

Bat Specialist Report

for the final layout of the proposed Iziduli Emoyeni Wind Energy Facility

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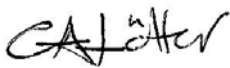
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Signed for Inkululeko Wildlife Services (Pty) Ltd by:



Dr Caroline Lötter, Pr. Nat. Sci.

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1. Introduction

Presented herein are the bat specialist comments and recommendations from Inkululeko Wildlife Services (IWS) regarding the final layout of turbines for the proposed Iziduli Emoyeni (Iziduli) Wind Energy Facility (WEF) near Bedford in the Eastern Cape Province. It is understood by IWS that under the final turbine layout, the Iziduli WEF will comprise up to 10 turbines with a maximum hub height of 135 m and a maximum rotor diameter of 160 m.

2. Methodology

Initial pre-construction bat monitoring for the proposed Iziduli WEF was performed by IWS team members between December 2011 and April 2013 (NSS 2013, 2014).

The project subsequently underwent an amendment, for which IWS performed a brief site survey / walkthrough during 21-22 May 2018. The survey entailed a visual assessment of landscape and habitat features in terms of their potential significance for bats, during driven and on-foot inspection of areas where infrastructure was planned. Notable observations were recorded in writing and with photographs and GPS waypoints. Findings from the survey were reported by IWS in July 2018 (IWS 2018).

For further project amendment, IWS completed six additional months of pre-construction bat monitoring between 9 February and 10 June 2021 and between 28 September and 24 November 2021. The results of this monitoring including a refined bat sensitivity map, and an updated (comparative) bat impact assessment for the project amendment, were reported in March 2022 (IWS 2022a and 2022b).

A second bat specialist walkthrough for the proposed Iziduli WEF was, therefore, not considered necessary. No change or update to the IWS (2022a) bat sensitivity map was considered necessary. Effort was focussed on reviewing sensitivities up to 200 m from proposed turbine positions and within 150 m of proposed roads.

3. Results & Discussion

Shown in **Figure 1** are IWS' GPS tracks from the May 2018 walkthrough, in relation to the final layout of turbines for the proposed Iziduli WEF. The IWS (2022a) bat sensitivity map for the site is presented in **Figure 2**. Bat sensitivities associated with the 10 proposed turbine positions for the Iziduli WEF are summarized in **Table 1**.

At all 10 proposed turbine positions, the turbine bases and (maximum 80 m) blades will be wholly situated in Medium bat sensitive areas. Therefore, the 10 proposed turbine positions may remain unchanged from a bat impact perspective.

4. Conclusion

IWS confirms that bat sensitivity recommendations have been properly considered in designing the final layout of the Iziduli WEF, and that the 10 proposed turbine positions under the final layout may remain unchanged from a bat impact perspective.

IWS also confirms that the IWS (2022a) bat impact mitigation recommendations still apply to the Iziduli WEF. Curtailment is not required at any of the proposed turbine positions. However, as previously advised by IWS (2022a), initial mitigation should be measured against the South Africa bat fatality threshold guidelines (MacEwan *et al.* 2018).



The Iziduli WEF site is situated in the Drakensberg Montane Grasslands, Woodlands, and Forest ecoregion and since the 10 x 80 m-blade turbines will have a 1 034 ha Area of Influence as shown in **Figure 2**, the bat fatality threshold for this WEF has been calculated according to the MacEwan *et al.* (2018) guidelines as:

0.2 bat fatalities for every 10 ha x 1 034 ha / 10 ha = 20.68 bat fatalities per annum

Should the actual number of insectivorous bat fatalities (adjusted for biases such as carcass persistence and searcher efficiency) exceed the calculated bat fatality threshold, and/or should one or more fatalities of frugivorous or conservation priority insectivorous bat species occur, adaptive mitigation should take place, and bat fatality monitoring must continue to monitor the efficacy of adaptive mitigation.

Adaptive mitigation should involve turbine curtailment as prescribed by IWS (2022a):

“Curtailment will require implementation of an initial cut-in speed of 7 m/s (measured at 60 m above ground level) during temperatures above 10 °C (measured at 10 m above ground level) for three hours after sunset in March, April, and May, and from sunset until midnight (00h00, but ideally 01h00) in November, December, January, and February.”

The calculated threshold should be included in the project Environmental Management Programme (EMPr), together with the condition that the bat fatality threshold may only be re-calculated if there is a change in the turbine layout and/or the turbine blade length, and/or when newer threshold guidance is published.

Approval of the project must be contingent, inter alia, on whether the bat impact mitigation measures have been included in the Final EMPr and that these will be strictly implemented during operation.

5. References

- MacEwan, K., Aronson, J., Richardson, E., Taylor, P., Coverdale, B., Jacobs, D., Leeuwener, L., Marais, W., Richards, L. 2018. *South African Bat Fatality Threshold Guidelines*. Edition 2. South African Bat Assessment Association, South Africa.
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- IWS. 2022a. *Comparative Bat Impact Assessment for the Iziduli Emoyeni Wind Energy Facility*. Inkululeko Wildlife Services, Pretoria.
- IWS. 2022b. *Results from Additional Pre-construction Bat Monitoring for the Iziduli Emoyeni Wind Energy Facility*. Inkululeko Wildlife Services, Pretoria.



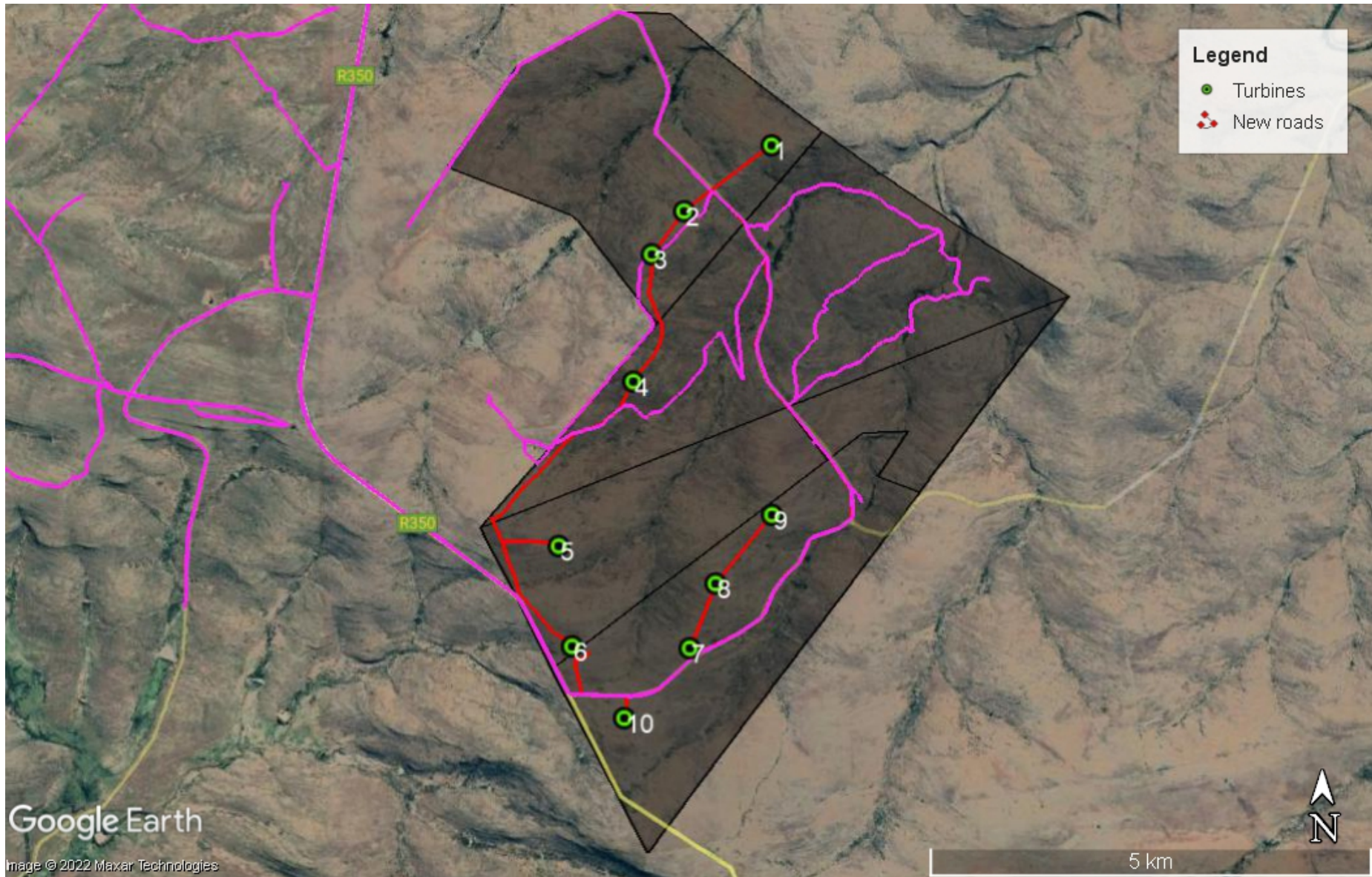


Figure 1 IWS' May 2018 GPS tracks (pink) in relation to the final proposed layout of infrastructure for the Iziduli Emoyeni WEF

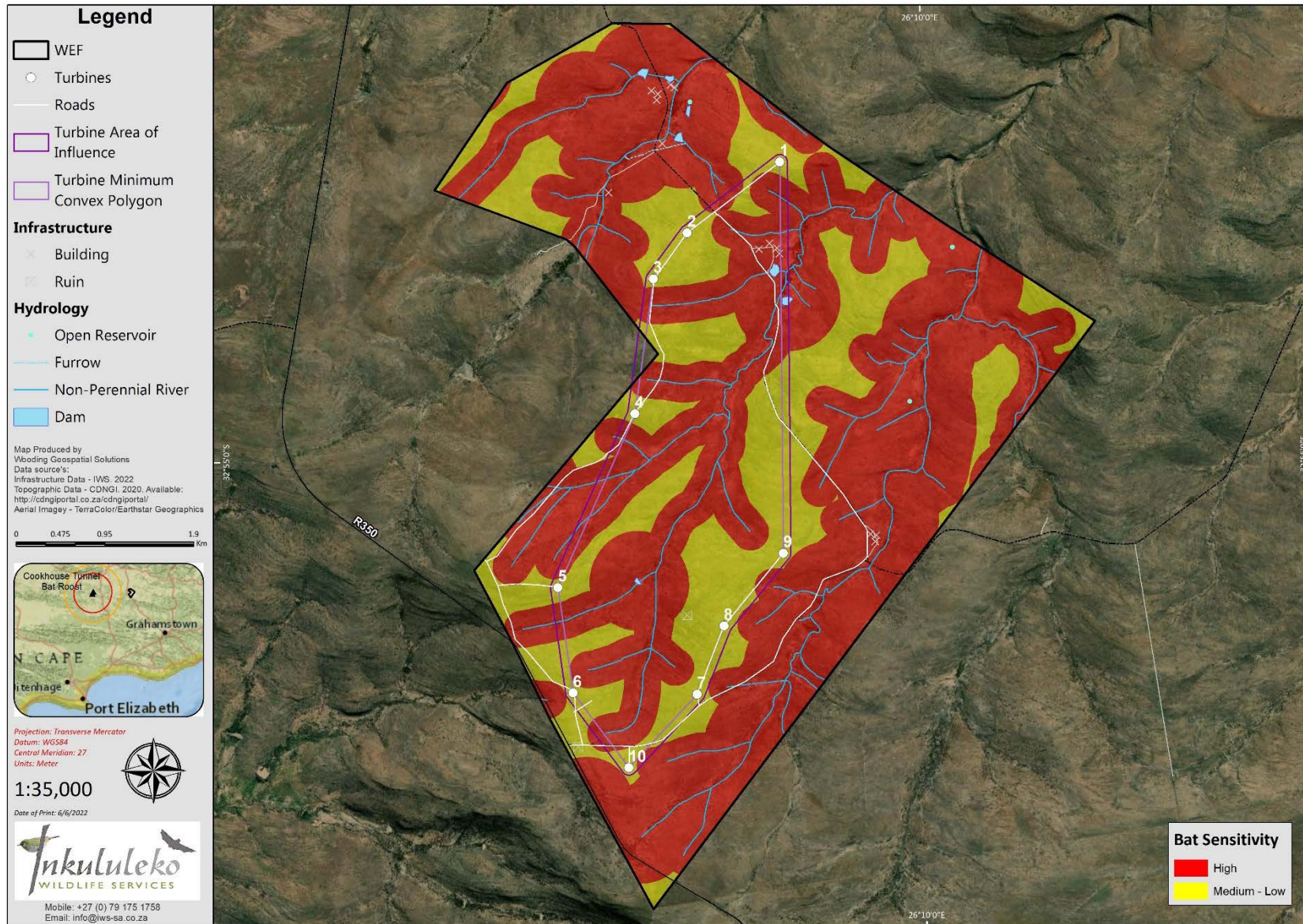


Figure 2 IWS (2022a) bat sensitivity map for the proposed Iziduli WEF

Table 1 Summary of turbine-associated bat sensitivities and mitigation recommendations for the Iziduli WEF

Turbine positions	Previous walkthrough and/or desktop observations	Bat sensitivity		Bat impact mitigation recommendations
		Turbine base	Turbine blades	
Turbine 1		M	M	None
Turbine 2		M	M	
Turbine 3		M	M	
Turbine 4		M	M	
Turbine 5		M	M	
Turbine 6		M	M	
Turbine 7		M	M	
Turbine 8		M	M	
Turbine 9		M	M	
Turbine 10		M	M	

