

Memo

To: David Rogers, Goldwind

From: Drs Colin McCoull and Richard Barnes, Van Diemen Consulting Pty Ltd

Date: December 24, 2022

Re: Bashan Wind Farm – Eagle Nest Activity (Breeding) Status Assessment 2022

SCOPE

Goldwind Capital (Australia) Pty Ltd (GW) commissioned Van Diemen Consulting Pty Ltd (VDC) to conduct a nest status assessment for the 2022/23 breeding season of all *known* (Natural Values Atlas) eagle nests of eagle pairs (wedge-tailed eagle and white-bellied sea eagle) that are entirely or partially on site or within 2 km of the proposed Bashan Wind Farm titles.

The objective of this Eagle Nest Breeding Activity Assessment was to determine the presence and likely activity of relevant known eagle nests within 2 km of the Bashan Wind Farm development (as Land Titles in **Figure 1** / the Development Footprint) using previously established observation points or appropriately distant observation locations.

The Eagle Nest Breeding Activity Assessment was conducted in December. During this period, it would be expected that chicks would be present on active nests. All nest observations were made from as long a distance as possible from pre-established observation locations or from public areas such that disturbance to birds on the nest would be minimal. Where possible observations were also made from farm areas already subject to activity.

BACKGROUND

To understand the basis for the nests chosen to activity check the following information is provided.

Territory 'concept'

The Forest Practices Authority¹ provides the following insight into the characteristics of eagle nest location relative to the territorial range of a breeding pair -

‘A pair of birds will have just one nest for breeding in any particular season, however they may still line other nests in their territory with fresh material. The spacing of active nests (in one season) between

¹ Forest Practices Authority 2014, ‘Eagle nest searching, activity checking and nest management’, Fauna Technical Note No. 1, Forest Practices Authority, Hobart

territories (nearest neighbour distance, NND) tends to be fairly regular. Most territories have more than one nest (wedge-tailed eagles up to six or more and sea-eagles rarely more than two) and as a result the likelihood of finding additional nests within 2 km of a known nest is high. This likelihood decreases to very low at about ½ NND then increases again reaching a maximum at around 1 NND from an active nest.'

There is inherent difficulty in determining the *exact* territory of an eagle without long term observations of both bird activity (breeding pairs and surrounding eagles) and nest production. Notwithstanding this, it was decided by the authors of this memo that a reasonable interpretation would be to approximate an eagles' territory by applying a 3 km buffer to all nests – a method broadly consistent with the NND approach described above. No nearest neighbour separation distance between active and previously used nests in the search cluster identified for this work was greater than 6 km. Consequently, a buffer of 2 km from the area of interest (i.e., the proposed Development Footprint of the Bashan Wind Farm) is likely to capture the majority of, an eagles' territory in this geographic area of the Central Highlands.

Relevant nests checked

The relevant nests included RND 1804, 1608, 837, 739 and RND884 – see **Figure 1**.

RND821 and RND1908 (Dee Lagoon) were inspected from the eastern edge of Dee Lagoon but were not visible. However, follow up investigations revealed that the two nests had been checked as part of the 2022 Forest Practices Authority Nest Checks and the results are included in this report.

RND1812, RND2570, RND490 and RND1724 were all inspected in November 2022 as part of the Cattle Hill Eagle Activity Assessment and were not re-inspected during this survey. However, their activity status is included in this report. It should be noted that a number of nests were not evident, and inspection revealed that the nests were not present in their Natural values Atlas location or nearby.

The following Figures are provided in this memo -

Figure 1 Known Eagle Nests within 2km of the proposed Bashan Wind Farm

Figure 2 Eagle Nest Activity around the proposed Bashan Wind Farm in September 2022

FIELD ASSESSMENT METHODS

Nest activity checks were conducted on foot in November (Cattle Hill / Dee Lagoon) and December 2022.

The nest activity checks were conducted broadly in accordance with the Forest Practices Authorities Fauna Tech Note No. 1 - Eagle nest searching, activity checking and nest management (http://www.fpa.tas.gov.au/data/assets/pdf_file/0012/110208/Fauna_Tech_Note_1_Eagle_nest_management_May_2015.pdf)

Nests were approached and examined from previously established vantage locations or long distances. If a bird was observed in the area of any nest the nest was not approached and the nest was assumed to be active. This did not occur during the December 2022 nest check activities.

RESULTS AND DISCUSSION

Figure 2 provides a visualisation of the Active and Inactive nests that were surveyed. Also shown are *relevant* nests that are considered ‘gone’ (i.e., Not Present).

Plates 1 to 3 in Attachment A depict relevant nest images including images of eagle nests that are considered active and inactive.

Observations confirm or suggest the following about nest breeding status and utilisation of habitat/territories:

- RND 1812, RND2570, RND739, RND1608, RND821 and RND1908 are all **INACTIVE**. Images of RND1608 and RND739 and provided in Plates 3 to 2 respectively.
- RND821 and RND1908 could not be directly observed during this assessment but were assessed by the FPA in October 2022. A suitable nest observation location could be established from the forestry road network to the west for future nest observations.
- As per the Cattle Hill Report RND 1724 is **ACTIVE** with a birds seen on the nest in November 2022. This nest was also INACTIVE during the 2020/21 season.
- RND490, RND1804, RND837 and RND884 were **NOT PRESENT** or in the case of RND884, likely not present at the location indicated in the Natural Values Atlas. A very large fallen tree was present at the recorded location of RND837.

Summary of Previous Nest Observations (Cattle Hill Reports / NVA and FPA Reporting)

NEST	OBSERVATION YEAR	STATUS	NOTES
RND 1812	Nov 2009	Not active.	Nest has never been observed to be active and is in a degraded condition.
RND 2570	June 2016	Not active.	Nest has never been observed to be active and is in a degraded condition.
RND 490	1985	No nest present.	No nest present.
RND 1724	First Observed Sept 2009. Active in 2019/20 and active this year.	Active (See Plate 1).	Nest large and in very good condition.
RND 739	First Observed in 1985 and was active in 2021/22 season and has been active over many years.	Not Active (See Plate 2).	Nest in average condition.

RND 884	First Observed in 1984 but has not been reported as being used since 1985 although a female was observed sitting near the nest in 2001.	Nest not observed and may be gone.	Nest may be gone.
RND 821	WBSE Nest - First Observed in 1985 and last reported active in 2020/21 season. The nest was reported but the FPA to be inactive in Oct 2022 and in a degraded condition.	Not active.	Nest in degrading condition.
RND 1908	WBSE Nest - First Observed in 2010 and last reported active in 2020/21 season. The nest was inspected by the FPA in Oct 2022. The nest was inactive and in average condition with no recent material present on the nest.	Not active.	Nest in average condition.
RND 1804	Nest first reported in 2009 and last reported in 2014 but has not been reported to be active.	No nest present.	No nest present.
RND 1608	Nest first reported in 2008 and reported to be active by FPA in 2019/20 and 2020/21 seasons.	Not Active (See Plate 3).	Nest in average to good condition.
RND 837	Nest was active in early 2000s but was reported gone in 2008 by Bruce Hay likely when the tree containing the nest fell over.	Nest reported as gone (See Plate 4).	No nest present.

CONCLUSIONS

- RND490, RND1804, RND837 and RND884 were not present at their location recorded in the Natural Values Atlas - these are considered gone or likely to be gone.
- The only clearly active nest within 2km of the the Development Footprint was RND1724.

ATTACHMENT A

PLATES



<p>Plate 1</p> <p>View to RND1724 from Cattle Hill Activity Assessment (November 2022). The nest was considered ACTIVE as it had been maintained and was in very good condition. In addition, an adult bird was seen within 10m of the nest. The nest was observed from 215m to the northwest.</p>	
<p>Plate 2</p> <p>View to RND739. The nest was considered INACTIVE as no evidence of an adult bird or chick, or fresh nesting material was observed. The nest was observed from 700m to the east.</p>	

Plate 3

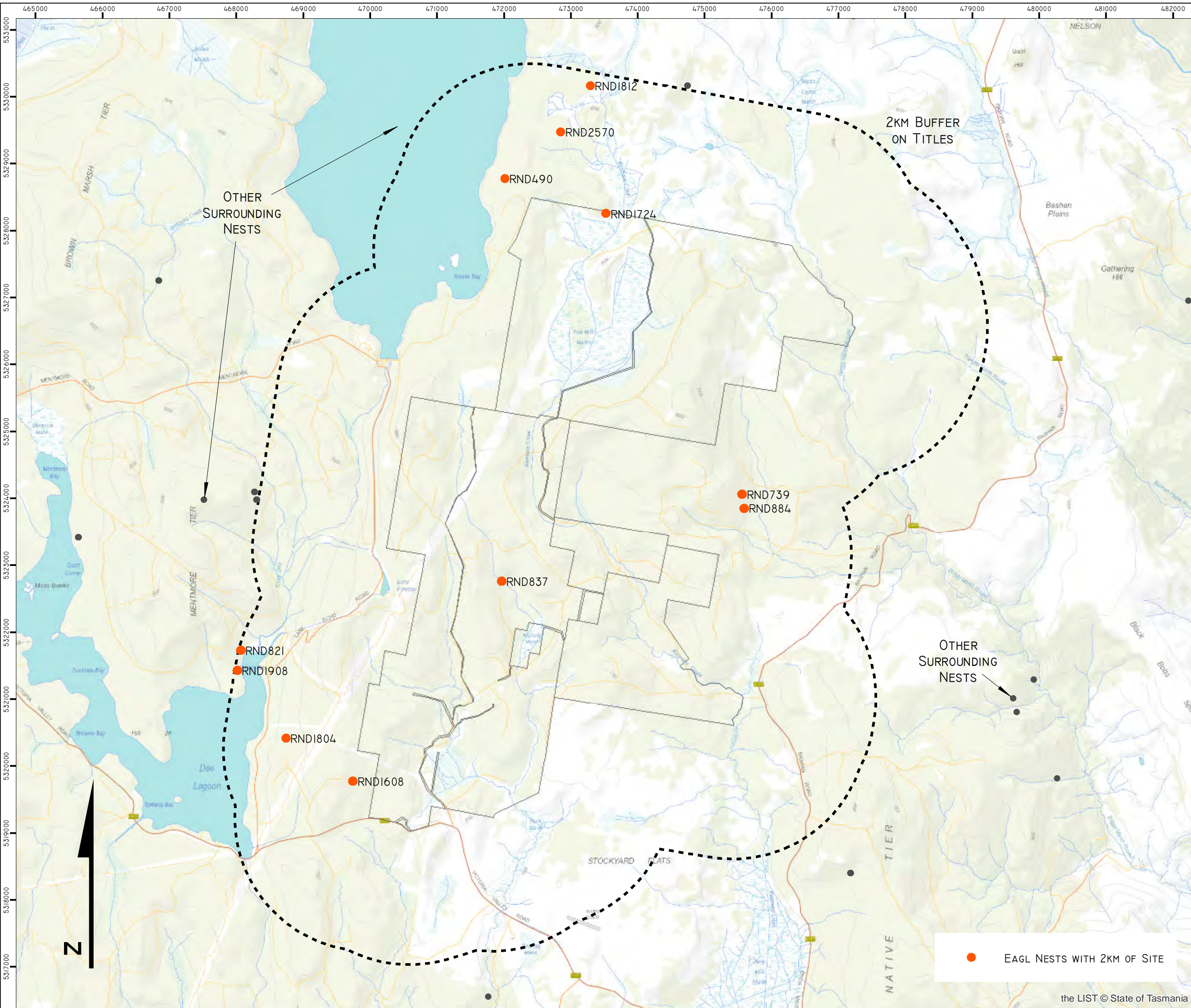
View to RND1608.
The nest was considered **INACTIVE** as no evidence of an adult bird or chick, or fresh nesting material was observed. The nest was observed from 170m to the west.



Plate 4

View of the remains of the tree that likely contained RND837. Note that the area does not contain other suitably sized trees that could be used by an eagle for nesting.





BASHAN
WIND FARM

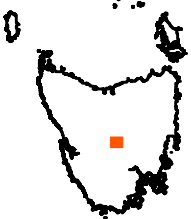
EAGLE NEST ACTIVITY
AND CONDITION
ASSESSMENT

FIGURE I: KNOWN EAGLE NESTS
WITHIN 2KM OF THE BASHAN
WIND FARM

TASMAP:
WIHAREJA
ECHO
STEPPES

LGA:
CENTRAL
HIGHLANDS

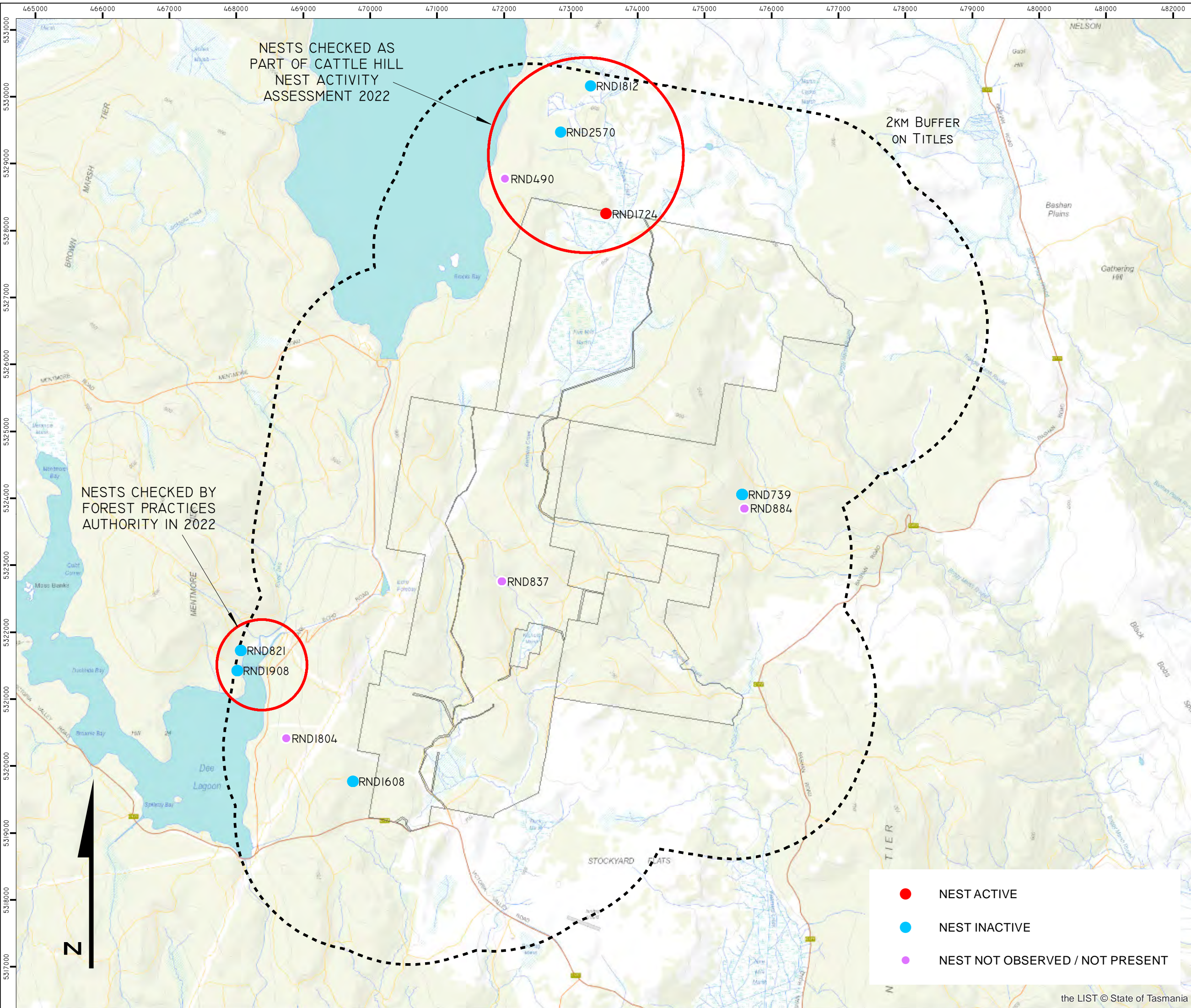
an Diemen CONSULTING
PO Box 1 NEW TOWN TAS 7008



DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A3 - NA
CLIENT:
GOLDWIND

DATE: 23 DEC 2022

● EAGL NESTS WITH 2KM OF SITE



BASHAN
WIND FARM

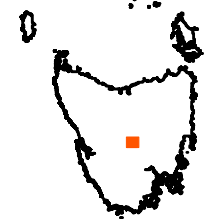
EAGLE NEST ACTIVITY
AND CONDITION
ASSESSMENT

FIGURE 2: EAGLE NESTS ACTIVITY
AROUND THE BASHAN
WIND FARM IN DEC 2022

TASMAP:
WIHAREJA
ECHO
STEPPES

LGA:
CENTRAL
HIGHLANDS

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DATUM: GDA94
GRID: MGA ZONE 55
SCALE: @A3 - NA
CLIENT:
GOLDWIND

DATE: 23 DEC 2022

- NEST ACTIVE
- NEST INACTIVE
- NEST NOT OBSERVED / NOT PRESENT