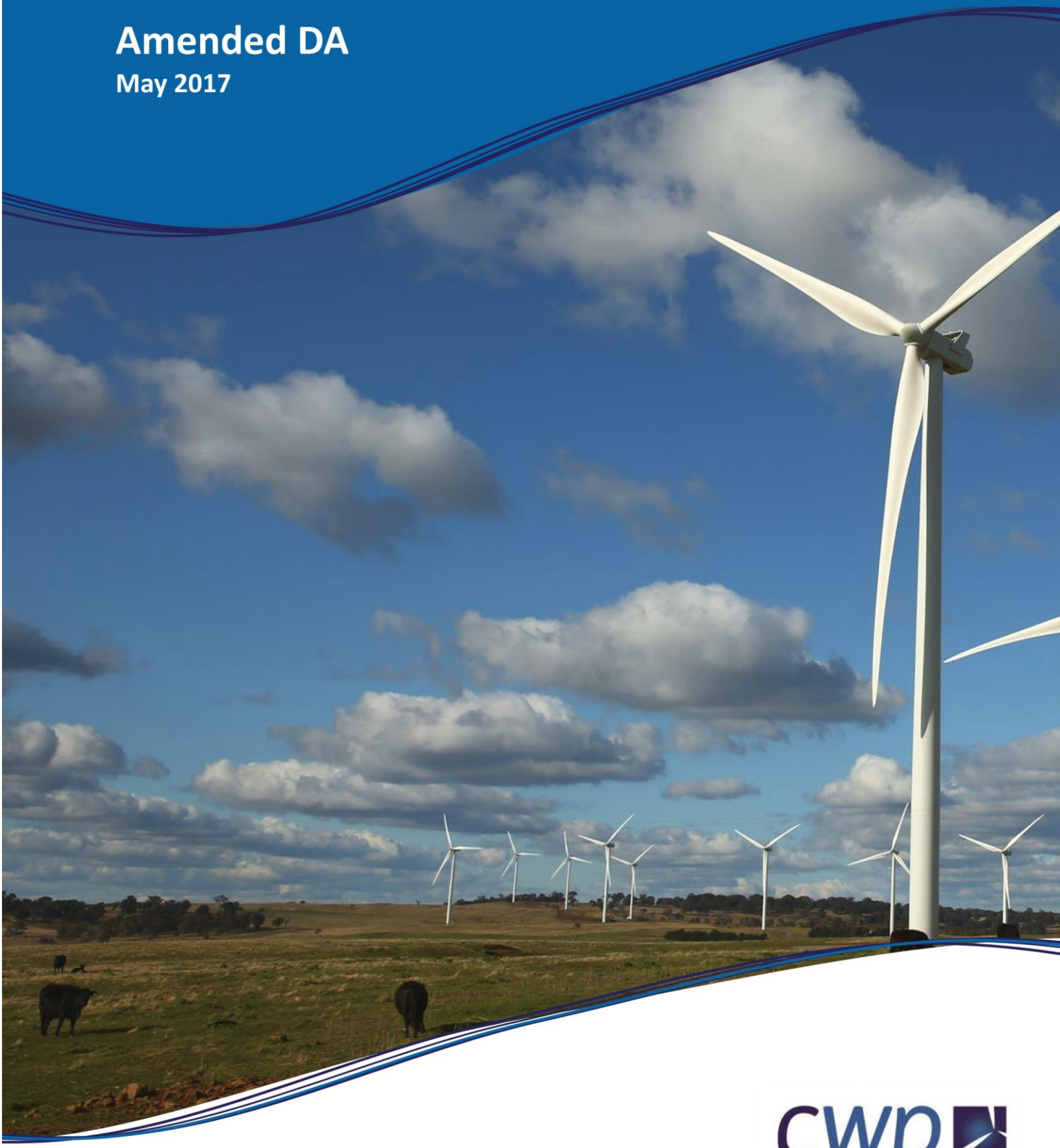
Proposed Development of

Bango Wind Farm

Southern Tablelands, New South Wales

Amended DA

May 2017



Prepared for Bango Wind Farm Pty Ltd by CWP Renewables Pty Ltd

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1. Project Background

The Bango Wind Farm Environmental Impact Statement (EIS) (Project Application SSD 6686) considered a project of up to 118 wind turbines at a maximum tip height of 200 m, and associated ancillary infrastructure, located between the townships of Boorowa and Rye Park, approximately 25 km north of Yass, New South Wales (NSW) (Figure 1 shows Figure 2.1 from the EIS).

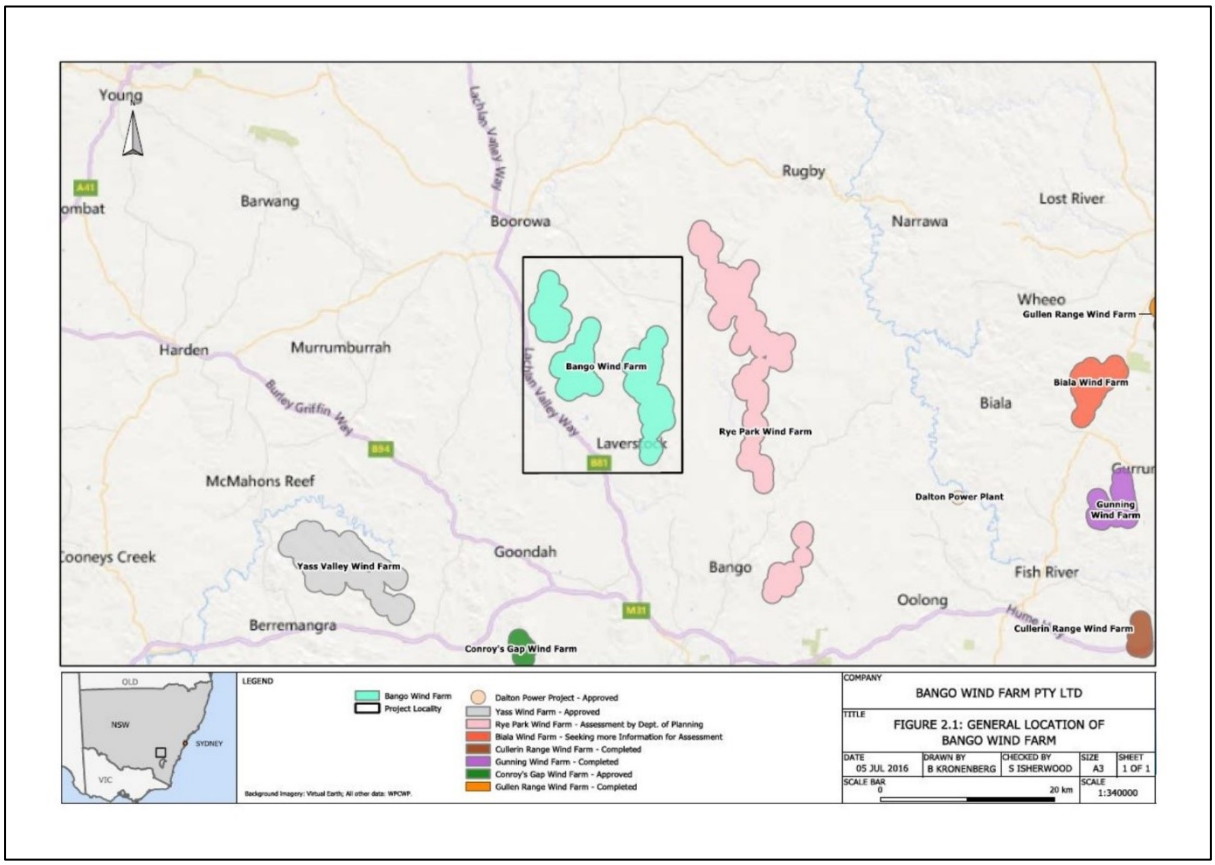


Figure 1: Bango Wind Farm Locality Map

The EIS was placed on public exhibition over a period of 60 days during October to December 2016, over which time 106 submissions were received. Of those 106 submissions, approximately 34 % were in support, 54 % in opposition, and 12 % provided comment. Within these submissions, key areas of concern included:

- Visual impacts to neighbouring non-involved landowners;
- Impacts to the local Council road network; and,
- Impacts on biodiversity.

The Response to Submissions (RTS) report provides a position on these key aspects in addition to responses to all other issues raised during public exhibition.

The purpose of this document is to describe the changes made to the Project since the public exhibition of the EIS (including new measures of avoidance, management and mitigation) and provide an updated environmental assessment (where relevant) considering those changes.

2. Proposed Amendment

Project Footprint: In evaluating the submissions received during public exhibition, the Proponent has elected to amend the Development Application (DA) for the Project to reduce both the on-ground footprint and associated above-ground impact through the removal of 43 and 35 potential wind turbine locations from Layout 1 and Layout 2 respectively.

The resultant Project will comprise a wind farm, with the flexibility to select wind turbine locations from either Layout 1 or Layout 2, up to a maximum of 75 locations.

Importantly, access routes and pathways of the proposed on-ground infrastructure throughout the retained sections of the Project remain unchanged.

The reduction in potential wind turbine locations are from five key areas of the Project, but most notably involves the removal of the Langs Creek cluster in its entirety.

Figure 2 provides a high-level overview of the proposed amendment to the Project footprint, with Figure 3 and Figure 4 defining the resultant Layout 1 and Layout 2 Project footprints.

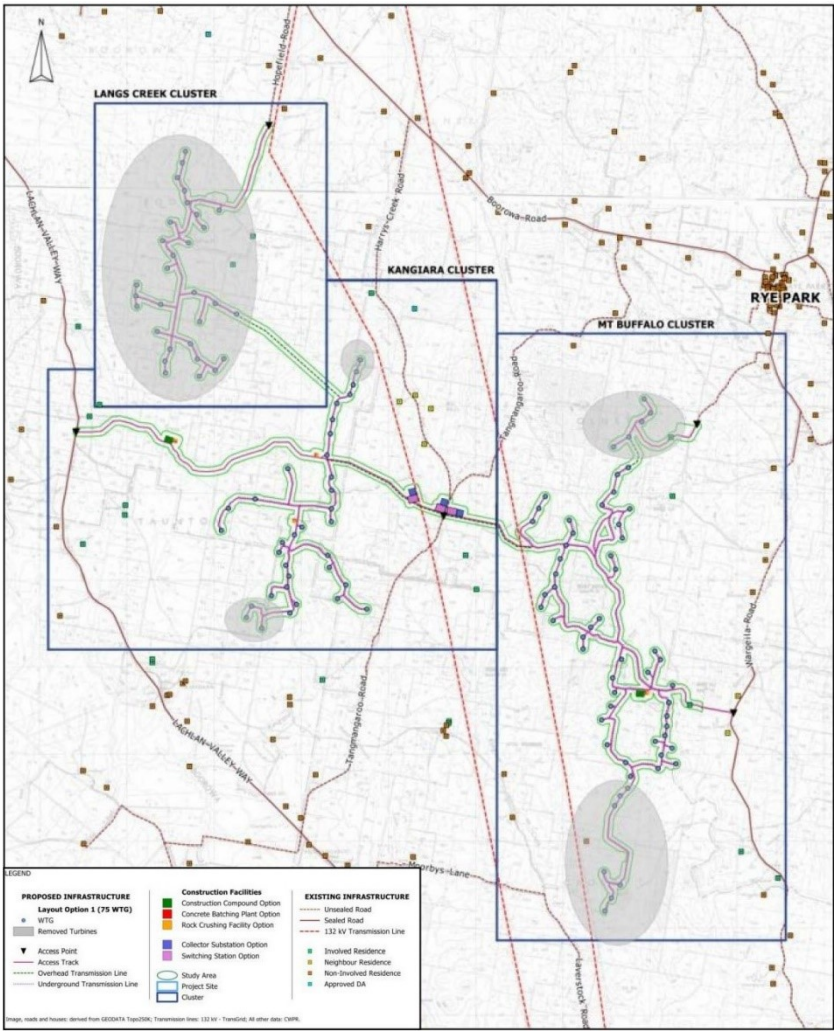


Figure 2: Original Project Layout 1 with areas for wind turbine removal highlighted

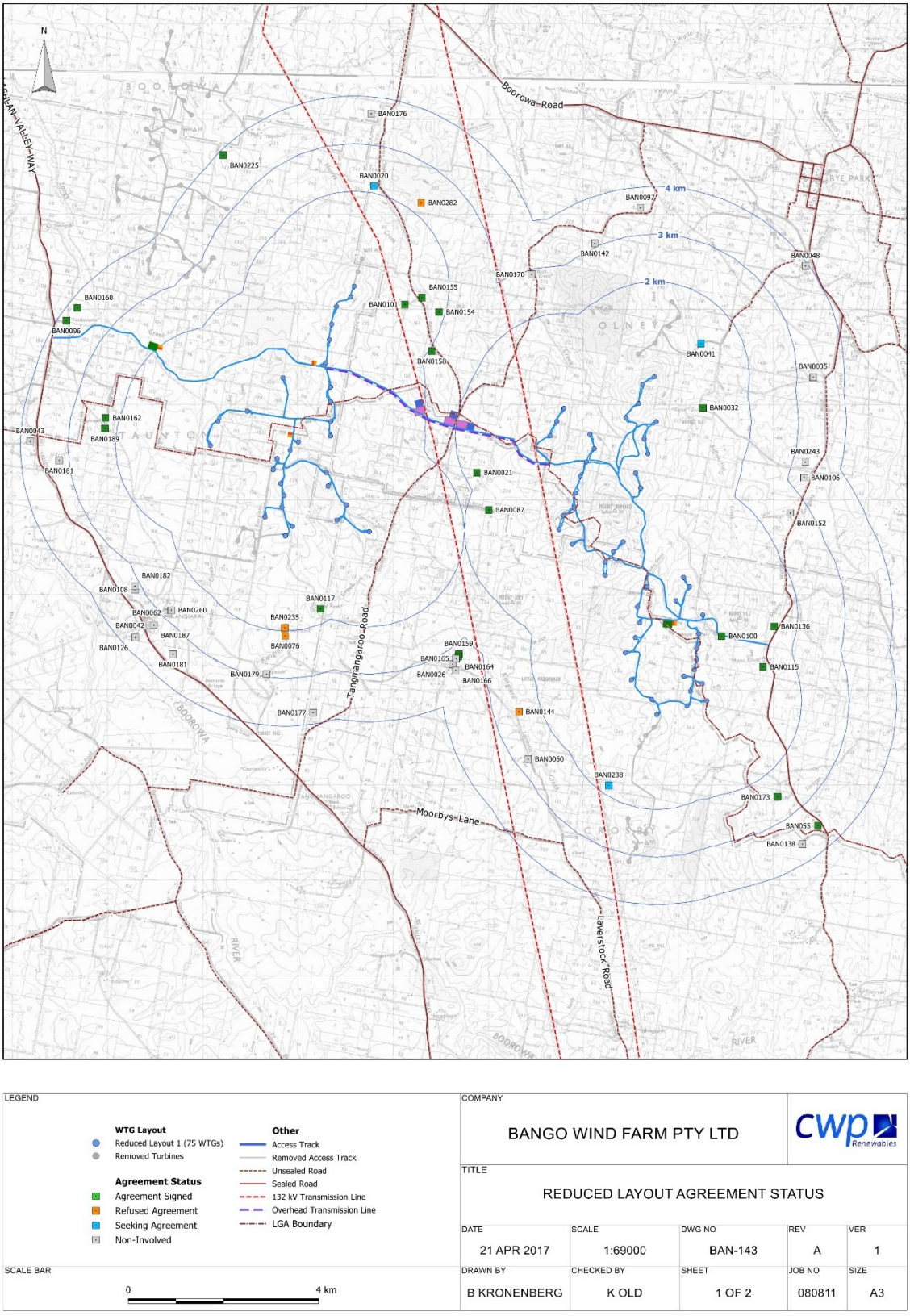
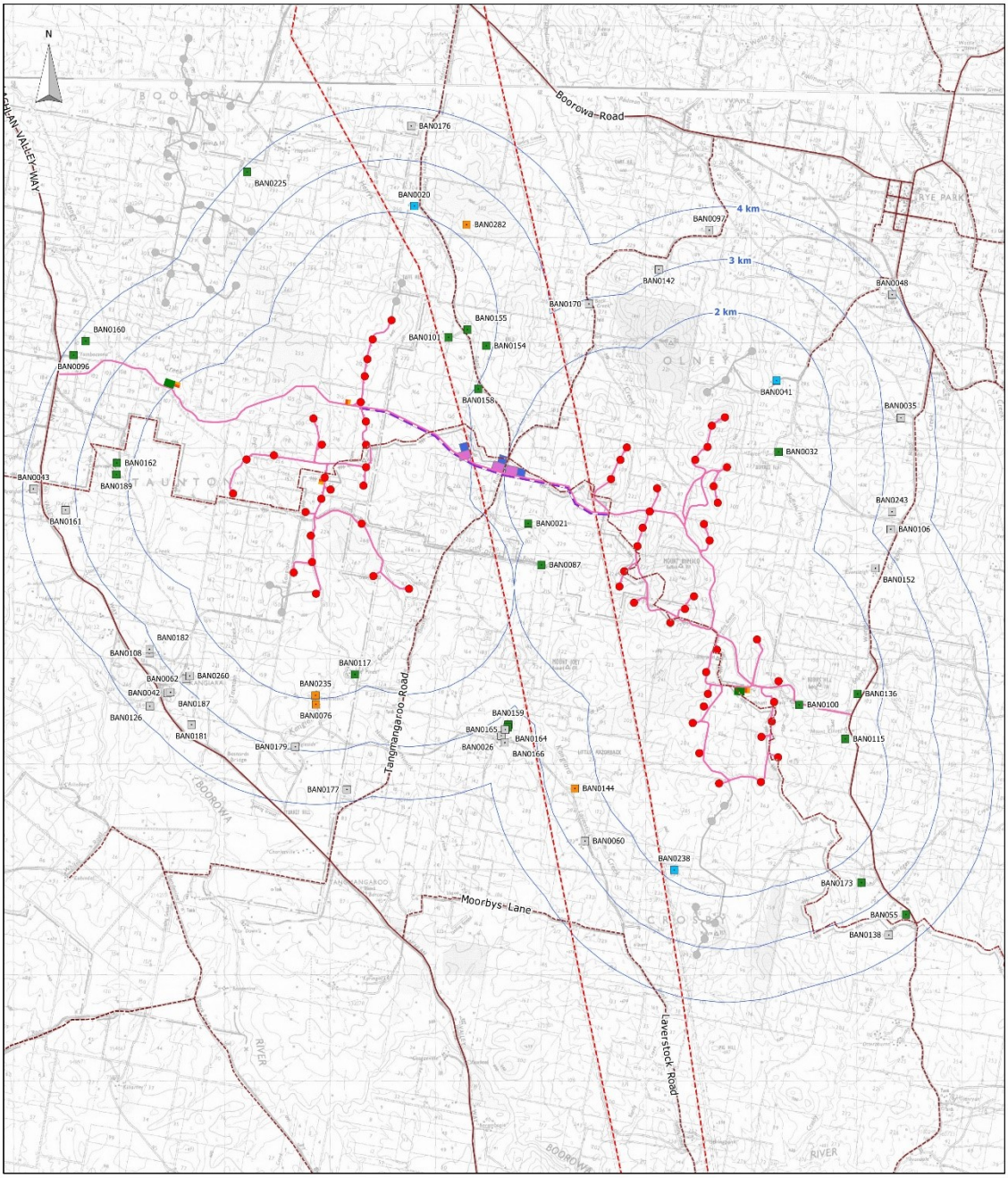


Figure 3: Amended Layout 1 – Detail



LEGEND

WTG Layout
- Reduced Layout 2 (61 WTGs)
- Removed Turbines

Agreement Status
- Agreement Signed
- Refused Agreement
- Seeking Agreement
- Non-Involved

Other
- Access Track
- Removed Access Track
- Unsealed Road
- Sealed Road
- 132 kV Transmission Line
- Overhead Transmission Line
- LGA Boundary

SCALE BAR: 0 — 4 km

COMPANY				
BANGO WIND FARM PTY LTD				
TITLE				
REDUCED LAYOUT AGREEMENT STATUS				
DATE	SCALE	DWG NO	REV	VER
04 MAY 2017	1:69000	BAN-143	A	1
DRAWN BY	CHECKED BY	SHEET	JOB NO	SIZE
B KRONENBERG	K OLD	2 OF 2	080811	A3

Figure 4: Amended Layout 2 – Detail

The effect of this amendment to the Project is a decrease across all associated infrastructure such as roads, hardstands, over/under-ground cabling, and rotor swept area, which is detailed below in Table 1.

Table 1: Amended Project Components and Comparison with Approved Parameters

Project Aspect	Units	Comparison with Exhibited Project
Project Site Area of land within the cadastre boundaries of all properties subject to this proposal	5,200 hectares (ha)	Reduced by 2,483 ha
Development Corridor Area within the Project Site within which the Development Footprint is contained	1,148 ha	Reduced by 740 ha
Development Footprint Area of all *Permanent* and *Temporary* Project infrastructure including temporary disturbances within the Development Corridor	138 ha	Reduced by 113 ha
***Permanent* Development Footprint** Area of all *Permanent* (only) Project infrastructure within the Development Corridor	89 ha	Reduced by 46 ha

Permanent Project Infrastructure	Units	Comparison with Exhibited Project
Wind turbine generators	75 (61)	Reduced by 43 (31)
Tip height	200 m	No change
Rotor diameter	144 m	No change
Swept area *(individual wind turbine)*	16,286 m^2	No change
Swept area *(wind farm total maximum)*	1,221,450 m^2	Reduced by 700,298 m^2
Hardstands *(individual)*	1,250 m^2	No change
Hardstands *(wind farm total maximum)*	93,750 m^2	Reduced by 53,750 m^2
Footings	625 m^2	No change
Footings (wind farm total maximum)	46,875 m^2	Reduced by 26,875 m^2
Road length	56 km	Reduced by 27 km
Overhead electrical reticulation and control cables	5.5 km	Reduced by 4 km

Temporary Project Infrastructure	Units	Comparison with Exhibited Project
Concrete batch plant options	4	Reduced by two options
Concrete batch plant	0.5 ha per site	Reduced by 1 ha
Rock crushing facilities options	4	Reduced by two options
Rock crushing facilities	0.5 ha per site	Reduced by 1 ha
Construction compound options	2	Reduced by two options
Construction compound	3 ha	Reduced by 6 ha

Land Tenure: The amended Project will be spread over 56 of the original 104 properties of the Project site with details of land tenure provided in Table 2.

Table 2: Land Tenure[1]

Landowner	Lot	DP
Landowner 3	213	754135
	13	113987
	222	754135
	309	754135
	223	754135
	169	754135
	318	754135
	224	754135
	319	754135
Landowner 4	1	625285
	202	754135
	271	754135
	281	754135
	1	625384
	183	754143
	167	754143
	212	754143
	3	625384
	317	754135
	2	1048648
	2	1187122
	3	1187122
Landowner 5	292	754109
	160	754109
Landowner 6	233	754135
	220	754135
	228	754135
Landowner 8	1	742223
	2	625384
	216	754143
	2	802580
	2	625285
	256	754143
Landowner 9	297	754109
	242	754109
Landowner 11	263	754109
	285	754109
	309	754109
	115	754109
	284	754109
Landowner 12	276	754143
Landowner 14	238	754135
	139	754109
	48	754109
	287	754109
	87	754135
	163	754135
	162	754135
	88	754135
	31	754109
	300	754135
	301	754135
Landowner 15	268	754109
	234	754143
	224	754143
	1	83173

Agreements are being sought with those landowners whom, through the resultant changes to the project, have become ex-hosts. An updated Residence Assessment summary (consistent with the summary provided in Chapter 20 of the EIS), incorporating the change in host landownership, is provided in Section 6 of this document.

As is required under clause 49(a) of the *Environmental Planning and Assessment Regulation 2000*, landowner consent from all host landowners has been obtained and provided separately to the Department.

[1] Note that Landowner identification numbers have been taken from Appendix 1 of the EIS.

Wind Turbine Coordinates: Table 3 and Table 4 provide wind turbine centre-point coordinates for the reduced Project Layouts comprising 75 (Layout 1) and 61 (Layout 2) respectively.

Table 3: Layout 1 Wind turbine centre-point coordinates (GDA 94 Zone 55)

Turbine ID	Easting	Northing	Turbine ID	Easting	Northing
1	671618	6174752	60	671481	6173130
2	672551	6169350	61	672625	6168300
3	671220	6172725	62	671668	6167651
5	672506	6168805	63	663056	6174030
7	671261	6169917	65	663781	6172005
11	664944	6171739	67	672228	6170535
12	672635	6169745	69	669424	6173513
13	671656	6173805	71	669565	6173814
14	664721	6172733	72	663856	6171405
17	672377	6168142	73	665140	6172054
18	663601	6172799	76	665306	6176655
19	664006	6171605	79	663431	6171805
21	662281	6173305	80	671402	6173443
22	670581	6170580	81	669706	6171830
24	671306	6169580	83	669931	6172005
25	671131	6168379	85	670956	6171280
26	669892	6171233	86	665621	6171497
27	664756	6172455	87	663831	6172255
28	670262	6173541	88	663806	6174730
32	672716	6167943	89	663681	6173030
33	672070	6170045	91	669715	6174088
34	672357	6170336	94	664806	6174530
35	663756	6172505	95	670351	6173243
36	672238	6168456	96	664131	6173380
41	664931	6176230	97	664781	6175530
44	664806	6174230	98	665231	6176430
45	671006	6168951	100	670756	6171080
46	671465	6170340	102	672301	6167831
47	671217	6169267	104	664806	6173505
48	669615	6171540	107	672458	6168591
49	664831	6175855	110	671328	6172413
50	671015	6173890	111	671558	6167971
53	670056	6172655	114	663956	6173205
54	671370	6174593	115	664704	6175039
55	669956	6172305	118	664806	6173805
57	670581	6170855	119	662440	6173814
58	671287	6174189	122	672508	6169040
59	670190	6172964			

Table 4: Layout 2 Wind turbine centre-point coordinates (GDA 94 Zone 55)

Turbine ID	Easting	Northing	Turbine ID	Easting	Northing
1	670056	6172655	49	663856	6171405
2	671370	6174593	50	671054	6173944
3	669956	6172305	51	671465	6170340
5	671287	6174189	52	672310	6168689
6	670581	6170855	54	671217	6169267
7	671618	6174752	55	663656	6172955
8	671402	6173443	56	665621	6171497
9	672551	6169350	57	663806	6174730
10	669706	6171830	59	663756	6172505
11	671220	6172725	61	663056	6174030
13	669456	6173580	63	669634	6173944
15	662281	6173305	64	669615	6171540
16	672506	6168980	66	672635	6169745
19	672625	6168300	68	663431	6171805
22	665289	6176593	72	669756	6174180
24	671481	6173130	74	671031	6171355
25	664806	6173805	76	663956	6173205
27	664806	6174230	78	664021	6173610
28	672301	6167831	80	670331	6173405
29	664931	6176230	81	671328	6172413
31	671261	6169917	82	672228	6170535
32	670859	6171115	83	664781	6175530
33	671656	6173805	87	664704	6175039
34	670190	6172964	92	669892	6171233
39	664944	6171739	93	671295	6169503
41	671006	6168951	94	664131	6173380
42	663781	6172005	100	664803	6174672
43	664756	6173455	101	663965	6174234
44	671506	6167805	102	662538	6173952
45	664721	6172733	103	671131	6168379
48	664831	6175855			

Project Maps: Figure 5 to Figure 8 provide further detail about the amended Project, Project Site, Development Corridor, Development Footprint and associated Project features and constraints.

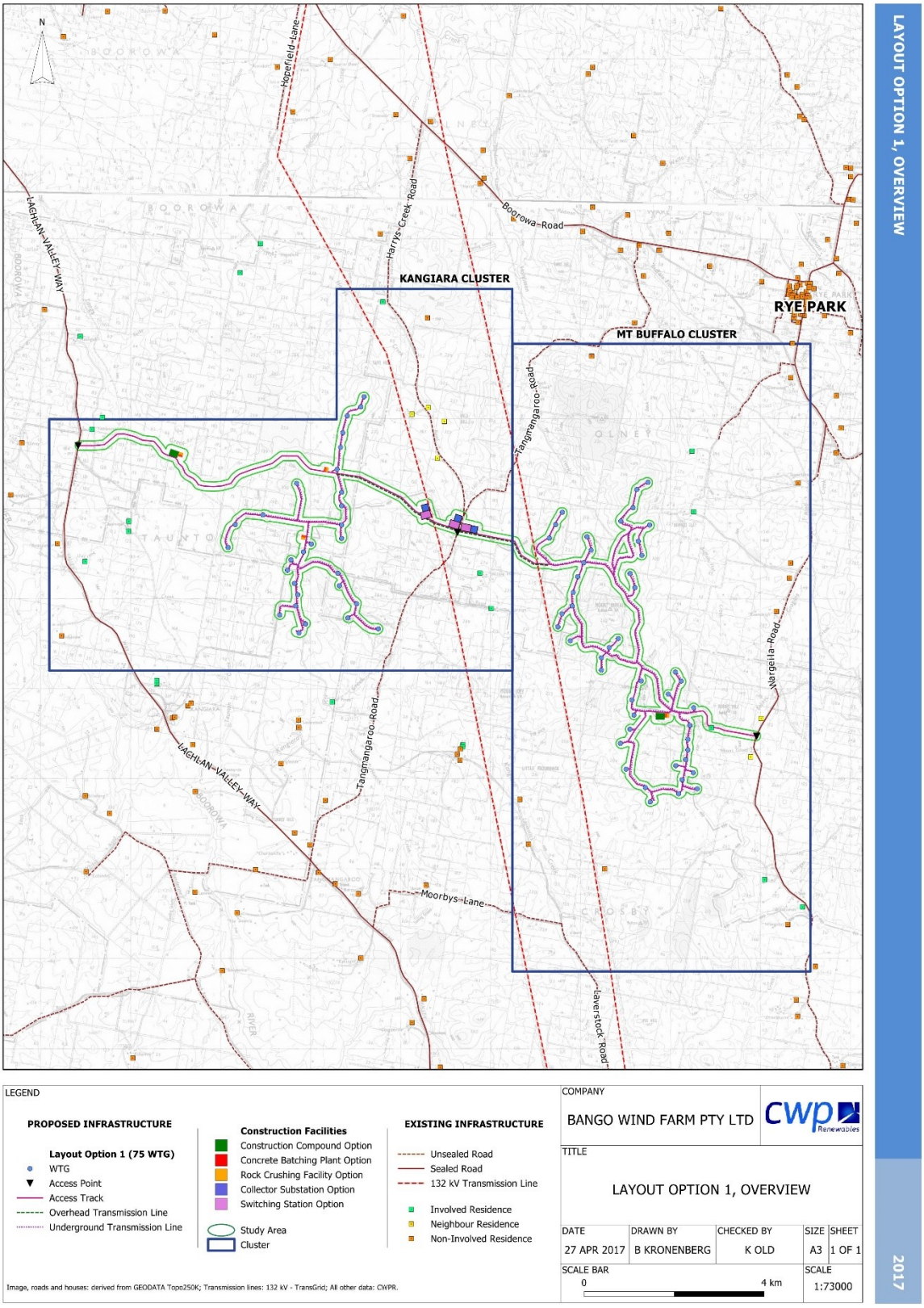


Figure 5: Layout 1 - Project Overview Map

(An A3 version is included in Appendix A)

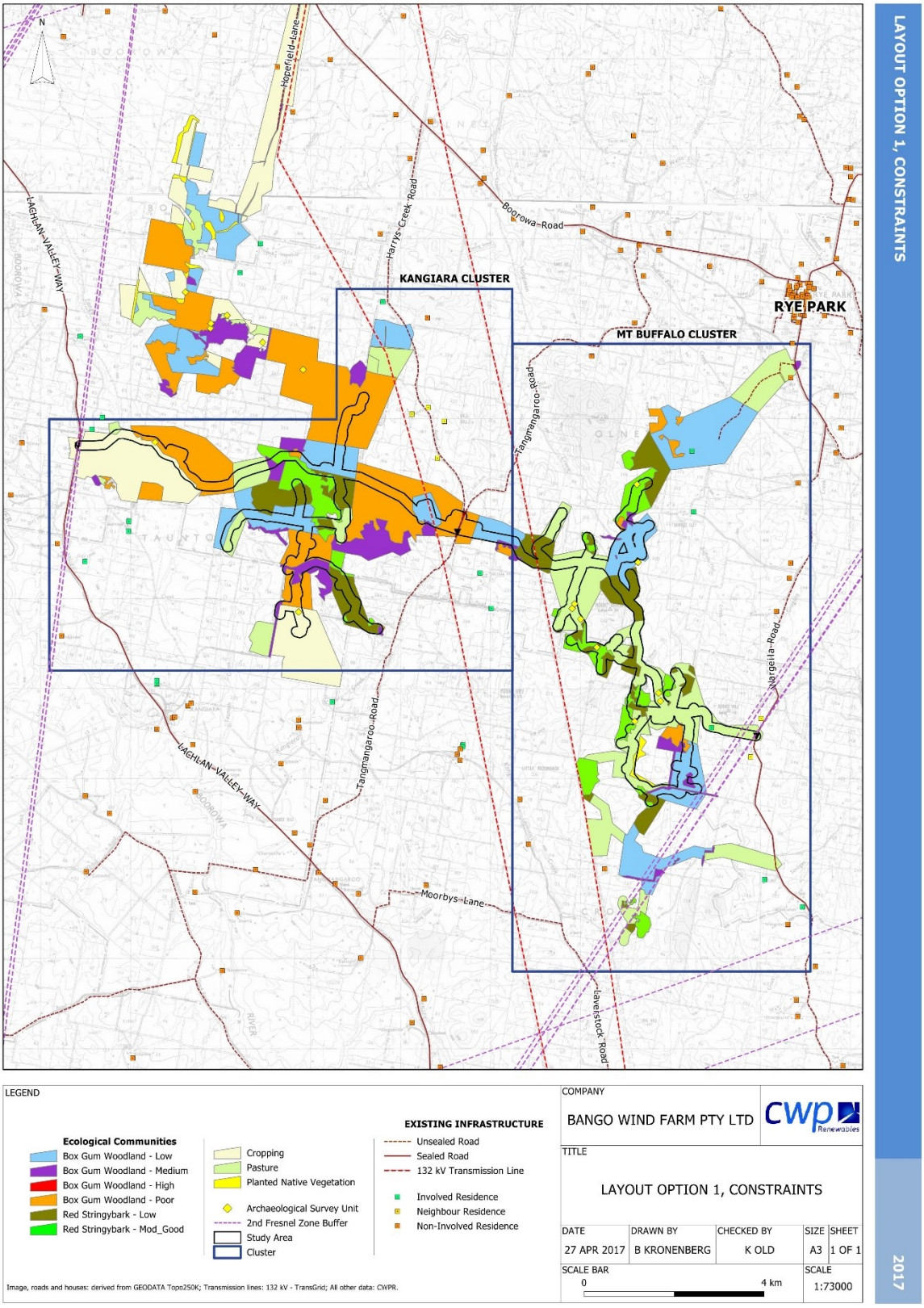


Figure 6: Layout 1 - Project Overview Constraints Map

(An A3 version is included in Appendix A)

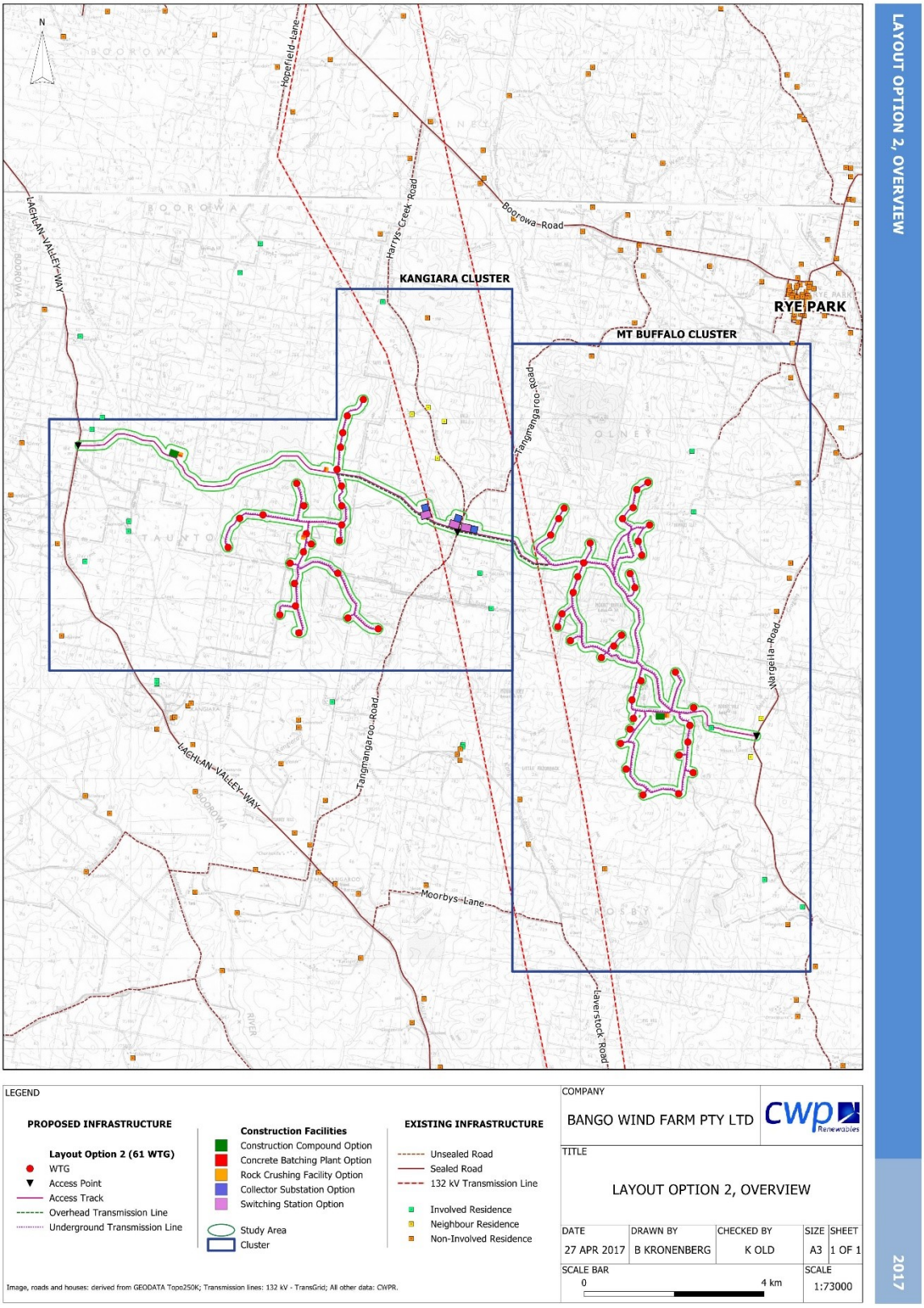


Figure 7: Layout 2 - Project Overview Map

(An A3 version is included in Appendix A)

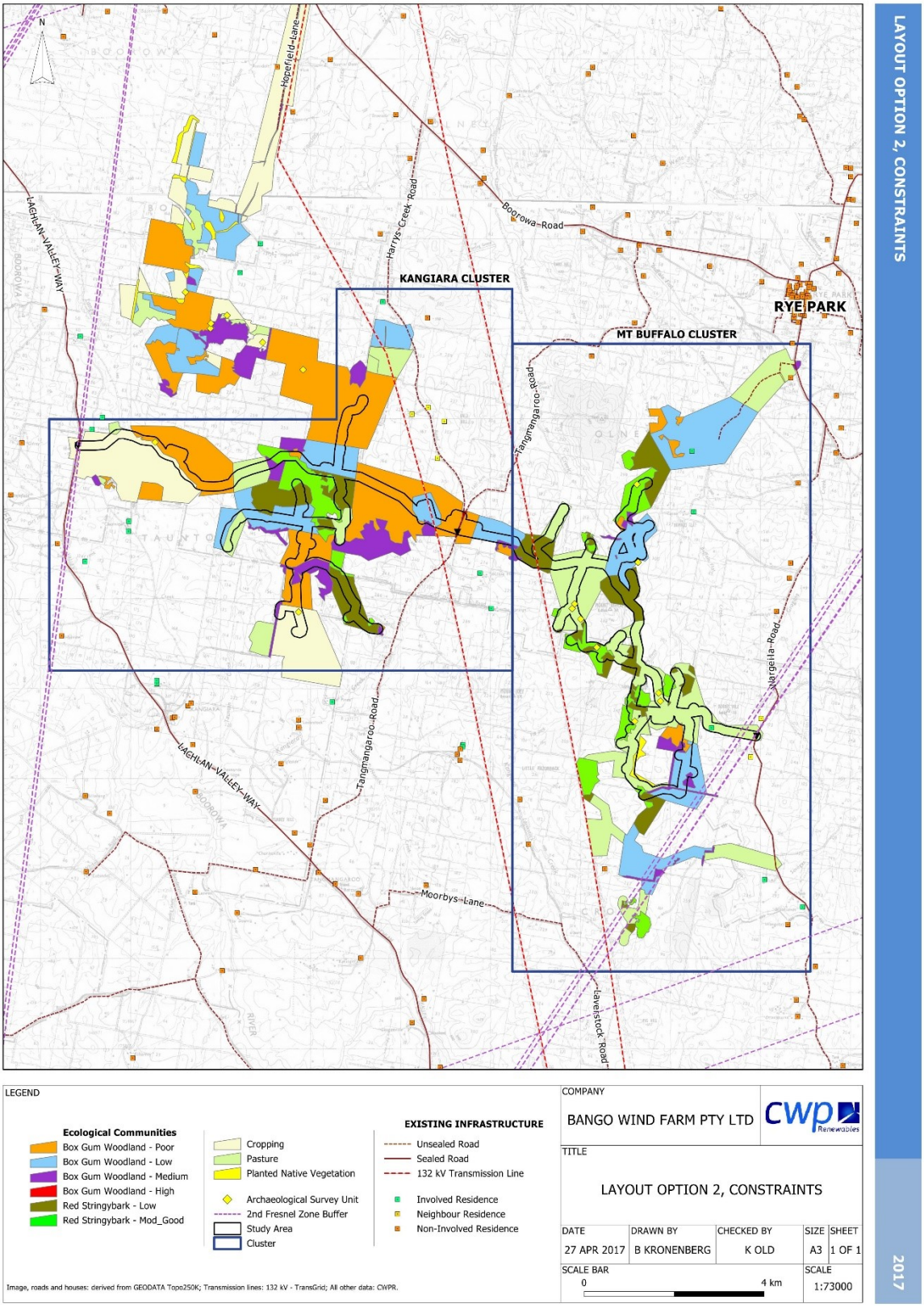


Figure 8: Layout 2 - Project Overview Constraints Map

(An A3 version is included in Appendix A)

3. Traffic and Transport Assessment

Site Access - Wind Turbine and Substation Components: The reduction in total wind turbine numbers will result in lesser impacts to the local road network. Specifically:

- The reduction in proposed wind turbine sites will relieve the RMS and local Council road network of associated construction impacts by a proportional scale and moreover will reduce the Project construction program; in doing so lessen the associated impacts to local road users over the construction period;
- The removal of the Langs Creek Cluster will remove the use of Hopefield Road within Hilltops Council Local Government Area (LGA);
- The removal of wind turbine locations from the northern part of the Mount Buffalo Cluster will remove the use of Hillview Lane, also in the Hilltops LGA; and,
- Significantly, the cumulative impact of these two amendments will result in there being no need to route over-dimensional vehicles carrying wind turbine components through the town of Boorowa, along Boorowa Road, or through the village of Rye Park.

Furthermore, it is proposed through this Amended DA that all over-dimensional vehicles carrying wind turbine and substation components are to access the Project via the access point off Lachlan Valley Way (RMS designated road). The intersection off Lachlan Valley Way (Figure 9, also included in appendix A) has been designed to comply with the *Austroads Guide to Road Design* (as amended by RMS) and includes a Basic Right Turn (BAR) and Basic Left Turn (BAL) intersection treatment. This change will result in those vehicles only intersecting Tangmangaroo Road at a single point where the road dissects the Kangiara and Mount Buffalo clusters. The consequential benefits of this action are two-fold:

- The avoidance of unnecessary widening (and biodiversity clearing) along whole sections of Wargeila and Tangmangaroo roads which may otherwise have been required to accommodate vehicles carrying wind turbine and substation over-dimensional components; and,
- The avoidance of a bridge/railway crossing on Wargeila road which has unknown structural integrity.

Site Access - Intersection off Lachlan Valley Way: Preliminary designs have been undertaken to confirm the suitability of the main access point of Lachlan Valley Way. Two design options have been suggested, both within the current development corridor and shown in Figure 9.

Option 1 has the entrance centred between a corner and a hill crest. This option requires the Safe Intersection Sight Distances (SISD) inputs to be reduced to values[2] that are acceptable by Austroads Standards but would need to be approved by the Roads and Maritime Services (RMS).

Option 2 moves the intersection 100 m north of its current location. SISD inputs are as per RMS standards but this option will require the removal of some vegetation, as indicated in Figure 10, to achieve acceptable sight distance. The trees targeted for removal are described as "Yellow Box (Eucalyptus melliodora) and Blakley's Red Gum (E. blakleyi) mature trees with lower tree layer of Lightwood (Acacia implexa) over a non-native grass layer dominated by pasture grasses including Cocksfoot (Dactylis glomerata)" and are part of the NSW Threatened Species Conservation Act listed Endangered Ecological Community: White Box Yellow Box Blakely's Red Gum Woodland. Further survey of the area will be required for detailed planning for this Main Entrance option.

[2] These values are a 2.0 second reaction time (reduced from 2.5) and a deceleration coefficient value of 0.46 (reduced from 0.36)

Option 1

Option 2

Figure 9: Wind Farm Main Entrance – Lachlan Valley Way

Figure 10: Main Entrance Option 2 - Vegetation

Site Access - Balance of Plant and Resources: The Proponent acknowledges the feedback provided by Hilltops and Yass Valley Councils through the public exhibition of the EIS. In particular, the commentary regarding the impacts to the local Council road network pavements and associated safety concerns with the use of heavy vehicles ("truck-and-dog" arrangements) hauling balance of plant and resources to the Project Site. In response to this, a range of proposed solutions have been discussed with both Councils (summarised in Table 5 below), to address the uncertainty and risks identified by each, while retaining flexibility in the Project.

Table 5: Proposed solutions to Council road concerns

Aspect	Response
The location and source (and the associated road routes) required for the delivery of resources (water, sand, gravel, cement, etc.) to the Project Site.	The Proponent requests that the location of these resource requirements is determined through a competitive tender process, however in doing so acknowledges Councils' concern that only appropriately licenced suppliers of resources will be used, unless materials are otherwise won within the Project site (for instance the use of material excavated from the wind turbine foundation sites). Nonetheless, it is proposed that the locations of known sources are identified and addressed in the Project Transport Management Plan (TMP), which is to be prepared to the satisfaction of RMS and the relevant Council, prior to the commencement of the relevant stage of works. It is also requested that additional TMPs be allowable to accommodate the introduction of new sources should they be identified during the construction period. All TMPs are to be prepared in consultation with RMS and the relevant Council. It is noted that the location of currently known and potential quarry sites were identified in the EIS Figure 3.9, however in accordance with the comments above, consideration of their licence status will be undertaken prior to use.
Maintenance of roads during construction	The Proponent acknowledges and accepts that maintenance of the local Council road network (to the extent that impacts are caused by Project vehicles) is a requirement of the Project during the construction period, and that the associated costs are to be borne by the Project. The Proponent also acknowledges the current low levels of local traffic users on the known Project roads (Wargeila, Tangmangaroo, and Harry's Creek roads), and that speed (or the perception of speed) for construction vehicles is a concern for residents. To address this matter, and in consideration of identifying the source of resource requirements as outlined above, the Proponent proposes to enter a Road Dilapidation Deed with each Council, prior to the commencement of the relevant stage of works. The Road Dilapidation Deed will clearly outline the responsibility of each party for the identification, prioritization, rectification of any defects, and the apportionment of costs of such works, and has been utilised by the Proponent on other projects - most recently at the Sapphire wind farm in northern NSW in consultation with Glen Innes Severn and Inverell Shire, Councils. The Road Dilapidation Deed will incorporate the requirements of pre- and post-dilapidation surveys, any necessary road upgrades and methods deemed appropriate for control of speed limits by construction vehicles.

Upgrades to roads	The Proponent acknowledges Council's responsibilities under the Roads Act 1993, and therefore the Proponent's own responsibilities in committing to appropriate upgrades and traffic management protocols to the local Council road network to ensure safe passage of vehicles during the construction period. In this regard, and as recommended above, the Proponent proposes to enter a Road Dilapidation Deed with each Council with respect to the required works.
Timing of road upgrades	The Proponent requests that consideration is given to construction works that can occur in parallel to road upgrades. This request goes beyond the typical allowance of activities within the definition of "Pre-construction works" within recent planning approvals. It should be an "Early works" construction package that could be commenced prior to the completion of all required road upgrades, and would include the following activities: - Commencement of construction of site access roads from the site entrances to the site facilities (site compound, substation, operations and maintenance facility, batching plant and crushing facility); - Activities required to bench, install hardstand and temporary office facilities and amenities for temporary and permanent facilities across the Project; and, - Onsite extraction and stockpiling of pavement materials in preparation for the commencement of construction. These works would typically require plant and equipment to be brought to site once, to be left within the Project Site to undertake works without consequential ongoing impacts to the local Council road network, other than those of light vehicles which are generally permitted under the recent standard definition of "Pre-construction works". The works would generally not require delivery of significant quantities of materials to or from the site using the public road network. It is proposed that final vehicle numbers and movements are to be determined through the finalisation of the TMP and Road Dilapidation Deeds, at which point the known construction partner will be on-board to advise on the construction program and preferred work fronts. Ultimately, this requested solution will drive efficacy in the construction program, which in turn will reduce construction program and impacts of the project to local residents and road users with little additional impacts to the local Council road network.
Impacts on local sources of water, in particular potable and agricultural waters supplies.	This concern is noted and the scope provided to tendering construction contractors will include a directive that liaison with each Council and/or Department of Primary Industries (DPI) is required in relation to sourcing water for the Project. It is acknowledged that this is a particular concern for the Hilltops Council in the Boorowa area.
Decommissioning	The Proponent's approach to provisioning funds for decommissioning is outlined in Chapter 18 of the EIS which will incorporate the costs associated with impacts to the local Council road network.

Site Access - Widening and Additional Vegetation Clearance: In addition to the aspects and proposed solutions outlined in Table 5 above, an additional assessment of Wargeila, Tangmangaroo and Harry's Creek roads, was undertaken to define preferred directional routes along each road, width and clearance requirements and suitable passing bay locations for the movement of Project vehicles (noting previous commitments to re-route over-dimensional vehicles hauling wind turbine and substation components via Lachlan Valley Way). This assessment was predicated on the concerns raised by both Councils with regard to the suitability of the local roads (in particular width, culvert and bridge crossings) to safely accommodate Project vehicles. However this has also been undertaken in response to the concerns raised by the NSW Office of Environment and Heritage (OEH) in relation to potential clearing of vegetation along the road verge.

The assessment identified that there is a bias towards an existing good width / low vegetation / various passing bay opportunities when travelling on:

- Tangmangaroo road north from the intersection with Lachlan Valley Way to the central Project entrances (this section of road is wholly within the Yass Valley Council LGA);
- Wargeila road south from Rye Park to the eastern Project entrance (this section of road is wholly within the Hilltops Council LGA); and,
- Either direction along Harry's Creek road between the central site entrances and Boowrowa road (this section of road is wholly within the Hilltops Council LGA).

While this assessment is not exhaustive, when taken into consideration alongside the re-routing of over-dimensional project vehicles (which removes the need for re-alignment and widening and therefore vegetation clearing of the local Council road network), it will provide guidance and input into the preparation of the TMP and each Road Dilapidation Deeds. This guidance will serve to minimise:

- The extent of road routes used;
- The extent of road length and surface to be upgraded;
- Corresponding impacts to the local community; and
- Vegetation clearing associated with the Project.

The assessment also identified the location of all culverts and bridges along the local Council road network, which will also feed through into the TMP and Road Dilapidation Deed.

4. Amended Residence Assessment

A Residence Assessment Summary was included in Chapter 20 of the EIS summarising the outcomes of noise and visual assessments at residences where impacts had been identified. Table 6 below expands upon this considering feedback received during the public exhibition of the EIS and the Amended DA described in this document. The supporting Noise Assessment undertaken for the revised Project is included in Appendix B3 with an updated Visual Impact analysis provided in Section 5 of this document.

Table 6: Updated Residence Summary, including revised proximity and status

Residence ID	Landowner Status	Agreement Status	Distance to Nearest Wind Turbine (km)		EIS Visual		Amended DA Visual			Noise
			Amended DA	Increase from EIS	Visual Significance Rating	Cumulative Visual Impact Rating	Change in Situation	Visual Significance Rating	Cumulative Visual Impact Rating	Compliance Achieved
BAN100	Host	Agreed	0.5	0	High	-	No Change	-	-	No
BAN032	Host	Agreed	1	0	Low to Medium	-	No Change	-	-	Yes
BAN101	Neighbour	Agreed	1.1	0	High	-	No Change	-	-	Yes
BAN041	Ex-Host	Pending	1.2	0.5	Low to Medium	-	Five wind turbine sites removed from north of Mount Buffalo cluster	Low to Medium	-	Yes
BAN115	Neighbour	Agreed	1.4	0	High	-	No Change	-	-	Yes
BAN155	Neighbour	Agreed	1.4	0	High	-	No Change	-	-	Yes
BAN087	Host	Agreed	1.5	0	Medium to High	-	No Change	-	-	Yes
BAN136	Neighbour	Agreed	1.5	0	High	-	No Change	-	-	Yes
BAN021	Host	Agreed	1.7	0	Medium	-	No Change	-	-	Yes
BAN117	Host	Agreed	1.7	0	Medium to High	-	No Change	-	-	Yes

Residence ID	Landowner Status	Agreement Status	Distance to Nearest Wind Turbine (km)		EIS Visual		Amended DA Visual			Noise
			Amended DA	Increase from EIS	Visual Significance Rating	Cumulative Visual Impact Rating	Change in Situation	Visual Significance Rating	Cumulative Visual Impact Rating	Compliance Achieved
BAN238	Neighbour	Consultation in progress	1.8	0.8	Medium	-	Three wind turbine sites removed (in addition to four previously removed) from south of Mount Buffalo cluster	Low	-	No
BAN154	Neighbour	Agreed	1.9	0	High	-	No Change	-	-	Yes
BAN235	Neighbour	Declined	1.9	0.2	High	-	Three wind turbine sites removed from south of Kangiara cluster and three wind turbine sites removed (in addition to four previously) from south of Mount Buffalo cluster	High	-	Yes
BAN020	Ex-Host	Pending	2.1	0.5	Low to Medium	-	Two wind turbine sites removed from north of Kangiara cluster	Low to Medium	-	Yes
BAN076	Neighbour	Declined	2.1	0.2	Medium	-	Three wind turbine sites removed from south of Kangiara cluster and three wind turbine sites removed (in addition to four previously) from south of Mount Buffalo cluster	Medium	-	Yes
BAN158	Neighbour	Agreed	2.1	0	Medium	-	No Change	-	-	Yes
BAN189	Host	Agreed	2.2	0	Low	-	Langs Creek cluster removed	Low	-	Yes
BAN282	Neighbour	Declined	2.2	0.5	High	-	Two wind turbine sites removed from north of Kangiara cluster	Medium	-	Yes
BAN162	Host	Agreed	2.3	0	Low	-	Langs Creek cluster removed	Low	-	Yes

Residence ID	Landowner Status	Agreement Status	Distance to Nearest Wind Turbine (km)		EIS Visual		Amended DA Visual			Noise
			Amended DA	Increase from EIS	Visual Significance Rating	Cumulative Visual Impact Rating	Change in Situation	Visual Significance Rating	Cumulative Visual Impact Rating	Compliance Achieved
BAN144	Neighbour	Declined	2.5	0	Low	-	Three wind turbine sites removed (in addition to four previously removed) from south of Mount Buffalo cluster	Low	-	Yes
BAN173	Host	Agreed	2.5	0	Low	-	No Change	-	-	Yes
BAN152	Neighbour	Agreed	2.6	0	Low to Medium	-	No Change	-	-	Yes
BAN060	Neighbour	Declined	2.7	0.3	Medium	-	Three wind turbine sites removed (in addition to four previously removed) from south of Mount Buffalo cluster	Medium	-	Yes
BAN170	Neighbour	Consultation in progress	2.8	0	Nil/Low	-	No Change	-	-	Yes
BAN260	Neighbour	Consultation in progress	2.8	0.8	Medium to High	-	Three wind turbine sites removed from south of Kangiara cluster	Medium to High	-	Yes
BAN062	Neighbour	Consultation in progress	2.9	0.8	Medium to High	-	Three wind turbine sites removed from south of Kangiara cluster	Medium to High	-	Yes
BAN0179	Neighbour	Consultation in progress	2.9	0.3	Low	-	Three wind turbine sites removed from south of Kangiara cluster	Low	-	Yes
BAN142	Neighbour	Consultation in progress	3.0	1	Low	-	Five wind turbine sites removed from north of Mount Buffalo cluster and two wind turbine sites removed from north of Kangiara cluster	Low (possibly Nil)	-	Yes
BAN108	Ex-Host	Consultation in progress	3.1	0.7	Low to Medium	-	Three wind turbine sites removed from south of Kangiara cluster	Low to Medium	-	Yes

Residence ID	Landowner Status	Agreement Status	Distance to Nearest Wind Turbine (km)		EIS Visual		Amended DA Visual			Noise
			Amended DA	Increase from EIS	Visual Significance Rating	Cumulative Visual Impact Rating	Change in Situation	Visual Significance Rating	Cumulative Visual Impact Rating	Compliance Achieved
BAN182	Ex-Host	Consultation in progress	3.1	0.7	Low to Medium	-	Three wind turbine sites removed from south of Kangiara cluster	Low to Medium	-	Yes
BAN243	Neighbour	Consultation in progress	3.2	0	Low	-	No Change	-	-	Yes
BAN026	Neighbour	None proposed	3.3	0	Low to Medium	-	Three wind turbine sites removed (in addition to four previously removed) from south of Mount Buffalo cluster	Low to Medium	-	Yes
BAN035	Neighbour	None proposed	3.3	0.2	Low	Nil to low	Five wind turbine sites removed from north of Mount Buffalo cluster	Low	Nil to Low	Yes
BAN042	Neighbour	None proposed	3.3	0.8	Nil/Low	-	Three wind turbine sites removed from south of Kangiara cluster	Nil/Low	-	Yes
BAN106	Neighbour	None proposed	3.3	0	Low	-	No Change	-	-	Yes
BAN187	Neighbour	None proposed	3.3	0.8	Nil/low	-	Three wind turbine sites removed from south of Kangiara cluster	Nil/Low	-	Yes
BAN166	Neighbour	None proposed	3.4	0	Low to Medium	-	Three wind turbine sites removed (in addition to four previously removed) from south of Mount Buffalo cluster	Low to Medium	-	Yes
BAN181	Neighbour	None proposed	3.4	0.8	Nil/Low	-	Three wind turbine sites removed from south of Kangiara cluster	Nil/Low	-	Yes
BAN055	Host	Agreed	3.5	0	Low	-	No Change	-	-	Yes
BAN138	Neighbour	None proposed	3.6	0.3	Low	-	No Change	Low	-	Yes

Residence ID	Landowner Status	Agreement Status	Distance to Nearest Wind Turbine (km)		EIS Visual		Amended DA Visual			Noise
			Amended DA	Increase from EIS	Visual Significance Rating	Cumulative Visual Impact Rating	Change in Situation	Visual Significance Rating	Cumulative Visual Impact Rating	Compliance Achieved
BAN176	Neighbour	None proposed	3.6	0.6	Low	-	Two wind turbine sites removed from north of Kangiara cluster	Low	-	Yes
BAN126	Neighbour	None proposed	3.7	0.7	Nil/Low	-	No Change	Nil/Low	-	Yes
BAN177	Neighbour	None proposed	3.7	0.1	Low	-	Three wind turbine sites removed from south of Kangiara cluster	Low	-	Yes
BAN043	Neighbour	None proposed	3.8	0	Nil/Low	-	No Change	-	-	Yes
BAN160	Host	Agreed	3.8	2.1	Medium to High	-	Langs Creek cluster removed	Low (possibly Nil)	-	Yes
BAN048	Neighbour	None proposed	3.9	1	Low	Low to Medium	Five wind turbine sites removed from north of Mount Buffalo cluster	Low	Low	Yes
BAN096	Host	Agreed	3.9	2.1	Low	-	Langs Creek cluster removed	Low (possibly Nil)	-	Yes
BAN225	Host	Agreed	3.9	2.9	High	-	Langs Creek cluster removed	Low (possibly Nil)	-	Yes

5. Visual Impact Assessment Update

Wind turbine locations have been removed from the original Project in response to community input raised during the public exhibition of the EIS. Table 7 summarises these changes.

Table 7: Modification response to community concerns

Residence / Locality with initial concern	Modification response	Distance from EIS Layout	EIS Visual significance rating	Distance from Modified Layout	Revised Visual Significance rating
Rye Park (Locality)	Removal of five turbines in the north-east of the Project	4 km	NA	5 km	NA
Kangiara (Locality)	Removal of three turbines in the south-west of the Project	2 km	NA	3 km	NA
Boorowa (Township)	Removal of 30 turbines in the north-west of the Project[3]	7 km	NA	12 km	NA
BAN238 "Brookdale" (Residence located to the south of the Mt Buffalo cluster)	Removal of three turbines in the south-east of the Project	1.0 km	Medium	1.8 km	Low
BAN282 (Residence located to the north of the Kangiara cluster)	Removal of two turbines in the north of the Kangiara cluster	1.7 km	High	2.2 km	Medium

Both BAN238 and BAN282 are new residences. Development Applications for both dwellings were lodged after the original Project layout was determined by the Proponent.

BAN282 was built 1.7 km from the nearest proposed turbine location and in the EIS LVIA was given a visual significance rating of 'high'. In consultation with the owners, there was an unwillingness to enter a Neighbour Agreement, but requested the removal of all turbines within 2 km of their dwelling. These turbines have been removed from the amended layouts and comparative wireframes are provided in Appendix A6.

BAN238 was built 1.0 km from the nearest proposed turbine location and given a visual significance rating of 'medium'. The owners have requested the removal of all turbines within 2.1 km of BAN238 (the additional 100 m is to ensure the turbines are outside 2 km given micro-siting allowances). This would include five turbine locations based on layout 1. Three of those five wind turbine locations have been removed from the amended layouts, and as a consequence the owners of BAN238 are open to discussions regarding the remaining turbines

[3] Although these turbines were removed predominantly for the benefit of the Superb Parrot, there are other ramifications of this action including reduced visual impacts for some Boorowa residents.

within 2.1 km of their dwelling. Comparative photomontages are included in Appendix A5. These are in line with photomontages PM22 and PM23 from the LVIA in the EIS. Consultation is in progress.

Photomontage and wireframe locations are shown in Figure 11.

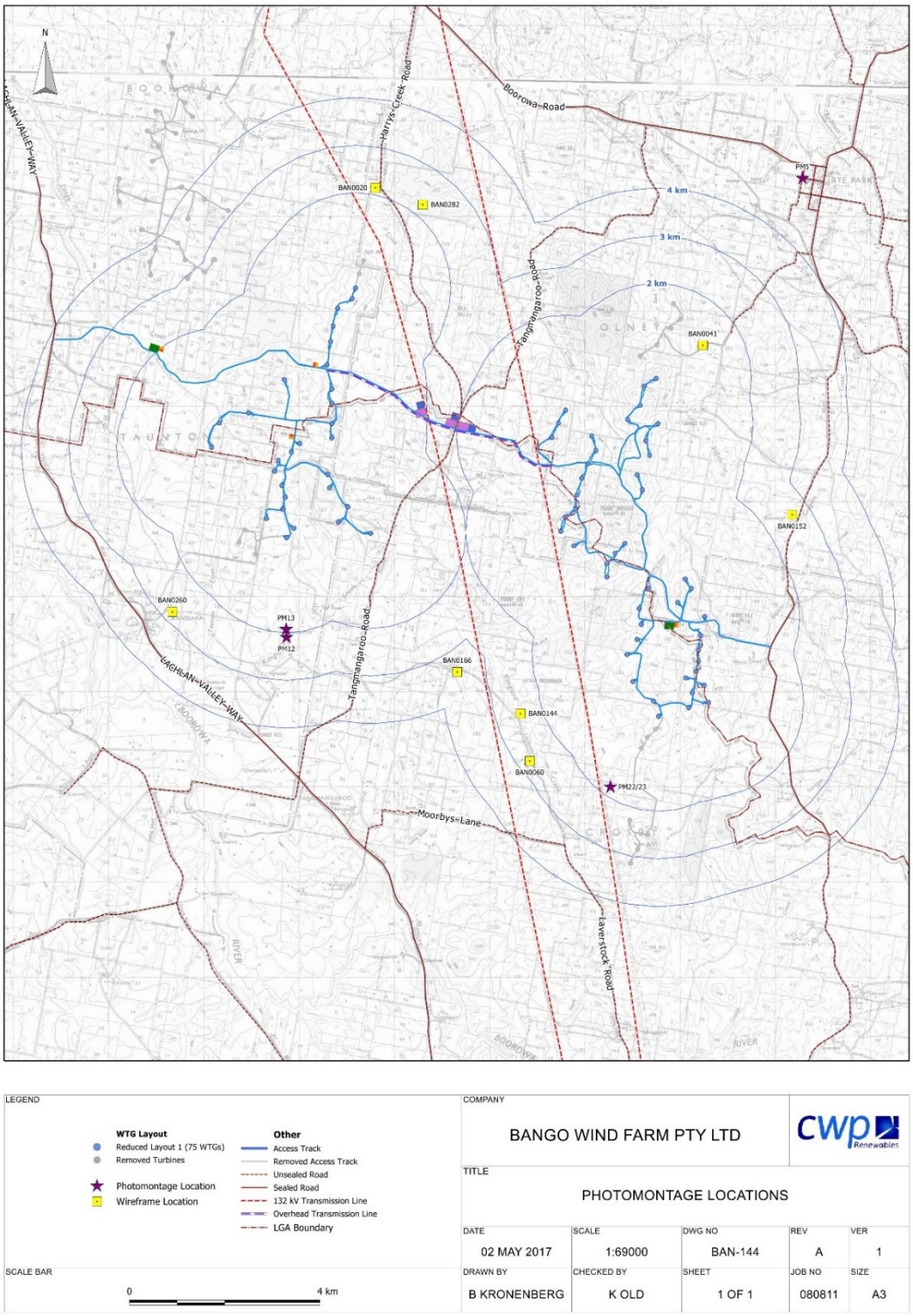


Figure 11: Photomontage and wireframe locations map

Other Visual Impact Reductions

The removal of the 43 turbine locations for layout option 1 (31 turbines for layout option 2) has had the additional effect of reducing visual impacts for other residences within 4 km of the Project area. The following commentary addressees this by Project area. Photomontage and wireframe diagrams for key residences discussed are included in Appendices A5 and A6. Figure 11, indicates the location and direction from which each diagram is taken. Wireframe diagrams only take topography and wind turbines into account, they do not account for buildings and plants that may provide natural screening, so in the commentary the word 'potential' is used to describe views of wind turbines that may or may not be visible from that location.

North east - The removal of the five wind turbine locations in the north of the Mt Buffalo cluster has reduced visual impacts for the following residences:

Table 8: Non-involved residences impacted by removal of turbines in the north east

Residence	Location	Distance from EIS Layout	EIS Visual significance rating	Distance from Modified Layout	Revised Visual Significance rating
BAN142 "Medways"	Residence to the north of Mt Buffalo cluster	2.0 km	Low	3.0 km	Low (possibly Nil)
BAN048 "Glenwood"	Residence located along Dalton Road, near Hillview Lane	2.9 km	Low	3.9 km	Low
BAN035 "Stonehaven"	Residence located north-east of the Mt Buffalo cluster along Wargeila Road	3.1 km	Low	3.3 km	Low
BAN141 "Bankside"	Residence located north of the Mt Buffalo cluster on Tangmangaroo Rd	3.0 km	Low to Medium	4.6 km	Not re-assessed
BAN243[4] "Kywong"	Residence located east of the Mt Buffalo cluster along Wargeila Road	3.2 km	Low	3.2 km	Low
BAN152 "Eversleigh"	Residence located east of the Mt Buffalo cluster along Wargeila Road	2.6 km	Low to Medium	2.6 km	Low to Medium
BAN170 "Back Creek"	Residence located between Kangiara and Mt Buffalo cluster along Tangmangaroo Road	2.8 km	Nil to Low	2.8 km	Nil to Low

BAN142, BAN048 and BAN035 benefit from the removal of five wind turbine sites from the north of the Mt Buffalo cluster, with increased separation distances between the Project and each residence. Consultation with

[4] BAN190 has previously been mis-identified as this residence. Further investigation has shown that BAN190 is a shed and BAN243 is the residence at Kwyong.

each owner has indicated this is a positive outcome and acted toward resolving their initial concerns with the Project.

(Additionally, residence BAN142 benefits from the removal of the two turbines in the north of the Kangiara cluster, which were potentially visible from the curtilage of this property.)

BAN141 had a previous visual significance rating of Low to Medium, however with the removal of five wind turbine sites from the north of the Mt Buffalo cluster, the residence is now located at 4.6 km from the closest wind turbine location (an increase of 1.6 km) and therefore the impacts have been considered to be sufficiently reduced.

For a comparison of the Amended DA layout with those proposed in the EIS, refer to the photomontage from Rye Park within Appendix A5.

Five turbines have been removed from the potential views from BAN243 and BAN152, but overall visual impacts have not significantly changed with the revised layout. Discussions with BAN243 have revealed that they have apprehension about the Project as a whole, but are not particularly concerned about the visual impact on their property. Consultation with this landowner is ongoing. Residents from BAN152 have submitted a letter to the Proponent stating that they are not concerned about the Bango wind farm, or the vicinity of wind turbines to their property (supplied separately to the DPE). For an indication of the reduced visual impact, please see the wireframe from BAN152 in Appendix A6.

BAN170 is nestled among trees between the Mt Buffalo and Kangiara clusters. Owing to local topography and foliage, the visual impact of the turbines here is very low, both before and after the layout changes. Although the overall setback distance has not changed, seven turbines in the region of this residence have been removed from the amended layouts.

South east - The removal of three wind turbine locations in the south of the Mt Buffalo cluster, in addition to four wind turbine locations removed prior to EIS public exhibition, has reduced visual impacts for the following residences (as well as for BAN238, as discussed earlier):

Table 9: Non-involved residences impacted by removal of turbines in the south east

Residence	Location	Distance from EIS Layout	EIS Visual significance rating	Distance from Modified Layout	Revised Visual Significance rating
BAN060 "Montalta"	Residence located to the south east of the Mt Buffalo cluster	2.4 km	Medium	2.7 km	Medium
BAN144 "Letona"	Residence located to the east of the Mt Buffalo cluster	2.4 km	Low	2.5 km	Low
BAN166 "Mountainview"	Residence located to the east of the Mt Buffalo cluster	3.4 km	Low to Medium	3.4 km	Low to Medium
BAN235 "Laverstock Cottage"	Residence located to the south of the Kangiara cluster	1.7 km (Kangiara Cluster)	High	1.9 km (Kangiara Cluster)	High
BAN076 "Laverstock"	Residence located to the south of the Kangiara cluster	1.9 km (Kangiara Cluster)	Medium	2.1 km (Kangiara Cluster)	Medium

BAN060 benefit from the removal of the three additional wind turbine sites from the south of the Mt Buffalo cluster, with increased separation distances (0.3 km) between the Project and the residence. Wireframes depicting the reduction in visual impact for this residence can be seen in Appendix A6, and clearly indicates how the angle of turbine visibility has been reduced.

Similar impacts can be observed at BAN144 (wireframes for this dwelling are also found in Appendix A6), however because this property is located further north, the action of removing wind turbine locations from the Project layouts is more effective in reducing the angle of visibility of the wind turbines (i.e. views from the west to the south west no longer contain proposed wind turbine locations). Moreover, in accordance with the wireframe analysis, BAN144 also had potential views of three Kangiara turbines, and very distant potential views of Langs Creek, which have been removed from the amended layouts.

As a result of the proposed changes, BAN166 is now approximately 1 km further away from the wind turbine locations in the south of the Mt Buffalo cluster, noting the closest wind turbine locations to BAN166 remain those within the Kangiara cluster. As such, the removal of seven turbines to the south east and removal of three turbines to the north west have both contributed to a reduced visual impact on this dwelling, which can be evaluated from the wireframes from this dwelling location, included in Appendix A6.

Residences BAN235 and BAN076 are located at the south of the Kangiara cluster. Photomontages from both dwelling locations are provided in Appendix A5. Both dwellings have a distant view of the Mt Buffalo cluster of wind turbines, but also a potential view of the wind turbines in the Kangiara cluster. The removal of seven wind turbine locations from the southern end of the Mt Buffalo cluster reduces the viewing angle in which turbines

are visible from these dwellings, and moreover reduces the number of wind turbine locations within that view. It should be noted that the Mt Buffalo turbines are located 6 km and more from these residences, and to make a meaningful change to the proposed layouts in consideration of this aspect of the visual impact would be of considerable detriment to the Project.

South west - The removal of three wind turbine locations in the south west of the Kangiara cluster has reduced visual impacts for the following residences:

Table 10: Non-involved residences impacted by removal of turbines in the south west

Residence	Location	Distance from EIS Layout	EIS Visual significance rating	Distance from Modified Layout	Revised Visual Significance rating
BAN235 "Laverstock Cottage"	Residence located to the south of the Kangiara cluster	1.7 km	High	1.9 km	High
BAN076 "Laverstock"	Residence located to the south of the Kangiara cluster	1.9 km	Medium	2.1 km	Medium
BAN260	Residence located within Kangiara	2.0 km	Medium/High	2.8 km	Medium/High
BAN062 "Humeview"	Residence located within Kangiara	2.1 km	Medium/High	2.9 km	Medium/High
BAN181 "Long Gully"	Residence located within Kangiara	2.6 km	Nil/Low	3.4 km	Nil/Low
BAN166 "Mountainview"	Residence located to the east of the Mt Buffalo cluster	3.4 km	Low to Medium	3.4 km	Low to Medium
BAN179 "Ingleside"	Residence located to the south of the Kangiara cluster	2.6 km	Low	2.9 km	Low

Impacts for BAN076, BAN235 and BAN166 are discussed in the previous paragraph, with photomontages and wireframes for all included in Appendices A5 and A6.

BAN260, BAN062 and BAN181 are located within Kangiara. Existing foliage in Kangiara already provides screening for its residents, and the removal of three wind turbine locations provides increased setback distances for these properties. Wireframe analysis from BAN260 (see Appendix A6) indicates that the wind turbine locations in the south of Mt Buffalo and in Langs Creek, although distant, were potentially visible from this area, and so their removal significantly reduces the potential viewing angle of turbines from these dwellings.

BAN179 is located further away from the Kangiara cluster, towardsBAN235 and BAN076. There are no views of Mt Buffalo from this residence, and likely only very few turbines from the Kangiara cluster visible due to the local flora and topography. The removal of three wind turbine locations from this cluster may reduce the number of nacelles visible from this residence.

North west - The removal of 30 wind turbine locations from the Langs Creek cluster has reduced visual impacts for the following residences:

Table 11: Non-involved residences impacted by removal of turbines in the north west

Residence	Location	Distance from EIS Layout	EIS Visual significance rating	Distance from Modified Layout	Revised Visual Significance rating
BAN034 "Dover's Flat"	Residence located to the east of the Langs Creek cluster	2.1 km	Low	6.4 km	Not re-assessed
BAN176 "Sunbury"	Residence located north of the Kangiara cluster	3.0 km	Low	3.6 km	Low
BAN066 "Armidale"	Residence located to the north of the Langs Creek cluster	2.7 km	Low	7.6 km	Not re-assessed
BAN019 "Glenorie"	Residence located to the north of the Langs Creek cluster	2.5 km	Low to Medium	6.5 km	Not re-assessed

The removal of the Langs Creek cluster has significantly reduced the visual impacts to these residences due to the much-increased setback distance from the remaining wind turbine locations. A review of photomontages PM1 and PM6 from the LVIA in the EIS reveals the reduced impact on these locations as none of the turbines in PM1 are now proposed, in addition to, the wind turbines shown in the foreground of PM6, located west of Hopefield Lane (Langs Creek). Inspection of the wireframe from BAN282 in (Appendix A6) also provides an indication of the reduced visual impacts in this area of the project.

For BAN176, the removal of the two turbines to the north of the Kangiara cluster has further increased setback distances. This is also the case for BAN066 and BAN019, but their setback distances are much greater.

North of Kangiara cluster - The removal of two wind turbine locations from the northern end of the Kangiara cluster has reduced visual impacts for the following residences:

Table 12: Non-involved residence impacted by removal of northern of Kangiara turbines

Residence	Location	Distance from EIS Layout	EIS Visual significance rating	Distance from Modified Layout	Revised Visual Significance rating
BAN142 "Medways"	Residence to the north of Mt Buffalo cluster	2.0 km	Low	3.0 km	Low (possily Nil)
BAN176 "Sunbury"	Residence located north of the Kangiara cluster	3.0 km	Low	3.6 km	Low
BAN066 "Armidale"	Residence located to the north of the Langs Creek cluster	2.7 km	Low	7.6 km	Not re-assessed
BAN019 "Glenorie"	Residence located to the north of the Langs Creek cluster	2.5 km	Low to Medium	6.5 km	Not re-assessed

The reduced impacts to these residences have been discussed in previous paragraphs of this section. The wind turbine locations removed in this area of the Project were to be the closest turbines to BAN176, increasing the setback distance by 0.6 km. BAN176, BAN066 and BAN019 were part of the discussion from the removal of the Langs Creek cluster in the north west. BAN142 was discussed in the commentary on the north-east area of the Project.

Previous Host Landowners - One consequence of the reduced layout is that five landowners who were previously to host turbines will no longer be hosts. Impacts to these residents are summarised in Table 13. Agreements are being sought with these landowners.

Table 13: Residual impact on previous host landowners

Dwelling ID	Cluster	Distance to Turbines (km)		Revised Assessment		
		EIS	Revised	Noise	Visual	Shadow flicker (hrs)
BAN009	Langs Creek	1.4	5.4	Meets Criteria	Not re-assessed	0
BAN020	Kangiara	1.6	2.1	Meets Criteria	Low to Medium	0
BAN041	Mt Buffalo	0.7	1.2	Meets Criteria	Low to Medium	0
BAN108/182	Kangiara	2.4	3.1	Meets Criteria	Low to Medium	0
BAN119	Langs Creek	0.9	4.1	Meets Criteria	Not re-assessed	0

BAN041 is located within 2 km of the project. The removal of the five wind turbine locations from this property has significantly increased the setback distance and reduced the visual impacts at this location, but there are still a number of turbines potentially visible from this dwelling, as is shown in the wireframe diagram in Appendix A6. As such, the Proponent is seeking a Neighbour Agreement with this landowner, who has provided a letter declaring that they have no objection to the approval or subsequent construction of the Proposal, provided that a suitable Neighbour Agreement can be reached with Bango Wind Farm.

BAN020 will be outside of 2 km from the Project, and has a lower visual impact compared to BAN041, but is in a comparable situation. Wireframes from this location are also included in Appendix A6. This landowner has also provided a letter of support. These letters have been provided to the Department.

Shadow Flicker - From inspection of Figure 12, it is possible to clearly identify which turbines cause associated bands of shadow flicker on surrounding areas. With the removal of 43 turbines from the Bango Layout 1, (circled in red) it can be seen that dwellings that were previously predicted to experience some shadow flicker, have reduced impacts (see Table 14).

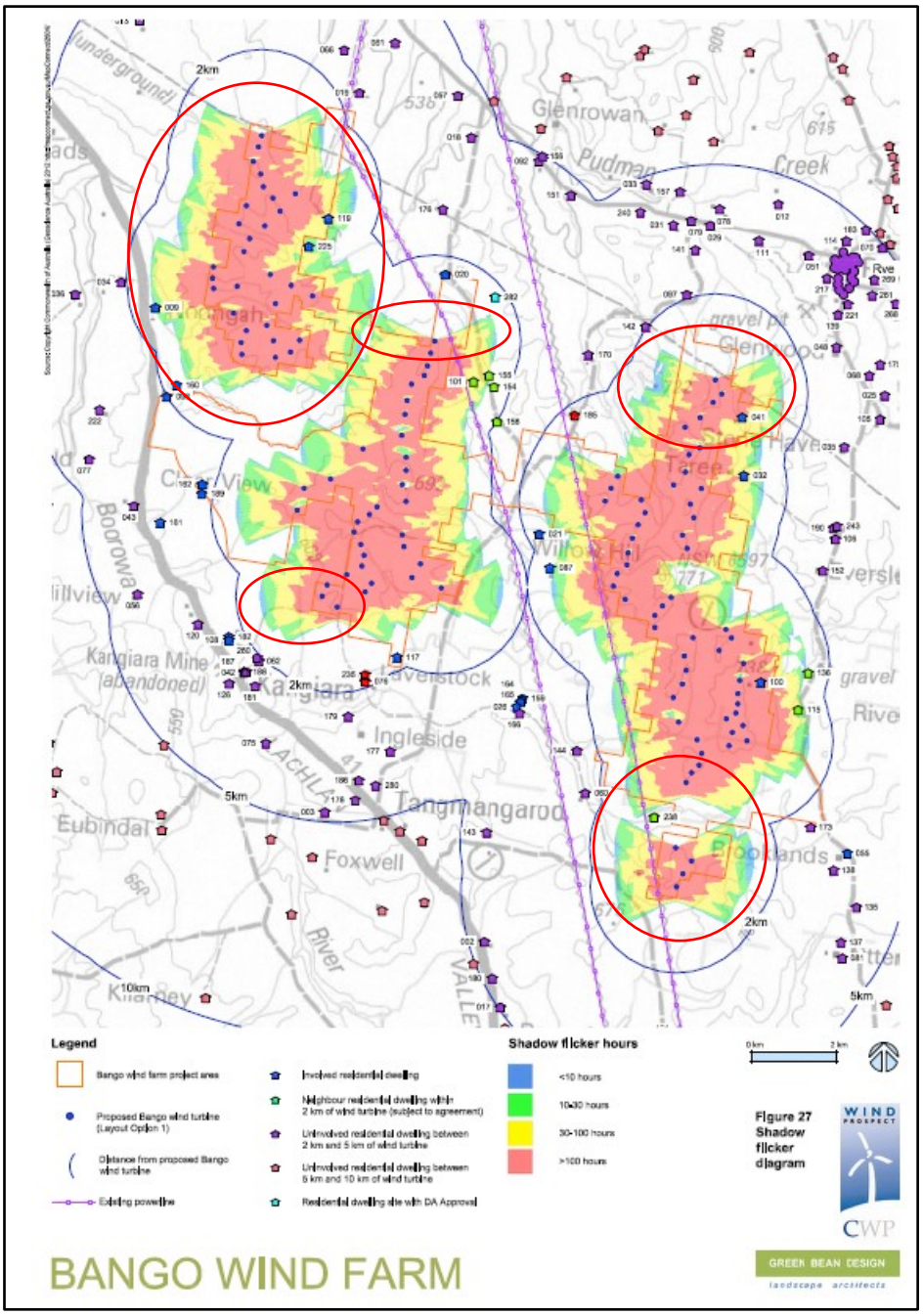


Figure 12: Shadow Flicker diagram from EIS LVIA

Table 14: Changes to Shadow Flicker Assessment

Dwelling	Nearest Cluster	Status	Residual Impact
BAN009	Langs Creek	Ex-host	No shadow flicker
BAN119	Langs Creek	Ex-host	No shadow flicker
BAN225	Langs Creek	Involved	No shadow flicker
BAN041	Mt Buffalo	Ex-host	No shadow flicker
BAN160	Langs Creek	Involved	No longer close to shadow flicker bands
BAN238	Mt Buffalo	Neighbour	No longer close to shadow flicker bands
BAN155	Kangiara	Involved	Potential reduction of shadow flicker
BAN101	Kangiara	Involved	No change in shadow flicker
BAN032	Mt Buffalo	Involved	No change in shadow flicker
BAN100	Mt Buffalo	Involved	No change in shadow flicker

Residual impact additional information

No shadow flicker: These are residence locations that were predicted to be affected by shadow flicker from the Bango wind farm that will no longer experience these effects due to the removal of turbines from the layout.

No longer close to shadow flicker bands: These are residence locations located within 400 m of an area affected by shadow flicker predicted from turbines, that have now been removed from the layout. These are included because the potential for shadow flicker immediately surrounding the dwelling has been removed.

Potential reduction of shadow flicker: These are residence locations where it is possible that the removal of turbines has reduced the duration of shadow flicker, but some shadow flicker is still likely to occur.

No change in shadow flicker: These are residence locations where the reduction in layout will not change the shadow flicker assessment.

6. Residual Impact Assessment

A residual impact assessment was undertaken across remaining aspects of the development and summarised below in Table 15. Associated technical assessments included in Appendix B.

Table 15: Residual Impact Assessment

Aspect	Key element(s) of the Amendment	Consideration of change in impact	Summary of findings / recommendations
Noise	Turbine model sound power profile	Impacts associated with the re-correlation of sound power outputs with 100 m wind data and amended layouts have been considered by noise consultants Sonus. A comprehensive report is provided in Appendix B.	The reduced layout has had the effect of reducing the sound power levels at most dwellings. The re-correlation of data to recorded wind speeds at 100 m AGL has changed the resultant sound power level predictions for most dwelling locations. The change is not a simple increase or decrease, but in general, noise level predictions for lower wind speeds have increased while noise level predictions at higher wind speeds have decreased. There remains two dwelling locations where predicted noise levels exceed the allowable criteria. BAN100 is an uninhabited dwelling belonging to a host landowner. BAN238 is an inhabited dwelling belonging to a neighbouring landowner with whom a Neighbour Agreement is being sought. BAN020 and BAN041 are 2.1 and 1.2 km (respectively) from the nearest turbine, belong to ex-host landowners and are associated through a (pending) agreement. Regardless of these involvement status changes, BAN020 and BAN041 comply with noise criteria.
Flora and Fauna	Reduced Development Footprint Revised transport plan	Proposed impacts have been considered by ecology consultants ERM Australia. A comprehensive assessment is provided in Appendix B2.	The Amended DA will: • reduce the area of potential habitat loss for the Golden Sun Moth from 100.9 ha to 39.4 ha; • reduce the area of potential habitat loss for the Regent Honeyeater and the Swift Parrot from 6.58 ha to 4.77 ha; • reduce the cumulative 'swept area' of turbine rotors (and hence the risk of blade strike) from 1.922M m² to 1.221M m² (36 % reduction); • remove the need for and disturbance of habitat along Hillview and Hopefield Lanes; and, • reduce disturbance along Wargeila and Tangmangaroo roads. In summary, the modification will result in an overall reduction of direct and indirect

			impacts to biodiversity values in the Project area.
Aviation	Reduced Development Footprint	Updated correspondence with AirServices Australia	**Airspace Procedures** With respect to procedures designed by Airservices in accordance with ICAO PANS-OPS and Document 9905, at a maximum tip height of 952m (3124ft) AHD, the wind farm will not affect any sector or circling altitude, nor any instrument approach or departure procedure at Young Airport. The wind farm will also not affect any air routes. Note that procedures not designed by Airservices at Young Airport were not considered in this assessment. **Communications/Navigation/Surveillance (CNS) Facilities** Based on the supplied 170320_BAN_200m WTG tip heights.docx (attached), the Bango Wind Farm to a maximum wind turbine tip height of 952m (3124ft) AHD will not adversely impact the performance of Airservices Precision/Non-Precision Nav Aids, HF/VHF Comms, A-SMGCS, Radar, PRM, ADS-B, WAM or Satellite/Links.
Cultural Heritage	Reduced Development Footprint	Reduced Development Footprint considered by NSW Archaeology	Received confirmation that "the project layout put forward in the Amended DA is consistent with what was assessed previously. Accordingly, the conclusions previously reached in the Heritage Assessment remain valid, to the extent they apply to the reduced foot print." Refer to Appendix B7.
Communications	Reduced Development Footprint	No change	No change
Mineral Resources	Consultation	Heron Resources Ltd is a mineral exploration and development company. Heron is a stakeholder in the Bango Wind Farm project through its subsidiary, Ochre Resources, and its title Exploration Licence (EL) 8400 for the 'Kangiara Project', which falls within the Bango Wind Farm project area. Heron Resources has expressed concern that the Proponent has not adequately consulted with	It has been recognised that although an attempt was made in 2014, it appears the letter was never received a follow up was not made by the Proponent. As a result, Heron/Ochre Resources did not make a submission in response to the Environmental Impact Statement (EIS) during the exhibition period. In January this year, Ochre Resources was made aware of the Bango wind farm. The parties have been in consultation and have agreed to continue two-way consultation on the Projects' respective progress. Ochre are in preliminary stages of exploration and feel they will have a better understanding of whether they will progress exploration in the coming months. From the

		them or Ochre Resources, regarding the overlap of the Bango wind farm project area and their Exploration Licence 8400. The Proponent made attempts to contact Ochre Resources in March 2014 to open the conversation on this issue, but received no response. This exchange has been referenced in Table 6.9, page 134, of the EIS Main Report, with further discussion in section 19.2 of the same report.	perspective of the Bango wind farm, the area of overlap does affect a number of turbines, but it does not jeopardise the entire project. As there is still a high degree of uncertainty around the mineral value of the land, CWP Renewables plan to continue Bango wind farm development as before, in consultation with Ochre Resources.

7. Statement of Commitments

The Statement of Commitments (SoC) is a summary of all management and mitigation measures collated from chapters of the EIS and Amended DA. The SoCs have been developed to inform Development Consent Conditions of Approval which are to be managed through an Environmental Management System and sub-plans as the Project is constructed and operated.

Table 15 provides a summary of environmental aspects identified in undertaking the EIS and Amended DA. Each aspect is defined by an impact, objective, a proposed mitigation measure and the responsible party. Each aspect is further defined by Project stage, for the purposes of informing Development Consent Conditions of Approval. Stage timing is defined by the following:

- Pre-Construction (PC);
- Construction (C);
- Operation / Maintenance (OM); and
- Refurbishment / Decommissioning (RD).

To enable ease of referencing to chapters the SoC mitigation measures have been split into the associated EIS chapters.

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
Management Plans								
001	Environmental	Minimise impact	An EMS will be developed which outlines environmental practices and procedures to be followed during construction.	Proponent	✓	✓		✓
002	Environmental	Minimise impact	An EMS will be developed, which outlines environmental management practices and procedures that are to be followed during operation.	Proponent			✓	
Landscape and Visual								
003	Impact to receptors	Minimise impact	• Use of a matt and / or off-white finish on the structures to reduce visual contrast between wind turbine structures and the viewing background (this is subject to final wind turbine selection and aviation safety requirements); • Limit amount of advertising, signs or logos mounted on wind turbine structures, except those required for safety purposes; and • Where feasible select materials and colours for ancillary structures with consideration of reflective properties.	Proponent	✓			
004	Impact to receptors	Minimise impact	• If aviation lighting is required, the Proponent will commit to shielding provisions allowed under existing CASA guidelines. Shielding restricts the downward component of light to 5 % of nominal intensity emitted below 5° below horizontal and zero light emission below 10° below horizontal.	Proponent in consultation with CASA	✓			
005	Impact to receptors	Minimise impact	• Reinstate disturbed soil areas closely after completion of construction and decommissioning, where practicable, including re-contouring and re-seeding with appropriate plant species and local materials where feasible; • Where practicable use local materials to reconstitute disturbed areas to minimise colour contrast; • Enforce safeguards to control and minimise dust emissions during construction and decommissioning; and • Limit the height of stockpiles to minimise visibility from outside the Project.	Proponent in consultation with contractor		✓		✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
006	Impact to receptors	Minimise impact	Where visual impacts at non-involved residences have been determined to be Medium, Medium to High or High the Proponent will offer visual impact mitigation to the owner during the construction phase based on the final Project layout. Alternatively, Neighbour Agreements will also be discussed with the relevant residences.	Proponent		✓	✓	
006	Impact to receptors	Minimise impact	Except for emergencies, minimise activities that may require night time lighting and, if necessary, use low lux (intensity) lighting designed to be mounted with the light projecting inwards to the Project site to minimise glare.	Proponent in consultation with contractor		✓	✓	✓
Noise								
007	Impact to receptors	Compliance	Predicted operational noise levels of chosen wind turbine model (including any micro-siting of the layout) are to comply with relevant criteria.	Proponent in consultation with noise consultant, and where applicable, EPA and landowners	✓			
008	Construction noise exceedance	Minimisation	Where practicable, construction is to occur within recommended working hours. Wind turbine erection and concrete pours to be permitted outside of these set hours where climatic conditions are favourable to ensure construction program is maintained. (Protocol to be provided within EMS or sub-plan).	Proponent in consultation with DPE		✓		✓
009	Construction noise exceedance	Minimisation	Prior notification of affected public and restricted use of exhaust / engine brakes in built up areas for night-time deliveries. (Protocol to be provided within EMS or sub-plan).	Proponent		✓		✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
010	Substation noise exceedance	Compliance	If selected substation locations are non-compliant with the *NSW Industrial Noise Policy*, mitigation measures would be applied as appropriate, including; • The use of transformer(s) with a lower sound power level output; • Landscaping, including raised embankments and vegetation, around the substation; and • Providing acoustic upgrades (glazing, façade, masking noise etc) to affected residences.	Proponent		✓		
011	Wind turbine operational noise exceedance	Compliance	If, during operation, wind turbine noise impacts are non-compliant with stated criteria used for the assessment, then an 'adaptive management' approach (protocol to be provided within EMS or sub-plan) can be implemented to mitigate or remove the impact. This process could include: • Investigating the nature of the reported impact; • Identifying exactly what conditions or times lead to undue impacts; • Consideration of operating wind turbines in a reduced 'noise optimised' mode during offending wind directions and at night-time (sector management); • Providing acoustic upgrades (glazing, façade, masking noise etc) to affected residences; and • Turning off wind turbines that are identified as causing the undue impact.	Proponent in consultation with noise consultant, and where applicable, EPA and landowners			✓	
Ecology								
012	Spread of weeds	Minimise spread	An EMS sub-plan will be developed, which includes: • Soil which may contain exotic species to be piled at least 50 m from any water source, or areas of native vegetation; • All construction staff and sub-contractors to be educated on noxious weeds present at the Project site and on ways to prevent spread;	Proponent in consultation with ecologist and associated landowners		✓	✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
			• Where a specific weed risk has been identified, all machinery, equipment and vehicles are to be washed down before entry and egress of the Project site; • Where practicable, topsoil in areas that have a high proportion of native vegetation and is limited in weeds to be harvested to salvage the native soil seed bank and reintroduced into disturbed areas. Otherwise, revegetate with locally native endemic species characteristic of the cleared vegetation type; • Control of perennial weed grasses within the disturbance zone for three to five years after construction; • Where practicable, and in consultation with host landowners, manage stock access during periods of revegetation; and • Imported soil and rubble to be certified as free of weeds and weed seeds.					
013	Loss of biodiversity value	Minimise impact	An EMS sub-plan will be developed, which includes: • All site staff are to be inducted on the procedures of the EMS sub-plan in relation to flora and fauna; • Where practicable, Project vehicles are to remain within the extent of the earth works designed specifically for the Project to minimise vegetation disturbance; • Laydown or temporary disturbance areas will be sited in already disturbed areas where practicable to avoid any unnecessary clearing of native vegetation and habitat; • Where practicable, and in consultation with host landowners, logs and large rocks removed from within the proposed development area are to be redistributed following the completion of works in temporary clearance areas or adjacent areas to supplement habitat; • Where practicable, trenches to be dug at least 15 m away from the base of trees and outside drip lines; • Native vegetation that is removed will be chipped and mulched for on-site use where practicable; • Native vegetation greater than 3 m in height to be retained during transmission line construction where practicable;	Proponent in consultation with ecologist, OEH and DoE	✓	✓	✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
			• Minimise dust creation during construction through the use of water carts; • If micro-siting of the Development Footprint occurs, where practicable, maintain a 30 m buffer between all turbines and hollow-bearing trees; • Boundaries of the construction area are to be clearly identified within EMS sub-plans, and where practicable on the ground, to prevent breaches of construction boundaries; • Outside of the Development Footprint tree clearance will be avoided where practicable; • Rehabilitation of internal access roads that are not required following construction to be undertaken; and • Landscaping around the main collector and switching substation sites is to incorporate native species where appropriate.					
014	Loss of biodiversity value	Minimise impact	An appropriate offset package will be secured within 12 months of commencing construction to compensate for the loss of habitat within the Study Area outlined within this Amended DA. Final calculation of the offset area will be carried out during the pre-construction phase once wind turbine selection has taken place and the final Development Footprint is known.	Proponent in consultation with ecologist, OEH, DoE and associated land owners	✓			
015	Habitat Loss – Golden Sun Moth	Minimise impact	An EMS sub-plan will be developed to include specific measures to address loss of habitat for Golden Sun Moth (GSM). Measures include: • Disturbance to mapped GSM habitat will be minimised during the flying period, from November to January, if possible; • Areas of habitat will be delineated by barrier tape (or similar) to clearly demarcate these areas and limit risk of vehicles traversing through habitat accidently; and • All vehicle movements will be contained to roads and tracks where possible.	Proponent in consultation with ecologist, OEH and DoE	✓	✓	✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
016	Habitat Loss – Box-Gum Woodland	Minimise and manage impact	An EMS sub-plan will be developed to include specific measures to address loss of habitat for Box-Gum Grassy Woodland and Derived Native Grassland (DNG). Measures include: • Where micro-siting of transmission lines and easements is to occur, impacts are to be minimised by siting in areas that are already cleared for existing driveways and access gates where possible; • Where hollow bearing trees are removed, the material will be placed in adjacent habitat, where practicable in consultation with landowners; • Clearing will be restricted to the canopy and mid-storey; and • Remaining Box-Gum Grassy Woodland areas (including areas of DNG) will be delineated by barrier tape (or similar) to clearly demarcate these areas and limit the risk of vehicles or machinery causing damage to these areas.	Proponent in consultation with ecologist, OEH, DoE and associated land owners	✓	✓	✓	✓
017	Fauna Mortality	Pre-clearance protocol	An EMS sub-plan will be developed to include specific measures to minimise fauna mortality. Measures include: • Designing a pre-clearance protocol to manage the removal of fauna from hollow-bearing trees; • Undertaking pre-clearance surveys to determine if roosts, nests or dens are present in any hollow-bearing trees; • An Environmental Compliance Manager or field officer qualified in the handling of fauna to be present on-site during clearing of hollow-bearing trees to capture and re-release fauna, where appropriate; • A trench monitoring protocol will be prepared and implemented to rescue trapped fauna; • Where practicable, fencing to be erected along open trenches to prevent fauna falling in; and • Management measures will be defined to reduce fauna mortality on roads and access tracks.	Proponent in consultation with ecologist, OEH and DoE	✓	✓		✓
018	Erosion, Runoff and Dust	Manage impact	Erosion and sediment control measures to be included in an EMS sub-plan to limit runoff to adjacent habitat areas and watercourses. Details to	Proponent	✓	✓	✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
			include devices to be installed, monitoring requirements and corrective actions. Management measures to include: • All erosion and sedimentation control devices regularly checked, cleared and repaired, particularly after periods of heavy rainfall; • Rehabilitation and stabilisation methods to limit erosive and dust generation potential of earth areas exposed that are not required for permanent infrastructure; • Disturbed soil surfaces should be stabilised as soon as practical after works have ceased in the area; • Stockpiles will be covered, where practicable, to prevent the loss of material during high wind and rain events, and appropriate sediment barrier fencing will be used in areas to inhibit the flow of sediment into surrounding areas; and • Stock pile locations will consider shelter from the wind where practical.					
019	Wind turbine Collisions or Barotrauma	Minimise impact	A specific Bird and Bat Adaptive Monitoring Plan (BBAMP) to be developed with the objective of minimising the impacts of the operational wind farm on threatened bird species. The BBAMP will include: • The required monitoring measures; • Key thresholds for determining permissible impacts and corrective actions that are required in order to achieve the objectives of the plan; and • The roles and responsibilities for the proponent, operator and agencies in implementing, assessing and enforcing the plan. The frequency of reporting strike data will be determined during the preparation of a monitoring program. Adaptive management measures that could be implemented should strike thresholds be reached will be negotiated with OEH and DoE if significant strike rates are detected. Bird	Proponent in consultation with OEH and, where applicable, DoE	✓	✓	✓	

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
			and bat strike monitoring will be undertaken with consideration of relevant monitoring guidelines.					
Cultural Heritage								
020	Loss of cultural heritage items	Minimise impact	An EMS sub-plan will be developed within six months of planning approval with consideration of the list of mitigation and management strategies contained within **sections 7 and 9** of **Appendix 13 to the EIS**. In summary, these include: • The Proponent, in consultation with a qualified archaeologist, relevant Aboriginal communities and OEH, developing a Cultural Heritage Management Protocol which provides procedures to be followed for impact avoidance and accidental discovery; • Personnel involved in the construction and management phases of the Project trained by a qualified archaeologist in procedures to implement recommendations relating to cultural heritage, where necessary, to decrease impact. This training should include: o Identification of Aboriginal objects and skeletal material; o Aboriginal cultural awareness and o Procedures to be followed during the life of the project; and • Cultural heritage should be included within any environmental audit of impacts proposed to be undertaken during the construction phase of the development. Further, the following mitigation and management strategies are suggested to minimise the impact on Aboriginal objects and places: • Ground disturbance impacts associated with the Project be kept to a minimum and to defined areas, to ensure minimum impact on Aboriginal objects, which can be expected to extend in a relatively continuous, albeit very low to low density distribution, across the broader landscape encompassed by the Project; • It is recommended that additional archaeological assessments are to be carried out if any new impacts are to occur outside the Study area.	Proponent in consultation with OEH and where applicable, relevant Aboriginal communities	✓	✓	✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
			If a significant Aboriginal object is identified, prior to impact, mitigation strategies will be implemented. It may be culturally appropriate to salvage artefacts from certain sites; and • Aboriginal Site Impact Recording Forms are to be completed (and submitted to the OEH) for each Aboriginal object / locale harmed during construction of the Project.					
Traffic and Transport								
021	Safety and asset protection	Minimise risk	Contract a licensed haulage contractor with experience in transporting heavy and over-size loads, to be responsible for obtaining all required approvals and permits from the RMS and Councils and for complying with any conditions specified in the aforementioned approvals. The contractor is required to be cognisant of the proposed route upgrades outlined in **section 12.4.2** of the EIS and **Appendix 14** and the commitment made within Table 5 of the **Amended DA**, with appropriate upgrades and mitigation measures to be agreed in consultation with the relevant authorities during detailed design.	Proponent in consultation with contractor, RMS and Councils	✓			
022	Safety and asset protection	Minimise risk	An EMS sub-plan will be developed, to include, but not be limited to: • Scheduling of deliveries, timing of transport, limiting the number of trips per day, and reducing traffic during school bus route hours, i.e., 7.00 to 9.00 am and 3.00 to 4.30 pm; • Undertaking community consultation before and during all haulage activities and providing a dedicated telephone contact list to enable any issues to be rapidly identified and addressed; • Letterbox drop along affected routes; • Minimise disruption to local vehicles by ensuring average and maximum wait times due to Project related traffic along local roads are kept to a minimum (typically an average maximum of 3 minutes wait time); • Managing the haulage process, including temporary, short term road closures, the erection of warning signs and / or advisory speed signs	Proponent in consultation with licensed haulage contractor and road authorities	✓	✓		✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
			posted in advance of isolated curves, crests, narrow bridges and changes of road conditions; • Designing and implementing temporary modifications to intersections and roadside furniture as appropriate; • Assessing, designing and implementing potential alignment changes to the existing road and culverts; • Producing a Transport Code of Conduct which would be made available to all contractors and staff detailing traffic routes, behavioural requirements and speed limits; • Establishing procedures to monitor traffic impacts on public and internal access tracks during construction, including noise, erosion, sediment, dust nuisance and travel times, and to implement modified work methods to reduce such impacts where practicable; • Where reconstruction or provision of a temporary crossing is required over a creek or drainage structure, the design of this structure will be discussed with the relevant authority; and • Reinstating pre-existing conditions after temporary modifications to the roads and pavements along the route, where applicable, in consultation with relevant authorities.					
023	Safety and asset protection	Minimise risk	An EMS sub-plan will be developed to minimise and manage impacts on local roads and infrastructure, which shall include: • Prepare road dilapidation reports covering pavement, drainage and bridge structures, in consultation with RMS and the local Councils, where relevant, for all of the proposed transport routes before and after the relevant stage of construction. • Develop a program of inspection regimes in consultation with the local Councils. • Damage resulting from construction traffic, except that resulting from normal wear and tear, would be repaired at the Proponent's cost. • Alternatively, the Proponent may negotiate other forms of compensation for road damage with the relevant road authorities, as appropriate.	Proponent in consultation with Council and road authorities	✓	✓		✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
024	Safety and asset protection	Minimise risk	Consideration for establishing a transport pool for employees from nearby towns to minimise traffic volumes.	Proponent	✓	✓	✓	✓
025	Safety and asset protection	Minimise risk	Establish a procedure to ensure the ongoing maintenance of the Project site internal access roads during the operation phase. This maintenance would include sedimentation and erosion control structures, where necessary.	Proponent			✓	
026	Safety and asset protection	Minimise risk	Prior to decommissioning, prepare and implement an EMS sub-plan reflecting change in traffic operation and volume in future years.	Proponent in consultation with Council and road authorities				✓
Aviation Assessment								
027	Creation of hazard	Minimise risk	The Proponent will provide the RAAF AIS, CASA, AsA, AAAA, RFDS and NSW RFS with the final wind turbine and monitoring mast locations and dimensions prior to construction. After construction is complete, the Proponent will provide RAAF AIS, CASA, AsA, AAAA, RFDS and NSW RFS with the "as constructed" details.	Proponent	✓	✓	✓	
028	Creation of hazard	Minimise risk	The Proponent will provide CASA with notification of any cranes (temporary obstacles) that exceed 110 m above ground level.	Proponent	✓	✓		✓
029	Creation of hazard	Minimise risk	Appropriate information regarding the wind turbine layout and dimensions, including monitoring masts will be supplied to the NSW RFS, if required, to assist in their planning and execution of airborne fire response.	Proponent	✓	✓	✓	✓
030	Creation of hazard	Minimise risk	On receipt of Development Consent for the Project, and with particular regard to the Aeronautical Impact Assessment and Obstacle Lighting	Proponent in consultation with CASA	✓			

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
			Review, the Proponent will consult with CASA on the issue of obstacle lighting.					
Communication								
031	Deterioration of signal strength	Minimise deterioration	Where practicable, use equipment complying with appropriate Electromagnetic Emission Standards.	Proponent	✓	✓		✓
032	Deterioration of signal strength	Minimise deterioration	Establish a system for recording any complaints on interference, to allow for further investigations with the affected party, and to reach an amicable solution.	Proponent			✓	✓
033	Deterioration of signal strength	Minimise deterioration	General mitigation methods for radio-communication, if impacts occur, may include: • Modifications to or relocation of existing antennae; • Installation of a directional antennae; and • Installation of an amplifier to boost the signal.	Proponent			✓	✓
034	Deterioration of signal strength	Minimise deterioration	If television interference is experienced and reported by an existing receiver in the vicinity of the Project, the source and nature of the interference would be investigated by the Proponent. Should the cause of interference be attributed to the Project, then the Proponent will put suitable mitigation measures in place after consultation and agreement with the affected landowner or television broadcaster. These could include: • Replacement / re-orientation of existing aerials to an alternative transmitter; • Provision of a land line between the affected receiver and an antenna located in a suitable reception area; • Provision of satellite (including new VAST Satellite TV service); and • Installation of a new repeater station in a location where interference can be avoided.	Proponent			✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
Electromagnetic Fields								
035	Exposure to EMFs	Minimise exposure	Bury electrical cables where feasible to shield electrical fields.	Proponent		✓		✓
036	Exposure to EMFs	Minimise exposure	Place appropriate security fencing around emitting structures (e.g. collector substation and switching station sites).	Proponent	✓			
037	Exposure to EMFs	Minimise exposure	Ensure the public, including tourists, that need to go near emitting structures are accompanied by a trained and qualified staff member.	Proponent			✓	✓
Fire and Bushfire								
038	Increase risk of fire ignition or spread	Minimise risk	Adherence to all regulations under the *NSW Rural Fires Act 1997* and the Southern Tablelands and South West Slopes Bushfire Risk Management Plans.	Proponent in consultation with relevant authorities	✓	✓	✓	✓
039	Increase risk of fire ignition or spread	Minimise risk	Prepare an Emergency Response Plan in accordance with the '*Guide to Developing a bushfire Evacuation Plan'* (NSW RFS 2004) and the AS 3745:2010 *'Planning for Emergencies in Facilities'*	Proponent in consultation with NSW RFS and NSW Fire Brigade	✓			
040	Increase risk of fire ignition or spread	Minimise risk	The NSW RFS and NSW Fire Brigade will be consulted regarding the adequacy of bushfire prevention measures to be implemented on-site during pre-construction, construction, operation and decommissioning. These measures will potentially cover hot-work procedures, asset protection zones (APZs), safety, communication, site access and response protocols in the event of a fire originating in the Project infrastructure, or in the event of an external bushfire threatening the Project or nearby properties.	Proponent in consultation with RFS and NSW Fire Brigade	✓	✓	✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
041	Increase risk of fire ignition or spread	Minimise risk	Provide NSW RFS with the locations of individual wind turbines, wind monitoring masts, ancillary infrastructure, construction work schedule, location of additional water supplies for construction, potential landing pads for firefighting aircraft and helicopters and access gates for firefighting services.	Proponent	✓	✓	✓	✓
042	Increase risk of fire ignition or spread	Minimise risk	Installation of access tracks of appropriate width and vertical clearances with access suitable for all weather conditions.	Proponent	✓	✓		✓
043	Increase risk of fire ignition or spread	Minimise risk	Construction and maintenance staff trained in the basic first response firefighting techniques.	Proponent in consultation with NSW RFS and NSW Fire Brigade		✓		✓
044	Increase risk of fire ignition or spread	Minimise risk	Provide and maintain firefighting equipment capable of controlling and suppressing small initial outbreaks of fire.	Proponent		✓		✓
045	Increase risk of fire ignition or spread	Minimise risk	Maintain provision for mobile telephone and UHF radio communications.	Proponent in consultation with NSW RFS and NSW Fire Brigade		✓		✓
046	Increase risk of fire ignition or spread	Minimise risk	The collector substations will be bunded with a capacity exceeding the volume of the transformer oil. The facility will be regularly inspected and maintained to ensure leaks do not present a fire hazard, and to ensure the bunded area is clear (including the removal of any rainwater).	Proponent	✓	✓	✓	✓
047	Increase risk of fire ignition or spread	Minimise risk	Placement and maintenance of APZ around project infrastructure where appropriate to minimise the spread of fire, to include:	Proponent	✓	✓	✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
			• Maintain fuel reduced zones for all overhead transmission lines in consultation with TransGrid and / or Essential Energy; • Surround collector substations with a gravel and concrete area, free of vegetation; • Maintain a reduced fuel zone (APZ or defendable space) around each turbine to ensure adequate defendable space in accordance with the performance criteria and acceptable solutions of PBP 2006; • Maintain a fuel reduced zones around construction activities that may result in ignition of a fire, i.e. welding; and • Ignition creating activities such as welding not to be undertaken outside on days of total fire ban.					
048	Increase risk of fire ignition or spread	Minimise risk	Wind turbines will be shut down if monitored components reach critical temperatures or if directed to by the NSW RFS in the case of a nearby bushfire being declared (an all-hours contact number would be available to the NSW RFS during the bushfire period).	Proponent in consultation with the RFS			✓	
049	Increase risk of fire ignition or spread	Minimise risk	Flammable materials and ignition sources brought onto the Project site will be handled and stored as per manufacturer's instructions.	Proponent		✓	✓	✓
050	Increase risk of fire ignition or spread	Minimise risk	Lightning protection will be installed correctly and maintained to minimise risk of malfunction.	Proponent		✓		✓
051	Increase risk of fire ignition or spread	Minimise risk	Total fire ban days will be considered in regard to hours within which construction takes place, minimising the risk of fire and bushfire ignition.	Proponent		✓		✓
052	Increase risk of fire ignition or spread	Minimise risk	Undertake regular inspections of overhead transmission lines to ensure they are not fouled by branches.	Proponent	✓	✓		✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
053	Increase risk of fire ignition or spread	Minimise risk	Where appropriate, ensure adequate access to water for NSW RFS and firefighting crews as detailed in the Bushfire Management and Emergency Response Plan.	Proponent in consultation with the NSW RFS		✓	✓	✓
054	Increase risk of fire ignition or spread	Minimise risk	All site vehicles to have diesel engines and to use the site access roads to minimise the likelihood of igniting dry grass.	Proponent		✓	✓	✓
Water								
055	Loss of integrity to riparian corridor	Minimise loss	Works and disturbances not identified as part of the Development Footprint within the Amended DA (with the exception of crossings) should not be located in any riparian corridors.	Proponent in consultation with NOW	✓	✓		✓
056	Loss of integrity to riparian corridor	Minimise loss	NOW guidelines for river crossing designs, based on the Strahler Stream Order Categorisation to minimise environmental impact, will be followed in the design and upgrade of existing roads and river crossings.	Proponent in consultation with NOW	✓	✓		✓
057	Impact on watercourses	Minimise impact	All waterway crossings are to undergo detailed assessment and design post-approval, and are to be constructed in consultation with NOW and DPI (Fisheries) and in line with the NOW *Guidelines for Controlled Activities* and DPI (Fisheries) guidelines: *Policy and Guidelines for Fish Friendly Waterway Crossings* (2004) and *Why do Fish Need to Cross the Road* (2004).	Proponent in consultation with NOW and DPI (Fishing and Aquaculture)	✓	✓		
058	Impact on watercourses	Minimise Impact	All required watercourse crossings will be designed to protect and enhance water flow, water quality, stream ecology and existing riparian vegetation.	Proponent in consultation with NOW	✓	✓		
059	Loss of water quality and change to hydraulic regime	Minimise loss and impact on adjacent watercourses	An EMS sub-plan will be developed to ensure soil disturbance and erosion from surface runoff is minimised and in order to minimise disturbance to water resources and riparian zones in the area. This sub-plan will include:	Proponent in consultation with NOW and in	✓	✓	✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD

			• Construction and operation of the Project to comply with Section 120 of the *Protection of the Environment Operations (POEO) Act 1997*;
			• Project design and construction to not worsen existing flooding characteristics in the vicinity of the Project;
			• Monitoring of low- and high- flow conditions is to be regularly undertaken prior to the commencement of works to determine baseline water quality parameters. Surface water monitoring locations should include:
			  ○ Junction of Dirt Hole Creek and Bank Creek;
			  ○ Junction of Langs Creek and Rocky Creek;
			  ○ Junction of Dry Creek and Langs Creek;
			  ○ Upper reaches of Fat Jack Creek;
			  ○ Upper reaches of Gorham Creek;
			  ○ Upper reaches of Hardiman Creek;
			  ○ Upper reaches of Kangiara Creek; and
			  ○ Upper reaches of Thorsby Creek.
			• All ancillary drainage infrastructure, e.g., sediment and litter traps are to, where practicable, be located outside the riparian corridor. Runoff is to be of an appropriate water quality and quantity before discharge into a riparian corridor or watercourse;
			• All stockpiles are to be located away from drainage lines and natural watercourses, road surfaces and trees and, where necessary, are to be appropriately protected to contain sediment and runoff (e.g. sediment fencing);
			• Regular inspection, maintenance and cleaning of water quality and sedimentation control devices; and
			• Due regard for the Lachlan (Kalare) CAP in the preparation of the EMS.
				reference to Landcom 2004				

060	Loss of water quality and change to hydraulic regime	Minimise loss and impact on adjacent watercourses	Mitigate for any impacts on groundwater as a result of the construction or operation of the Project, including contamination and impacts on flow rates. Ensure that there are no lasting impacts on groundwater following decommissioning.	Proponent in consultation with Landcom 2004		✓	✓	✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
061	Loss of water quality and change to hydraulic regime	Minimise impact on groundwater	Carry out a groundwater investigation prior to any blasting on-site (if required) to ensure that there is no adverse impact on groundwater for users or dependent ecosystems. If the investigation highlights areas of concern, then appropriate mitigation or alternative methods will be used.	Proponent in consultation with NOW	✓	✓		
062	Supply of water for construction	Obtain water for construction	Calculate all necessary water demands once final Development Footprint has been determined. Identify water requirements, including the locality of proposed works, extraction points, times, volumes and rates. Secure the necessary water licensing permits required at the time of extraction.	Proponent in consultation with NOW	✓	✓		
063	Supply of water for construction	Obtain water for construction	Should the on or near-site provision of water be insufficient, water will be sourced from commercial suppliers as required.	Proponent	✓	✓		
Air Quality								
064	Deterioration of air quality	Minimise impact	An EMS sub-plan will be developed to minimise and manage impacts on air quality which shall include: • The identification of potential sources of dust; • Dust management objectives; • Mitigations measures to be implemented, including measures during weather conditions where high level dust episodes are probable; • A monitoring program to assess compliance with identified objectives; and • Mechanisms for the monitoring, review and amendment of this plan.	Proponent	✓	✓		✓
065	Deterioration of air quality	Minimise impact	During excavation topsoil will be stockpiled. After excavation topsoil will be replaced for seeding and excess subsoil will be disposed of in an appropriate manner. If any excavation occurs on steep slopes the topsoil may need to be stabilised.	Proponent		✓		✓
066	Deterioration of air quality	Minimise impact	Where practicable, stockpiled material will be covered with plastic, seeded or otherwise bound to reduce dust. Dust levels at stockpile sites	Proponent		✓		✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
			are to be visually monitored. Dust suppression (e.g. water sprays) will be implemented if required.					
067	Deterioration of air quality	Minimise impact	During dry and windy conditions a water cart or alternative (non-chemical) dust suppression would be available and applied to work areas.	Proponent		✓		✓
068	Deterioration of air quality	Minimise impact	If blasting is required, appropriate guidelines for control of blasting impacts will be followed. (i.e. Australian New Zealand Environment and Conservation Council).	Proponent in consultation with ANZECC		✓		✓
Soil and Landforms								
069	Disturbance to soil and water	Minimise disturbance	Soil and water management measures consistent with Landcom (2004) to be employed during construction to minimise soil erosion and the discharge of sediment and other pollutants to land and / or water.	Proponent in reference to Landcom 2004	✓	✓		
070	Disturbance to existing land formations	Minimise disturbance	An EMS sub-plan will be developed to provide specific measures for soil, including: • Procedures for personnel to manage suspected contaminated soils disturbed during earthworks; • All disturbed soil surfaces to be stabilised as soon as practicable after works have ceased in the area; • All stockpiles to be covered where practicable to minimise the loss of material during high wind and rain events. Where practicable, stockpiles to be placed in areas sheltered from the wind; • Planning for erosion and sediment control concurrently with engineering design, prior to any works commencing; • Progressive rehabilitation of disturbed land as soon as practicable; • Jute matting or similar to be used to stabilise the soil and minimise weed invasion; and • Implementation of management measures to minimise sediment and runoff entering watercourses.	Proponent	✓	✓		✓

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
071	Soil compaction	Minimise impact	An EMS sub-plan will be developed which will have specific measures for stock management: • Removal of stock access from construction areas for entire construction periods to allow for regeneration – subject to landowner participation; and • Before remediation works, grazing to be removed where practicable, and subject to landowner participation and the grass sward allowed time to recover and minimise areas of bare soil.	Proponent in consultation with associated landowners		✓		✓
Waste								
072	Waste generation	Minimise waste and maximise recycling	Provide skip bins and recycling bins on-site to handle packaging materials and domestic waste.	Proponent		✓	✓	✓
073	Waste generation	Minimise waste and maximise recycling	Mulch vegetation and use on-site where feasible, otherwise burn on-site with permission from Council, provide firewood to landowners or take to the Boorowa Garbage Depot operated by Boorowa Council or Murrumbateman Transfer Station / Landfill operated by Yass Valley Council.	Proponent		✓		✓
074	Waste generation	Appropriate disposal of waste	On-site toilets will either be drained by a septic tank or be an enclosed unit.	Proponent		✓	✓	✓
075	Waste generation	Appropriate disposal of waste	All chemicals and oils will be treated as contaminated waste at the Boorowa Garbage Depot, the Murrumbateman Transfer Station / Landfill or via ChemClear.	Proponent		✓	✓	✓
076	Waste generation	Appropriate disposal of waste	Any disposal of unsuitable excavated material will require approval from local Council.	Proponent		✓		✓
Crown Roads and Trigonometrical Stations								

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
077	Damage to Trigonometrical Stations	Avoid damage	Commitment to avoid disturbing and damaging the Trigonometrical Stations and adjacent witness marks.	Proponent		✓		✓
078	Crown roads	Liaise with the DPI (Catchments and Lands (CaL))	Relevant permits will be sought from CaL where Project infrastructure impacts upon Crown Roads.	Proponent in consultation with CaL	✓	✓		✓
Construction								
079	Environmental	Minimise impact	Micro-site Project infrastructure with respect to the Study Area and Development Footprint assessed within the Amended DA, whilst minimising impacts to non-involved residences and ecologically sensitive habitats and species.	Proponent in consultation with DPE	✓	✓		✓
080	Environmental	Minimise impact	On-site environmental representative to be granted authorisations to permit minor modifications to the project design with general regard to the Amended DA following detailed design activities.	Proponent	✓	✓		✓
081	Decommissioning	Manage process	A Decommissioning and Rehabilitation Plan (DRP) will be prepared during the pre-decommissioning phase, towards the end of the Project's life. The DRP will detail the process of decommissioning, including addressing whether components are to be removed or left in situ. All decommissioning work will be the responsibility of the Project owner, which is a provision within the lease arrangements with relevant landowners.	Proponent in consultation with Landowners				✓
Mineral Exploration								

	Impact	Objective	Mitigation Measure	Responsibility	Stage			
					PC	C	OM	RD
082	Future land use for mineral exploration	Minimise impact	Liaise with relevant mining companies and provide updates of any modifications to the Project design that arise during the construction of the Project.	Proponent		✓		
083	Future land use for mineral exploration	Minimise impact	At the time of decommissioning, communicate with associated landowners and mineral title holders that may wish to retain roads.	Proponent				✓
Community Wellbeing								
084	Effect on local area	Maximise positive effect of proposal	A contribution of $2,825 per installed wind turbine annually into a Community Fund as each stage of the Project commences commercial operation. This fund will be established in close cooperation with Yass Valley and Boorowa Councils with decisions on how funds are to be allocated determined by a committee made up of representatives from the local community, Council and the Proponent.	Proponent in consultations with Councils and community	✓		✓	✓
Economic								
085	Effect on local area	Maximise positive effect of proposal	Local contractors will be used where feasible, which will allow the Proponent to utilise the full potential of local resources.	Proponent in consultation with local industry reps	✓	✓		✓

8. Conclusion

This Amended DA has evaluated the reduced environmental impacts that may result from the proposed amendments to the Bango Wind Farm, a revised proposal incorporating up to 75 wind turbines.

The Project remains consistent with the State's priorities to secure a reliable electricity supply with an increased renewable energy component, and contributes significantly to the achievement of the State's renewable energy target. The Project will also play an important role in contributing to both the increasing local and global need for such renewable projects to tackle the issues of Global Warming and Climate Change; contributing additional renewable energy generation to meet the legislated Australian target.

The Project has been assessed in accordance with the *Environmental Planning and Assessment Act 1979* and has taken into consideration the *Environment Protection and Biodiversity Conservation Act 1999*, along with other Federal, State and Local Government legislation, policy and guidelines. The scope of the assessment covered the Secretary's Environmental Assessment Requirements, the requirements of other State and Federal agencies, and consideration of the wellbeing of community stakeholders. The Environmental Impact Statement process, including responses received and responded to arising from public exhibition, entailed consultation with a wide range of Project stakeholders. Specialists were also engaged to provide independent predictive modelling and impact assessment expertise in key environmental and technical areas.

The operation of the Project would entail environmental and social impacts, in particular the introduction of visually prominent structures on the rural landscape of the Project site, and some loss to the agricultural production of land which will be occupied by wind farm infrastructure. As part of the iterative process of project development, the Project layouts and siting of associated infrastructure have been optimised to avoid areas of environmental and cultural significance, minimise disruption to agricultural production, and reduce as much as possible visual, noise and amenity impacts on the local community. The same environmental and sustainability objectives will continue to be significant considerations in the final choice of model and micro-siting of the wind turbines.

The EIS and Amended DA demonstrate the suitability of the site as the potential impacts of the Project could be avoided or mitigated to reduce any residual environmental risks to low levels. The Statement of Commitments within the Amended DA detail all environmental aspects related to the Project which should be used to inform Development Consent Conditions of Approval. The Proponent is committed to ensuring the measures proposed in developing the Project are best practice, and that they maintain the high standard set in all regions within which CWP Renewables operate.

The Project is in the public interest as it would deliver a sustainable source of energy with minimal environmental and social impact to the Project Site and region, addressing climate change, improving the resilience of our energy supply and delivering local and regional jobs and economic stimulus. The environmental performance of the Project will be continually monitored so that the positive environmental and social outcomes are achieved and maintained. The existing land use within the project site will continue concurrent with the operation of the wind farm, thereby maintaining the Project Site's agricultural production capacity. Aside from the reduction in greenhouse gases, opportunities to offset residual loss of native vegetation and habitat through the protection and enhancement of existing habitat will help achieve a net environmental benefit from the Project.

It is therefore considered that the construction, operation and decommissioning of the proposed Bango Wind Farm is justified on the basis of the environmental benefits it will bring, even as the range of mitigation measures identified in this Amended DA minimises its potential environmental impacts.

Appendix A – A3-Sized Project Maps

A1 – Layout 1 – Project Overview Map

A2 - Layout 1 – Project Overview Constraints Map

A3 - Layout 2 – Project Overview Map

A4 - Layout 2 – Project Overview Constraints Map

A5 – Photomontages

A6 – Wireframe images

Appendix B - Consultant Reports & Correspondence

B1 – iCubed preliminary designs for Main Entrance

B2 – ERM Biodiversity Response to Submissions

B3 – Sonus Noise Impact Assessment Report

B4 – Green Bean - Updated Landscape and Visual Impact Assessment

B5 - Correspondence with Councils regarding roads

B6 - Aviation Impact Assessment Report

B7 - Cultural Heritage Impact Assessment Summary