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Palaeontological Impact Assessments & Heritage Management, Natural History Education, Tourism, Research

Attn: Ms Jenna Bowker
Holland & Associates Environmental Consultants
P.O Box 31108
Tokai, 7966

Date: 7 May 2016

Palaeontological Heritage Assessment:

PROPOSED SPRINGBOK WIND ENERGY FACILITY NEAR SPRINGBOK, NORTHERN CAPE PROVINCE: APPLICATION FOR AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION (DEA REF NO.: 12/12/20/1721)

Dear Ms Bowker,

I have reviewed the amended proposal for the authorised Springbok Wind Energy Facility near Springbok, Northern Cape and note that the proposed changes involve (a) slight changes to the project layout (Figure 1) as well as (b) technical changes summarized in Table 1 below:

Table 1: Proposed amendments to project description

Component	Approved	Proposed amendment
Number of turbines	37	Maximum of 25 (i.e. potential range of 12 turbines @ 4.5MW to 25 turbines @ 2.0MW - 2.2MW)
Generation capacity per turbine	1.5MW	2.0MW – 4.5MW
Generation capacity of the WEF	55.5MW	Same as authorised (55.5MW)
Rotor diameter	88m	Maximum of 160m
Hub height	80m	Maximum of 140m
Temporary construction pad	40 x 20m	40 x 40m
Permanent affected area (foundation size)	16 x 16m and 2 m deep	16 x 16m and 3 m deep

Given the low palaeontological sensitivity of the entire project area, as outlined in my original report (Almond 2010) and updated specialist paleontological impact assessment dated 3 February 2015, impacts on palaeontological heritage resources during the construction and operational phases of the wind energy facility are rated as LOW (negative).

Changes in the technology, the number, size and layout of wind turbines *etc* as outlined in Table 1 and the revised layout shown in Figure 1 will not have any significant effect on potential impacts on local palaeontological heritage, *i.e.* the proposed amendments will not result in any new / additional palaeontological impacts, nor will the proposed amendments result in an increased level or nature of

palaeontological impacts.

A brief assessment of anticipated palaeontological heritage impacts for the amended Springbok WEF is given in Table 2. This assessment applies to the construction phase of the development, since significant impacts are not anticipated during the operational and decommissioning phases.

Table 2: Assessment of impacts of the proposed Springbok Wind Energy Facility on fossil heritage resources during the construction phase of the development

Nature & type of impact: Negative & direct *viz*. Disturbance, damage, destruction or sealing-in of fossil remains preserved at or beneath the ground surface within the development footprint, mainly due to surface clearance or bedrock excavations during the construction phase of the wind energy facility and associated infrastructure (*e.g.* transmission lines).		
Consequence of impacts: Loss of legally-protected, unique or rare fossil heritage resources which are then no longer available for scientific research, public education or other public good.		
	Without mitigation	**With mitigation**
Extent	Development footprint	Development footprint
Duration	Permanent	Permanent
Intensity	Low	Low
Magnitude	Low	Low
Reversibility	Non-reversible	Non-reversibility
Probability	Low	Low
Irreplaceable loss of resources	Unlikely	Unlikely
SIGNIFICANCE	**LOW**	**LOW**
Degree of confidence	High	High
Mitigation Measures: Impacts on fossil heritage may be meaningfully reduced by appropriate monitoring and specialist mitigation during the construction phase. On-going monitoring of all substantial bedrock excavations for chance fossil finds (notably vertebrate bones and teeth) by the ECO is recommended, with reporting of substantial new palaeontological finds to SAHRA for possible specialist mitigation. Specialist mitigation would involve recording, sampling and judicious collection of fossil material together with relevant geological data by professional palaeontologist. Any fossils collected to be curated in an approved repository (*e.g.* museum, university).		
Residual Impacts: Likely to be very minor. Negative impacts due to loss of local fossil heritage will be partially offset by *positive* impacts resulting from professional mitigation (*i.e.* improved palaeontological database for Namaqualand).		
Cumulative impacts: Likely to be LOW, given the low palaeontological sensitivity of the Springbok region as a whole.		

Anticipated impacts on local palaeontological heritage resources during the construction phase of the proposed wind energy facility are considered to be of LOW significance. Significant impacts during the operational and decommissioning phases are also not envisaged. This assessment applies both before and after mitigation.

Cumulative impacts posed by the Springbok WEF and other developments in the region cannot be realistically assessed given the absence of comprehensive data on these projects, including

palaeontological heritage assessments for these projects. However, given the generally low to very low palaeontological sensitivity of the bedrocks in the Springbok region, cumulative impacts are like to be low.

The conclusions reached in my original desktop palaeontological heritage assessment for this project (Almond 2010) still stand, *viz*.:

> *The two proposed development sites west and east of the N7 are of similar, very low palaeontological sensitivity. Therefore no further palaeontological mitigation is recommended for this project. Should substantial fossil remains such as mammalian bones or teeth be exposed during construction, however (e.g. in borrow pits for road material), SAHRA should be notified by the ECO so that appropriate mitigation can be undertaken.*

Yours sincerely,

Dr John E. Almond
Palaeontologist
***Natura Viva* cc**

REFERENCES

ALMOND, J.E. 2010. Proposed wind farm near Springbok, Namaqualand, Western & Northern Cape Provinces. Palaeontological impact assessment: desktop study, 8 pp. Natura Viva cc, Cape Town.

ALMOND, J.E. 2015. Palaeontological Heritage Assessment: Amended project description for the proposed Springbok Wind Energy Facility near Springbok, Northern Cape (DEA REF NO.: 12/12/20/1721), 1 p. Natura Viva cc, Cape Town.

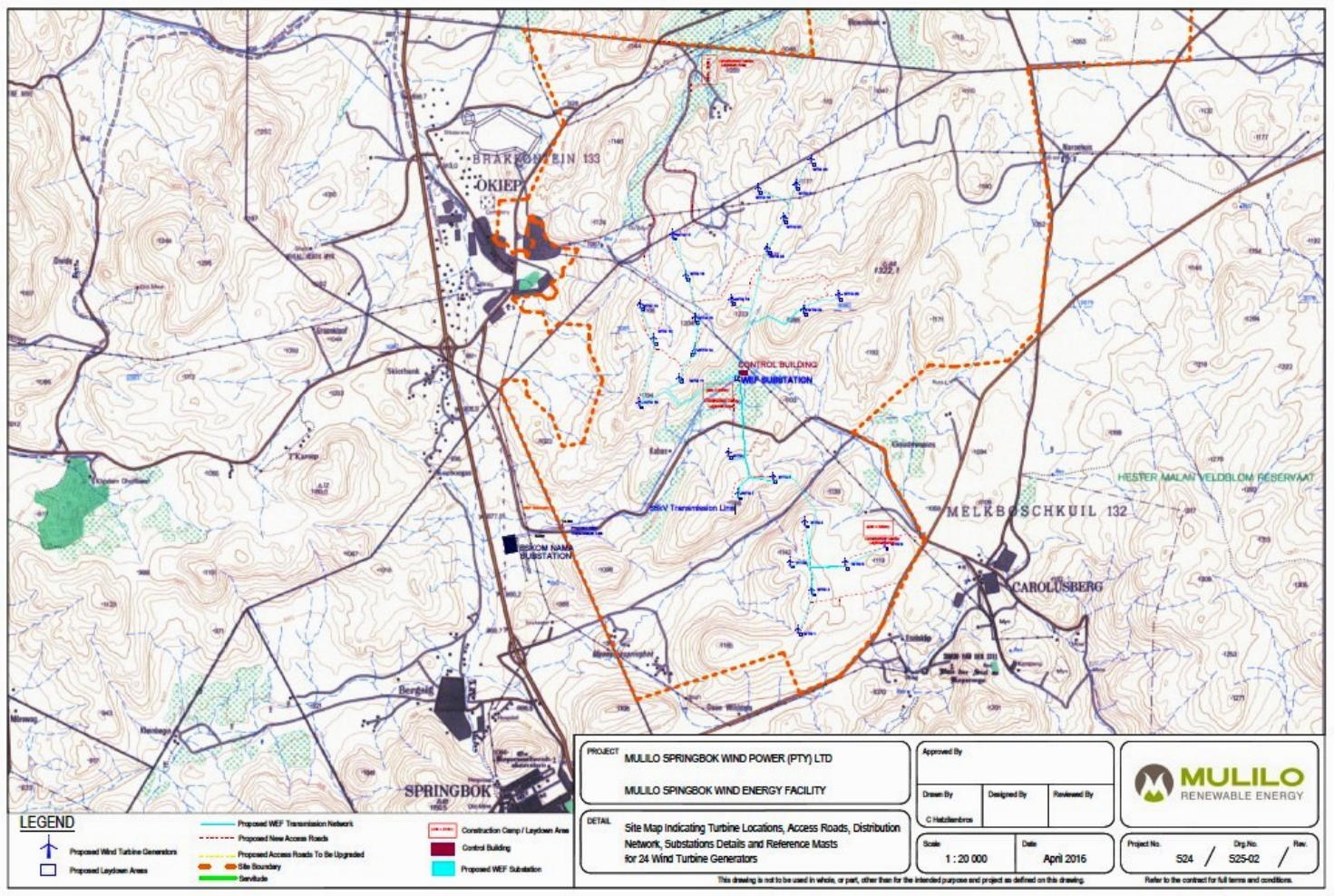

Figure 1. Revised layout for the proposed Springbok Wind Energy Facility, near Springbok, Northern Cape.

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Members: Dr J.E. Almond (British)(Managing), M.L. Tusenius
P.O. Box 12410 Mill Street, CAPE TOWN 8010, RSA
Tel / Fax: +27 (21) 462 3622 E-mail: naturaviva@universe.co.za