

8 October 2019

Adrian Maddocks
Development Manager
White Rock Wind Farm
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Dear Adrian

Re: Additional surveys – White Rock Wind Farm

NGH Pty Ltd undertook additional field surveys, vegetation mapping and updates to the BioBanking credit calculator in order to assess the impact of underground cabling routes that connect Stage 2 to the existing Stage 1 substation through the Stage 1 footprint.

Additionally, confirmation of assumptions made during the Stage 2 Biodiversity Assessment Report (NGH August 2018), in areas where vegetation mapping was previously extrapolated and not ground truthed, were undertaken in conjunction with surveys for *Diuris pedunculata* (Small Snake Orchid) and other potential threatened species within the cabling routes and previously 'extrapolated' areas. Further surveys will be undertaken in areas of Stage 2 for *Diuris pedunculata* with results added to the updated Biodiversity Assessment Report (BAR) for Stage 2. This approach was agreed by BCD (Nicky Owner, Biodiversity Conservation Division, Coffs Harbour, 24 Sept. 2019).

Please find a brief summary and credit update overleaf based on the field work undertaken last week. In summary, the results so far remain consistent with what was assumed in the Stage 2 Biodiversity Assessment Report (NGH August 2018) and no *Diuris pedunculata* have yet been detected onsite despite flowering at a nearby reference site.

Should you require any further information or clarification please do not hesitate to contact me or Brooke Marshall on 02 6492 8303. I would be pleased to discuss this project with you further.

Yours sincerely,

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1 OBJECTIVES

The purpose of this summary report is to update vegetation mapping and assess habitat values within areas subject to minor changes resulting from an increased clearing limit for underground cabling routes that connect Stage 2 to the existing Stage 1 substation through the Stage 1 footprint. The Stage 2 33 kV underground cabling within the Stage 1 footprint was proposed to be finalised during the detailed design stage prior to the start of construction and following Mod 6 approval. Preliminary design investigations have identified previously unforeseen additional challenges for the cabling design and its implementation (within the Stage 1 area), necessitating additional field surveys and vegetation mapping.

Additionally, modifications to the layout during the original BAR assessment placed some infrastructure outside the areas of the initial field surveys. These areas were assessed via desktop and compared to adjacent areas which have been surveyed, based on knowledge of the project site. Vegetation mapping was then extrapolated from areas that have been surveyed using a precautionary approach and only where confidence of vegetation communities was high. Confirmation of these vegetation types and habitat values were undertaken during this assessment and reflected within the updated credit calculations.

Additionally, following submission of the original BAR and subsequent consultation with the Department of Planning, Industry and Environment – Biodiversity and Conversation Division (BCD - formally Office of Environment and Heritage) regarding *Diuris pedunculata*, it is now considered possible that this species may occur in where suitable habitat is considered present or marginal in light of the updated information of this species. Therefore, targeted species surveys have been undertaken to determine presence/absence of this species within the Stage 2 impact area, including the Stage 1 footprint.

2 METHODS

Field surveys were undertaken across the entirety of the additional areas required for changes to the cabling routes between Stage 1 and 2 and within the 'extrapolated' mapping areas to confirm vegetation and habitat values in these areas. A 100m buffer area was surveyed for this purpose and a 6m impact corridor used per cable to provide updated calculations for the BioBanking Calculator. Due to the persistent dry conditions and resulting heavy grazing impacts in most areas, no additional plot data was collected. Instead, random meanders and rapid assessment points were collected and compared to previous data. Dominant flora species were recorded across all strata to assist in determining the Plant Community Types (PCTs) present and the potential for Threatened Ecological Communities (TECs). Observations were made on vegetation condition and potential to support threatened species. Potential habitat features such as creeks, habitat trees and areas of coarse woody debris were inspected with the overall aim of the survey to determine the relative biodiversity value of areas in comparison to survey results in the adjoining previously surveyed areas.

Where potential habitat for *Diuris pedunculata*, and other threatened flora was considered suitable (or at least marginal in consideration of drought conditions), parallel transects throughout and adjacent to the potential impact areas were undertaken. Additionally, in consultation with BCD, reference populations of *Diuris pedunculata* near Guyra and Rigney Creek Travelling Stock Route (TSR) were surveyed for confirmation that the species was flowering and identifiable during this time, which was confirmed with numerous individuals observed flowering at the Rigney Creek TSR.

Further surveys for *Diuris pedunculata* within Stage 2 areas are to be undertaken during the week of the 8th October, with results to be applied within an amended BAR, to be submitted with the Modification Application 6 for the White Rock Wind Farm.

3 RESULTS

3.1 PLANT COMMUNITY TYPES

PCTS observed within the Stage 1 footprint are largely consistent with those observed during the Stage 2 BAR. These consisted of;

- Blakely's Red Gum – Yellow Box grassy woodland of the New England Tableland Bioregion (PCT 510);
- Ribbon Gum – Mountain Gum – Snow Gum grassy open forest or woodland of the New England Tableland Bioregion (PCT 554); and
- Silvertop Stringybark - Mountain Gum grassy open forest of the New England Tableland Bioregion (PCT 565).

The vast majority of vegetation observed was characteristically dominated by Ribbon Gum (*Eucalyptus viminalis*), with subdominant overstorey species including Mountain Gum (*E. dalrympleana* subsp. *heptantha*) over a sparse midstorey of Blackthorn (*Bursaria spinosa*), *Acacia dealbata*, *Acacia filicifolia* and *Acacia melanoxylon*. PCT 554 within the southern portions of the proposal area contain occurrences of Snow Gum (*E. pauciflora*) and Black Sallee (*E. stellulata*) consistent with PCT 554, however in the more northern Stage 1 areas Ribbon gum co-occurs with pockets of Rough-Barked Apple (*Angophora floribunda*) and may be considered consistent with the similar PCT 921- *Manna Gum - Rough-barked Apple - Yellow Box grassy woodland/open forest of the New England Tableland Bioregion and NSW North Coast Bioregion*.

It also may be possible that Rough-Barked Apple occurs on the higher slopes and ridgelines in ecotonal vegetation, as outliers derived from PCT 510 or vegetation in the lower slopes and drainage lines where it occurs with PCT 84 River Oak dominated vegetation. Due to the drought conditions and highly degraded nature of the ground cover, additional plot data was not able to be obtained that would be considered adequate and that could be consistent with that of previous BAR assessment. In areas where native groundcover could be identified, in the form of Snow Grass (*Poa sieberiana*) tussocks and grazed *Acaena novae-zelandiae* individuals, it is consistent with PCT 554. Therefore, as a precautionary approach and in the absence of plot data to confirm, where Rough-barked Apple occurs in conjunction with dominant Ribbon Gum and/or Mountain Gum, it has been mapped as PCT 554 and consistent with previous mapping. This is supported by PCT 921 and PCT 554 being with the same vegetation class, consistent with like for like offset rules under the FBA and with some patches consistent with the *Ribbon Gum - Mountain Gum - Snow Gum Grassy Forest/Woodland of the New England Tableland Bioregion* TEC scientific criteria.

Occasionally, patches of Yellow Box (*E. melliodora*) dominated vegetation or areas dominated by Silvertop Stringybark (*E. laevopinea*) were also observed and identified changes from the more dominant PCT 554 to PCT 510 and PCT 565 respectively.

No threatened flora species were observed in the areas surveyed.

3.2 BIODIVERSITY CREDIT UPDATES

Table 1 and Table 2 demonstrate the updated impact areas and credits calculations following the further surveys, revised mapping and confirmation of the assumptions made with the original BAR. Areas that meet NSW Threatened Ecological Community (TEC) criteria are highlighted.

Taking into account the newly confirmed vegetation mapping from the extrapolated areas and updated Stage 2 cabling assessment within the Stage 1 footprint, there is an additional 7.22 hectares of impact. Overall however, the TEC impact is reduced by 0.68 ha (due to precautionary assumptions made in the previous assessment).

Table 1 – Updated impacts areas

PCT	Condition	Zone	Previous Mapping (includes previous extrapolated areas)	Revised Mapping	Cabling	Revised Total
Exotic	-	-	11.33	11.33	0.28	11.61
Blakely's Red Gum - Yellow Box grassy woodland	Moderate to Good	1	7.95	8.97	0.86	9.83
Blakely's Red Gum - Yellow Box grassy woodland	Low	2	0.51	0.51	0	0.51
Ribbon Gum - Mountain Gum - Snow Gum grassy open forest or woodland	Moderate to Good	3	61.92	50.80	8.56	59.36
Ribbon Gum - Mountain Gum - Snow Gum grassy open forest or woodland	Low	4	77.70	76.02	6.17	82.19
Silvertop Stringybark - Mountain Gum grassy open forest	Moderate to Good	5	12.33	12.90	2.83	15.73
River Oak - Rough-barked Apple - red gum - box riparian tall woodland (wetland)	Moderate to Good	6	0.14	0.14	0	0.14
Black Sallee - Snow Gum grassy woodland	Moderate to Good	7	2.68	2.68	0	2.68
Black Sallee - Snow Gum grassy woodland	Low	8	5.34	5.34	0	5.34
Total			179.89	168.69	18.7	187.39
Total Native Vegetation (ex Exotic)			168.56	157.36	18.42	175.78
TEC impacts only			73.06	62.96	9.42	72.38

Table 2 – Updated Credit calculations

Vegetation Management Zone	PCT	Plant community name	Previous Management zone area (ha)	Previous Ecosystem credits required	Previous Management zone area (ha)	Revised Ecosystem credits required
1	PCT #510	Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion	7.95	473	9.83	585
2	PCT #510	Blakely's Red Gum - Yellow Box grassy woodland of the New England Tableland Bioregion	0.51	9	0.51	9
3	PCT #554	Ribbon Gum - Mountain Gum - Snow Gum grassy open forest or woodland of the New England Tableland Bioregion	61.92	3445	59.36	3302
4	PCT #554	Ribbon Gum - Mountain Gum - Snow Gum grassy open forest or woodland of the New England Tableland Bioregion	77.70	0	82.19	0
5	PCT #565	Silvertop Stringybark – Mountain Gum grassy open forest of the New England Tableland Bioregion	12.33	458	15.73	584
6	PCT #84	River Oak - Rough-barked Apple - red gum - box riparian tall woodland (wetland) of the Brigalow Belt South Bioregion and Nandewar Bioregion	0.14	5	0.14	5
7	PCT #507	Black Sallee - Snow Gum grassy woodland of the New England Tableland Bioregion	2.68	157	2.68	157
8	PCT #507	Black Sallee - Snow Gum grassy woodland of the New England Tableland Bioregion	5.34	0	5.34	0

4 CONCLUSION

NGH conducted additional surveys to verify previous assumptions made within the BAR as well as confirm vegetation types and undertake targeted threatened flora surveys in areas where changes in the cabling routes from Stage 2 through the Stage 1 footprint were required. PCTs were largely consistent with those identified during the Stage 2 BAR surveys. No threatened flora were observed.

Considering all the Stage 2 impacts, including the Stage 2 cabling within the Stage 1 footprint, an additional 7.22 ha of native vegetation will be impacted. Overall however, the TEC impact is reduced by 0.68 ha (due to precautionary assumptions made in the previous assessment). The updated total project impacts, revised impact areas and credits calculations were determined, with an overall increase from 168.56 ha to 175.78 of native vegetation, and an increase from 4547 to 4642 credits, an increase of 95 credits.

Upon the completion of the final field surveys, an updated BAR will be provided inclusive of these results as well as amendments in relation to additional *Diuris pedunculata* surveys with relevant Stage 2 areas.