NSW GOVERNMENT | Office of Environment & Heritage

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SSD 6693

Mr Mike Young
Director, Resource Assessments
NSW Department of Planning and Environment
23 – 33 Bridge Street
SYDNEY NSW 2000

Attention: Diana Charteris diana.charteris@planning.nsw.gov.au

Dear Mr Young

Rye Park Wind Farm Response to Submissions (RTS) and Amended Environmental Impact Statement (EIS)

The Office of Environment and Heritage (OEH) has reviewed the Rye Park Wind Farm RTS and associated documents. We provided comments to the Department of Planning and Environment (DPE) three months ago on the Biodiversity Assessment Addendum (BAA) for this project, including a number of detailed questions for the proponent, many of which were first asked over a year ago. We have not yet received a response to these previous queries from the proponent, and they have not been addressed in the current RTS document (Appendix C – BAA). We have also met with DPE and the proponent twice this year, including an on-site visit to the proposed wind farm in January, to discuss OEH's concerns. As a result OEH continues to have concerns about the impacts of this project on biodiversity, threatened species and Aboriginal cultural heritage.

OEH recommends that:

- this development proposal is not approved unless it is modified to significantly reduce the impact on hollow-bearing trees (HBT);
- turbines 90, 96, 125 and 150 are not approved due to their large impact on intact remnant vegetation, and turbines 11, 12, 32, 38, 48, 56, 80, 83, 84, 85, 102, 143, 144 and 149 are moved or microsited to reduce impacts on biodiversity;
- micrositing corridors are amended to avoid impact to intact remnant vegetation patches;
- any micrositing is conditioned to require additional Aboriginal cultural heritage assessment if not previously surveyed;
- road works, cabling trenches and infrastructure easements be moved out of remnant vegetation;
- impacts on HCV roadside vegetation due to this development, outside the wind farm boundary, are assessed as part of this development approval process; and

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- the recommended program of archaeological excavation is undertaken prior to the commencement of any construction activities.

Significant impact on hollow-bearing trees (HBT)

OEH has repeatedly stated in correspondence to DPE that the current and previous infrastructure layouts for this wind farm development will have an unacceptable level of impact on HBT and the threatened hollow-dependent fauna that live in these essential keystone habitat attributes. The estimated 893 trees (more than 1200 hollows) to be removed or impacted will significantly reduce essential fauna habitat in a highly fragmented agricultural landscape, where remaining mature trees have a disproportionately high value due to their rarity in these landscapes. OEH notes that the estimated number of HBT to be impacted has been reduced from over 1000 HBT in the original proposal, but the current level of loss is still considered to be too high and we recommend a further significant reduction in loss before the level of impact would be acceptable to OEH.

A further significant concern related to the loss of HBTs is the unacceptably low offset ratios proposed by the proponent. OEH has previously advised and remains of the opinion that an HBT offset ratio between 5:1 and 10:1 would be consistent with the Framework for Biodiversity Assessment and Native Vegetation codes. This would equate to an acceptable offset package of between 4,500 and 9,000 HBT. OEH has consistently offered to work with the proponent and their consultant to develop a robust offset strategy for HBTs and other biodiversity assets.

Removal or re-siting of some turbines to reduce impacts on threatened species and biodiversity

We have assessed the location of each turbine and provided a clear statement of OEH's concerns and recommendation in the table at ***Attachment 1***. In summary, OEH recommends that turbines 90, 96, 125 and 150 are not approved as they will have an unreasonably high impact on intact native vegetation that constitutes important threatened species and biodiversity habitats. We also recommend that turbines 11, 12, 32, 38, 48, 56, 80, 83, 84, 85, 102, 143, 144 and 149 be moved or microsited to reduce their impact on biodiversity values. Some other turbines are highlighted for attention as we have previously raised a number of queries that have not yet been answered by the proponent (see ***Attachments 1*** and ***4***).

OEH considers that intact remnant forest and woodland patches should not be cleared for this development where possible, as this will have serious impacts on habitat and connectivity in an overcleared and fragmented landscape. As discussed on previous occasions, the woody vegetation on the ridgelines represent a very important wildlife corridor between the Murrumbidgee and Lachlan catchments. We have recently received the turbine micrositing corridor data layer from the proponent and we have a number of concerns about the potential impact of turbines on remnant vegetation and HBTs. Micrositing corridors should be amended to exclude intact patches of remnant vegetation. OEH notes that some turbines have been relocated in the current layout (e.g. 125, 64), however most of the re-positioning movements were not sufficient to avoid the impacts on HBTs. Detailed maps of turbines and micrositing corridors of concern are provided in ***Attachment 2***.

We have previously recommended that the proponent apply the buffer distance formula (previously provided) to all intact vegetation and habitat features, but the current layout still shown turbines adjacent to and within high constraint contiguous woodland.

Requirement for further archaeological assessment of any additional impact areas

We reiterate our concerns raised in previous correspondence regarding the undertaking of further Aboriginal heritage assessment investigations post approval. The large areas proposed for the turbine micrositing corridor have potential to impact additional Aboriginal cultural heritage values in areas that have not been previously assessed. OEH would prefer these areas to be surveyed prior to approval, in order to consider impacts to values, including cumulative aspects, up front and thereby allow for appropriate consideration of management measures prior to proposed impacts. If this cannot be achieved, any proposed micrositing of infrastructure must be conditioned to require

additional Aboriginal cultural heritage assessment prior to the commencement of construction activities.

Remnant roadside vegetation provides important habitat and landscape linkages

OEH considers that it is important, in a development of this large size, that linear components such as roads and infrastructure easements are carefully located to avoid clearing of intact vegetation patches and HBTs. In the Boorowa Shire, less than 15% of the original native vegetation cover remains (Priday *et al.* 2002). We recommend that roads, cabling and other infrastructure be placed in cleared areas wherever possible.

OEH has recently received the infrastructure corridor data layer from the proponent and we have reviewed the Traffic and Transport Assessment in the RTS. We have serious concerns about potential clearing in retained vegetation along roadsides as many of the access roads shown in the Transport Plan have been previously mapped as high conservation value (***Attachment 3***). These linear strips of mature vegetation with HBTs provide critically important habitat features and there is a large body of evidence supporting the essential role of mature roadside vegetation for biodiversity in overcleared agricultural landscapes. Roadside habitat, especially large mature HBT are essential habitat for the Superb Parrot and other threatened hollow-dependent animals which breed in this area. Aboriginal scar trees may also occur in retained roadside patches. The loss of this vegetation cannot be offset due to its unique connectivity value in situ, and because there are few if any equivalent sized trees in the surrounding landscape that could be used as offsets. Detailed maps of roads, infrastructure easements and remnant vegetation are provided in ***Attachment 3***.

OEH recommends that the impacts of road widening in the surrounding area, required to allow access for large (overdimensional) construction vehicles, be assessed as part of this development approval process. These impacts must be clearly stated in the Rye Park wind Farm EIS, and impacts avoided, mitigated and /or offset.

OEH also requests clarification as to whether these access roads and transport areas have been surveyed and considered for Aboriginal heritage values, such as scarred trees?

In the experience of the OEH officers who have worked on wind farm developments for several years, access tracks on site average a width of 15metres. This can be considerably larger in areas requiring substantial cut and fill, such as will be required in many parts of the RPWF site. OEH strongly urges the proponent to consider other options such as constructing temporary routes through cleared areas to avoid the loss of roadside vegetation.

Reducing impacts to Aboriginal cultural heritage values

We note the Addendum for the Aboriginal Cultural Heritage Assessment Report (AACHAR), dated November 2015, records that an additional 20 Aboriginal sites have been located as a result of the 2015 survey. OEH continues to advocate for the avoidance of all impacts to Aboriginal heritage values where possible as there are very few Aboriginal sites recorded in the local region. While many of the sites may lie outside of the impact footprint, OEH requires detailed mapping of Aboriginal site locations, in relation to proposed infrastructure, be incorporated into all management plans to ensure sites will not be inadvertently impacted.

The AACHAR provides recommendations to reduce impacts to Aboriginal cultural heritage values including; a program of archaeological excavation at four Aboriginal site locations as a form of overall impact mitigation. OEH advises these excavations must be undertaken prior to the commencement of any construction activities.

The AACHAR also recommends that, as much as practicable, impacts be minimised in flat, gradational landforms located adjacent to 2nd order or higher streams. Such landforms have a high potential to contain subsurface archaeological deposit with moderate density artefacts, such as for example, SU30/L1, SU30/L2, SU30/L3 and SU33/L3. OEH requests clarification as to how this recommendation will be considered and addressed as part of construction activities?

OEH continues to support the preparation of an Aboriginal Heritage Management Plan for the Project. This plan must be prepared by a suitably qualified archaeologist in consultation with OEH and the relevant Registered Aboriginal Parties.

OEH notes the AACHAR states that a draft of the report would be provided to RAPs for the review and consideration of management options. OEH request clarification as to whether any comments were received from RAPs as part of the consultation process and if so how were their comments considered within the EIS?

Unacceptable uncertainty about indicative offset areas

OEH has significant concerns with the inaccuracies of the extrapolative mapping of indicative offset areas, some of which were identified during the 20 January 2016 site inspection. The proponent committed to undertaking a more rigorous field-based approach following that site visit, to increase the reliability of this offset mapping, however this has not yet been done. We will attend another site visit in late July with the proponent to help to progress this issue. We are concerned that some of the impacts in the current layout may not be offset adequately, including HBT and landscape linkages.

In closing, OEH would like to reiterate the ongoing issues that we have raised in previous submissions about the Rye Park Wind Farm:

- An unacceptably large number of HBTs will be impacted in this over-cleared landscape
- Some turbines are still too close to vegetation
- Increased blade length means the potential impact on birds and bats may be greater
- Some turbines are still located in problematic topographic positions, e.g. turbine 96
- Offset areas have not been adequately surveyed or confirmed to contain the threatened species, habitat features or vegetation requiring offsetting
- Undertaking further Aboriginal heritage assessment investigations post approval reduces the capacity to consider all Aboriginal heritage values, including cumulative aspects, up front.

OEH requests that the proponent provide further information as detailed in this submission and previous letters provided to DPE. Our detailed review of the BAA and associated documents which was provided to DPE in March is also attached for your information (***Attachment 4***). If you have any queries regarding the issues raised in this letter please do not hesitate to contact us at rog.southeast@environment.nsw.gov.au.

Yours sincerely

MBoak 24/6/2016

MILES BOAK
A/ Senior Team Leader, Planning
South-East Region

Contact officer: VIRGINIA THOMAS
6229 7105

Reference:
Priday, S., Mulvaney, M., Gellie, N. and Hudson, K. (2002). *The Native Vegetation of Boorowa Shire.* NSW National Parks & Wildlife Service, Hurstville NSW.
(http://www.environment.nsw.gov.au/resources/nature/sbsnssscopeboorowa.pdf)

Attachments:
1 – Table of OEH recommendations for each turbine

2 – Detailed maps of turbines of concern, micrositing corridors and HBT patches

3 – Detailed maps of roads, infrastructure easements and remnant vegetation of concern

4 – OEH letter to DPE reviewing Rye Park Wind Farm BAA (March 2016)

Attachment 1

RPWF turbine no.	Biodiversity comment	Biodiversity map no. (see Attachment 2)
1	OK	
2	OK	
3	OK	
4	OK - close to Painted honeyeater record, check HBT for threatened species	
5	OK	
6	OK	
7	OK	
9	OK	
11	Move - Impacts on large number of HBT and HCV veg. OEH recommends that the turbine be moved away from the forest edge into the micrositing corridor so that HBT are not impacted. Areas of intact forest should be removed from the micrositing corridor for turbines 11 and 12, and infrastructure corridor between them - the road should be constructed away from the forest edge.	6
12	Move - OEH recommends that the turbine be moved away from the forest edge into the micrositing corridor so that HBT are not impacted. Areas of intact forest should be removed from the micrositing corridor for turbines 11 and 12, and infrastructure corridor between them - the road should be constructed away from the forest edge.	6
16	We have asked for confirmation about the veg at 16 - there are definitely trees so it can't be just shrubland. Why is the micrositing footprint so big? It is mapped as Sifton Bush shrubland but doesn't look like other areas mapped as Sifton Bush on the aerial image. It was highlighted as one of the turbines with the highest number of surrounding trees in the HBT assessment - yet the patch has not been mapped and no assessment of impact is provided.	13
17	OK - impacts on scribbly gum woodland and low no of HBT	
18	OK	
20	OK	
21	OK	
22	OK - the HCV veg to the north of 22 should be excluded from the micrositing corridor	14
25	OK	
26	OK	
28	OK	
29	OK	
30	OK	
31	OK	
32	Move - Impacts on large number of HBTs. OEH recommends that the turbine be moved within the micrositing corridor into the cleared area away from trees. HCV mixed age mature Scribbly Gum forest (patch S4) should be removed from micrositing corridor.	7
34	OK	
35	OK	
36	OK - the Scribbly Gum forest should be removed at southern end of micrositing corridor	14
37	OK	

Attachment 1

RPWF turbine no.	Biodiversity comment	Biodiversity map no. (see Attachment 2)
38	Move - High impact on HBT and Scribbly Gum forest. OEH recommends that the turbine be moved within the micrositing corridor into the cleared area away from trees. HCV mixed age mature Scribbly Gum forest (patch S4) should be removed from micrositing and infrastructure corridors.	8
39	OK	
41	OK	
42	OK	
43	OK	
44	OK	
45	OK	
47	OK	
48	Move away from edge of forest - unneccesary impact on good condition intact forest. Why is this good condition, mod constraint forest not mapped into a patch for the HBT assessment (it is not mapped on the HBT survey results maps which indicate the patches)?	4
49	OK	
50	OK	
51	OK	
52	OK	
53	OK - OEH recommends that the micrositing and infrastructure corridors between 53 and 61 should be adjusted to exclude intact HCV forest patch.	9
56	Move - Impacts on large number of HBT and good condition scribbly gum forest. OEH notes that this turbine has been moved, but its new location is still impacting a large number of HBT. OEH recommends that the turbine be moved away from the forest edge into the micrositing corridor so that HBT are not impacted. Patch S7 has the second highest HBT density recorded in the study area.	9
58	OK	
61	OK - OEH recommends that the micrositing and infrastructure corridors between 53 and 61 should be adjusted to exclude intact HCV forest patch.	9
62	ok	
63	OK - impact on HBT and good condition intact forest. Would be better to move away from edge of forest	
64	OK - mature Scribbly Gum area should be removed from micrositing corridor at northern end	
65	OK - impacts on HBTs	
66	OK - impact on HBT and good condition intact forest. Would be better to move away from edge of forest	
67	OK	
68	OK	
69	OK	
71	We had questions about 71 and 72 that have not been answered	
72	We had questions about 71 and 72 that have not been answered	
73	OK	
74	OK	
75	OK	
76	OK	

Attachment 1

RPWF turbine no.	Biodiversity comment	Biodiversity map no. (see Attachment 2)
77	OK	
78	OK	
79	OK	
80	Move - microsite away from edge of forest. This intact patch of Scribbly Gum forest contains a Koala record.	3
82	OK	
83	Move - microsite to avoid impacts on very large scattered HBT (patch S25)	
84	Move - impacts on HBT and intact veg. OEH recommends that areas of intact forest should be removed from micrositing and infrastructure corridors. The access road for turbines 84 and 143 will impact numerous HBTs - OEH recommends that this road be constructed away from the forest edge. there are numerous HBT along the road alignment in this area.	10
85	Move - High impact on HBTs	5
86	OK - Impacts on HBTs	5
87	OK - Impacts on HBTs	5
90	Remove - This turbine will have a high impact on HBTs. It would not be possible to microsite it as there is HCV forest on three sides, and a Wedge-tailed Eagle nest 500m buffer on the other side	5
93	OK - changes to micrositing corridor required	5
94	OK	
95	OK	
96	Remove - OEH has previously advised this location is not suitable. High impact on HBTs, too close to veg canopy due to slope of land	2
97	OK - some impact on HBTs and veg	
98	OK	
99	OK	
101	OK - WTE record	
102	Move - high impact on HBT and good condition intact forest. OEH recommends moving the turbine away from edge of forest within micrositing corridor. This patch (S14) has the greatest recorded density of HBT in the study area	11
103	OK - threatened woodland bird records	
104	OK - HBTs and threatened woodland bird records	
119	OK	
120	OK - GSM records	
122	OK	
124	OK	
125	Remove - OEH has previously advised this location is not suitable. Very high impact on HBTs. Patch S15 has one of the highest HBT densities recorded in the study area. This turbine has been moved a bit but not enough to avoid unnecessary impact on HBTs and HCV woodland.	1
127	OK - some impact on veg	
128	OK	
129	OK - some impact on veg	
130	OK	
131	OK	
133	OK - some impact on veg and HBTs	
134	OK	

Attachment 1

RPWF turbine no.	Biodiversity comment	Biodiversity map no. (see Attachment 2)
135	OK	
136	OK	
137	OK	
138	OK	
139	OK	
140	OK	
141	OK	
142	OK	
143	Move - Impacts on large number of HBT and intact veg - can it be moved into cleared area to north? Areas of intact forest should be removed from infrastructure corridors - there are also numerous HBT along the road alignment in this area.	10
144	Move - Impacts on large number of remnant HBTs - turbine should be moved out into cleared part of micrositing corridor. Areas of intact forest should be removed from infrastructure corridors	12
145	OK	
146	OK	
147	OK	
148	OK	
149	Move - Impacts on high constraint intact veg patch - turbine should be moved out into cleared part of micrositing corridor. Areas of intact forest should be removed from infrastructure corridors.	13
150	Remove - OEH has previously queried why this new turbine was placed in the middle of an intact patch of Scribbly Gum forest (as mapped in the BAA). This patch (S10) contains a Koala record.	3
151	OK	

Attachment 2

The following detailed recommendations and comments on impacts of turbines and micrositing corridors refers to biodiversity and threatened species habitat impacts. All micrositing should be subject to assessment of Aboriginal cultural heritage impacts.

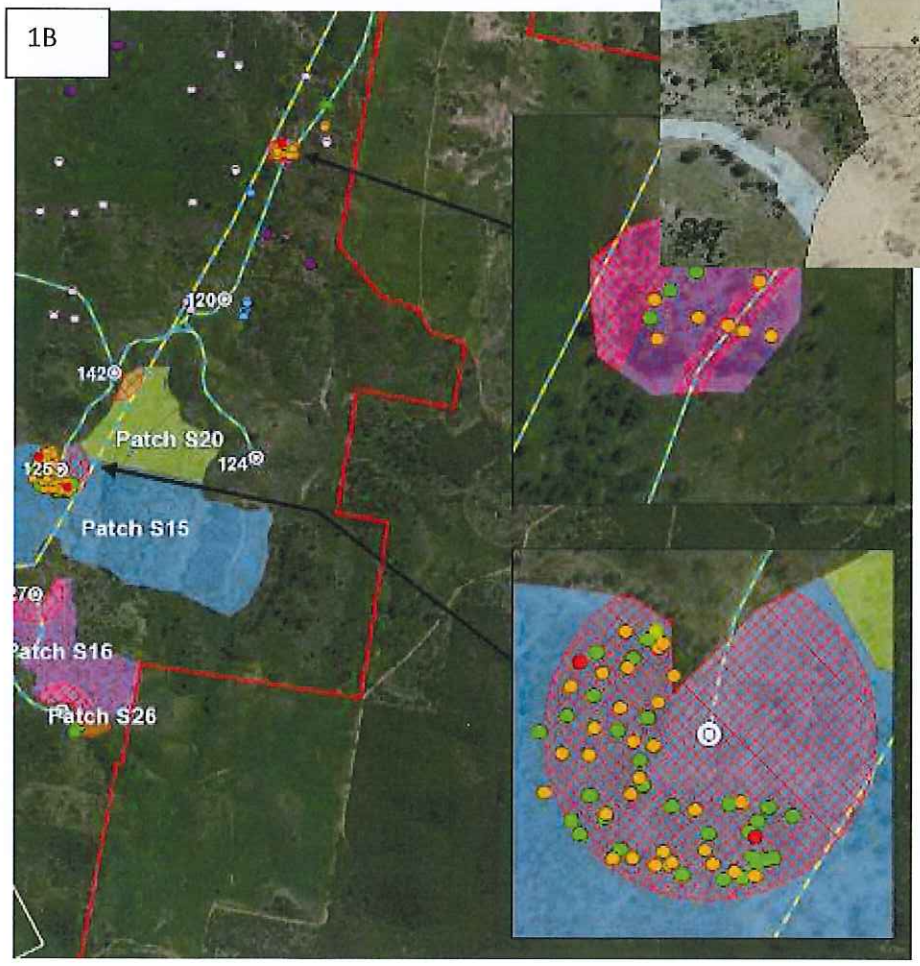
Maps 1A and B - Turbine 125

OEH does not endorse the location of this turbine and we have previously advised that this will have a significant impact on biodiversity values.

Patch S15 has one of the highest HBT densities recorded in the study area and the current location will have a very high impact on HBTs. This turbine has been moved a bit in the latest infrastructure layout, but not enough to avoid unnecessary impact on HBTs and HCV woodland.

OEH recommends that this turbine be removed or moved, as described here.

OEH further recommends that the HCV vegetation in this patch should be excised from the micrositing corridor.



Attachment 2

Maps 2A and B – turbine 96

OEH has previously advised that we do not endorse the location of turbine 96. This turbine would be too close to the vegetation canopy due to the slope of the land, thereby having an unacceptable impact on avifauna. OEH recommends that this turbine be deleted.

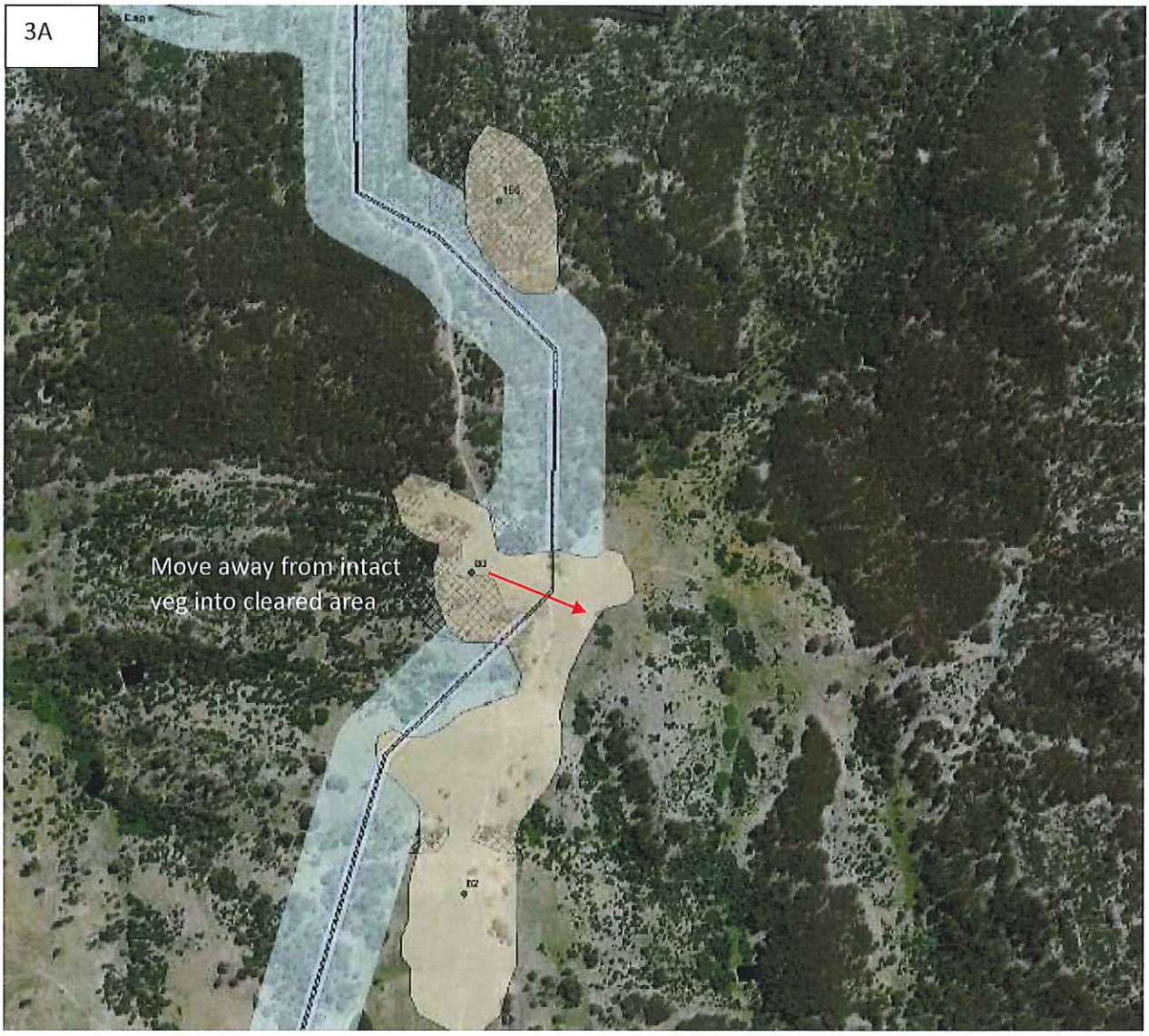
Attachment 2

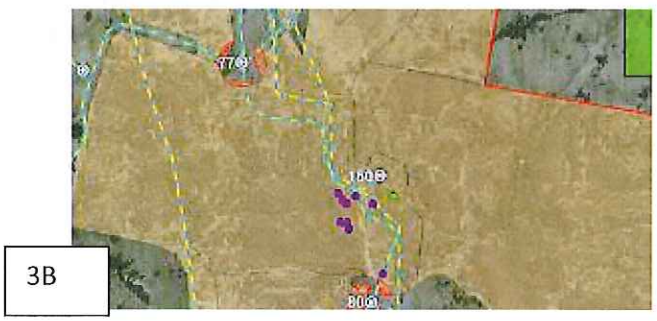
Maps 3A and B – turbines 150 and 80

Remove 150 - OEH has previously queried why this new turbine was placed in the middle of an intact patch of Scribbly Gum forest (as mapped in the BAA). This patch (S10) contains a Koala record.

Move 80 - microsite away from edge of forest and HBTs.

There is a koala record in this intact patch of Scribbly Gum forest





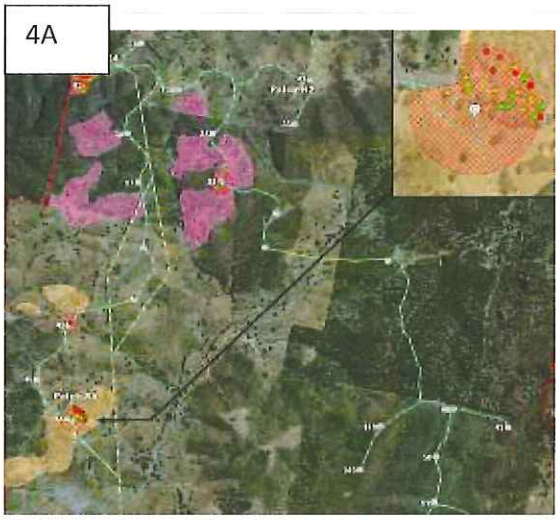
Attachment 2

Maps 4A and B – mapping of forest adjacent to turbine 48 and HBT assessment

OEH requests clarification of the mapping and impact om the forest adjacent to turbine 48.

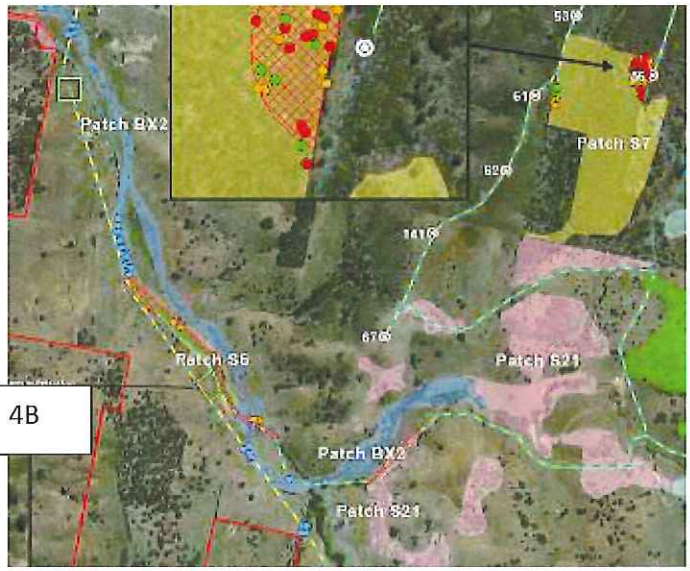
The BA addendum (page F-IV) describes the large area of good condition forest adjacent to turbine 48 as: "Mixed age forest with high numbers of HBTs. No verification conducted. Unable to access Turbine 48 (Patch 6) and extrapolation of Patch 7 results considered appropriate as a worst case." This indicates that the high concentration of HBTs mapped in patch S7 will be extrapolated to patch S6. However the forest is not mapped as a patch in the HBT survey maps, as shown below in map 4A. The area was apparently surveyed for Koala and Crimson Spider Orchid, and is referred to as being similar to Patch S7. There is a kilometre of new road being put through the middle of it, and turbines 48 and 49 at its edge.

4A



The HBT survey map 2 (4A, left) shows no patch mapping for the good condition Scribbly Gum forest adjacent to turbine 48.

The HBT survey map 3 (4B, right) shows a sliver of land along a road as being patch S6.



4B

Patch	Orientation	Density (HBTs/ha)	Area impacted (ha)	Area surveyed (ha)	No. HBTs impacted (surveyed)	No. HBTs impacted	Avg. DBH	Avg. Height
S5	E	3.2	0.3	0.3	1	1.0	90.0	9.0
S5	N	20.3	0.6	0.6	12	12.0	56.3	10.3
S5	S	1.4	0.7	0.7	1	1.0	75.0	20.0
S5	W	0.0	0.4	0.2	0	0.0		
S5	Tracks/trans	0.0	0.5	0.7	0	0.0		
S5 Total			**2.5**	**2.1**	**14**	**14.0**		
S6	E		0.0	0.0	0	0.0		
S6	N		0.0	0.0	0	0.0		
S6	S		0.0	0.0	0	0.0		
S6	W		0.0	0.0	0	0.0		
S6	Tracks/trans	0.7	1.5	1.5	1	1.0	150.0	18.0
S6 Total			**1.5**	**1.5**	**1**	**1.0**		
S7	E		0.1	0.0	0	0.0		
S7	N		0.0	0.0	0	0.0		
S7	S		0.0	0.0	0	0.0		
S7	W	25.4	0.8	0.8	20	20.9	73.4	14.8
S7	Tracks/trans	25.4	1.8	0.0	0	46.2		
S7 Total			**2.8**	**0.8**	**20**	**67.1**		

This excerpt from the HBT survey data table (from page F-XX in the BAA) clearly shows that patch 6 is the sliver along the road (as shown in 4B), not the large area of forest adjacent to turbine 48 (as shown in 4A).

Attachment 2

Maps 5A, B and C – turbines 85, 86, 87, 90 and 93

These turbines will have a large impact on HBTs, and are all located right on the edge of intact, good quality HCV remnant forest vegetation. Three of them (85, 87, 90) were listed in the top 15 turbines having greatest potential impact on surrounding trees in the HBT assessment. OEH recommends that turbine 85 should be moved further from the edge of intact veg, in order to reduce the project's impact on HBTs. Moving turbines 86 and 87 away from the forest edge and avoiding HBTs would also reduce the impact and require less offset.

Attachment 2

OEH recommends that turbine 90 be removed. It would not be possible to microsite it as there is HCV forest on three sides, and a Wedge-tailed Eagle nest 500m buffer on the other side. As turbine 90 cannot be micrositied into the WTE buffer, it should be excised from the micrositing corridor.

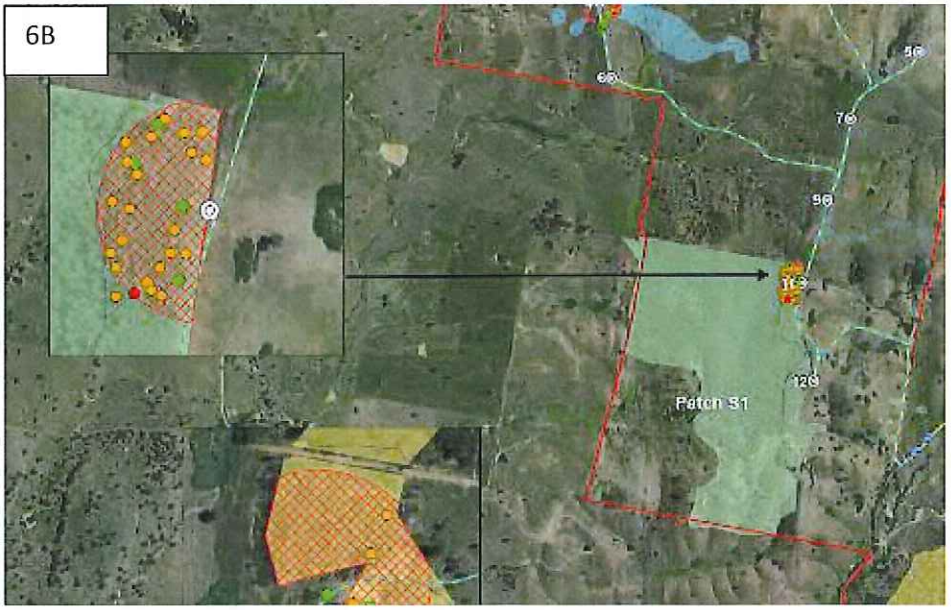
5C

Turbine 93 cannot be micrositied into the WTE buffer, so the buffer should be excised from the micrositing corridor.

Attachment 2

Maps 6A and B – turbines 11 and 12

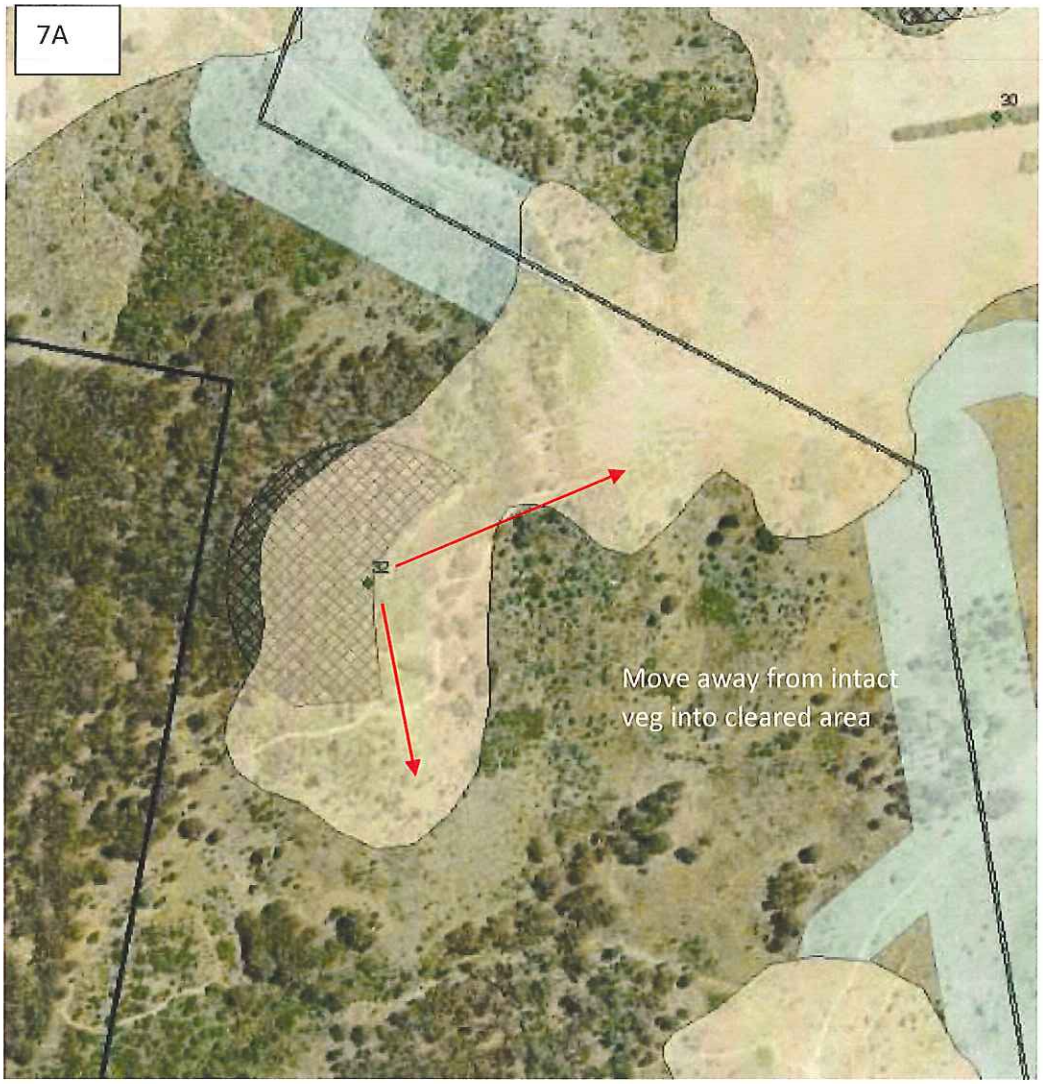
This remnant patch of mixed-age mature forest (S1) has a high density of HBTs (BAA p. F-XI). OEH considers that the intact vegetation should be removed from the micrositing corridor and infrastructure corridor between 11 and 12. These turbines should be moved into the cleared land, at least 100m from the forest edge.

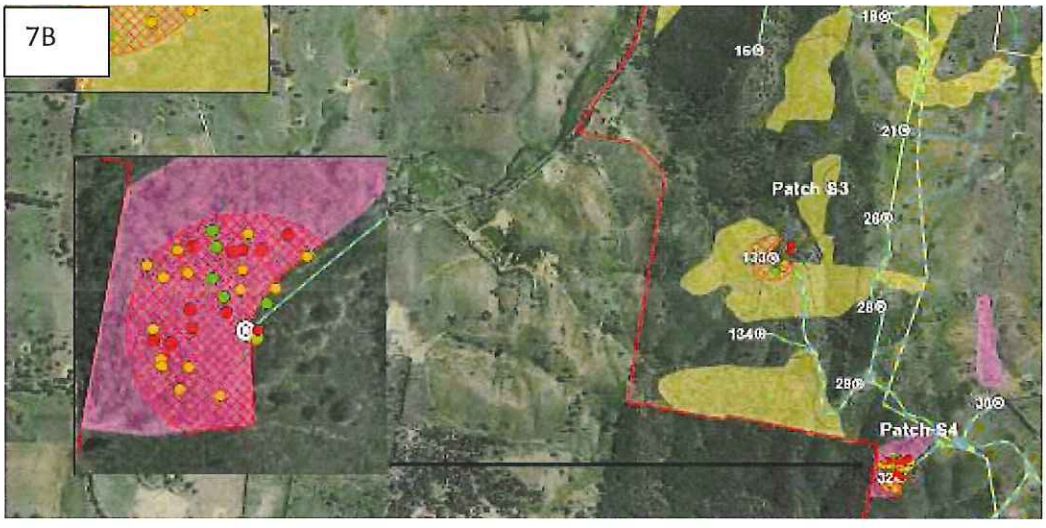


Attachment 2

Maps 7A and B – turbine 32

Patch S4 is mixed age mature Scribbly Gum forest with high densities of HBTs. This turbine should be moved into cleared area away from the forest edge. The high constraint forest should be removed from the micrositing corridor.

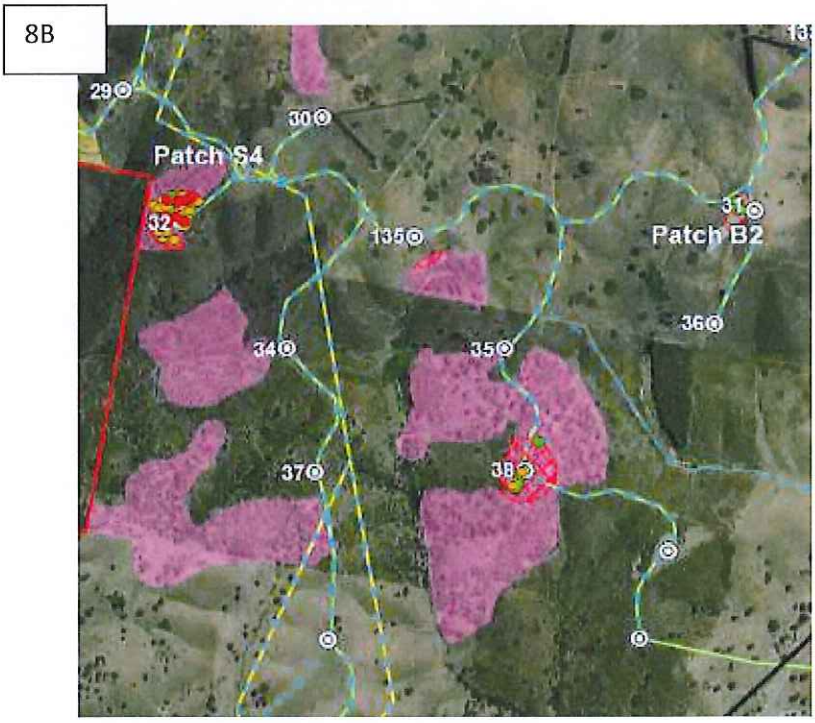




Attachment 2

Maps 8A and B – turbine 38

OEH recommends moving this turbine out of the mixed age mature forest with a high density of HBTs. This good condition veg should be excised from the micrositing corridor.

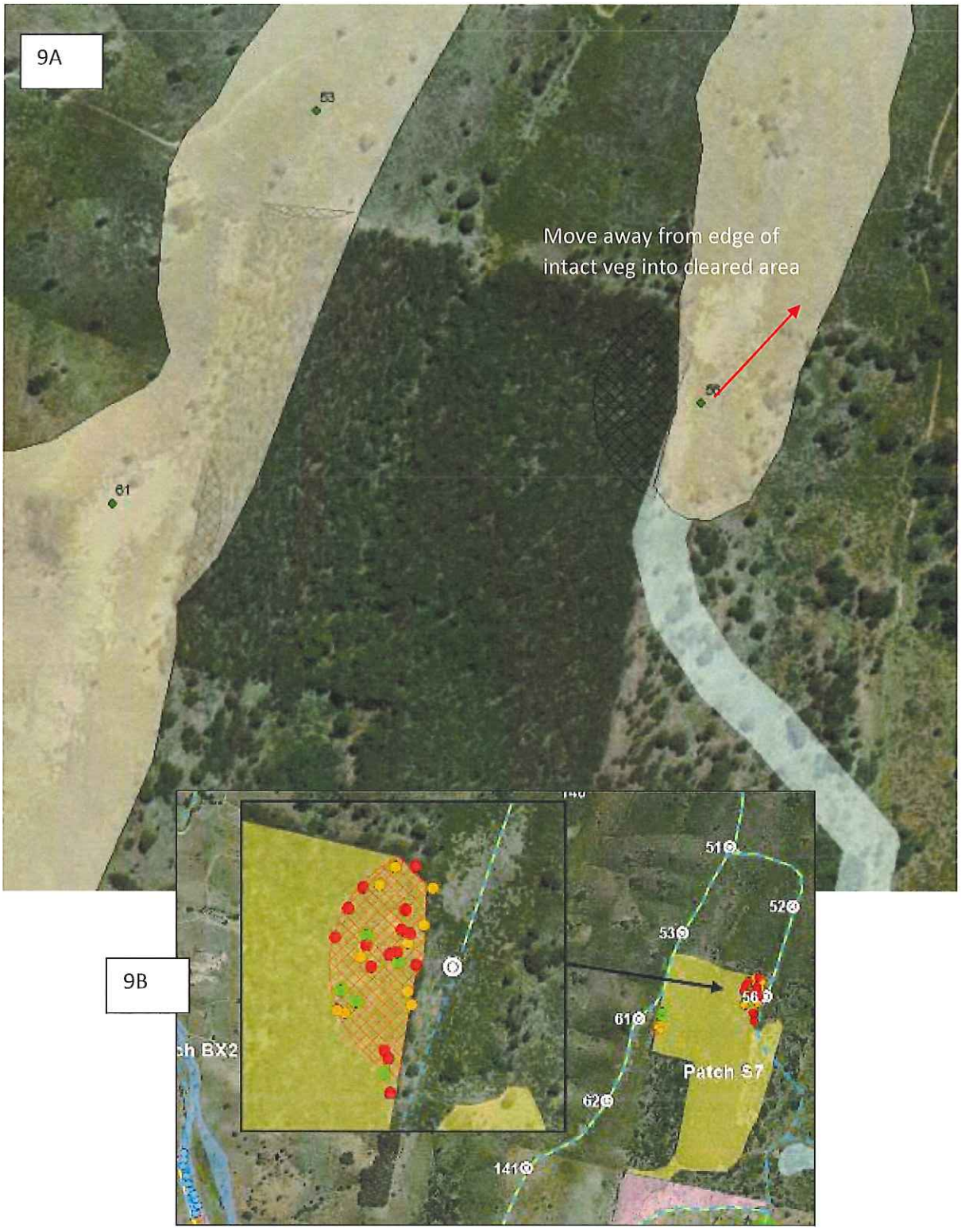


Attachment 2

Maps 9A and B - Turbine 56 and micrositing corridor between turbines 53 and 61

Turbine 56 impacts on a large number of HBT and good condition scribbly gum forest. OEH notes that this turbine has been moved, but its new location is still impacting a large number of HBT. OEH recommends that the turbine be moved away from the forest edge into the micrositing corridor so that HBT are not impacted.

The micrositing corridor between 53 and 61 should be adjusted to exclude the intact forest.



Attachment 2

Maps 10A and B – turbines 84 and 143

Turbine 143 impacts on a large number of HBT and intact veg. OEH recommends that it be moved into the cleared area to north? Areas of intact forest should be removed from infrastructure corridors - there are also numerous HBT along the road alignment in this area.

Turbine 84 is OK but micrositing away from the HBTs and the forest edge is recommended.

Areas of intact forest should be removed from infrastructure corridors - there are numerous HBT along the road alignment in this area (see 10B). OEH recommends that this road be constructed in cleared land away from the forest edge.

Attachment 2

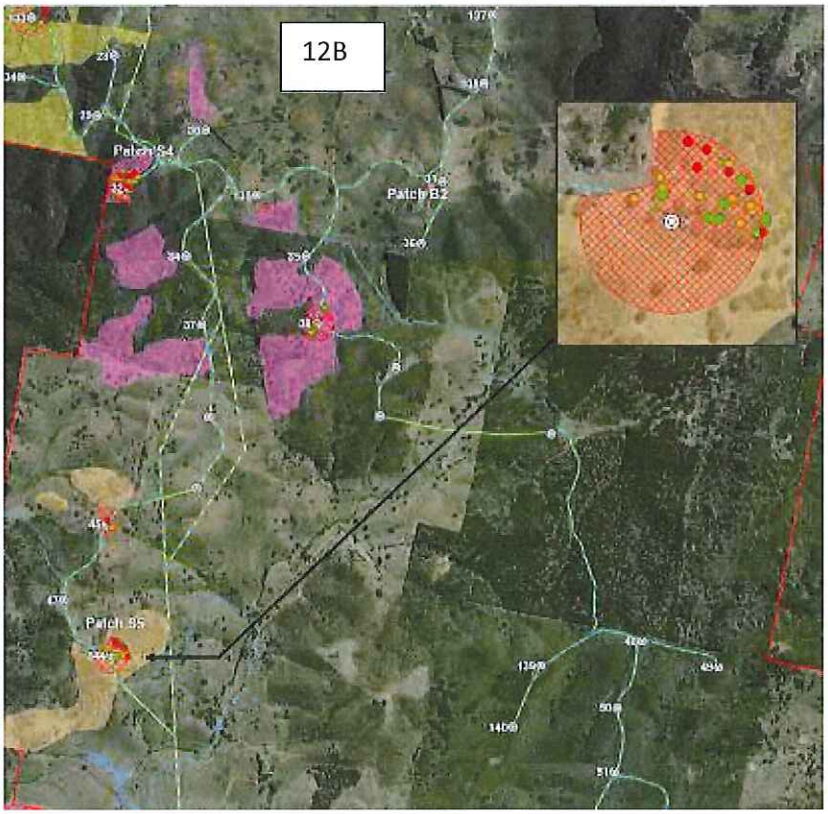
Maps 11A and B – turbine 102

Turbine 102 will have a high impact on HBT and good condition intact forest. OEH recommends moving the turbine away from edge of forest within micrositing corridor. Vegetation patch S14 has the greatest recorded density of HBTs in the study area. OEH notes that the proponent has realigned the access track due to the high conservation value of this forest, so the impacts of the turbine should be given the same consideration.

Attachment 2

Maps 12A and B - Turbine 144

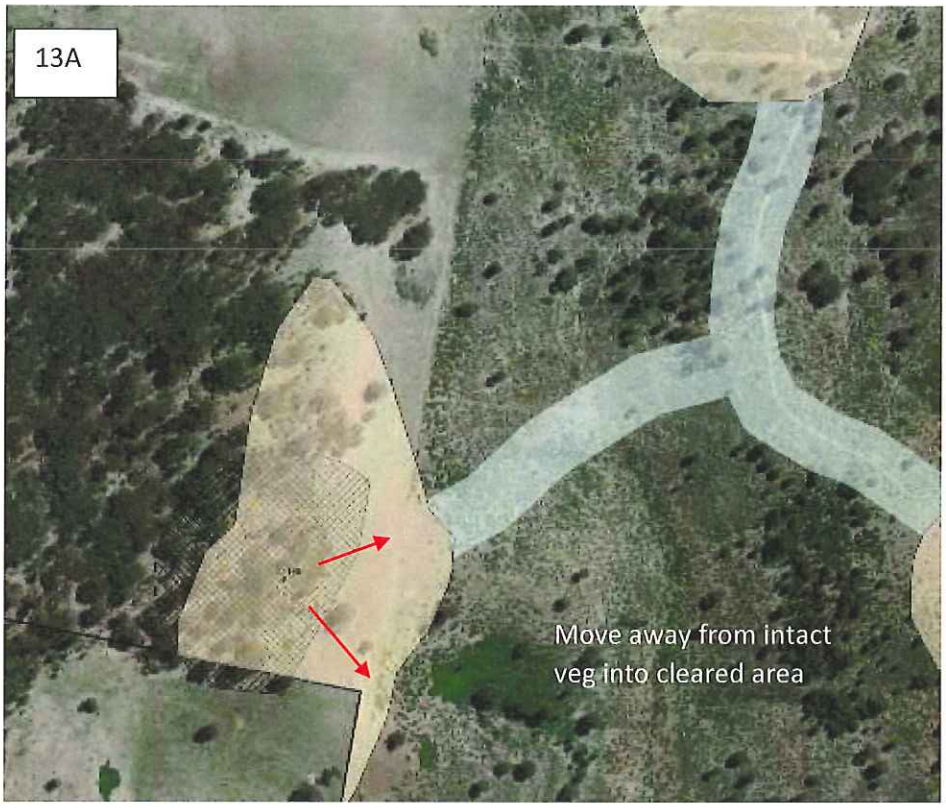
Turbine 144 will impact on a high number of HBTs. Areas of intact remnant forest should be excised from the micrositing corridor.



Attachment 2

Map 13A – turbine 149

Impacts on high constraint intact veg patch - turbine should be moved out into cleared part of micrositing corridor. Areas of intact forest should be removed from infrastructure corridors.

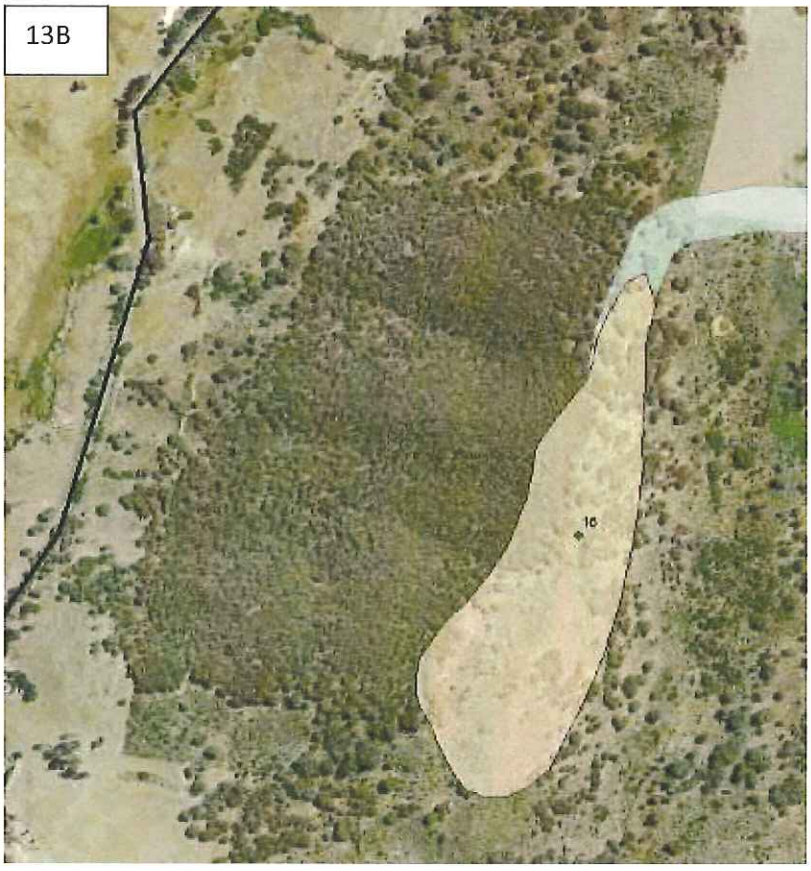


Map 13B – turbine 16

OEH has previously asked for confirmation of the veg identification at 16. It is mapped as Sifton Bush shrubland but doesn't look like other areas mapped as Sifton Bush on the aerial image. There are definitely trees so it can't be just shrubland.

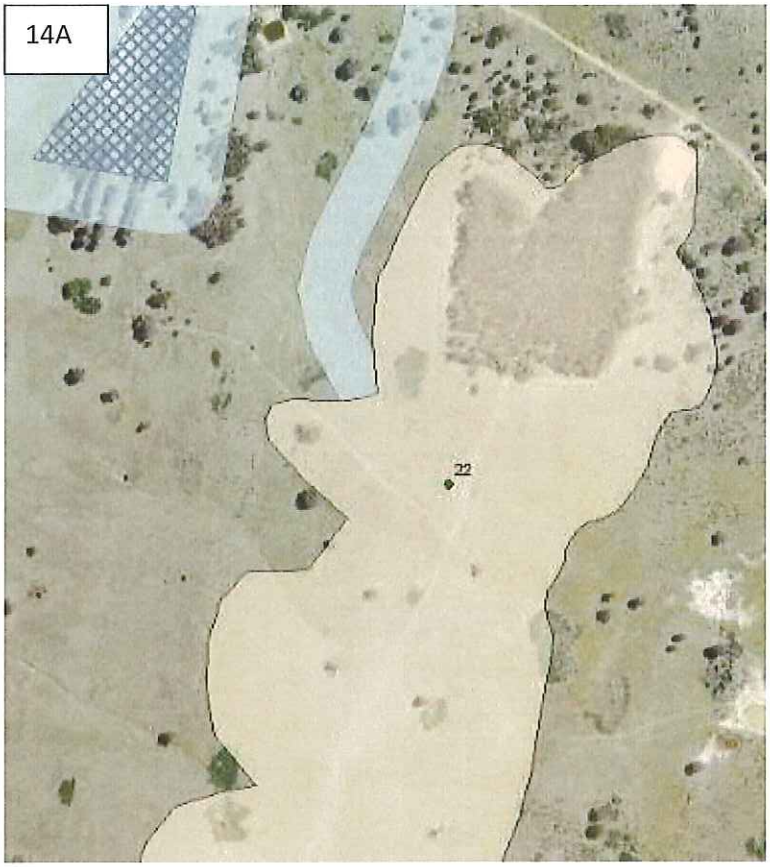
It was highlighted as one of the turbines with the highest number of surrounding trees in the HBT assessment - yet the patch has not been mapped and no assessment of impact is provided.

Why is the micrositing footprint so big?



Attachment 2

Map 14A – turbine 22



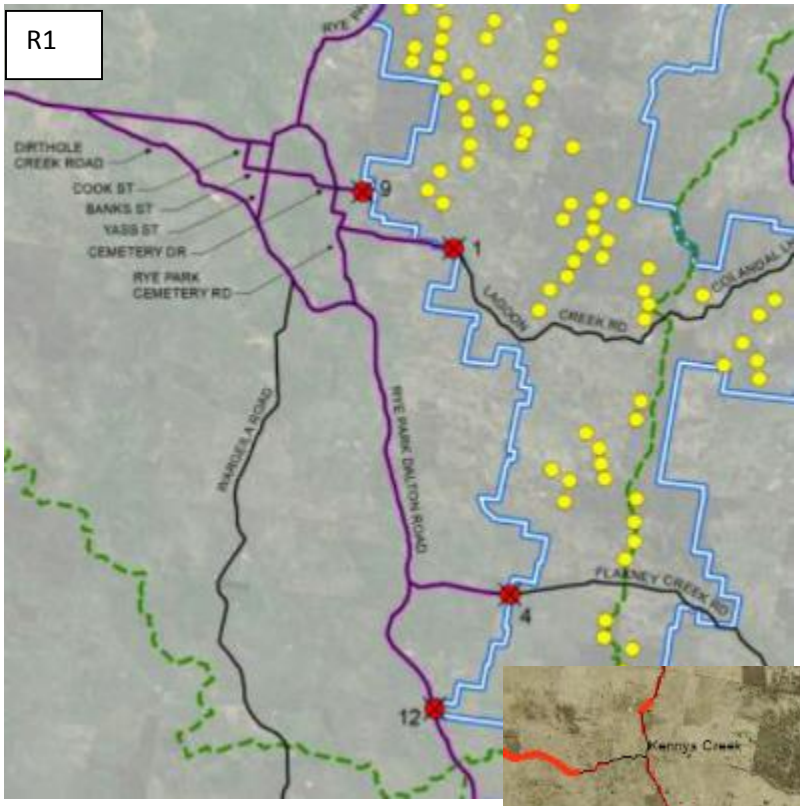
The intact forest remnant to the north of 22 should be excised from the micrositing corridor

MAP 14B – turbine 36

The patch of intact remnant Scribbly Gum forest should be excised from the southern end of this micrositing corridor.

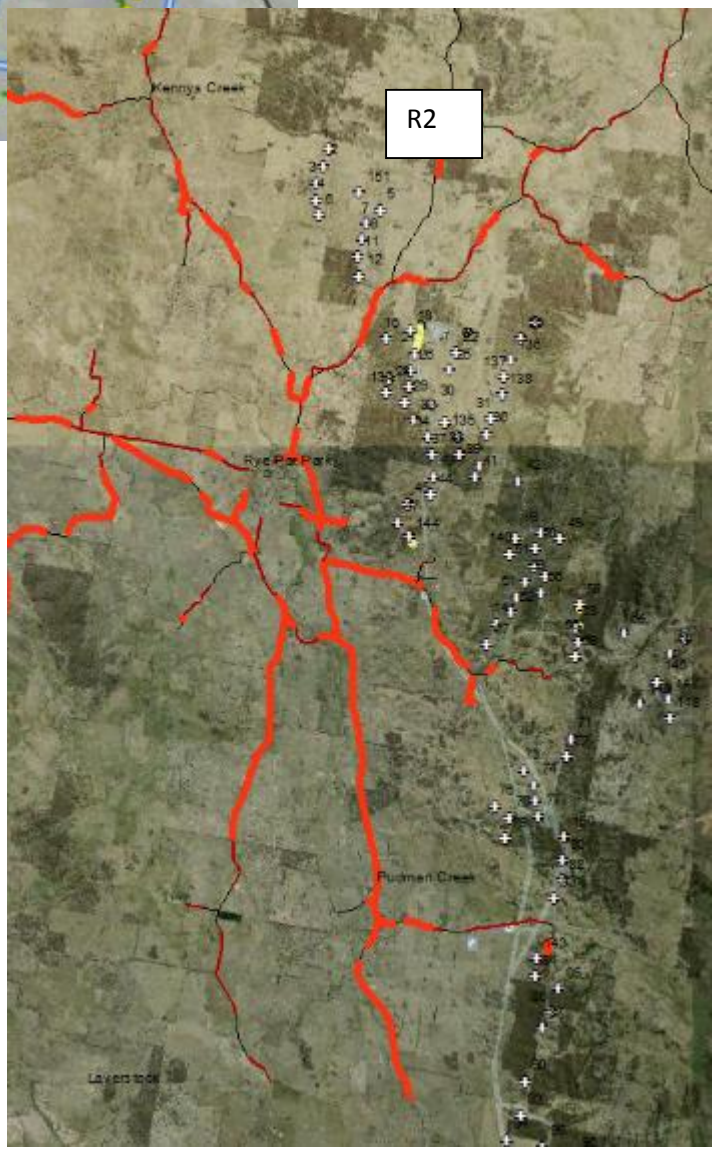
Attachment 3

Access roads



The site access map - fig 4-2 in Appendix E: Traffic and Transport Assessment (map R1, left) - shows that "overdimensional" vehicles will access the wind farm along the roads marked in purple.

OEH requests advice from DPE on the road width required for these vehicles.



In 2002, NSW National Parks and Wildlife Service (NPWS) published a report on the conservation value of remnant native vegetation in the Boorowa Shire (Priday *et al*. 2002), which is available on the NSW government website.

Among other things, this study mapped the conservation significance of roadside vegetation in the Rye Park area. High conservation value (HCV) roadside vegetation is shown in the map R2 (right) in thick red. Boorowa Shire is more than 85% cleared, and in many places roadside vegetation is the only original native vegetation left.

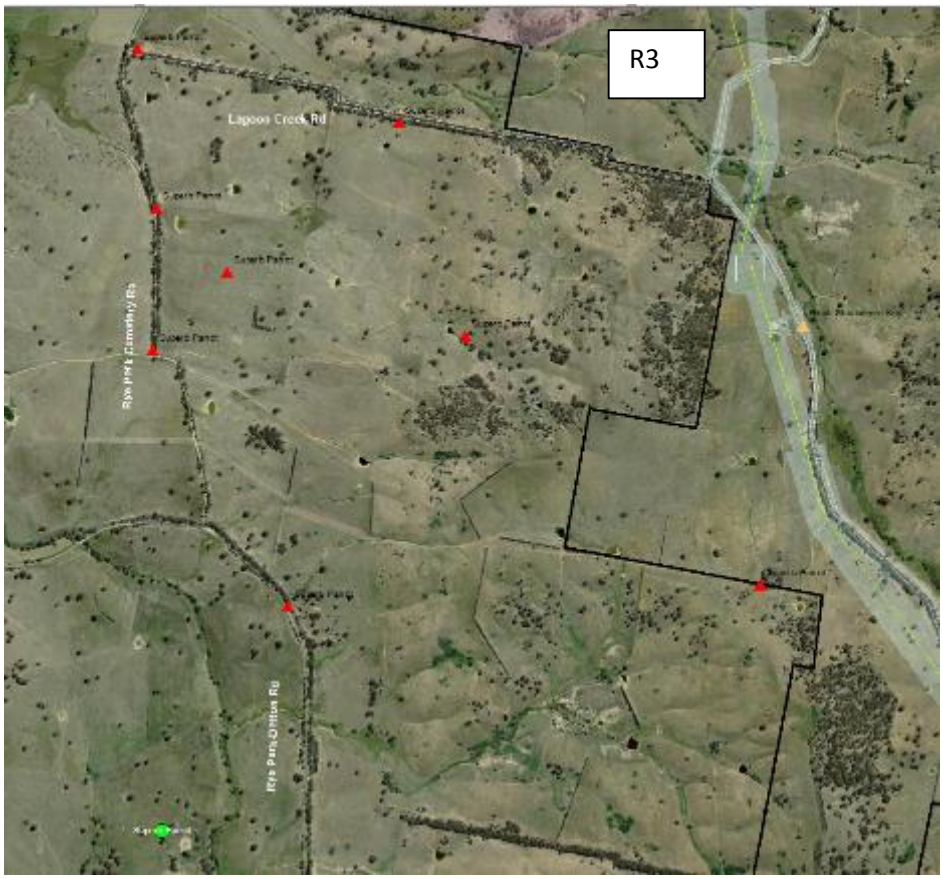
Attachment 3

These roads have important roadside vegetation including HBTs and habitat for threatened species; OEH considers that these roadside remnants should not be cleared. These linear strips of habitat provide connectivity value that cannot be offset in this agricultural landscape. Remnant roadside vegetation may contain Aboriginal Scar trees. Surveys for Aboriginal cultural heritage significance must be undertaken for all areas to be impacted.

OEH recommends that the impacts on HCV roadside vegetation be assessed as part of this development approval process. These impacts must be clearly stated in the Rye Park wind Farm EIS, and impacts avoided, mitigated and /or offset.

HCV access roads of include the roadside patches BX1 and S24 (Lagoon Creek Rd) and BX3 (Flakney Creek Rd), surveyed in the BAA.

As map R3 (right) indicates, the RPWF BAA identified several records of Superb Parrots along these roads (red triangles).



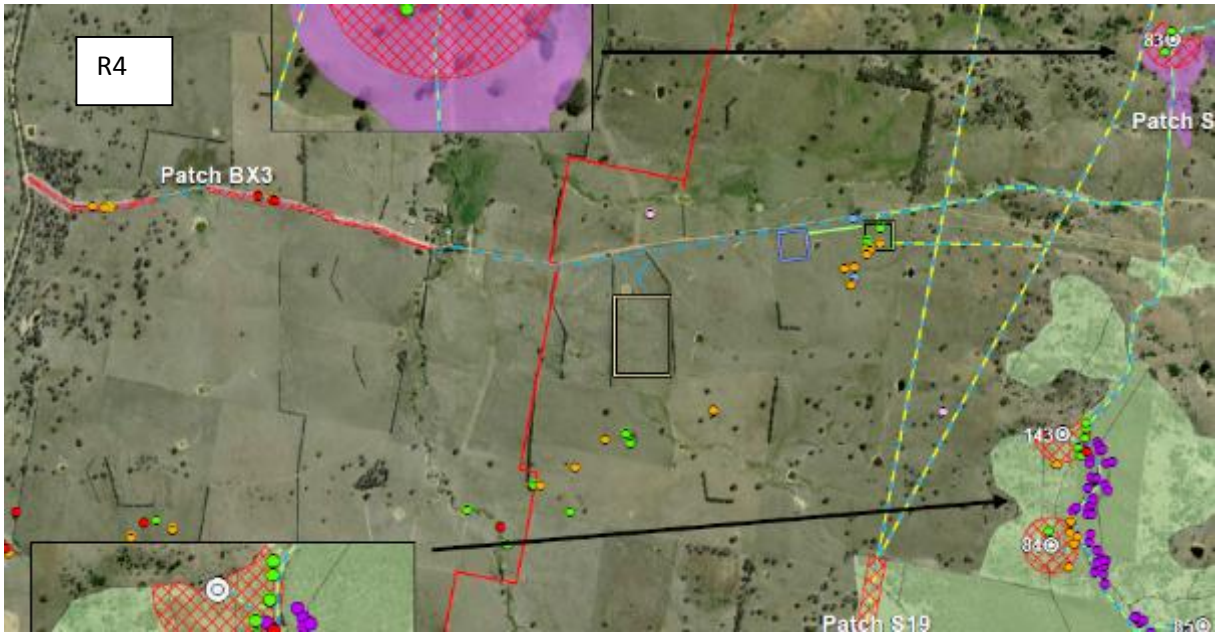
Reference:

Priday, S., Mulvaney, M., Gellie, N. and Hudson, K. (2002) *The Native Vegetation of Boorowa Shire*. NSW National Parks & Wildlife Service, Hurstville NSW. (http://www.environment.nsw.gov.au/resources/nature/sbsnssscopeboorowa.pdf)

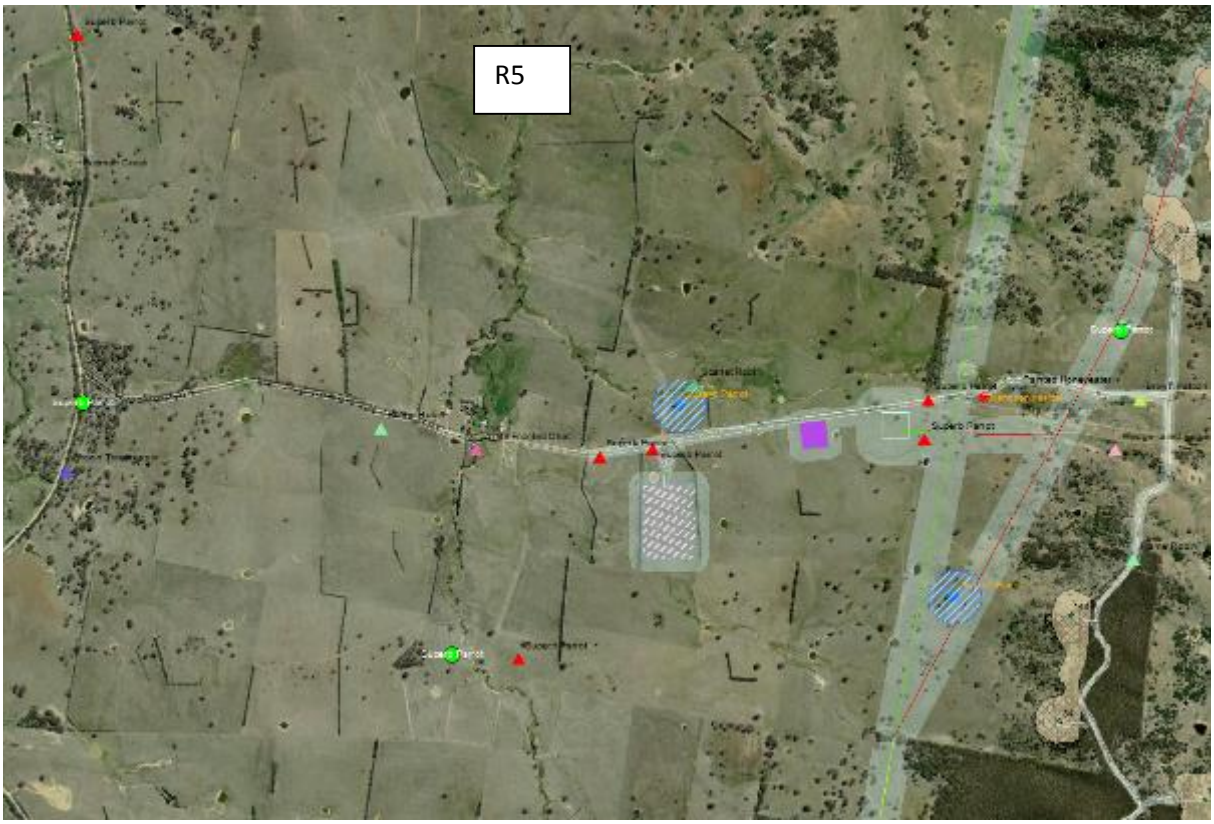
Attachment 3

BX3 – and the rest of Flakney Creek Rd.

BX3 is roadside remnant vegetation containing mature trees, several HBTs and providing an important landscape linkage.

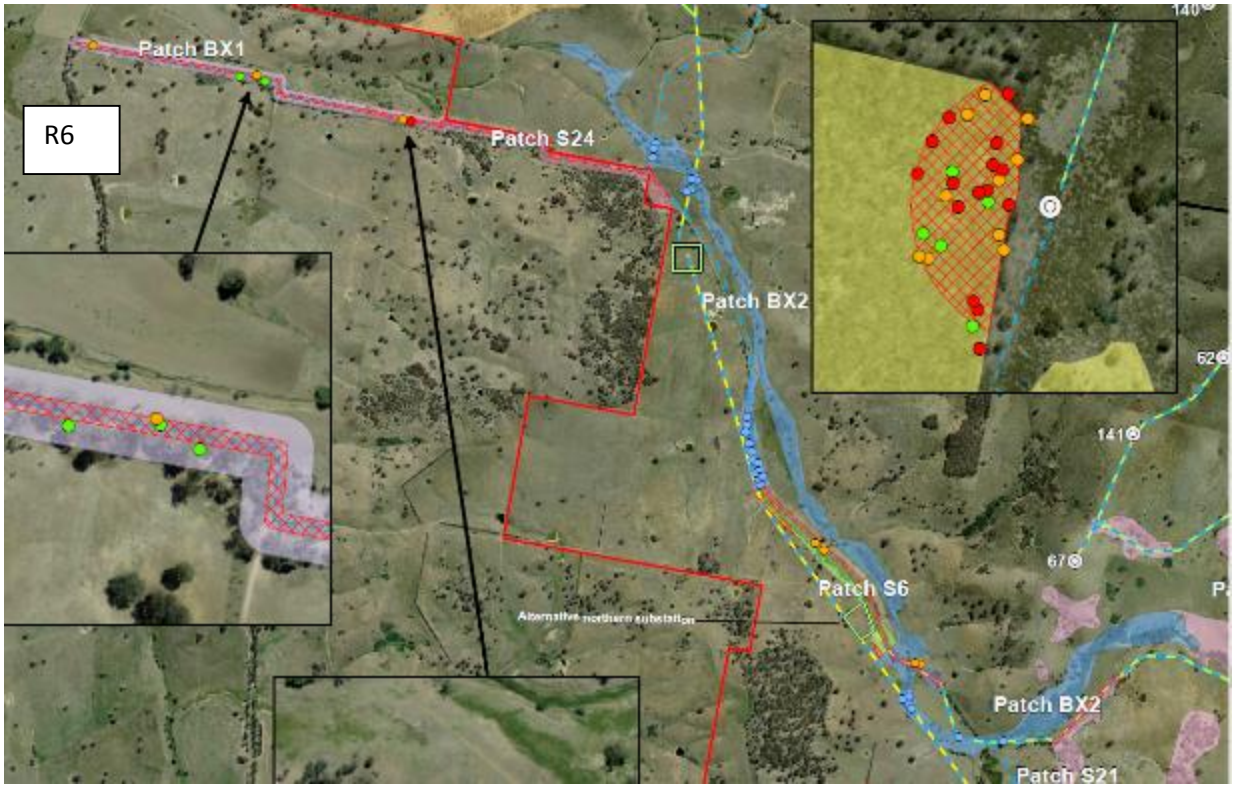


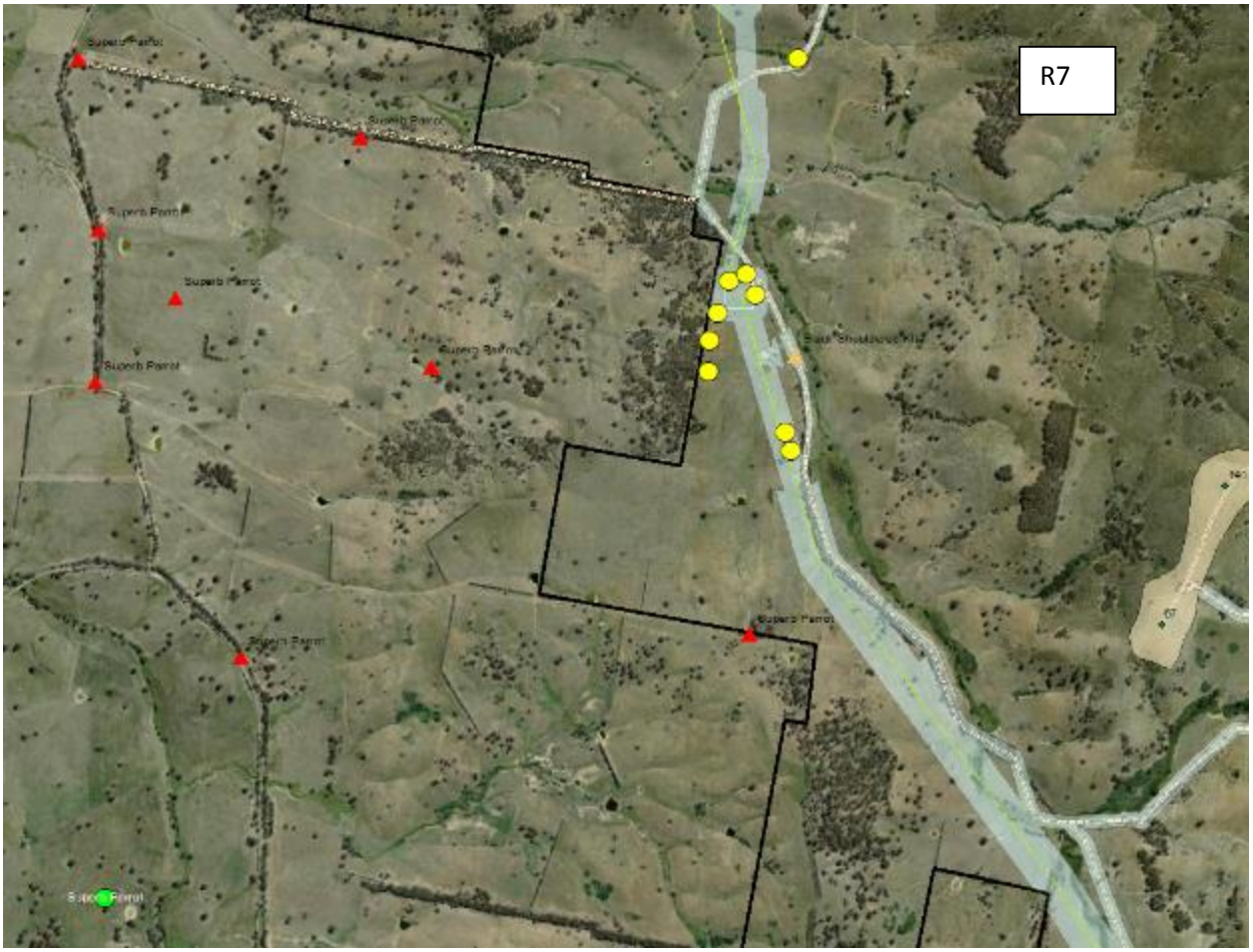
There are numerous threatened species records along Flakney Creek Rd, and two Superb Parrot nest trees in the vicinity which must be protected by a 100m buffer. Superb Parrot nest trees and buffers must be clearly marked on the ground and on maps to ensure they do not get damaged. All HBT to be removed in this area must be checked for threatened species before removal and removed outside of SP breeding season.



Attachment 3

BX1 and BX2 (Box Gum Woodland) and S24 (Dry Forest). These roadside remnants contain large old HBTs and essential habitat for the threatened Superb Parrot, which breeds in hollows this area.



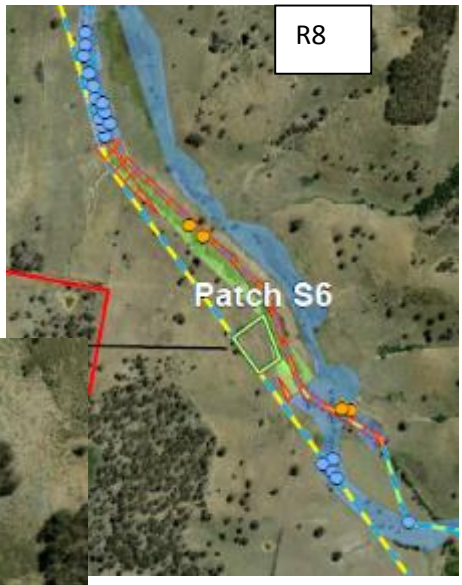


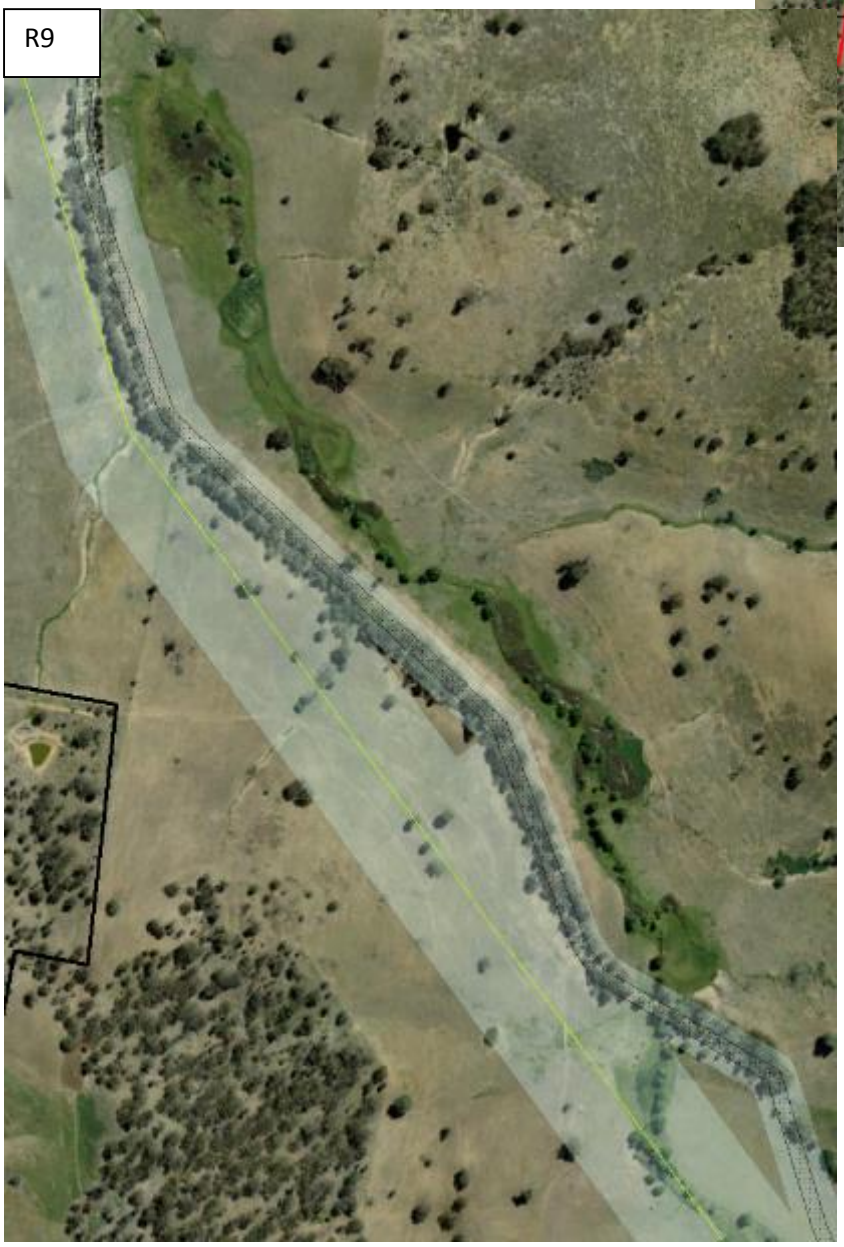
Attachment 3

Roadside veg on site

Patch S6

The patch S6 vegetation along High Rock Road should not be cleared as it is essential remnant habitat in this area, including HBTs. There is a large body of evidence validating the essential role of mature roadside vegetation in agricultural landscapes. The loss of this vegetation cannot be offset due to its unique connectivity value in situ.





The map R9 (left) illustrates a 15m road width as required for the transport of the large wind farm vehicles. This would be likely to remove the roadside vegetation.

OEH strongly recommends that this wind farm access road be realigned in this area so it does not follow High Rock Rd and therefore does not require the clearing of this vegetation. It should be relocated into cleared land.

Attachment 4

NSW GOVERNMENT | Office of Environment & Heritage

DOC16/148809
MP 10_0223

Mr Mike Young
Director, Resource Assessments
NSW Department of Planning and Environment
23 – 33 Bridge Street
SYDNEY NSW 2000

Attention: Diana Charteris diana.charteris@planning.nsw.gov.au

Dear Mr Young

Rye Park Wind Farm Biodiversity Assessment Addendum (BAA)

The Office of Environment and Heritage (OEH) has reviewed the Rye Park Wind Farm BAA and associated documents. We discussed the outstanding issues from this review with the Department of Planning & Environment (DPE) and the proponent during a meeting and site inspection on 20 January 2016. The following comments on these key outstanding issues are provided formally, as requested, to assist in the finalisation of the Preferred Project Report.

- OEH recommends that this project is not approved unless it is modified to significantly reduce the impact on hollow-bearing trees (HBT). The BAA estimates that more than 900 HBT will be removed or impacted in this fragmented landscape, significantly reducing an essential habitat resource for fauna, including several threatened species.
- OEH does not agree with the proposed offset ratios. We consider that an HBT offset ratio between 5:1 and 10:1 would be consistent with the Framework for Biodiversity Assessment and Native Vegetation codes, i.e. 4,500 – 9,000 HBT.
- OEH does not endorse the location of turbine 96. We recommend that the proponent apply the buffer distance formula (previously provided) to all intact vegetation and habitat features, not just high constraint contiguous woodland. Some turbines have an unreasonably high impact on remnant intact vegetation patches and HBT, especially in light of the increased blade length which brings the rotor sweep area down to 27 metres above ground.
- OEH recommends formal protection and offsetting of Box Gum Woodland Endangered Ecological Community and threatened species habitat within the transmission line site, including 100 metre buffers around known and potential Superb Parrot nest trees which should not be cleared as they cannot be offset.
- OEH has significant concerns with the inaccuracies of the extrapolative mapping of indicative offset areas, some of which were identified during the 20 January 2016 site inspection. The proponent committed to undertaking a more rigorous field-based approach in the coming months to increase the reliability of this offset mapping.

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Our detailed review of the BAA and associated documents is provided in *Attachment 1*. OEH requests that the proponent provide further information as detailed in this letter and attachment. If you have any queries regarding the issues raised in this letter please do not hesitate to contact us at rog.southeast@environment.nsw.gov.au.

Yours sincerely

23/03/16

JACKIE TAYLOR
A/ Senior Team Leader, Planning
South-East Region

Contact officer: VIRGINIA THOMAS
6229 7105

Attachment 1

OEH's detailed review of the Rye Park Wind Farm BAA and associated documents

OEH still has the following outstanding concerns with the Rye Park Wind Farm BAA and associated documents:

- An unacceptably large number of hollow-bearing trees (HBT) will be impacted in this over-cleared landscape
- Some turbines are still too close to vegetation
- Increased blade length means the potential impact on birds and bats will be greater
- Some turbines are still located in problematic topographic positions, e.g. turbine 96
- Offset areas have not been adequately surveyed or confirmed to contain the threatened species, habitat features or vegetation requiring offsetting
- There are discrepancies and omissions in the revised report.

Please note, OEH has included a number of questions for the proponent and consultant that we have numbered and highlighted in text boxes throughout this document. OEH is happy to discuss these issues further when we have received answers to these questions.

A. An unacceptably large number of hollow-bearing trees (HBT) will be impacted in this over-cleared landscape

The refined HBT assessment process has estimated that more than 900 HBTs will be removed or impacted in this fragmented landscape. HBTs provide an essential habitat resource for fauna, including several threatened species in the region. Offsets for HBT proposed in the Offset Strategy are not adequate to compensate for a loss of this size. We note that the offset strategy states that "*a suitable offset ratio, higher than 1:1, will be determined in consultation with OEH*" (p18). OEH considers that an offset ratio between 5:1 and 10:1 is required for consistency with the Framework for Biodiversity Assessment and Native Vegetation codes, i.e. 4,500 – 9,000 HBT.

1. The new methodology has resulted in an estimated loss of 953 HBT. Why does table 3-3 (and Appendix F2) only list 723 HBT?

The revised layout of the wind farm has slightly reduced the estimated number of HBT to be impacted, but OEH still considers that some of the locations of turbines are unacceptable. Turbines should not be placed in intact high quality mixed aged forest with large numbers of HBT, especially when surrounded by cleared farmland. OEH recommends that turbines which will impact on high numbers of HBT be deleted or relocated to cleared areas.

OEH considers that there are some misleading conclusions and statements in the BAA about HBT, such as:

- "*it can be assumed that many of the HBT to be cleared at Rye Park may not be preferentially occupied*" (p50); and
- Assessing the loss at <1% of the total resource on the site (111,284 HBT in the 13,717ha site, as estimated in the original BA) – the report itself recognises that this is not an accurate estimate

B. Some turbines are still too close to vegetation

At a previous site visit in February 2015, OEH recommended the removal or relocation of certain turbines that had an unreasonably high impact on remnant intact vegetation patches and HBT but our advice has not been adequately incorporated in the revised BA.

Buffer distance

OEH is concerned that the buffer distance formula has not been applied correctly, especially in light of the increased blade length. Buffers are important around all intact vegetation and habitat features, not just high constraint contiguous woodland.

The proponent and NGH accepted our recommendation to use the standard formula to calculate the distance required between turbines and vegetation (as stated in the BAA on p 26). The formula is our current standard advice to wind farm developers to minimise risk to bats and avifauna; it comes from the United Kingdom where it is routinely used to mitigate against impacts of wind turbines on bats. It recommends a modest 50 m buffer between the tip of the turbine blade and the tree canopy, for all turbines.

The formula uses blade length (now 65 m), hub height (92 m) and height of habitat features (18 m – 20 m) to calculate the distance required from the turbine base to the habitat. Using the formula with the revised turbine blade length at Rye Park, we estimate that if the edge of the RSA is to be 50 m from the nearest habitat feature, turbine towers should be located between 88 and 90m away from habitat. It is clear in the BAA that this is not the case, and of particular concern to OEH, it appears that some new turbines have been located in patches of intact vegetation since that advice was accepted by the proponent (e.g. turbine 150).

It was not OEH's intention for this buffer distance to only be used around high constraint contiguous woodland, although this is of most concern as it is likely to be the highest value habitat for a suite of fauna species. OEH is concerned that this advice has not been applied correctly, and that in many instances the RSA will be much closer to the canopy and HBTs than 50 m.

The BAA should include an assessment of the increased risk to species of concern flying at 27 metres and above.

Turbine 96: OEH does not endorse the location of turbine 96 in this topographic position, with its RSA only 5 m above the canopy. OEH clearly stated on site (Feb 2015), that this turbine was problematic due to its position on a hillside. We advised that it would need to be re-positioned to account for the buffer distance so that birds and bats flying out of the canopy uphill would not fly straight into the turbine blades.

Turbine 90: OEH agrees with the recommendation that further investigation be done in the vicinity of this turbine.

We maintain our recommendation to apply the 50 m buffer at all turbines.

Clearing of woodland and forest

The BAA assumes the project site is intact and the impacts are relatively moderate across a large area. However the impacts are focussed on better quality woodland and forest areas of which relatively little remains in this agricultural landscape.

The BAA provides the following statement on the contribution of this development to the Key Threatening Process of native vegetation clearing (p 44).

> *The preferred project would remove up to **258.7 ha** of native vegetation including 70.8 ha of predominately low quality Box Gum Woodland and derived grassland, an endangered ecological community (discussed further in Section 5.3 below). It is acknowledged that on its own this is a considerable amount of native vegetation to be cleared however, when considered in the context of the 12,544 hectares of native vegetation that occurs within the site boundary and that the impacts are spread over a linear distance of almost 40 kilometres through an already highly modified landscape, the contribution of the proposal to the KTP is recognised but not considered to be high in this context.*

And:

> *It was a conclusion of the original BA that the proposal would not contribute significantly to the operation of clearing as a threatening process at the local or regional level, since the majority of the project area is already cleared and highly modified by agricultural practices.*

The conclusions above are contradictory. The entire project area is within mapped overcleared (> 70% cleared and > 90% cleared) Mitchell landscapes. The site occurs on a regionally significant

north-south vegetated corridor within a largely cleared agricultural landscape. **Map 1** indicates how little of the surrounding landscape is forested and protected (pale green blocks are NPWS reserves).

Map 1 – location of Rye Park Wind Farm in an over-cleared landscape

C. Transmission line BA - impacts and protection of surrounding habitat as offsets

The BA should clarify how the habitat surrounding the powerline will be protected. The report refers to 340 ha of Box Gum Woodland remaining, but there is no information provided on whether it will be formally protected. OEH recommends formal protection on the transmission line site, including 100 m buffers around known and potential Superb Parrot nest trees. Nest trees should be marked and mapped and should not be cleared as they cannot be offset.

Superb Parrot - breeding habitat is present and will be potentially impacted. This species was recorded 12 times feeding and nesting in hollows. Impact mitigation (section 7) states that the broader wind farm FFMP (to be in the CEMP) will include management strategies on transmission

line site for protecting the Superb Parrot and its habitat including Box Gum Woodland EEC (BGW) and HBT.

Box Gum Woodland Endangered Ecological Community (BGW EEC) – the BA describes the loss of 19 ha of woodland and 2 ha of derived grassland, 4.5 ha of which qualifies as Commonwealth listed Critically Endangered Ecological Community (CEEC). The Assessment of Significance (AoS) states that:

> *"habitat to be removed is not considered important to the long-term survival of the community in the locality given the high levels of degradation and that extensive areas (> 340 hectares) of the local occurrence will remain"*

2. What will be the mechanism to protect the >340ha remaining areas, especially in known Superb Parrot breeding habitat?
3. How will habitat surrounding the powerline be protected? OEH recommends formal protection or offsetting on the transmission line site.

Hollow-bearing Trees (HBT) – the BA states that only four out of 114 HBT in the transmission line area will be removed, but the mapping indicates numerous HBT within the 45 m easement (HBT survey maps 8 & 9). Forty-six of the HBT have large hollows, but none of these will be lost. Nest boxes are listed in the AoS as a mitigation strategy, but OEH does not generally support this option for offsetting loss of natural hollows, as they require ongoing maintenance and replacement.

4. OEH requires a more detailed map and GIS shapefile showing the width of the transmission line easement and all HBT.

Squirrel Glider – As previously raised, OEH is concerned about clearing in the road reserve which contains high quality habitat for threatened species including Squirrel Glider and Superb Parrot.

Golden Sun Moth (GSM) and Striped Legless Lizard (SLL) - NGH recommends further survey for SLL and GSM in 2016 but OEH advises it is preferable to assume presence and offset the small areas of suitable habitat to be impacted (6 and 3.7ha).

Other impacts – The transmission line requires overstorey clearing in a 45 m easement along 15 km length. This is potentially 67.5 ha, but the BA states that many areas have no overstorey so the impact will occur along only 4 km of the length (4 ha).

OEH considers that a single day of survey is very small for this area and notes that it is unlikely that all significant flora, fauna and habitat features would have been identified, e.g., there was no nocturnal surveys for bats, arboreal mammals or owls.

5. Why are the tracks only estimated at 4 m wide, when they should be 12 m, as in BAA (p44)?
6. Have the areas for additional vehicle parking, stockpiling and laydown been included in the impact calculations?
7. Does the estimated 4 ha of impact on overstorey vegetation include all the paddock trees as well?
8. What is the total area assessed?

D. OEH accepts the offset strategy as a proposal for further refinement

Surveys required to assess values in proposed offset areas - While we accept the offset strategy conceptually, OEH cannot assess the appropriateness of the proposed offset areas until predicted habitat values are confirmed to be present in the seven proposed offset areas. It was agreed at the

20 January 2016 site inspection that adequate surveys have to be undertaken. If non-threatened vegetation provides habitat for threatened species, a ratio of 1:2 is not adequate, and a ratio appropriate for the impacted threatened species must be applied.

It is incorrect to assume that areas within the project site, but outside the development footprint, contains intact vegetation – impacts are focussed on better quality woodland of which relatively little remains.

OEH is happy to work with NGH and the proponent on the offset strategy to ensure that all impacts are adequately offset. Please note that the report incorrectly states that the proponents and authors have consulted closely with OEH on an offset strategy (p1).

Threatened species credits - The strategy provides specific vegetation area figures and descriptions of condition to justify the values of the offset areas for threatened species habitat credits. However, some areas have not been surveyed and the habitat values and vegetation type and condition have been extrapolated. Also, some areas are listed as potential offsets for conflicting entities. For example, in Area 1 the abundance of Wallaby grass (51-75%) and therefore the GSM habitat value (good) of the derived grassland are extrapolated across an area of >200ha (according to the GSM Survey Effort and Results Map 1 in the BAA). The GSM offset must be in known habitat (i.e. containing records of the species). The GSM survey report identifies four proposed offset sites for GSM based on the mapping and extrapolation of wallaby grass abundance. Area 1 is the only one of these is in the offset proposal, and the mapping has not been validated, nor are there any GSM records in the area. It is potentially problematic to extrapolate abundance of grasses such as Wallaby grass across large areas as they tend to be patchy within fragmented agricultural landscapes such as the project site.

Box Gum Woodland - CEEC BGW (intact ground cover and tree cover) and other treed BGW cannot be offset with derived grassland. While areas of BGW derived native grassland (DNG) may currently fall into two categories for providing potential offsets (e.g. for BGW and for GSM), it must be clearly defined what the management will be for these areas. If an area is to be managed for BGW EEC credits, and be managed to improve the value (e.g. replanting or natural regeneration of trees), it will not be suitable as an offset for GSM.

Area 3 - We support the inclusion of Area 3 as an offset, as it has been identified as high constraint, and is presumably CEEC BGW. However this area of 348 ha clearly cannot provide both 275ha of GSM habitat (known habitat in native pasture and derived grasslands) and 240ha of Superb Parrot habitat (good to moderate quality BGW, excluding derived grasslands).

E. OEH has requested clarification on habitat patch mapping

OEH had agreed to the extrapolation of HBT density within vegetation of the same type, age, condition and aspect. However when we first saw the habitat patch mapping arising from this extrapolation, we had several queries and concerns, such as:

9. Why are some areas of apparently very different tree density grouped together?
10. Why have some vegetated areas not been mapped into patches?

OEH wrote to Epuron and NGH (and DPE) detailing our queries in June 2015, but has still not received a response. In the absence of this information we are unsure about the reliability of the patch mapping, and associated HBT extrapolation.

OEH has numerous questions about the results shown in the HBT patch mapping and Table 3-3, and requests that the proponent and consultant provide clarification of these issues:

11. Why does table 3-3 list 0 HBT in patch S3 when the map clearly shows numerous HBT mapped near turbine 18 and 133 (HBT survey map 1)?
12. Why does patch S2 show no HBT in table 3-3, but has some mapped on HBT map2?

13. Why does the table show only 2.3 ha impacted when clearly there is one full turbine buffer (3.14 ha according to p 13 of BA) plus another half that size plus a track (approx. 300m long x 12m wide)?
14. The map indicates more than 3.5 ha of impact in S4 (as listed in the table), with two part turbine buffers and tracks
15. Why has a new turbine, 150, been located in the middle of the forested patch S10? S10 has an existing Koala record and is described in the BA as good quality scribbly gum forest, and several HBT are marked on HBT map 4.
16. Why is S10 listed in table 3-3 as having no HBT?

Patch S14: This patch has the highest density of HBTs (35.8/ha). It is impacted by turbine 102 and a road between 103 and 102. This was highlighted as an area containing numerous threatened woodland birds, and it clearly contains a very high number of HBT. OEH considers it should be avoided. Since OEH received the BAA, we have been advised by Trust Power that the track has been relocated.

F. Threatened Species

Eastern Bentwing-bat (EBB) – the report refers to previous surveys that recorded EBB calls across the wind farm site in November 2011 (turbines 104,143,82,80,25 and 9), and at one site in April 2012. The fact that calls were only recorded during migration periods suggests the wind farm is on a migratory pathway for this species and may pose a risk to migrating EBBs moving through at rotor sweep area (RSA) height.

Crimson Spider Orchid and threatened flora surveys (reviewed by John Briggs)

NGH has recommended vegetation condition assessment and threatened flora surveys in the BGW CEEC near turbines 85-87, in Spring 2016. This timing is a concern as the presence of threatened flora may require design changes rather than increased offsetting.

The BAA should explain the reasoning behind why areas were considered unsuitable for threatened flora.

17. Were the suitable sites re-surveyed in 2015 as proposed?
18. It appears from emails between John Briggs and Brooke Marshall that they were not done, if not will they be done in 2016?
19. Are these what is referred to as the pre-construction surveys?
20. What happens if pre-construction surveys locate the species?
    The BAA must identify what management / mitigation actions will be done. OEH considers that this species is too rare to offset – it must be avoided. It is a big risk to the development to leave this survey until after the design is finalised.

Striped Legless Lizard (SLL) and Golden Sun Moth (GSM) survey (reviewed by Rod Pietsch)

The SLL "known" habitat in offset area 1 needs to be validated, as it is extrapolated from the adjacent known habitat.

21. Why is the area of SLL habitat loss in table 3-1 of the BAA (72 ha) different to the area listed in table 5-5 (18.7 ha).

The GSM offset must consist of 543 ha of known (occupied) habitat. It is preferable to target areas with high moth numbers for offsets. Ideally the offset area would consist of equivalent or higher quality

habitat to that being impacted, however in some circumstances, lower value habitat can be offset at a higher ratio. The quality of habitat in impact and proposed offset areas should be clarified.

22. How much of the 32.6 ha of suitable GSM habitat to be lost is considered occupied?

Pole excavation, stockpiling and track formation are most likely to impact on larvae in the transmission line area. Table 3-4 in the Offset strategy states that the 564.9 ha of potential habitat "more than meets the offset requirement". However, offset areas must contain confirmed presence of GSM, and there is no confirmed GSM habitat currently in the proposed offset.

Table 6-1 (p59) lists design and mitigation methods for the transmission line. For these two species, OEH considers it is very difficult to "confirm the species do not occur", so it is our recommendation that their presence is assumed and the small areas are offset.

OEH recommends that rocky outcrops be avoided to minimise impact on threatened reptiles.