RED ROCKET SOUTH AFRICA (PTY) LTD

PROPOSED BON ESPIRANGE TO KOMSBERG 132KV OVERHEAD POWERLINE (DFFE REF: 14/12/16/3/3/1/2471)

FINAL BASIC ASSESSMENT REPORT

2022-02 FINAL

1 INTRODUCTION

Changes made from the Draft BAR have been underlined in this Final BAR for easier reference to the updates made in the reporting.

1.1 BACKGROUND AND TERMS OF REFERENCE

Red Rocket South Africa (Pty) Ltd (Red Rocket) proposes to construct a 132 kV overhead powerline (OHPL) approximately 6 km in length to connect the authorised Bon Espirange substation (approximately 33km North of Matjiesfontein) in the Laingsburg Local Municipality within the Central Karoo District Municipality of the Western Cape Province to the existing Komsberg substation near Sutherland in the Karoo Hoogland Local Municipality in the Namakwa District Municipality of the Northern Cape, South Africa (**Figure 1-1)**. The proposed OHPL runs directly adjacent to an existing powerline and will be necessary to connect the proposed Brandvalley Wind Energy Facility (WEF) and Rietkloof WEF to the national grid.

The proposed Brandvalley (DFFE Ref No. 14/12/16/3/3/2/900) and Rietkloof (DFFE Ref. No. 14/12/16/3/3/2/899) WEFs were authorised under separate Environmental Authorisations (EA) and were awarded preferred bidder status in Round 5 of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) in October 2021. The Brandvalley and Rietkloof WEF sites are located in the Laingsburg Local Municipality approximately 10 km and 12 km southwest of the Bon Espirange substation, respectively.

On 16 February 2018, the Department of Environmental Affairs (DEA), now the Department of Forestry, Fisheries and the Environment (DFFE), gazetted the Renewable Energy Development Zones (REDZ) and Strategic Transmission Corridors and procedures for the assessment of large-scale wind and solar photovoltaic energy development activities (Government Notice (GN) 114) and grid infrastructure (GN 145). The proposed OHPL falls within the Komsberg REDZ and the Central Strategic Transmission Corridor.

The proposed OHPL traverses a Critical Biodiversity Area (CBA) (**Figure 1-2**). As such, the proposed OHPL requires an EA in terms of the National Environmental Management Act (Act 107 of 1998), as amended (NEMA) and the associated Environmental Impact Assessment (EIA) Regulations, 2014, as amended.

WSP Group Africa (Pty) Ltd (WSP) has been appointed by Red Rocket as the independent Environmental Assessment Practitioner (EAP) to facilitate the Basic Assessment (BA) process in accordance with the EIA Regulations, 2014, as amended.

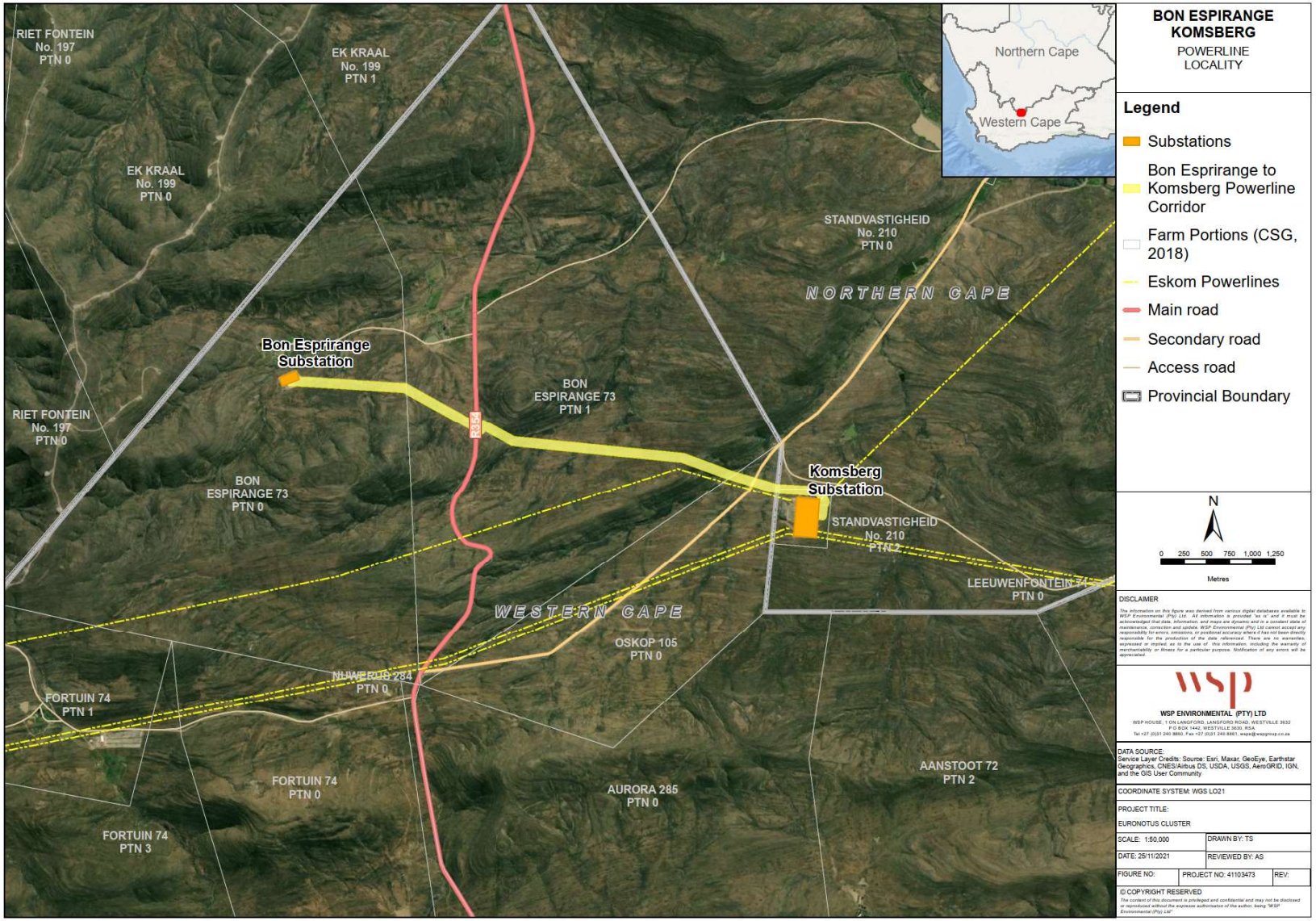

Figure 1-1: Location of the Proposed Bon Espirange to Komsberg 132kV Overhead Powerline

development site. The closest built-up area is the town of Matjiesfontein which is situated approximately 34km south of Komsberg Substation and is thus too far away to have significant impacts on the night scene in the study area. At night, the general study area is characterised by a picturesque dark starry sky and the visual character of the night environment is largely 'unpolluted' and pristine. Sources of light in the area are largely limited to isolated lighting from surrounding farmsteads and transient light from the passing cars travelling along the R354 main road and gravel access roads. Some light pollution is however likely to emanate from the operational and security lighting at Komsberg substation and at Roggeveld WEF and this would reduce the impacts of additional lighting in the area.

However, powerlines and associated towers or pylons are not usually lit up at night and, thus the proposed development is not expected to result in any additional light pollution.

9.1.5 AVIFAUNA

The entire study area is regarded as highly sensitive due to the regular occurrence of Red List powerline priority species. Areas that are particularly risky from a potential bird collision perspective are the following:

- Natural flight paths: Topographical features e.g. ridges and areas where the line crosses a valley, or drainage lines.
- Waterbodies: Several priority species are attracted open water. If a line skirts a waterbody, or run between two waterbodies, it can pose a collision risk to birds which are attracted to the water.

The authorised alignment must be inspected by an avifaunal specialist by means of a "walk-through" inspection to identify risky areas where sections of the line should be marked with Bird Flight Diverters, once the pole positions have been finalised.

9.2 SPECIALIST CONCLUSIONS

9.2.1 AGRICULTURAL POTENTIAL

The assessed corridor is entirely on land that has only ever had grazing as an agricultural land use. The land's predominantly low agricultural sensitivity, with a maximum of medium sensitivity, is confirmed by this assessment.

The conclusion of this assessment is that the proposed development will have negligible agricultural impact and will be acceptable in terms of its impact on the agricultural production capability of the site. This is substantiated by the facts that the amount of agricultural land loss resulting from the development is totally insignificant, and that the land is of very low agricultural potential.

The only potential source of impact is minimal disturbance to the land during construction and decommissioning. This impact can be completely mitigated. However, farmers frequently complain that these impacts occur because the EMPr, that would mitigate the impact, is not adequately implemented. In addition, there is likely to be some nuisance disturbance to agricultural activities during construction. However, nuisance disturbances are highly unlikely to translate into a real change in agricultural production and therefore do not constitute an actual agricultural impact.

There are no additional mitigation measures required, over and above what has already been included in the Generic EMPr for overhead electricity transmission and distribution infrastructure as per Government Notice 435, which was published in Government Gazette 42323 on 22 March 2019.

The proposed development will not have an unacceptable negative impact on the agricultural production capability of the site. The proposed development is therefore acceptable. This is substantiated by the following points:

- Overhead transmission lines have no agricultural impact because all agricultural activities that are viable in this environment, can continue completely unhindered underneath transmission lines.
- The direct, permanent, physical footprint of the development that has any potential to interfere with agriculture, is entirely insignificant within this agricultural environment.

— The affected land has very low agricultural potential.

Therefore, from an agricultural impact point of view, it is recommended that the development be approved. Due to the low impact of this linear activity, the land can be returned to the current state within two years of completion of the construction phase. The recommendation for its approval is not subject to any conditions.

9.2.2 AVIFAUNA ASSESSMENT

The expected impacts of the 132kV overhead powerline were rated to be of Moderate significance and negative status pre-mitigation. However, with appropriate mitigation, the post-mitigation significance of the identified impacts should be reduced to Low negative. No fatal flaws were discovered in the course of the investigation. It is therefore recommended that the activity is authorised, on condition that the proposed mitigation measures as detailed in the EMPr are strictly implemented.

9.2.3 BATS ASSESSMENT

The proposed grid connection route is acceptable from a bat sensitivity perspective if all conditions of the EA are adhered to.

9.2.4 BIODIVERSITY ASSESSMENT

Within the site, levels of transformation are generally low and alien infestation is generally also very low. Some degradation from historical grazing is evident in the landscape. Vegetation is primarily Koedoesberge-Moordenaars Karoo in the lowlands and Central Mountain Shale Renosterveld in the mountains, with several communities being differentiated, having slight differences in biophysical conditions (underlying substrate, soils and aspects) and flora composition. The vegetation units are widespread and have a low overall conservation status.

Several species of conservation concern are found in the broader area and could be present most likely as scattered individuals or small clumps or sub-populations. Several range-restricted species of conservation concern are also known to occur in the surrounding area and the vegetation types, with some found in proximity to the powerline at the time of the site assessment. The site assessment has physically screened for the presence of these, and other possible species not identified in the screening tool and is addressed in the respective species assessment.

The proposed powerline will result in the limited transformation and loss of some natural habitat, limited to the footprints for pylons and access roads along the route. This loss will be highly localised but will result in a cumulative loss of the vegetation type and species. This cumulative loss is negligible.

Numerous flora and fauna species protected in terms of the Northern Cape Nature Conservation Act (Act 9 of 2009) and Western Cape Nature Conservation Laws Amendment Act (Act No 3 of 2000) are present or likely to be present and will require the appropriate permits before commencement. Flora and fauna search and rescue is recommended before commencement. It may be most feasible to undertake the search and rescue, in particular of fauna, in a phased manner slightly ahead of the clearing and construction phase. This will increase the likelihood of finding and relocating various species.

Due to the small size of the overall footprint, risks to faunal species are likely to be low. It is likely that the mammal species identified to be of conservation concern would likely be transient visitors. A search and rescue should be conducted before commencement to relocate any small mammals into a nearby area of similar suitable habitat. Several reptile species are present but are also likely transient. A search and rescue must be conducted before commencement to relocate any reptiles into a nearby area of similar suitable habitat. Amphibians are likely less common, being an arid area, with limited or no perennial wetlands noted. Bird species listed as being of conservation concern are potentially present as transient visitors (i.e., flying over, nesting or foraging) and thus the proposed activity is unlikely to pose any significant risk.

The route does cross mountainous areas, with more sensitive outcrop areas. The powerline route should span outcrops as far as possible. Several more sensitive areas, generally confined to small areas, within the broader homogenous landscape were noted and have been mapped and designated a higher sensitivity. This is due to the prevalence of various protected species that are not common to the surrounding Renosterveld/Karoid mozaic. These habitats are also somewhat less resilient to disturbance, and it is recommended that these patches be avoided

as far as is technically possible. Where possible any extensive rocky outcrops or pavements should be avoided, or impacts kept to the minimum

The following pertinent findings were made in respect of biodiversity:

- Very Low sensitivity areas include transformed areas such as cultivated areas.
- Low sensitivity areas include most of the route within natural Shale Renosterveld and Moordenaars Karoo.
- No Moderate Sensitivity areas were identified.
- No High sensitivity areas were identified.
- No Very High sensitivity areas were identified.
- No specific No-go areas were identified, although rocky outcrops should be avoided as far as possible, and all watercourses must be spanned.

Cumulative impacts because of the development of the site, are regarded as being low due to the widespread nature of the vegetation unit and the low impact of the proposed activity which is unlikely to pose significant risk to potential localised populations of species of conservation concern.

The following recommendations are made in respect of biodiversity:

- No extensive habitats that are designated as having an elevated sensitivity were identified along the proposed OHPL route. Where possible any rocky outcrops should be avoided as far as possible, or impacts kept to the minimum and no pylons are to be sited within watercourses or riparian vegetation directly adjacent to such watercourses, were erosion could be problematic.
- A final walkdown to microsite the actual pylon and other infrastructure footprints should be undertaken in final planning and design and before construction commences.
- A flora and fauna search and rescue should be undertaken before construction.

9.2.5 FRESHWATER ASSESSMENT

During the site visit undertaken from the 25th to 28th of May 2021, several headwater EDLs without riparian vegetation which flow into larger ephemeral tributaries with riparian vegetation were identified. Although these episodic drainage lines cannot be classified as rivers or streams in the traditional sense, due to the lack of saturated soil and riparian vegetation, they do still function as waterways, through episodic conveyance of water. Based on the definition of a watercourse as per the NWA, water does flow regularly or intermittently within these drainage lines, conveying water from the upgradient catchment area into the downgradient tributaries and the larger river systems outside the investigation area. As such, they can be considered as watercourses due to their importance for hydrological functioning and therefore enjoy protection in terms of the NWA.

The results of the ecological assessment of the watercourses is summarised in the table below:

Table 9-14: Summary of the results of the freshwater assessment

Watercourse	PES	Ecoservices	EIS	REC
Episodic drainage lines associated with the Meintjieplaas River systems	B (Largely natural with few modifications)	Intermediate (1,4)	High	REC: Category B (Largely natural with few modifications)

The activities associated with the construction and operational phases of the proposed powerline and substation development based on the alignment and location provided respectively by the proponent, includes site preparation, excavation of pits for installation of the support structures and construction activities. Direct negative impacts associated with creating new access roads (albeit informal jeep track style roads) to service the powerline development are expected to occur to the watercourse drivers and receptors during the construction phase. Should the recommended mitigation measures be implemented with specific mention of only installing support structures outside the delineated extent of the watercourses and its associated 32 m NEMA ZoR, a Low risk significance is expected to occur and as such, Water Use Authorisation by means of a General Authorisation in terms of Section 21(c) and (i) water uses may potentially be obtained in consultation with the DWS. However, the DWS, the custodian of water resources in South Africa, must be consulted with regards to the outcome of this assessment.

It is therefore recommended that the mitigation measures and the good housekeeping measures be implemented to prevent and direct/indirect impacts from occurring on the watercourses. The proposed development is not considered fatally flawed.

9.2.6 GEOTECHNICAL ASSESSMENT

The powerline route is anticipated to be underlain by shallow bedrock conditions. The impact of the powerline was found to be "*Negative moderate impact - The anticipated impact will have negative effects and will require mitigation*." The powerline route from a desktop level geotechnical study is considered suitable for the proposed powerline route.

No fatal geotechnical constraints, which rendered the powerline or substation site to be non-suitable, have been identified during this desktop study. Conclusions presented in the Desktop Geotechnical Assessment will have to be more accurately confirmed during the detailed geotechnical investigation phase.

9.2.7 HERITAGE, PALAEONTOLOGY AND ARCHAEOLOGY ASSESSMENT

The findings of this field assessment largely correlate with the findings of the ACO in the HIA completed for the Karreebosch WEF (Kendrick, 2015, SAHRIS Ref 183350) and the Roggeveld WEF (Hart and Webley, 2013, SAHRIS Ref 152531). The archaeological resources identified were all ex situ and are of limited scientific and heritage significance.

Based on the findings of this and other assessments completed in the area, it is unlikely that the proposed development of the OHPL will negatively impact significant resources. This is due to the fact that 132kV lines typically have a very small development footprint and can be constructed without the large roads needed to build the WEFs. The routes chosen by the engineers for the various alternatives follow very rugged, mid-slope paths where almost no archaeological material or ruins were found.

It is possible, although unlikely, that archaeological resources may be located beneath the ground surface which may be impacted during the course of development. Recommendations in this regard are included below.

In terms of impacts to palaeontological heritage, Almond (2021) concludes that "*There are no objections on palaeontological grounds to authorisation of the proposed 132 kV powerline… No further specialist palaeontological studies or mitigation are recommended for this electrical infrastructure project. These recommendations and the Chance Fossil Finds Protocol appended to this report should be included in the EMPr for the development.*"

There is no objection to the proposed development of the overhead powerline in terms of impacts to heritage resources on condition that:

- The Chance Fossil Finds Procedure must be implemented throughout the construction phase of the development
- Should any buried archaeological resources or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds. The relevant heritage authority (the South African Heritage Resources Agency (SAHRA) in the Northern Cape and Heritage Western Cape (HWC) in the Western Cape) must be contacted immediately in order to determine an appropriate way forward.

9.2.8 SOCIO-ECONOMIC ASSESSMENT

The energy security benefits associated with the proposed Rietkloof and Brandvalley Wind Energy Facilities are dependent upon it being able to connect to the national grid via the establishment of grid connection infrastructure.

The findings of the SIA indicate that the significance of the potential negative social impacts for both the construction and operational phase of the proposed Bon Espirange to Komsnerg 132kV OHPL are Low Negative with mitigation. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented. The power line is also located within the Komsberg REDZ and Central Transmission Corridor. The establishment of proposed Bon Espirange to Komsnerg 132kV OHPL is therefore supported by the findings of the SIA.

9.2.9 TRAFFIC ASESSMENT

ACCESS AND INTERNAL CIRCULATION

- Two access points connecting with the R354 provide access to the project site.
- Additional access roads or tracks may be required to provide access to sections of the powerline route.
- For the access points, it is recommended that the road near the access point be kept clear of tall vegetation to allow for good sight lines.
- The access points are located off existing provincial roads and as such access spacing restrictions are not envisaged.
- It needs to be noted that all access and internal roads should be investigated for their topographical suitability, i.e., feasibility for plant and truck access and height clearance for any Eskom lines, Telkom lines or similar.

PREFERRED ROUTE FOR MATERIALS, PLANT AND LABOUR

It is envisaged that the majority of materials, will be sourced from Worcester approximately 160km form the site or alternatively from Cape Town approximately 300 km from the site. The travel route from Worcester to the site travels through the N1 and the R354.

It is envisaged that the workforce will most likely reside in Sutherland, Matjiesfontein, Touws River or Laingsburg as the closest communities. The travel routes form these towns to the site include the N1 and the R354. These are higher order routes as such geometric limitations are not envisaged.

TRAFFIC IMPACT

No intersection capacity improvements are considered necessary based on the following:

- The site gains access of the R354, which is a Class 2 road designed to accommodate large traffic volumes.
- The only notable generated traffic would occur during the construction and decommissioning phases. The trips generated during these phases will only occur for short periods of time and the following mitigation measures are recommended for consideration:
    i. The delivery of materials and components to the site can be staggered and trips can be scheduled to occur outside of peak traffic periods,
    ii. The use of mobile batching plants and any material sources in close proximity to the site would decrease the impact on the surrounding road network,
    iii. Staff and general trips should can outside of peak traffic periods,
    iv. Staff can be shuttled on scheduled busses to minimise the number of trips; and
    v. Stagger the removal of towers, foundations, conductors etc during the decommissioning phase.

ASSESSMENT OF TRAFFIC RELATED ENVIRONMENTAL IMPACTS AND IDENTIFICATION OF MANAGEMENT ACTIONS

This phase includes the construction of the Facility, including construction of the roads, excavations, trenching and ancillary construction works. This phase will temporarily generate the most development traffic.

The nature of environmental impact expected with construction traffic is noise and dust pollution. It is estimated that the construction traffic will have a moderate significance rating pre mitigation and a low significance rating post mitigation.

Proposed mitigation measures

- The delivery of components to the site can be staggered and trips can be scheduled to occur outside of peak traffic periods.
- Dust suppression of gravel roads during the construction phase, as required.

- Regular maintenance of gravel roads is required by the Contractor during the construction phase and by the Owner/Facility Manager during the operational phase.
- The use of mobile batch plants and quarries near the site would decrease traffic on the surrounding road network.
- Staff and general trips should occur outside of peak traffic periods as far as possible.

The operation and maintenance phase include the operation and maintenance of the WEF

The nature of environmental impact expected with operational traffic is noise and dust pollution. It is estimated that the operational traffic will have a low significance rating pre mitigation and a very low significance rating post mitigation.

Proposed mitigation measures

- Consider scheduling shift changes to occur during off peak hours.
- Regular maintenance of gravel roads is required by the Contractor during the construction phase and by the Owner/Facility Manager during the operational phase.

The decommissioning phase will generate construction related traffic including transportation of people, construction materials, water and equipment (abnormal trucks transporting turbine components). It is therefore expected that the decommissioning phase will generate the same impact as that of the construction phase.

The cumulative impact assumes that all wind farms within 50km currently proposed and/or approved, would be constructed at the same time. It must be noted that this is a conservative approach. The nature of environmental impact expected is noise and dust pollution. It is estimated that the construction traffic will have a high significance rating pre mitigation and a moderate significance rating post mitigation. The mitigation measures proposed for the construction phase are proposed for the cumulative impacts during the construction stage.

The aim of this study was to investigate all traffic and transportation related matters pertaining to the Bon Espirange – Komsberg 132 kV powerline to be located in the Laingsburg Municipality (LM), Western Cape Province, and in the Karoo Hoogland Municipality (KHM), Northern Cape Province.

The construction, operation and maintenance, as well as the decommissioning phase of the powerline is not envisaged to generate a significant traffic impact on the surrounding road network. The development of this powerline is supported from a traffic engineering point of view, provided that the recommendations in this report are adhered to and are read in conjunction with the road design and environmental reports completed for this site.

9.2.10 VISUAL ASSESSMENT

A VIA has been conducted to assess the magnitude and significance of the potential visual impacts associated with the construction of a proposed 132 kV power line to support the proposed Brand Valley and Rietkloof WEFs near Matjiesfontein in the Western Cape Province. Overall, sparse human habitation and the predominance of natural vegetation cover across much of the study area would give the viewer the general impression of a largely natural setting with some pastoral elements. As such, the proposed power line development would alter the visual character and contrast significantly with the typical land use and/or pattern and form of human elements present across the broader study area. The level of contrast is however reduced by the presence of the Roggeveld WEF, Komsberg substation and existing high voltage power lines located in the eastern and central sectors of the study area.

A broad-scale assessment of landscape sensitivity, based on the physical characteristics of the study area, economic activities and land use that predominates, determined that the area would have a **low** visual sensitivity. An important factor contributing to the visual sensitivity of an area is the presence, or absence of visual receptors that would potentially be impacted by a proposed development.

The area is not however typically valued for its tourism significance and there is limited human habitation resulting in relatively few potentially sensitive receptors in the area. The area is traversed by a recognised scenic route, namely the R354 main road, although visual impacts on travelers using this route will be considerably reduced by the presence of existing high voltage power lines and the hilly terrain that screens views from much of this road.

A total of seven (7) potentially sensitive receptors were identified in the study area, one (1) of which is considered to be a sensitive receptor as it is linked to leisure/nature-based tourism activities in the area. According to the receptor impact rating undertaken for this VIA, the only sensitive receptor identified within the study area would

experience low levels of visual impact as a result of the proposed development, this being the Saaiplaas Guest Farm. Two (2) potentially sensitive receptors will be subjected to moderate levels of visual impact as a result of the proposed power line development, while two receptors will be subjected to low levels of visual impact. It should be noted however, that many of these receptors are located on farms which are within the project areas for approved renewable energy projects. As such the owners / occupants are not expected to perceive the proposed power line in a negative light. The remaining three (3) receptors are outside the viewshed of the proposed development and are therefore not expected to be subjected to any visual impacts as a result of the power line development.

An overall impact rating was also conducted in order to allow the visual impact to be assessed alongside other environmental parameters. The assessment revealed that impacts associated with the proposed 132kV power line will be of low significance during construction, operation and decommissioning phases with a number of mitigation measures available.

Although other renewable energy developments and infrastructure projects, either proposed or in operation, were identified within a 35km radius of the proposed development, it was determined that only two (2) of these would have any significant impact on the landscape within the visual assessment zone. These facilities are the proposed Kareeboch WEF (14/12/16/3/3/2/807) and Roggeveld WEF (12/12/20/1988/1). These facilities and the associated grid connection infrastructure will alter the inherent sense of place and introduce an increasingly industrial character into a largely natural, pastoral landscape, thus giving rise to significant cumulative impacts. It is however anticipated that these impacts could be mitigated to acceptable levels with the implementation of the recommendations and mitigation measures stipulated for each of these developments by the visual specialists. In light of this and the relatively low level of human habitation in the study area however, cumulative impacts have been rated as medium.

It is important to note that the study area is located within the Komsberg REDZ (REDZ 2), and also within a Strategic Transmission Corridor, and thus the relevant authorities support the concentration of renewable energy developments and associated grid connection infrastructure in this area. In addition, it is possible that the renewable energy facilities located in close proximity to each other could be seen as one large facility rather than separate developments. Although this will not necessarily reduce impacts on the visual character of the area, it could potentially reduce the cumulative impacts on the landscape.

Only one route is technically feasible for the proposed power line connecting the Bon Espirange substation (authorised under 14/12/16/3/3/1/1544) to the Komsberg substation. Accordingly, no comparative assessment is required in respect of this route alignment. No fatal flaws were identified in respect of the proposed power line route alignment.

It is SiVEST's opinion that, overall the visual impacts associated with the proposed Bon Espirange – Komsberg 132kV power line are of moderate significance. Given the low level of human habitation and the relative absence of sensitive receptors, the project is deemed acceptable from a visual impact perspective and the EA should be granted for the BA application. SiVEST is of the opinion that the visual impacts associated with the construction, operation and decommissioning phases can be mitigated to acceptable levels provided the recommended mitigation measures are implemented.

9.3 IMPACT SUMMARY

A summary of the identified impacts and corresponding significance ratings for the proposed powerline is provided in **Table 9-15** below.

Table 9-15: Impact Summary

REF.	IMPACT DESCRIPTION	PHASE	WITHOUT MITIGATION		WITH MITIGATION	
			SIGNIFICANCE	STATUS	SIGNIFICANCE	STATUS
Air Quality	Generation of Dust and PM	Construction	**Moderate**	(-)	**Low**	(-)

REF.	IMPACT DESCRIPTION	PHASE	WITHOUT MITIGATION		WITH MITIGATION	
			SIGNIFICANCE	STATUS	SIGNIFICANCE	STATUS
Noise	Noise Emissions	Construction	**Low**	(-)	**Low**	(-)
Geotechnical	Soil Erosion	Construction	**Moderate**	(-)	**Low**	(-)
	Soil Erosion	Operation	**Low**	(-)	**Low**	(-)
Soils	Soil Contamination	Construction	**Moderate**	(-)	**Low**	(-)
	Soil Contamination	Operation	**Low**	(-)	**Low**	(-)
Groundwater	Deterioration of Groundwater Quality	Construction	**Moderate**	(-)	**Low**	(-)
Freshwater	Vehicular Movement	Construction	**Low**	(-)	**Low**	(-)
	Vegetation Removal	Construction	**Low**	(-)	**Low**	(-)
	Excavations	Construction	**Low**	(-)	**Low**	(-)
	Concrete Mixing and Casting	Construction	**Low**	(-)	**Low**	(-)
	Vehicular Movement	Operation	**Low**	(-)	**Low**	(-)
Biodiversity	Loss of Indigenous Vegetation	Construction	**Moderate**	(-)	**Low**	(-)
	Loss of Flora SCC	Construction	**Moderate**	(-)	**Low**	(-)
	Susceptibility to Invasion	Construction	**Moderate**	(-)	**Low**	(-)
	Susceptibility to Erosion	Construction	**Moderate**	(-)	**Low**	(-)
	Disturbances to Ecological Processes	Construction	**Moderate**	(-)	**Low**	(-)
	Disturbances to Aquatic and Riparian Habitat and Processes	Construction	**Moderate**	(-)	**Low**	(-)
	Loss of Faunal Habitat	Construction	**Moderate**	(-)	**Low**	(-)
	Impacts to Faunal Processes	Construction	**Moderate**	(-)	**Low**	(-)

REF.	IMPACT DESCRIPTION	PHASE	WITHOUT MITIGATION		WITH MITIGATION	
			SIGNIFICANCE	STATUS	SIGNIFICANCE	STATUS
	Loss of Faunal SCC	Construction	**Low**	(-)	**Low**	(-)
	Loss of Indigenous Vegetation	Operation	**Moderate**	(-)	**Moderate**	(-)
	Loss of Flora SCC	Operation	**Low**	(-)	**Low**	(-)
	Susceptibility to Invasion	Operation	**Low**	(-)	**Low**	(-)
	Susceptibility to Erosion	Operation	**Low**	(-)	**Low**	(-)
	Disturbances to Ecological Processes	Operation	**Low**	(-)	**Low**	(-)
	Disturbances to Aquatic and Riparian Habitat and Processes	Operation	**Low**	(-)	**Low**	(-)
	Loss of Faunal Habitat	Operation	**Low**	(-)	**Low**	(-)
	Impacts to Faunal Processes	Operation	**Low**	(-)	**Low**	(-)
	Loss of Faunal SCC	Operation	**Low**	(-)	**Low**	(-)
Avifauna	Displacement of Priority Species (Disturbance)	Construction	**Moderate**	(-)	**Low**	(-)
	Displacement of Priority Species (Transformation)	Construction	**Moderate**	(-)	**Low**	(-)
	Displacement of Priority Species (Transformation)	Operation	**Low**	(-)	**Low**	(-)
	Collisions	Operation	**Moderate**	(-)	**Moderate**	(-)
Visual	Visual Disturbance	Construction	**Low**	(-)	**Low**	(-)
	Visual Landscape	Operation	**Low**	(-)	**Low**	(-)
Waste	Improper Waste Management	Construction	**Low**	(-)	**Low**	(-)
Traffic	Increased Local Traffic	Construction	**Moderate**	(-)	**Low**	(-)

REF.	IMPACT DESCRIPTION	PHASE	WITHOUT MITIGATION		WITH MITIGATION	
			SIGNIFICANCE	STATUS	SIGNIFICANCE	STATUS
	Increased Local Traffic	Operation	**Low**	(-)	**Low**	(-)
Heritage	Damage to Archaeological Resources	Construction	**Low**	(-)	**Low**	(-)
	Damage to Palaeontological Resources	Construction	**Moderate**	(-)	**Low**	(-)
Socio-economic	Creation of Employment, Training and Business Opportunities	Construction	**Low**	(+)	**Low**	(+)
	Presence of Construction Workers and Impact on Family Structures and Social Networks	Construction	**Low**	(-)	**Low**	(-)
	Risk to Safety, Livestock and Farm Infrastructure	Construction	**Moderate**	(-)	**Low**	(-)
	Construction Activities and Vehicles	Construction	**Low**	(-)	**Low**	(-)
	Veld Fires	Construction	**Moderate**	(-)	**Low**	(-)
	Improved Energy Security and Establishment of Infrastructure	Operation	**Moderate**	(+)	**Moderate**	(+)
	Creation of Employment Opportunities	Operation	**Low**	(+)	**Low**	(+)
	Income Generation for Farmers	Operation	**Low**	(+)	**Moderate**	(+)
	Sense of Place	Operation	**Low**	(-)	**Low**	(-)

REF.	IMPACT DESCRIPTION	PHASE	WITHOUT MITIGATION		WITH MITIGATION	
			SIGNIFICANCE	STATUS	SIGNIFICANCE	STATUS
	Impacts on Farming Operations During Maintenace	Operation	**Moderate**	(-)	**Low**	(-)
Health and Safety	Employee Health & Safety	Construction	**Moderate**	(-)	**Low**	(-)
	Employee Health & Safety	Operation	**Moderate**	(-)	**Low**	(-)

9.4 ALTERNATIVES ASSESSMENT

Project alternatives in terms of activity, technology, location and layout were considered as part of the BA process. Only the preferred alternative has been assessed (i.e. the 132kV OHPL connecting the Bon Espirange substation to the Komsberg substation). Alternative activities for the current Project are not considered reasonable or feasible as the purpose of this OHPL is to transmit electrical energy generated by the proposed Rietkloof and Brandvalley WEFs to the existing Komsberg substation for distribution via the national electrical grid network. Similarly, distribution of electricity via an overhead 132kV powerline utilising the assessed route is considered the most appropriate technology and layout and is in line with Eskom design requirements.

The no-go option would represent a lost opportunity for South Africa to improve energy security and supplement its current energy needs with renewable energy given that energy security benefits associated with the proposed Rietkloof and Brandvalley WEFs are dependent upon them being able to connect to the national grid via the establishment of grid connection infrastructure. Considering South Africa's current energy security challenges and its position as one of the highest per capita producer of carbon emissions in the world, this would represent a significant socio-economic cost. Accordingly, the no-go option is not the preferred option.

9.5 RECOMMENDATIONS

The following recommendation are made in respect of the proposed 132kV OHPL:

- The authorised alignment must be inspected by an avifaunal specialist by means of a "walk-through" inspection to identify risky areas where sections of the line should be marked with Bird Flight Diverters, once the pole positions have been finalised;
- No extensive habitats that are designated as having an elevated sensitivity were identified along the proposed OHP route. Where possible any rocky outcrops should eb avoided as far as possible, or impacts kept to the minimum and no pylons are to be sited within watercourses or riparian vegetation directly adjacent to such watercourses, were erosion could be problematic.
- A final walkdown to microsite the actual pylon and other infrastructure footprints should be undertaken in final planning and design and before construction commences.
- A flora and fauna search and rescue should be undertaken before construction.
- Appropriate permits in terms of the Northern Cape Nature Conservation Act (Act 9 of 2009) and Western Cape Nature Conservation Laws Amendment Act (Act No 3 of 2000) must be obtained before commencement.
- Powerline structures should only be installed outside the delineated extent of the watercourses and their associated 32 m NEMA ZoR.

- A detailed geotechnical investigation should be undertaken during the detailed design phase of the project. The detailed geotechnical investigation must entail the following:
  - Profiling and sampling of exploratory trial pits to determine founding conditions for the pylons.
  - Thermal resistivity and electrical resistivity geophysical testing for electrical design and ground earthing requirements.
  - Groundwater sampling of existing boreholes to establish a baseline of the groundwater quality for construction purposes.
- The Chance Fossil Finds Procedure must be implemented throughout the construction phase of the development
- Should any buried archaeological resources or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds. The relevant heritage authority (the South African Heritage Resources Agency (SAHRA) in the Northern Cape and Heritage Western Cape (HWC) in the Western Cape) must be contacted immediately in order to determine an appropriate way forward.
- All proposed mitigation measures included in this BA Report and in the EMPr (**Appendix G**) must be implemented in order to reduce possible impacts to an acceptable level.

9.6 CONCLUSION AND AUTHORISATION OPINION

The overall objective of the BA is to provide sufficient information to enable informed decision-making by the authorities. This was undertaken through consideration of the proposed Project components, identification of the aspects and sources of potential impacts and subsequent provision of mitigation measures.

It is the opinion of WSP that the information contained in this document (read in conjunction the EMPr) is sufficient for DFFE to make an informed decision for the environmental authorisation being applied for in respect of this Project.

Mitigation measures have been developed, where applicable, for the above aspects and are presented within the EMPr (**Appendix G**). It is imperative that all impact mitigation recommendations contained in the EMPr, of which the environmental impact assessment took cognisance, are legally enforced.

Considering the findings of the respective studies, no fatal flaws were identified for the proposed Project. Should the avoidance and mitigation measures prescribed be implemented, the significance of the considered impacts for all negative aspects pertaining to the environmental aspects is expected to be low. It is thus the opinion of the EAP that the Project can proceed, and that all the prescribed mitigation measures and recommendations are considered by the issuing authority.

EA AUTHORISATION PERIOD

Appendix 1(3)(1)(q) of the NEMA EIA Regulations 2014, as amended requires "where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised" must be included in the BA Report.

The EA is required for a period of 5 years from the date of issuance of the EA to the end of the construction period (including rehabilitation), when the proposed activities applied for are completed. This is a reasonable period as it allows Eskom to conduct its internal processes which can only begin after issuance of the EA, when the proposed route is confirmed.