

# DEVELOPMENT OF AN ACCESS ROAD AND INFRASTRUCTURE ASSOCIATED WITH THE APPROVED WITBERG WIND FARM, NEAR MATJIESFONTEIN, WESTERN CAPE PROVINCE

Final Basic Assessment Report

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## PROJECT DETAILS

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<b>Title</b>	:	Basic Assessment Process: Report for the Witberg Access Road and Associated Infrastructure, Western Cape Province
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<b>Client</b>	:	Red Rocket South Africa (Pty) Ltd
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## EXECUTIVE SUMMARY

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**Red Rocket South Africa (Pty) Ltd**, an independent power producer in South Africa, is proposing the development of a new access road and infrastructure, as well as the upgrading of the existing district road, DR01469, and the widening and upgrading of an existing farm road, which is associated with the authorised Witberg Wind Farm (DFFE Ref. No.: 12/12/20/1966). The access road is required in addition to the already authorised access road to accommodate heavy vehicles for the delivery of heavy components and equipment for construction purposes (such as turbine blades, nacelles, etc.) to the authorised Witberg Wind Farm. A newly proposed construction camp and laydown area will be required since the location of the proposed new construction camp is the most logically optimal location for the construction and operation of this access road. The proposed development will be located 19km south-west of the town of Matjiesfontein along the N1, within the jurisdiction of the Laingsburg Local Municipality, and within the greater Central Karoo District Municipality, Western Cape Province.

### Impacts on Ecology

The site is located within a varied terrestrial ecosystem comprising mostly sclerophyllous and succulent karroid and fynbos vegetation types, folded sandstone mountains and ridgelines bisected by streams, plateaus, and sandy flats. It is recorded and being within the Western Fynbos-Renosterveld Bioregion. Due to the low nutrient value and high level of polyphenols in the vegetation large herds of big mammals are absent along with tall trees. The overall system is driven primarily by edaphic and hydrological influences on vegetation which comes as a result of topographic variance (rocky, shallow mountainous soils versus deep alluvial plains). This is further influenced by the occurrence of seasonal fires every few years as a vital regeneration agent /driver especially for pyroclastic species which are dependent upon it. Winter rainfall, high altitude and extreme variance in summer and winter temperatures further influence the floral and faunal component that has adapted to and can survive in the landscape.

The variety of vegetation types, ecotones and landscape features create a myriad of varied habitats within a relatively small geographical area resulting in increased biodiversity potential. It is in part this highly varied aspect of the area that has helped to ascribe a terrestrial biodiversity sensitivity rating of Very High as variance in habitat equates to diversity of species.

The project is for the vast majority a linear site and taking into account that it only involves widening the existing roads (Konstabel and upgrading District Road DR01469), and widening existing jeep tracks, that extends from the District Road and travels to the East up the mountain, to function as the newly proposed access road to the Witberg Wind Farm, as well as the clearing of two small areas there is not likely to be any negative effect on these large-scale ecological drivers or processes of the system.

The project site falls within an area of terrestrial biodiversity listed as 'Very High' sensitivity based primarily off the biodiversity spatial planning layer which ascribes parts of the site as CBA and other parts as ESAs. The site is assessed as having a 'High' terrestrial biodiversity as the CBA area has only marginal influence of the sensitive vertebrate listed, and the vegetation types found within are of least concern. The ESAs, which comprise stream riparian zones, do play an important role in protecting the water sources of the area. The abiotic elements of the general locality are diverse and resultant in high levels of variance and biodiversity. The variety of vegetation types (ecotonal arrangements) because of these factors increases habitat and subsequent species diversity both in terms of flora and fauna.

The project site has however been chosen to utilise existing roads, much which would have no further impact on ecology, as they simply need to be graded whereas only one section of road needs to be widened which is an existing a jeep track that will function as the newly proposed access road. The impact on fauna is expected to be minimal as it is a narrow area of pre-existing road from where animals can easily move. The immovable flora along the edges will be lost but no significant impact is expected due to the fine scale of the clearance needed and the expected provision of botanical search and rescue for any appropriate SCC. Within the site camp and laydown areas similar Low significant impact of fauna is expected and whilst there may be a greater impact of individual flora species botanical search and rescue can mitigate against this and eventual restoration of the sites with locally suitable material will reduce the impact.

The overall ecosystem processes and large-scale environmental facets of concern such as corridor movement, feeding and breeding grounds, ecosystem drivers, including hydrological influences on vegetation and species composition of which this report is primarily concerned will not be altered at all. There is no impact on any of these large landscape scale processes and environmental functions thus no disruption to any ecosystem services. Biodiversity spatial planning layers will receive a slight reduction in remaining hectares which cumulatively can add up but currently does not pose any threat or change to vegetation type or species threat status.

The ecology specialist concluded that the proposed access road and associated infrastructure will inevitably impact on the local biodiversity as a result of vegetation clearance and regular disturbance during the operational phase. Apart from having the site camp area of the project site situated in a CBA, for which there is no other suitable area evident, the site is well chosen making use of existing roads and jeep tracks, to be upgraded to function as a new access road to the wind farm, and thereby limiting vegetation clearance and environmental impacts on terrestrial biodiversity. Even with part of a CBA area in use the project is likely to only have Medium to Low significant impacts that can be mitigated against as in the case of laydown areas in the CBA zone, ecologically restored.

There is no impact on, or from disruption of, the large-scale ecological processes or environmental drivers that are present within the area. This assertion is the primary purpose of this terrestrial biodiversity specialist report which confirms the site to be of 'High' terrestrial biodiversity value, however, minimally impacted upon thus having no significant reason not to support the development of the site.

### **Impacts on Freshwater Resources**

Watercourses associated with the Kragga and Elandsloof River systems were identified to be at potential risk from the Witberg access road and associated infrastructure. These watercourses include several headwater episodic drainage lines (EDLs) without riparian vegetation which confluence with larger ephemeral tributaries and rivers in the valley bottom position were identified. Although these episodic drainage lines cannot be classified as rivers or streams in the traditional sense thereof due to the lack of saturated soil and riparian vegetation, they do still function as waterways, due to the episodic conveyance of water.

The Witberg access road traverses several watercourses at existing (proposed to be upgraded) and potentially new crossings through watercourses, particularly for the section of Witberg access road proposed to be developed from upgrading existing jeep tracks. The north-western section of the Witberg access road is located directly adjacent to an ephemeral tributary of the Kragga River system for a

distance of approximately 4,5 km. The proposed construction camp is located outside the delineated extent of the watercourses, approximately 60 m from the delineated extent, thus within the 100 m Government Notice (GN) 509 of 2016 regulated area (in the absence of modelled floodlines). However, the proposed laydown area is located approximately 150 m outside the nearest watercourse and thus outside the 100 m GN509 regulated area. The risk significance of this laydown area was not considered as it is not located within the 100 m GN509 regulated area.

Due to the ecological sensitivity and importance of the identified watercourses, the construction and upgrading activities associated with the Witberg access road, which involve the upgrading of existing and potential creation of new crossings through watercourses, was determined to pose a Moderate risk significance to the watercourses, with the application of the recommended mitigation measures. Despite the direct negative impacts expected from the proposed Witberg access road, provided that strict enforcement of cogent, well-developed mitigation measures as outlined in the aquatic specialist report takes place, with specific mention of ensuring all instream construction footprints are rehabilitated and the watercourses are monitored for any alien and invasive species establishment, no fatal flaws in terms of freshwater ecological aspects were identified. Should crossing structure development and upgrading of the Witberg access road take place in the low flow season, the risk to the receiving environment will be significantly reduced.

The significance of impacts arising from the proposed construction camp located outside of the watercourses but within the 100 m GN509 ZoR are likely to be of very low significance assuming that strict enforcement of cogent, well-developed mitigation measures takes place, as recommended in this report. The proposed laydown area is located outside the 100 m GN509 ZoR, and thus not expected to pose a quantum of risk to the identified watercourses due to its distance from the watercourses and location outside the 100 m GN509 ZoR.

Provided that adherence to cogent, well-conceived and ecologically sensitive construction plans are implemented and the mitigation measures provided in this report as well as general good construction practice are adhered to, the proposed Witberg access road and associated infrastructure is considered acceptable. Authorisation by means of a Water Use Licence Application (WULA) in terms of Sections 21 (a), (c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998) must be obtained from the DWS for the Witberg access road and associated infrastructure prior to the commencement of any works.

### **Impacts on Soil and Agricultural Potential**

The most sensitive soil forms identified within the assessment corridor is the Bethesda, Nkonkoni and Garies soil forms. The land capability sensitivities (DAFF, 2017) indicate land capabilities with "Very low" to "Moderate" sensitivities, which correlates with the findings from the baseline assessment. The regulated area is associated with non-arable soils.

The available climate limits crop production significantly. The harsh climatic conditions are associated with low annual rainfall and high evapotranspiration potential demands of the area. The area is not favourable for most cropping practices, which corresponds to the current uses for livestock production, nature reserves and game farming.

It is the specialist's opinion that the proposed Witberg access road and associated infrastructure will have limited impact on the agricultural production ability of the land. Most available soils in the area are shallow

and rocky which significantly limits most crop production. In the proposed assessment area, there are some crop fields with "High" crop field sensitivity. Such crop field sections should be considered as no-go areas for the access road, altering the alignment to avoid these areas. In the event, moving such portions is not feasible, the stakeholders can investigate possible scenarios for the compensation of the landowners of the crop fields. The specialist recommends that, the proposed Witberg access road and associated infrastructure may be favourably considered.

### **Impacts on Heritage Resources (including archaeology and palaeontology)**

The results of the heritage assessment conducted for the proposed development, largely align with the findings of Hart et al. 2012. The field assessment identified another 10 archaeological observations discussed in this report. Most of the heritage resources identified will not be directly impacted by the proposed road development. Indirect impacts are anticipated for the identified rock art site and mitigation measures in this regard are proposed below.

Direct impacts are anticipated for the stone wall identified which the proposed access road traverses. To this end, it is recommended that the proposed road alignment be amended slightly in order to ensure that limited impact to this resource takes place.

Despite the high levels of palaeontological sensitivity anticipated from the underlying geology as well as the findings of the HIA completed for the Witberg WEF, no significant palaeontological heritage resources were identified in the PIA and it was determined that the likelihood of the proposed development impacting on significant palaeontological heritage is, in reality, low.

In terms of the cultural landscape of the area, key heritage elements include the Matjiesfontein PHS, the N1 Scenic Route and the wilderness characteristics of the Moordenaars Karoo in general. The proposed road development falls within the approved Witberg WEF and as such, it is unlikely that the proposed road development will negatively impact on this unique karoo cultural landscape. Although the Witberg mountain range is visible from some distance, the nature of the road development and its location along the ridge means that the road itself is unlikely to be visible from the N1 or Matjiesfontein PHS.

There is no objection to the proposed development of the proposed road in terms of impacts to archaeological heritage on condition that:

- » A no-go buffer area of 100m must be implemented around rock art Site 002 to ensure that no indirect impact takes place. This site should also be marked as no-go on all development maps and SDPs.
- » A no-go buffer area of 50m must be implemented around Site 007 to ensure that no indirect impact takes place. This site should also be marked as no-go on all development maps and SDPs.
- » The proposed road alignment is amended to limit impact to the stone wall (Site 006) by utilising the existing gap and disturbed section of the wall and limiting the proposed new road footprint to a 10m corridor at the position where the proposed road crosses the existing stone wall.
- » A Heritage Agreement and Management Plan is developed in conjunction with HWC to ensure the ongoing conservation and management of the rock art Site 002.
- » The Chance Fossil Finds Procedure must be implemented for the duration of construction activities.
- » Should any buried archaeological resources or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds. Heritage Western Cape (HWC) must be contacted immediately in order to determine an appropriate way forward.

Heritage Western Cape (HWC) has indicated that they are in support of these recommendations (refer to Final comment included in **Appendix C6**).

### Environmental Sensitivity Mapping

As part of the specialist investigations undertaken for the access road and associated infrastructure, specific environmental features and areas were identified which will be impacted by the construction of the access road. The current condition of the features identified informed the sensitivity of the environmental features and the capacity for disturbance and change associated with the proposed development. The sensitive features identified specifically relate to ecology, freshwater resources and heritage (refer to **Figure 2**).

- » The proposed access road and associated infrastructure will traverse numerous episodic drainage lines and ephemeral tributaries with riparian vegetation. Although these episodic drainage lines cannot be classified as rivers or streams in the traditional sense thereof due to the lack of saturated soil and riparian vegetation, they do still function as waterways, due to the episodic conveyance of water.
- » The Witberg access road traverses several watercourses at existing (proposed to be upgraded) and potentially new crossings through watercourses, particularly for the section of Witberg access road proposed to be developed from upgrading existing jeep tracks. The north-western section of the Witberg access road is located directly adjacent to an ephemeral tributary of the Kragga River system for a distance of approximately 4,5 km.
- » The entire study area is assigned a **Very High** terrestrial sensitivity by the DFFE screening tool. The very high sensitivity is attributed to the presence of a multiple Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) which are traversed by the site roads with the site camp area within a Terrestrial CBA1 zone. The presence of CBAs was confirmed for all habitat units namely the Cape Mountain Zebra and the Watercourse Habitat unit. Areas of high sensitivity were confirmed through the ecology impact assessment in the mountainous regions where the vegetation is residual high quality and where 'alpine' corridor movement in the case of the road crossing needs to be maintained between the range.
- » There are areas of **Very High** agricultural potential within the assessed corridor for the existing roads (which are to be upgraded), which is confirmed by the High Crop sensitivity. These areas are identified as no-go areas.
- » The project site traverses a historic stone wall of **High** Sensitivity.
- » Heritage buffers recommended are as follows:
  - » A no-go buffer area of 100m around rock art Site 002 to ensure that no indirect impact takes place. This site should also be marked as no-go on all development maps and SDPs.
  - » A no-go buffer area of 50m around Site 007 to ensure that no indirect impact takes place. This site should also be marked as no-go on all development maps and SDPs.



## Overall Conclusion (Impact Statement)

The construction and operation of the access road and infrastructure associated with the authorised Witberg Wind Farm has been proposed by Red Rocket South Africa (Pty) Ltd. The need and desirability for the proposed access road is directly linked to the need of the Witberg Wind Farm (a Preferred Bidder project under a private PPA), as the main purpose of the proposed road is to support the development of the wind farm. The access road is required in addition to the authorised access roads to accommodate heavy vehicles for the delivery of heavy components and equipment for construction purposes. A newly proposed construction camp and laydown area will be required since the location of the proposed new construction camp is the most logically optimal location for the construction and operation of this access road. The assessment of the proposed access road was undertaken by independent specialists and their findings have informed the results of this BA Report.

The specialist studies have concluded that there are no environmental fatal flaws associated with the development of the access road and associated infrastructure provided that the recommended mitigation measures are implemented. The access road is considered suitable for development, provided areas of sensitivity as determined by the specialists and detailed in the Basic Assessment Report are considered and recommended mitigation implemented. All impacts associated with the access road can be mitigated to acceptable levels.

## Overall Recommendation

Considering the findings of the independent specialist studies, the impacts identified, as well as the potential to further minimise the impacts identified to acceptable levels through mitigation, it is the reasoned opinion of the Environmental Assessment Practitioner (EAP) that the development of the access road and associated infrastructure is acceptable within the landscape and can reasonably be authorised. The recommended validity period for the environmental authorisation is 10 years.

The following key conditions would be required to be included within the environmental authorisation issued for the access road:

- » The project footprint must be minimised and must remain within the demarcated development area to avoid impacts on episodic drainage lines and SCCs in the surrounding areas.
- » The proposed road alignment must be designed to limit impact to the stone wall (Site 006) by utilising the existing gap and disturbed section of the wall and limiting the proposed new road footprint to a 10m corridor at the position where the proposed road crosses the existing stone wall.
- » A Heritage Agreement and Management Plan is developed in conjunction with HWC to ensure the ongoing conservation and management of the rock art Site 002.
- » The Chance Fossil Finds Procedure must be implemented for the duration of construction activities.
- » Should any buried archaeological resources or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds. Heritage Western Cape (HWC) must be contacted immediately in order to determine an appropriate way forward.
- » The access road layout and EMPr should be approved along with the environmental authorisation (should authorisation be issued for the project).
- » All mitigation measures detailed within the BA Report, as well as the specialist reports contained within **Appendices D to G** of the BA Report, are to be implemented.

- » The EMPr as contained within **Appendix H** of the BA Report should form part of the contract with the Contractor appointed to construct and maintain access road in order to ensure compliance with environmental specifications and management measures. The implementation of the EMPr for all life cycle phases of the access road is considered key in achieving the appropriate environmental management standards as detailed for this project.
- » A pre-construction walk-through of the access road route for species of conservation concern (SCC) that would be affected and that can be translocated must be undertaken by an ecologist prior to the commencement of the construction phase. Permits from the relevant national and provincial authorities, i.e., CapeNature and the Department of Forestry, Fisheries, and the Environment (DFFE), must be obtained before the individual species of concern are disturbed.
- » Prior to construction, a walkdown of the final road layout must be completed by an archaeologist to ensure that no significant archaeological heritage is impacted by the proposed road development.
- » Obtain all other environmental permits for the project, as required.