



**ASHA Consulting (Pty) Ltd**  
40 Brassie Street  
Lakeside  
7945

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Shaun Taylor  
**Savannah Environmental (Pty) Ltd**  
P.O. Box 148  
Sunninghill  
2157

Dear Shaun

## **AMENDMENT APPLICATION FOR THE PERDEKRAAL WEST WIND ENERGY FACILITY SITE 1: HERITAGE COMMENT**

### **Introduction**

Thank you for providing the project information for the proposed amendment to the Environmental Authorisation for the Perdekraal West Wind Energy Facility (WEF) Site 1 located 32 km north of Touws River in the Tankwa Karoo, Western Cape (Figure 1). The facility was originally authorised for 60 to 65 turbines with a maximum rotor diameter of 70 to 120 m. The amendment application seeks to:

1. Reduce the number of turbines to 47;
2. Increase the allowed rotor diameter to 120 m up to 155 m;
3. Increase wind turbine generation capacity to 1.5MW up to 6MW; and
4. Inclusion of blade tip height of up to 198 m.

The present letter aims to:

1. Review the existing heritage impact assessment for the project (Webley & Halkett 2011);
2. Review the newly proposed layout;
3. Determine whether any new or previously unanticipated impacts might occur; and
4. Determine whether the 2011 heritage recommendations remain valid or require updating.

### **Heritage resources in the study area**

Webley and Halkett (2011) recorded a wide range of heritage resources. These included:

- » Palaeontological materials (these were only assessed from a desktop level, but the potential impacts were considered to be of high significance);
- » A number of Middle Stone Age (MSA) archaeological sites (artefact scatters);
- » A variety of historical archaeological resources related to previous farming activities in the area (19<sup>th</sup> and early 20<sup>th</sup> centuries) including stone walls, stone house runs, livestock enclosures, other walled features and historical refuse dumps;
- » Historical structures;
- » A number of graves associated with the historical sites; and
- » The cultural landscape.

All of these heritage resources are to be expected in the area and none, aside from the human remains, are especially significant. The survey covered a variety of landscape types including both the higher ground targeted for wind turbines as well as a selection of valleys. Heritage resources were found to be strongly clustered in the river valleys and, in fact, none fall within the development area (Figure 3). Of course access roads and power lines and possibly also laydown areas, substations and other ancillary infrastructure may be positioned in valleys. This means that, despite their locations away from turbine placements, heritage resources may still be threatened by the proposed WEF development.

### **Limitations to the assessment of impacts**

Palaeontological heritage has not been subjected to a field survey and thus the potential impacts to fossils remain unknown. However, impacts could feasibly be mitigated (through collection and recording of fossils) or avoided (through micro-siting of infrastructure) which can actually produce a positive impact because of the opportunities for increased scientific knowledge, especially if fossils are found, reported, successfully recorded and rescued from construction-related excavations into un-weathered bedrock. Given that a field survey was requested as an environmental management programme (EMPr) requirement and can result in a positive impact, this is not a major limitation.

The archaeological survey was quite brief and only sampled parts of the study area. However, from my own experience it is generally true that such samples of the landscape allow for a reasonably accurate prediction of the expected impact significance. Given that wind turbine positions often need to be changed prior to construction (as is happening in the present amendment application), there is sometimes little point in expending large amounts of time and money in surveying the early layouts. Pre-construction 'walk-down' surveys are deemed to be far more effective so long as the initial survey identified any particularly special heritage resources that needed avoidance (none were identified by Webley and Halkett (2011) in this instance).

## Impact assessment

I have examined all the new turbine positions on aerial imagery and, despite the limitations of this desktop method, it is clear that the turbines, access roads and other infrastructure are located away from the most sensitive landscapes (essentially the riparian corridors). As such, I believe that the original impact assessment provided by Webley and Halkett (2011) remains a true reflection of the potential impacts that could occur through construction of the proposed project. No change in the assessed impact significance ratings is recommended. Furthermore, there are no particular advantages of the proposed amendment and no new mitigation measures are required.


## Recommendations

The recommendations provided by Webley and Halkett (2011) are supported, and can be summarised and slightly modified as follows:

- » A palaeontological field survey must be commissioned prior to construction in order to map sensitive areas and to propose and plan any mitigation measures as may become necessary (including monitoring of excavations where indicated by the palaeontologist). The survey should focus on the areas proposed for development but will necessarily need to search for good geological exposures in order to maximise the understanding of local palaeontological heritage;
- » An archaeological survey of the final WEF layout including all roads, laydown areas and other infrastructure must be commissioned prior to construction in order to determine whether there are any areas that need to be protected (by rerouting of alignments or micro-siting of turbines) or mitigated (through archaeological excavations, recording, etc); and
- » If any palaeontological or archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an appropriate specialist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

If these recommendations are included in the Environmental Authorisation (EA) for the amended WEF then, from a heritage perspective, the project may proceed. It is recommended that, for consistency, the same original recommendations provided by HWC are written into the EA. These are reproduced at the end of this letter.

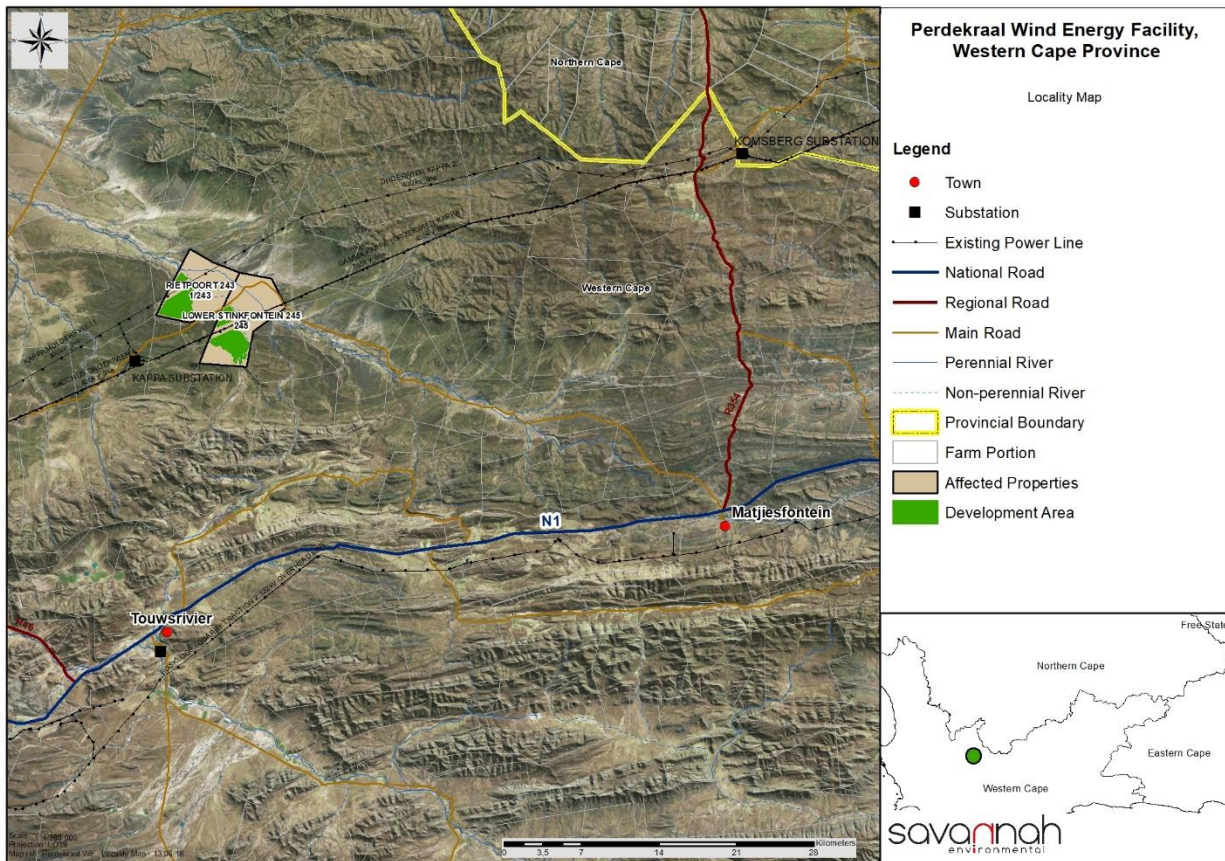
Yours sincerely



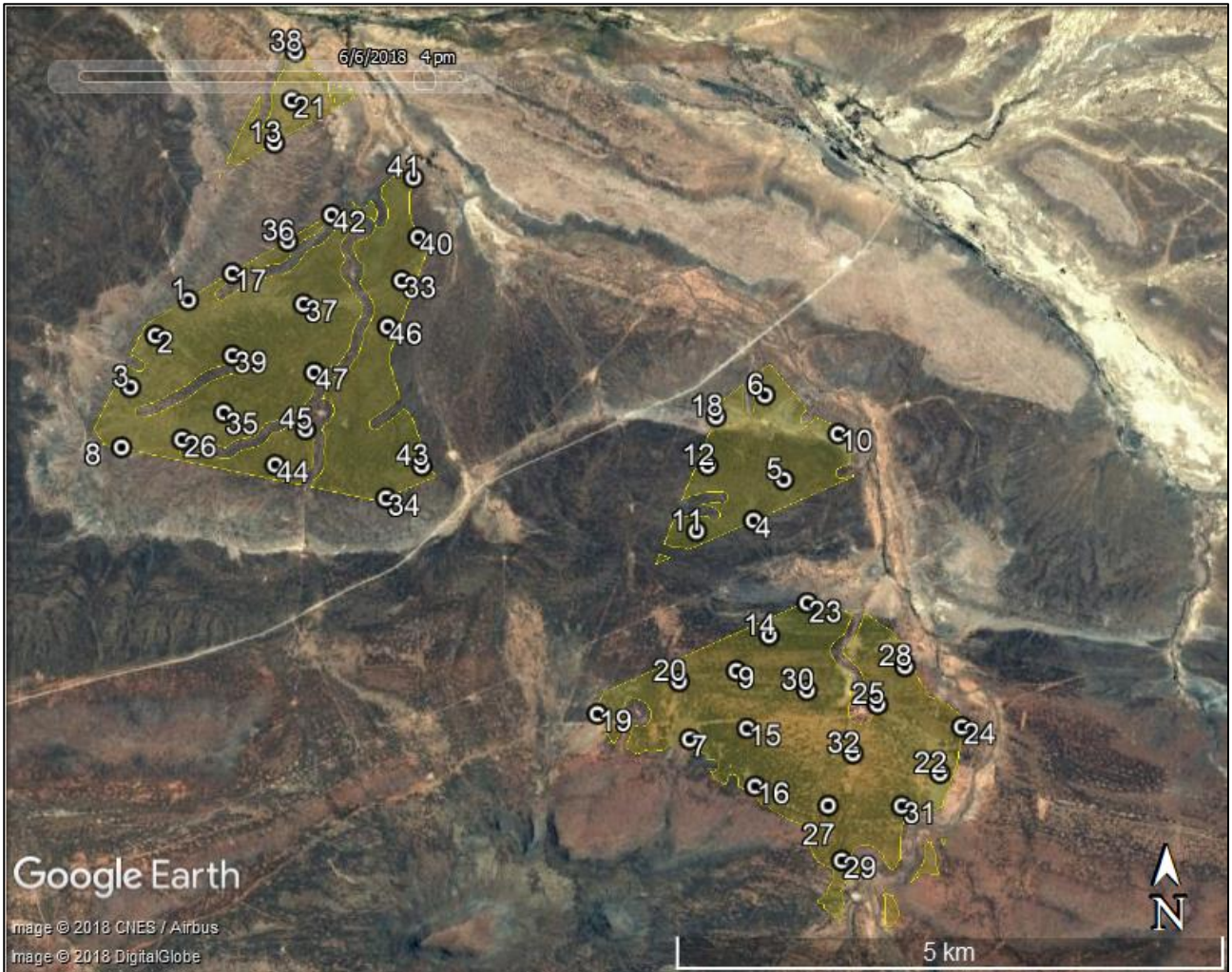
Jayson Orton

**Reference:**

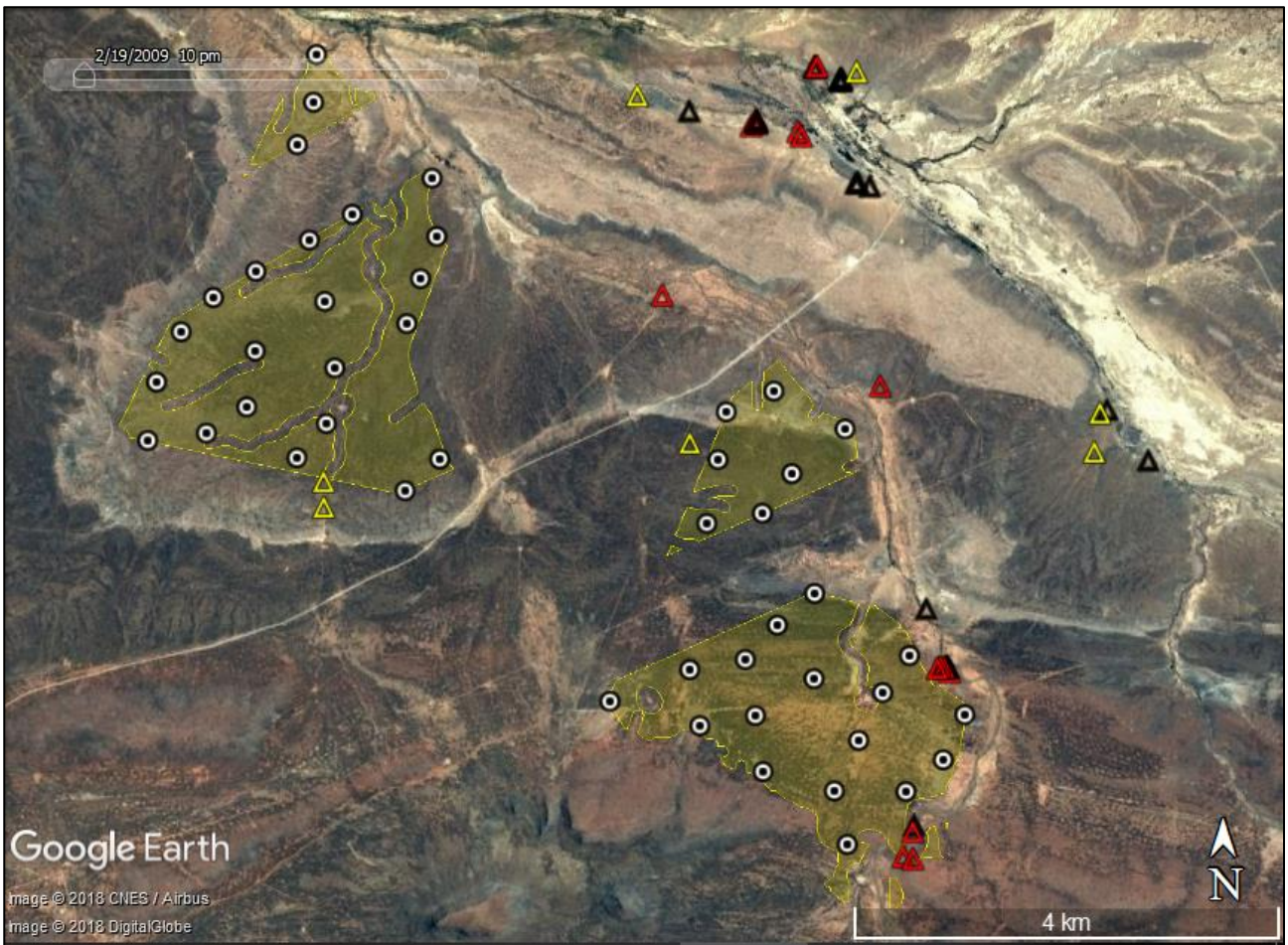
Webley, L. & Halkett, D. 2011. Heritage Impact Assessment: proposed Perdekraal Wind and Solar Energy Facility, Western Cape Province. Unpublished report prepared for Mainstream Renewable Power & ERM Southern Africa. St James: ACO Associates.



**Figure 1:** Aerial view of the area referred to as the Tankwa Karoo (just above centre in image) showing the location of the Perdekraal study area.



**Figure 2:** Aerial view of the study area showing the area suitable for development (yellow shaded polygons) and the newly proposed 47-turbine layout (numbered black and white dots).



**Figure 3:** Aerial view of the study area showing the turbines (white and black dots), graves (black triangles), historical sites (yellow triangles) and MSA sites (yellow triangles).

Heritage Western Cape Comments as per the comment letter dated 12<sup>th</sup> July 2011 (text extracted from the EIA Comments and Responses report:

- Mitigation of the pre-colonial and colonial archaeology must involve micro-siting turbine positions during the EMP in consultation with the heritage specialist.
- Mitigation of the built environment must involve micro-siting turbine positions in the EMP in consultation with the heritage specialist, to avoid placing turbines or infrastructure directly over built environment features.
- Once the exact positions of infrastructure is known, a more detailed assessment of the access and construction roads, laydown areas, substation positions and cable routes needs to be undertaken by the heritage specialist to identify all marked graves. In the case of unmarked graves, there needs to be a protocol in place in order to deal with them on a case-by-case basis.
- Heritage Western Cape must be notified immediately if any human remains are uncovered during construction.
- A Palaeontological field survey and monitoring will be required at EMP stage. The report must be submitted to the APM Committee for review.
- If palaeontological resources are identified, mitigation may be required.