

# Site Sensitivity Verification Report for the Scoping Phase: Proposed Ezelsjacht 140 MW Wind Energy Facility and associated infrastructure located near De Doorns, Western Cape Province

**FINAL DRAFT**

November 2022

Prepared for:

**SLR**

Prepared by:

Hugo van Zyl and James Kinghorn

**INDEPENDENT**  
ECONOMIC RESEARCHERS

## Contents

<b>1. INTRODUCTION.....</b>	<b>3</b>
<b>2. TECHNICAL DETAILS FOR THE PROPOSED DEVELOPMENT .....</b>	<b>6</b>
<b>3. SITE SENSITIVITY VERIFICATION METHODOLOGY .....</b>	<b>7</b>
<b>4. OUTCOME OF SITE SENSITIVITY VERIFICATION .....</b>	<b>8</b>

## 1. INTRODUCTION

South Africa Mainstream Renewable Power Developments (Pty) Ltd (“Mainstream”) is proposing to develop, own and operate one (1) Wind Energy Facility (WEF), Battery Energy Storage System (BESS), and associated infrastructure with a generation capacity of up to 140 megawatts (MW).

In order to evacuate the energy generated by the WEF to supplement the national grid, Mainstream is also proposing an electrical grid infrastructure (EGI)/grid connection project which will be assessed in a separate Basic Assessment Processes (i.e. EGI for WEF). The proposed WEF site is located approximately 13 km south-east of the town De Doorns, within the Cape Winelands District Municipality of the Western Cape Province. The site proposed for the WEF component falls within both the Breede Valley and the Langeberg Local Municipalities.

Applicant	Project Name	Capacity (MW)	Affected Property
South Africa Mainstream Renewable Power Developments (Pty) Ltd	Ezelsjacht Wind Energy Facility (WEF)	140 MW <sub>ac</sub>	Portion 1 of Farm De Braak No. 7
			Portion 6 of the Farm Ratelbosch No.149
			Farm Zout Riviers No. 170
			Remainder of Farm Ezelsjacht No. 171

The overall objective of the proposed development is to generate electricity by means of renewable energy technologies capturing wind energy to feed into the national grid.

At this stage it is proposed that the WEF component of the renewable energy facility will consist of up to a maximum of 35 wind turbine generators (WTG), with a hub height and rotor diameter of approximately 200 m respectively. The WEF will also include internal and/or access roads (with a width of up to 12 m during construction), a construction laydown area/camp, Operation & Maintenance (O&M) Building and Independent Power Producer (IPP) 33/132kV portion of the onsite substation.. As mentioned, the WEF will have a generation capacity of up to 140 MW. The dimensions of infrastructure are listed in the table below.

The findings of the respective specialist studies will be used to inform the location of the WEF. All identified sensitive and/or no-go areas (including their respective buffers) will be avoided accordingly, as required. However, as part of the proposed application / Scoping & Environmental Impact Assessment (EIA) processes for the WEF project, various site area / location alternatives may be assessed for the associated infrastructure such as the O&M Buildings, IPP Substations and BESS. This is however still to be confirmed and will be communicated to the specialists.

The location alternatives for the associated infrastructure such as the O&M Buildings, IPP Substations and BESS, will also need to be assessed against the ‘no-go’ alternative. The ‘no-go’ alternative is the option of not constructing the respective projects, where the status quo of the current status and/or activities on the site would prevail.

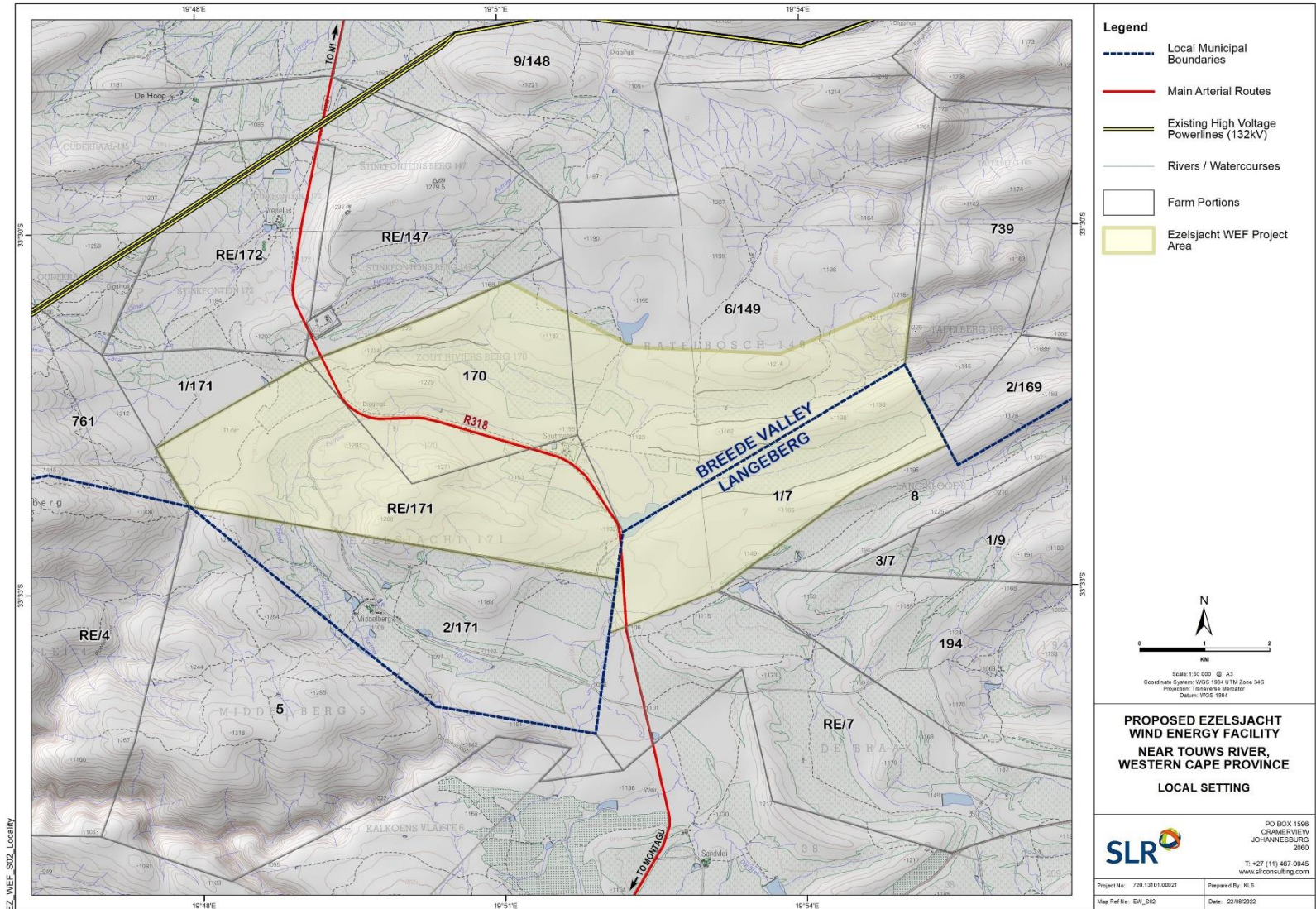


Figure 1.1: Locality Map of the Ezelsjacht WEF

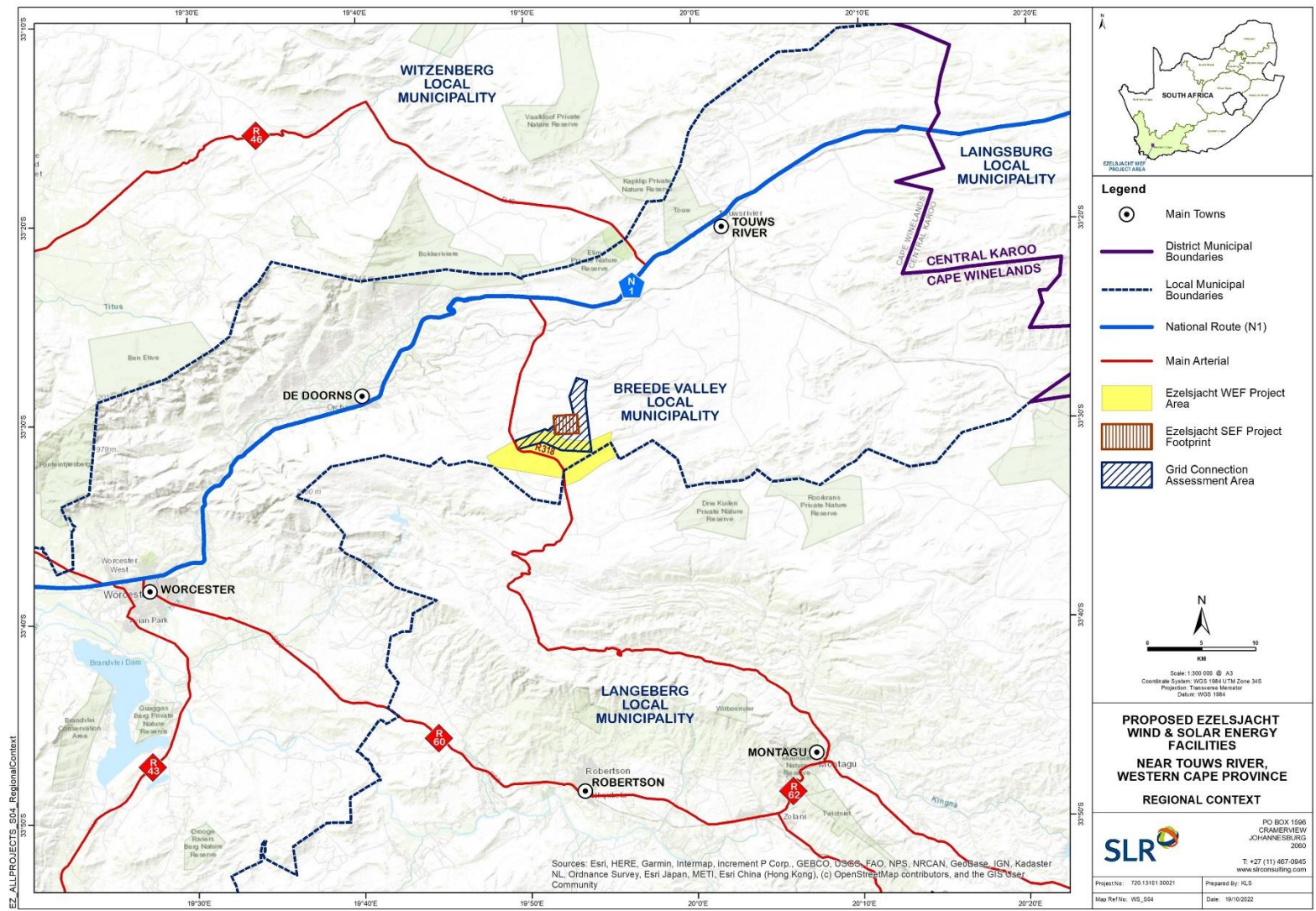


Figure 1.2: Regional Context of the Ezelsjacht WEF in relation to other Renewable Energy Projects

## 2. TECHNICAL DETAILS FOR THE PROPOSED DEVELOPMENT

Technical Component	Approximate Dimensions
<b>Ezelsjacht WEF infrastructure</b>	
Location of the site (centre point)	33°31'41.39"S 19°52'4.52"E
Access Roads	Access to the site will be off the R318 and existing access roads will be utilised as far as possible. The width of the access roads will be up to 12m wide.
Application site area	+/- 3,594 hectares
Affected Farm Portions	Portion 1 of Farm De Braak No. 7 Portion 6 of the Farm Ratelbosch No.149 Farm Zout Riviers No. 170 Remainder of Farm Ezelsjacht No. 171
SG Codes	C0500000000000700001 C08500000000014900006 C08500000000017000000 C08500000000017100000
Number of wind turbines and generation capacity	Up to a maximum of 35 turbines with an export capacity of 140 MW
Wind turbine specifications	<ul style="list-style-type: none"> <li>• Rotor diameter: up to 200m</li> <li>• Hub height: up to 200m</li> <li>• Each turbine will have a circular foundation of up to 20m in diameter, and up to 5m in depth</li> <li>• Turbine Crane pads/hard stand areas up to 0,7 hectares per turbine</li> <li>• Electrical transformers (11/33kV) located adjacent to each wind turbine (approx. 2m x 2m)</li> </ul>

Technical Component	Approximate Dimensions
<b>33kV/132kV IPP portion of onsite substation</b>	<ul style="list-style-type: none"> <li>The 33kV/132kV IPP portion of the onsite substation will be located adjacent to the 132kV Eskom portion of the substation (EGI for WEF EA Application) within the 25ha Infrastructure Area that has been assessed.</li> <li>33kV/132kV IPP portion of the onsite substation will cover an area of approx. 120m x 120m</li> </ul>
<b>Battery Energy Storage System (BESS)</b>	<ul style="list-style-type: none"> <li>BESS storage of up to 500 MWh will be located within the 25ha Infrastructure Area that has been assessed and will cover an area of approx. 5 ha.</li> <li>A Battery Energy Storage System (BESS) will be located next to the IPP portion / yard of the shared onsite 33/132kV substation and will cover an area of 5 ha. The storage capacity and type of technology would be determined at a later stage during the development phase, but will most likely be either solid state or redox flow.</li> </ul>
<b>Roads</b>	<ul style="list-style-type: none"> <li>Internal roads will be constructed between turbines, existing roads will be utilized as far as possible. The width of the internal roads will be up to 12m wide</li> </ul>

### 3. SITE SENSITIVITY VERIFICATION METHODOLOGY

In terms of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations [4 December 2014, Government Notice (GN) R982, R983, R984 and R985, as amended], various aspects of the proposed development may have an impact on the environment and are considered to be listed activities. These activities require environmental authorisation (EA) from the National Competent Authority (CA), namely the Department of Forestry, Fisheries and the Environment (DFFE), prior to the commencement thereof. One (1) application for EA for the proposed development will be submitted to the DFFE, in the form of a Scoping & EIA process in terms of the NEMA EIA Regulations of 2014 (as amended). Independent Economic Researchers have been commissioned to verify the socio-economic sensitivity of the Ezelsjacht WEF site under these specialist protocols.

In accordance with GN 320 and GN 1150 (20 March 2020)<sup>1</sup> of the NEMA EIA Regulations of 2014 (as amended), prior to commencing with a specialist assessment, a site sensitivity verification must be undertaken to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (i.e., Screening Tool).

No preliminary socio-economic sensitivities or sensitivity rating was identified or provided based on the DFFE Screening Tool (i.e. a preliminary sensitivity rating was not provided that could then be confirmed or altered based on further assessment). Nevertheless, this Site Sensitivity Verification Report (SSVR) provides an overall sensitivity rating for the site. It is based on desktop research and a site visit in support of the assessment which was undertaken on 21 October 2022.

In terms of socio-economic impacts there are not many significant or fine scale spatial constraints to consider. Constraints screening and associated site sensitivity verification thus has a focus on tourism constraints (including formal protected areas) and compatibility with existing spatial planning as these are the two impact categories with the potential to influence layouts at this stage. Specific impacts, such as visual impacts to specific receptors, or noise/shadow flicker will be assessed separately at later stages of assessment and have specific rather than broad implications.

#### 4. OUTCOME OF SITE SENSITIVITY VERIFICATION

As per the methodology above, the outcomes of site sensitivity verification are presented firstly in terms of tourism constraints and sensitivities and secondly in terms of constraints associated with compatibility and planning guidance.

##### **Tourism constraints and sensitivities**

To assess tourism constraints, the tourism context was considered and information on current tourism accommodation and other facilities or attractions nearby the proposed WEF was gathered based on a desktop review of tourism information and accommodation websites (including SafariNow, Lekkeslaap, AirBnB, Google Earth and Google Maps). The nature of the project components and of tourism facilities, including their distance from the project components, was then assessed with a view to identifying constraints and sensitivities.

The following Figure 4.1 and Table 4.1 shows the data that was considered, and the accompanying map file provides the location of each facility. A total of twelve tourism facilities were identified as having a potential view of (e.g. those shielded by mountain ranges were excluded) and being within 15 km of the WEF boundaries. These facilities also encompass those within 4 km of the SEF and grid line. In addition to these tourism receptors, several conservation areas were identified as potentially sensitive to project impacts. These including the following (distances reported are between the nearest boundaries and as the crow flies):

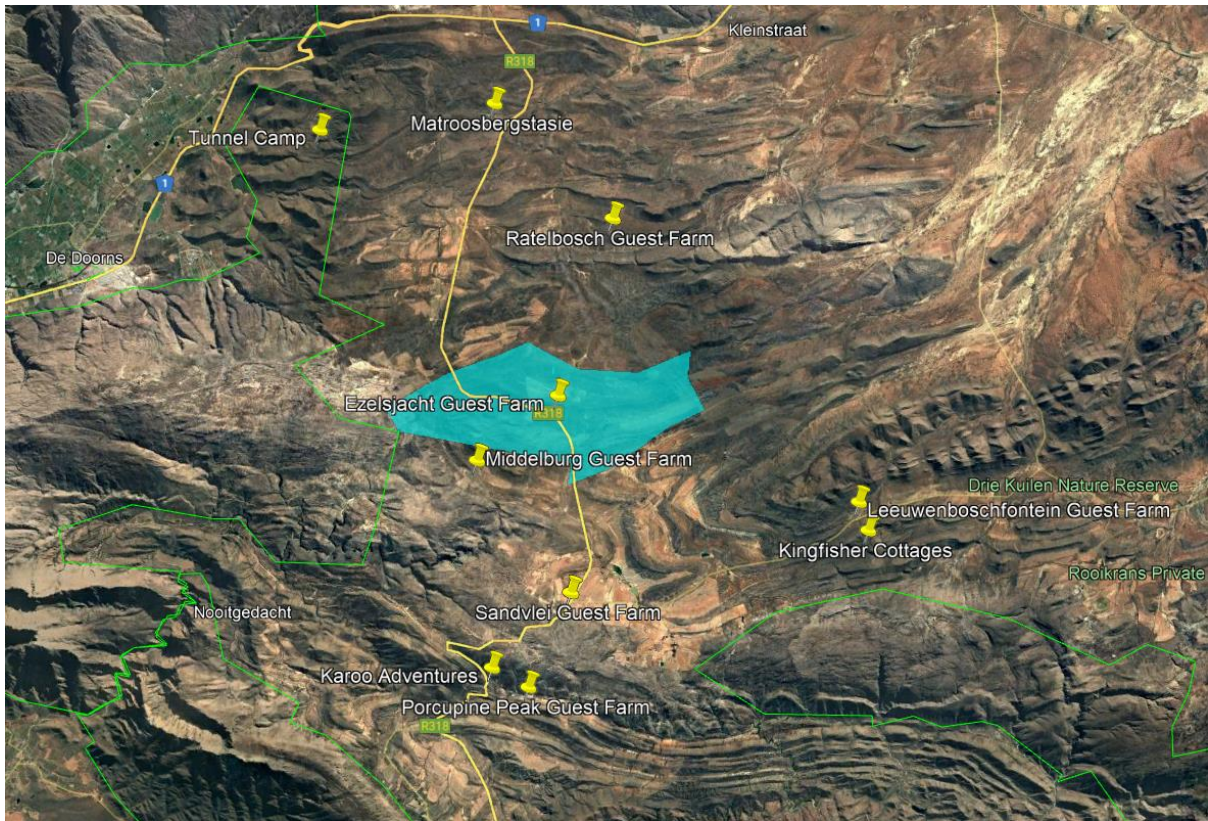
- Matroosberg Mountain Catchment Area (adjacent)
- Bokkerveiere Nature Reserve (~8km)
- Langberg-Wes Mountain Catchment Area (~8km)
- Drie Kuilen Nature Reserve (~12km)

---

<sup>1</sup> GN 320 (20 March 2020): Procedures for The Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation



- Rooikrans Nature Reserve (~15km)



**Figure 4.1 Map showing the study sites and identified prominent tourism establishments**

The establishments shown above, and listed in the table below, will be important to consider during the assessment phase, paying close attention to the findings of other specialist studies including those of the Visual, Heritage and Ecological specialists to ascertain what the impact of the WEF will be on existing tourism, as well as on the continued development of tourism in the area, by way of changes to the area's ecological characteristics and sense of place.

**Table 4.1 Tourism facilities profile and distance from project components**

Name of tourism facility	Number of units / rooms	Number of beds	Distance from Wind Farm
<b>Accommodation</b>			
Ezelsjacht Guest Farm	1 farm house	5	Within
Sandvlei Guest Farm	1 farm house	8	4.6
Ratelbosch Guest Farm	1 farm house	8	5
Middelburg Guest Farm	1 farm house	10	1
Leeuwenboschfontein Guest Farm (includes 4x4 trails, astronomy)	6 cottages, 6 chalets, 2 caravans, campsite	42 + campsite	7
Porcupine Peak Guest Farm	7 cottages, campsite	30+ campsite	8
Matroosbergstasie	Cottages	Unclear	9
Kingfisher Cottages	3 cottages	14	9
Tunnel Camp	Campsite		10
Kamagu Safari Lodge	1 large house	13	11.5
Karoo1 Hotel Village, Wedding & Conference	Many rooms + Africamps Glamping	Dozens	14
<b>Restaurants and Activities</b>			
Karoo Adventures 4x4 trails	N/A	N/A	8

A site visit was conducted on 21 October 2022. This allowed for a better understanding of the area's topography and informed a very high-level preliminary understanding of the project's likely visibility from the tourism sites identified above. The site visit revealed that the establishments most likely to be affected by the project include the following, all of which are located in close proximity to the project site (within 10km) and which do not appear to have significant topographic features obscuring their view of the project site:

- Ezelsjacht Guest Farm
- Ratelbosch Guest Farm
- Middelberg Guest Farm
- Sandvlei Guest Farm
- Matroosbergstasie Cottages

Some wide-angle photographs of selected points in the vicinity of the project site are provided below.



**Photograph 1: Entrance to Ezelsjacht Guest Farm facing south-east**



**Photograph 2: Entrance to Sandvlei Guest Farm facing north**



**Photograph 3: Turn-off to Porcupine Peak Guest Farm facing north**



**Photograph 4: Matroogbergstasie Cottages facing north-west**



**Photograph 5: Leeuwenboschfontein Guest Farm facing north**



**Photograph 6: View from the Karoo1 Hotel Village and Conference Centre facing south**

The photographs show that for establishments like Ezelsjacht Guest Farm and Sandvlei Guest Farm the project site is likely to be visible. For other establishments like Matroosbergstasie Cottages and Karoo1 Hotel Village it is unclear whether they will be visible. For Porcupine Peak Guest Farm and Leeuwenboschfontein Guest Farm it seems unlikely that they would see the project site or be

impacted by it visually, but this will be further investigated during the assessment and once other specialist reports become available.

### Summary

The WEF site was not found to have specific tourism constraints that would be significant enough to warrant their inclusion in constraints mapping. However, it should be noted that there are several tourism establishments within 15km of the WEF. Future assessment of impacts, on these establishments in particular, will require closer scrutinization of anticipated changes informed by more detailed assessment by the visual specialists. For those within the border of the project site this will also take into account the willing participation of the landowners in the WEF project which assumes they have made their own trade-off with tourism impacts. Similar circumstance may be applicable to other tourism establishments (i.e. their owners may also be participating in the WEF or related SEF).

### **Constraints associated with compatibility with planning guidance**

Applicable legislative and planning frameworks were reviewed with the intention of identifying constraining factors for the proposed project. The review focuses on national-level strategic planning around renewable energy development, as well as on provincial, district and municipal-level socioeconomic development and spatial planning guidance documents.

### ***Strategic spatial planning for renewable energy areas and transmission lines in South Africa***

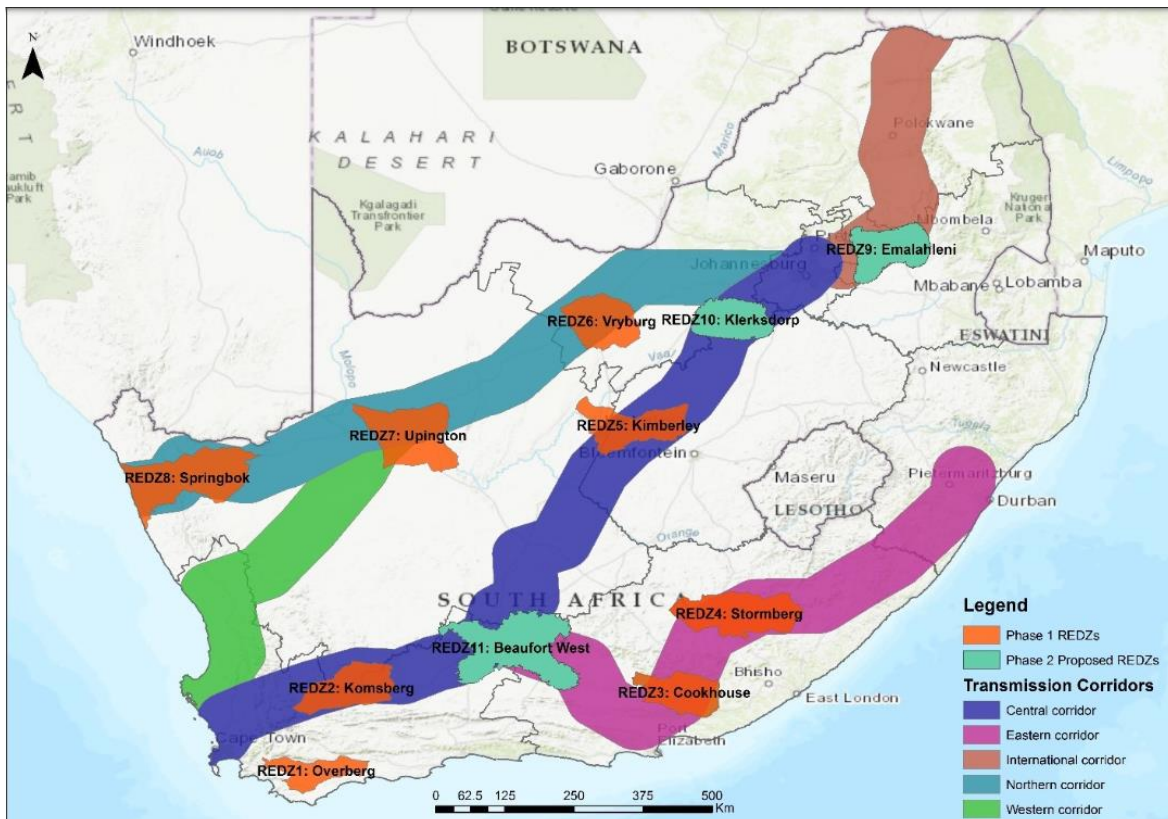
The project achieves a relatively high degree of compatibility with national strategic planning focused on renewable energy and associated grid infrastructure development.

Phase 1 of a Strategic Environmental Assessment (SEA) commissioned by the then Department of Environmental Affairs (DEA) identified Renewable Energy Development Zones (REDZs) for the roll-out of wind and solar energy in South Africa. The identification of these zones is aimed at enabling the development of large-scale wind and solar energy facilities in a manner that avoids or minimises significant negative impact on the environment while being commercially attractive and maximizing socio-economic benefit to the country. Phase 2 of the SEA includes additional REDZs which have recently been gazetted.<sup>2</sup>

The proposed project is located around 15km from the nearest boundary of the Komsberg Zone (Phase 2) and a similar distance from the southern border of the Central Transmission Corridor running between Johannesburg and Cape Town, identified as part of the National Electricity Grid Infrastructure Strategic Environmental Assessment (DEA, 2016) and subsequently gazetted. Overall, the project therefore achieves relatively close alignment with national renewable energy planning.

---

<sup>2</sup> See Government Gazette No. 44191, 26 February 2021, Notices 142 and 144.



Source: DEA (2019)

Note: Phase 2 Proposed REDZs in map were subsequently accepted and gazetted without alternations

**Figure 4.2 Phase 1 and Phase 2 Renewable Energy Development and Strategic Transmission Corridors**

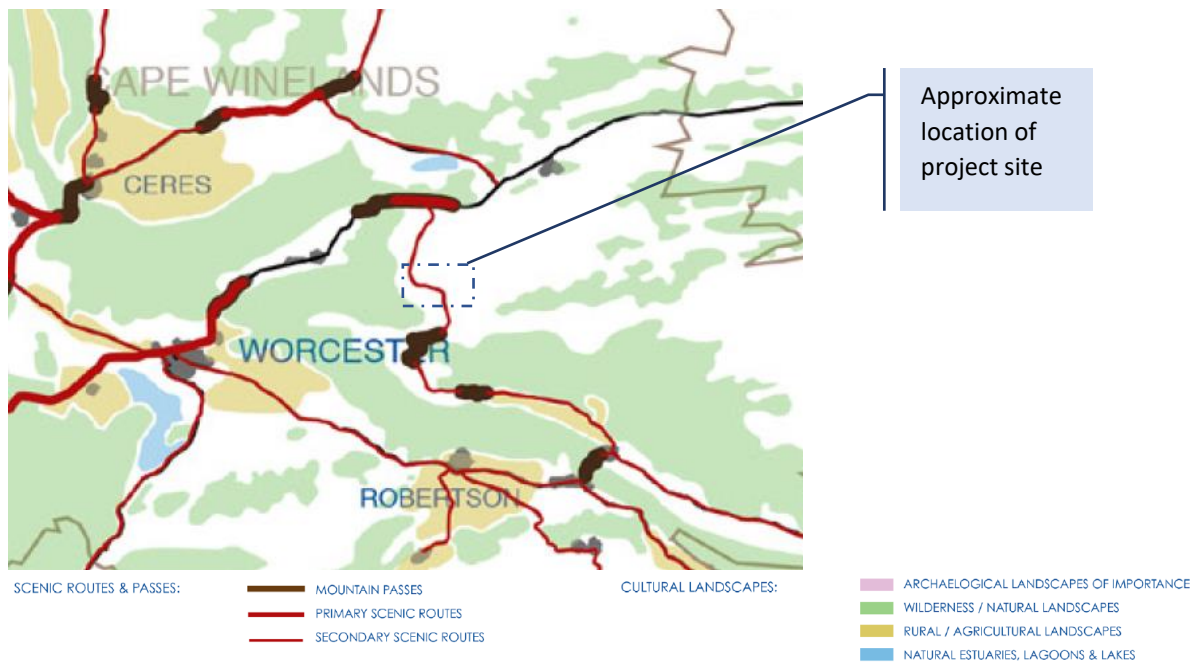
### ***Socio-economic development and spatial planning***

To assist with screening, socio-economic planning guidance with a spatial focus was reviewed at the provincial, district and local levels. The potential implications for the project are outlined below.

#### ***Provincial***

The Western Cape Spatial Development Framework (SDF) recognises the importance of the province’s cultural and scenic landscapes as assets that underpin the tourism economy. As part of the SDF, a spatial mapping exercise was carried out to identify landscapes and routes of particular importance, considering their rural, archaeological, agricultural and natural significance. Figure 4.3 shows the project site, ~35km north-east of Worcester, falls within the white area on the map, which was not identified by the provincial SDF as particularly important as a cultural landscape. However, there are notable wilderness / natural landscapes (represented by the colour green) adjacent to the project site (DEAD&P, 2014).

In terms of scenic routes, the R318 which connects Montagu to the N1 was identified in the Provincial SDF as a ‘secondary scenic route’. It is therefore represented by the narrower of the two red line types in Figure 4.3. As the project is in the immediate vicinity of this route, this raises the issue of the potential for some impact on sense of place and tourism which will be assessed in more detail.



**Figure 4.3 Scenic landscapes and routes identified in the Western Cape SDF, 2014**

The Rural Areas Guideline of 2019 further recognises the need for appropriate measures to ensure that the development of infrastructure installations harnesses available resources in an efficient way, minimising impacts on other land uses as experienced through heritage or visual channels. The following points are particularly relevant to the proposed project (DEA&DP, 2019):

- “Whilst often unavoidable, every effort should be made not to disturb natural landscapes with the construction of infrastructure installations through landscape-wide impact mitigation measures. For example, a wind turbine structure must be treated with a neutral, non-reflective exterior colour designed to blend with the surrounding natural environment, and to the satisfaction of the competent authority.
- Avoid establishing infrastructure or facilities with any permanent onsite employees’ residential component in rural areas as on-the-farm accommodation is restricted to agri workers. Employees should be accommodated in existing settlements.
- Installations to include appropriate buffers, landscaping and screening to reduce their visual impact on the rural landscape. Information on the architectural design must be provided, for the purposes of heritage and visual assessments.”

#### District

The Cape Winelands District SDF of 2021 echoes the provincial SDF in highlighting the importance of appropriately integrated development at the landscape scale. With respect to the topic of Climate Change, the SDF encourages “the development and use of renewable resources of energy, preferably local (e.g., solar, wind power, biomass etc.)” and from this perspective can be considered broadly compatible with the proposed project.

The CWDM SDF also has a section focussed on the district’s cultural landscape, the importance of which is illustrated in the listing of the Cape Winelands Cultural Landscape as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site. As a definition for sense of place, the SDF uses the following: “The degree to which a place can be clearly perceived and mentally differentiated and structured in time and space by its residents, and the degree to which that

mental structure connects with their values and concepts” (Lynch 1998, quoted in CWDM, 2021b). The SDF promotes an approach of ‘critical regionalism’ as defined in the second implementation proposal put forth in the SDF on the topic of cultural landscape (see below) (CWDM, 2021b):

1. “Recognise the principles pertaining to the protection, enhancement and integration of regional attributes in development planning.
2. Consider “critical regionalism” which recognizes the quality and attributes of regional characteristics and builds upon the development of regional idiosyncrasies and variations with regard to spatial planning and design decisions.
3. Changes proposed to landscapes and urban settlements whether they be for agricultural or urban and rural development purposes, should consider any heritage resource policy that may be relevant including those which might be proposed, e.g., Proclaimed Urban Conservation Areas, SAHRA Regulations, World Heritage Site applications etc.
4. Foreign or unsympathetic styles of site layout and buildings should be discouraged in urban settlements and rural areas so as to strengthen the local sense of place and minimise visual impact.
5. Urban design and architectural guidelines should be prepared to control the function and appearance of the main street or streets and squares in all of the urban settlements. These should control, among other things, building styles and heights, materials and colours, advertising, roadways and pavements, encourage colonnades and other devices to shelter pedestrians and landscaping and tree planting, and respect historic buildings and precincts.
6. Tree planting, including appropriate indigenous, ornamental and fruit trees, urban greening (landscaping) and food gardens should be encouraged along streets and in open spaces as part of urban restructuring programmes in villages and towns.
7. Conduct a systematic process, starting at the scale reminiscent of the proposed WHS (or Cape Winelands Biosphere Reserve), to identify and grade sites (and routes) and classify landscapes to protect the cultural landscape; use these findings for the compilation of an inventory of the heritage resources by the planning authority and submission of such inventory to the relevant provincial heritage resources authority”

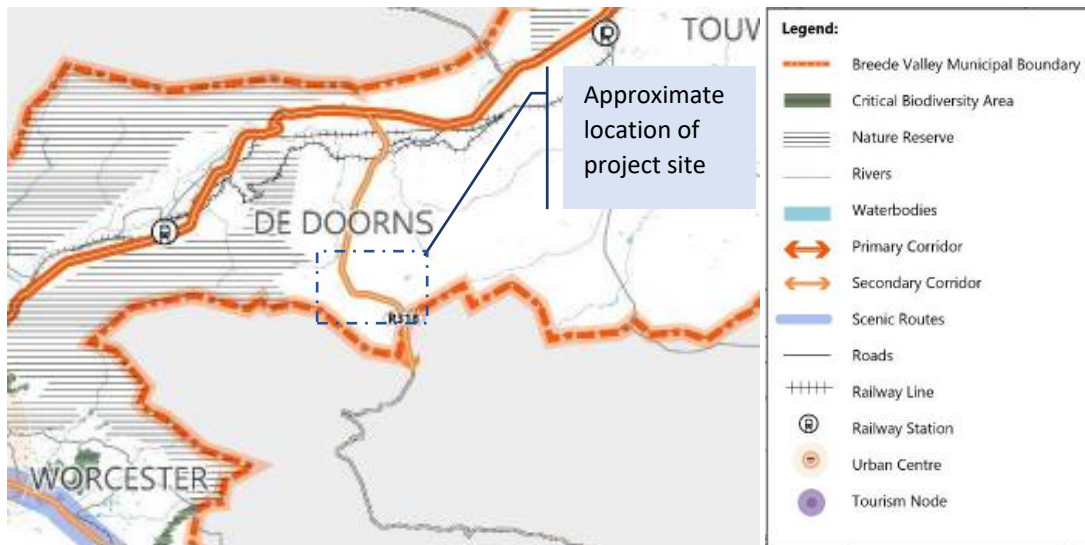
### Local

The Breede Valley Municipality Spatial Development Framework (SDF) does not mention renewable energy, but the development principles outlined in the document are instructive (BVLM, 2018):

- Economic Development
- Vibrant Local Tourism
- Enhanced residential character
- Accessible social and civic facilities
- Outdoor Lifestyle
- Sustainable cities and communities

The SDF provides these development principles with the aim of informing decision-making and for the identification of priority projects. Two maps of interest are included in the SDF. An excerpt of the first is shown in the figure below and shows the project area relative to nature reserves.

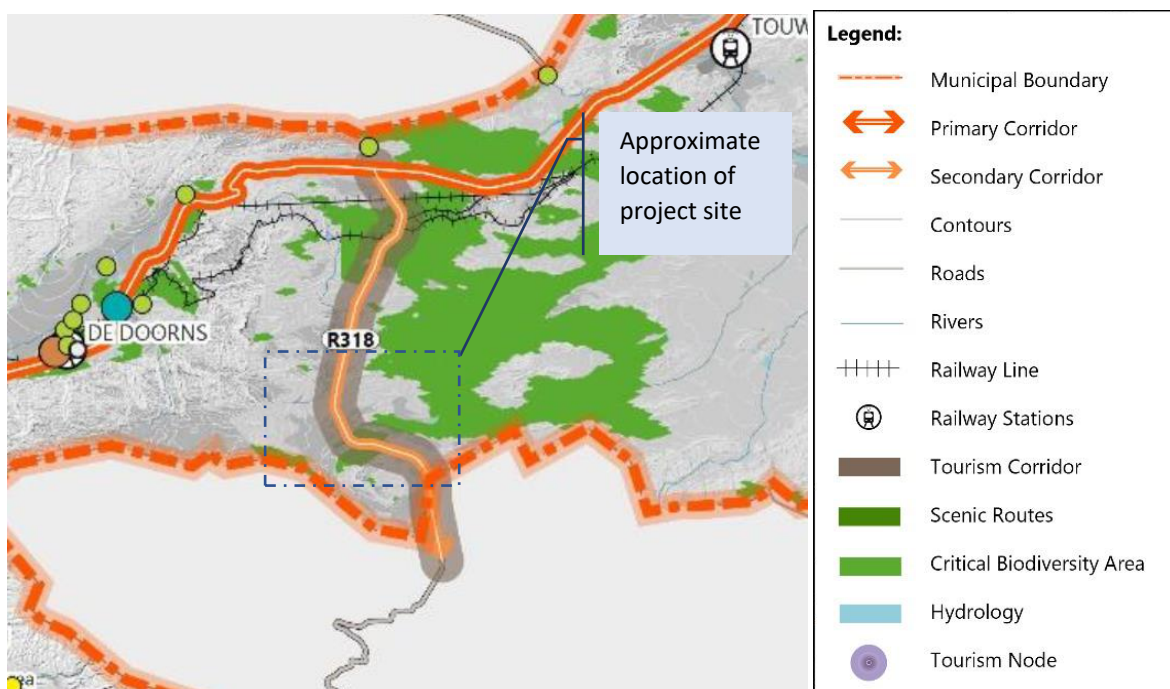




Source: BVLM, 2018

**Figure 4.4 Excerpt of the BVLM SDF Map showing nature reserves**

The second map of interest shown tourism areas corridors and critical biodiversity areas (see figure below).



Source: BVLM, 2018

**Figure 4.5 Excerpt of the BVLM Tourism Map showing tourism corridors and critical biodiversity areas**

Within the broader classification of recreation and tourism, the BVLM distinguishes between five types of land classes, including the following:

- Nature conservation
- Adventure tourism

- Tourism attractions and heritage sites
- Tourism accommodation
- Open space and recreation

The Nature Conservation land class includes proclaimed conservation areas and nature reserves, private nature conservation areas and open spaces. The purpose and description of this land class is “to ensure protection of natural resources and the environment” (BVLM, 2018). The purpose and description of the Adventure Tourism land class is to provide for active outdoor recreation and enjoyment of natural resources. Typical facilities include “hiking trails, mountain climbing, cycling trails, fishing sites, bush camps, 4x4 routes, game farms and hunting farms” (BVLM, 2018).

The SDF identifies ‘Natural Open Space’ as a structural element of the landscape surrounding Touwsrivier. Although the proposed site is almost 20km from Touwsrivier at its nearest point, the guidance seems pertinent for this type of land class given that the specific project site is not mentioned in the SDF. The document states that natural open space should be “protected from intrusive, irresponsible and ad hoc developments that damage the ecological integrity as well as visual quality of these areas. These include urban development, mining activities and agriculture”. The SDF further recommends that the BVLM develop an Environmental Management Framework to provide further place-specific development guidance (BVLM, 2018).

The Langeberg Local Municipality (LLM) SDF of 2015 is largely focused on settlements in the municipality, with limited guidance for rural areas (LLM, 2015). However, the municipal SDF policy/project list includes a Rural Development Strategy “to stimulate the growth of the rural economy”, which was approved by the IDP but is not available online (LLM, 2016). While guidance from LLM on the appropriate forms of rural development envisioned would be informative, a preliminary site visit indicates that the project is unlikely to occupy a prominent position in the landscapes of the LLM, given the mountainous topography which forms a high point more or less along the border between BVLM and LLM. Risks to alternative land uses in the LLM are therefore considered relatively minimal at this preliminary stage.

## 5. CONCLUSION

The constraints screening and sensitivity verification process did not find any socio-economic constraining factors or areas of high sensitivity that would justify recommending spatial constraints on the proposed project at this stage. However, the process did identify potentially sensitive tourism receptors. These receptors, including the Ezelsjacht Guest Farm and others mentioned above, will require particular attention during the assessment phase.

The process also revealed that spatial planning and socio-economic guidance is broadly supportive of the proposed project provided that impacts on biodiversity, visual and heritage resources can be kept to a minimum. Compatibility with planning will be assessed further in the assessment phase as per the plan of study.

A combined consideration of tourism and planning sensitivities indicates that the overall socio-economic sensitivity of the site is medium at this early stage of the overall assessment of the project. A Socio-economic Impact Assessment will be undertaken for this project going into the EIA Phase in order to determine the impact of the development on the socio-economic environment of the area.