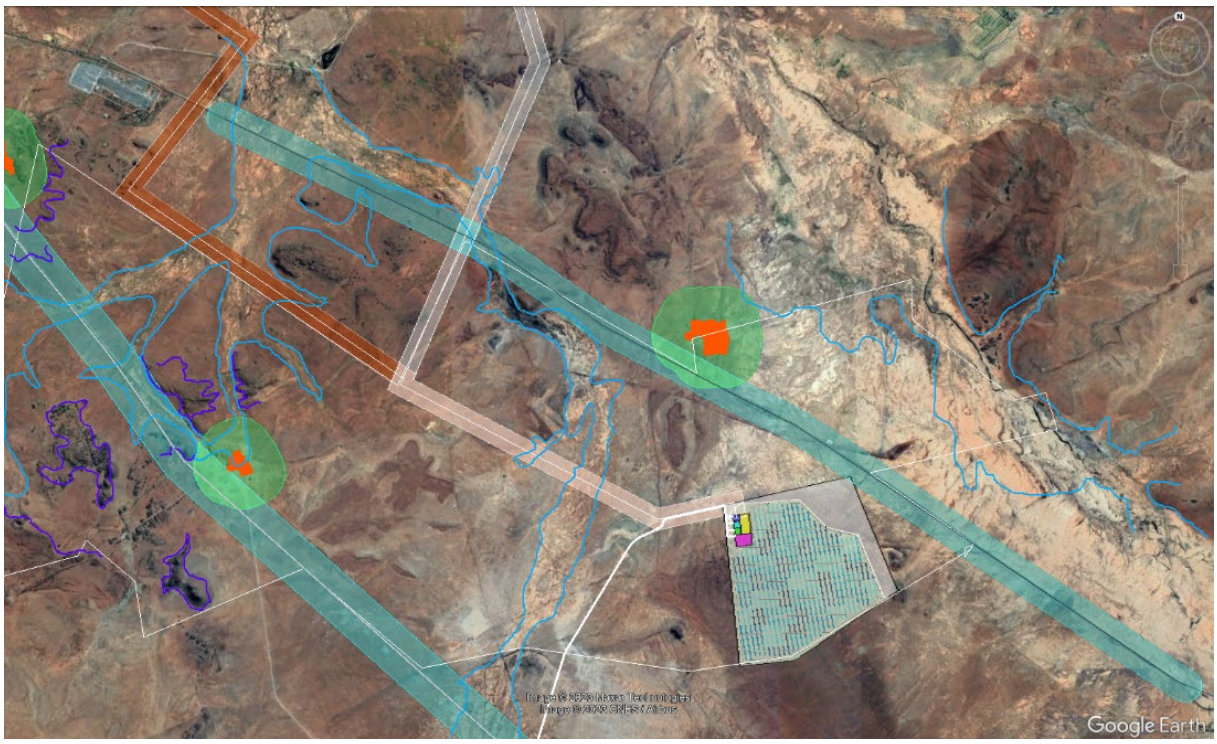


Figure 80: Layout responds well to visual indicators supplied.

7.3 Hercules 3 Phase 1

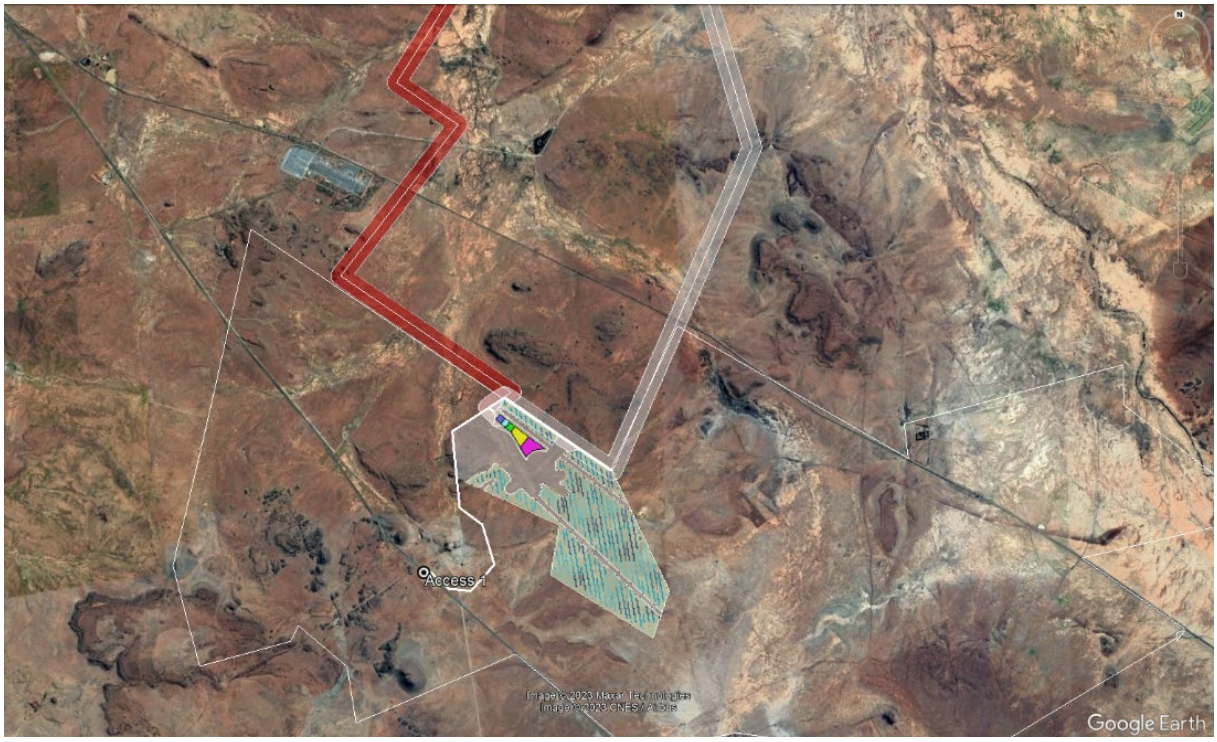


Figure 81: Hercules 3 Phase 1 layout (including alternatives routes) Source: SES

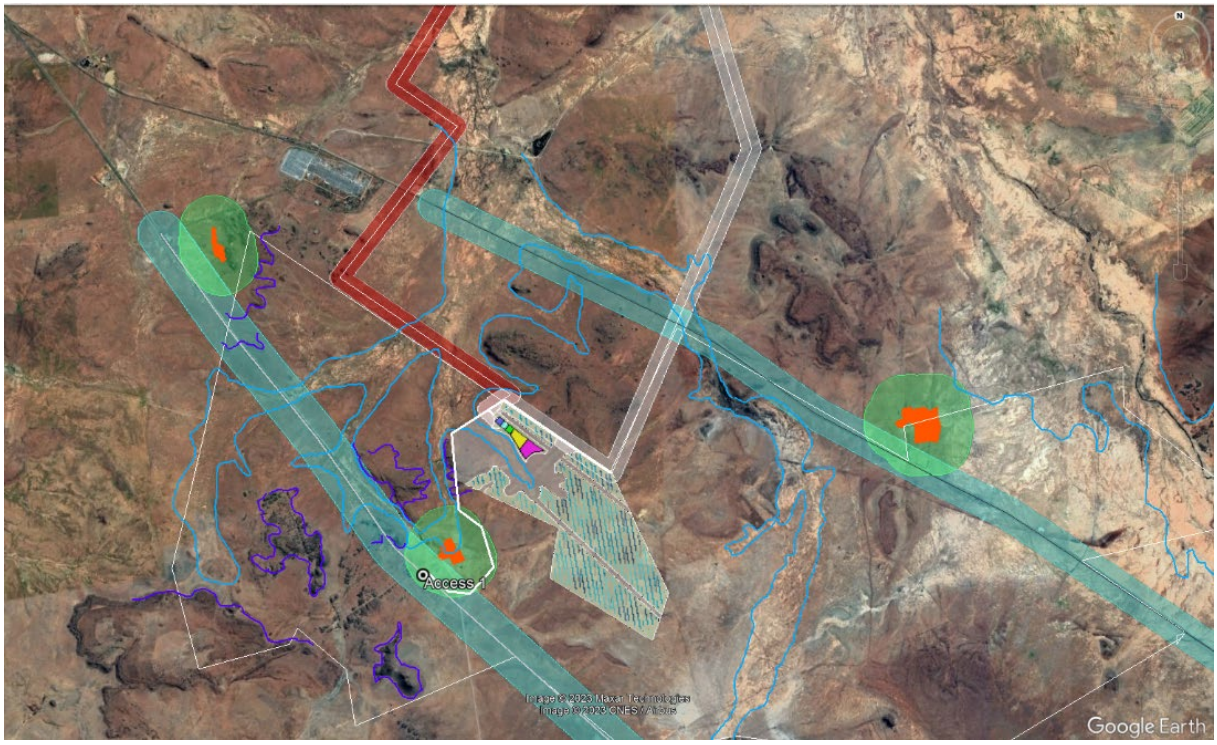


Figure 82: Layout responds well to visual indicators supplied

7.4 Hercules 4 Phase 1

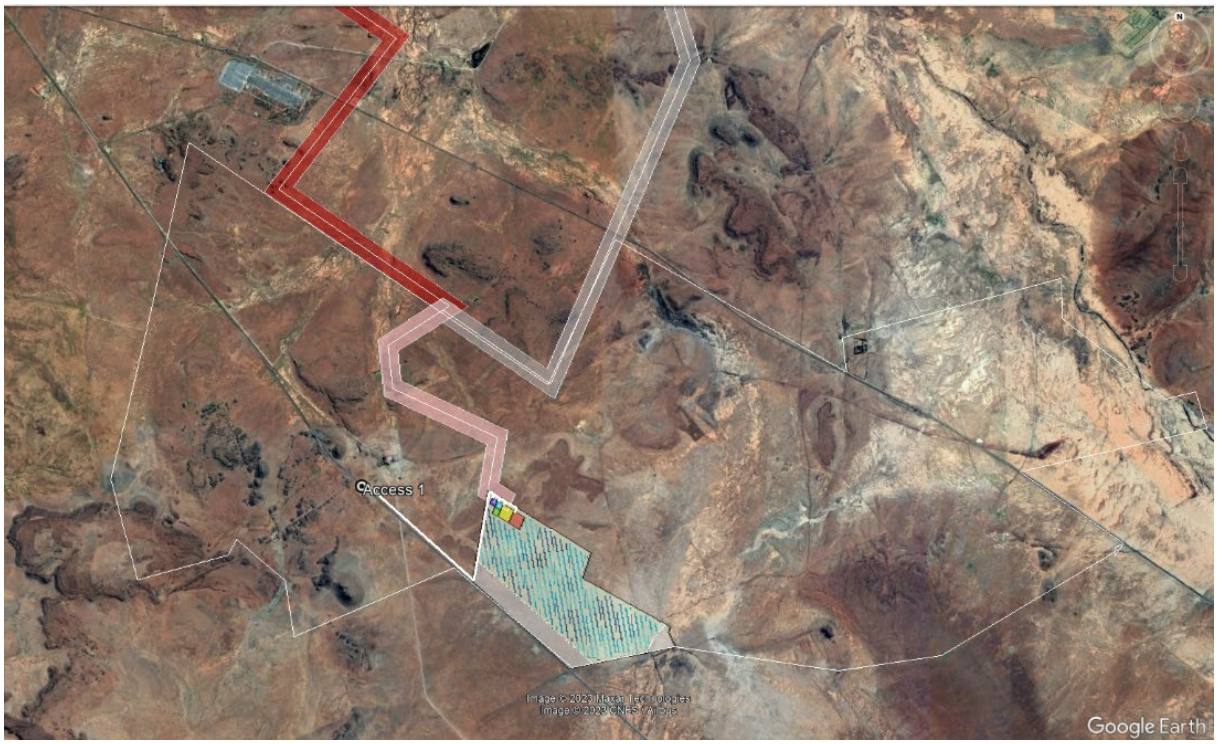


Figure 83: Hercules 4 Phase 1 layout (Including alternative routes). Source: SES

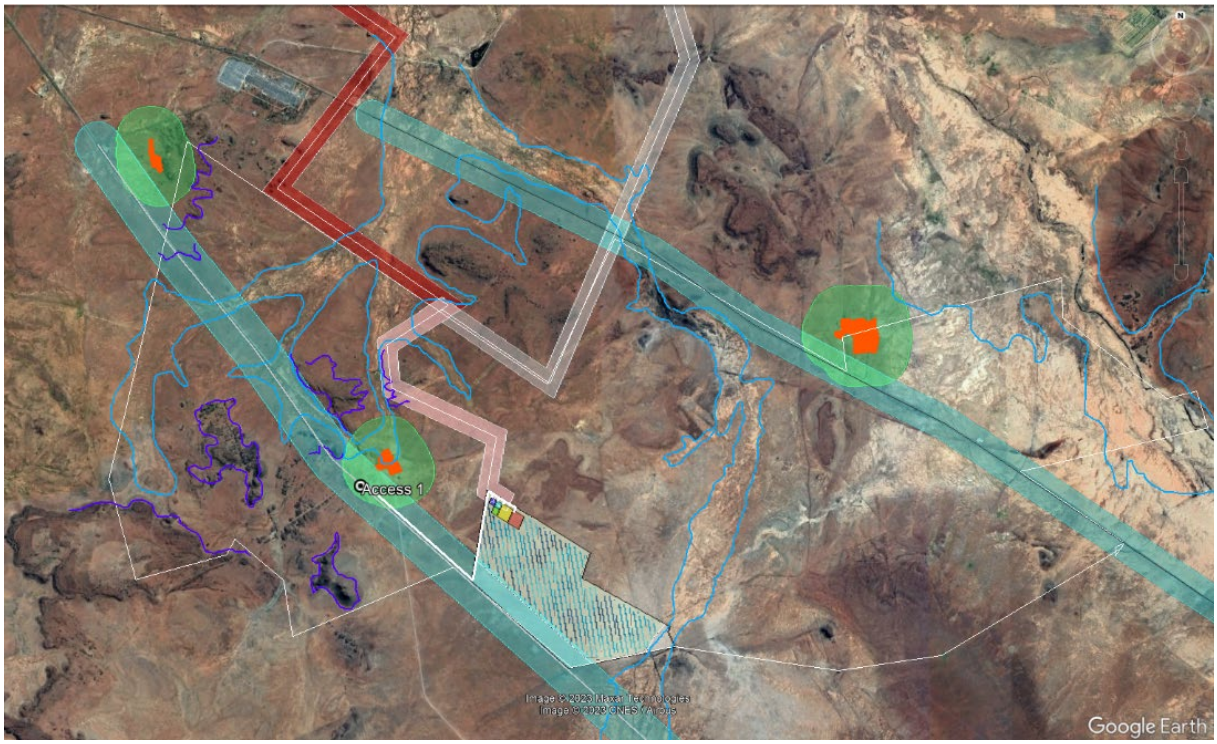


Figure 84: Layout responds well to visual indicators supplied

7.5 Composite Hercules 1, 2, 3, & 4 Phase 1

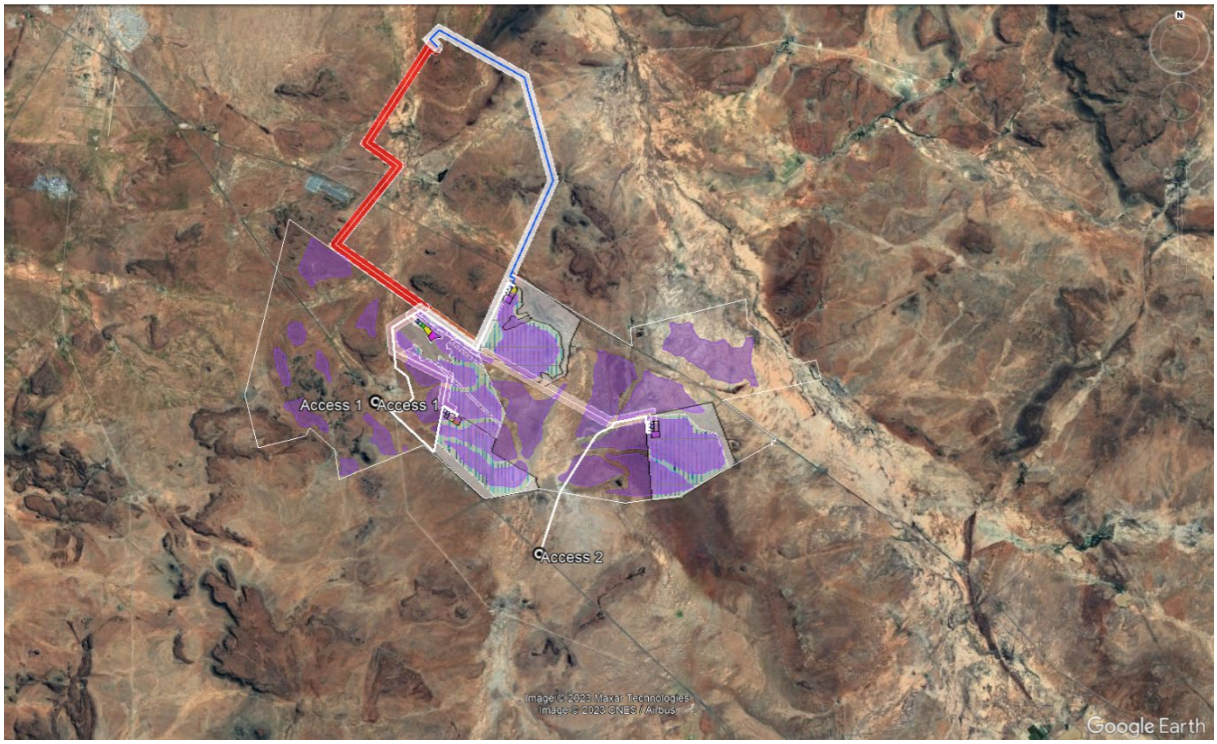


Figure 85: Composite layout corresponding to areas of low visual sensitivity (Source: GE Pro)

Figure 86: Composite layout respecting visual buffers supplied (Source: GE Pro)

8. Visual Impact Assessment

8.1 Planning, Design and Development Phase Visual Impacts

Potential impacts during construction include site establishment and clearance: i.e., removal of existing vegetation, earthworks, excavations, and installation of bulk infrastructure. **Risks** include change in character of sites and context, as well as the potential overwhelming of adjacent and on-site visual resources; and change in the sense of place of the site. The **consequence** of these impacts and risks is visual disturbance to the status quo; and the **probability** of occurrence is high, as is the level of **confidence** in the predication.

8.1.1 Nature

Negative Visual Impacts are likely to occur during construction for both the development proposal – resulting directly from site clearance, earthworks, and removal of existing vegetation; together with construction vehicles / building activity causing noise / dust.

8.1.2 Types

Impact types include those which are a **direct** result of the construction activity, at the same time and in the same space as the construction activity, as well as secondary **indirect** impacts, which occur later in time and elsewhere in space (impacts of views from the broader context into the site). Construction activity may also cause **induced** impacts (e.g., increased traffic in the vicinity because of construction vehicles turning into the site and out of it). Moreover, **cumulative** impacts may add to future impacts on the same receiving environment – for example, increased activity within the vicinity.

8.1.3 Magnitude

The degree to which these visual impacts would cause **irreplaceable loss of resources,** is low. The degree to which they can be **avoided** is low, as is the degree to which they can be **reversed.** They can, however, can be **managed** to a medium extent**;** similarly, they can be **mitigated** to a medium extent.

8.1.4 Ratings

The geographic 'area of influence' or spatial scale of the construction visual impacts is of a **local extent** – i.e., limited to the site and immediate surroundings; and the **duration** or predicted life-space of the construction visual impacts is limited to the **short-term,** – lasting only through the phased construction period of the project. These visual impacts of construction are of **medium intensity** – where visual and scenic resources are affected to a moderate extent only.

8.1.5 Significance before mitigation

Determined through a synthesis of the aspects of nature, duration, intensity, extent, and probability, as they are localized and short-term, **before mitigation** the Construction Phase Visual Impacts of the proposals are of **low adverse significance.** The implementation of an environmental management plan is required.

8.1.6 Significance after mitigation

Following mitigation (i.e., preservation of existing trees where possible, and environmental management during construction as required) the significance of the impacts will be of **neutral significance**.

(See Summary tables that follow – Section 9 of this report).

8.2. Operational Phase Visual Impacts

Potential impacts during operational phases of proposed development include the insertion of a contemporary solar energy infrastructure into the cultural landscape. **Risks** include change in character of site and context and change in the sense of place of the site. The **consequence** of these impacts and risks is visual disturbance to the status quo; and the **probability** of occurrence is definite, as is the level of **confidence** in the predication.

8.2.1 Nature

Negative impacts include the reduction of the rural landscape, however, with the implementation of the proposed mitigation, **positive impacts** may be expected resulting from an appropriately located intervention, coherently integrated within the rural landscape, and preserving the integrity of existing landscape features. This has been achieved in the proposal in response to visual indicators and visual buffers.

8.2.2 Types

The types of impacts include those which are as a **direct** result of the insertion of new infrastructure and ancillary buildings into the site, as well as secondary **indirect** impacts, which may occur later in time and elsewhere in space (impacts of views from the broader context into the site). **Induced** impacts because of increased operational activity (e.g., increased traffic in the vicinity). Moreover, **cumulative** impacts may add to future impacts on the same receiving environment – for example activity within the vicinity.

8.2.3 Magnitude

The degree to which these visual impacts would cause **irreplaceable loss of resources,** is medium/low in the case of the development proposal, The degree to which these impacts can be **avoided** is medium and the degree to which they can be **reversed** is low. They can, however, can be **managed** to a medium to high extent**;** similarly, they can be **mitigated** to a medium to high extent.

8.2.4 Ratings

The geographic 'area of influence' or spatial scale of the construction visual impacts is of a **local extent** – i.e., limited to the site and immediate surroundings; and the **duration** or predicted life-space of the construction visual impacts will be limited to the **medium term,** – lasting only through the landscape has been re-established. These visual impacts of the development are deemed to be of **medium intensity** – where visual and scenic resources are affected to a limited extent only.

8.2.5 Significance before mitigation

Determined through a synthesis of the aspects of the nature, duration, intensity, extent, and probability, **before mitigation** the Operational Phase Visual Impacts of the proposals are of **medium adverse significance,** having some influence on the environment, and requiring some mitigation.

8.2.6 Significance after mitigation

Determined through a synthesis of the aspects of the nature, duration, intensity, extent and probability, **post mitigation** (including the retention of as many existing trees as possible in addition to landscape and architectural measures, the Visual Impact of the **proposed development** is of **neutral significance.**

(See Summary tables that follow – Section 9 of this report).

9. Visual Impact Assessment Summary Tables

9.1a Development Phase Visual Impacts

	Hercules 1, 2, 3, & 4 Phase 1
Planning, Design and Development Phase	**Description**
Potential impact:	site clearance, removal of existing materials; earthworks, site establishment,
Risks *(to broader context / background)*	Change in character of rural/agricultural context to solar energy facility
Risks *(to local context / middle-ground)*	Reduction of continuity of the rural landscape
Risks *(to subject site / foreground)*	Change in sense of place from farmland to construction site
Consequence *of impacts and risks*	visual disturbance of status quo, foreground construction activity
Probability *of occurrence*	**definite**
Level of ***Confidence*** *in prediction*	**high**

Nature of Impact:	**Description**
Negative	Potential impact on views resulting from cranage/hoarding/construction works
Neutral	n/a
Positive	n/a

Type of Impact:	**Description**
Direct	clearance, demolition, construction activities, vehicles
Indirect	increased activities associated with construction *(later in time, elsewhere in space)*
Induced	increased traffic pressure on adjacent roadways *(as a consequence of the project)*
Cumulative	Adds to existing development within the immediate context

Magnitude: degree to which impact:	*n/a*	***Low***	***low/med***	***Medium***	***med/high***	***High***
may cause ***irreplaceable loss of resources***		**Low**				
can be ***avoided***		**Low**				
can be ***reversed***		**Low**				
can be ***managed***					**med/high**	
can be ***mitigated***					**med/high**	

Rating of impacts:	*n/a*	***Low***	***low/med***	***Medium***	***med/high***	***High***
Extent *of impact*			**local**			
Duration *of impact (term)*		***short***				
Intensity *of impact*			**low/med**			

Thresholds of Significance:	***v.high*** *+ve*	***high*** *+ve*	***med*** *+ve*	***low*** *+ve*	***v.low*** *+ve*	***neutr*** *0*	***neglig*** *0*	***v.low*** *-ve*	***low*** *-ve*	***mod.*** *-ve*	***high*** *-ve*	***v.high*** *-ve*
Significance BEFORE mitigation										**mod -ve**		

Proposed mitigation measures:	**Description**
Impact ***avoidance/ prevention***	Indicate 'no-go areas' – off-limits for site camp/storage
Impact ***minimization***	limiting construction to within low visual sensitivity areas
Rehabilitation / restoration/ repair	post-construction rehabilitation / environmental improvement
Compensation */ offset*	site rehabilitation and management, noise, and dust control
Residual *Impacts*	controlled adverse visual impacts for a short duration
Cumulative *impacts post mitigation*	Neutral due to implementation of Construction Phase EMP

Thresholds of Significance	***v.high*** *+ve*	***high*** *+ve*	***med*** *+ve*	***low*** *+ve*	***v.low*** *+ve*	***neutr*** *0*	***neglig*** *0*	***v.low*** *-ve*	***low*** *-ve*	***mod.*** *-ve*	***high*** *-ve*	***v.high*** *-ve*
Significance AFTER mitigation						**neutr 0**						

9.1b Operational Phase Visual Impacts

	Hercules 1, 2, 3, & 4 Phase 1
Operational Phase	***Description***
Potential impact	contemporary solar infrastructure inserted into cultural landscape environment
Risks *(to broader context)*	Impact upon scenic quality
Risks *(to local context)*	Infrastructural intensification / potential overcrowding impact on visual resources
Risks *(to subject site)*	change in sense of place, potential encroachment on landscape features
Consequence *of impacts and risks*	insertion of new infrastructure and ancillary buildings
Probability *of occurrence*	definite
Level of ***Confidence*** *in prediction*	high
Nature of Impact	**Description**
Negative	Possible encroachment on visual resources
Neutral	New solar energy infrastructure integrated into the cultural landscape
Positive	*Meaningful response to site features and visual indicators*
Type of Impact	**Description**
Direct	New solar energy facility inserted into existing agricultural landscape
Indirect	increased activities associated with solar energy facilities
Induced	traffic along new roadways, potential glint, and glare
Cumulative	Adds to existing infrastructural development within the broader context
Magnitude: degree to which impact:	*n/a* | ***Low*** | ***low/med*** | ***Medium*** | ***med/high*** | ***High***
may cause ***irreplaceable loss of resources***	Low/med
can be ***avoided***	Medium
can be ***reversed***	Low
can be ***managed***	med/high
can be ***mitigated***	med/high
Rating of Impacts	*n/a* | ***Low*** | ***low/med*** | ***Medium*** | ***med/high*** | ***High***
Extent *of impact*	local
Duration *of impact (term)*	Medium
Intensity *of impact*	Medium
Thresholds of Significance:	*v.high +ve* | *high +ve* | *med +ve* | *low +ve* | *v.low +ve* | *neutr 0* | *neglig 0* | *v.low -ve* | *low -ve* | *mod. -ve* | *high -ve* | *v.high -ve*
Significance rating BEFORE mitigation	mod. -ve

Proposed mitigation measures	**Description**
Impact ***avoidance/ prevention***	identify 'no-go areas' for any further development (refer to visual indicators)
Impact ***minimization***	planning of development to respond positively to visual resource considerations
Rehabilitation/ restoration/ repair	Engineering/architectural measures (form / scale / massing / materials / textures)
Compensation*/ offset*	landscape measures (screen planting / internal open space / view corridors)
Residual *impact*	development which partially fits in with the local landscape
Cumulative *impact post mitigation*	Neutral due to congruence with context and retention of notable site features
Thresholds of Significance	*v.high +ve* | *high +ve* | *med +ve* | *low +ve* | *v.low +ve* | *neutr 0* | *neglig 0* | *v.low -ve* | *low -ve* | *mod. -ve* | *high -ve* | *v.high -ve*
Significance rating AFTER mitigation	neutr 0

10. Conclusion

10.1 Review

The site is part of an established Cultural Landscape with visual scenic resources. Visual indicators have been identified and communicated to the planning and design team, together with mapping of visual buffers and areas of low visual sensitivity. The proposed development has been planned to with respect to these visual indicators, to minimise disruption to the established cultural landscape, with particular attention the to the placement of the proposed solar arrays and associated ancillary buildings and services, as well as the alignments of the proposed overhead transmission lines. The proposals for all components of Hercules 1, 2, 3, & 4 Phase 1 are aligned to the design indicators.

The planning, design and development visual impacts and operational phase visual impacts are of medium intensity prior to mitigation, as although natural, cultural, and social functions and processes would still continue, a proportion of visual resources will be affected given the scale and cumulative effect of the installations. However, given the location of the proposed development within one of the national Strategic Transmission Corridors and Expansions, and the relative distance of the installations from sensitive receptors, the receiving environment is only moderately vulnerable.
The visual impacts of the development proposal can and should be mitigated to within acceptable levels.

Apart from the mitigation measures described in Section 10.2 to follow, care should be taken not to encroach upon the farm werf settlements or prominent ridgeline or koppies. Each solar array installation should be located with careful consideration of the local micro-site conditions.

With respect to cumulative impacts of the ancillary buildings, tonal and textural variation should be considered as an option, noting that darker tones are more visually recessive than lighter tones, and that rougher tones (e.g., portions of stonework) also contribute to this effect. Shadows (cast be screening vegetation and articulation of structures) assist in this. Variation increases the visual absorption effect, and therefore from a visual impact assessment perspective, the proposed buildings need not be identical or uniform in colour.
The positive effect of vegetation in the mitigation of visual impacts is significant. New shrubs and screen trees need to be of meaningful size when planted, with well-developed forms, or alternatively grouped or clustered to augment mitigation. The implementation of the landscape rehabilitation plan is an essential measure for the mitigation of visual impacts.

10.2 Mitigation

Application of a *hierarchical sequence of **mitigation** considerations* is central to avoiding or minimizing, and/ or remedying, visual impacts of development as follows:

a) measures to **avoid or prevent** potentially significant impacts, then,

b) measures to **minimize or reduce** potentially significant impacts, then,

c) measures to **rehabilitate or restore** disturbed or degraded areas; and finally,

d) measures to **compensate or offset** any remaining impacts not addressed fully through the above.

10.2.1 Planning, Design and Development phase mitigation:

With respect to the construction activity, the following mitigation measure are recommended:

a) Designate visual resources (e.g., koppies and drainage corridors) as 'no-go areas' for site camp establishment, materials storage, stockpiling, dumping, to avoid and prevent damage or intrusion to these areas.

b) Limit construction activity to within the low visual sensitivity areas, constructing on disturbed areas only to minimize impact to visual amenity resources identified (e.g., farmstead werf).

c) Ensure post-construction repair and rehabilitation of the site, towards improvement of disturbed areas and areas degraded by the construction activity.

d) Implement a construction phase environmental management plan (CEMP) to ensure on-going management of environmental matters, including noise, dust, and erosion control.

Sound **environmental management** of the site and construction operations - including dust prevention and erosion control – should suffice as mitigation of construction phase visual impacts. The preparation and implementation of a Construction Phase Environmental Management Plan (CEMP) should be provided to ensure that this is achieved.

10.2.2 Operational phase mitigation:

With respect to the operational phase, the following mitigation measure are recommended:

a) Maintain the visual resources as 'no-go areas' for any further development, and ensure that any activities within these areas 'tread-lightly',

b) planning and management to respond positively to visual/heritage considerations and design indicators, towards an appropriate fit and seamless integration into the landscape context.

c) architectural measures (form / scale / massing / materials / textures) to ensure visually recessive structures and to combat the cumulative effect of the aggregation of buildings and services

d) landscape measures (screen planting where appropriate) to anchor and settle the new ancillary buildings into the site and to 'dissolve' and 'diffuse' hard edges.

The preparation and implementation of an Operational Phase Environmental Management Plan (OEMP) should be provided with reference to the overall site development plan to ensure that environmental integrity is maintained. Whereas this should suffice as mitigation of operational phase visual impacts, the thorough implementation, maintenance, and management of **landscape rehabilitation plans** prepared by qualified landscape architects (with cultural landscape experience) should ensure that the integration of the development proposal into the site is achieved successfully.

With respect to landscape planning, the local authority may require the following:
"A detailed landscape plan, compiled by a registered Landscape Architect, for the property concerned must be submitted by the developer to the approval of the Environmental Management Division. Such a plan is to indicate, inter alia, the extent, location, and design of the following:

- *existing vegetation to be retained or removed, indicating the types of all vegetation and trees.*
- *all proposed newly planted vegetation, including types (species) and planting specifications.*
- *tree staking details (if applicable)*
- *the size of all trees to be planted (roots to be established in min 80 – 100 L size container, with a clear stem height of 1.8 m minimum, and a minimum girth of approximately 60 mm).*
- *density of plant species/plant mixes, size of plants to be planted.*
- *existing and finished ground levels at the base of the trees to be retained/planted.*
- *all landscaping features, including fences, walls, retaining walls, paving, street furniture, and lighting.*
- *All Sustainable Urban Drainage Systems (SUDS), including cross-sections of storm-water ponds and/or swales.*
- *Irrigation plan (alternative water sources to be indicated); and*
- *phasing and timing of implementation, including a twelve-month establishment period."*

The implementation of the recommended mitigation measures as described should ensure that the visual impact of the proposed development remains within acceptable levels, and for the proposed development to become as compatible with the visual setting as possible.
As a result, the proposed development will fit comfortably within its immediate context, contributing positively a new green energy infrastructural layer to the established cultural landscape character of the area.

10.3 Appraisal

Whereas the development proposal is congruent with development strategies for the area and no fatal flaws are implicit within the proposed site development plan, localized visual impacts perceived by the receptors can be reduced through the application of the mitigation measures as described.

The planning and design of the development layout has responded to contextual cultural landscape informants, including visual indicators and view considerations extremely well. Further mitigation can reduce the significance of the visual impacts to 'neutral', meaning that the proposed development would not cause discernible deterioration to existing views or visual resources.

Considered holistically, therefore, the Visual Impact of the **proposed development** (post mitigation) will cause little detrimental effect upon visual resources, environment or on human well-being; and with the implementation of the mitigation measures as described, should be remain within visual, heritage and environmental quality standards, targets, and legal requirements; to the approval of the local authority (Environment and Heritage Resources Management Section).

10.4 Recommendation

The proposed development of the **'Hercules Solar Cluster Project'** is **recommended for approval,** as the layouts for Hercules 1, 2, 3, & 4 array layouts, preferred and alternative transmission alignments, **subject to the implementation of mitigation measures** as described within this report.

11. Source Material

11.1 National Legislation & Legal Framework

- **Constitution** of the Republic of South Africa, 10 December 1996
- **CARA** Conservation of Agricultural Resources Act (43 of 1983)
- **NEMA** The National Environmental Management Act (107 of 1998)
- **NEM:BA** The National Environmental Management: Biodiversity Act (10 of 2004)
- **NHRA** The National Heritage Resources Act (25 of 1999
- **NWA** The Water Act (38 of 1997)
- **WSA** Water Services Act (108 of 1997)
- **SPLUMA** Spatial Planning and Land Use Management Act (16 of 2013)

11.2 Provincial Documents and Reports

- **LUPA** Land Use Planning Act (3 of 2014)
- **Bauman, N & Winter**, S, 2005:
  Guideline for involving Heritage Specialists in the EIA process:
  Edition 1 CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa,
  Provincial Government of the Western Cape, DEA&DP, Cape Town
- **Oberholzer, B 2005**:
  Guideline for involving Visual and Aesthetic Specialists in the EIA process:
  Edition 1 CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa,
  Provincial Government of the Western Cape, DEA&DP, Cape Town
- **Winter, S & Oberholzer, B** (in Association with Setplan), 2013:
  Heritage and Scenic Resources: Inventory and Policy Framework for the Western Cape
  A Study prepared for the Western Cape Provincial Spatial Development Framework (Version 5)
  Western Cape Government, Environmental Affairs & Development Planning, Cape Town

11.3 Geographic data

Aerial photography & geospatial data:

- GeoEye / TerraMetrics, SOP, NOAA, U.S. Navy, NGA, GEBCO
- Google-Earth Pro / Google Maps / Google Street View
- David Hellig & Abrahamse

GIS base information:

- Strategic Development Information
- Geographic Information Systems
- Cape Farm Mapper (GIS Elsenburg)

Topocadastral information:

- Various (topography, land use) maps
- Department of Land Affairs: Mapping and Surveys
- South African National Government

Vegetation data:

- Mucina, L & Rutherford, M C, 2006:
- The vegetation map of South Africa, Lesotho, and Swaziland
- SANBI (South African National Biodiversity Institute)

Historic Farm information

- Leonard Guelke
- The Southern Western Cape Colony 1657 – 1759 (Freehold Land Grants)

Cape Town historic mapping surveys:

- Snow: (circa 1860)
- Wilson: (1878)
- Thom: (circa 1890)

11.4 Online data

Cape Agricultural Mobile Information System:

- https://gis.elsenburg.com/mobile/camis/main/

Cape Farm Mapper:

- https://gis.elsenburg.com/apps/cfm/

Cape Town topographic map, elevation, relief (topographic-map.com)

- https://en-za.topographic-map.com/maps/77at/Cape-Town/

Cape Town / Environs: Historic topocadastral map series (compiled by Adrian Frith)

- http://htonl.dev.openstreetmap.org/50k-ct/#10/-34.0000/18.5000/c1940
- http://htonl.dev.openstreetmap.org/50k-ct/#10/-34.0000/18.5000/c1960
- http://htonl.dev.openstreetmap.org/50k-ct/#10/-34.0231/18.5250/c1980
- http://htonl.dev.openstreetmap.org/50k-ct/#10/-34.0231/18.5250/c1990
- http://htonl.dev.openstreetmap.org/50k-ct/#10/-34.0231/18.5250/c2000
- http://htonl.dev.openstreetmap.org/50k-ct/#10/-33.9980/18.4715/c2010

Chief Surveyor General - Cadastral Spatial Data Viewer

- https://csg.esri-southafrica.com
- https://csg.esri-southafrica.com/spatialdataviewer/

City Map Viewer (via City of Cape Town website):

- https://citymaps.capetown.gov.za/EGISViewer/

City Zoning Viewer (via City of Cape Town website):

- http://emap.capetown.gov.za/EGISPbdm/

City Maps Lab

- https://web1.capetown.gov.za/web1/opendataportal/AllDatasets

Coastal viewer

- https://mapservice.environment.gov.za/Coastal%20Viewer/

Open Topo Map

- https://opentopomap.org/

Peakery

- https://peakery.com/

Stellenbosch Municipality Heritage Survey

https://www.stellenboschheritage.co.za/smhs/map/#11/-33.9360/18.9548

Windy (real-time climatic information)

- https://www.windy.com/?-33.926,18.423,5

11.5 Project Information

Client

- Mulilo Renewable Energy (Pty) Ltd

Environmental Consultant

- Sharples Environmental Services (SES)

Heritage Practitioner

- John Gribble

Visual Specialist

- David Gibbs

12. Annexures & Appendices

Consultant Data

The cultural Landscape Character Analysis and Visual Impact Assessment baseline report has been prepared by David Gibbs Landscape Architect | Environmental Planner + Heritage Practitioner, who, as visual specialist and author of this document, and having no vested interest in the outcome of the approvals processes associated with the proposed development assessed within this document; nor standing to gain financially from the design, construction or future management thereof; maintains complete impartiality and independence.

Summary of Experience:

David Gibbs is a professional landscape architect, environmental planner, heritage practitioner and visual specialist. David serves the University of Cape Town professionally as University Landscape Architect and Heritage Practitioner, and teaches occasionally within the post-graduate planning, urban design, landscape architecture, transport engineering and heritage programmes.

He has served as President of the Institute for Landscape Architecture in South Africa, as Education Portfolio Councillor on the South African Council for the Landscape Architectural Professions, as Young Professionals' Advocate for the International Federation of Landscape Architects, as specialist consultant to Spatial Planning and Urban Design at the City of Cape Town, and as member of the Built Environment and Landscape Committee and chair of the Impact Assessment Committee of Heritage Western Cape.

He continues to serve as contributing member to the International Council on Monuments and Sites - Intentional Scientific Committee on Cultural Landscapes. Understanding and Interpreting Cultural Landscape has become the principal narrative of David's professional and academic work and while he continues to explore this theme, he advocates the curatorship of our built heritage together with the stewardship of our shared environment.

David lives in Pax Cottage, Timour Hall, with his wife Mary, their children Theo, Ellie and Joe; Tiggy the Irish Terrier, some mid-century modern furniture, several 'in-progress' art projects and a variety of garden birds, geckos and chameleons.

Curriculum Vitae - David Gibbs

Biography

Full Names & ZAR ID #:	**DAVID PETER GIBBS**	7712265042088
Date & Place of Birth:	**26th December 1977**	Cape Town, South Africa

Qualifications

PrLArch (Professional Landscape Architect | Environmental Planner)
SACLAP # 20128, (5th August 2004)

PHP (Professional Heritage Practitioner)
APHP, (9th March 2015)

MLArch (Master of Landscape Architecture)
UCT, Faculty of Engineering & the Built Environment, (10th December 2001)

BAS (Bachelor of Architectural Studies)
UCT, Faculty of Fine Art & Architecture, (11th December 1998)

Professional Registration and Accreditation

South African Council for the Landscape Architectural Professions
SACLAP registered Professional Landscape Architect & Environmental Planner

Association of Professional Heritage Practitioners
APHP accredited Professional Heritage Practitioner

Green Buildings Council South Africa
Green Star Accredited Professional (AP New Buildings)

Professional Membership

International Council for Monuments and Sites (ICOMOS)
ICOMOS SA; ICOMOS ISCCL (International Scientific Committee on Cultural Landscapes)

Institute for Landscape Architecture in South Africa
ILASA-National and ILASA-Cape Regional Branch Professional Member # P463

Society of Architects, Planners, Engineers, and Surveyors
APES Professional Member (Architecture)

Vernacular Architecture Society of South Africa
VASSA Member

Young Urbanists Community
YU Professional Member (Future Cape Town)

Professional Career History

UCT, Properties & Services, Capital Planning & Projects, Cape Town, South Africa
University Landscape Architect (Feb. 2018 –) Staff number: 01404611

City of Cape Town, Energy, Spatial & Environmental Planning, Spatial Planning & Urban Design
Specialist Consultant (contract appointment May 2015 – Oct. 2015)

Gibbs Saintpôl (now Square One) Landscape Architects cc. Cape Town, South Africa
*Co-Founder/ Director (*Oct. 2010 – Aug. 2014); *Specialist Consultant* (Sept. 2014 – 2016)

OvP Associates cc. Landscape Architects, Architects, Planners, Cape Town, South Africa
Consultant Landscape Architect (Jul. 2006 - Sept. 2010)

LA Web cc. t/a Urbanscapes, Cape Town, South Africa
Professional Landscape Architect (Feb. 2004 - Jun. 2006)

Ian Ford Deon Bronkhorst Landscape Architects cc, Cape Town, South Africa
Graduate Landscape Architect (Dec. 2001 - Jan. 2004)

Ian Ford & Associates Landscape Architects cc, Cape Town, South Africa
Student Landscape Architect (Nov. 2000 - Feb. 2001)
JB Burmeister & Associates Architects cc, Cape Town, South Africa
Student Architect (Jan. 1999 - Sept. 1999)

Academic Career History

University of Cape Town: School of Architecture, Planning and Geomatics: (Staff #: 01404611)
MCRP, MCPUD, MLA programmes: *Studio Master | Lecturer | Consultant* (2005 - 2016)
MCRP, MUD, MLA programmes: *Studio Master | Lecturer | Supervisor* (2017 - ongoing)
MCRP and MLA Programme Governance Committee: *Member:* (2007 - ongoing)
MLA programme: *Acting Programme Convener (*Jun. – Dec. 2008)
University of Cape Town: The Humanities Information Technology Committee (HUMANITEC)
Principal Researcher: Ian Ford Archive; Ann Sutton Archive (2013 – 2015)
University of Pretoria: Department of Architecture: Master of Landscape Architecture:
Professional programme: Accreditation Evaluator (2008); External Examiner (2009)
Cape Peninsula University of Technology: Department of Applied Sciences: (Staff #: 30083331)
Landscape Technology: *Advisory Board* (2008 – 2017) *Lecturer* (2008 – 2010); (2016 - 2017)
Association of African Planning Schools: http://www.africanplanningschools.org.za
Co-Author: with Liana Müller Jansen: Mapping Cultural Landscapes Toolkit (2011)
Council for Higher Education (CHE) Higher Education Quality Committee (HEQC)
Programme Accreditation: Evaluator Preparation workshop: *SACLAP delegate* (2006)

Service, Leadership & Advocacy

South African Council for the Landscape Architectural Professionals (SACLAP)
SACLAP Councillor: Education Portfolio (2005 – 2009)
SACLAP Education Committee member (co-opted 2010 – 2013)
Institute for Landscape Architecture in South Africa (ILASA)
ILASA-Cape Councillor: regional projects and exhibitions (2003 – 2005)
ILASA-Cape Chairman (elected 2005 - 2006; re-elected 2006 – 2007)
ILASA National Executive Committee (NEC) member (2005 – 2010)
ILASA National President (elected 2007 - 2008; re-elected 2008 – 2009)
ILASA President Emeritus: continuity and governance (2009 – 2010)
International Federation of Landscape Architects (IFLA)
IFLA World Council Delegate (2008 – 2011)
IFLA Africa Forum Committee (2008 – 2012)
IFLA Young Professionals' Advocate (2009 – 2012)
World Design Capital Cape Town (WDCCT)
Curatorial Panelist | Adjudicator (2013 – 2014)
Heritage Western Cape (HWC)
Built Environment and Landscape Committee (BELCOM) member (2017 – 2019)
Impact Assessment Committee (IACOM) Chair (2019-2022); (2023 -2025)
UCT Rhodes Must Fall Scholarship Committee
Member (2020 - 2022)
Association of Professional Heritage Practitioners (APHP)
APHP Executive Committee (ExCo) 2022 –

General Declaration

I, **David Gibbs** *hereby declare*

- *that I have acted as independent specialist in this application and have performed the work relating to the application in an objective and fair manner, notwithstanding the fact that resultant views and findings may be un-favourable to the applicant.*

- *that there are no circumstances that have compromised my objectivity in performing such work; and I have no conflicting interests in the undertaking of this work, and neither will I engage in any such interests.*

- *that I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the activities proposed within this application.*

- *that I have undertaken to disclose to the applicant and the competent authority all information within my possession that reasonably may have the potential to influence any decision to be taken by the competent authority with respect to the application.*

- *that I have undertaken to disclose to the applicant and the competent authority the objectivity of any report, plan or document prepared by myself for submission to the competent authority to inform any decision to be taken by the competent authority with respect to the application.*

- *that I have complied with the Act, regulations, and all other applicable legislation; that within this form I have furnished particulars that are true and correct; and that I am aware that a false declaration is an offence in terms of regulation 48 of the NEMA EIA Regulations and is punishable in terms of section 24F of the Act.*

Signatures of the specialist:

DAVID GIBBS

Names of Specialist:

4th March 2023

Date:

The Independent Specialist *who compiled a specialist report and/or undertook a specialist process*

I, **David Gibbs** as the appointed independent specialist hereby declare that I

- act/have acted as the independent specialist in this application.
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act.
- have no and will not have any vested interest in the proposed activity proceeding.
- have disclosed, to the applicant, EAP and competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act.
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification.
- have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study.
- have ensured that the comments of all interested and affected parties on the specialist report/study were considered, recorded, and submitted to the competent authority in respect of the application
- have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process.
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

Signatures of the specialist:

DAVID GIBBS

Names of Specialist:

4th March 2023

Date:

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I **David Gibbs** PrLArch + PHP....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal, or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or

  - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted).

- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all the requirements.

- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and

- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

2023 | 03 | 04

Signature of the Specialist: Date:

DAVID GIBBS Landscape Architect | Heritage Practitioner + Environmental Planner

Name of company (if applicable):