Ms Caroline Evans
EOH-Coastal & Environmental Services

29 March 2019

## RE: GOLDEN VALLEY II WIND ENERGY FACILITY – AMENDMENT– AVIFAUNAL STATEMENT

## 1. BACKGROUND

WildSkies Ecological Services (Pty) Ltd (hereafter WildSkies) was previously contracted by Biotherm Energy to conduct 12 months of pre-construction bird monitoring on the Golden Valley II Wind farm site (Strugnell & Smallie, 2015). This monitoring was conducted post Environmental Authorisation. The EIA phase avifaunal impact assessment was conducted by the Endangered Wildlife Trust (2010).

The following amendments have since been assessed:

- 2015. During 2015 an amendment was conducted to split the project into Golden Valley I and Golden Valley II (Smallie, 2015).
- 2018 (current). In September 2018 an amendment to the authorisation was presented for assessment as follows (Smallie, 2018).
    - From the authorized 132 turbines to maximum of 49 turbines (and hence a new spatial layout).
    - From the authorised hub height of 100 to a maximum of 130m.
    - From the authorised rotor diameter of 130 to a maximum of 170m.
- 2019 (current). In March 2019 an additional amendment is required to add a new land parcel, which will also result in a change to the project layout. WildSkies was appointed by EOH-CES to determine the effect this amendment might have on the significance ratings for the impacts on avifauna as previously assessed.

## 2. RESULTS

Figure 1 below shows the project layout which was monitored by pre-construction bird monitoring (Strugnell & Smallie, 2015) and the subject of the 2018 amendment assessment.

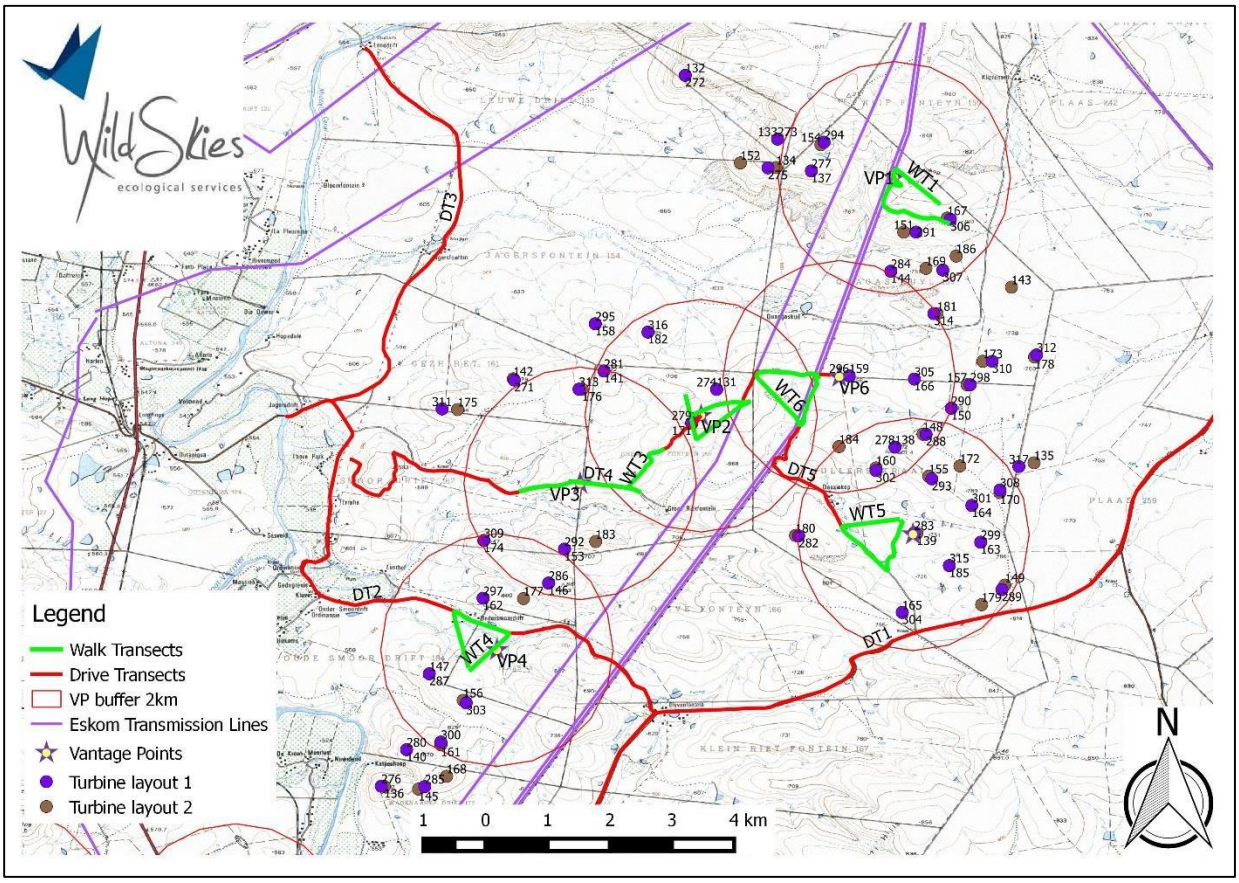



Figure 1. Layout of pre-construction bird monitoring at the site relative to the original project layout.

Figure 2 shows the new layout proposed under the current (2019) amendment. There are turbines further west in the north-western corner, and further east in the north-eastern corner than previously. These areas were not covered by vantage point monitoring in the previous pre-construction bird monitoring. However based on the general characteristics of the avifauna on site, and in particular the low level of flight activity we recorded on site for priority bird species, we are comfortable that the findings we made previously would apply also to these new turbine positions. We have conducted pre and post construction monitoring

at the adjacent Cookhouse West, Nojoli, Amakhala Emoyeni and Golden Valley I sites and have extensive understanding of the avifaunal issues in this area.

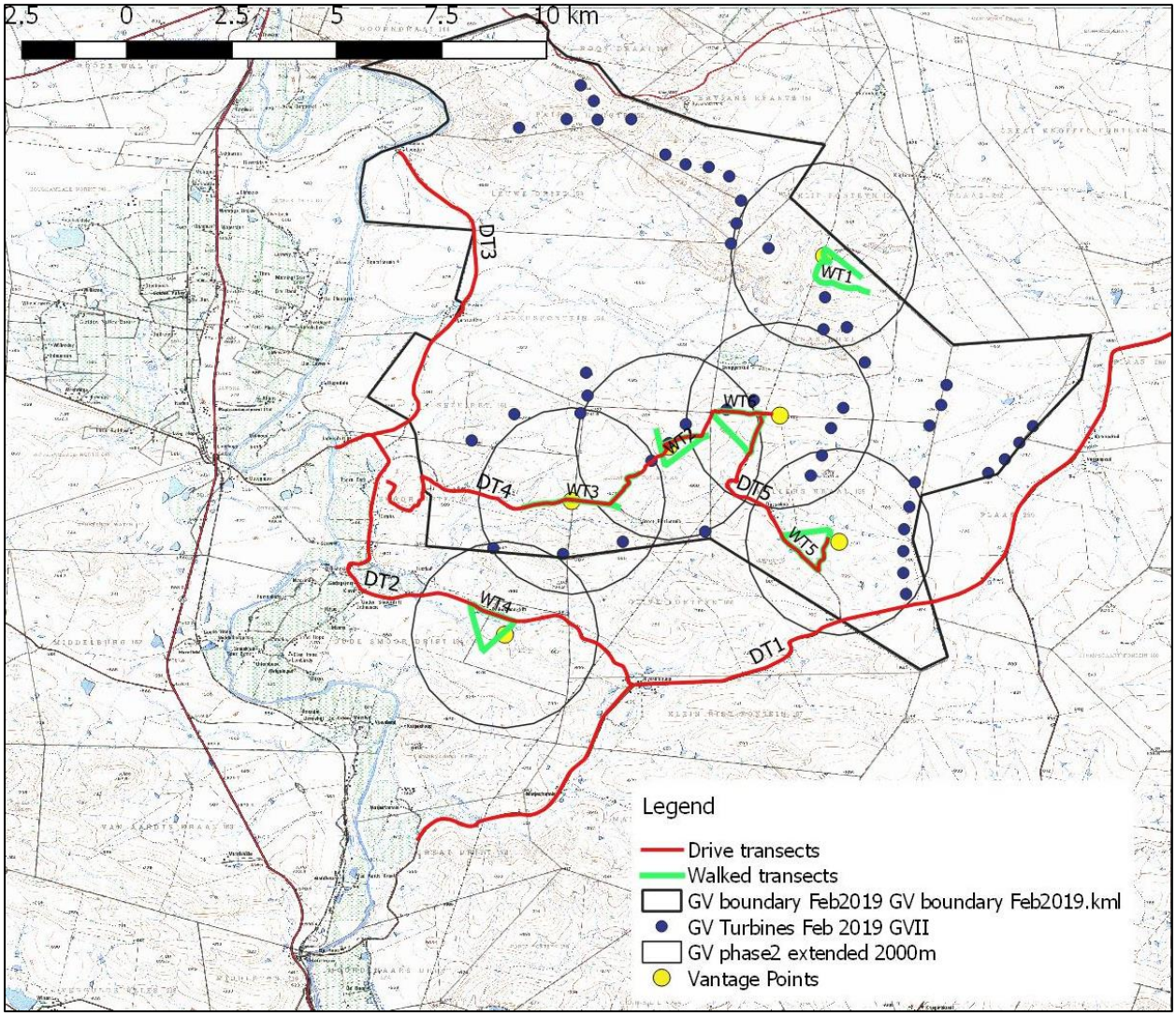



Figure 2. Layout of pre-construction bird monitoring relative to the new project layout.

Table 1 below summarises the findings on this project at the various stages, including this current amendment assessment.

Table 1. Summary of findings.

| Impact | EIA finding (Endangered Wildlife Trust, 2010) | 2015 Amendment (Smallie, 2015) | 2018 Amendments (Smallie, 2018) (current) | 2019 Amendment (current) |
|---|---|---|---|---|
| Facility | 214 turbines of 2.5 MW each mounted atop 80-100m masts, 100 m rotor diameter [Note this was subsequently amended to 3MW turbines, with 130m rotor diameter]<br><br>Effective rotor swept area from 50 to 150m above ground – amended to 35 to 165m above ground | Golden Valley II comprises up to 132 turbines<br><br>Effective rotor swept area from 35 to 165m above ground | Maximum of 67 turbines (further reduced to 49), New spatial layout), maximum hub height of 130m; and; maximum rotor diameter of 170m.<br><br>Effective rotor swept area from 45m to 215m | New spatial layout due to new land parcel in north-western corner |
| Habitat destruction | Moderate both pre and post mitigation | No change to significance of impacts | No change to significance of impacts | No change to significance of impacts |
| Disturbance of birds during construction | Low significance both pre and post mitigation | | No change to significance of impacts | No change to significance of impacts |
| Collision of birds with turbines | Moderate significance both pre and post mitigation | | No change to significance of impacts | **No change to significance of impacts – *but see below explanation** |
| Disturbance during operations | Low significance both pre and post mitigation | | No change to significance of impacts | No change to significance of impacts |
| Disruption of local bird flight patterns | Moderate significance both pre and post mitigation | | No change to significance of impacts | No change to significance of impacts |
| Collision and electrocution of birds on overhead power lines | Moderate significance pre mitigation and Low significance post mitigation | | No change to significance of impacts | No change to significance of impacts |

*Although unrelated to the above amendment of the facility layout, our experience in the general area and changes to the state of knowledge and best practice guidance require us to note the following important points:

- Subsequent to the above mentioned original avifaunal work at this site, a number of Cape Vulture *Gyps coprotheres* turbine collision fatalities have been recorded at nearby operational wind farms. This has illustrated that the species is at risk of turbine collision in this area. This is in spite of these sites recording low passage rates for the species during pre-construction vantage point monitoring, as is the case at the Golden Valley II site (Strugnell & Smallie, 2015). It appears that for this species vantage point monitoring may not be an effective basis for predicting collision risk, due mostly to the erratic and unpredictable nature of the species movement and its gregarious nature (meaning that when it does show up in an area it can be in large numbers). **On this basis we would like to highlight that the risk of Cape Vulture turbine collision at Golden Valley II is likely higher than previously judged and warrants a change to High significance.**
- Cape Vulture specific best practice guidelines have also been published by BirdLife South Africa (BirdLife South Africa, 2018) subsequent to the original assessment at this site. These guidelines advise that sites within 50km of a Cape Vulture roost site are considered as 'high to very high sensitivity' areas. Golden Valley II is approximately 29km south-west of the Agieskloof Cape Vulture roost site (summer roost) and therefore classifies as a 'high to very high sensitivity' site. These guidelines also recommend additional monitoring effort to be conducted in these areas. We do not recommend the retrospective application of this requirement to the Golden Valley II site but we do recommend additional mitigation efforts as below.

There are some precautionary mitigation measures which we recommend be implemented (some of these were contained in the original assessment):

- All power lines between turbines must be buried, only the grid connection power line may be above ground. Any above ground power line must be confirmed in writing by a suitably qualified and independent avifaunal specialist to be designed in a vulture friendly manner.
- If vultures roost regularly on the existing Eskom 400kV power lines on site this will need to be prevented in order to reduce turbine collision risk. This could be through the installation of roost deterrents on these pylons or other means as identified at the time.
- Once turbines are operational a 'Cape Vulture Food Management Plan' must be implemented on site. This must include a team employed to patrol the site full time and report and remove any

dead livestock or other animals before it is available to vultures. This will reduce the amount of food available to vultures on site.

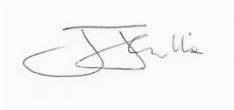
- Post construction bird monitoring must include seasonal surveys at the Agieskloof vulture roost.
- A thorough avifaunal walk through must be conducted for the final layout, prior to construction, in order to ground truth all aspects of the facility
- A suitable budget for the mitigation of Cape Vulture (and other species) collision on site must be provided for in case it is needed. If fatalities are recorded and mitigation is required it cannot be argued that mitigation was not budgeted for. Examples of possible mitigation measures include: human based turbine shutdown on demand; automated turbine shutdown on demand; and painting of turbine blades.
- Golden Valley II must collaborate with other wind farms in the area with respect to research into vulture movement and collision risk in the area, and collective mitigation efforts, some of which are underway.
- Comprehensive post construction bird monitoring must be conducted at the facility once operational, in accordance with best practice guidelines (Jenkins et al 2015) and for a minimum of two years. If any Cape Vulture fatalities are recorded the duration of this monitoring should be extended further. Any significant impacts detected by this monitoring must be mitigated where judged necessary by the avifaunal specialist.

## 3. CONCLUSIONS

We conclude that the proposed amendment does not substantially alter the risk to avifauna, and does not change the significance of the impacts as previously assessed. However experience subsequent to the original assessment with Cape Vulture turbine collisions in the area has prompted us to amend the **significance of turbine collision from Moderate to High significance** and update our mitigation recommendations in that regard.

Please don’t hesitate to contact us if you require further clarity in this regard.

Kind regards



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## 4. REFERENCES

BirdLife South Africa. 2018. Cape Vulture and Wind Farms: Guidelines for impact assessment, monitoring and mitigation. August 2018.

Endangered Wildlife Trust, 2010. Cookhouse Wind Energy Facility: Specialist Avifaunal Assessment. Unpublished report submitted to Coastal & Environmental Services.

Jenkins, A.R., Van Rooyen, C.S., Smallie, J., Harrison, J.A., Diamond, M., Smit-Robbinson, H.A. & Ralston, S. 2015. "Best practice guidelines for assessing and monitoring the impact of wind energy facilities on birds in southern Africa" Unpublished guidelines

Smallie, J. 2015. Letter: RE SPLIT AUTHORISATION OF GOLDEN VALLEY WIND FARM – AVIFAUNAL. Submitted to Coastal & Environmental Services.

Smallie, J. 2018. Letter: RE amendment of layout and turbine model. Submitted to EOH-CES.

Srugnell, L. & Smallie, J. Golden Valley Phase II Wind Energy Facility near Cookhouse Eastern Cape 12 Month pre-construction bird monitoring – Final Report. Unpublished report submitted to Biotherm Energy.