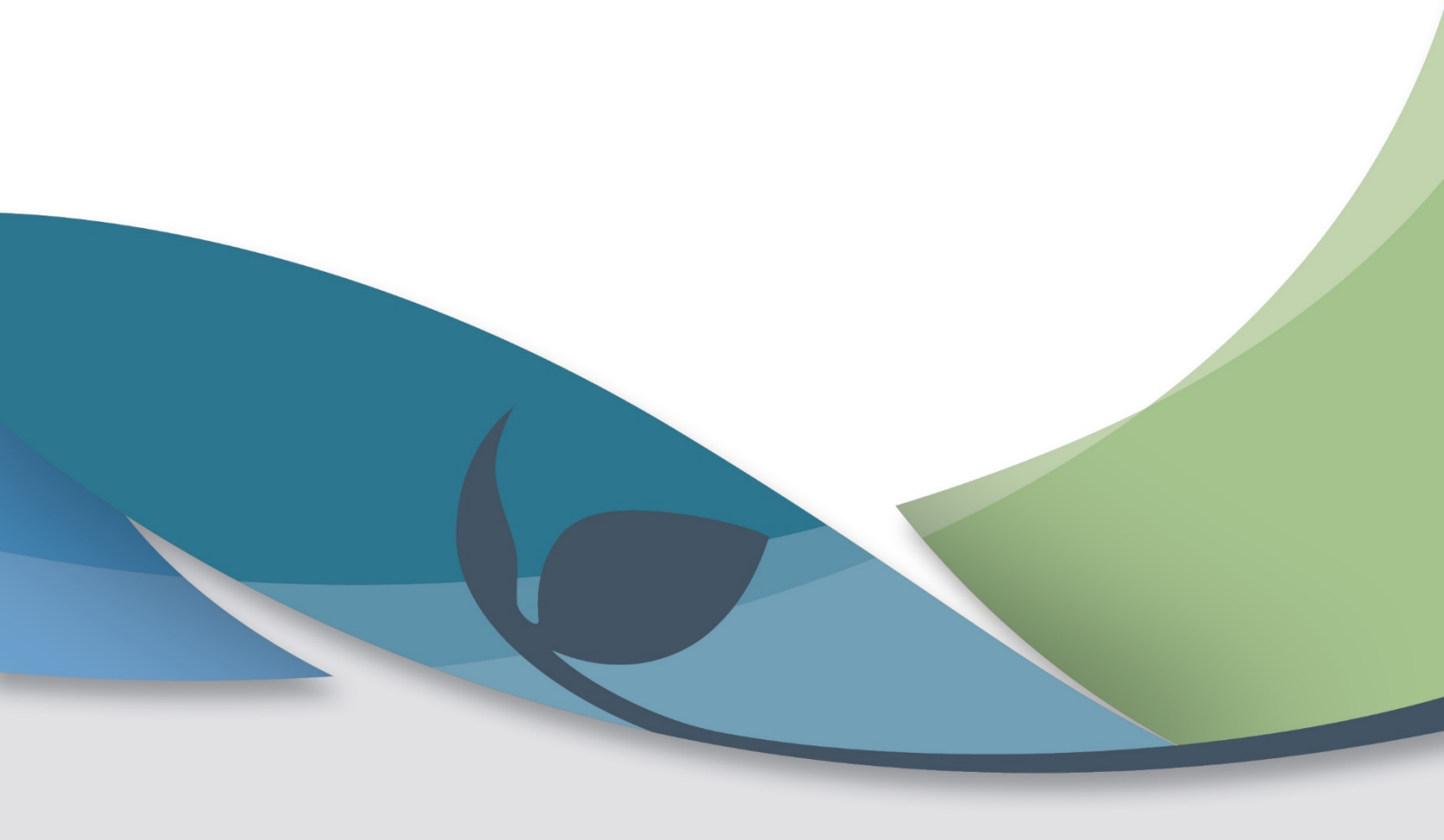
JAMES BAILEY & ASSOCIATES
Environmental and Planning Consultants

BOWMANS CREEK WIND FARM

SUBMISSIONS REPORT

for Epuron Projects Pty Ltd

8 October 2021



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Author	James Bailey & Associates Pty Ltd
Author Address	6/127-129 John Street, Singleton NSW 2330
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CONTENTS

TABLES

FIGURES

APPENDICES

1. INTRODUCTION

1.1 BACKGROUND

Epuron Projects Pty Ltd (the Proponent) is seeking approval for the construction, operation, maintenance and decommissioning of the Bowmans Creek Wind Farm (the Project), which is generally located at Bowmans Creek, approximately 10 kilometres (km) east of Muswellbrook and 120 km north-west of the Port of Newcastle in NSW (**Figure 1**).

The Proponent is seeking State Significant Development (SSD) Consent (SSD 10315) under Division 4.7 of Part 4 of the *Environmental Planning & Assessment Act 1979* (EP&A Act) and an Environment Protection and Biodiversity Conservation Approval (Referral 2020/8631) under Section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

An Application for SSD Consent and supporting Scoping Report titled '*Bowmans Creek Wind Farm Scoping Report*' was submitted to the NSW Government for assessment and determination in May 2019. The EPBC Referral to the Commonwealth Department of Agriculture, Water and Environment (DAWE) for the Project under the EPBC Act was submitted at the same time and shortly thereafter determined to be a 'Controlled Action'. At this time, it was confirmed that the EPBC assessment would be undertaken in accordance with the Bilateral Agreement between the Commonwealth and NSW Governments. Following the determination of the Development Consent, the Federal Minister for the Environment will review the Project to confirm whether an 'Approval Decision' can be made under Section 133 of the EPBC Act with or without conditions.

The NSW Department of Planning, Industry and Environment (DPIE) issued the Secretary's Environmental Assessment Requirements (SEARs) for the Project on 23 July 2019. Revised SEARs were issued on 13 July 2020 to incorporate DAWE's requirements in relation to EPBC Approval 2020/8631.

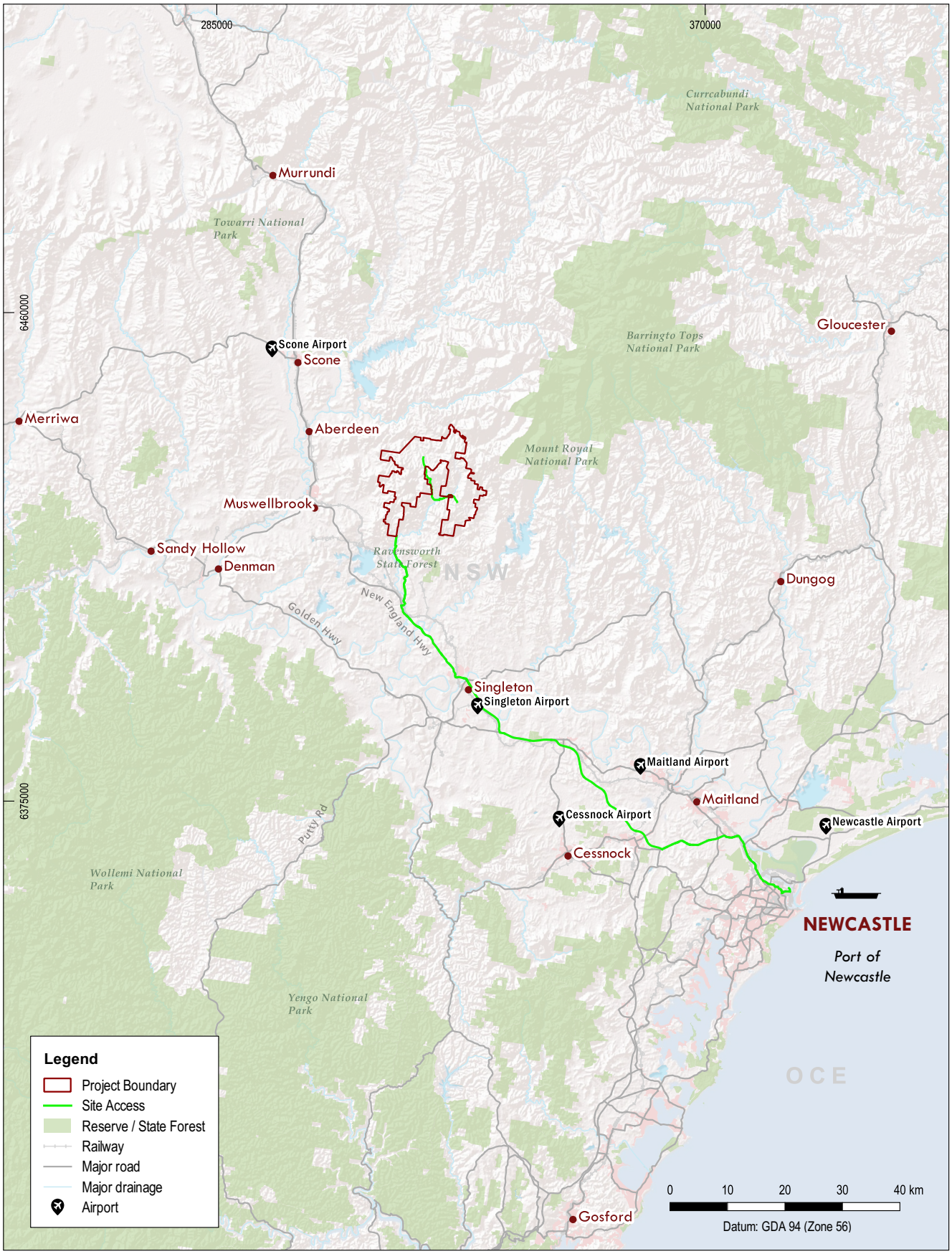
The Bowmans Creek Wind Farm Environmental Impact Statement (EIS) (Hansen Bailey, 2021) was prepared in accordance with the SEARs, deemed adequate for public exhibition and subsequently placed on public exhibition between 31 March 2021 and 11 May 2021.

During public exhibition of the EIS, a total of 167 submissions were received from both government agencies and general public. This Submissions Report has been prepared to respond to issues raised during the exhibition period. This Report has generally been prepared in accordance with DPIE *State Significant Development Guidelines – Preparing a Submissions Report* (SSD Submissions Guidelines) (DPIE, July 2021).

An Amendment Report (James Bailey and Associates (JBA), 2021) has also been prepared, which outlines a number of changes to the Project that are proposed in response to issues raised by stakeholders and to further mitigate or minimise environmental impacts.

This Submissions Report should be read in conjunction with the Amendment Report.

Source: Airports courtesy of Oz runways (Airservices Aust), Oz Runways, WAC Chart, 9 October 2019; World Shaded Relief © Esri



Bowmans Creek Wind Farm | Fig01_NSW Locality | 10 09 2021

BOWMANS CREEK WIND FARM

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NSW Locality

FIGURE 1

1.2 DOCUMENT PURPOSE

This Submissions Report has been prepared by JBA on behalf of the Proponent to support SSD 10315 under Section 4.12(8) of the EP&A Act. The document responds to the issues raised in submissions by stakeholders during the public exhibition period.

1.3 DOCUMENT STRUCTURE

This Submissions Report is structured as follows:

- **Section 2** includes an analysis of the submissions received from stakeholders;
- **Section 3** describes the Project as exhibited and subsequent refinements proposed following a consideration of the submissions received over the exhibition of the EIS. It further describes any other relevant actions taken since the exhibition of the EIS;
- **Section 4** provides comprehensive responses to the issues raised by Government Agencies;
- **Section 5** provides responses by theme to the public submissions;
- **Section 6** provides an updated Project justification;
- **Section 7** provides a revised management and monitoring summary;
- **Section 8** outlines all referenced materials relevant to this report; and
- **Section 9** lists the abbreviations utilised in this Submissions Report.

Appendix A provides a register identifying the stakeholders who made submissions on the EIS and denotes the relevant environmental or socio-economic issue raised by the stakeholder. A response to each issue is provided in **Section 4** and **Section 5**. Each stakeholder has been assigned a stakeholder reference number which is referenced throughout the responses.

Technical specialists involved in the preparation of the EIS have provided additional expert advice during the preparation of this Submissions Report. Where applicable and as referenced, this Submissions Report should be read in conjunction with detailed technical information provided in the appendices.

2. ANALYSIS OF SUBMISSIONS

This section provides an analysis and summary of the stakeholder submissions pertaining to the Project and the content in the EIS. Where a number of submissions were received from the same stakeholder, these have been analysed as one submission, as determined by DPIE.

2.1 REGULATORY SUBMISSIONS

A total of 19 government agencies made submissions in relation to the Project as per the list below:

- Subsidence Advisory NSW (SANSW);
- Heritage NSW - Aboriginal Cultural Heritage (ACH);
- Transport for NSW (TfNSW);
- Civil Aviation Safety Authority (CASA);
- Airservices Australia (ASA);
- Department of Defence (DoD);
- NSW Rural Fire Service (NSW RFS);
- Upper Hunter Shire Council (UHSC);
- Singleton Council (SC);
- Muswellbrook Shire Council (MSC);
- NSW Department of Primary Industries – DPI Agriculture (DPI Agriculture);
- Crown Lands;
- Fire and Rescue NSW (FRNSW).
- NSW Department of Primary Industries – Fisheries (DPI Fisheries);
- Environment Protection Authority (EPA);
- Roads and Maritime Services Division (RMS);
- Biodiversity and Conservation Division (BCD);
- TransGrid; and
- Water Group.

There were no government agencies who objected to the Project. Several have either provided comments seeking clarification and/or additional information or they have recommended particular approval conditioning to meet their requirements. A response to each submission received from Regulatory Authorities is provided in detail in **Section 4**.

2.2 PUBLIC SUBMISSIONS

There were 148 public submissions received over the Project, with eleven that supported the Project, whilst 137 objected to the Project. The submissions received were analysed based on their Local Government Areas (LGAs).

Figure 2 provides a graphical breakdown of the number of submissions received in the Muswellbrook, Singleton and Upper Hunter LGAs. Sixty-seven submissions (45% of total submissions) were received from the Muswellbrook LGA, 35 (24% of total submissions) were from Singleton LGA and seven (5% of total submissions) were from the Upper Hunter LGA.

Figure 3 provides a graphical breakdown of the submission received across the 'other' LGAs. There were 24% of submissions received from 'other' LGA's. Seven (5%) submissions were received from the Central Coast Council, four (3%) were from Maitland Council and three (2%) were received from Newcastle City Council.

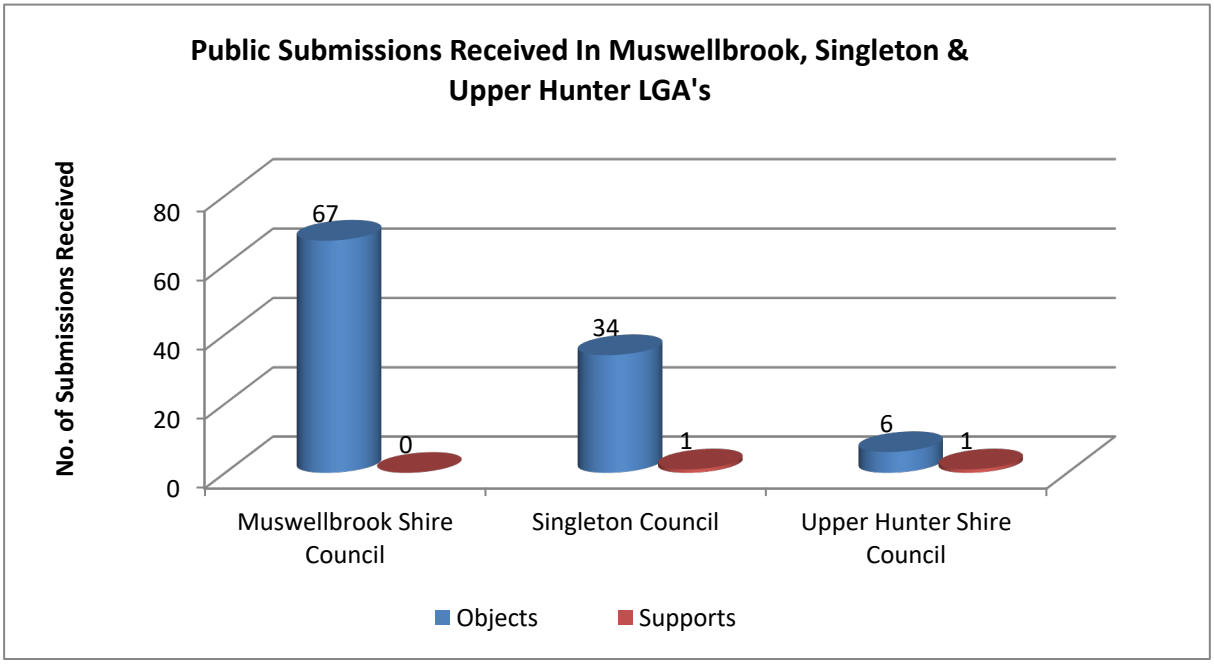


Figure 2 **Breakdown of Public Submissions from Associated Local Government Areas**

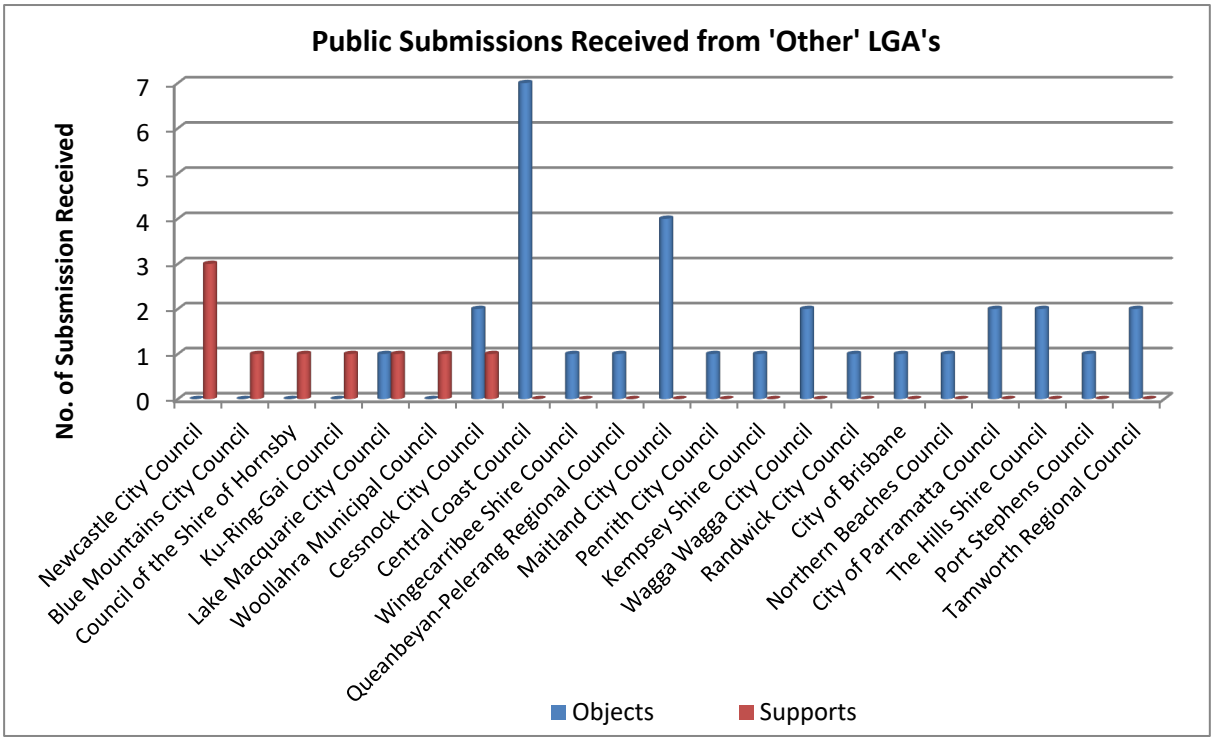


Figure 3 **Public Submissions by 'Other' Local Government Areas**

2.2.1 Supporting Public Submissions

There were eleven submissions received from the public who supported the Project. One of these was from an Associated host landholder, whilst the other ten submissions were from interested parties who live outside of the Regional Assessment Area (defined in **Section 2.2.2**).

The reasons for supporting the Project are generally summarised below.

- There is an urgent need for zero greenhouse gas renewable energy generation to replace retiring fossil fuel generators;
- The Project is expected to generate enough power for 145,000 homes, reducing annual CO_2 emissions by 810,000 tonnes per year;
- The Project will help to improve energy sustainability in NSW;
- The Project is located in a high wind area in close proximity to existing electricity transmission infrastructure;
- The Project is expected to generate approximately 150 jobs during the 18-24 month construction period and 10-15 for ongoing operations;
- It will create economic stimulus and increase the economic diversity in the area being positive for the local economy;
- It will provide a sustainable source of income to local landowners who have struggled heavily with the recent severe drought;
- It will be a major economic boost for local and regional services, contractors and businesses with an estimated injection of $114 M into the regional economy during construction;
- A proposed community fund to receive $3,000 per turbine per annum, amounting to $180,000 each year for the 25-year life of the project, to be invested into community projects and initiatives;
- The proposed lease payments to wind farm hosts and financial agreements with neighbouring landowners will greatly benefit the local community;
- It will result in upgrades to the surrounding road network including Hebden Road, Scrumlo Road, Albano Road and Bowmans Creek Road;
- The land is used predominantly for cattle grazing and the wind farm-footprint is mostly across cleared grasslands or open woodlands;
- The avoidance management and offsetting measures proposed for the Project are likely to result in an improvement to the area's biodiversity over the long term;
- Supply cost-effective renewable energy and place downward pressure on wholesale electricity prices; and
- Help to meet forecasted demand with clean energy, as thermal generators such as Liddell Power Station are retired.

2.2.2 Objecting Public Submissions

A total of 137 submissions were received from 131 stakeholders objecting to the Project. Eighty of the 131 stakeholders provided their contact details whilst 51 have requested their name to be withheld.

An analysis of the public submission has been undertaken in regard to the landholder categories that were utilised in the EIS, as described in **Table 1** below. These categories are based on the distance of the landholder to the closest Wind Turbine Generator (WTG). Note that this categorisation has been updated since the EIS to account for the recently introduced SSD Submissions Guidelines (DPIE, 2021) and the Proponent's expansion of its Near Neighbour Benefit Program to residences within 3 – 5 km of the closest proposed WTG location.

Table 1 Public Submissions - Landholder Categories

Landholder Category	Definition
Associated (host)	Owners and occupiers of land proposed to host Wind Turbine Generators (WTGs) or related infrastructure and owners and occupiers of land required for access during construction and/or operation of the Project
Near Neighbour	Private landholders with a dwelling less than 3 km from a proposed WTG location & are eligible for a Neighbour Agreement
Neighbour Benefit Program	Residences within 3 – 5 km of the closest proposed WTG location where no other commercial agreements exist are eligible for the Neighbour Benefit Program
Regional Assessment Area	Residences located > 5km from the closest WTG and within either the Singleton Council (SC), Muswellbrook Shire Council (MSC) or Upper Hunter Shire Council (UHSC) Local Government Area (LGA)
Outside Regional Assessment Area	Residences located outside of the SC, MSC and UHSC LGA

Figure 4 provides a breakdown of the location (in terms of landholder categories) of the identifiable stakeholders who submitted objections.

There are 14 Neighbour Landholders with a dwelling less than 3 km from a WTG who have been offered a Neighbour Agreement to address specific issues raised by the individual landowner to mitigate impacts. Of the known stakeholders, there were seven submissions from three identifiable households classified as Near Neighbours who objected to the Project.

There are 60 residences who have been identified as being eligible to participate in the Neighbour Benefit Program offered by the Proponent, as they reside within 3 – 5 km of the closest proposed WTG (and where no other commercial agreements are in place). In this category, there were 18 submissions received from 11 identifiable households who objected to the Project.

Forty objections or 50% of the total identifiable stakeholder submissions received were from private residents living greater than 5 km from the closet WTG but within the Regional Assessment Area (i.e. SSC, MSC and UHSC LGA).

Thirty objections, whose contact details were provided, were located from outside of the Regional Assessment Area (i.e. outside SSC, MSC and UHSC LGA). None of these were from interstate or overseas.

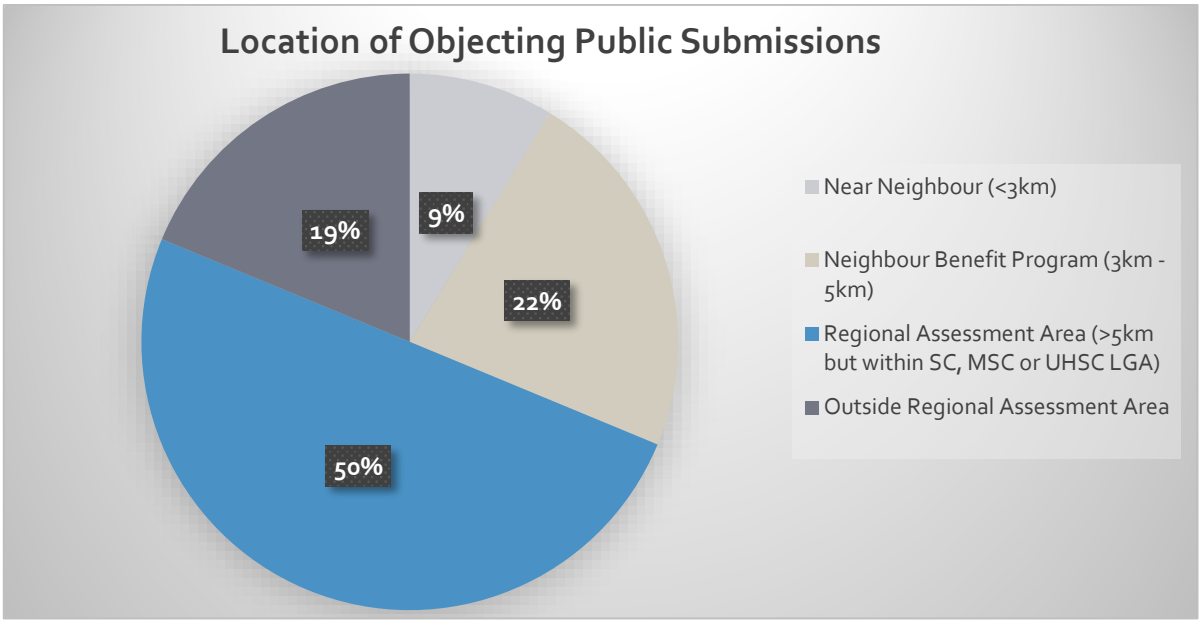


Figure 4 **Stakeholder Location of Objecting Public Submissions**

Fifty-one objections (39% of objections received) were from stakeholders who requested their names be withheld. **Figure 5** provides a breakdown of the location of the stakeholders whose names were withheld, based on the 'area' recorded on the submission.

There were 15 of the 51 objections (29%) received from stakeholders who reside outside of the Regional Assessment Area, whilst ten (19%) were from Muscle Creek, nine (18%) from Hebden and eight (16%) from Muswellbrook.

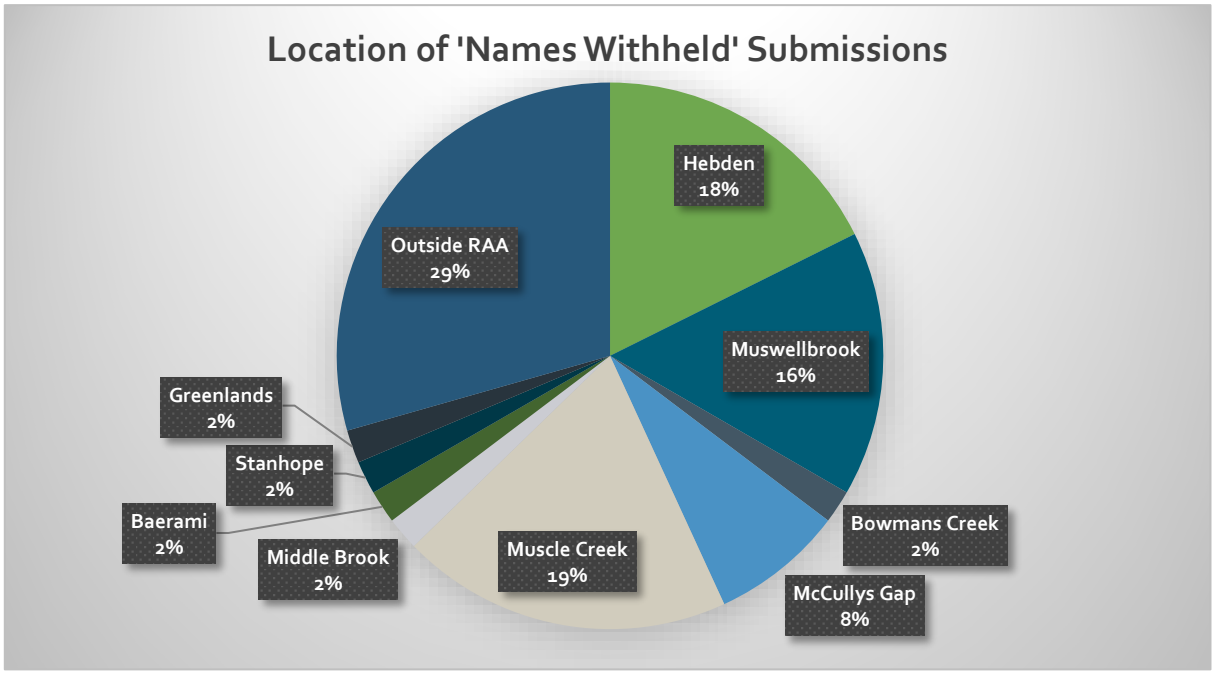


Figure 5 **Stakeholder Location of 'Name Withheld' Submissions**

Table 2 includes a list of categories of the issues that were received in the public objections in relation to the Project. The breakdown or number of times a particular issue was raised in the submission is illustrated in **Figure 6**. The main issues identified were landscape and visual with 76% of submissions identifying this as an issue, followed by noise and vibration being raised in 66% of submissions.

Further details of the issues raised in the submissions is provided in **Section 5** along with a response to each of the issues raised by the public objectors to the Project.

Table 2 Public Submissions - Issues Raised

Issue Category	Sub-Category
General	• Generally Opposed • Procedural Matters • Company Expertise • Site Suitability
Stakeholder Consultation	• Consultation Process • Neighbour Agreements
Landscape and Visual	• Visual Amenity • Ineffective Mitigation • CASA Lighting
Noise and Vibration	• Blasting • Noise • Low Frequency Noise • Health Impacts
Aviation Safety	• Agricultural Practices • Flight Path Safety
Traffic and Transport	• Traffic Assessment • Safety • Road Upgrades
Biodiversity	• Biodiversity Assessment • Land Disturbance • Flora and Fauna Impacts
Aboriginal Cultural Heritage	• Loss of Aboriginal Cultural Heritage
Historic Heritage	• Loss of Historic Heritage
Economics	• Economic Assessment
Telecommunications	• Loss of Services
Bushfire	• Increased Risk • Aerial Fire Fighting
Blade Throw	• Injury from blade throw
Property Value	• Decline in property values
Greenhouse and Life Cycle	• Life Cycle of Wind Turbines
Air Quality	• Air Quality Assessment • Dust Pollution

Issue Category	Sub-Category
Water Resources	• Harvestable Water Rights • Water Supply • Impacts to Watercourses
Soils and Agriculture	• Biosecurity
Waste	• General Waste Disposal
Electric and Magnetic Fields	• Electric and Magnetic Fields
Health	• General Health Impacts; • Mental Well-being; • Health Impacts from Dust
Shadow Flicker	• Blade Flicker
Decommissioning	• Rehabilitation and Decommissioning
Social	• Social Impact Assessment • Social Impact on Community
Cumulative	• Cumulative Impact Assessment

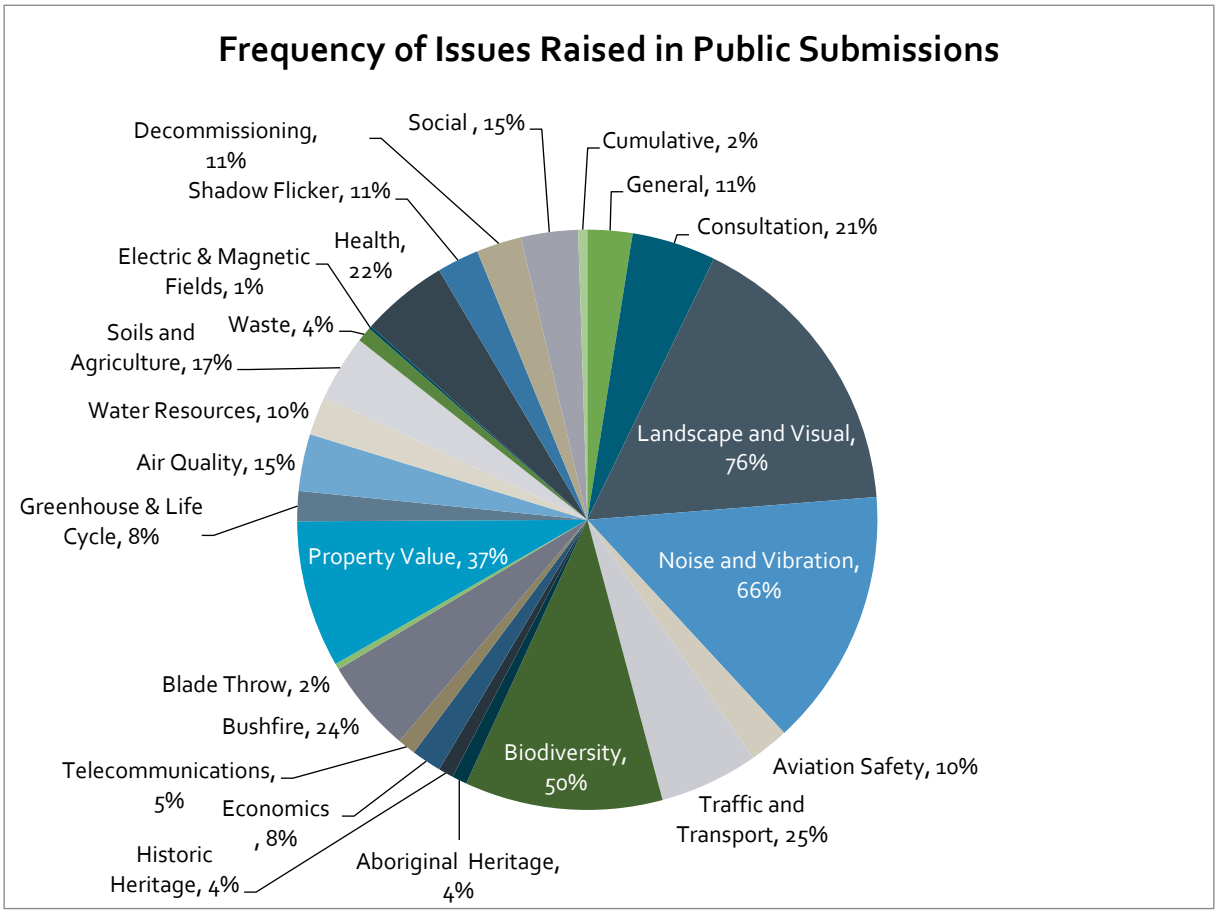


Figure 6 Frequency of Issues Raised in Public Submissions

3. ACTIONS TAKEN SINCE EXHBITION

This section provides a summary of the actions taken since the exhibition of the Project.

3.1 PROJECT AS EXHIBITED

The Project involves the construction, operation, maintenance and decommissioning of the Bowmans Creek Wind Farm. Section 3 of the EIS provided a detailed description of the Project for which the Proponent is seeking approval. As discussed in the EIS, the Project design was developed through a comprehensive planning, stakeholder engagement and environmental assessment process to ensure that the principles of Ecologically Sustainable Development and the objectives of the EP&A Act are achieved.

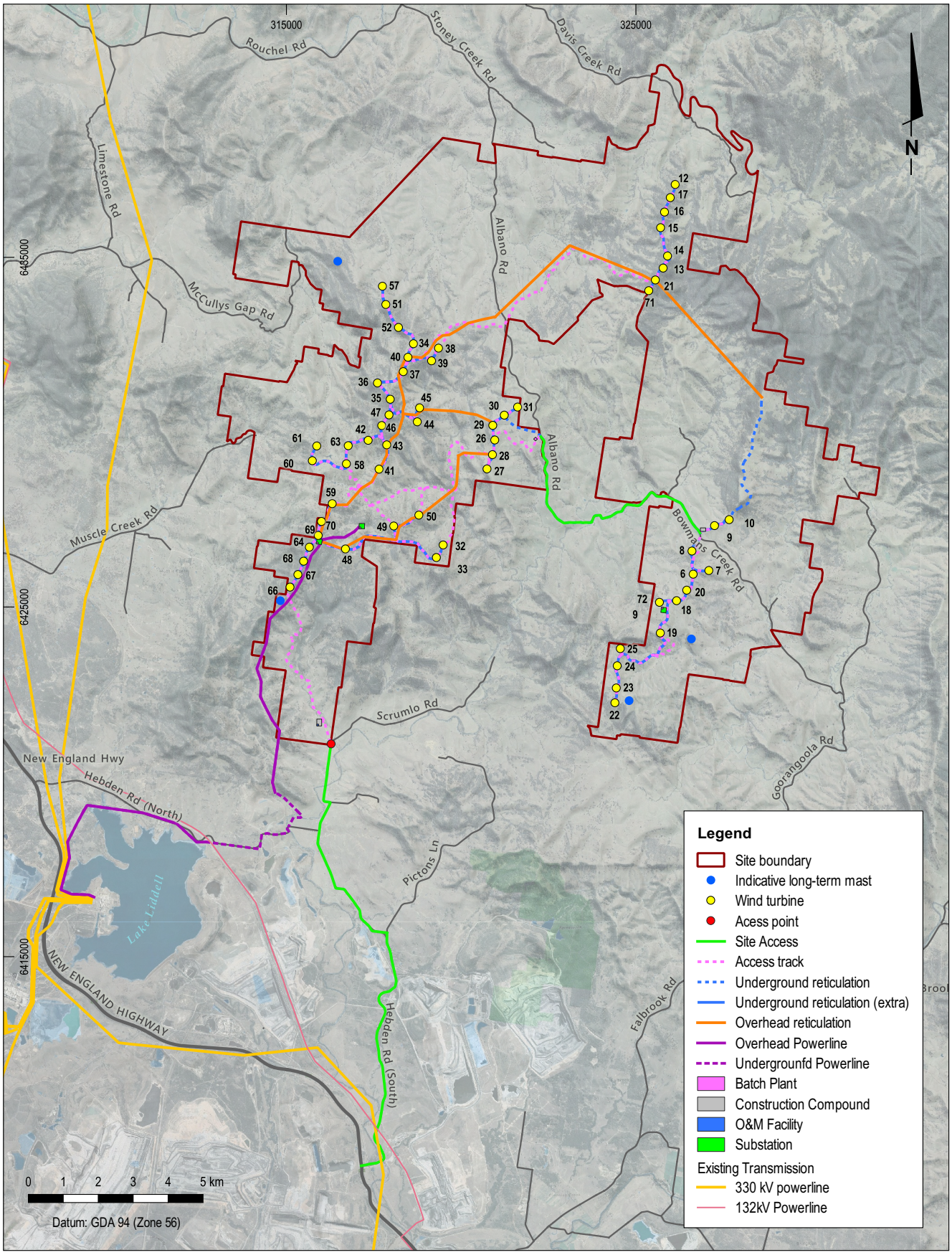
During the Project design phase, significant changes were made between the preliminary layout and the Project layout assessed in the EIS. This included a reduction in the number of WTGs, relocation of batch plants to reduce noise impacts, discounting two northern transmission line options, and removal of site access routes which were unacceptable to the community.

Key components of the Project, as described in Section 3 of the EIS, and as exhibited includes:

- Up to 60 WTGs sites consisting of a three-blade rotor and nacelle mounted onto a tubular tower with a hardstand area;
- Up to two collector substations and associated transmission lines to transmit the generated electricity into the existing high voltage network;
- Underground cables and overhead powerlines between the WTGs and the collector substation/s;
- An Operation and Maintenance Facility (O&M Facility);
- Storage facilities and laydown areas;
- Unsealed access tracks and minor upgrades to the public road network to facilitate delivery of Over Size Over Mass (OSOM) loads;
- Ongoing use of two temporary wind monitoring masts and the installation of up to four permanent monitoring masts; and
- Temporary construction facilities (including concrete batching plant and rock crushing facilities).

Figure 7 illustrates the EIS Conceptual Project layout as exhibited.

Source: Aerial ©2019 Google



Bowmans Creek Wind Farm | Fig07 EIS_Conceptual_Project_Layout | 10 09 2021

BOWMANS CREEK WIND FARM

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EIS Conceptual Project Layout

FIGURE 7

3.2 PROJECT AS AMENDED

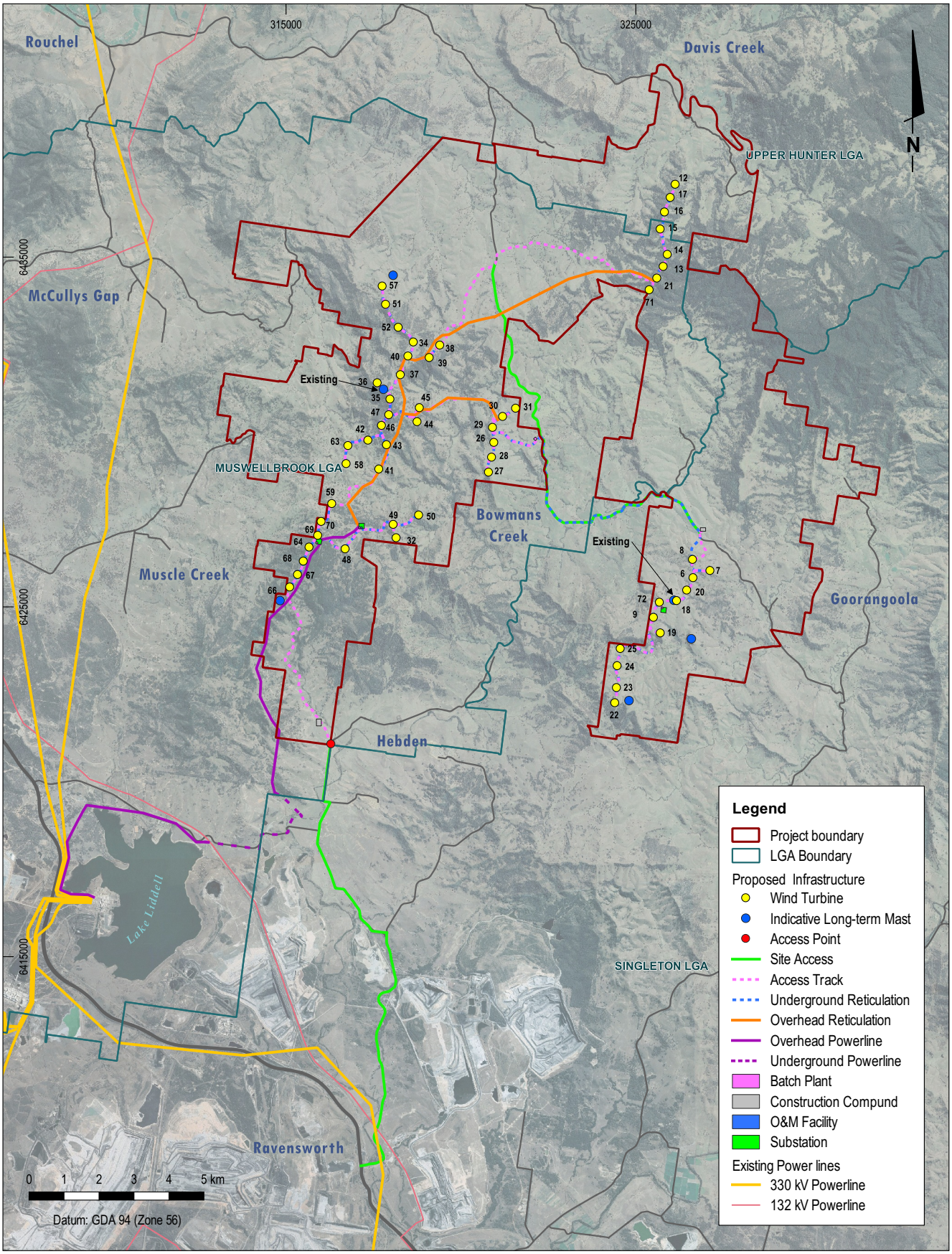
An analysis of submissions received over the Project indicates that the material changes made to the preliminary Project layout (as discussed in **Section 3.1**) have plicated many of the concerns initially raised by stakeholders. There are, however, a number of additional refinements that are proposed to the Project Layout (Amended Project), which will further address some of the concerns that were raised in submissions over the EIS. These refinements include:

- Deletion of four WTG's, including WTG 10, 33, 60 and 61, hence a reduction from 60 WTGs to 56 turbines;
- Re-siting of WTG 8, 9 and 32;
- Minor adjustments of several other WTGs (micro siting up to 100m);
- Removal and relocation of site access tracks as a result of changes to the WTG layout and in response to individual landholder concerns;
- A 10.4 km net reduction in underground power reticulation;
- A 13.5 km net reduction in overhead power reticulation; and
- An overall reduction of project disturbance footprint of approximately 97.6 ha.

The proposed contractions and adjustments for the amended Project are illustrated in **Figure 8** and are described in detail in the Amendment Report.

The Proponent is confident the above contractions and minor adjustments together with the ultimate micro siting of WTGs and other project related infrastructure will go some way towards addressing many of the residual concerns raised in public submissions over the Project.

Source: Aerial ©2019 Google



Bowmans Creek Wind Farm | Fig01 Conceptual Project Layout | 08.10.2021

BOWMANS CREEK WIND FARM

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Conceptual Project Layout

FIGURE 8

3.3 ACTIONS SINCE EXHIBITION OF THE EIS

3.3.1 Regulatory Agency Consultation

The proponent has consulted with a number of government agencies to clarify and respond to issues raised in submissions. Although none of the 19 government agencies who provided a submission have objected to the Project, several have sought additional information or have recommended specific conditioning if approval is granted.

Further consultation has been undertaken with DPIE, BCD, TfNSW, DoD and CASA, as summarised in **Table 3**. These consultations have led to the provision of additional clarifying information and the resolution of the matters that were raised, as discussed in **Section 4** below.

Table 3 Submissions Report - Government Agency Consultation

Government Agency	Meeting Date	Key Discussion Points
DPIE	02/07/21	• Discussions over submissions received. • Submission from BCD and the potential need for further field work to meet Biodiversity Assessment Method (BAM) requirements, due to drought conditions at time of initial assessment. Scope of further assessment was ultimately agreed and undertaken in consultation with BCD (refer to below). • Request for a Lighting Plan to be prepared due to CASA and DoD requiring obstacle lighting. • Status of VPA discussions with local councils. • The Hebden Road/ New England Highway intersection and possibly of this requiring an upgrade. • Proposed refinements to Project in response to submissions received and the need for an Amendment Report.
BCD	27/05/21 17/06/21 23/07/21 (DPIE present at this second Teams meeting)	• BCD conducted a BMA methodology verification site visit on 27/05/2021. During this site visit several PCT plots were visited and verified. It was recognised on the site visit the impracticality of accessing all localities within the Survey Boundary. Discussion took place over meander verses straight line surveys (meanders surveys conservatively conducted due to drought conditions prevailing at the time). • Follow-up meeting held on 17/06/2021 to discuss BCD's submission, including the potential need for further field work to meet BAM requirements, due to drought conditions at time of initial assessment as well as proposed amendments to the Project. • Second Teams meeting held where further direction was sought over assumptions to be applied where assuming presence & expectations for flight path analysis were discussed. • Due to Project Amendments proposed it was agreed that the BDAR would be redone and complimented with some additional field work in consideration of project contractions and resultant changes to access tracks & powerline routes. • Scope of further field assessment of Amended Project was ultimately designed and undertaken in consultation with BCD.

Government Agency	Meeting Date	Key Discussion Points
TfNSW	Not available	• Approached several times in relation to their inquiry over Hebden Road/ New England Highway intersection.
TransGrid	Numerous	• Updated Connection Enquiry submitted 25 August 2021.
CASA	31/08/2021	• Most recent correspondence regarding obstacle lighting.
DoD	31/08/21	• Most recent discussion on requirement for obstacle lighting.

3.3.2 Community Consultation and Engagement

The Proponent has undertaken extensive consultation and engagement with the community to-date and has continued to employ various methods to engage with the community since exhibition of the EIS. This has included:

- Despite COVID 19 restrictions a number of additional individual COVID Safe meetings have been held with landholders in proximity of the proposed amendments;
- A Project Newsletter was distributed in August 2021 to approximately 250 local and wider community members, which included an update on the proposed amendments and response to submissions;
- Two Community Information Sessions have been held since the EIS was placed on exhibition, with one at McCullys Gap and one at Hebden on the 15th and 16th April 2021 respectively;
- The Bowmans Creek Community Consultative Committee (CCC) held meetings in July 2020, August 2020 and April 2021. An overview of the EIS was presented to the CCC during the April 2021 meeting. The next CCC is scheduled for mid-September 2021; and
- The Project Website, which was established in 2018, continues to be updated with links to the Project EIS and subsequent assessments and reports.

Section 2.2.2 provides an analysis of the issues raised by stakeholders in the submissions received following exhibition of the EIS. Of these, the majority of concerns raised were in relation to potential for visual, noise, bushfire risk and property value impacts. Responses to the issues raised in submissions is discussed in detail in **Section 5** below.

3.3.3 Additional Assessments

Since the exhibition of the EIS, a number of technical assessments and reports have been prepared in relation to biodiversity, aboriginal and historic heritage, noise and visual impacts.

The additional assessments completed were undertaken in consideration of the proposed amendments to the Project and are included as appendices to the Amendment Report.

A new BDAR has been prepared to reflect the contraction of the Project Disturbance Boundary as described in the Amendment Report. The revised BDAR is included as an appendix to the Amendment Report.

A final copy of the ACHAR, which includes and incorporates all comments received from the RAPs, is included in **Appendix B**.

4. RESPONSES TO REGULATORY SUBMISSIONS

This section responds to the 19 submissions received from government agencies. No government agency has objected to the development application. Several have either provided comments seeking clarification or additional information or have recommended particular approval conditioning to meet their requirements.

A response to each of the matters raised by the relevant government agency in their submissions to the development application is provided below. A copy of the original submissions can be found on the DPIE website.

4.1 SUBSIDENCE ADVISORY NSW

SANSW advised that the properties in this proposal are not within a proclaimed Mine Subsidence District and are not undermined and as such their approval or further comment is not required.

4.2 HERITAGE NSW – ABORIGINAL CULTURAL HERITAGE

ACH have reviewed a draft version of the Aboriginal Cultural Heritage Assessment Report (ACHAR) – prepared by OzArk Environment & Heritage (OzArk), dated 11 March 2021.

The ACHAR recommends two management strategies based on the level of harm to Aboriginal sites that would be determined in the final development of the project design. These management options would operate under an Aboriginal Cultural Heritage Management Plan (ACHMP). This recommendation and the management and mitigation recommendations provided in Section 9.0 (page 112-121) of the ACHAR and Table 60 (refs 38-42, p290) of the EIS have been considered by ACH to provide adequate controls for the avoidance and minimisation of harm to Aboriginal sites and cultural heritage values within the proposed development footprint.

Heritage NSW have recommended the following conditions be included in any Instrument of Consent:

- Harm to the identified Aboriginal heritage sites should be avoided as recommended by the ACHAR; and
- An ACHMP to provide adequate controls for the avoidance and minimisation of harm to Aboriginal sites and cultural heritage values within the proposed development footprint should be developed.

The Proponent acknowledges and supports the recommended conditions of approval.

Heritage NSW also recommended that the final version of the ACHAR with any comments received from interested Registered Aboriginal Parties should be provided prior to determination.

On page 22 (Section 3.1.4), the ACHAR states:

> *'This draft was sent on 11 March 2021 with a request that any comments or questions be raised by 26 March 2021.*
>
> *No comments arising from the review of the revised ACHAR were received by the closing date for review.'*

In Appendix 1 of the ACHAR the community consultation log is presented. The final date in this log is 11 March 2021 recording the Registered Aboriginal Parties (RAPs) who were sent the project update that is noted in the Heritage NSW submission.

As no RAP responses were received in the review period, no further entries were made to the consultation log and the log presented in Appendix 1 of the ACHAR is a complete record of all consultation related to the Project.

The final version of the ACHAR is included in **Appendix B**.

4.3 TRANSPORT FOR NSW

TfNSW comments were provided by the Roads & Maritime Services Division - Newcastle Office. See below in **Section 4.16**.

4.4 CIVIL AVIATION SAFETY AUTHORITY

CASA notes that it is important that DPIE invites comments from DoD and NSW RFS over the Project regarding the possibility of night aerial firefighting operations using night vision apparatus in future.

Both DoD and the NSW RFS have been consulted. See **Section 4.6** and **4.7** respectively below.

CASA considers the risks to aviation safety could be mitigated to some extent by the provision of obstacle lighting and recommends that the wind farm is obstacle lit with medium intensity steady red lighting in accordance with the National Airports Safeguarding Framework Guideline D and section 9.31of the CASA Part 139 (Aerodromes) Manual of Standards.

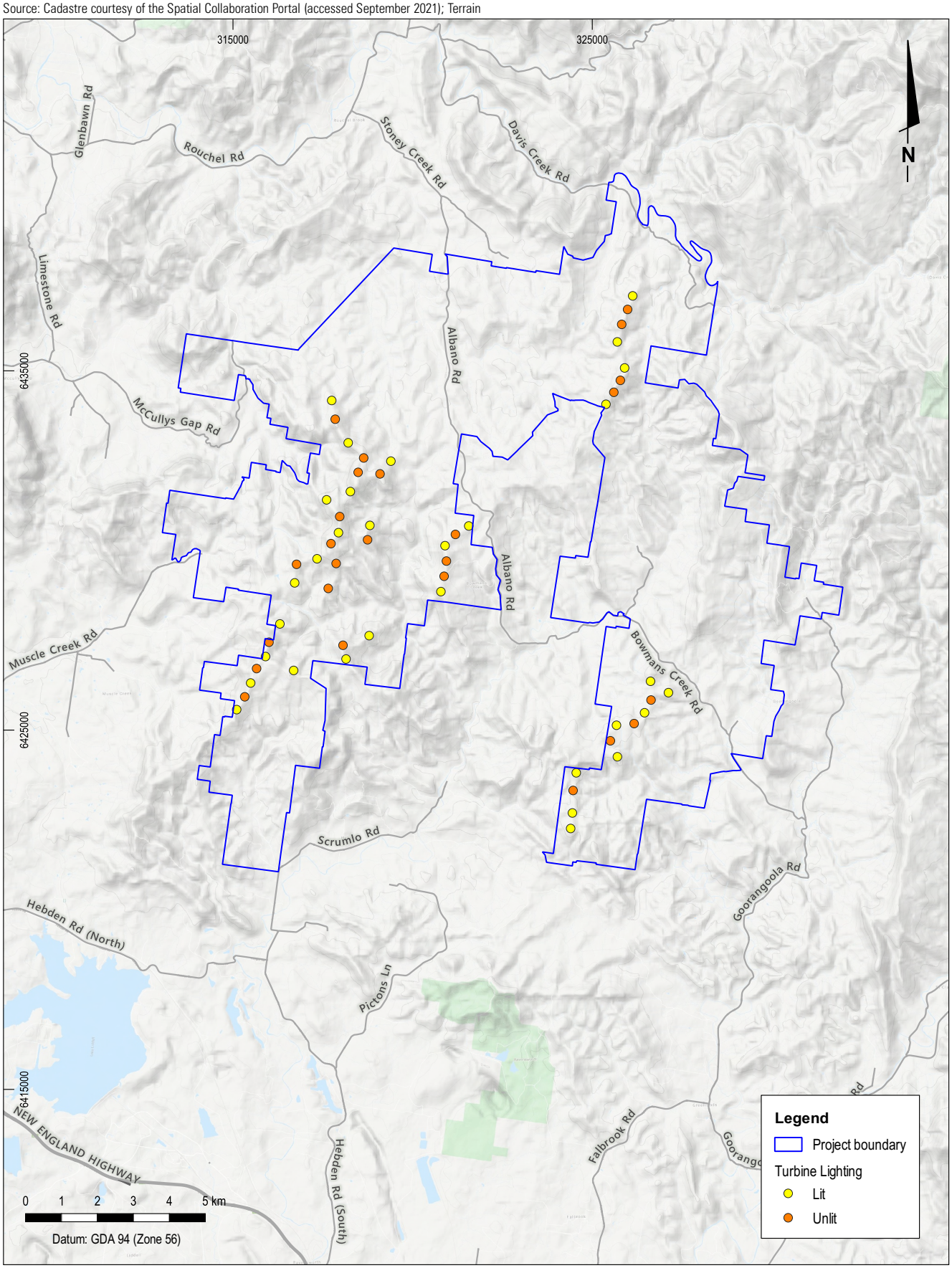
The Proponent has written to CASA to request whether low intensity can be considered as an alternative. A draft wind turbine lighting plan has also been provided to CASA for review. The draft lighting plan identified 31 of the 56 wind turbine locations to be lit. Refer **Figure 9** for details.

In addition to Recommendation 8 of the Aviation Impact Assessment, CASA recommends that the following Australian Standards be considered regarding the marking of any overhead cables and transmission lines:

- AS 3891.1, Air navigation — Cables and their supporting structures — Marking and safety requirements, Part 1: Marking of overhead cables and supporting structures; and
- AS 3891.2, Air navigation — Cables and their supporting structures — Marking and safety requirements, Part 2: Low-level aviation operations.

The Proponent commits to the careful consideration of the above guidelines during the detailed design and construction of the overhead transmission lines.

Source: Cadastre courtesy of the Spatial Collaboration Portal (accessed September 2021); Terrain



Bowmans Creek Wind Farm | Fig 9 Draft Lighting Plan | 08.09.2021

BOWMANS CREEK WIND FARM

JAMES BAILEY & ASSOCIATES
Environmental and Planning Consultants

EPURON

Draft Lighting Plan

FIGURE 9

4.5 AIRSERVICES AUSTRALIA

The Proponent notes that ASA's view is that the Project will not have an impact on the safety, efficiency or regularity of existing, or future air transport operations into or out of Scone or Maitland Airport.

ASA has requested that as soon as construction commences, the proponent must complete the Vertical Obstacle Notification Form for tall structures and submit the completed form to:

VOD@airservicesaustralia.com.

The Proponent commits to the completion and submission of this form as soon as construction commences.

4.6 DEPARTMENT OF DEFENCE

DoD has requested that the Project be obstacle lit in accordance with the Civil Aviation Safety Regulation 139 and the CASA Manual of Standards 139. They note that if Light Emitting Diode (LED) lighting is used, the frequency range of the LED light emitted should be within the range of wavelengths 665 to 930 nanometres to allow for visibility to persons using night vision devices.

The Proponent has met with representatives of DoD to clarify their request for obstacle lighting and has submitted a written request for feedback on:

- Whether the proposed wind turbine lighting plan would be acceptable;
- Whether it would be acceptable to reduce the obstacle lighting intensity from medium (2000 candela) to low intensity (minimum 200 candela); and
- Whether it would be practicable to establish protocols that minimise the amount of time that the obstacle lights are energised – this might be on the basis of a photoelectric switch to energise the lights on the occurrence of low light conditions and not later than a fixed time (say 2300 h) or whenever the Restricted Area is active (after which time night flying is not likely to be conducted).

DoD has noted that it is unable to tolerate any further reduction in the use of Restricted Area R583B and Danger Area D600. Therefore, any proposed changes to the location of the WTGs must be notified to DoD as early as possible for reassessment.

The Proponent notes this request.

4.7 NSW RURAL FIRE SERVICE

The NSW RFS recommends the following conditions be included in any approvals granted:

"1. *A Fire Management Plan (FMP) shall be prepared in consultation with NSW RFS Hunter Valley Fire Control Centre. The FMP shall include:*

- *24-hour emergency contact details including alternative telephone contact;*
- *Site infrastructure plan;*
- *Firefighting water supply plan;*
- *Site access and internal road plan;*
- *Construction of Asset Protection Zones (APZ) and their continued maintenance;*
- *Location of hazards (Physical, Chemical and Electrical) that will impact on firefighting operations and procedures to manage identified hazards during firefighting operations; and*

- *Such additional matters as required by the NSW RFS District Office (FMP review and updates).*

2. *A minimum 10 m asset protection zone (APZ) around wind farm infrastructure. APZs will be established and maintained around WTG sites and substation compounds. APZ are to be in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019' and the NSW Rural Fire Service's document standards for Asset Protection Zones'.*

3. *A 20,000 litre water supply (tank) fitted with a 65mm storz fitting shall be located at each substation compound within the required APZ.*

4. *A 10 metre defendable space (APZ) that permits unobstructed vehicle access is to be provided around the perimeter of each of the WTG sites and substation compounds.*

5. *Internal access roads will be designed, as described in Section 3, of the EIS Vol 1 dated March 2021, and regularly maintained to ensure good trafficability. The access tracks will be suitable for use by local bush fire firefighting tankers."*

The Proponent supports conditioning to the effect as described in Points 1 to 5 above.

The Proponent will also consult with NSW RFS regarding night-time aerial firefighting operations using night vision apparatus.

4.8 UPPER HUNTER SHIRE COUNCIL

Community Enhancement Fund

The UHSC notes that the Proponents offer of $3,000 per turbine per year as a Voluntary Planning Agreement (VPA) contribution is consistent with the contributions paid by other recently approved wind farms and that they would accept a minimum contribution of $3,000 per turbine per annum calculated as follows:

Flat rate of $535.72/turbine/MW/annum indexed with CPI.

Following consultations with all three relevant Councils, the Proponent has offered $3,000 per turbine per annum to each Council for each turbine ultimately located in each LGA.

Traffic and Transport

The UHSC have recommended that, should the application be approved, a condition of consent be imposed restricting the use of roads for the purposes of the Project to those assessed in the EIS.

As noted in the EIS the Proponent does not intend to utilise UHSC roads during the construction or operation of the Project.

Visual Impacts

UHSC has requested that they be provided some additional photomontages in relation to the six rural dwellings within 2-4 km from the wind turbines in their Local Government Area (LGA).

There were four photomontages provided in the EIS for the rural dwellings within the UHSC LGA. Namely, for P7-1, T5-1, T6-9 and T6-2. These are provided in **Appendix C**. Two further residences in the UHSC LGA are Associated Landholders. If additional montages are required beyond these and the private landholder authorises these to be provided, then this can be arranged.

Shadow Flicker

UHSC has questioned whether the term 'blade flicker' is synonymous with the term 'shadow flicker'.

This is the case. A shadow flicker or 'blade flicker' assessment is included at Section 7.21 of the EIS.

Noise Impacts

The UHSC has requested an explanation over the selection of the four representative background noise monitoring sites.

To determine background noise levels at various wind speeds, background noise monitoring was conducted at four locations in the vicinity of the wind farm between 28 October 2019 and 16 January 2020. The monitoring was conducted in accordance with the 'NSW Wind Energy: Noise Assessment Bulletin' (DPE, 2016) (Noise Bulletin) and the 'South Australian Wind Farm Environmental Noise Guidelines' (SA EPA, 2009).

The monitoring locations selected are summarised in **Table 4** below.

Table 4 EIS Noise Monitoring Locations

Monitoring Location ID	Co-ordinates (UTM WGS84 56H)		Monitoring Period
	Easting	Northing	
G15-3	313871	6429662	28/10/2019 to 30/10/2019 and 9/12/2019 to 16/01/2020
G17-1	313824	6427553	28/10/2019 to 9/12/2019
P22-1	323078	6422792	29/10/2019 to 9/12/2019
S17-2	325797	6428209	29/10/2019 to 9/12/2019

As per SA EPA (2009), relevant receiver locations are premises that are representative of the worst-case situation when considering a range of premises, e.g. a house located among a group of nearby houses within a residential zone.

Background noise monitoring was conducted within 30 metres of the selected dwelling in the direction of the wind farm. The background noise measurement locations were selected to represent the acoustic environment experienced in the immediate vicinity of the dwelling whilst also being removed from extraneous noise sources, such as pumps and air conditioning units.

UHSC has recommended that a condition of consent is included that provides an opportunity for potentially affected residents to request an independent review where they perceive noise impacts.

The Proponent commits to undertaking noise monitoring within 6 months of the commencement of operations (or the commencement of operation of a cluster of turbines, if the development is to be staged). This is similar to contemporary conditions of development consents for other wind farms.

Biodiversity Impacts

The UHSC has raised a concern over the potential for water bird species flying between Lake Glenbawn and Lake Liddell to strike the turbine blades.

None of the proposed 60 turbines lies on the direct flight path between Lake Glenbawn and Lake Liddell.

Given that large wetland habitats do not occur locally, bird movements across the site are likely to be diffuse and irregular, rather than concentrated and seasonal. Some waterbird species, including Ibis, Herons, Egrets and ducks, are known to utilise smaller ephemeral farmland waterbodies such as dams, creeks and inundated pastures which occur on the site. However, these water birds likely utilise lowland habitats and river systems rather than ridges to move between water bodies, thereby reducing the risk of collision with turbines. The revised BDAR is being prepared to provide further information on flyways and turbine strikes following consultation with the BCD. This is included in the Amendment Report.

4.9 SINGLETON COUNCIL

General

SC has requested the LGA boundaries be added to Figure 3 in the EIS Main Text.

Figure 3 of the EIS has been updated with the proposed refinements to the Project and to include the Council LGA boundaries (refer to **Figure 7**). This amended figure is also included in the updated Project Description of the Amendment Report.

Impacts to the local public road network

SC has calculated that 67 kilometres of access tracks will be constructed as part of the Project and have sought confirmation over the long-term security and maintenance responsibilities of these wind farm access tracks.

These tracks will be constructed on private property and will remain the responsibility of the Proponent for the life of the Project. At the end of the Project, they will either be rehabilitated, where requested by the landowner, or remain for ongoing property access. At no time will SC have responsibility for the maintenance or management of any access tracks constructed on any private property.

SC has requested that the Applicant be required to enter into a Deed of Agreement to ensure the following matters regarding local public roads are considered and managed appropriately:

- Obtain a section 138 approval under the NSW Roads Act 1993 from all relevant Council's impacted by the development;
- Upgrade roads to Council's agreed standards;
- Undertake dilapidation reports at nominated times throughout the Project life, with maintenance works during this time at the Applicant's cost; and
- Decommissioning works are carried out to an agreed standard.

The Proponent accepts the conditions proposed by SC and notes that prior to the installation of the wind turbines the Proponent will be investing heavily in upgrading the various sections of public road to be used for the transport of OSOM vehicles to the Project construction site and that these upgrades will remain to benefit the local community over the operational life of the Project, where project related traffic will be minimal.

Outside of Project construction, operation and decommissioning, the Proponent contends that it should not have liability for public road maintenance beyond the considerable Voluntary Planning Agreement to be entered into with each Council.

The SC has inquired as to whether the Proponent has consulted with ARTC and TfNSW in relation to access over the rail network. The Proponent has undertaken consultation with both authorities.

SC has inquired as to whether the Proponent has considered the heavy vehicle and peak traffic interactions with other road users. These interactions have been considered at length and are discussed in the Traffic Impact Assessment conducted over the Project included as Appendix K in the EIS.

Voluntary Planning Agreement

Consistent with UHSC, Singleton Council would prefer to apply a fixed price per megawatt capacity as a multiplying factor to calculate the VPA for the Project.

SC would prefer a stand alone agreement pertaining to the wind turbines located within their LGA, with funds directed towards their Community and Economic Development Fund.

Following consultations with all three relevant Councils, the Proponent has offered $3,000 per turbine per annum to each Council for each turbine ultimately located in each LGA. The Proponent notes that it is important that the arrangement is consistent across all three LGA boundaries. The Proponent supports the funds attributable to SC to be distributed through its recently established Community and Economic Development Fund if it so desires.

Transmission Lines

SC is seeking further consultation and the entering into a Deed of Agreement in relation to the trenching of a high voltage transmission line in the existing road reserve of Hebden Road.

The Proponent supports the entering into a Deed of Agreement (or other form of contractual arrangement) over the proposed works with both SC and MSC and will consult further with both Councils over the appropriate terms of this agreement.

Water Supply

SC has noted that the appropriate approvals and the payment of the relevant Council fees and charges would be required to take water from Council's water supply infrastructure for both construction and operation purposes. The Proponent recognises this requirement and will meet its obligations in this regard in the event that water is required to be supplied from SC infrastructure.

Subdivision

SC has raised a requirement for any subdivision associated with the Project to ensure that any remaining lot retains a dwelling entitlement. The Proponent will conduct any subdivision consistent with clause 4.2A of the Singleton Local Environmental Plan 2013.

Biodiversity

SC has questioned the timing of the finalisation of the BDAR. The BDAR credit calculations cannot be finalised until the disturbance boundary is confirmed. A maximum disturbance boundary has been assessed. Until the final number and location of turbines is confirmed the final credit calculations cannot be made. The proponent proposes to retire the final calculated BDAR credits under the Biodiversity Offset Scheme once this is known. It has been confirmed that the worst-case number of credits are currently available for retirement.

SC has questioned whether an assessment under Section 9.2 Assessing prescribed biodiversity impacts and in particular if Section 9.2.1.8 '*The assessment of the impacts of wind turbine strikes on protected animals'* has occurred.

The following points relate to the BDAR (Appendix L of the EIS):

- Prescribed impacts relevant to the project are identified in Table 21 of Chapter 6 and are addressed further in Chapter 8, Section 8.2 and Section 8.6;
- Turbine strike/barotrauma as well as barrier effects are addressed in Chapter 6 Section 6.5, Chapter 8 Section 8.2.3 – 8.2.5, Section 8.3. Section 8.6.2 – 8.6.5 and Section 8.7. These sections are supported by further data provided in Appendix C and Appendix D and Figure 14.

It is acknowledged that Section 9.2.1.8 of the BAM requests further details which are being addressed following consultation with the BCD and will be provided in the updated BDAR as part of the Amendment Report.

4.10 MUSWELLBROOK SHIRE COUNCIL

General

MSC is generally supportive of renewable energy initiatives and notes in its submission that the Project aligns with Council's Community Strategic Plan goals and Local Strategic Statement principles.

Traffic

MSC has made similar comments to SC in relation to traffic.

See response in **Section 4.9** 'Impacts to the local road network'.

In addition, the Proponent supports the preparation of a Traffic Management Plan to guide the various road upgrades required as part of the Project.

MSC has highlighted the fact that any modifications or alterations required to the various cattle grids along Albano and Bowmans Creek Roads will require approval from the adjacent property owner and Council. The Proponent is aware of this fact.

MSC has requested that the main access off Scrumlo Road is upgraded and sealed to Austroad standards. The Proponent accepts this request.

Water Supply

MSC has made similar comments to SC in relation to water supply.

See response in **Section 4.9** 'Water Supply'.

Ground Disturbance

Erosion and sediment controls will be included in the Construction Environmental Management Plan (CEMP) that will be prepared for the Project to ensure that MSC's expectation for managing ground disturbance are met.

Biodiversity

MSC has made similar comments to SC in relation to biodiversity.

See response in **Section 4.9** ' Biodiversity'.

Radio Interference

MSC notes that the assessment of potential electromagnetic interference on radio transmissions focusses on commercial transmissions and does not consider any impacts on Council and emergency services VHF radio communications in the area. It notes that while the potential might be slight, Conditions of Consent should provide for the proponent to rectify any issues should they arise.

The Proponent commits to rectify any disruption to Council and emergency services VHF radio communications resulting from the Project.

Aviation Safety

MSC is concerned that all flights within the region have access to the positioning of the wind turbines.

The proponent has committed to completing a Vertical Obstacle Notification Form for tall structures and submitting the completed form to: VOD@airservicesaustralia.com. This will ensure that the relevant required information is available.

VPA

MSC has made similar comments to SC in relation to the determination of an appropriate VPA over the Project.

See response in **Section 4.9** 'Voluntary Planning Agreement'.

Subdivision

MSC has requested that any blocks subdivided that are too small to accommodate a dwelling entitlement be registered as such at the time.

The Proponent supports this request.

Decommissioning

MSC has requested that all infrastructure within arable land to a depth of 500 mm be removed at decommissioning. Further they have requested that all infrastructure within their road reserves be removed and the pavement restored. None of the turbine footings are located on arable land and as such it is only a small proportion of underground electrical transmission line that would need to be removed if not placed more than 500 mm below the ground. In relation to the road reserves, the Proponent is prepared to meet this requirement if deemed necessary.

MSC has requested that any bond payable to cover the cost of decommissioning and rehabilitation should include the cost of removing the overhead powerline lines and substations.

Noted.

4.11 NSW DEPARTMENT OF PRIMARY INDUSTRIES - DPI AGRICULTURE

DPI Agriculture advises that all infrastructure at a depth less than 500mm on arable land, including improved pasture lands, should be removed during decommissioning. Arable land is land that is capable of sustaining cultivation (Class 1, 2 or 3) under the '*Land and soil capability assessment scheme: second approximation*' (OEH, 2012). Class 4 and 5 land is considered suitable for pasture.

A 900 m section of the underground portion of the transmission line is within land mapped as Class 3 land. The Proponent will ensure that this portion of the transmission line is either buried at a depth greater than 500 mm or it will be removed during decommissioning.

There is no Class 4 land within the Project Boundary. All infrastructure on Class 5 land will be either buried at a depth greater than 500 mm or it will be removed during decommissioning.

DPI Agriculture also recommends that the underground transmission line that is on land mapped as Biophysical Strategic Agricultural land (BSAL) should be installed at a minimum depth of 800mm to allow for agriculture use of this land during the operational phase of the Project.

The Proponent commits to installing the underground transmission line to a depth of 800 mm on the land mapped as BSAL on Figure 54 of the EIS.

4.12 CROWN LANDS

Crown Lands has stated that subject to the resolution of the matters that they have raised in relation to Crown Land, and on the basis that the Proponent continues to liaise with the Department, the Department supports the proposal in principle. The Proponent is committed to working closely with the Department to resolve all matters raised in relation to interactions with Crown Land.

Specific inquiries and responses are provided below:

1. Lot 352 DP 727683, being Reserve 4741 gazetted on 19 November 1887 for Trigonometrical Purposes (Kangaroo Trig). Section 4.4.8 of the EIS incorrectly describes the reserve number as "R474" and the gazettal date as "19 November 1187". This parcel is subject to undetermined Aboriginal Land Claim (ALC) 42707 lodged on 19 January 2017 by the Wanaruah Local Aboriginal Land Council. The EIS states that this site will be subject to a road and underground power lines.

The Proponent recognises the error in nomenclature on Page 81 Section 4.4.8 of the EIS. Further, the Proponent has redesigned access such that this parcel of Crown Land is avoided and as such it has been removed from the Schedule of Land (refer to Figure D1 in **Appendix D** and **Figure 10)**.

2. Lot 227 DP 752465, being Reserve 44773 gazetted on 19 January 1910 for Camping and Travelling Stock. This reserve is under the care, control and management of the Hunter Local Land Services (LLS). This parcel is subject to undetermined ALC 42926 lodged on 23 January 2017 by the Wanaruah Local Aboriginal Land Council. Page 81 of the EIS states that "the reserve will not be impacted by access tracks or site access associated with the Project". However, Figure 26, on Page 82 of the EIS, shows the reserve traversed by both "site access" and "access track".

The Proponent reconfirms that Reserve 44773 will not be directly impacted by site access tracks. It is only the gazetted public road that intersects Reserve 44773 that will be relied upon for access from one side of the reserve to the other. Figure 26, on Page 82 of the EIS shows an access track immediately to the northwest of this parcel of land, not crossing the land. This is illustrated on **Figure 10** below.

3. Lot 125 DP 752465 and Lot 7001 DP 93621, being reserve 209 (R1014928) gazetted on 22 May 1886 for Access and Water Supply. This reserve is under the care, control and management of LLS. Lot 125 is subject to undetermined ALC 12518 lodged on 19 December 2016 by the Wanaruah Local Aboriginal Land Council. Lot 7001 is subject to undetermined ALC 42711 lodged on 19 January 2017 by the Wanaruah Local Aboriginal Land Council. Section 4.4.8 of the EIS states that this reserve will be impacted by underground powerlines and an access track.

The Proponent has redesigned access such that this parcel of land is avoided. This parcel of land has also been removed from the Schedule of Land, as included in **Appendix D** and illustrated in **Figure D1**.

4. Various Crown roads – the EIS states that "although not utilised for the Project, various crown roads will be required to be crossed at various locations. Crown land will be avoided where practical, however, final impacts cannot be determined until detailed design is completed, prior to construction." Figure 26, on page 82 of the EIS, appears to show that Crown roads will be subject to surface infrastructure, including site access, access track, underground and overhead reticulation, and overhead power lines. The Department considers the impacts need to be addressed before an appropriate assessment can be concluded.

The Proponent will continue to liaise with the Department of Crown Lands in relation to any required interactions with Crown Roads within the Project Boundary as the detailed design is being finalised and it can be confirmed with certainty the extent and where those interactions will occur.

5. Crown Waterways – Appendix A lists Crown Watercourses generally within the schedule of lands. Figure 26, on page 82 of the EIS, shows that a Crown waterway, being part Bowmans Creek, will be subject to an underground powerline.

Noted.

6. The following issues were identified with "Appendix A" of the EIS:

    - Lot 299 DP 752460 is listed as Crown land when a Title search indicates that this parcel is freehold.

Noted. Lot 299 DP 752460 is freehold land and is owned by an Associated Landholder. The Schedule of Land has been updated accordingly and is included in Appendix D.

    - Lot 7001 DP 93620, being Crown reserve 85 (R10014949) for water supply under the care, control and management of the Department, is not listed in Appendix A despite being shown on Figure 26 as Crown land within the project boundary.

Noted. This parcel of land is excluded from the Project Boundary and is not included in the Schedule of Land, as illustrated in **Figure D1** (**Appendix D**).

- Lot 7002 DP 93619, being reserve 200 for trigonometrical purposes under the care, control and management of the Department, is not listed in Appendix A despite being shown on Figure 26 as Crown land within the project boundary.

Noted. This parcel of land has been excluded from the Project Boundary and is not included in the Schedule of Land, as illustrated in **Figure D1** (**Appendix D**).

7. The Department is concerned about the statement on page 81 of the EIS that "final impacts (on crown land) cannot be determined until detailed design is completed prior to construction". The Department is therefore unable to provide substantive comment on potential impacts of the project. We request that the EIS is amended to provide detailed project design and provide the Department with a full assessment of the impacts on the Crown land, roads and waterways. Submission of the assessment for review is required. Ideally the Proponent will provide an ESRI compatible file, e.g. shapefile, showing the location, the detailed project design, including the location of all surface infrastructure.

The Proponent has presented a worst-case impact assessment in relation to the Project recognising that some elements of it will vary in final detailed design depending on the conditioning of any forthcoming approval. The Proponent commits to liaising closely with the Department of Crown Lands in finalising the design of the various elements of the Project to further reduce any impacts to Crown Land.

8. The Department also requests that the Proponent provides:

- Evidence of concurrence from Hunter Local Land Services as the Crown Land Manager of some of the Crown reserves affected by the proposal.

The Proponent has consulted with the Hunter Local Land Services (LLS) over any interactions with lands managed by this body. The LLS has corresponded in email dated 23 June 2020 confirming that they have been consulted and do not wish to be further consulted.

- Evidence of concurrence from the Wanaruah Local Aboriginal Land Council regarding use of any Crown land subject to Aboriginal Land Claims. More information on Aboriginal Land Claims can be found here https://www.industry.nsw.gov.au/lands/what-we-do/our-work/aboriginal-land-claims.

The Proponent has redesigned access such that any Crown Land subject to an Aboriginal Land Claim has been avoided. See **Figure 10.**

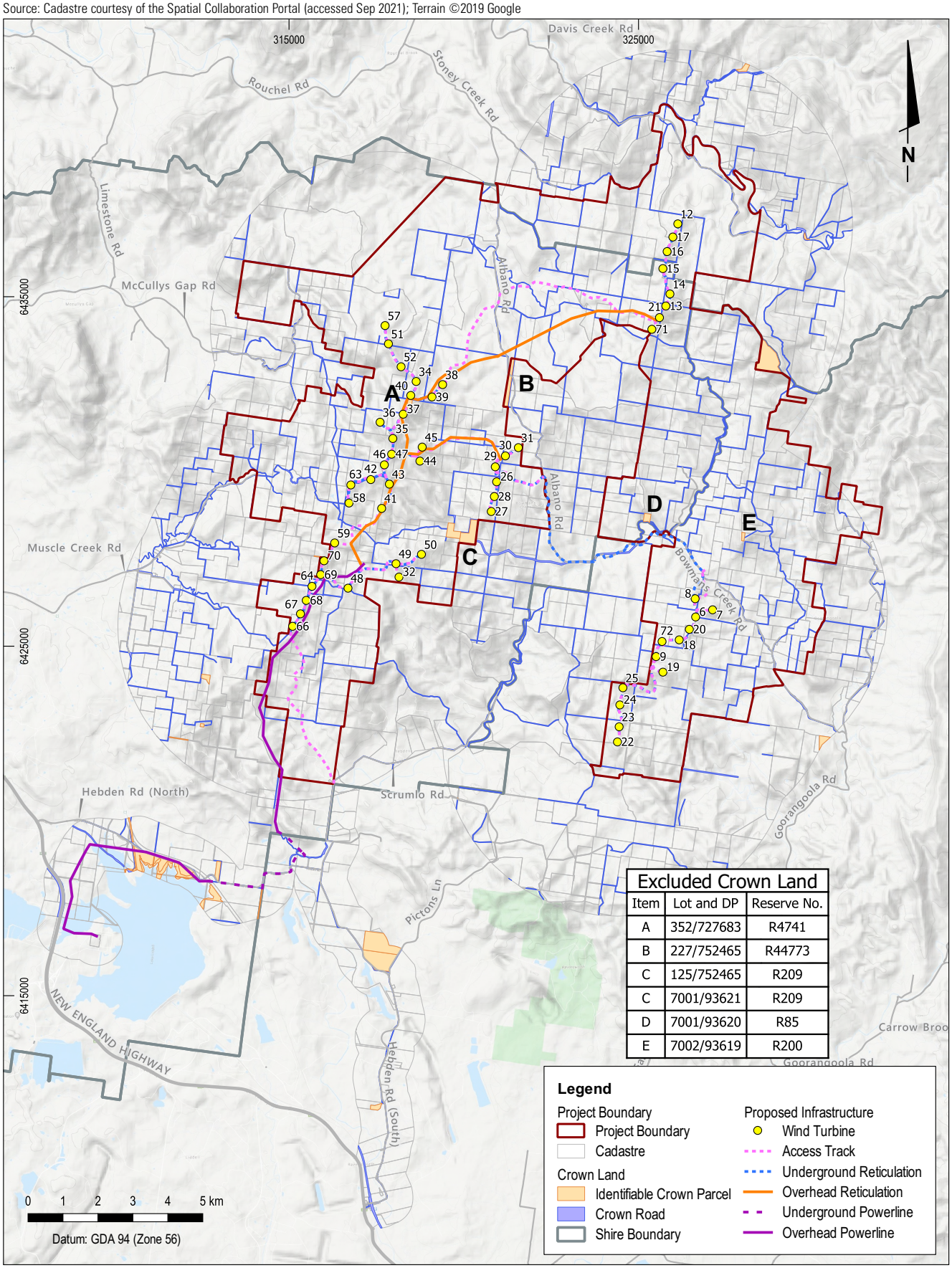
- A native title assessment for use of the affected Crown land noting that the Department cannot deal in land until native title under the Native Title Act 1993 (Cth) has been resolved. The Department cannot endorse dealing in (leasing or licensing) of any Crown parcel that is subject to unresolved native title issues. More information on Native Title and Crown land can be found here https://www.industry.nsw.gov.au/lands/what-we-do/our-work/native-title.

The Proponent has redesigned access such that any Crown Land subject to Native Title is avoided (see **Figure 10)**.

- The EIS needs to address approval from Crown Lands as the appropriate road's authority prior to any works within Crown Road Reserves.

The Proponent commits to seeking and gaining any required approvals from the Department of Crown Lands prior to any works within the identified Crown Road Reserves.

Source: Cadastre courtesy of the Spatial Collaboration Portal (accessed Sep 2021); Terrain ©2019 Google



Excluded Crown Land		
Item	Lot and DP	Reserve No.
A	352/727683	R4741
B	227/752465	R44773
C	125/752465	R209
C	7001/93621	R209
D	7001/93620	R85
E	7002/93619	R200

Legend

Project Boundary
- Project Boundary
- Cadastre

Crown Land
- Identifiable Crown Parcel
- Crown Road
- Shire Boundary

Proposed Infrastructure
- Wind Turbine
- Access Track
- Underground Reticulation
- Overhead Reticulation
- Underground Powerline
- Overhead Powerline

Bowmans Creek Wind Farm | Fig 9 Crown Land | 08.09.2021

BOWMANS CREEK WIND FARM

JAMES BAILEY & ASSOCIATES
Environmental and Planning Consultants

EPURON

Crown Land

FIGURE 10

4.13 FIRE AND RESCUE NSW

FRNSW submit no comments or recommendations for consideration, nor any requirements beyond that specified by applicable legislation. They did however request that the Applicant undertake consultation with FRNSW should more detailed information regarding the fire and life safety aspects of the development become available.

The Proponent notes and will fulfill this request.

4.14 NSW DEPARTMENT OF PRIMARY INDUSTRIES - FISHERIES

DPI Fisheries had no issues with the proposal, however they noted that Waterway crossings for all roads and access tracks for the proposal must comply with the principles in "*Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings*."

The Proponent commits to a consideration of "*Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings*" when designing access track crossings of waterways.

4.15 ENVIRONMENT PROTECTION AUTHORITY

The EPA did not have any comments on the EIS.

4.16 ROADS AND MARITIME SERVICES DIVISION - TFNSW

The RMS TfNSW Division had nine comments on the development application as follows:

1. The RMS notes that any changes to plans affecting classified (State) road network must be submitted to TfNSW for consideration and approval prior to the change.

The Proponent commits to this requirement.

2. Traffic arrangements and safety devices associated with the proposed Traffic Management Plan (TMP) should not compromise site distances for turning traffic into our out of Hebden Road.

The Proponent commits to this requirement.

3. TTIA identifies 141 extra one way movements per day during month 6 and 7 of construction period. Further investigation is needed to be carried out to determine whether there is a need for any intersection upgrade for the left and right-turns or of Hebden Road to accommodate the additional vehicle movements.

The TTIA (Appendix K of the EIS) has confirmed that the intersection performance at the New England Highway/ Hebden Road intersection with the addition of the forecast Project construction traffic, performs well with a degree of saturation less than 0.8 in the AM and PM peak. As such, Cardno have confirmed that the intersection will not be detrimentally impacted by the addition of project construction traffic and therefore will not require any upgrades.

The Proponent has sought a further meeting with TfNSW to discuss this aspect of their submission, however, has been unsuccessful to date in securing a such a meeting.

4. Should any existing safety device/s require removal during the transportation of materials to the site (such as safety barriers, roadside median, etc.) then a suitable removable and temporary device/s shall be used in its place. The temporary device is to be replaced with the permanent fixture on completion of the project.

The Proponent will ensure that the TMP reflects this requirement.

5. A suitably prequalified traffic signal contractor should be engaged to determine what temporary adjustment to traffic signals is required for each time a wide load is transported. The consultant is to liaise with the TfNSW Network Operations and Traffic Signal teams for agreement before implementation.

The Proponent will ensure that the TMP reflects this requirement.

6. Vehicles identified in the report completely blocking the classified and local road/s during turning manoeuvres, will require police escorts, a Traffic Control Plan (TCP) and a Road Occupancy Licence (ROL), for these and other manoeuvres along the designated route/s, to prevent interactions with approaching vehicles.

A Traffic Control Plan (TCP) and a Road Occupancy Licence (ROL) will be put in place prior to any OSOM vehicle blocking any classified or local road.

7. Any damage to the State Road assets as a result of the project and the associated heavy vehicles will be required to be "made good" by the project (the twisting of the heavy vehicle at some of the intersections is likely to damage the spray seal). A dilapidation survey of the affected route may be required prior to the commencement of the Project.

Noted.

8. Any removable signs installed for the project will require replacement with conventional signage posts at project completion. Further discussion on this matter should be undertaken with the relevant team of TfNSW managing signage assets prior to removal/relocation of any signage.

The required consultation will occur, and signage replaced.

9. Any modification to the State Road assets may require the proponent to enter into a Works Authorisation Deed (WAD) with TfNSW for any roadwork deemed necessary on the classified (State) road. Further discussion on this matter should be undertaken with TfNSW to confirm this requirement. If WAD is required, the developer will be responsible for all costs associated with the roadwork and administration for the WAD. It is recommended that developers familiarise themselves with the requirements of the WAD process. Further information can be obtained from the TfNSW website.

The Proponent proposes to enter into a Works Authorisation Deed (WAD) with TfNSW for any roadwork deemed necessary on the classified (State) road network.

4.17 DPIE - BIODIVERSITY AND CONSERVATION DIVISION

BCD reviewed the EIS in relation to flood risk and has no comment to provide on flood risk.

BCD has provided the following recommendations in relation to the biodiversity assessment of the Project:

1. The proponent undertakes targeted surveys for all potentially occurring threatened flora species in accordance with Surveying threatened plants and their habitats: NSW survey guide for the Biodiversity Assessment Method (DPIE 2020). Where surveys are not possible (due to safety or access reasons) either, the assumed presence technique should be applied, or an expert report should be prepared.

Following ongoing consultation with the BCD (see **Section 3.3.1**), updated assessments are being conducted for a revised layout with assumption of presence as a precautionary measure for relevant species where suitable habitat is present. An updated BDAR will be included in the Amendment Report.

In accordance with set precedents for the other major projects, further targeted surveys for threatened flora will be conducted during relevant survey periods during detailed micro-siting works and revised calculations provided for the updated impact footprint.

2. The accredited assessor either assumes presence or prepares an expert report for areas of the project disturbance area that were not surveyed for potentially occurring threatened fauna species.

The contractions to the project in response to submissions received over the exhibition of the EIS has resulted in the majority of the areas that were not able to be surveyed being removed from the development footprint. As targeted surveys for fauna have been conducted in the areas of suitable habitat now proposed to be disturbed, the assumption of presence of threatened fauna species is not considered to be warranted. The updated BDAR being prepared in consultation with BCD will reflect the contractions in the disturbance footprint and the results from additional surveys conducted in the week of the 16 August 2021.

3. The proponent lists all Plant Community Types (PCTs) considered as potential matches to on-ground vegetation and describes the selection process that matched the PCT for all biotic and abiotic factors.

The revised BDAR being prepared for the contracted disturbance footprint is being updated to include further justification on the selection of PCTs, including details of other PCTs considered.

4. The proponent provides further detail of how PCTs were matched to Biodiversity Conservation Act 2016 listed threatened ecological communities by commenting on all factors in their NSW Scientific Committee Final Determinations.

The revised BDAR being prepared for the contracted disturbance footprint is being updated to include further justification on the matching of PCTs to listed threatened ecological communities, including comments on specific factors in the relevant NSW Scientific Committee Final Determinations.

5. The proponent completes and submits its final BAM 2017 assessment of the project before 22 October 2021 (including resolving all submissions on the EIS BDAR during the response to submissions stage of the project). Any changes to the BDAR after 22 October 2021, that are greater than minor, will require the BDAR to be prepared in accordance with BAM 2020.

The revised BDAR will be submitted under BAM 2017 before 22 October 2021.

6. The proponent provides details of any flyways on the project area for any local migratory species.

As part of the ongoing consultation process, further information or guidance on requisite details on flyways has been sought from the BCD and the revised BDAR for the contracted disturbance footprint is being updated accordingly.

7. Surveys are undertaken to identify any local flyways for bird and bat species and that the information collected is used to assess the impacts of turbine strike on protected species.

Further surveys to identify local flyways are not considered to be warranted as the project area has been extensively surveyed. Nonetheless following consultation with the BCD two additional site survey days were conducted in the week of the 16 August 2021 and further desktop studies will be conducted to support the survey work undertaken. The revised BDAR to be included in the Amendment Report will be updated to include further information on the potential for impacts of turbine strikes on protected species.

8. The proponent develops an adaptive management plan for vehicle strike, as per Section 9.4.2.4 of the BAM.

Due to the steep topography of the site, it is highly unlikely that it would be possible for vehicles to be driven at a speed that could result in vehicle strike. However, the revised BDAR will be updated to include vehicle strike as an uncertain impact requiring an adaptive management plan.

9. The proponent provides details of proposed post-construction mitigation measures to avoid impacts on threatened species.

The revised BDAR will be updated to include further details on post-construction mitigation measures.

10. The direct and indirect impacts of the project that cannot be avoided are described in terms of the frequency and intensity of direct and indirect impacts that are unable to be avoided.

The revised BDAR will be updated to include further details on frequency and intensity of direct and indirect impacts that are unable to be avoided.

11. A BAM accredited assessor certifies that the BDAR was finalised within 14 days of the exhibition of the EIS.

The BDAR submitted as part of the EIS was certified within 14 days of the exhibition of the EIS. The revised BDAR will be certified by the accredited assessor within 14 days of submission of the Amendment Report and associated documentation package.

12. Additional data is provided to ensure that all requirements of the BDAR are met.

Following consultation with the BCD (see **Section 3.3.1**), the revised BDAR is being updated accordingly.

13. Numbered turbine locations are shown on all composite (zoomed-in) sets of figures and that the scale of the composite figures is improved so that project and ecological details can be clearly seen. Matters of National Environmental Significance

The figures of the revised BDAR showing the Amended Project Layout will be updated accordingly.

14. Additional information on the assessment of Matters of National Environmental Significance is provided in Appendix A of the BDAR.

Following consultation with the BCD (see **Section 3.3.1**), information on requisite details for assessment of MNES has been provided by the BCD and the revised BDAR is being updated accordingly.

4.18 TRANSGRID

TransGrid has requested the following from the Proponent:

1. Provide shapefiles of the project so TransGrid are able to confirm that TransGrid's easement is being avoided and appropriate setbacks and Asset Protection Zone are in place;

Preliminary GIS files (shp file format) of the proposed powerline route have been provided to TransGrid.

2. Liaise with TransGrid when finalising the design of proposed substation/s to ensure the substation/s are constructed as per TransGrid's standards (if the substation is proposed to be transferred to TransGrid);

The Proponent will continue to liaise with TransGrid through both the detailed design and construction of the Project.

3. Provide Shapefiles of proposed connection between the substation and TransGrid's Substation;

Refer to point one above.

4. The proponent is to continue liaising with TransGrid to satisfy clause 5.3.4 of the National Electricity Rules and determine the terms of ownership, maintenance and operation of the new substation/s.

Noted.

5. This Project isn't a customer project as yet.

Noted.

6. The customer will need to continue to engage with TransGrid, via executing a Connection Processes Agreement to finalise the connection to the TransGrid's network.

Noted.

4.19 WATER GROUP

The Department of Planning, Industry and Environment Water and the Natural Resources Access Regulator (NRAR) made the following post-approval recommendations.

The proponent should ensure that:

1. All works on waterfront land as defined by the Water Management Act 2000 are in accordance with the NRAR Guidelines for Controlled Activities on Waterfront Land. The NRAR Guidelines can be found at https://www.industry.nsw.gov.au/water/licensingtrade/approvals/controlled-activities/guide

NRAR notes that works on waterfront land include creek crossings for cables and access tracks. Access tracks on minor watercourses are exempt (under S4.23 of the Water Management (General) Regulation 2018) as works are in a rural zone. Cable crossings will be underbored under major watercourses so should leave minimal disturbance, and trenching will be used in minor streams to place cables and then the area rehabilitated.

Noted.

2. If required, sufficient water entitlement is held in water access licence/s (WAL) to account for the maximum predicted take for each water source prior to take occurring.

The project proposes that water will be obtained from farm dams or external sources. Water extracted from farm dams that are within harvestable rights (for the property they are located within) is allowable without a licence or approval. For any water that is extracted from dams above maximum harvestable rights (for the location), the water must be appropriately licenced under a WAL issued for the specific purpose, i.e., use of water for an industrial purpose.

Noted.

5. RESPONSES TO PUBLIC SUBMISSIONS

This section responds to the submissions received from the public and have been grouped by themes described and analysed in Section 2. A submission reference number is listed for the issue to identify which stakeholders have raised each issue. Refer to ***Appendix A*** *to identify each specific stakeholder reference number.*

5.1 GENERAL

Submission Reference: *P50, P57, P92, P93, P97, P99, P100, P101, P102, P109, P110, P111, P112, P113, P128*

5.1.1 Generally Opposed

Issue

A number of stakeholders made the general comment that the assessment of impacts and proposed mitigation measures for the Project are inadequate, that the project will have significant environmental and social impacts that have not been adequately predicted, mitigated or regulated, the project is not justifiable or in the public's interest, and as such the Project should not be approved.

Response

The EIS is a robust scientific document that has been prepared by highly credentialed specialists within their fields of expertise.

As detailed in the EIS, each environmental and social impact assessment has been undertaken strictly in accordance with the relevant government approved methodologies, policies and guidelines available at the time of its preparation. To this end any residual environmental impacts have been quantified with certainty such that the determining authority can be confident in the balancing of the scales over the residual environmental impacts of the project when compared to the socioeconomic benefits to society of it proceeding.

The Project offers several strategic and long-term benefits to the state of NSW and its people, including the supply of cost-effective renewable energy that will assist in meeting renewable energy targets as well as provide new energy capacity into the NSW grid to replace retiring thermal generators. To this end the Project is consistent with the NSW Government's initiative of designating the Hunter Region as one of its Renewable Energy Zones.

The Project is designed to minimise environmental and social impacts and enable co-existence with adjacent agricultural land users. To this end, following consultation with a number of stakeholders, additional measures have been proposed since the exhibition of the EIS (as detailed in **Section 7**) to further address environmental and community concerns, which has resulted in the Amended Project (JBA, 2021). Key changes of the Amended Project include the removal of four WTGs and re-siting of another three WTGs, which will mitigate potential visual and noise impacts for a number of residences. The Amended Project also includes a reduction in linear infrastructure and access roads, which will result in an overall reduction in the land disturbance footprint and hence better biodiversity outcomes.

All reasonable and feasible management and mitigation measures have been identified to minimise or avoid the social and environmental impacts and enhance social benefits of the Project as far as practicable. The assessment has concluded that the Project is in the public interest and as such should be approved under the EP&A Act.

5.1.2 Procedural Matters

Issue

There were a number of submissions that stated that the EIS has not adequately addressed the legislated requirements either through misrepresentation or omission, and that the EIS includes statements that were false and misleading. Further that the Project will not fulfil the objectives of the Local Environmental Plan Zoning for rural land.

Response

Section 4 of the EIS provided a comprehensive outline of how the Project does or will meet all local, state and federal legislative requirements. The EIS was reviewed by DPIE for adequacy prior to exhibition and was found to address the SEARs and be satisfactory for exhibition.

The land zoning of RU1 Primary Production provides for electricity generation (permissible with consent). This Project is therefore consistent with the current land zoning with no changes being required to the current land zoning across the Project Boundary. The Project has been designed to allow co-existence between the wind farm operation and the current agricultural practices in the area, which is predominantly beef cattle grazing.

Issue

A few submissions questioned the legality of the two 120m wind monitoring towers that were constructed without council approval, and therefore thought to be in breach of the State Environmental Planning Policy (Infrastructure) 2007 (SEPP 2007), due to their height.

Response

Two temporary wind monitoring masts were installed on Associated Landholder properties in August 2018 to measure wind speed, wind direction, air pressure and temperature (as discussed in Section 3.5.5 of the EIS). At the time that the masts were installed, the Proponent understood that approval was not required, as the masts at that time were temporary in nature. It was subsequently determined, however, that the masts were of a height that exceeded the exemption for approvals under the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP). Approval was initially sought retrospectively from both MSC and SC for each mast, however, following application it was deemed simpler to reduce the height of each mast. The applications for approval were subsequently withdrawn. The wind masts have assisted in refining the design and layout of the WTGs to maximise power generation whilst minimising impacts on Associated Landholders and nearby neighbours.

As the Project business case has firmed and the application for planning approval to construct and operate the wind farm is progressing, it has been decided to extend the originally intended life of both monitoring masts. As such, in accordance with the Infrastructure SEPP, a Designated Development planning approval is currently being sought retrospectively for their continued use.

Issue

Further details were requested for the quarrying and cement batching requirements for the Project, as approval is required for these activities.

Response

The activities associated with the relatively short-term construction period of the Project are described in detail in Section 3.5 of the EIS and assessed comprehensively in Section 7 of the EIS.

Mobile rock crushers will be established at various locations within the site to crush and reuse any bedrock that is excavated during the construction of the WTG sites. This would then be used as gravel for other construction activities (such as road base for access tracks). A typical rock crusher would occupy an area of approximately 50 m by 100 m and consist of a tracked or wheel mounted mobile crushing unit, conveyor belts, feeder and power unit. They are easily movable on and between sites, which reduces the need for hauling materials over large distances.

Up to three temporary concrete batching plants will be commissioned during the construction phase to produce the concrete required for construction activities. The batching plants will occupy an area of approximately 100 m by 100 m and include loading bays, hoppers, cement and silos, truck loading hardstand, water tank and aggregate stockpiles. Coarse aggregate required for concrete production may be sourced from the on-site rock crushers or an external source. The proposed locations of the temporary concrete batching plants are illustrated in **Figure 8**.

The installation and use of these temporary activities will be managed under an approved Construction Management Plan. These facilities will also be decommissioned on completion of the construction activities.

Section 48 of the *Protection of the Environment Operations Act 1997* (POEO Act) provides that an EPL is required for scheduled activities under the Act. Clause 17 under Schedule 1 of the POEO Act declares "electricity works (wind farms)" to be a scheduled activity if the wind farm is the subject of development consent for SSD. Given that the Project is the subject of an application for SSD, an EPL will be required to operate the Project. Licencing of rock crushing and concrete batching may be required under the EPL, depending on the final quantity of materials to be processed. If the extraction and processing thresholds exceed Schedule 1 of the POEO Act, rock crushing and concrete batching will be included on the EPL that is obtained for the Project.

5.1.3 Company Expertise

Issue

Some submissions indicated that Epuron do not have experience in wind farm development, and that they only have experience in obtaining approvals.

Response

As outlined in Section 1.5 of the EIS, Epuron have extensive experience in wind and solar energy production in Australia, having developed and gained approval for eight large-scale wind farms and four large-scale solar projects across Australia. Of these, four wind farms and three solar farms are currently in operation (now owned by other companies) and two more wind farms are anticipated to commence construction this year. Through its development activities, Epuron is directly responsible for more than a quarter of the current generating capacity from wind farms in NSW, making it one of the most experienced. The EIS does not state that Epuron has experience in the operation of wind farms.

5.1.4 Suitability of the Site

Issue

A number of submissions queried the suitability of the site for the windfarm, stating that the agricultural use is incompatible with the proposed surrounding industrial use.

Response

The Project is permissible under the Local Environment Plans (LEPs) of the three relevant LGA's and is proposed in a locality identified by the NSW Government as being one of its Renewable Energy Zones.

As discussed in Section 2.3 of the EIS, the site is predominantly privately owned agricultural properties used for stock grazing. Other existing land uses in the area includes mining and quarrying with three large coal mines within 10 km of the Project Boundary and three quarries, of which two are located only 2 - 3 km from the Project Boundary. There is also an approved gas pipeline (not yet constructed) as well as the Liddell and Bayswater Power Stations located approximately 10km from the Project Boundary.

Several local communities are located within 5 km of the Project Boundary, which are small rural communities defined by larger sized landholdings and some smaller blocks.

The Project is situated within a high wind speed area that is in proximity to existing transmission lines and substations, as illustrated on the 'Wind Farm Map' (Carter & Gammidge, 2019) released by the NSW Government. Such sites are relatively rare, and often, these sites are in the vicinity of rural dwellings and small to medium sized regional communities. The limited number of viable wind farm sites means that land conflict is often unavoidable and cannot be eliminated by simply moving the wind farm to a different location.

As detailed in the EIS, the Project has been designed to minimise impacts to the environment and surrounding community where possible, and where residual impacts are unavoidable, appropriate mitigation and management strategies have or will be implemented. Since exhibition of the EIS a number of further refinements are proposed to the Project to further reduce impacts including the removal of 4 WTGs and relocation of 3 WTGs.

5.1.5 Misrepresentation of Information

Issue

> *"None of these photographs are representative of the proposed Bowmans Creek wind farm. The EIS does not actually include a single photograph of a wind turbine with a tip height of 220m fitted with 80m blades."*

Responses

All of the photomontages prepared for the Project reflect a wind tip height of 220m and 80m blades, that is they illustrate the tip elevation of the WTGs 220m above the base elevation (AHD m). Both Figures 12 and 13 (in the EIS) show a WTG of 220m tip elevation.

5.2 STAKEHOLDER CONSULTATION

Submission Reference: P14, P47, P58, P66, P72, P73, P75, P76, P77, P83, P84, P90, P92, P93, P95, P96, P108, P114, P116, P118, P119, P126, P131, P132, P139, P140, P141, P142

5.2.1 Consultation Process

Issue

Some stakeholders were dissatisfied with the public consultation process, indicating they had not been directly consulted, the stakeholder engagement program was limited, there was no broader stakeholder consultation on the EIS, meetings were poorly advertised and that the engagement program provided information not engagement.

Response:

The Proponent understands the need for early and meaningful consultation with the local community and other stakeholders. The feedback received during consultation activities has directly resulted in design changes to the proposed layout of the project. This includes the removal of 12 turbines from the Scoping Report to EIS and removal of a further four turbines from EIS to Submissions Report.

The exhaustive stakeholder consultation program conducted in relation to the Project to date is described in Section 5 of the EIS. This section demonstrates a comprehensive scope of stakeholder engagement during the preparation of the EIS. In addition to the stakeholder consultation undertaken for the EIS, targeted consultation was also undertaken to inform the Landscape and Visual Impact Assessments (Appendix H of the EIS), Aboriginal and Cultural Heritage Assessment Report (Appendix M of the EIS) and various other studies.

A robust stakeholder consultation program has been implemented by the Project team since preliminary investigations commenced in 2017. Preliminary consultation with potential host landholders and wind monitoring commenced in 2017.

In 2018, early consultation activities sought feedback from the community and other stakeholders. This feedback was then incorporated into the design and preliminary layout and for further consultation with the wider community to culminate in the Project presented in the EIS.

As detailed in Section 5 of the EIS, a Stakeholder Engagement Plan was developed and implemented during preparation of the Scoping Report and then revised for the EIS stage of the Project.

Consultation activities have focused on stakeholders with the potential to be directly impacted by the proposed Project, with tailored EIS consultation extended to other interested and affected parties. Stakeholders were afforded multiple opportunities to comment and provide feedback on the Project during the consultation process.

Various methods were employed to engage with the community which included (at least):

- Introductory and follow-up letters were sent to known landholders within 5km of the Project from 2018 - 2020;
- Face to face meetings have been held with a focus on landholders in proximity of the proposed infrastructure;
- Between 2018 – 2021 eight project newsletters were distributed to approximately 250 local and wider community members. The newsletter distributed in March 2021 included an outline of the EIS exhibition process and invited interested community members to the EIS Information. A further newsletter is planned to be distributed in September 2021, and will include an update on the response to submissions process and amendment process;
- The newsletters and a Frequently Asked Questions factsheet are also available on the Proponents website at https://epuron.com.au/wind/bowmans-creek.
- Community Information Sessions were held at McCullys Gap in October 2018 and November 2019; Muscle Creek in October 2018 and November 2019; Mt Pleasant Public School in 2018 and 2019; and Hebden in 2018 and 2019. There were three sessions held in 2020 via the software platform "Zoom" (as a result of COVID19 restrictions). Two information sessions have also been held since the EIS was placed on exhibition, with one at McCullys Gap and one at Hebden on the 15th and 16th April 2021 respectively;
- The Bowmans Creek Community Consultative Committee (CCC) was established in mid-2020 with an Independent Chairperson Dr William Edward John (Wej) Paradice AM appointed. The Chair elected to hold its first engagement via an email Q&A (due to COVID19 restrictions), followed by a meeting in July 2020, August 2020 and April 2021. The next CCC meeting is scheduled for mid-September 2021;
- Press releases and advertisements were provided to the local radio stations and newspapers in July 2020;
- A website and project mailing list were established in 2018; and
- Radio interviews on local radio stations 2NM and ABC Radio have been regularly conducted.

Figure 11 provides a summary of issues raised by neighbours within and external to 4 km from the Project during the EIS Scoping. Of these, the majority of concerns raised were in relation to potential impacts from landscape and visual, noise, bushfire risk and property value. These issues are similar to the issues raised in the public submissions, as discussions in **Section 2.2.2** and illustrated in **Figure 6.**

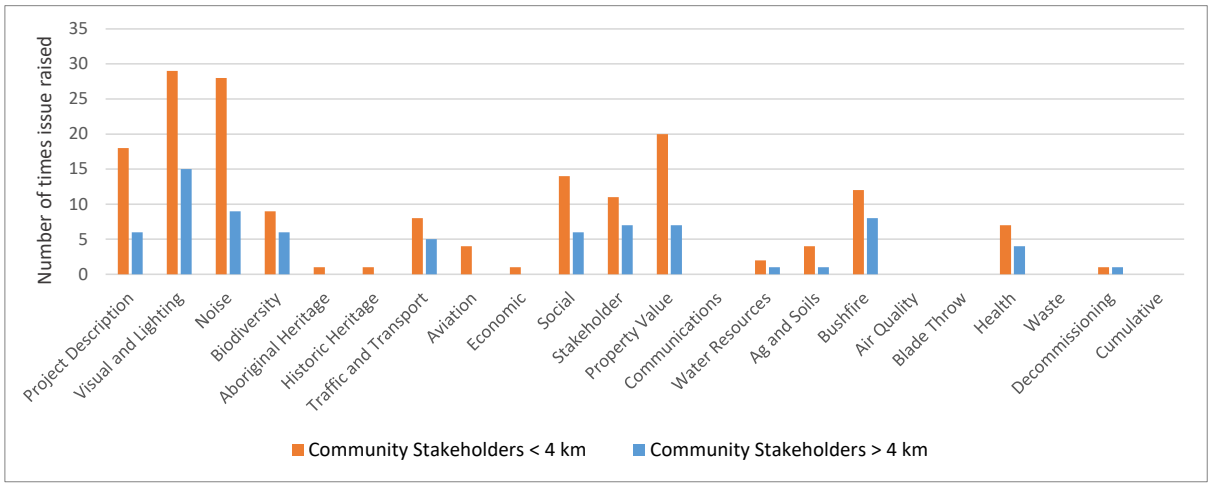


Figure 11 EIS Community Issues and Number of Time Raised

The Proponent will continue to consult with local stakeholders for the Project with a focus on those within a close proximity to the project infrastructure and anyone interested or impacted by the project. Updates will continue to be provided to the wider community via the distribution of newsletters and anyone not already receiving them can register to receive updates via email at https://epuron.com.au/wind/bowmans-creek/. Contact details for the Project Team members are on every newsletter and the Proponent encourages community members to get in contact should they wish to discuss any aspect of the project.

Issue

A number of confidential submissions have indicated they have not received any direct consultation over the project.

Response

The Proponent is unable to respond to specific concerns raised by confidential submissions, as the names and details have been withheld.

As discussed above, every endeavour has been made to consult with landholders who reside within 4.5km from the Project. The consultation process has been extensive; however, the Proponent acknowledges that this may not be to the satisfaction of every landholder.

Further consultation and engagement has been undertaken with neighbouring landholders following the exhibition of the EIS, as detailed in **Section 3.3.2.** This included two Community Information Sessions held in April 2021 at McCullys Gap and Hebden, which were advertised in the local newspapers and radio. These sessions provided an opportunity for all community members to attend a one-on-one informal meeting with key project personnel to discuss any aspect of the Project.

5.2.2 Neighbour Agreements

Issue

A number of submissions are dissatisfied with the Neighbour Agreements that are being offered.

Response

Neighbour Agreements have been offered to private landholders with a dwelling less than 3 km from a proposed WTG to address specific issues raised by individual landowners or to mitigate the impacts identified in the specialist assessments. Whilst agreements are based on the Proponents template, the Proponent welcomes the opportunity to discuss any aspect of the agreement with individual landholders and work together to address any residual concerns with amendments to the agreement. The Neighbour Agreements are offered on an entirely voluntary basis.

5.3 LANDSCAPE AND VISUAL

Submission Reference: P13, P14, P16, P17, P19, P21, P22, P23, P25, P26, P27, P29, P31, P32, P34, P40, P43, P44, P45, P46, P47, P48, P49, P50, P51, P52, P55, P56, P58, P59, P61,P62, P63, P64, P65, P66, P69, P71, P72, P73, P74, P75, P76, P77, P78, P79, P80, P81, P82, P83, P84, P85, P86, P87, P88, P89, P90, P91, P92, P93, P95, P96, P98, P102, P103, P104, P105, P106, P107, P108, P112, P113, P114, P115, P116, P117, P118, P119, P120, P121, P122, P124, P125, P126, P127, P130, P131, P132, P133, P136, P137, P138, P139, P140, P141, P144, P145, P146, P148.

5.3.1 Visual Amenity

Issue

The majority of stakeholder raised concerns regarding the potential visual impacts on their properties from the proposed wind turbines and transmission lines. Most were generally in relation to loss of visual amenity, or a change in the landscape, aesthetics and character of the area. There were some who questioned the accuracy of photomontages or stated that a visual assessment was not undertaken at their residence.

Response

As described in Section 7.1 of the EIS, a Landscape and Visual Impact Assessment (LVIA) was undertaken for the Project in accordance with the '*Wind Energy: Visual Assessment Bulletin'* (DPE, 2016) (Visual Bulletin) and Project SEARs (refer to Appendix H of the EIS).

Most dwellings within 4.4 km of wind turbines are considered compliant with the Bulletin performance objectives including visual magnitude and multiple wind turbine effects. Where impacts do not meet all the visual performance objectives (generally against multiple wind turbine effect or visual magnitude) the Proponent has committed to a range of mitigation measures including Associated and Near Neighbour Agreements and the relocation and/or removal of wind turbines. Of the 109 landholders (identified in Appendix E of the EIS), 14 landholders have or will be offered a Near Neighbour Agreements in relation to visual impacts, as detailed in Table 18, Section 7.1.4 of the EIS.

As discussed in **Section 5.2.2**, Near Neighbour Agreements are intended to duly compensate or mitigate affected landholders for any residual impacts that cannot be adequately mitigated. In addition to this, a Neighbours Benefit Program as well as proposed Voluntary Planning Agreements with Councils are also intended to share the benefits of the Project with landholders and the local community.

Regardless of whether agreements can be reached with landholders, the Proponent has removed a number of WTG's to further reduce visual and/or other impacts, as detailed further in **Section 3** and the Amendment Report. This includes the following:

- WTG 60 and 61 have been deleted from the western part of the project;
- WTG 10 has been deleted from the eastern part of the project;
- WTG 9 has been relocated to between WTG 72 and WTG 19, adjacent to the concrete batching plant, which will reduce visual impacts to a number or residents;
- WTG 8 has been relocated 300 m south of the current location to reduce visual impacts;
- WTG 33 has been deleted and WTG 32 has been relocated to minimise visual impacts to landholder Q17-2 amongst others; and
- The extent of the access track and transmission line in the south-eastern corner of the Project Boundary have also been removed.

The Proponent continues to engage with the neighbouring landholders.

Issue

Submission Reference: P92

P92 "In relation to our two homes that have been assessed and the third that has not been assessed the two homes have been ranked as having a Scenic Quality Assessment of moderate. This does not line up with Table 6-1 Scenic Quality Classes included in the EIS and the ranking has been achieved without ground truthing.

Response

The LVIA (Appendix H of the EIS) includes an assessment of H8-1, H7-1 and H12-1 (see LVIA Section 9.8.43, Section 9.8.49 and Table 8-2 and 9-43).

The LVIA determined that landscape characteristics surrounding these dwellings, including characteristics associated with prominent hills and mountains/low undulating hills and hills/pasture ridges all exhibit a moderate scenic quality, and is in accordance with the Scenic Quality Classes included in the LVIA Table 6-1. Site inspections were undertaken to confirm and record landscape characteristics within and beyond the project site as documented in the photographs included in the LVIA report.

Issue

Submission Reference: P14

P14 "I agree to have Turbines 9 and 10 removed as they have unacceptable visual and noise impact. I would like to have all Turbines closer than 3.1km to my home removed from the project.

I would like Turbines No.26-31 set back outside my view and sound range, at least 5km setback would mitigate the some of the problems associated with this construction

Oz Ark states (pg39) that any road works will be on the opposite side of the road (this is where a trees line exists).

This southern tree line is being used in the EIS to mitigate my visual issues to the south. When the road is widened Fig 39 the trees will be removed. I will then clearly see 6 wind Turbines from my front door. This contradiction in the EIS needs to be addressed and investigated."

Response

The Proponent has removed WTG 10 and relocated WTG 9, as discussed in **Section 3.2,** to reduce the potential impacts to this landholder. WTG 8 will be the closest wind turbine to this dwelling (identified as S17-2 in the EIS) at a distance of approximately 2.04 km.

Updated photomontages have been prepared and are included in **Appendix C**.

WTGs 26 – 31 are located at around 5km from the dwelling and are largely screened from the dwelling through tree cover along the creek extending west of the dwelling.

The Traffic and Transport Study (EIS Appendix K) prepared by Cardno (NSW/ACT) Pty Ltd illustrates that existing trees to the south of dwelling and the road corridor will not be impacted by proposed upgrades to Bowmans Creek Road.

5.3.2 Ineffective Mitigation of Visual Amenity

Issue

A number of stakeholders believe the vegetative screening and other measures proposed to reduce visual impacts will be ineffective. This included measures to screen the turbines, substations, transmission lines, maintenance facilities, access tracks and construction traffic.

Response

The main objective in the Wind Bulletin is to consider screening for residences at a distance of 3 – 4.4km to wind turbines. Screening is not intended to completely obscure all aspects of the project but rather to reduce residual

impacts. The Proponent has made a commitment to offer screening to all residents within 5km of a proposed turbine. This would involve consultation with a landscape architect to determine the most practical implementation.

Section 7.1.4 of the EIS outlines all the mitigation and management measures that will be implemented to reduce the visual impacts of the Project. Such measures include not only screening mitigation but a range of measures that will be implemented during the detailed design process as well as the construction and operational phases of the Project.

During the detailed design process, the following will be undertaken where reasonable and feasible:

- Refinement in the design and layout to assist in the mitigation of bulk and height of proposed structures;
- The Proponent has already committed to reducing the number of proposed turbines with the removal of four turbines (including 60, 61, 10 and 33);
- The transmission line corridor will be located below ridgeline areas to avoid skyline views where possible and/or located within existing utility/transport corridors to minimise visual intrusion; and
- A review of materials and colour finishes for selected components including the use of non-reflective finishes to structures to minimise potential glint and glare, and the recolouring of white to an off-white colour consistent with other Australian wind farms (unless otherwise agreed by the Secretary).

During construction, where reasonable and feasible:

- Tree removal will be minimised and mature trees protected (consistent with Section 7.5 of the EIS);
- Temporary light spill will be avoided beyond the construction site where temporary lighting is required;
- Disturbed areas that are no longer required for construction or operations will be progressively rehabilitated;
- During operations, there will be:
    - Ongoing maintenance and repair of constructed elements;
    - Replacement of damaged or missing constructed elements; and
    - Long term maintenance (and replacement as necessary) of vegetation within the Project site to maintain visual filtering and screening of external views, as and where appropriate.

Electrical works, including the installation of internal reticulation and powerlines are not considered to result in significant visual impacts. Landscape characteristics within and beyond the Project Boundary are considered to offer a reasonably high degree of visual absorption capability and will offer a reasonable degree of screening and filtering of views from sensitive view locations including dwellings and public lookouts.

Issue

> *P120 "Table 9-42 at page 234 of the 02 APP H Visual Assessment Report summarises the performance objectives. It indicates that turbines 9, 10, 60 and 61 need to be removed and that turbine 8 should be relocated in order to fulfil the performance objectives. As it stands, the project in its current form cannot appropriately fulfil the performance objectives and should not proceed without significant modification."*

Response

The Proponent has committed to removing WTG 10, 60 and 61 as well as relocating/ resitting WTG 8 and 9 to minimise visual impacts. The LVIA has been updated to reflect the Amended Project and is included in the Amendment Report.

5.3.3 Visual Impact of Obstacle Lighting on Turbines

Issue

There were a number of submissions who raised concerns over the CASA requirement for night lighting, stating that lighting will be clearly visible for vast distances and will create unacceptable visual impacts including spinning or flashing lights. Furthermore, that the LVIA did not assess the visual impacts of obstacle lighting.

Response

The Aviation Impact Assessment (EIS Appendix J) concluded that obstacle lights on the wind turbines were not required. Notwithstanding this independent expert assessment and conclusion, both CASA and DoD have requested that obstacle lighting be installed, as discussed in **Sections 4.4** and **4.6**.

The Proponent has written to both CASA and DoD and requested consideration of low intensity obstacle lighting in order to mitigate the potential visual impact of obstacle lighting on the wind turbines.

A supplementary LVIA which considers the impact of night lighting has been undertaken and is included in the Amendment Report.

5.4 NOISE AND VIBRATION

Submission Reference: P12, P14, P16, P18, P19, P21, P22, P23, P25, P26, P27, P28, P33, P34, P40, P41, P43, P44, P46, P47, P48, P49, P53, P54, P55, P58, P59, P60, P61, P52, P63, P65, P68, P69, P71, P72, P73, P78, P79, P82, P83, P84, P85, P86, P87, P89, P90, P92,P93, P94, P95, P96, P104, P105, P106, P107, P108, P109, P112, P113, P114, P115, P116, P117, P118, P119, P120, P121, P124, P125, P126, P127, P129, P131, P132, P133, P136, P137, P138, P139, P140, P141, P143, P145, P146, P148

5.4.1 Blasting

Issue

A few submissions indicated that the EIS did not include an evaluation of vibration resulting from drill and blast activities.

Response

A Noise and Vibration Impact Assessment (NIA) was undertaken for the Project by Sonus Pty Ltd in accordance with the Noise Bulletin and Guidelines and Policies referred to in the SEARs. The NIA is presented in Appendix I of the EIS.

No large-scale blasting is proposed to be undertaken for the Project. However, in rare circumstances small excavation blasts may be required during construction to blast bedrock for the WTG foundations. All blasting activities will be undertaken in accordance with the Development Consent, Environment Protection Licence (EPL) and the ANZEC Guidelines (1990).

Blasting will be designed to ensure blasting overpressure and ground vibration levels remain below the relevant criteria and standards at all residences, in accordance with the EPL and Development Consent. This will include designing suitable Maximum Instantaneous Charge and blast designs to meet vibration and overpressure ANZEC Guideline limits at nearby residences. These limits have been devised to "*minimise annoyance and discomfort to persons at noise sensitive sites*" (ANZEC, 1990).

As discussed in Section 7.2.3 of the EIS, the main potential sources of construction vibration will be the rock trenching equipment and roller operation during the road and hardstand construction. At a distance of 100 m, vibration from these activities is unlikely to be detectable. Based on the separation distances between the construction activities and the nearest dwellings in excess of 1000 m, vibration levels are predicted to easily achieve the criteria.

5.4.2 Noise Monitoring

Issue

A few submissions requested that a real-time noise management system be installed to ensure that noise is being adequately managed.

Response

As discussed in **Section 4.8**, the Proponent commits to developing a compliance assessment methodology and undertaking noise compliance monitoring after confirming the final noise operating strategy. If noise compliance monitoring indicates that noise from WTGs exceed the approved noise limits, the Proponent will identify reasonable and feasible noise mitigation and management measures to achieve compliance with the noise limits, including a timetable for implementation.

5.4.3 Noise Impacts

Issue

A number of submissions were concerned over the noise impacts of the Project, stated the assessment was inadequate including insufficient or non-representative background monitoring, did not consider worst case or did not consider the "thumping sound". A few submissions queried the process and independence of noise monitoring.

Response

The NIA (Appendix I of the EIS) has been completed in accordance with the Noise Bulletin by a reputable, independent and experienced noise specialist, Sonus Pty Ltd. Sonus has undertaken noise assessments for more than 30 potential windfarms and has developed a proven methodology that provides an accurate assessment of background noise, modelling and assessment, which has been accepted by regulatory authorities in a range of jurisdictions. This proven methodology was applied to this NIA and involved:

- Identifying an appropriate number of background noise monitoring locations, which was dependent on the number of non-associated residences where the predicted noise level exceeded or approached 35 dB(A) and the view of the EPA on the required regime. Therefore, the final number was confirmed following preliminary noise modelling and in consultation with the EPA;
- Use of noise loggers with a noise floor of less than 20 dB(A);
- Use of a weather logger to identify data points where rain has occurred and when wind on the microphone has had an impact on the measured noise levels. Where this occurs, these data points were removed; and
- Detailed modelling conducted using the rigorous CONCAWE propagation model. The CONCAWE model takes into account the influence of geometrical spreading, topography, ground absorption, air absorption and weather conditions and is widely accepted as an appropriate noise propagation model. A Weather Category 6, which provides for 'worst-case' weather conditions, was selected as an input to the model.

The selection of background noise monitoring locations is further discussed in **Section 4.8** in response to a request for further information from the UHSC. The EPA reviewed the EIS and did not have any comments or issues with the assessment.

The NIA concluded that the maximum equivalent noise levels generated by the wind turbines under conditions most conducive to noise propagation (such as temperature inversions) will comply with the criteria established by the SEARs at all non-Associated dwellings (with the exception of P22-1 by 1 dBA). A Neighbour Agreement will be established with P22-1 or if an agreement is not reached, the WTGs will operate in a "sound optimised" mode for wind speeds where predictions indicate criteria could be exceeded to ensure compliance with the relevant criteria.

The Proponent has committed to various noise management measures as outlined in Section 7.2.4 of the EIS. This includes the implementation of a noise management plan which will be detailed within the CEMP and Operational Environmental Management Plan (OEMP) for the Project.

Furthermore, a pre-construction noise assessment will also be undertaken to finalise the noise operating strategy, which will consider the final WTG selection and layout, guaranteed sound power levels for the WTG, and final agreements with landowners.

Issue

There were a few submissions who stated that the noise and vibration from traffic during construction would be unacceptable.

Response

The NIA (Appendix I of the EIS) assessed the noise from traffic in accordance with the '*NSW Roads Noise Policy*' (DECCW, 2011). The assessment concluded that the noise criteria for local roads of 55 dB(A) could be met at the closest dwelling located 20m from the road, with up to 20 passenger vehicles and six heavy vehicle movements in any one hour. The next closest dwellings are located 40m from the roadway and therefore noise criteria would be met for up to 40 passenger vehicles and 12 heavy vehicle movements in any one hour.

As discussed in the TTIA (Appendix K of the EIS), the Project is expected to generate approximately 141 daily one way traffic movements during the peak construction period in months 7 -8. This traffic is expected to access the site from either Singleton, Muswellbrook or Scone before dispersing across Project access roads to the north or south, with heavy vehicle trips evenly distributed through the 11-hour working day. As such, the criteria for traffic related noise would be easily met at the closest dwelling.

A Traffic Management Plan will be prepared for the life of the Project to ensure:

- Construction traffic only access the site via the identified routes;
- Construction deliveries are scheduled to be evenly dispersed within permissible times to avoid concentrated traffic utilising rural roads at any one time; and
- Excessive acceleration of trucks and the use of brakes are managed so as not to occur near dwellings.

Issue

> *P120 "A 2012 report by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) entitled 'Exploring community acceptance of rural wind farms in Australia: a snapshot' indicated that the 'van den Berg effect' has been raised as a concern for Australian wind farms, and has been accepted in a NSW judgement that it is 'reasonably possible' that it may also occur in the Australian context (page 37). This effect is described as a 'thumping' noise which occurs on some cold, still, winter nights, owing to a temperature inversion between the extremes of rotor tip extension (page 36). The report comments that this effect appears 'to have been underestimated in previous extrapolations of daytime measurement data' (page 36). It is not clear from the 03 APP I Noise and Vibration Assessment whether this effect has been taken into account."*

Response

Sonus Pty Ltd has provided a response to this issue (see **Appendix E**) by stating:

> *"The Noise Bulletin provides the relevant noise criteria for the assessment of operational noise from the Project.*
>
> *The Bulletin was published in 2016, following the issue of the CSIRO report and the Judgment, with full knowledge of the "Van Den Berg effect". On the basis of that knowledge, the criteria were developed taking into account for the fundamental operating characteristics of a wind farm, including noise associated with the rotation of the blades in temperature inversion conditions.*

The noise criteria of the Bulletin are therefore considered to provide a suitable assessment, taking into account the fundamental characteristics of noise from a wind farm."

Issue

P14 "Noise predictions indicate that levels will exceed current levels by a large amount. Epuron's studies indicate I have a current background noise of 24 decibels; this will increase to over 34 decibels, generated from the turbine blades and other sound. Reference: EIS. This increase of noise will be unpleasant to live comfortably."

Response

Table 4 of the NIA (Appendix I of the EIS) includes the background noise levels for integer wind speeds at Hub Height of 140m AGL (dB(A)), whilst Table 7 of the NIA includes the Noise predictions at non-associated residences, also at integer wind speeds at a Hub Height of 140m AGL (dB(A)). These noise levels are predicted based on wind speeds ranging from 3 – 12 m/s.

This residence is identified as S17-2 in the NIA. The comparison of background noise level vs the predicted noise levels appears to make a comparison across different wind speeds. As illustrated in **Table 5** below, the noise in predicted to increase at a maximum of 4 dB(A) at wind speeds of 8 – 9 m/s , which is below the stringent Noise Bulletin criteria of 5 dB(A) above background levels. Under most conditions, the predicted noise levels from the Project will remain below the background noise levels. Further to this, the Amended Project, which proposes to remove a number of WTGs, including WTG 10 which is in the vicinity of S17-2, is expected to result in a further reduction in predicted noise levels (as discussed in the Amendment Report).

Table 5 EIS Background Noise Levels vs Predicted Windfarm Noise Levels at S17-2

Integer Wind Speeds m/s	Background Noise dB(A)	Predicted Noise dB(A)	Noise Criteria $L_{aeq,\ 10mintues}$
3	24	23	35
4	24	23	35
5	25	24	35
6	26	27	35
7	27	30	35
8	29	33	35
9	30	34	35
10	32	34	35
11	34	34	37
12	37	34	39

5.4.4 Low Frequency Noise

Issue

There were several submissions concerned that infrasound or low frequency noise from the wind turbines would disturb the rural setting and cause sleep disturbance.

Response

As concluded in the EIS, there is no direct evidence that considered the possible effects of low frequency noise (infrasound) generated by wind farms. However, NHMRC (2015) noted that infrasound levels measured in the vicinity of wind farms were below the levels that are typically found in background levels in households.

The Noise Bulletin (DPE, 2016) states that "Low frequency noise is present in all types of environmental noise and is particularly difficult to measure in the presence of wind due to the increased level of background noise. Analysis of wind turbine spectra shows that low frequency noise is typically not a significant feature of modern wind turbine noise when it complies with the A-weighted criteria."

Compliance with criteria is discussed in **Section 5.4.3**.

5.4.5 Health Impacts

Issue

Several submissions were received with regard to impacts on quality of life from noise and blasting. There were also concerns that noise such as the "whipping/thumping/whooshing type sound" would interrupt sleep.

> *"It is not clear from the 03 APP I Noise and Vibration Assessment whether noise thumping has been taken into account."*

Response

As discussed above in **Section 5.4.5,** the noise impacts of the Project have been assessed in accordance with the relevant guidelines and policies. Noise assessment and impact policy in NSW has generally been devised to account for the nuisance aspect of industrial activities such as loud 'thumping' noises, particularly in rural environments such as the Project.

The results of the NIA (Appendix I of the EIS) demonstrate that operational noise levels will be below the amenity criteria for rural residential areas at the non-associated residences, that is to remain below the criteria of 35 dB(A) or no more than 5 dB(A) above background, with exception of P22-1 which is predicted to receive noise impacts of 1 dB(A) above the criteria of 35 dB (A). In fact, the majority of residences will be well below 30 dB(A). As such, noise impacts are not anticipated to affect the quality of life or cause interruption to sleep at any non-associated residence.

The health effects from wind farms are further discussed in **Section 5.21.1** below.

Sonus Pty Ltd has also responded to the issue of 'thumping' (see **Section 5.4.3** and **Appendix E**).

5.4.6 Hearing Sensitivity

Submission Reference: P60 and P61

Issue

A submission was received from a residence that has a son who is vision impaired and is autistic who is concerned noise will impact his health.

> *P60 "I have a son who is vision impaired and has heightened hearing, so from all reports I have read there is a lot of noise associated with the turbines this would make my ten year old very unsettled and be up all night irritable due to the noise so we strongly object to this, and hope the decision not to go ahead is chosen.*

P61 "Our son who is turning 10 in May was born with Optic Nerve Hypoplasia. He has also been diagnosed with autism as well. His hearing sensors are very fragile. Some noises he loves and some he just can't bare. He can't see anything so noises is what he gauges off. We moved to muscle creek so he could enjoy the beautiful nature noises of the country. Hearing all the birds and other animals making noises puts a smile on his face. He also relies a lot on smell but sound is what directs him in life. We brought our property not knowing anything about the proposed windfarm. Nothing was mentioned in our sale. Hearing the nature noises of the beautiful environment of muscle creek I believe is great for his mental health. Our son will most likely grow old with us. He won't be like our other children and get jobs and move out of home. He will be with us forever. I do not want my son growing up in muscle creek having to live with noises coming from the proposed wind farm. The muscle creek environment is great the way it is. The sounds of the Wedge tail eagles flying over our home and the trees moving from the wind passing down the valley. These are the noises my son uses to put an image in his brain of what it is."

Response

It is understood that the house that relates to P60 and P61 is located 4 km west of the Project (the Residence).

As part of the EIS, background noise levels were measured at a range of locations surrounding the Project to determine noise levels in the environment prior to construction (Appendix I of the EIS). The two closest noise monitoring locations in the vicinity of the Residence were "G15-3" and "G17-1". The results of the noise monitoring at these locations indicates that the external ambient noise in the environment vary, with noise levels often between 20 and 30 dB(A) at the lower wind speeds, with the noise often increasing above 30 dB(A) at the higher wind speed.

Although Project noise at the Residence was not specifically identified as part of the NIA, the noise was predicted for a cluster of houses, close to the Residence. The closest house assessed in the NIA was "E17-3", which is 220m south-west of the Residence.

The predicted external noise level from the operation of the Project at the Residence is provided in **Table 6** and shows that the Project will achieve the 35 dB(A) noise requirement of the Noise Bulletin at all wind speeds.

Table 6 Project Noise Predictions for Public Submission P60 and P61

Wind Speed (m/s)	3	4	5	6	7	8	9	10	11	12
Predicted Noise Level dB(A)	14	15	15	18	21	24	25	25	25	25

It is noted that the predicted noise levels are at the lower end of the noise levels measured in the ambient environment. It is therefore expected that the noise from the wind farm will be masked by the ambient noise in the environment most of the time, with the wind farm being audible only occasionally.

The noise levels in the Residence from the Project will be approximately 15 dB(A) lower than the external noise values in **Table 6**, when windows are open. That is, the noise level within the Residence is expected to be 10 dB(A), or less. A noise level of 10 dB(A) within the dwelling is unlikely to be perceptible/audible often.

The highest external noise level from construction is predicted to be no greater than 35 dB(A) at the Residence. Further, it is understood that construction activity will typically occur during the "standard hours". Therefore, the requirements of the '*Interim Construction Noise Guideline*' (DECC, 2009) could be achieved for continuous construction during the day and night at the Residence, even though construction is unlikely to occur outside of the "standard hours".

A detailed response has been prepared by Sonus Pty Ltd and is provided in **Appendix E**.

5.5 AVIATION SAFETY

Submission Reference: P12, P19, P22, P47, P48, P59, P82, P83, P84, P95, P96, P106, P132

5.5.1 Agricultural Practices

Issue

A number of submissions were concerned that small, fixed wing aircraft will be unable to fly near wind turbines to spread seed and fertiliser for pasture improvement. Furthermore, that a number of air strips will be impacted by the Project.

> *P82 "Aviation We use aircraft for fertiliser applications and this is likely to be restricted in our area if this development were to proceed because we are located in the middle of the whole development (surrounded on 3 sides). Irrespective of guidelines, operators will just refuse to fly in the whole of or in large parts of our property."*

Response

An Aviation Impact Assessment (AIA) was prepared by Aviation Projects and included in Appendix J of the EIS to identify and assess aviation constraints relevant to the Project. The AIA concluded that safe aerial application operations will remain possible on properties within and neighbouring the Project Boundary.

There are a number of Aircraft Landing Areas (ALAs) that may be impacted by the Project. Three of these are located on land associated with the Project. One, ALA 1, is located on land not associated with the Project. Take-off and landing from each would not be impacted but the associated circuit may be impacted and as such may require additional planning and alteration in some circumstances.

In the unforeseen event that pre-existing aerial agricultural activities are affected by the construction and/or operation of the WTGs, the Proponent will implement reasonable measures in consultation with the landowner to mitigate the impacts. This could include:

- Funding the cost difference between pre-development aerial agricultural activities and a suitable alternative; and/or
- Temporarily stopping WTGs during aerial agricultural activities.

There are a number of mitigation and management strategies that will be implemented to ensure the safe operation of agricultural aircraft, as outlined in Section 7.3.4 of the EIS. This will include engaging local aerial agricultural operators and aerial firefighting operators to develop procedures for aircraft operations in the vicinity of the Project.

The Proponent will continue to consult with the landowner of ALA 1 to address potential impacts on the use of their ALA.

Issue

> *P84 "There is also a registered airstrip that runs parallel to Inglewood Road. This airstrip has been excluded from the EIS. Why?"*

Response

This refers to an old ALA on the eastern side of Inglewood Road (Lot 102 DP752444) that has not been used for a period of 10 – 15 years.

5.5.2 Rescue Aircraft

Issue

There were concerns over the safety for rescue planes and helicopters, such as the Westpac Helicopter, which could be affected by the wind turbines, and may also have to detour which would add to the response time.

Response

The impact of the Project on aerial operations was assessed as part of the AIA (Appendix J of the EIS) with consultation undertaken with aerial and aircraft operators, owners of private aerodromes and emergency services (discussed in Section 5 of the EIS).

Consultation with the Westpac Life Saver Rescue Helicopter Service (WLSRHS) indicated they did not have any significant concerns about the Project.

Furthermore, the AIA concluded that most emergency aviation services organisations have formal risk management programs to assess the risks associated with their operations and implement applicable treatments to ensure an acceptable level of safety can be maintained. Certain flying operations, by their nature, involve lower than normal flying, such as aerial agricultural spraying, power line inspection, helicopter operations including search and rescue and some military training. Hence, pilots conducting such operations have undertaken specialised training and are required to take obstacles into account when planning and conducting low flying operations.

5.6 TRAFFIC AND TRANSPORT

Submission Reference: P12, P14, P20, P22, P27, P31, P34, P47, P48, P49, P51, P58, P59, P66, P72, P82, P85, P89, P92, P93, P96, P108, P114, P116, P118, P120, P121, P123, P124, P125, P126, P132, P145

5.6.1 Traffic Assessment of Local Roads

Issue

A number of submissions raised concern over the increase in traffic on the rural roads, indicating the increased traffic and road conditions had not been adequately assessed and that the road was not suitable due to road width and condition.

> *"The Traffic Impacts from the project will be extensive particularly for resident and road users on Hebden, Scrumlo and Albino Roads."*
>
> *"Bowmans Creek Road and Albano Road are not suitable for site access to build the Wind Turbines."*

Response

The Traffic and Transport Assessment (TTIA) (Appendix K of the EIS) for the Project was undertaken by Cardno Pty Ltd to assess the potential traffic and transport impacts during all phases of the Project.

Cardno is an international, integrated professional services provider with a team of skilled specialists well experienced in the preparation of traffic impact assessments. The TTIA was completed in accordance with the Project SEARs and adequately assessed traffic and transport issues, in consultation with key regulatory stakeholders such as MSC, SC and TfNSW.

The TTIA concluded that apart from the initial construction phase, the Project is anticipated to have a negligible impact upon traffic on the local road network as the Project will operate with limited staff and generate minimal traffic movements during the operation phase.

There will be two main streams of traffic during the construction phase, the OSOM vehicles delivering the turbines and the general construction personnel traffic. The peak traffic period is expected to occur in months 7 – 8 with 141 daily one-way traffic movements. This will involve vehicles accessing the Operation and Maintenance Facility (O&M Facility) off Scrumlo Road via the New England Highway before dispersing across the site on private tracks. OSOM traffic is likely to be grouped to minimise the impact on the road network and will occur in of-peak periods.

As outlined in Section 7.4.4 of the EIS, a Traffic Management Plan (TMP) will be prepared to address the construction, maintenance, operation and decommissioning of the Project. The TMP will include the specific details and controls to minimise potential traffic impacts.

There will be a number of material upgrades required to the local road network in and surrounding the Project Boundary. These upgrades and how they will be executed will be described in detail in the TMP which is to be prepared in consultation with the local Councils. Such upgrades will look at the road widening of sections of the roads and the serviceability of all box culverts / causeways and bridges along Hebden Road and Scrumlo Road. Improvements made to the local road network will remain in perpetuity for the benefit of all road users.

A dilapidation assessment will also be conducted to identify any remediation or maintenance required to be undertaken by the Proponent, following construction.

The RMS have reviewed the EIS and made a number of recommendations for inclusion in the TMP, as discussed in **Section 4.16**. The Proponent has committed to implementing all requirements and recommendations made by RMS.

Issue

Some raised the issue that road works would inconvenience local road users, by causing long delays or by traffic using alternate roads such as Goorangoola Road to access the Project site.

Response

The Project will result in some material road upgrades in the locality. These road works will occur prior to the major componentry being delivered to the WTG sites. They will be conducted in accordance with a Traffic Management Plan to be prepared in consultation with the relevant Councils. The traffic Management Plan will ensure that during any road works, associated with the upgrading of the public road network, will occur in daylight hours only and will only inconvenience local road users for a relatively brief period. Whilst any road upgrades are taking place on public roads, standard traffic management controls will occur and alternate accesses and bypasses will be put in place as is reasonably feasible. The benefits of the road upgrades will be realised by the local road users in perpetuity.

Access to the Project will be via the Hebden Road/New England Highway intersection, not Goorangoola Road. This will be managed under a Traffic Management Plan which will require all visitors to the Project, both during construction and operation, to sign in at the Project Site Office which is to be located at the intersection of Hebden Road and the Project Site Boundary that can only be accessed from Hebden Road.

5.6.2 New England Highway Intersection

Issue

A few submissions raised concerns over the adequacy and safety of the intersection of New England Highway and Hebden Road.

> *P93 "The road assessment indicates the majority of vehicles will leave the site and intersect with the New England Hwy near the old Ravensworth school, there is only a minimal merging lane in this area."*

Response

The "SIDRA" analysis results and movement summaries (refer to TTIA in Appendix K of EIS) indicated the New England Highway / Hebden Road intersection will not be detrimentally impacted by the addition of project construction traffic and therefore would not require any upgrades.

The TTIA also concluded that the highest delay movement of the Hebden Road (south) and the other access at Hebden Road (north) would be the right turn out of the minor side road onto NEH. However, if delays on this turning movement deteriorates, project construction related traffic will avoid travelling between the hours of 5 am – 6 am and 4 am – 5pm when traffic peaks on the NEH (in consultation with the relevant regulator).

As discussed in **Section 4.16,** RMS have requested that further investigations be undertaken to determine whether there is a need for any intersection upgrade for the turns out of Hebden Road to accommodate additional vehicle movements. The Proponent will investigate this during the preparation of the TMP.

5.6.3 School Bus Safety

Issue

Some submissions raised concern over the safety of the children travelling on the school bus, in particular along Hebden Road with increased trucks on the country roads during construction and afterwards.

Response

The TTIA (Appendix K of the EIS) assessed the potential impacts with both light vehicles and OSOM vehicles with regards to the local school buses. Given the low frequency of school bus movements (once in the morning and once in the afternoon on each road), the exposure to light vehicle construction traffic would be low and therefore will be a minor conflict. Notwithstanding this, the Proponent will commit to avoiding school bus times when scheduling the OSOM vehicles.

The interaction of heavy vehicle construction traffic and OSOM vehicles will be coordinated with the operator of the relevant bus company for all OSOM routes and managed as part of the TMP (discussed in **Section 5.6.1)**.

5.6.4 Safety on Local Roads

Issue

A few submissions identified safety concerns for local people who walk, run, ride bikes or horses along the rural roads, as well as cattle that may graze on road edges at times.

Response

As discussed above, the Proponent will prepare a TMP for the life of the Project to manage and mitigate potential impacts of the Project on the local road network and its users. This will include minimising potential conflict between development-related traffic and the local community such as landholders, with consideration of stock movements and domestic animals amongst other potential conflicts. The TMP will also include a Code of Conduct for drivers to address travelling speeds and ensure drivers implement safe driving practices.

5.7 BIODIVERSITY

Submission Reference: P12, P14, P27, P31, P32, P33, P34, P40, P41, P44, P45, P46, P47, P48, P51, P52, P53, P54, P55, P58, P59, P61, P62, P65, P66, P71, P72, P82, P83, P84, P86, P87, P89, P90, P91, P92, P93, P95, P96, P101, P106, P107, P108, P109, P111, P112, P113, P114, P115, P116, P117, P118, P119, P126, P127, P129, P130, P132, P138, P139, P140, P141, P142, P144, P145, P148

5.7.1 Koalas, Spotted Quolls

Issue

Submissions stated that the assessment has not identified the true extent of the Koala habitat and the number of Koalas in the project area or in the vicinity of the proposed Project Area.

> *"The windfarm will remove vegetation that contains key tree species critical for survival of the Koala. The windfarm will remove several native vegetation communities within the Development Footprint including fragmented eucalypt forest and woodland."*

"The clearing needed for this proposed Wind Farm Site also threatens Koala Colonies known to exist within the area. One known Colony is found East of our property on Beggary Creek on a host's property which was referred to by the "Hunter River Times"."

Response

Assessments for Koalas has been conducted in accordance with the Biodiversity Assessment Method (BAM). The assessments conducted to date have determined that the project does not conform to the definition of 'Important habitat' as defined by the BAM and therefore targeted surveys are not required. The BAM assessment has nonetheless included all areas of woodland habitat as potential foraging for koalas. It should be noted that the assessment by the BCD has not raised koalas as an issue confirming that assessments are in accordance with the BAM.

Issue

Several submissions stated that the assessment has not accurately identified the presence of Spotted –tail Quolls and flying foxes in the area.

Response

Assessments for Spotted-tail quoll and Grey-headed Flying Foxes have been conducted in accordance with the BAM.

Under the BAM, the Spotted-tailed quoll is classified as an ecosystem credit species and does not require targeted surveys to be conducted. In accordance with the BAM, all areas of woodland habitat and grassland habitat are assessed as potential habitat for the Spotted-tailed quoll.

Under the BAM, the Grey-headed Flying fox is also largely classified as an ecosystem credit species, the exception for this being known/mapped Flying Fox camps. No camps for flying foxes occur within the subject land assessed for the BDAR. In accordance with the BAM, all areas of woodland habitat and grassland habitat are assessed as potential forging habitat for the Flying foxes.

5.7.2 Birds

Issue

A number of submissions claimed that the EIS did not adequately consider the impacts of the Project on migratory bird species and that the wind turbines would impact on the migratory route and result in unacceptable bird strikes.

Response

Detailed Bird surveys have been conducted across the subject land and has been further supplemented by data provided by local bird watchers. All bird species, including migratory species and local species, as well as bat species occurring or considered likely to occur within the study area have been assessed for strike risk. Based on surveys conducted as well as desktop assessment, the project does not pass through any known migratory flight path and is not considered to comprise a route for migratory birds.

5.7.3 Flora and Fauna

Issue

There were submissions who made the general comment that the project will have unacceptable impact on the flora and fauna. Furthermore, that the assessment did not consider the Significant Ravensworth State Forest Remanent, which is located approximately 4km south of project boundary or Glencore's biodiversity offset areas.

Response

The ecological assessments have been conducted in accordance with the BAM and includes indirect and prescribed impacts to surrounding areas.

5.7.4 Biodiversity Assessment

Issue

There were submissions questioning the adequacy of the Biodiversity Assessment and the area covered in surveys.

Response

The ecological assessments have been conducted in accordance with the BAM and include detailed vegetation surveys, habitat assessments, bat surveys and bird surveys. The survey covers the vast majority of the subject land with areas not directly accessed due to safety/access issues assessed via detailed desktop assessment. Bird survey data has also been supplemented by bird lists provided by local birdwatchers.

Issue

> *P92 "The Biodiversity Assessment has not covered any of the access tracks or areas identified in the EIS for the location of the four permanent monitoring masts.*

Response

The access tracks for the permanent monitoring masts are located within the Project Boundary. As discussed above, the ecological assessment included surveys that covered the vast majority of the Project Boundary. Further, the BDAR prepared over the Amended Project conservatively assumes a far greater total disturbance area than will actually be required.

During detailed design, additional survey will be undertaken to facilitate, to the maximum extent practicable, the avoidance of any potential threatened flora species. This micro siting will include the positioning of Project required access tracks to infrastructure, as much as is practicable, on existing access tracks and other previously disturbed areas.

The total Project disturbance area will not exceed 417 ha.

5.7.5 Impacts of Vegetation Removal

Issue

A number of submissions were concerned over the potential impacts resulting from the removal of vegetation.

Response

The impacts of vegetation removal have been assessed in accordance with the SEARs and BCD requirements. This assessment includes the quantification of impacts based on the existing condition of the vegetation and landscape values and takes into account the impact to threatened flora and fauna species.

The majority of land within the Project Boundary is privately owned and largely used for agricultural purposes. The historic land use of the locality has impacted on the presence of fauna and flora corridors within the landscape as extensive land clearing has occurred for agricultural uses as well as development of open cut mines. Small areas of bushland remain in limited areas as described in Section 7.5.3 of the EIS.

As outlined in Section 2.3 of the EIS, vegetation corridors are somewhat fragmented, ranging from dense native vegetation on the steeper slopes of the ranges (generally in the western and north-eastern sections) and lightly wooded areas on spurs and gentle slopes. The extent of wooded areas varies from property-to-property depending on the individual land management practices of existing and previous land managers/owners.

The Project has been designed to minimise the area to be disturbed and vegetation that will need to be removed. Further to this, as discussed in **Section 3.2**, the Proponent has committed to a further reduction in land disturbance (since exhibition of the EIS), which includes an overall reduction in disturbance of 97.6 ha.

5.8 ABORIGINAL CULTURAL HERITAGE

Submission Reference: P14, P87, P96, P126, P132

5.8.1 Aboriginal Cultural Heritage Impacts

A few stakeholders raised concerns in public submissions over the impacts and loss of Aboriginal cultural heritage and questioned the adequacy of the assessment.

> *P14 "Loss of aboriginal cultural heritage including aboriginal walking tracks, disturbance of massacre sites and archaeological remnants, destruction of unique sandstone cultural viewing platforms, disturbance of cultural corridors along ridge tops."*
>
> *"300-year-old Grass trees – Xanthorrhoea sp. which holds great significance to Aboriginal culture will be heavily impacted with construction of access tracks artefacts have been found along Bowmans Creek Road (Albano Road in EIS). Albano Road OS-01 (37-3- 1587) recorded a selection of artefacts. This is an area where the EIS has noted road alterations and disturbance."*
>
> *"Stoney Creek Bridge – 3 coloured ochres (used in ceremonial events). This is also an area for alteration of roadway to allow oversized vehicles through the area. Further studies need to be undertaken before any road works occur."*
>
> *"Insufficient ground surface survey. More studies need to be conducted to get a better overall understanding."*

Response

A comprehensive Aboriginal and Cultural Heritage Assessment Report (ACHAR) was undertaken for the Project by Ozark Environment and Heritage Management Pty Ltd (Ozark) and is included in Appendix M of the EIS.

The purpose of the ACHAR was to identify and assess Aboriginal Cultural Heritage constraints and/or impacts relevant to the Project. The ACHAR followed the *'Code of Practice for the Investigation of Aboriginal Objects in NSW'* (DECCW, 2010) and the *'Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW'* (OEH, 2011).

Consultation with the Aboriginal community for the Project was conducted by Ozark in accordance with the 'Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010' (DECCW, 2010) (Consultation Guidelines). Twenty-nine Registered Aboriginal Parties (RAPs) registered to be involved in the Project. Four fieldwork sessions were held in November 2019, March 2020, November 2020 and February 2021 with RAPs represented during the fieldwork. All RAPs were afforded an opportunity to provide comment on the fieldwork methodology and the ACHAR.

The Survey Boundary included:

- WTG footings and pads - 150 m from the centre of each WTG;
- Access tracks - 50 m (i.e. 25 m from centre);
- Underground reticulation - 5 m (i.e. 2.5 m from centre);
- Overhead reticulation – 50 m (i.e. 25 m from centre);
- Overhead powerline – 100 m (i.e. 50 m from the centre);
- Underground powerline – 20 m (i.e. 10 m from the centre);
- Facilities – 20 m buffer; and
- Road upgrades to the public road corridor.

No specific cultural values pertaining to the Survey Boundary were identified during the fieldwork. The general feeling was that the steep sided hills of Survey Unit 1 (defined in the ACHAR) would not have attracted occupation in the past. As no sites were recorded in these landforms, there were no management recommendations discussed in the field. In Survey Area 2 (defined in the ACHAR), the recorded sites were held to be significant by the RAPs and there was a unanimous desire to see the sites conserved and protected.

There were 16 sites considered in the ACHAR, however only nine sites (six newly recorded and three previously recorded) are located within the Survey Boundary. Of the 16 sites:

- Eight sites will be avoided by the Project (including ANT 22);
- Eight sites have potential to be impacted by the Project, however:
    - Six individual sites have potential to be avoided during the overhead powerline design; and
    - Two sites have a low probability for avoidance along Albano Road.

As discussed in Section 7.6.4 of the EIS, an Aboriginal and Cultural Heritage and Management Plan (ACHMP) will be prepared for the Project in accordance with conditions of consent. The ACHMP will be prepared in consultation with the RAPs and relevant regulators and will include the mitigation measures required to avoid and manage impacts to Aboriginal heritage. This will include any additional fieldwork that may be required prior to construction, such as within 200 m of Fish Hole Creek.

5.8.2 Ravensworth Estate

Issue

> *P96 "No consideration or mention of the Notice of an application for the preservation and protection of a specified area described as the "Ravensworth Estate' and including Bowmans Creek and Glennies Creek, in the Hunter Valley. "The Ravensworth Estate" includes the proposed easement for the powerlines and subdivision.*

Response

The Specified Area as defined in the Section 10 application under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* includes a portion of the overhead electricity line, a portion of the underground electricity line, a construction compound/batching plant, an access track, as well as some minor locations for road works along Hebden Road. All areas, except for a portion of access track north of the construction compound, have been surveyed. OzArk was aware at the time of the survey of the values that have been identified in the Specified Area and took care to observe any attributes associated with these values within the Survey Boundary. No tangible items associated with these values were observed, and it is concluded that the project will not impact the values ascribed to the Specified Area. As the impacts are occurring within areas previously cleared and farmed, it is assessed that these actions have removed or altered the aesthetic values ascribed to the Specified Area. The specific values within the Specified Area that are identified as significant and the impacts to these values from the Amended Project are discussed in **Table 7**.

Table 7 Analysis of Impacts to the Identified Values of the Specified Area

Significance Identified in the Specified Area	Likely Impact from the Project
Represents an area where the conflicts occurred during the early colonisation of the Hunter Valley", including how it "contains a landscape of an open massacre of the Wonnarua people"	The history of resistance and conflict associated with the colonial occupation of the Hunter Valley has been documented by Dr Mark Dunn (The Convict Valley: The bloody struggle on Australia's early frontier. Allen and Unwin, 2020). The massacre identified in the significance associated with the Specified Area has been extensively researched and an exact location for this event is unknown.

Significance Identified in the Specified Area	Likely Impact from the Project
	While this does not preclude the possibility that it occurred in or near the Project Boundary, there is no evidence to suggest that it did. During the survey, no evidence of this early colonial conflict was noted in the Survey Boundary.
Represents [an] area where ceremonies were carried out by the Wonnarua people" and is thus "sacred to our people", including "several places" used for rituals associated with "bora" (male initiation) ceremonies or with "women's business ceremonies"	The Aboriginal community, including representatives for the Applicant for the Section 10 application, assisted the survey. At no location within the Survey Boundary was it suggested that ceremonial places were located within the Survey Boundary.
"It is a spiritual place to us that must be protected so we can pass on to our children (future generations) for an understanding of our people's practices of the past there is an "obligation ... to preserve for future generations the story line that flows through the river, creeks and tributaries of the whole area·: including how "forefathers ... followed the creek lines and carried out ceremonial rituals along the route"	The Survey Boundary impacts minor areas associated with Bowmans Creek including where the Survey Boundary is within the existing Albano Road where it crosses Bowmans Creek and where Bowmans Creek will be underbored for the electricity powerline where Hebden Road crosses Bowmans Creek. The Project will therefore not impact this value any more than has already occurred through the construction of Albano and Hebden Roads.
"The area is part of a transit route"; along Bowmans Creek there are "two fish traps" and a "women's birthing place"	As noted above, the Project will not additionally impact Bowmans Creek and this value will not be impacted. The sites mentioned in the Specified Area are not known to exist within the Survey Boundary.
"Our people have used the area for thousands of years", including recently by "members of the [native title] claimant group", and, "As such, this is one of the few in Wonnarua Country that can demonstrate ongoing occupation and use by a hunter-gatherer society"	This intangible value will not be impacted by the Project as it exists in an area that has been within private ownership for a long period of time and has been subjected to long-term grazing and landform modification. While occupation of the area by traditional Aboriginal people is undisputed, the survey results indicate that the Survey Boundary was not intensively occupied and no evidence of recent occupation (i.e. knapped glass objects etc.) were recorded.
"To ensure that our cultural and heritage values are protected"	A major aim of the survey was to ensure that this value was understood, and every effort made to ensure cultural values were conserved in the landscape. There is an overall low level of harm to known Aboriginal objects arising from the Amended Project (of the 16 sites considered in the EIS, five will potentially be impacted although three will only be partially harmed, and a further two are likely to be avoided). Eleven sites will not be harmed by the Amended Project. The result is that most of the known sites within the Survey Boundary will be conserved.
"We have a responsibility [to] do all we can, to stop the never ending destruction, of our Country" by "uncontrolled agricultural and coal mining practices". As such, the "area contains a landscape of ongoing conflict"	OzArk understands this point of view, however, it is considered that the Amended Project does not materially impact significant Aboriginal cultural heritage vales.

Although not specifically mentioned in the submission, it is noted that the Statement of Heritage Impact for the Ravensworth Estate prepared for the Glendell Continued Operations Project (Lucas Stapleton Johnson & Partners Pty. Ltd. 2019) identifies two areas associated with the former Bowman estate: the place and the Ravensworth Estate core remains. The only Project impacts in either of these areas are minor road works along Hebden Road and there will be no impact to any surviving component within the Place or the Ravensworth Estate core remains.

5.9 HISTORIC HERITAGE

Submission Reference: P14, P84, P96, P126, P132

5.9.1 Loss of Historic Heritage

Issue

A number of submissions were concerned there would be a loss of historic heritage in the Bowmans Creek area, such as wool sheds, dance hall, blacksmiths shop, local land heritage listed Church and federation homesteads.

Response

An Historic Heritage Impact Assessment (HIA) was undertaken for the Project by Ozark (refer to Appendix N of the EIS), in accordance with the SEARs and Heritage Council's 'Historical Archaeology Code of Practice' (Heritage Council, 2006).

As detailed in Section 7.7 of the EIS, two historic heritage places were recorded during the survey (although not listed on a LEP). These included Rock Lily Gully (HS01), which is a family burial plot and Hilliers Creek (HC01), which is a farmhouse ruin. Although neither place would satisfy the criteria to be considered to have local heritage values, the loss of either item would be regretful, and as such both items will be avoided and protected during construction to ensure they are retained in the landscape.

The assessment further concluded that the Project is occurring within a cultural landscape typified by small rural holdings containing a variety of structures such as homesteads that exemplify a long history of settlement over the past 150 years. The Project will not directly impact any buildings, structures, churches or homesteads. There may be visual impacts in some places, however, this will not adversely impact the fundamental values of the cultural landscape.

Notwithstanding this, a number of mitigation and management measures will be implemented, including locating electricity reticulation and tracks more than 20m and 10m respectively from Hillier's Creek and temporary fencing to Rock Lily Gully.

The Proponent will also commission a community community-based heritage study that will document and archivally record any items held to be significant by the local community.

Consultation occurred with landholders in relation to the Blacksmith workshop as discussed in the HIA.

'Fairview' and 'Hillcrest' homesteads are located external to the Survey Boundary and will not be impacted by the Project.

The LEP listed 'Former Roman Catholic Church' is discussed in Section 5.9.2.

5.9.2 Former Roman Catholic Church

Issue

P14 raised a number of matters in relation to Historic Heritage of the Old Catholic Church, where P14 resides.

> *P14 "Oz Ark states road works will be 45m from my front door of my home; this is incorrect as shown in attached site plan of my home that states it is 37m to road corridor."*

Oz Ark incorrectly assumes "the development will not affect views from the heritage item", I disagree.

Oz Ark incorrectly assumes that "road-widening works will not affect the heritage item", I disagree.

Oz Ark incorrectly assumes "the development will not dominate the heritage item," I disagree."

"I request a detailed study to be done on my property regarding the heritage impacts and other issues that will impact my home. It is not sufficient to look at it from the road corridor, display an incorrect photo when it was not listed as heritage and ask associated stakeholders about the history. I really am surprised the lack of information and misinformation regarding this unique property within very close proximity to Turbines and road alterations."

Response

The heritage curtilage of the 'Former Roman Catholic Church' is located immediately outside the Survey Boundary and therefore will not be directly physically impacted by the Project. The Proponent will ensure there are no direct physical impacts within the lot containing the item, including vehicle movements and the storage of materials.

A Statement of Heritage Impact (SOHI) was completed for the 'Former Roman Catholic Church' and concludes that there will be no impact to the item's heritage values. The SOHI is included in Appendix N of the EIS.

As discussed in **Section 3.2,** the Proponent has committed to removing WTG 10 and relocating the closest WTG (WTG 9), which was initially located 1,705 m from this residence, to reduce the potential impacts to this residence. WTG 8 will be the closest wind turbine to this dwelling (identified as S17-2 in the EIS) at a distance of approximately 2,042 m.

Photomontages for this residence have been updated and are included in the revised LVIA (Appendix D of the Amendment Report).

5.9.3 Strathclyde House

Issue

P84 "Why is Strathclyde House not included in the EIS as an historical home? According to the article quoted above it was built in 1850."

Response

Strathclyde House is owned by an Associated Landholder. There will be no direct impacts to this homestead as a consequence of the Project.

5.9.4 Visual Impacts

Issue

P96 "No consideration to the visual impact on the Former Catholic Church at Bowmans Creek, only the road has been considered not the turbines themselves – no photomontage included in the visual impact assessment."

Response

A SOHI was completed for the 'Former Roman Catholic Church' and states that "visual impacts and any required mitigation in relation to the 'Former Roman Catholic Church' are described in the Visual Impact Assessment Report".

A visual performance evaluation was undertaken on S17-2 ('Former Roman Catholic Church') with results summarised in Table 17 and Table 18 of the EIS. Appendix B Figure 34 of the LVIA provides a photomontage for S17-2.

Issue

> *P96 "No consideration to the visual impact on the Ravensworth Homestead, this is a significant heritage site in the area and turbines will be visible from its current location."*

Response

The Ravensworth Homestead is located in excess of 12km from the closest proposed wind turbine. Visible wind turbines would be unlikely to result in any significant visual impact on the Homestead at this distance. The landscape surrounding the Homestead has been significantly altered (both visually and physically) by open cut mining activities, and we note proposed plans to relocate the Homestead from its existing location to enable the extension of an existing open cut mine (https://www.smh.com.au/national/nsw/hallowed-ground-outcry-over-plan-to-remove-homestead-for-coal-mine-20210417-p57k14.html). The relocation would remove any visual connection between the Homestead and the proposed wind farm.

5.10 ECONOMICS

Submission Reference: P14, P65, P83, P118, P120, P121, P125, P126, P132, P144

5.10.1 Economic Assessment

Issue

There were a number of questions/statements regarding the input-output analysis in the Economics Assessment, including:

- *How are the multiplier effects calculated? In particular:*
    - *How the "156 full time equivalent jobs during its 18-month construction period" turns into a total of 703 (209 regional plus 494 NSW)?*
    - *How the "15 full time equivalent jobs" multiplies into 88 (30 regional plus 58 NSW)?*
- *I note that 15 jobs during operation is across the 25 years of the project and not continuously through the life of the project.*
- *The EIS states that "It was conservatively assumed that lease payments to Project landholders were not reinvested in the region." Is this because those landholders leave the region entirely and move away from the wind farm? What else is include in the $48M of "Other Value Added" besides Project landholder lease payments?"*

Response

The multiplier effects were estimated by:

- Preparing input-output models of the regional and NSW economies using the Generations of Input-Output Tables method, developed by the University of Queensland and recognised internationally;
- Identifying the direct output, employment, wages and expenditures associated with the construction and operations phases of the Project, and the proportion of these that would be spent in the regional and NSW economies;
- Using the computer program EconImp and the input-output tables for each economy to trace production expenditures and wage expenditures through successive rounds of supply from the regional and NSW economies e.g., a purchase in the construction services sector results in that sector making purchases from a number of sectors, which in turn make purchases from a number of sectors etc. The multiplier for employment is calculated by adding direct employment from the Project and employment associated with the all the successive rounds of supply of goods and services, and dividing this total employment number by the direct employment associated with the Project.

The analysis indicates that construction in year 1 will result in 209 direct and indirect jobs for the region and 494 direct and indirect jobs for NSW. These employment numbers are not additive. The 494 jobs for NSW include the 209 jobs that will be generated in the region. Multiplier effects arise from the purchases made within the region and NSW on inputs to production and from the spending of wages. The multiplier effects are greater for NSW than the region because NSW is able to supply more of the inputs to productions e.g. manufactured goods, fuel, construction services etc, and goods and services required by households such as medical services, than the region.

The 15 FTE jobs are the direct jobs associated with the operations of the Project. The reference to 30 jobs for the region and 58 jobs for NSW are direct and indirect jobs.

The 15 jobs are full-time equivalent jobs i.e., they are continuous through the life of the Project.

The ongoing employment numbers are not additive. The 58 jobs for NSW include the 30 jobs that will be generated in the region. Multiplier effects arise from the purchases made within the region and NSW on inputs to production and from the spending of wages. The multiplier effects are greater for NSW than the region because NSW is able to supply more of the inputs to productions e.g., heavy and civil engineering construction services, constructions services and goods and services required by households e.g. clothing, food, health services, than the region.

The lease payments are included in other value added. This means that any stimulus to the economy from the spending of this money is not included in the estimation of multiplier effects. This is because it is not known what this money would be spent on. Other Value Added mainly comprises profits and taxes. Landowners will continue normal operations of their agricultural enterprises while hosting the windfarm.

5.11 TELECOMMUNICATIONS

Submission Reference: P49, P129, P132, P143, P145, P146

5.11.1 Loss or Interruption to Telecommunication Signals

Issue

There were concerns raised that signal to telephone, mobile phone and television would be affected by the wind turbines.

> *"Reception for internet and mobile phones is already an issue in these communities and there is the potential for it to be impacted by this development."*

Response

As outlined in Section 7.9 of the EIS, it is unlikely that any cellular, private, business or government mobile coverage will be impacted by the Project due to the sufficient distance between the WTGs and the telecommunication services.

There is a low risk of interference to customer links for NBN services, since the base stations are a substantial distance to the closest WTG (at least 15 km). However, in the unlikely event that TV reception of the two main stations is impacted by WTGs located in the direction of the main TV stations, as confirmed through the preconstruction TV surveys, the Viewer Access Satellite Television (VAST) service will be offered by the Proponent to any affected residence.

5.12 BUSHFIRE

Submission Reference: P12, P14, P21, P22, P27, P46, P47, P48, P49, P51, P53, P65, P69, P83, P83, P92, P93, P95, P96, P105, P114, P116, P117, P126, P132, P139, P141, P143, P145, P146, P148

5.12.1 Increased Bushfire Risk

Issue

There were a number of submissions that are concerned that bushfire risks would increase through ignition of turbines, bird strikes to transmission lines and inaccessibility for aerial water fighting equipment.

> *"Bushfires have been known to start from, wind turbines, bird strikes to surrounding infrastructure and maintenance work surrounding turbines. We live in an area that is one road in and one road out. Any increase to bushfire potential is concerning, regardless of whether or not there is 519 hectares less of fuel load."*

Response

An assessment of bushfire risk was conducted with regard to the principles of '*Planning for Bush Fire Protection*' (RFS, 2019) (PBP), as detailed in Section 7.10 of the EIS. PBP recommends the establishment of Bushfire Protection Measures (BPMs) to reduce the risk of impacts to assets. To this end, the design of the Project has incorporated the appropriate Bushfire Protection Measures to comply with the PBP. This includes:

- The provision of clear separation of buildings and bush fire hazards in the form of fuel reduced APZ;
- All Project infrastructure will be constructed in accordance with Australian Standards;
- Appropriate access standards for residents, fire fighters, emergency service workers and those involved in evacuation;
- Adequate water supply and pressure. Water tanks will be utilised as described in Section 3 of the EIS. Emergency services will be given access to these water supplies if required for firefighting purposes;
- Emergency management protocols will be developed for fire protection and/or evacuation; and
- Suitable landscaping, to limit fire spreading to a building. WTGs and substations will be constructed with non-flammable hardstand areas.

The proposed WTG and electricity infrastructure (i.e., substations, transmission lines, etc) could have the potential to initiate or exacerbate the spread of fires. With the standard mitigating measures to be installed at the Project (Section 8 of the EIS), the risk of WTG ignition is considered to be low. Notwithstanding this, a number of specific controls will be implemented to minimise the risk of bushfires being ignited due to the Project activities. This will include:

- Installation of lightning conductors in WTGs to ground lightning strikes in order to minimise the risk of damage to the WTG and risk of ignition of a fire;
- Design of the powerlines route to avoid treed vegetation, wherever practicable. Vegetation near powerlines that cannot be avoided will be managed in accordance with the PBP; and
- Ensuring substations and any hazardous substances such as oils are contained in a bunded area to contain the oil and the event of a major leak or fire.

A Bushfire Management Plan will be developed in consultation with the relevant emergency services and regulatory authorities. The BMP will include controls to minimise the risk of ignition as well as procedures for responding to bushfires should they occur within the Project Boundary.

The use of aerial firefighting equipment should not be impacted as a result of the Project, as discussed **Section 5.5.1** and **Section 5.5.2.** Furthermore**,** the Project will also aid firefighting abilities by improving access across the site with the construction of new access tracks. New and upgraded access tracks will improve both the efficiency and response time for firefighting services.

5.12.2 Aerial Fire Fighting

Issue

A number of submissions were concerned that aerial firefighting equipment would not be able to be used across the Project Boundary.

> *"Bushfire risk through loss of water bombing procedures from planes/helicopters due to height and placement of Turbines."*

Response

As discussed in **Section 5.5.1** and **Section 5.5.2,** the AIA concluded that safe aerial application operations will remain possible on properties within and neighbouring the Project Boundary. This applies to aerial firefighting aircrafts.

Pilots associated with aerial firefighting are required to be specifically trained and approved to fly aircraft at low altitudes to avoid obstacles. Aircrafts are also installed with additional equipment and special procedures are developed to ensure an acceptable level of safety can be maintained.

Discussions with the RFS have indicated that their pilots would approach wind turbines in the same manner as any other obstacle, with the pilots having the ultimate decision as to what is acceptable in each and every specific circumstance.

5.13 BLADE THROW

Submission Reference: P126, P132

5.13.1 Injury

Issue

Several submissions raised concern that there is the potential that a turbine blade could strike a neighbouring landholder or property if there was a blade throw.

Response

As discussed in Section 7.11.2 of the EIS, the maximum distance that a blade may be projected is approximately 175m. There are no private non-Associated dwellings located within 175 m of a WTG location. The closest private residence to a WTG is Receiver P22-1, which is approximately 1,387 m from WTG 23. As a result, there is no risk of damage to property due to blade throw. Furthermore, all WTGs are located on private property and at least 400m from a public road. Most WTGs are located in elevated areas, which will generally not be accessed by persons other than operational personnel and some host landholders. As such the risk of blade throw striking anyone is very low and there is no risk to members of the general public.

5.14 PROPERTY VALUE

Submission Reference: P12, P13, P14, P16, P19, P21, P22, P26, P27, P34, P36, P42, P47, P48, P49, P59, P62, P63, P73, P74, P75, P76, P77, P78, P79, P82, P83, P84, P85, P90, P92, P93, P96, P103, P111, P115, P117, P118, P119, P120, P121, P125, P131, P132, P136, P137, P139, P141, P1488

5.14.1 Decline in Property Values

Issue

A number of submissions are concerned their property values will decline and have stated that the Urbis Report is factually incorrect, are not related to the size or location of the projects Turbines.

Response

A review of the potential impacts to property values was undertaken by Gillespie Economics and included in Appendix O of the EIS. The review concluded that based on studies commissioned by the NSW Government, the Urbis (2016) and Preston Rowe Patterson (2009) studies, there were no indication that wind farms have a negative impact on property values.

The Proponent appreciates there is concern from the landholders regarding a decline in the value of their properties and that some landholders have questioned the suitability or accuracy of previous studies. However, the evidence that has shown otherwise, is based on published independent studies commissioned by the NSW Government.

The Project has been designed to minimise impacts on surrounding landholders from the proposed windfarm through considered design and layout. The EIS has definitively assessed the potential impacts and concluded that neighbouring residences will not be adversely affected by environmental impacts, including noise, vibration, dust or water as a result of wind farm operations. Some non-associated residences may have views of some wind turbines; however, this would not necessarily result in a decline in the value of a property. As discussed in **Section 5.3** management and mitigation strategies have and will be implemented to minimise visual impacts, including the offering of a Near Neighbour Agreement to duly compensate residences within a close proximity to project infrastructure.

The Project has also been designed to allow co-existence between the wind farm operation and the current agricultural practices in the area, which is predominantly beef cattle grazing and therefore should not impact on any agricultural businesses. Although it is noted that there is also significant industry already in the area including high voltage powerlines, two quarries within 3 km, as well as three large coal mines and two power stations within 10km from the Project Boundary and a proposed gas pipeline.

As such it is not anticipated that the Project will have a negative impact on property prices in the area.

5.15 GREENHOUSE AND LIFECYCLE

Submission Reference: P51, P62, P63, P95, P96, P115, P116, P118, P134, P135

5.15.1 End of Life of Wind Turbines

Issue

Several submissions were concerned that the end of life of the Turbines are not considered and will result in significant waste to landfill.

> *"It is imperative that the end of life of the wind turbines are considered."*

Response

As detailed in Section 7.17 of the EIS and further in **Section 5.23,** on decommissioning all metal structures will be disassembled and sold as components or scrap metal. Metal that is unable to be reused will be removed and disposed of by a licensed waste contractor.

WTG blades are a mix of resin and fiberglass. Consistent with current Industry practice, blades will be disposed of by being cut to a size to facilitate handling and transportation and disposed of to landfill (in consultation with Council).

Alternate disposal methods for re-using or recycling WTG blades are not yet available in Australia, however the Proponent will continue to investigate available technology and regulatory guidelines to ensure reasonable and feasible best practice waste management is implemented at the time of decommissioning.

5.15.2 Energy Expenditure

Issue

> *P96 "Energy Expenditure - the following comment is wrong as it does not include the energy expenditure from transport.*
>
> *The proposed WTGs will offset their energy expenditure in less than one year, assuming an average capacity factor for Australian wind farms. This is consistent with Smil's (2016) conclusion that a well-designed WTG will generate more energy than it embodies in less than a year. The proposed WTGs will have an operational life of approximately 25 years. As such, the energy produced by a WTG over its lifespan will substantially outweigh the energy required for its construction.*
>
> *Substantial amounts of diesel will be consumed through the transportation of the WTG components from China to Australia; Transport diesel from the Port of Newcastle to the Project; Transport of diesel to the site for the generators to run the buildings and batching plants and crushers; and Transport diesel from all the LV's and HV making deliveries. The diesel used to deliver water to site has not been calculated.*
>
> *The diesel used by the batching plant and cement trucks have not been calculated. The diesel used by the cranes, excavators, dozers, and graders has not been calculated. GHG generated during blasting has not been calculated. Carbon storage losses through the clearing of vegetation has not been estimated. Oil consumption from the WTG has also not been included."*

Response

Individual CO_2-e emissions from diesel fumes resulting from the construction of the Project have not been calculated. However, according to the European Wind Energy Association, it takes a wind turbine just three to six months to produce the total amount of energy (including diesel) that goes into its manufacture, installation, operation, maintenance and decommissioning after its 20-25 year lifetime. Further, they have calculated that during its lifetime a wind turbine delivers up to 80 times more energy than is used in its production, maintenance and scrapping. They note that wind energy has the lowest 'lifecycle emissions' of all energy production technologies.

5.16 AIR QUALITY

Submission Reference: P19, P44, P51, P59, P66, P73, P82, P85, P92, P96, P108, P114, P120, P121, P124, P125, P132, P136, P137

5.16.1 Air Quality Assessment

Issue

A number of submissions thought the air quality assessment was inadequate as it did not include wheel generate dust from transport, water carts, blasting.

Response

The Environmental and Social Risk Assessment undertaken over the Project (in consideration of the Wind Energy Framework, the SEARs and the experiences from other similar projects operating in other regions) identified the potential for air quality impacts from both the construction and operation of the Project to be low.

Despite the above, a review was undertaken to assess potential air quality impacts and determine appropriate management and mitigation controls that would be required during the construction and operation of the Project, as outlined in **Section 5.16.2** below.

5.16.2 Dust Pollution

Issue

General submissions were raised regarding the potential for air pollution from dust as a result of construction activities, traffic, ground disturbance and the turbulence/ wind from the wind turbines.

> *P73 "Dust from the access tracks and construction of turbines, batching plant, and substation is a concern. These access tracks need to be sealed finishes so that they do not add to the dust already contributed by the mines in the area. Dust monitoring needs to be undertaken before, during and after construction to alleviate any concerns arising."*
>
> *P118 "Ground disturbance from the turbine blowing away will create dust into the environment."*

Response

A number of mitigation and management measures will be implemented to minimise air quality impacts from the Project as described in Section 7.14 of the EIS, in accordance with the development consent and EPL. These will be included in the CEMP and OEMP prepared for the Project.

A summary of key control measures to minimise air quality emissions during the construction and operation of the Project include:

- Minimising the total surface area that is exposed within the Disturbance Area at any one time;
- Completing progressive reshaping and rehabilitation works;
- Minimising dust emissions from exposed areas by application of water and/or dust suppressants;
- Appropriately locating, shaping and seeding longer term topsoil stockpiles to minimise dust erosion from exposed surfaces;
- Minimising the use of construction equipment outside of areas required to be disturbed for Project infrastructure;
- Implementing speed restrictions for equipment operating on unsealed access tracks and disturbed areas;
- Limiting activities during unfavourable weather conditions;
- Blasting activities to be undertaken in accordance with the ANZEC Guidelines; and
- Regular inspections of activities to ensure appropriate air quality controls are being implemented to minimise dust emissions.

5.17 WATER RESOURCES

Submission Reference: P14, P47, P72, P75, P76, P77, P92, P96, P117, P126, P132, P139, P141

5.17.1 Harvestable Water Rights

Issue

There were a few submissions raised over the legality of using water under "harvestable rights" for raw water for the project.

> *"Under the Water Management Act 2000 harvestable rights only applies to a "stock and domestic use" and therefore cannot be extracted from farm dams for use as raw water for the project.*
>
> *"Part 1 Basic landholder rights includes Division 2 Harvestable rights, includes section 53 Harvestable rights. Section 53 includes amongst other things the following clauses: (5) This section does not allow a landholder— (a) to supply any other land with water that has been captured and stored in exercise of a harvestable right."*
>
> *"Gazette No 40 includes orders made under the water management Act 2000. These orders include the use of harvestable rights and restricting the use of harvestable water to a domestic and stock right."*

Response

As detailed in Section 4.4.7 of the EIS, Section 53 of the *Water Management Act 2000* (WM Act) entitles the owner or occupier of land to capture and use a portion of the rainfall runoff on their property (known as the "harvestable right"). The water may be captured and used from a dam that complies with the relevant harvestable rights order.

The relevant harvestable rights order Gazette No 40 of 31.3.2006, *Harvestable Rights – Eastern and Central Division*, clause 3, states that a landholder has the right to capture 10% of rainwater run-off by means of a dam, which are located on 'minor streams'. Further, that this water may be used for any purpose, except as provided in paragraph 9.

Paragraph 9 of the order restricts the use of water from a harvestable rights dam to domestic consumption and stock watering, if the dam is also used for holding water taken in accordance with:

a) A domestic and stock right conferred on a landholder by section 52 of the WM Act; or

- Section 52 of the WM Act entitles an owner or an occupier, without the need for an approval, to:
    - To take water from any river, estuary or lake; and
    - Construct a water supply work; and
    - To use the water for domestic and stock watering, but no other purpose.
- The proponent will not be using any water from dams that take water from a river or lake, and hence Section 52 of the WM Act and Paragraph 9 a) do not apply.

b) A right to take water from a river or lake in accordance with a licence issued under Part 2 of the Water Act 1912, which is subject to a condition restricting its use to stock or domestic or stock and domestic purposes; or

- The proponent will not be using any water from dams that take water from a river or lake and hence Paragraph 9 b) does not apply.

c) A right to take water from a river or lake in accordance with an access licence granted under Part 2 of Chapter 3 of the Water Management Act 2000.

- The proponent will not be using any water from dams that take water from a river or lake and hence Paragraph 9 c) does not apply.

The proponent is not proposing to utilise any water from dams that take or store water from any river, lake or estuary. As such, as indicated above, Paragraph 9 of the order is not applicable, (including Section 52 of the WM Act) and hence water stored in farm dams may be used for any purpose in accordance with clause 3 of the order.

Furthermore, the proponent does not propose to utilise any water sourced from farm dams (where these are dams capturing water under harvestable rights) on any other land other than on the property where the dam is located. Where water is used in agreement with the landowner only an amount will be used that will not cause inconvenience or impacts to the agricultural activities carried out by the landowner. Hence any short-term water use during construction will not cause any material impact to the agricultural productivity of the land where the water is legally taken.

5.17.2 Water Supply

Submission Reference: P47, P72

Issue

A number of submissions raised concern over the quantity and source of the water that is required for the project, particularly when the area may be in drought and/or on water restrictions.

> *P47 "The water that is going to be needed to construct this proposed development is going to be on a large scale. There has been nothing said on where they intend to get all the water that will be needed."*

Without a water access licence, all water required (95ML) to be used on the project will need to be imported via road registered water trucks. This will require approximately 5,277 Watercart Loads a typical large watercart can carry around 18,000L. This large volume of additional truck movements has not been considered in the Traffic Assessment.

The water balance also does not show the water consumption from the rock crushers and full batching plants water consumption.

Response

Unlike many other forms of electricity generation, the operation of a wind farm only requires a trivial amount of water to sustain onsite employee water needs and for minor maintenance purposes.

The operational phase of the Project will only require approximately 1 ML/year of water. Water for ongoing operational activities will be mostly supplied by water collection tanks to be connected to the O&M Facility.

During the construction phase, water will be obtained from external sources and transported to the site using water tankers (or accessed from Associated landholders farm dams under the controls as described in Section 4.47 of the EIS).

The estimated water balance for the construction phase of the Project is summarised in **Table 8** below, reproduced from section 7.15.2 of the EIS.

Table 8 Construction Phase Indicative Water Balance

Component	Volume (ML)
Inputs	
External water supplies	95*
Outputs	
Concrete batching	6
Dust suppression and road construction	89

** Will be adjusted to match actual demand.*

The total water demand for the construction phase of the Project is estimated at 95 ML. The TIA has assumed as a worst-case scenario that if all of this water is sourced offsite this would result in 4680 traffic movements over the 18-month construction period (See Table 4.2 Page 23 of the TIA). As discussed above, it is highly likely that the proponent will source some water from host farm dams (depending on seasonal conditions during the construction period) in agreement with host landholders and in accordance with the WM Act. Any water that it able to be sourced from within the Project Boundary will reduce the forecast heavy vehicle traffic during the construction period.

5.17.3 Impacts to Watercourses

Issue

There were a number of submissions regarding impacts to local waterways, particularly those that are already stressed.

Response

The potential impacts of the Project on water resources have been substantially mitigated through design constraints, as outlined in Section 17.5 of the EIS. In particular, the major infrastructure associated with the Project has been designed to minimise impacts to streams, as far as practicable. This includes:

- Carefully selecting the sites for the WTGs to avoid stream channels;
- Spanning overhead transmission lines across significant stream channels;
- Underboring for transmission cables under Bowmans Creek and Coalhole Creek.; and
- Constructing culverts and/or small bridges spanning the creek beds for access tracks that cross creeks.
- Given that linear infrastructure will either pass above or beneath the stream bed, there will be no impacts on flow volumes in any streams. Furthermore, the Amended Project, as detailed in the Amendment Report, will reduce the length of access tracks by 15.4 km and also reduces the number of creek crossings required for the Amended Project.

Erosion and sediment controls will also be installed to minimise and contain erosion and sedimentation, as discussed in Section 7.15.3 of the EIS. As such, there will be negligible impacts to water quality.

5.17.1 Erosion and Sedimentation

Issue

> *P96 "There is no details regarding the management of sediment laden water, that will be generated from the disturbance. No details on the management of the excavated materials from the footings and how this will be managed.*

The 6ML of batching wastewater has not been described and how this will be stored and managed to prevent discharge into a non-disturbance area. Due to lack of water available to the project his water must be treated for re-use. There does not appear to be any sediment dams or water storages included in the EIS general arrangements."

Response

Section 7.15.3 of the EIS describes the various sedimentation and erosion mitigation and management controls proposed to be implemented during the construction phase of the Project. These include the following:

- Drains or bunds to divert clean runoff away from exposed areas;
- Sediment dams or traps to capture runoff from exposed areas;
- Silt fences, sandbags or other filters to be installed where appropriate;
- Re-vegetation or sealing of exposed areas as soon as practicable; and
- Avoidance of earthworks in streams (e.g., trenching) during rainfall events.

Where required, erosion and sediment controls will be retained for the operational phase. For example, drains or bunds that divert drainage away from exposed areas will also serve to divert water away from the constructed hardstands.

The EIS further states that construction activities will be undertaken in accordance with "The Blue Book' (Landcom, 2004). Any sediment ladened water or excavated materials will be managed in accordance with this best practice government guideline. Any batch plant wastewater will be stored on site and recycled as has been suggested by this respondent.

5.18 SOILS AND AGRICULTURE

Submission Reference: P12, P13, P65, P67, P68, P69, P80, P81, P82, P106, P107, P117, P120, P121, P124, P125, P132, P133, P134, P136, P137, P145

5.18.1 Biosecurity for Weeds

Issue

A few submissions were concerned that weeds would be introduced to their properties by machinery and vehicles.

P82 "We have a strict Bio Security programme and ensure our property is as close to weed free as possible. We have quarantine programmes for all incoming livestock to maintain our production numbers and quality. Bringing large numbers of vehicles into the areas adjacent to our property (including onto neighbours' properties and roads) will bring weeds with them. We have spent many years getting significant weed infestations under control to the point now where our property is productive and relatively clean of weeds. The introduction of large numbers of vehicle movements will threaten all that."

Response

Table 48, Section 7.16.2 of the EIS lists the controls that will be implemented to reduce the risk of biosecurity impacts, as defined under Section 13 of the *Biosecurity Act 2015*. These will be implemented in consultation with the landholder and relevant regulators (where regulatory approval is required). Controls will include the cleaning of equipment prior to entering the Project Area as well as appropriate site hygiene measures, such as wash bays to prevent entry of new weeds to the area.

All agreed management measures will be included in the CEMP and OEMP, as well as Associated Agreements that will be in place with affected landholders. This will ensure that weeds are also not inadvertently spread to nearby neighbouring properties due to activities associated with the windfarm.

5.18.2 Loss of Production Agricultural Land

Issue

> *P120 "The construction and use of the wind farm will unnecessarily destroy productive agricultural land, at a time when food security is vital."*

Response

One of the key benefits of contemporary wind farm technology is that agricultural activities, particularly low intensity grazing of natural and improved pastures (as is currently the predominant land use) is able to continue in very close proximity to WTGs. As such the loss of agricultural production within the Project boundary will be minimal following the 18-month construction period.

5.18.3 Animal Stress

Issue

There were a few submissions concerned that noise and light flicker from the WTGs would stress animals such as cattle and horses.

Response

Section 7.16.2 of the EIS assessed the potential stress to livestock from windfarms. It was concluded that there is no evidence to suggest that windfarms have an impact on the stress of livestock raised in the vicinity of wind farms. Both the NSW Farmers Association (2012) stated that livestock quickly become accustomed to the moving turbines and are happy to graze in the shadows. CSIRO (2012) also stated that grazing livestock appear unaffected by wind turbines.

5.19 WASTE

Submission Reference: P32, P51, P117, P132, P134

Issue

A few submissions questioned how and where waste would be disposed.

> *'Where will all the waste be taken, i.e., the construction waste and the waste oil that lubricates these turbines?'*

Response

Table 49, Section 7.17.2 of the EIS lists the types ad indicative quantities of waste that may be generated by the Project and describes how these waste streams will be stored, reused, recycled and / or deposed of as a last resort. Specific waste management practices will be included in the CEMP and OEMP.

5.20 ELECTRIC AND MAGENTIC FIELDS

Submission Reference: P117

Issue

A submission was concerned with the health effects of 'dirty electricity ground current'.

Response

An assessment of the potential impacts associated with electric and magnetic fields (EMFs) was provided in Section 7.18 of the EIS. The assessment concluded that EMFs from the Project WTGs, substations, powerlines and cables are not expected to impact upon human health. The risk of exposure to EMFs has been minimised through careful siting of infrastructure and best practice design standards for electrical equipment.

5.21 HEALTH

Submission Reference: P24, P41, P44, P45, P46, P47, P49, P54, P56, P61, P71, P72, P73, P74, P83, P85, P89, P91, P92, P93, P94, P114, P116, P117, P119, P131, P140, P143, P144

5.21.1 Health Impacts General

Issue

There was general concern over the windfarm affecting health such as mental health, stress, epilepsy and migraines.

There were also number of submissions raising concerns over health impacts from noise and blasting, in regard to increase is noise from traffic, noise pollution, blast overpressure and thumping sound from the wind turbines.

> *"There have been multiple studies on the fact that wind turbines can impact sleep."*
>
> *"It should be noted in his annual reports the wind farm commissioner has recognised that people living in the vicinity of wind farms can have health issues including mental health."*

Response

Section 7.19 of the EIS discussed the potential health impacts associated with wind farms. NHMRC (2015) considered three types of emissions that are associated with wind farms: noise, shadow flicker and EMFs.

NHMRC (2015) concluded that "*there is currently no consistent evidence that wind farms cause adverse health effects in humans*". This conclusion was endorsed by the IPCN in its determination of Modification 6 to the White Rock Wind Farm (IPCN, 2019).

In relation to noise, NHMRC (2015) explained that:

> *"There is no evidence to suggest that the health effects from wind farm noise would differ from health effects of other noise sources at similar levels. Based on the studies referred to above, wind farms would be unlikely to cause health effects at distances of more than 500 m, where noise levels are generally less than 45 dBA. At this distance, effects on sleep are likely to be modest at the population level. At distances of more than 1,500 m from wind farms, where the wind farm noise level may be in the order of 30–35 dBA, sleep disturbance is unlikely.*
>
> *At distances of more than 1,500 m from wind farms, where the wind farm noise level may be in the order of 30–35 dBA, sleep disturbance is unlikely".*

As discussed in **Section 5.4.3** a NIA (Appendix I of the EIS) was undertaken in accordance with the Noise Bulletin and Guidelines and Polices referred to in the SEARs.

Based on the NIA, the maximum equivalent noise levels generated by the wind turbines under conditions most conducive to noise propagation (such as temperature inversions) will comply with the criteria established by the SEARs at all non-Associated dwellings (excepting P22-1 by 1 dBA).

Further, the maximum equivalent noise levels generated by the substations under conditions most conducive to noise propagation (such as temperature inversions) will readily comply with the relevant criteria.

The noise model predicted that noise levels at sensitive receivers will be less than 35 dBA (inclusive of mitigation for P22-1). Hence the setback distances and predicted noise levels for the Project are consistent with the values identified by NHMRC (2015) as being unlikely to cause health effects.

NHMRC concluded that "there are unlikely to be any significant effects on physical or mental health at distances greater than 1,500 m from wind farms".

The World Health Organisation identified that wind farms can have an impact on health if exposed to excessive noise levels greater than 45 dB(A) during the daytime. As discussed above, the noise levels are predicted to remain below 35 dBA at any private receiver where no commercial agreement is in place and as such adverse health impacts are not anticipated.

The Australian Energy Infrastructure Commissioner (formally the National Wind Farm Commissioner) made a number of observations and recommendations in regard to health matters in the 2019 Annual Report (updated 2020). A number of relevant observations were noted:

- "Debate continues around the world as to whether a wind farm causes physiological harm to residents living within its vicinity;
- Complaints regarding health concerns received by the Office have, in the main, provided only anecdotal evidence regarding stated health issues and perceived causality. It has therefore been difficult to form an opinion on whether or not the stated health conditions reported by complainants are valid and, if valid, whether or not the health conditions are possibly a result of the wind farm's operations or from some other known cause.''

The Wind Farm Commissioner also recognised that people living in the vicinity of wind farms can have health issues including mental health and hence a framework, policies, plans to ensure proposed windfarm project are designed and operated to minimise impact that could potentially cause health impacts. As described in the EIS, this Project has been designed and meets all policies, frameworks, and plans.

5.21.2 Health Impacts from Dust

Issue

Several submissions were concerned about potential health impacts from exposure to air pollution.

> *P92 "I also suffer from Asthma the EIS and associated documents have not included any evaluation of the health impacts for people who suffer from Asthma."*

Response

Health studies have shown that it is the finer $PM_{2.5}$ particles that are of the greatest concern to respiratory health. There are multiple sources of $PM_{2.5}$, including mining, wood smoke from solid fuel heaters and other forms of combustion (e.g., road and rail transport, coal-fired power generation and coal-seam spontaneous combustion.

Neither the construction nor operation of wind farms generate material quantities of PM2.5. As the Project is proposed as replacement renewable clean energy to assist with the transformation of the Upper Hunter Valley to the NSW Governments desired Renewable Energy Zone status it is likely to result in a net reduction of $PM_{2.5}$ and finer respirable dust particulates in the locality.

5.22 SHADOW FLICKER

Submission Reference: P23, P47, P71, P72, P73, P75, P76, P77, P115, P117, P126, P132, P139, P141

Issue

There are a number of stakeholders concerned that shadow flicker will adversely affect their visual amenity and could cause health impacts from interruption to sleep for shift workers and cause epilepsy.

P97 "In the EIS Landscape and Visual, Green Bean Design Document Pages 124 to 127 relating to our property G17-1, it does not recognise Shadow flicker as a visual concern?"

Response

As discussed in section 7.21 of the EIS, a shadow flicker assessment was undertaken for the Project in accordance with the Visual Bulletin. The assessment considered shadow flicker impacts to a conservative distance of dwellings out to 2km from the proposed WTGs on both health and amenity of residences.

The results show that Project would easily meet the Visual Assessment Bulletin criteria, i.e. that there are no non-Associated dwellings within 2 km that would experience 30 hours or more of shadow flicker per year under worst-case positions of the WTGs. As such it is not anticipated that shadow flicker will cause significant amenity impacts to residences.

Notwithstanding this, if shadow flicker is found to be a nuisance at a particular non-Associated residence, a physical screen (e.g., vegetative screening) can be placed between the location of shadow flicker and the wind turbine, in consultation with the affected residence. Alternatively, conditions could be pre-programmed into the control system so that individual wind turbines automatically shut down whenever these unfavourable conditions are present.

The potential health impacts from shadow flicker are discussed in Section 7.19 and 7.21 of the EIS. The shadow flicker generated from the Project is expected to be up to frequencies of 1 Hz, which will be outside the frequency range known to trigger flicker vertigo.

In regard to epilepsy, there are no studies that specifically consider shadow flicker and any possible relationship with photosensitive epilepsy (NHMRC, 2015). Instead, NHMRC relied on information regarding the effects of flashing lights on people with photosensitive epilepsy (a rare form of epilepsy). Based on this parallel evidence, NHMRC (2015) concluded:

> *"The risk of shadow flicker from wind farms causing an epileptic seizure is estimated to be less than 1 in 10 million in the general population and 17 in 1 million among people at risk of photosensitive epilepsy".*

The above relates to flicker of less than 3 Hz (Harding et al, 2008), whereas the flicker frequency generated by the Projects proposed turbines will be a maximum of 1 Hz. Therefore, the Project is not expected to result in significant risk of epileptic seizures.

Issue

> *"P72 There has been nothing supplied to us which shows what we can expect in relation to shadow flicker."*

Response

This residence (identified as G17-1) is located 2,041 m from the nearest WTG (WTG 64). As indicated in the LVIA (Appendix H of the EIS), the National Wind Farm Development Guidelines (EPHC, 2010) suggests a distance from WTG for which shadow flicker should be assessed (i.e., based on 265 maximum blade chords). This was calculated to be approximately 1,000 m to 1,600 m from dwellings for this Project. The LVIA however, conservatively assessed dwellings out to 2,000m.

As discussed above, the LVIA concluded that the Project will meet the Visual Assessment Bulletin performance objectives at all residences within 2,000 m of a WTG under worst case position, and as such this residence is not expected to be affected by shadow flicker.

5.23 DECOMMISSIONING

Submission Reference: P42, P72, P73, P80, P81, P82, P83, P96, P101, P117, P118, P130, P132, P134, P135

Issue

A number of submissions were concerned with the decommissioning of the infrastructure and rehabilitation of the site. Some believe a security bond should be lodged with the NSW Government.

P108 "No plan in place to dismantle and recycle the Turbines at end of life, liability for this lies with the landowner who may not have the financial resources to dismantle the Turbines."

P97 "In other countries turbines are dramatically coming to an end and decommissioning is becoming a land fill issue since the blades are not recyclable. Developers should have to develop a suitable substantial fund for decommissioning, and a way to manufacture blades that are recyclable needs to be addressed."

Response

As detailed in Section 7.22 of the EIS, a Decommissioning and Rehabilitation Plan will be prepared in consultation with landowners prior to the cessation of operations. This Plan will provide details on infrastructure and materials that may be retained for beneficial use, recycled or disposed of in accordance with the waste management principles, as discussed in **Section 5.19** on decommissioning of the Project. Decommissioning and rehabilitation of the site will remain the responsibility of the Proponent. Furthermore, commitments to decommission and restore the site to its pre-disturbed state is clearly set out in Associated Agreements that are or will be in place with landholders.

Based on current market conditions, the scrap value of WTGs and other equipment is expected to be more than sufficient to cover the costs of decommissioning and rehabilitation.

5.24 SOCIAL

Submission Reference: P30, P51, P55, P58, P59, P73, P75, P76, P77, P78, P79, P82, P83, P84, P92, P96, P114, P118, P132,

5.24.1 Social Impact Assessment

Issue

A submission made a comment that the draft social impact assessment guidelines were not referred to in the EIS.

Response

The SIA (Appendix Q of the EIS) was prepared for the Project in accordance with the SEARs and Wind Energy Framework, which are the appropriate NSW regulatory requirements and guidelines relating to the conduct of the SIA for windfarms. Although not applicable to wind projects, the NSW '*Social Impact Assessment Guidelines for State Significant Development*' (DPE, 2017) was also considered in the preparation of this SIA. The draft Social Impact Assessment Guidelines were placed on exhibition from 30 October to 27 November 2020 and have not yet been finalised. Despite this, the Social Impact Assessment has been undertaken generally in accordance with these draft guidelines.

5.24.2 Social Impact on Community

Issue

A number of submissions raised concerns in relation to the social impact of the wind farms on the local community as a result of landholder agreements being offered to associated and non-associated landholders.

P73 "This has also had a big impact on relationships in the valley, dividing the community, to where people don't talk to neighbours due the fact that they are Associated or Non associated with the project. It is intimidating and bullying."

Response

The erosion of Community cohesion was discussed in Section 7.23.7 of the EIS.

The Proponent is committed to mitigate against potential social impacts in the rural area by developing and working within the framework of a set of Government approved Management Plans and ongoing consultation.

The Proponent is committed to achieving positive outcomes for the community by means of:

- The VPA with the three councils in the local LGAs to address the supply of critical social infrastructure;
- Distribution of community investment funding;
- Implementation of environmental and social management, mitigation and avoidance measures and systems, to minimise the effect on the environment or the local community as a result of the Project;
- Employing existing residents from the Local Area;
- Supporting local spend and economic growth in the Local Area;
- Supporting existing local community organisations such as the RFS and Community Halls through financial and in-kind donations e.g., encouragement of staff to volunteer;
- Maintenance of existing rural amenity through the optimisation of the WTG design and layout, plant and equipment, thereby resulting in a reduction in visual and noise impacts for the Project on adjacent residences; and
- Ongoing consultation with stakeholders to seek the community's opinions and recommendations on the Project's construction and operations via:
    - Regular consultation with landowners in the project area;
    - Project updates via the Project's website; and
    - Regular Community Information Sessions.

5.25 CUMULATIVE

Submission Reference: P51, P83, P132

Issue

A few submissions stated that the EIS did not address cumulative impacts of the windfarm or surrounding industrial activity in the area.

Response

This Project has been designed in consideration of all existing and currently proposed designated development in proximity to the locality, to meet criteria and guidelines, both independently and cumulatively in consideration of surrounding industrial activities.

As detailed in the EIS, the closest constructed windfarm is over 100 km from the Project and closest but not yet constructed is around 35 km. As such there will be no cumulative wind farm impacts anticipated as a result of this Project.

Cumulative impacts for biodiversity, traffic, noise and social aspects were considered and assessed within specialist's assessments including the BDAR (Appendix L of the EIS), TIA (Appendix K of the EIS), NIA (Appendix I of the EIS) and SIA (Appendix Q of the EIS). All of these studies have concluded that cumulative impacts with all other existing development and any currently proposed designated development will not result in cumulative impacts in the locality.

6. UPDATED PROJECT JUSTIFICATION

This section includes a brief summary of the justification and evaluation of the project, which incorporates any relevant issues raised in submissions and the Proponents response to these issues. The updated Project justification and evaluation as a whole, incorporating the Amended Project, is included in full, in Section 7 of the Amendment Report.

6.1 BACKGROUND

The Proponent is seeking approval under each of the EP&A Act and EPBC Act for the construction, operation, maintenance and decommissioning of the Project.

The Project has an estimated capital investment value of $569M and involves up to 56 WTG sites with an indicative generation capacity of 347 MW. The increased overall capacity from four less turbines is a result of an anticipated efficiency gain from recent technological advances. The Project also includes electrical infrastructure, other temporary and permanent ancillary infrastructure, local road network upgrades and the construction of a transmission line connecting to the existing Liddell Power Station substation.

The Project will generate up to 150 FTE jobs during its 18-month construction period and up to 15 FTE jobs over its operational life.

The Project Boundary extends predominantly across two LGAs, being the MSC and SSC LGAs. A small number of WTGs are also proposed in the UHSC.

The region is a significant power generating area accommodating active thermal coal mines and two operating coal fired power stations. The renewable energy sector is emerging with one solar, one pumped hydro and one wind farm project under consideration. Further, in November 2020, the Hunter Region was identified as one of four Renewable Energy Zones in NSW to support the NSW Government's Electricity Infrastructure Roadmap.

The Project is located primarily on private freehold land in the Hunter River catchment. Land within the Project Boundary is zoned RU1 – Primary Production (where electricity generation is permissible with consent). The dominant agricultural pursuit within 5 km of the Project Boundary is beef cattle grazing.

The Proponent is one of the most experienced wind energy development companies in NSW with 570 MW of approved wind energy projects currently operating in NSW, as well as being a significant developer of solar projects across Australia. The Proponent is a founding signatory to the Clean Energy Council's 'Best Practice Charter for Renewable Energy Developments' and commits to honouring the Charter for the Project.

The Project provides opportunity for the state of NSW, Federal Government of Australia and its people in relation to:

- Provision of additional generation capacity into the NSW grid to assist in meeting load demand as a result of retiring thermal generators;
- Reducing greenhouse gas emissions and contributing to cleaner electricity generation under the Federal Paris Agreement commitment;
- Supply of renewable energy to assist in meeting State targets under the 'Net Zero Plan Stage 1 2020-2030';
- Regional investment as the renewable energy sector grows in NSW and the Hunter Valley; and
- Improvements to the local road network.

The Proponent has consulted extensively over the Project and has attempted to address the issues raised in submissions received over the exhibition of the EIS to the maximum extent possible. This has resulted in some material changes to the layout of the Project and the making of additional management and monitoring comments in the absence of materially compromising the Projects Benefits to society.

6.2 PROJECT DESIGN

The Project design has been developed through a comprehensive planning, stakeholder engagement and environmental assessment process to ensure that the principles of Ecologically Sustainable Development and the objectives of the Environmental Planning & Assessment Act 1979 are achieved.

The Project design has been further refined since the exhibition of the EIS in consideration of the submissions received. The modifications have occurred in response to both community and regulatory engagement, findings from field studies (to avoid sensitive features) and preliminary engineering design following ground-truthing of topographic features and geotechnical conditions.

The Project's form has been determined by careful consideration of a number of alternatives. The impacts of the Project have been predicted with certainty in a detailed and methodical assessment process outlined in this Environmental Impact Statement. Management measures to address the impacts that will occur have been incorporated into the Project as required, thus addressing the Precautionary Principle.

Significant changes have been progressively made between the preliminary layout, the Conceptual Project, the Exhibited Project and the Amended Project for which approval is now sought. This has included a material reduction in the number of WTGs (72 to 56), relocation of batch plants to reduce noise impacts, discounting two northern transmission line options, and removal of site access routes which were unacceptable to the community.

6.3 PROJECT NEED

The primary need for the Project is to contribute efficient, low-cost electricity to the NEM.

The NEM operator, AEMO released its main system planning document, the ISP in July 2020. This document is updated each two years and is described as *"an actionable roadmap for eastern Australia's power system to optimise consumer benefits."*

The July 2020 ISP describes several factors which underline the need for the Project. The key elements are:

- Electricity demand in the National Electricity Market is expected to remain generally constant throughout the period to 2040. While there is projected to be underlying growth in consumption across the NEM, this will be offset via continued investment in distributed photovoltaic and extension of the NSW Energy Saving Scheme;
- While overall grid consumption is being held constant, new generation capacity is needed to replace retiring plants. To fill that gap, AEMO forecasts that Australia should invest in a further 26 -50 GW of new large-scale variable renewable energy beyond existing, committed and anticipated projects; and
- An optimal split of new solar and wind variable renewable energy would minimize the need for dispatchable storage and generation and therefore keep costs down for consumers.

Therefore, there is a very high level of confidence that there is a need for the Project and that an appropriate technology (wind energy) has been selected.

As well as its contribution to energy demand, the Project meets other needs relating to the continuing development of the regional and State economy and to the achievement of the NSW Government's target for net zero emissions by 2050.

NSW is currently a net importer of electricity, having to rely on both Queensland and Victoria for its peak demand. This will be further exacerbated by the pending closure of Liddell Power Station in 2022 and Bayswater Power Station in 2035.

The Hunter Region is the leading regional economy in NSW and currently accounts for 44% of NSW power generation. The main industries in the Upper Hunter Valley are currently coal mining and fossil fuel power generation followed by the agricultural pursuits of the equine, viticulture and livestock grazing industries.

A change in Government policy settings, coupled with innovation and technological advancements is driving the growth and diversification of the Hunter Region's energy industries with a focus on both energy efficiency and the generation of renewable energy. In the Upper Hunter Valley in particular, with the scheduled closure of Liddell and Bayswater Power Stations in 2022 and 2035 respectively, a successful transformation in the energy section will be critical to the Upper Hunter's socio-economic wellbeing.

6.4 PUBLIC INTEREST

The Project will provide economic activity to the regional economy of Singleton, Muswellbrook and Upper Hunter Shire LGAs, during both the construction and operations phase. It will only result in a minor and largely temporary contraction in regional economic activity from current cattle grazing activity within the disturbance area.

The impacts to foregone agricultural productivity will be borne by the Associated landholders, for which they will be compensated. The regional economic activity impacts of foregone agricultural activity are far less than those of the construction and operation of the Project.

The Project is estimated to result in annual greenhouse gas savings of 813,700 tonnes of carbon dioxide equivalent (from 1,030 gigawatt hours of generated electricity) (CER, 2020a). Assuming an average wind farm capacity factor, the Project has the potential to provide sufficient renewable energy to support the annual electricity needs of approximately 145,000 households.

The Project offers several strategic and long-term benefits to the state of NSW and its people, including to:

- The supply of cost-effective renewable energy that will assist electricity retailers to fulfil their obligations under state and federal renewable energy targets;
- Provide replacement energy generation capacity into the NSW grid that will assist in meeting load demand as a result of retiring thermal generators and assist in providing a clean, reliable generation mix;
- Provide an opportunity for regional investment in the renewable energy sector in the Upper Hunter Valley of NSW as is promoted strategically by the relevant NSW and local government planning Instruments.

The Project offers several specific benefits to the environment and local community via the direct injection of funds into the local economy through:

- The provision of jobs in construction and operation;
- Use of local services in both the construction and operation phases; and
- Ongoing landowner payments and financial contributions to the local community being re-injected into the local economy.

The Project's social and environmental impacts have been avoided or minimised as far as practicable by implementing all reasonable and feasible management and mitigation measures. As a consequence, the socio-economic benefits of the Project will far outweigh its social and environmental impacts.

The Project addresses the principles of Ecologically Sustainable Development, has been assessed in accordance with the EP&A Act, its "objects" and as required by the SEARs.

This assessment has determined that it is open for the Minister to conclude that the Project is in the public interest and as such should be approved under the EP&A Act.

7. REVISED MANAGEMENT AND MONITORING SUMMARY

Table 9 *provides a consolidated summary of the additional management and monitoring commitments resulting from this Submissions Report.*

Table 9 Submissions Report Mitigation and Monitoring Commitments

Ref	Commitment	Section
Development		
1.	In response to the submission received on the EIS, a number of amendments have been made to the Project to reduce its impacts to near neighbours as follows: • Deletion of four WTGs; • Re-siting of WTG 8, 9 and 32; • Minor adjustments of several WTGs (micro siting up to 100m); • Removal and relocation of site access tracks; • A 10.4 km net reduction in underground power reticulation; • A 13.5 km net reduction in overhead power reticulation; and • An overall reduction of project disturbance footprint of approximately 97.6 ha.	3.2
2.	The three Crown lots identified in Section 4.4.8 of the EIS will not be impacted by the Project.	4.12
3.	During detailed design, consultation will occur with Crown Lands in relation to interactions with Crown Roads within the Project Boundary.	4.12
4.	Following approval, the Proponent will have further consultations with the relevant Councils and enter into a Deed of Agreement (or other) with each, over any proposed works within the local government road corridor.	4.9 & 4.10
5.	Subdivision of land within the Singleton Local Government Area (LGA) associated with the Project will be undertaken consistent with Clause 4.2A of the Singleton Local Environmental Plan.	4.9
Statutory		
6.	An Amendment Report has been prepared describing the proposed changes to various elements of the Project to reduce its environmental impacts.	3.2
Stakeholder Engagement		
7.	Consultation with TransGrid will continue to occur to ensure: • Substations are constructed as per TransGrid's standards (if the substation is proposed to be transferred to TransGrid); • Clause 5.3.4 of the National Electricity Rules is satisfied; • The terms of ownership, maintenance and operation of the new substation/s are determined; and • Finalisation of the connection to the TransGrid network via execution of a Connection Processes Agreement.	4.18
Landscape and Visual		
8.	The Project has been materially contracted, including the deletion of a further four WTGs to reduce visual impacts to sensitive receptors.	3

Ref	Commitment	Section
Noise		
9.	Affected landholders will be provided the opportunity to request an Independent Review where there are perceived noise impacts.	4.8
10.	A compliance assessment methodology and noise compliance monitoring program will be developed after confirming the final noise operating strategy. If noise compliance monitoring indicates that noise from WTGs exceed the approved noise limits, the Proponent will identify reasonable and feasible noise mitigation and management measures to achieve compliance with the noise limits, including a timetable for implementation.	5.4.2
Aviation Safety		
11.	The Proponent will continue to consult with CASA and DoD to ensure that any obstacle lighting of the wind turbines will be carried out in accordance with their requirements.	3.3 4.4 4.6 5.3.3
12.	Any planned change to the location of the WTGs will be reported to DoD as early as possible.	4.6
13.	Additional consultation with the NSW Rural Fire Service will be undertaken regarding the possibility of night aerial firefighting operations using night vision apparatus.	4.7
14.	Consideration of the following guidelines during the detailed design and construction of the overhead transmission lines: • AS 3891.1, Air navigation — Cables and their supporting structures — Marking and safety requirements, Part 1: Marking of overhead cables and supporting structures; and • AS 3891.2, Air navigation — Cables and their supporting structures — Marking and safety requirements, Part 2: Low-level aviation operations.	4.4
15.	As soon as construction commences, the proponent will complete a Vertical Obstacle Notification Form for tall structures and submit the completed form to: VOD@airservicesaustralia.com.	4.5 4.10
Traffic		
16.	During construction, operation and decommissioning, the Proponent will be responsible for the security and maintenance of internal access tracks on private property. Following decommissioning, internal access tracks will either be rehabilitated, where requested by the landowner, or remain for ongoing property access.	4.9
17.	Undertake road dilapidation reports at nominated times throughout the Project life, with maintenance works at the Proponent's cost.	4.9 4.16 5.6.1
18.	Decommissioning roads works will be carried out in consultation with Council to an agreed standard.	4.9 4.10
19.	Outside of Project construction, operation and decommissioning, the Proponent will not have liability for public road maintenance beyond the considerable Voluntary Planning Agreement to be entered into with each Council.	4.9 4.10
20.	The Site Access point will be upgraded and sealed to Austroads standards.	4.10
21.	Appropriate approvals will be sought prior to any works within Crown Road reserves.	4.12

Ref	Commitment	Section
22.	Any changes to plans affecting classified (State) road network will be submitted to Roads and Maritime Services Division TfNSW for consideration and approval prior to the change.	4.16
23.	The TMP will be prepared in consideration of the following: • Traffic arrangements and safety devices will not compromise site distances for turning traffic into or out of Hebden Road; • Should any existing safety device/s require removal during the transportation of materials to the site, a suitable removable and temporary device/s will be used in its place. The temporary device is to be replaced with the permanent fixture during decommissioning; • A suitably prequalified traffic signal contractor will be engaged to determine what temporary adjustment to traffic signals is required for each time a wide load is transported. The Proponent will consult with TfNSW Network Operations and Traffic Signal teams for agreement before implementation; • Vehicles that will completely block classified and local road/s during turning manoeuvres, will require police escorts, a Traffic Control Plan (TCP) and a Road Occupancy Licence (ROL); • Any damage to the State Road assets as a result of the project and the associated heavy vehicles will be "made good" by the Proponent; • Any removable signs installed will be replaced with conventional signage posts during decommissioning, in consultation with TfNSW; • The requirement to enter into a Works Authorisation Deed (WAD) with TfNSW.	4.16
24.	School bus times will be avoided when scheduling the OSOM vehicles.	5.6.3
Biodiversity		
25.	A revised BDAR will be prepared and included in the Projects Amendment Report in consultation with BCD.	4.17
Aboriginal Heritage		
26.	Prior to any disturbance outside of the EIS disturbance boundary further detailed archaeological and Aboriginal Heritage assessments will be undertaken.	4.2
Historic Heritage		
27.	No disturbance will occur within 100 m of Strathclyde House.	5.9.3
Economics		
28.	No further commitments contemplated.	-
Telecommunications		
29.	Any disruption to Council and emergency service VHF radio communications resulting from the Project will be rectified.	4.9 4.10
Bushfire		
30.	A Bushfire Management Plan will be developed in consultation with the NSW Rural Fire Service Hunter Valley Fire Control Centre.	4.13
31.	A 20,000 litre water supply (tank) fitted with a 65mm storz fitting will be located at each substation compound within the required Asset Protection Zone.	4.7
Blade Throw		
32.	No further commitments contemplated.	-

Ref	Commitment	Section
Greenhouse Gas		
33.	No further commitments contemplated.	-
Air Quality		
34.	No further commitments contemplated.	-
Water Resources		
35.	"Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings" (DPI, 2003) will be considered during detailed design of access track crossings.	4.14
36.	During construction and operation, approvals and payment of relevant council fees for taking of water from Council water supply will be met by the contractor supplying the water.	4.9
Agriculture and Soils		
37.	The underground portion of the transmission line that is on land mapped as Biophysical Strategic Agricultural land (BSAL) will be installed at a minimum depth of 800 mm.	4.11
38.	Infrastructure on land mapped as Class 5 land and the underground portion of the transmission line on land mapped as Class 3 land will either be buried at a depth greater than 500mm or removed during decommissioning.	4.11
Waste		
39.	No further commitments contemplated.	-
Electro Magnetic Fields		
40.	No further commitments contemplated.	-
Hazardous Materials		
41.	No further commitments contemplated.	-
Shadow Flicker		
42.	No further commitments contemplated.	-
Decommissioning		
43.	No further commitments contemplated.	-
Social		
44.	The Proponent's Neighbour Benefit Program is to be extended to share the benefits of the Project with landholders within 3 – 5 km of the closest proposed WTG where no other commercial agreements are reached. The Neighbour Benefit Program will consist of an electricity grant/rebate offer.	2.2.2

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9. ABBREVIATIONS

Abbreviation	Definition
Aboriginal Consultation Guidelines	'Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010' (DECCW, 2010)
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACHIA	Aboriginal and Cultural Heritage Impact Assessment
AHD	Australian Height Datum
AHIP	Aboriginal Heritage Impact Permit
AIP	The NSW Aquifer Interference Policy
BAM	Biodiversity Assessment Method
BC Act	Biodiversity Conservation Act 2016
BCD	Environment, Energy and Science – Biodiversity and Conservation Division
BDAR	Biodiversity Development Assessment Report
CCC	Community Consultative Committee
CIV	Capital Investment Value
DA	Development Application
DAWE	Department of Agriculture, Water and the Environment
dB(A)	A-weighted decibels
DPIE	NSW Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning & Assessment Act 1979
EPA Savings Regulation	Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017
EPBC Act	Environment Protection & Biodiversity Conservation Act 1999
EPI	Environmental Planning Instrument
EPL	Environment Protection Licence
GHG	Greenhouse Gas Emissions
ha	hectare
Heritage Act	Heritage Act 1977
ICNG	Interim Construction Noise Guideline
IPCN	Independent Planning Commission NSW
LEP	Local Environmental Plan
LGA	Local Government Area
M	metres
Mbcm	Million bank cubic metres
Mtpa	Million tonnes per annum

Abbreviation	Definition
NPW Act	National Parks and Wildlife Act 1974
NT Act	Native Title Act 1993
PCT	Plant Community Type
RAPs	Registered Aboriginal Parties
RBL	Rating Background Level
RL	Reduced Level
RMS	Roads and Maritime Services
SEPP 33	State Environmental Planning Policy 33 – Hazardous and Offensive Development
SEPPs	State Environmental Planning Policies
SPLs	Sound Power Levels
SSD	State Significant Development
WM Act	Water Management Act 2000