



RYE PARK WIND FARM

Modification Application Report

(Development Consent State Significant Development: 6693)

April 2020



Rye Park Wind Farm

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Acronyms and Abbreviations

| | |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ACHA | Aboriginal Cultural Heritage Assessment |
| ACH | Aboriginal and Cultural Heritage |
| AFT | Artefact scatters |
| AGL | Above Ground Level |
| AHIMS | Aboriginal heritage information management system |
| AHMP | Aboriginal Heritage Management Plan |
| AIA | Aeronautical Impact Assessment |
| the Applicant | Rye Park Renewable Energy Pty Ltd |
| the Approved Project | The Project as approved by the Development Consent, described in Section 3.1. |
| BAM | Biodiversity Assessment Method |
| BBAMP | Bird and Bat Adaptive Management Plan |
| BC Act | <i>Biodiversity Conservation Act 2016</i> (NSW) |
| BCD | Biodiversity Conservation Division (NSW) |
| BDAR | Biodiversity Development Assessment Report |
| BMP | Biodiversity Management Plan |
| CASA | (Cth) Civil Aviation Safety Authority |
| CCC | Community Consultative Committee |
| CEEC | Critically Endangered Ecological Community |
| CMA | Catchment Management Authority |
| Conditions of Consent | Conditions of the Development Consent which authorise and regulate the Project. |
| Cwth | Commonwealth |
| DAWE | Department of Agriculture, Water and the Environment |
| DCP | Development Control Plans |
| Development Consent | Development Consent SSD 6693 under section 4.55(2) of the EP&A Act |
| Development Corridor | This area includes the Indicative Development Footprint – Wind Farm in its entirety as well areas of adjoining land that may be required for micro-siting when the wind farm layout is finalised. It does not include the Indicative Development Footprint –External Roads. |
| Development Footprint | The estimated ground disturbance required for construction of the wind farm. Referred to as the Indicative Development Footprint in this Modification Application and includes Indicative Development Footprint – Wind Farm and Indicative Development Footprint –External Roads |
| Development Layout | The wind farm layout including turbines and associated infrastructure |

| | |
|--------------------------|-----------------------------------------------------------------------------------------|
| DGRs | Director General's Requirements |
| DoD | (Cth) Department of Defence |
| DoEE | (Cth) Department of Environment and Energy (now known as DAWE) |
| DPE | (NSW) Department of Planning and Environment (now DPIE, or the Department) |
| DPIE | (NSW) Department of Planning, Industry and Environment |
| EEC | Endangered Ecological Community |
| EMI | electromagnetic interference |
| EMIA | Electromagnetic Interference Assessment |
| ENA | Environmental Noise Assessment |
| EP&A Act | (NSW) <i>Environmental Planning and Assessment Act 1979</i> |
| EP&A Regulation | (NSW) <i>Environmental Planning and Assessment Regulation 2000</i> |
| EPBC Act | (Cwth) <i>Environment Protection and Biodiversity Conservation Act 1999</i> |
| EPBC Approval | Approval granted (EPBC 2014/7163) for the Project under the EPBC Act |
| EPL | Environmental Protection Licence |
| GBD | Green Bean Design |
| the Guideline | <i>Wind Energy Guideline, For State significant wind energy development</i> (DPE 2016a) |
| ha | hectares |
| HHA | Historic (European) Heritage Assessment |
| ICN Guideline | <i>Interim Construction Noise Guideline</i> (DECC, 2009) |
| IF | Isolated finds |
| IPC | Independent Planning Commission (formally PAC) |
| ISEPP | (NSW) <i>State Environmental Planning Policy (Infrastructure) 2007</i> |
| Km | kilometres |
| kV | kilovolts |
| LALC | Local Aboriginal Land Council |
| LEP | Local Environment Plan |
| LGA | Local Government Area |
| LSAT | Lowest Safe Altitude |
| m | Metres |
| MNES | Matters of National Environmental Significance |
| Modification Application | This application to modify the Development Consent. |
| the Modified Project | The revised project as described in Section 4.0 of this report |
| MW | megawatts |

| | |
|---------------------------|------------------------------------------------------------------------------------------------------------------|
| NEM | National Electricity Market |
| NSW | New South Wales |
| OEH | Office of Environment and Heritage (now BCD) |
| Original EIS | Original Environmental Impact Statement for the Rye Park Wind Farm (Epuron Pty Ltd, 2014) |
| PAC | NSW Planning Assessment Commission (now known as IPC) |
| PAD | Potential Archaeological Deposit |
| PCTs | Plant Community Types |
| the Project | the Rye Park Wind Farm |
| POEO Act | (NSW) <i>Protection of the Environment Operations Act 1997</i> |
| Preferred Transport Route | Selection of a preferred transport route, from a number of approved options, that is currently being considered. |
| Proposed Modifications | The changes to the Approved Project as described in Section 4.0 of this report. |
| PSA | Primary Surveillance Radar |
| RAPs | Registered Aboriginal Parties |
| RMS | (NSW) Roads and Maritime Services |
| RSA | Rotor Swept Area |
| RTS | Response to Submissions (Rye Park Renewable Energy Pty Ltd, 2016) |
| RVMP | Roadside Vegetation Management Plan |
| SA EPA Guidelines | <i>Wind farms environmental noise guidelines</i> (SA EPA, 2009) |
| SEPP | (NSW) State Environmental Planning Policy |
| SoCs | Statement of Commitments |
| SSD | State Significant Development |
| SSR | Secondary Surveillance Radar |
| TEC | Threatened Ecological Communities |
| TIA | Traffic Impact Assessment |
| Tilt Renewables | Tilt Renewables Limited |
| TMP | Traffic Management Plan |
| TNSP | Transmission Network Service Provider |
| VIA | Visual Impact Assessment |
| the Visual Bulletin | Visual Assessment Bulletin (DPE, 2016b) |
| VPA | Voluntary Planning Agreement |

Executive Summary

The approved Rye Park Wind Farm (the Project) constitutes an approximate \$700 million investment and is located to the west of Rye Park, to the north-west of Yass and south-east of Boorowa, in New South Wales. This report has been prepared to support a request to modify the Project Development Consent State Significant Development (SSD) 6693 (Development Consent) under section 4.55(2) of the *Environment Planning and Assessment Act 1979* (EP&A Act).

Development Consent was granted, by the NSW Planning Assessment Commission (PAC, now known as the Independent Planning Commission), on 22 May 2017, for the construction, operation and decommissioning of up to 92 wind turbines with a maximum tip height of 157 metres and associated infrastructure.

In the years since the original Development Consent were determined, there have been significant advances in wind turbine technology. This application to modify the Development Consent (Modification Application) has been pursued in order to take advantage of these technology changes and to provide greater certainty with regards to the constructability of the Project.

Pending assessment and determination of the Modification Application, the Project is working towards commencement of construction as soon as practical in 2021.

The Proposed Modifications being sought in this application include:

- **Removal of 12 wind turbines** to reduce the Project to a maximum of 80 wind turbines;
- **Increase to the wind turbine envelope** to a maximum tip height of 200m to enable the use of newer and more efficient wind turbine models;
- **Revisions to the Development Corridor** to accommodate revised Indicative Development Footprints including the reduced wind turbine numbers, optimised design assumptions including changes to the wind turbine foundations and hardstands, internal access tracks, 33 kV connection infrastructure, collector substations, transmission line and connection in infrastructure, and supporting infrastructure. Optimisation of other infrastructure, including operation and maintenance facilities, construction compounds, and temporary concrete batch plants; and
- **Selection of the Preferred Transport Route** for heavy and over-dimensional vehicles to enable the consideration of ground disturbance and associated vegetation removal which will be required to accommodate the proposed upgrades of the local Council roads. Several options for the transportation of heavy and over-dimensional vehicles from port facilities are under consideration.

The Proposed Modifications are required to enable the Project to utilise improvements in wind energy technology to enable significantly more renewable energy production to be achieved with fewer, larger wind turbines and to reflect the outcomes of the ongoing design optimisation and assessment carried out as the Project progresses towards construction.

The justification for the Proposed Modifications and the associated benefits can be summarized as follows:

- By using the more efficient turbine models the Project has the potential to generate more renewable electricity from the same project footprint, ultimately resulting in a lower cost of energy from the Project with clear benefits to the end user and energy consumer;
- Greater efficiency; optimised cabling and transmission line infrastructure minimising electrical losses and maximising the generation capacity of the Project. Subsequent benefits as a result of this include:
 - o Reduction of transmission losses;
 - o Minimisation of resource use and waste generation;
 - o Reduced project cost and timelines; and

- Reduced haulage requirements.
- The Project is strongly aligned with the NSW Government energy and Commonwealth climate policies. The Project will provide 100% emissions free, renewable energy and help NSW with its inevitable transition away from its current reliance on fossil fuels which are continuing to contribute to climate change impacts;
- The Project will make a significant contribution to the shortfall in generation that will arise with the forecast retirement of Lidell Power Station in the near future and other coal-fired generators over the coming years;
- The Project will provide full time employment for up to 250 staff during construction and up to 10 ongoing regional jobs during its operational life providing increased employment opportunities; and
- The Project will also result in a direct injection of approximately \$2-\$3 million per annum to the local community through payments to landholders, permanent staff and benefit sharing plan contributions providing better diversification of income and a drought proof and post retirement income for farmers and shared benefits.

Contact with stakeholders began early in the Project lifecycle and will continue to the end of the lifecycle during decommissioning. The Applicant strives to ensure community engagement occurs throughout all aspects of the Project's lifecycle and that project staff are proactive in engaging with the communities the Applicant are guests within, in a method that is open, inclusive, responsive and accountable. Since mid-2019, the Applicant has consulted with stakeholders and local communities in relation to the Proposed Modifications. The Applicant has engaged extensively with landowners and neighbours, community members, Councils and State government.

A detailed assessment of the key impacts of the Proposed Modification has been undertaken by technical specialists. The assessment focused on the potential change in impacts compared with the Approved Project. The assessment has also taken into consideration the relevant environmental issues identified in the Original EIS and RTS. The following table summarises changes to impacts, mitigation strategies and Development Consent conditions:

Table 1 Summary of change in impact, mitigation strategies and Development Consent conditions

| Specialist assessment type | Change in impact | Changes to mitigation strategies | Changes to Development Consent |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------|
| Visual Impact | Not considered to result in a magnitude of visual change that would significantly increase visual effects (and former visual impact ratings) associated with the Approved Project. | No | No |
| Shadow Flicker and Blade Glint | No increased shadow flicker impacts on non-associated residences and no impact of blade glint. | No | No |
| Noise | With the implementation of the curtailment strategy, noise level from the Modified Project is predicted to achieve the noise criteria at all nearby residences, consistent with the Approved Project. | Yes Implementation of a curtailment strategy | No |
| Biodiversity (Vegetation) | No increased impact on <i>White Box Yellow Box Blakely's Red Gum Woodland EEC</i> under the BC Act. Impacts on Box Gum Woodland reduced by 10.71ha. | No | No |
| Biodiversity (Bird and Bat) | Increased risk to blade strike to species that regularly occur above 30m AGL. No increased impact or adverse impacts to species listed under the BC Act. | No | No |
| Aboriginal Heritage | Increased number of Aboriginal Heritage Items identified, however with the | No | Yes |

| Specialist assessment type | Change in impact | Changes to mitigation strategies | Changes to Development Consent |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| | implementation of mitigation measures, the Modified Project would result in a similar to moderately increased level of harm in comparison to the Approved Project. | | See Section 4.0 for the description of the Proposed Modifications and impact assessment in Section 7.7 |
| Historic (European) Heritage | No impact on historic heritage listings of Commonwealth, National, or NSW State Significance however additional areas of archaeological potential identified. Overall, impact on Historic Heritage is slightly higher compared to the Approved Project. | Yes A 20m buffer to be applied to areas of archaeological potential. Further mitigation to be outlined in a Heritage Management Plan. | No |
| Traffic and Transport | A 0.1% reduction in heavy vehicle construction traffic, however impacts would not be significant if appropriate mitigation is applied. Two additional over-dimensional routes from the Port of Newcastle identified. | No | Yes See Section 4.0 for the description of the Proposed Modifications and impact assessment in Section 7.9 |
| Electromagnetic Interference | Potential for interference with point-to-area style communications such as mobile phone signals, radio broadcasting, and terrestrial television broadcasting. A range of options are available to rectify difficulties. Increased potential for cumulative impacts on mobile phone, radio, and television signals. | No | No |
| Aviation | No infringement of any OLS, PANS OPS surfaces or the Grid LSALTS. Little to no impact upon local flying activities and unlikely to affect ATC surveillance systems. The modified project will infringe the LSALT protection surfaces for four air routes, however this is consistent with the Approved Project. | No | No |

The assessments prepared confirm that the Proposed Modification will result in some increased impacts but that most of these impacts may continue to be appropriately managed by the existing mitigation measures under the Development Consent conditions and the statement of commitments.

The Applicant is strongly committed to ensuring that these measures are implemented in accordance with best practice as informed by the most up to date and detailed information available for the project. This will ensure the best possible outcome for the Rye Park Wind Farm and the local and wider community.

Considering the benefits of the Modified Project, the findings of environmental assessment and the implementation of the existing and additional mitigation strategies it is recommended that the proposed modification can be approved without significant impact to the environment.

1.0 Introduction

This report has been prepared to support a request to modify Development Consent State Significant Development (SSD) 6693 (Development Consent) under section 4.55(2) of the *Environment Planning and Assessment Act 1979* (EP&A Act).

Development Consent was granted, by the NSW Planning Assessment Commission (PAC, now known as the Independent Planning Commission), on 22 May 2017, for the construction, operation and decommissioning of up to 92 wind turbines with a maximum tip height of 157 metres and associated infrastructure.

The approved Rye Park Wind Farm (the Project) constitutes an approximate \$700 million investment and is located to the west of Rye Park, to the north-west of Yass and south-east of Boorowa, in New South Wales.

In the years since the original Development Consent were determined, there have been significant advances in wind turbine technology. This application to modify the Development Consent (Modification Application) has been pursued in order to take advantage of these technology changes and to provide greater certainty with regards to the constructability of the Project.

Pending assessment and determination of the Modification Application, the Project is working towards commencement of construction as soon as practical in 2021.

1.1 Purpose and Structure of this Report

This report has been prepared to support the Modification Application, providing the context, justification and detailed specialist assessments related to the Modified Project.

The following table outlines the purpose of each section of this report and lists the specialist assessments and other supporting documents included within the Appendix.

Table 2: Report Content

| Section | Purpose / Content |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section 1.0: Introduction | - <i>This section.</i> |
| Section 2.0: Background | - Provides the background to the Project including a description of the previous approval process and details of the progression of the Project following approval. |
| Section 3.0: Existing Condition | - Describes the Approved Project, the Project site and surrounds, and planning context, including NSW planning process and local government instruments and policies. |
| Section 4.0: Proposed Modifications | - Provides a detailed description of the proposed modifications, including why they are required and how they have been developed. - Provides an outline of the changes sought to the conditions of the Development Consent to reflect the proposed modifications. |
| Section 5.0: Justification | - Provides the rationale and justification for the proposed modification. |
| Section 6.0: Stakeholder and Community Engagement | - Describes the stakeholder and community engagement undertaken for the Project, as engagement specifically undertaken relating to the proposed modification to the Development Consent. |
| Section 7.0: Environmental Assessment | - Provides assessment of the Modified Project including assessment of the change in impacts compared to the Approved Project. |
| Section 8.0: Other Legislation | - Describes the State and Commonwealth environmental legislation relevant to the Project, in addition to the EP&A Act. |
| Section 9.0: Conclusion | - Provides the overall conclusions of this report / application to modify the Development Consent. |

| Section | Purpose / Content |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appendices | <ul style="list-style-type: none"> A. Assessment Against Development Consent B. Updated Schedule of Land C. Updates to the Development Consent <ul style="list-style-type: none"> o C.1 Road Upgrade Schedule o C.2 Development Layout o C.3 Wind Turbine Coordinates o C.4 Aboriginal Heritage Items List and Map o C.5 Over-Dimensional and Heavy Vehicle Access Routes D. Statement of Commitments E. Infrastructure Changes F. Indicative Development Footprint – External Roads G. Specialist Assessments: <ul style="list-style-type: none"> o G.1 Visual Impact o G.2 Shadow Flicker and Blade Glint o G.3 Noise Assessment o G.4 Biodiversity (Vegetation) o G.5 Biodiversity (Birds and Bats) o G.6 Aboriginal Cultural Heritage o G.7 Traffic and Transport o G.8 Electromagnetic Interference o G.9 Aviation H. Preliminary Road Investigation I. Stakeholder and Community Engagement Plan J. Visual Impact Assessment Peer Review |

1.2 The Applicant

The Project is being proposed by Rye Park Renewable Energy Pty Ltd (the Applicant), a wholly owned subsidiary of Tilt Renewables Limited.

In late 2014, Rye Park Renewable Energy Pty Ltd was acquired by Trustpower Australia (New Zealand) Limited (now known as Tilt Renewables Australia Pty Ltd) from Epuron Pty Ltd who initiated the Project, including the preparation of the original application for Development Consent.

Tilt Renewables Limited (Tilt Renewables) was established in October 2016, as the result of a demerger from Trustpower Limited. Tilt Renewables has a strong track record of developing, owning and operating wind assets in both Australia and New Zealand.

Tilt Renewables is a publicly listed company which owns and operates seven wind farms in Australia and New Zealand with an installed capacity of 366 MW consisting of a total of 232 wind turbines (after the recent successful sale of the 270 MW Snowtown 2 Wind Farm in South Australia). Tilt Renewables has a further 336 MW of wind projects under construction in Victoria and 133 MW under construction in New Zealand at present, representing over \$800 million of new investment and consisting of 111 wind turbines.

Importantly, Tilt Renewables also has a significant renewable energy development pipeline of over 3,000 MW of wind and solar projects in Australia and New Zealand, of which more than 2,000 MW have secured required planning and environmental approvals. Over one third of that pipeline is in NSW, where Tilt Renewables already owns and operates the 5 MW (8 wind turbines) Blayney Wind Farm near Lake Corcoar, south of Blayney, and the 10 MW (15 wind turbines) Crookwell Wind Farm near Goulburn, two of the oldest wind farms in Australia.

1.3 Technical specialists

This report has been prepared by the Applicant, in conjunction with NGH Pty Ltd, and with advice from the technical specialists outlined in Table 3.

Table 3: Technical specialists

| Technical Area/Subject | Technical Specialist |
|------------------------------------------|------------------------------------------------------------------------------------|
| Statutory Planning Advice | - K&L Gates LLP |
| Report preparation | - NGH Pty Ltd |
| Visual Impact | - Green Bean Design Pty Ltd - Moir Landscape Architecture Pty Ltd (Peer Review) |
| Noise | - Sonus Pty Ltd |
| Ecology | - Umwelt Pty Ltd |
| Aboriginal Cultural Heritage | - NGH Pty Ltd |
| Historic (European) Heritage | - NGH Pty Ltd |
| Electromagnetic Interference | - DNV GL Pty Ltd |
| Shadow Flicker | - DNV GL Pty Ltd |
| Traffic and Transport | - SMEC Pty Ltd - Genium Civil Engineering Pty Ltd |
| Infrastructure Design Assumptions | - Zenviron Pty Ltd |

The Applicant and technical specialists have also drawn upon, where appropriate, the environmental assessments undertaken as part of the original Environmental Impact Statement for the Project (Original EIS) and the Response to Submissions (RTS).

2.0 Background

The Development Consent for the Project was granted on 22 May 2017 by PAC following a State Significant Development (SSD) approval process.

A major project application (MP No. 10_0223) was lodged on 18 January 2011 under Part 3A of the EP&A Act. Director General's Requirements (DGR's, now referred to as the Secretary's Environmental Assessment Requirements) were issued to the Applicant on 14 February 2011 and 16 August 2011 which provided the assessment requirements for the proposed wind farm. The application, including the Original EIS, was publicly exhibited on 2 May 2014 until 4 July 2014.

Following the repeal of Part 3A of the EP&A Act, the Project was transitioned from Part 3A to become SSD under Part 4 of the EP&A Act by a Ministerial order made on 21 March 2014.

The Original EIS for the Project proposed 126 wind turbines with a maximum tip height of 157 metres.

Following a public exhibition period, a number of changes were made to the Project in response to the issues raised in submissions including visual, noise and traffic impacts. These were set out and assessed in the RTS including:

- A reduction in the number of wind turbines from 126 to 109;
- Refinements to the locations of a number of wind turbines, access tracks, powerlines and associated infrastructure; and
- Refinements to the transport access routes to the wind farm site.

The Development Consent was granted to authorise the construction, operation and decommissioning of up to 92 wind turbines with a maximum tip height of 157 metres and associated infrastructure.

The PAC's decision to reduce the number of wind turbines from 109 to 92 was primarily based on the visual impact assessment, specifically with regards to impacts on the Rye Park village and nearby residences. One wind turbine was removed to acknowledge the Office of Environment and Heritages (OEHL, now known as the Biodiversity Conservation Division of the Department, BCD) objection in relation to its impact on a number of hollow bearing trees and proximity to high conservation value vegetation and Wedge-tailed Eagle nest.

The Development Consent is subject to detailed conditions (Conditions of Consent) which regulate all impacts of the Project and authorise micro-siting of the wind turbines and ancillary infrastructure subject to specified limits. A table containing a summary of all Conditions of Consent is contained in Appendix A.

A chronology of the key NSW environmental assessments, regulatory review and approval events is provided in Table 4, citing the key reference documents relevant to each phase.

Table 4: NSW environmental assessment and approval process

| Date | Event | Reference Document |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| January 2014 | - Original EIS lodged with the then Department of Planning and Environment (DPE, now known as Department of Planning, Industry and Environment, the Department). | - (2014) Environmental Assessment Rye Park Wind Farm. |
| May 2016 | - RTS lodged with the Department. | - (2016) Response to Submissions Rye Park Wind Farm. |
| March 2017 | - Development application referred to the then PAC by the Department for determination. | - DPE (March, 2017) State Significant Development Assessment: Rye Park Wind Farm (SSD 6693). |
| May 2017 | - PAC granted the Development Consent. | - PAC (2017) NSW Planning Assessment Commission Determination Report Rye Park Wind Farm (SSD 6693). |

The Project was also granted approval under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), subject to conditions, on 6 December 2017 (EPBC Approval). Further details on the EPBC Approval is contained in Section 8.0. This section also provides a summary of the other State and Commonwealth legislation that applies to the Project.

Since the Development Consent was issued, the Applicant has continued to develop the Project, including (but not limited to) progression of the wind farm design through extensive modelling of the revised layout, compliance with the Conditions of Consent, connection agreement, procurement negotiations and ongoing stakeholder engagement.

- *Design progression* – As detailed throughout this Modification Application report the design of the modified wind farm layout has involved extensive modelling to ensure that the layout is constructible and environmental impacts are better understood. Section 4.3 provides details on the wind farm Development Corridor and Indicative Footprints as well as details on the design progression process.
- *Condition Compliance* – The Applicant is progressing activities associated with compliance of conditions of the Development Consent. This includes (but is not limited to):
 - o Bird and Bat Adaptive Management Plan (BBAMP) – In response to the requirements of Condition 23 of the Development Consent, the Applicant has commenced collection of baseline data on threatened and ‘at risk’ bird and bat species and populations in the locality that could be affected by the development. In accordance with the condition, the Applicant consulted with BCD on the development of the monitoring program. The micro-bat data collected as part of these BBAMP surveys has been used in the operation bird and bat impact assessment for this Modification Application (see Section 7.6).
 - o Noise Compliance – In response to the operational noise monitoring related conditions of the Development Consent (Conditions 13 and 14 of Schedule 3), background noise monitoring is currently being undertaken and the preparation of a noise compliance testing plan is being progressed.
 - o Biodiversity Offsets – Pursuant to the Conditions of Consent and EPBC Approval, surveys of potential land-based biodiversity offsets are being progressed through surveys to identify potential credit yield from various sites. Currently a number of potential sites have been identified and are being investigated for their suitability for the required biodiversity offsets.
- *Connection* – A formal network connection application has been lodged with Transgrid, the Transmission Network Service Provider (TNSP) for New South Wales, including entry into a Connection Process Agreement in mid-2018 and the associated connection application workstreams are well advanced. A formal offer to connect is expected around mid-2020. This will enable the connection of the Project to the National Electricity Market (NEM).
- *Commercial* – The Applicant has reviewed the wind turbine models currently available from various wind turbine suppliers and is working through an optimisation process. The Applicant intends to commence a formal procurement process in the near future to inform the selection of a wind turbine supplier and balance of plant contractors for the Project. It is expected that the Applicant will have shortlisted the potential suppliers before the end of the year, with selection of the final supplier to the Project to occur closer to financial close of the Project.
- *Community* – Engagement with the community has continued since the Development Consent was granted. Section 6.0 details the engagement that has been undertaken post-approval and specifically for the modification application.

3.0 Existing Conditions

3.1 The Approved Project

The Approved Project consists of up to 92 wind turbines, with a maximum tip height of 157 metres, and associated infrastructure. The Project as described in the RTS includes the following associated infrastructure:

- A new 330 kV wind farm connection substation located adjacent to the existing TransGrid 330 kV '3J' transmission line (Yass – Gullen Range) that traverses the southern section of the site;
- A new overhead powerline approximately 35 km in length, rated at up to 330 kV (nominal) capacity, running north-south along the length of the wind farm site and within the wind farm site boundary;
- Up to three new collection substations located across the wind farm site;
- Underground and overhead 22 or 33 kV electrical cabling linking the wind turbines to each other and to the on-site collection substations;
- Up to two operation and maintenance facilities incorporating a control room and equipment storage facilities;
- Temporary concrete batching plants and construction facilities;
- Access tracks required for each wind turbine and the related facilities above;
- Minor upgrades to local roads, as required for the delivery, installation and maintenance of wind turbines and the related facilities above; and
- Six temporary wind monitoring masts and approximately six permanent monitoring masts for wind speed verification, weather and general monitoring purposes. The permanent monitoring masts may be either static guyed or un-guyed structures and will be to a minimum height of the wind turbine hubs.

The approved indicative wind turbine locations are shown in the Development Layout and corresponding GPS Coordinates in Appendix 2 of the Development Consent.

The RTS assessed the location of the wind farm infrastructure within a specific development corridor (Development Corridor). The approved Development Corridor is also shown in the figure in Appendix 2 of the Development Consent and Condition 8 of Schedule 2 of the Development Consent contains the specific limits in relation to micro-siting the wind turbines and ancillary infrastructure. Details of the condition are provided below:

“

(a) they remain within the development corridor shown on the figures in Appendix 2;

(b) no wind turbine is moved more than 250 metres from the relevant GPS coordinates shown in Appendix 2;

(c) wind turbine numbers 11, 12, 38, 48, 56, 80, 83, 84, 85, 102, 125, 143, 149 and 150 are micro-sited to minimise (and if possible avoid) impacts on high conservation value vegetation, including hollow-bearing trees;

(d) the revised location of a wind turbine is at least 50 metres from existing hollow-bearing trees; or where the proposed turbine location is already within 50 metres of existing hollow-bearing trees, the revised location of the turbine is not moved any closer to the existing hollow-bearing trees; and

(e) the revised location of the wind turbine and/or ancillary infrastructure would not result in any non-compliance with the conditions of this consent.”

The Development Footprint as described by the RTS refers to the estimated ground disturbance required for construction of the wind farm.

At the time the Development Consent was granted, a preferred transport route had not been selected for transportation of heavy and over-dimensional vehicles. Therefore, the Development Consent approved the use of

multiple access route options and identified, at a general level, the road upgrades required to accommodate transport to the site, as contained in Appendix 5 Schedule to Road Upgrades of the Development Consent. The Original EIS and RTS did not quantify the area of ground disturbance anticipated for the road upgrades as a preferred transport route had not been selected at this time.

Additionally, the Development Consent allows for the subdivision of land so to create new lots for the proposed connection substation and the collection substations and any deemed subdivision arising from the grant of leases or licenses for project elements.

3.2 Project Site and Surrounds

3.2.1 Project Site

The Project is located within three Local Government Areas (LGAs) being Hilltops Council¹, Upper Lachlan Shire Council and Yass Valley Council. The Project location and its general proximity to other wind farms under development or currently operating is shown in Figure 1.

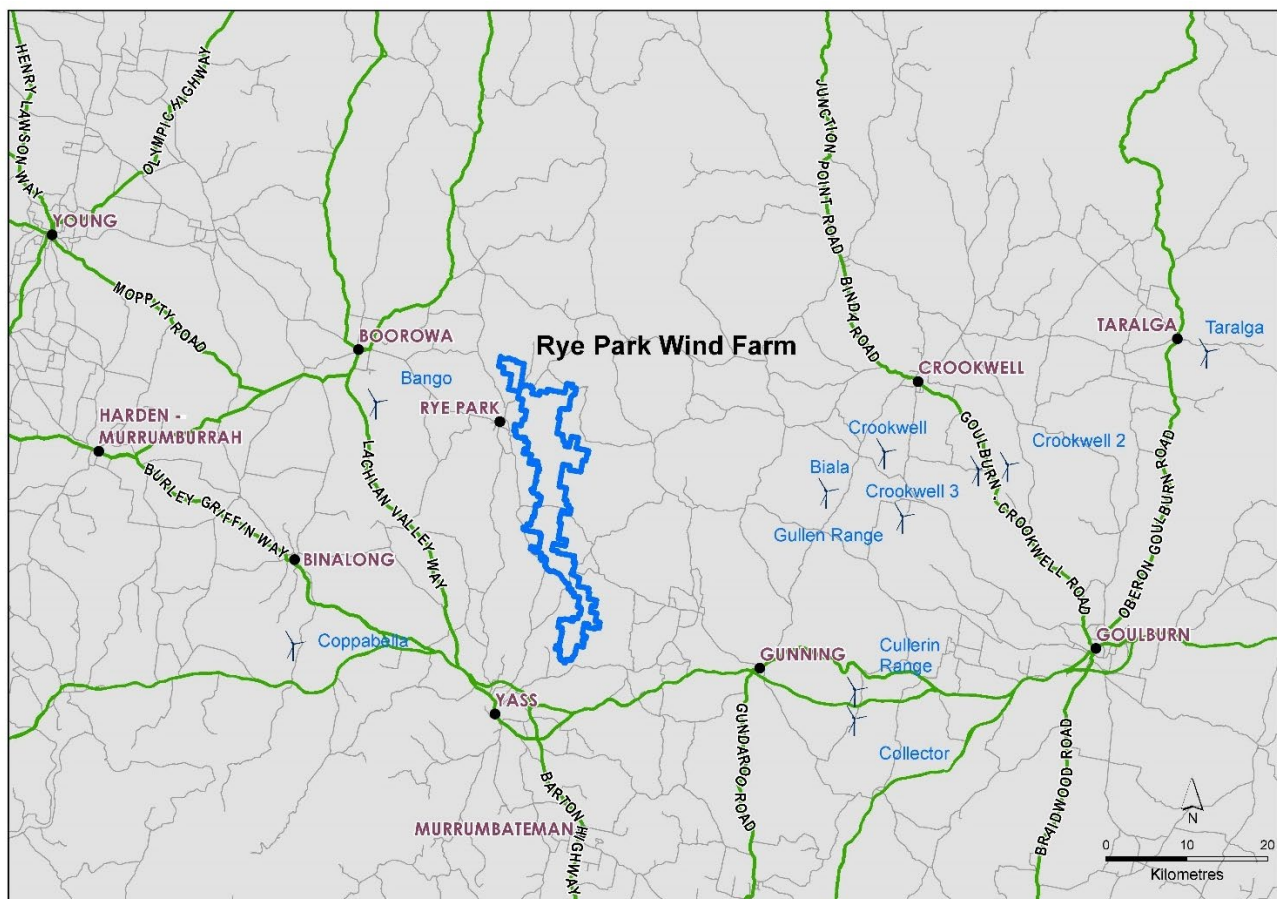


Figure 1: Project Location

The boundary of the Modified Project remains the same as the Approved Project however the changes to the infrastructure layout and selection of a preferred transport route has resulted in some changes to the private and public land that physically hosts wind farm infrastructure or will be impacted by road upgrades. Appendix B provides an updated Schedule of Lands for the Modified Project.

¹ Boorowa Council was amalgamated with Harden Shire and Young Shire to form Hilltops Council in May 2016

The Applicant has maintained agreements with owners of land within the Project site to ensure the development can proceed with the relevant land tenure arrangements with specific landowners. It is noted that four landowners within the Project boundary have had their agreements lapse as there is no longer infrastructure proposed on these properties. One of these landowners subsequently entered into a participating neighbour agreement and is considered to be an Associated Residence.

A summary of land affected by changes to agreements is outlined in Table 5 with the Project boundary for the Modified Project illustrated in Figure 2, Figure 3 and Figure 4.

Table 5: Changes to Land Agreements

| Summary | Lot/Plan | Comments |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Land now outside of wind farm agreements | 166/754102 82/754136 71/754136; 113/754136; 114/754136 | All land is vacant agricultural land without a residence. |
| Land previously with a wind farm agreement – now associated due to neighbour agreement | N/439287; 250/754145 | Land contains a dwelling (R16) and is associated for noise, shadow flicker and visual impacts of the wind farm. |

Crown land, including specific managed parcels, road reserves and boundary waterways exist within the Project site. Appropriate access rights will be required by way of a license or closure of some road reserves (where the land is not used for public access) in consultation with the Crown Lands Division of the Department of Planning, Industry and Environment (the Department) and in accordance with the requirements of the *Crown Land Management Act 2016*.

There are 35 residences associated with the Project (Associated Residences) and of this 26 of these residences are host landholders. An Associated Residences is residence where an agreement has been reached between the owner of the residence and the Applicant in relation to the development². Of the nine Associated Residences that do not have host agreements with the Applicant (i.e. neighbour agreements), six of these have become associated by entering into agreements with the Applicant following issue of the Development Consent.

As shown in Table 6, 33 of the Associated Residences are within 5 km of wind farm³. Approximately 65 percent of residences within 2 km of the wind turbines are participating in the Project by having infrastructure proposed on their property (i.e. a host landowner agreement) or by entering into a neighbour agreement with the Applicant in relation to potential impacts from the Project.

Table 6: Residences with 5km of Project turbines

| Distance from the Project Turbines | Number of Residences | How many are Associated |
|------------------------------------|----------------------|-------------------------|
| Within 1km | 5 | 5 |
| 1km – 2km | 21 | 12 |
| 2km – 3km | 39 | 12 |
| 3km – 4km | 68 | 3 |
| 4km – 5km | 74 | 1 |
| Total | 207 | 33 |

² Associated Residences are classified as either being a 'host' agreement if a landowner has a lease or infrastructure agreement in relation to their property or a participating 'neighbour' agreement where the residence is within proximity of the Project and there is an agreement in relation to potential impacts from the wind farm (e.g. noise, visual or shadow flicker).

³ Two additional associated residences are located beyond 5km of the Project turbines.

Figure 2, Figure 3 and Figure 4 illustrate the location of each of these residences and their status as either an Associated Residence or Non-associated Residence.

The landowners associated with the Project typically have large rural holdings and are generally a combination of people that live on the property and run agricultural enterprises or landowners that own land and either lease their land to other local residents and/or operate agricultural enterprises while living in other parts of the region/State. A small number of associated landowners live within the Project site on smaller landholdings without undertaking agricultural activities.

The Project will connect into the National Electricity Grid via TransGrid's existing 330KV '3J' Yass to Gullen Range Line via a new 330KV connection substation in the southern extent of the Project site.

3.2.2 Surrounds

The Project is located approximately 250 km south-west of Sydney, New South Wales, the closest towns include Rye Park (approximately 5 km to the west), Boorowa (approximately 20 km to the north-west) and Yass (approximately 11 km to the south-west). The land in which the Project is located includes predominately freehold and leasehold land within and adjacent to agricultural areas, predominantly used for grazing sheep.

The Project is located across two Catchment Management Authority (CMA) regions. The majority of the Project is located within the Lachlan CMA region, with a small portion of the south-west corner of the Project located in the Murrumbidgee CMA region.

The Project falls within the *Water Sharing Plan for the NSW Murray-Darling Basin Fractured Rock Groundwater Sources* area which includes rules for protecting the environment, extractions, managing licence holders' water accounts, and water trading in the plan area. The Project boundary falls within the Yass Catchment Groundwater Source.

Other wind farms within proximity of the Project include Bango Wind Farm (22 km west), Coppabella Wind Farm (41 km to south-west), Biala Wind Farm (35 km east), Gullen Range Wind Farm (45 km south-east) and Collector Wind Farm (52 km south-west). The locations of these wind farms are shown on Figure 1. The Bango Wind Farm has recently commenced construction of turbines with a tip height of up to 200 m.

3.3 Planning Context

3.3.1 Process

The Modification Application is being sought under section 4.55(2) of the EP&A Act.

Section 4.55(2) of the EP&A Act relevantly provides that a Development Consent can be modified where the consent authority:

- Is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted;
- Has notified the application as required; and
- Has considered any submissions made concerning the proposed modification.

On 7 November 2019, a letter of intent to lodge a Modification Application was provided to the Department. The letter outlined the proposed changes to the Development Consent, the level of assessment and the legislative context for the Modification Application. The letter noted that the proposed changes would be substantially the same development as that which was originally approved.

For SSD, it must be demonstrated that the change, if carried out, would result in a development that would be substantially the same development as the original development with regard to the considerations summarised in Table 7.

Table 7: Substantially the same development

| Considerations | Response |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| “Substantially” means “essentially or materially” or “having the same essence.” | The Modified Project would remain a wind farm with ancillary infrastructure, as described in the Original EIS, including access tracks, transmission infrastructure and transport route upgrades. |
| A development can still be substantially the same even if the development as modified involves land that was not the subject of the original consent. | While the Project site has not changed, the Preferred Transport Route has been specified and impact different areas of land. |
| If the development as modified, involves an “additional and distinct land use”, it is not substantially the same development. | No additional and distinct land use is proposed. |
| <p>In order for the proposal to be “substantially the same”, the modified versus approved project must:</p> <ul style="list-style-type: none"> - appreciate the qualitative and quantitative differences in their proper context - consider the environmental impacts of proposed Modification Applications to approved developments. - not eclipse or cause to be eclipsed a particular feature of the development, particularly if that feature is found to be important, material or essential. | <p>For the Project, the proposed changes within this Modification Application would be substantially the same as that for which Development Consent was originally granted on 22 May 2017. This modification does not propose any changes to the general project description, in particular:</p> <ul style="list-style-type: none"> - The Preferred Transport Route upgrades are generally in accordance with the Schedule of Road Upgrades included as Appendix 6 of the Development Consent (contained at Appendix C.1 of this document). - The location of the wind farm site and associated infrastructure is generally in accordance with the Schedule of Land contained at Appendix B). No additional wind turbines are proposed. <p>The qualitative and quantitative comparison of the Approved Project and Modified Project is detailed in Section 7.0, which identifies any substantive changes in the nature or extent of environmental impacts.</p> |

These comparisons make clear that the modifications proposed would be ‘substantially the same’ as that for which consent was originally granted and that the impacts, on balance, are manageable with similar strategies and that the impacts remain justifiable, in the context of the Project’s many benefits.

In a letter dated 11 December 2019, the Department confirmed that they were satisfied with the level of assessment proposed and confirmed that the Modification Application could be lodged under Section 4.55(2) of the EP&A Act.

Concurrent with this Modification Application, it has been requested that the modification be designated by the Planning Secretary as “State significant development on land with multiple owners” for the purposes of clause 49(5) of the *Environmental Planning and Assessment Regulation 2000* (NSW) (EP&A Regulation) due to the high number of involved landowners.

3.3.2 Local Government Instruments and Policies

Local Environmental Plans

As stated in Section 3.2.1, the Project site is located three LGAs (Hilltops Council, Upper Lachlan Shire Council and Yass Valley Council). Accordingly, there are three Local Environmental Plans (LEPs) which apply to the Project. As outlined in Section 3.3.1 of this report, the Modified Project is considered substantially the same and remains consistent with the relevant LEP provisions as outlined below.

- The approved and Modified Project is consistent with the relevant zoning objectives and permissible with

consent under the *Boorowa Local Environmental Plan 2012*;

- The approved and Modified Project is consistent with the relevant zoning objectives and permissible with consent under the *Upper Lachlan Local Environmental Plan 2010*; and
- The Project (approved and modified) is consistent with the relevant zoning objectives under the Yass Valley Local Environmental Plan 2013 and, while not permissible with consent under this LEP, the Project does not rely on the provisions of this LEP for permissibility.

Development Control Plans

Under the provisions of the *State Environmental Planning Policy (State and Regional Development) 2011*, Development Control Plans (DCP) do not apply to State Significant Developments.

The Original EIS considered the consistency of the Project with the controls contained in both the *Boorowa Development Control Plan 2013* and the *Upper Lachlan Development Control Plan 2010*. The DCPs remain in force and have not been since repealed. The Approved Project was generally consistent with the relevant DCPs, with some minor departures in relation to setback distances as nominated in the Upper Lachlan DCP. However, it was noted the development complied with the SA EPA Guidelines for wind farms. As outlined in Section 3.3.1 of this Modification Application, the Modified Project is considered substantially the same project and the Proposed Modifications remain consistent with the DCPs.

At the time, there was no DCP in force for the Yass Valley Council LGA as the *Comprehensive Yass Valley Development Control Plan 2014* has also not yet been adopted.

Upper Lachlan Shire Economic Development Strategy 2015 - 2020

The *Upper Lachlan Economic Development Plan and Strategy (2007)* has been superseded by the *Upper Lachlan Shire Economic Development Strategy 2015-2020*.

The Economic Development Strategy 2015-2020 includes the development of renewable energy projects and green technologies as a current opportunity for the Shire (ULSC, 2015).

Yass Valley Policy: Development on Elevated Land

The Yass Valley Policy on Development on Elevated Land is no longer in force (Yass Valley Council, 2020).

4.0 The Proposed Modifications

The proposed modifications to the Development Consent are being sought to optimise project efficiency, in light of changing technology and more detailed project planning. This application has been prepared based on extensive design optimisation processes, which provides rigour and greater certainty, replacing some of the earlier design assumptions.

The Proposed Modifications include:

- **Removal of 12 wind turbines** to reduce the Project to a maximum of 80 wind turbines;
- **Increase to the wind turbine envelope** to a maximum tip height of 200m to enable the use of newer and more efficient wind turbine models;
- **Revisions to the Development Corridor** to accommodate revised Indicative Development Footprints including the reduced wind turbine numbers, optimised design assumptions including changes to the wind turbine foundations and hardstands, internal access tracks, 33 kV connection infrastructure, collector substations, transmission line and connection in infrastructure, and supporting infrastructure. Optimisation of other infrastructure, including operation and maintenance facilities, construction compounds, and temporary concrete batch plants; and
- **Selection of the Preferred Transport Route** for heavy and over-dimensional vehicles to enable the consideration of ground disturbance and associated vegetation removal which will be required to accommodate the proposed upgrades of the local Council roads. Several options for the transportation of heavy and over-dimensional vehicles from port facilities are under consideration.

Table 8 below provides a summary of the Approved Project compared to the Modified Project. The indicative parameters and assumptions provided in the table have been used to inform the approach to the specialist studies described in details in Section 7.0.

Table 8: Key Indicative Parameters of the Approved Project compared to the Modified Project

| Parameter | Approved Project | Proposed Modifications | Extent of Change |
|---------------------------------------------------------------------|--------------------------|--------------------------|----------------------------------------------|
| Turbines No's | | | |
| Number of wind turbines | 92 | 80 | Reduced by 12 wind turbines (or 13%) |
| Turbine Height | | | |
| Maximum tip height | 157 m | 200 m | Increased by 43 m (or 27%) |
| Indicative rotor diameter | 130 m | 170 m ² | Increased by 40 m (or 31%) |
| Indicative minimum blade ground clearance | 27 m | 30 m | Increased by 3 m (or 11%) |
| Indicative Rotor Swept Area (RSA) per wind turbine | 13,267 m ² | 22,698 m ² | Increased by 9,431 m ² (or 71%) |
| Indicative Total RSA for wind farm | 1,220,564 m ² | 1,815,840 m ² | Increased by 595,276 m ² (or 49%) |
| Development Corridor & Indicative Development Footprints | | | |
| Development Corridor | 1,646 ha | 1,272 ha | Reduction of 374 ha |
| Preferred Transport Route | | | |

| Parameter | Approved Project | Proposed Modifications | Extent of Change |
|---------------------------------------------------------|-------------------------------------------|-------------------------------------------------|------------------|
| Transport route for over-dimensional and heavy vehicles | No preferred route for local road network | Preferred route selected for local road network | N/A |

A number of changes are required to the Conditions of Consent to reflect the Proposed Modifications. These changes are summarised in Table 9 below, whilst relevant updated schedules have been provided in Appendix B and C.5, to replace existing schedules in the Development Consent.

Table 9: Proposed Modifications to Conditions of Consent

| Condition | Updates Required |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appendix 1 | Schedule of land to be replaced, refer to Appendix B |
| Appendix 2 | Development layout to be replaced, refer to Appendix C.2, and update wind turbine coordinates (12 wind turbines for removal), Appendix C.3. |
| Appendix 5 | Aboriginal heritage items to be updated, refer to Appendix C.4 |
| Appendix 6 | Road upgrades updated with Preferred Transport Route, refer to Appendix C.1. |
| Appendix 7 | Over dimensional and heavy vehicle access routes from the port to be updated with multiple options and access points to be updated with Preferred Transport Route, refer to Appendix C.5. |
| Schedule 2 LIMITS ON CONSENT | Condition 5 to be replace with: 5. The Applicant may construct, operate and replace or upgrade as necessary up to 80 wind turbines. |
| | Condition 7 to be replace with: 7. No wind turbines may be greater than 200 metres in height (measured from above ground level to the blade tip). |

No other Conditions of Consent require changes to accommodate the Proposed Modifications, however an assessment against all Conditions of Consent is provided for reference in Appendix A.

Statement of Commitments (SoCs) demonstrate how the Applicant will implement measures for environmental mitigation, management and monitoring for the Project. These issues will be incorporated and addressed in an Environmental Management Strategy which will provide a framework for environmental management of the development.

The RTS report contains 23 SoCs that demonstrate how the Applicant will implement measures for environmental mitigation, management and monitoring for the Project. An assessment of these commitments against the Modified Project is contained at Appendix D.

Further detail on the Proposed Modifications is contained in the sections below, whilst Section 5.0 outlines the justification for the Proposed Modifications.

4.1 Turbine Numbers

The Proposed Modifications includes the removal of 12 wind turbines, which will reduce the Project to a maximum of 80 wind turbines. The wind turbines proposed to be removed are listed in Table 10 and are illustrated in Figure 2, Figure 3 and Figure 4.

Table 10: Turbines to be Removed

| Turbines to be Removed | | | |
|------------------------|----------------|-----------------|-----------------|
| Turbine No. 6 | Turbine No. 52 | Turbine No. 77 | Turbine No. 104 |
| Turbine No. 35 | Turbine No. 53 | Turbine No. 102 | Turbine No. 140 |
| Turbine No. 38 | Turbine No. 56 | Turbine No. 103 | Turbine No. 149 |

No other changes are proposed to the approved indicative wind turbine locations, the coordinates of the wind turbines that are remaining are contained in Appendix C.3.

Final wind turbine locations will be confirmed once a wind turbine model has been selected as part of ongoing detailed design. Any changes made to the final locations following the modification to the Development Consent will be carried out in accordance with the micro-siting conditions of the Development Consent (Condition 8 of Schedule 2).

Figure 2, Figure 3 and Figure 4 show the infrastructure changes including the reduction in wind turbine numbers. Further detail is provided in Appendix E.

4.2 Turbine Tip Height

The Proposed Modifications include an increase to the wind turbine envelope to a maximum tip height of 200m.

Indicative wind turbine model parameters reflecting the wind turbine technology available at the time were used to undertake studies in the Original EIS and RTS, however due to continued advancements in technology the wind turbine models currently on the market provide greater output and provide an opportunity to increase the efficiency of the Project.

A final wind turbine model has not yet been selected, with several wind turbine models to be considered as part of a commercial tender process. Each wind turbine model will have varying characteristics, including physical dimensions, technical attributes, and production capacity.

A maximum 200 m tip height is proposed to enable flexibility in the selection of the most appropriate and efficient model for the Project. The 200 m tip height will enable a competitive commercial tender process to be run that maximises the number of alternative suppliers and will enable selection of the most appropriate wind turbine model currently on the market.

The wind turbine envelope changes proposed align the Project with other contemporary and nearby approved projects, including the recently approved Bango Wind Farm (located to the west of the site).

Details of the indicative wind turbine parameters within this envelope which have been used for the purpose of the environmental assessments is included in Table 8.

4.3 Development Corridor & Indicative Development Footprints

The Proposed Modifications include revisions to the Development Corridor to accommodate the reduced wind turbine numbers, optimised design assumptions including location and design of internal access tracks and other supporting infrastructure.

The total indicative ground disturbance (e.g. impact zone) associated with the Project (excluding the external road upgrades) is defined as the Indicative Development Footprint – Wind Farm. The total indicative ground disturbance associated with the external road upgrades is defined as the Indicative Development Footprint – External Roads.

The Development Corridor encompasses the Indicative Development Footprint – Wind Farm in its entirety, as well areas of adjoining land to enable further optimisation during detailed design, once a wind turbine model is selected,

including further endeavors to limit disturbance and allow for avoidance of areas of sensitivity in accordance with micro-siting restrictions (see Section 3.1).

The approved Development Corridor does not include the Indicative Development Footprint – External Roads, as ground disturbance was not previously quantified as part of the Original EIS and RTS except for the high level road upgrades requirements contained within Appendix 6 of the Development Consent (see Section 3.1). The Development Corridor for the Modified Project does not cover the external roads as micro-siting and/or realignment of infrastructure will not be required for the external roads. However, further detail and concept will be prepared to finalise the requirements (including location) of the road upgrades. The Indicative Development Footprint – External Roads provides a conservative, ‘worst case’ estimate of ground disturbance along the roadside.

The revisions to the Development Corridor are shown on Figure 2, Figure 3 and Figure 4, whilst Development Corridor and Indicative Development Footprint – Wind Farm⁴, and new Indicative Development Footprint – External Roads is shown on Appendix F.

Indicative Development Footprint – Wind Farm

The infrastructure and construction activities that make up the Indicative Development Footprint – Wind Farm are consistent with the Approved Project, comprising wind turbines and their foundations, hard stands, internal access tracks, transmission lines, underground cabling and a range of associated infrastructure. However, the length, location and area of their associated ground disturbance has been revised.

Although detailed design will be undertaken at a later date, an extensive design optimisation process has been undertaken to inform this Modification Application. This detailed and rigorous process to designing the modified indicative infrastructure layout has been undertaken to ensure that the ground disturbance is not underestimated and that the Project is constructible.

The process has included 12D modelling of the civil disturbance footprint of the wind farm layout to accurately represent the areas required for construction including crane pads, laydown area for blades and the accurately estimating the cut and fill associated with these areas. The electrical design of the wind farm was also been optimised based on analysis of electrical losses compared to the size and length of the transmission infrastructure.

The length of this infrastructure has generally decreased compared to the Approved Project. The decrease in the overall length of these infrastructure corridors is a result of the re-design of the wind farm layout to ensure it is efficient, constructible and to avoid areas of difficult terrain and of significant biodiversity or heritage value, where possible.

However, the extent of ground disturbance has largely increased, as a result of more accurately estimating the impacts associated with the internal access tracks and cabling (including cut and fill requirements and separate cabling routes)⁵ in the modified indicative layout. These changes reflect the Applicants greater experience and knowledge compared with the assumptions used in the RTS.

A comparative summary of all project infrastructure and their disturbance areas (temporary and permanent) is shown in Table 11 (including increases and reductions), whilst the following sections contain further details on the changes to the design assumptions.

Table 11: Refined Design Assumptions and Indicative Disturbance Areas

| Parameter | Approved Project | Modified Project | Extent of Change |
|---------------------|------------------|------------------|------------------|
| Project Area | | | |

⁴ The Project Boundary on these figures is based on publicly available cadastre and during detailed design will be updated for the actual property boundaries and road reserves

⁵ Changes to material quantities and ground disturbance resulting from the Proposed Modification are clarified in Section 4.3.6.

| Parameter | Approved Project | Modified Project | Extent of Change |
|---------------------------------------------------------------------|-----------------------|-----------------------------------|-----------------------|
| Indicative Development Footprint – Wind Farm | 256.8 ha | 542.1 ha | Increase by 285.3 ha |
| Indicative Development Footprint – External Roads | - | 32.62 ha | N/A |
| Internal Access Tracks | | | |
| Internal tracks average width (Temporary) | 12 m ⁶ | 30 m | Increase by 18 m |
| Internal tracks average width (Permanent) | 5.5 m | 5.5 m | Nil |
| Internal tracks total length | 103,400 m | 89,060 m | Decrease by 14,340 m |
| Internal tracks Impact area (Temporary) | 124.08 ha | 267.2 ha | Increase by 143.12 ha |
| Underground Cabling | | | |
| Underground cabling length | 82,350 m ⁷ | 60,324 m | Decrease by 22,026 m |
| Underground cabling width (Temporary) | 12 m | 15 m | Increase by 3 m |
| Underground cabling area (Temporary) | 98.8 ha | 90.5 ha | Decrease by 8.3 ha |
| Transmission Line Up to 330kV | | | |
| Transmission line (Full easement) length | 12,510 m | 10,158 m | Decrease by 2,325 m |
| Transmission line (Full easement) width | 60 m | 40 m | Decrease by 20 m |
| Transmission line (Full easement) area | 73 ha | 28.07 ha | Decrease by 44.93 ha |
| Transmission line (track, poles and string pads) length | 18,810 m | 17,327 m | Decrease by 1,483m |
| Transmission line (track, poles and string pads) width ⁸ | 4 m N/A | 12 m for tracks 20 m for poles | Increase by 8m N/A |
| Transmission line (track, poles and string pads) ⁹ area | 10.3 ha | 25.3 ha | Increase by 15 ha |
| Transmission Line 33kV | | | |

⁶ During the original environmental assessment, access tracks were given a nominal width of 12m. However, this did not sufficiently account for the cut and fill required and to construct the Project, the widths would likely have been larger.

⁷ The approved underground cabling length is calculated based on the approved development plan as there was no specific total length of underground cabling identified in the RTS report. This length of underground cabling is independent of the length of internal access tracks.

⁸ Ground disturbance for transmission line poles and string pads were not accounted for in the original environmental assessment or Approved Project

⁹ Ibid.

| Parameter | Approved Project | Modified Project | Extent of Change |
|----------------------------------------------------------------------|--------------------------|----------------------------------|---------------------------|
| Transmission line (Full easement) length | 694 m | 765 m | Increase by 71 m |
| Transmission line (Full easement) width | 30 m | 20 m | Decrease by 10 m |
| Transmission line (Full easement) area | 2 ha | 1.44 ha | Decrease by 0.56 ha |
| Transmission line (track, poles and string pads) length | 5,681 m | 7,018 m | Increase by 1,337 m |
| Transmission line (track, poles and string pads) width ¹⁰ | 4 m N/A | 12 m for tracks 20 m for pole | Increase by 8 m N/A |
| Transmission line (track, poles and string pads) area ¹¹ | 2.2ha | 3.46ha | Increase by 1.26 ha |
| Other Supporting Infrastructure | | | |
| Operation and Maintenance Facility | 2 facilities | 1 facility | Decrease by 1 facility |
| Connection substations | 1 substation | 1 substation | No change |
| Collector substations | 3 substations | 1 substation | Decrease by 2 substations |
| Concrete Batch Plants | 2 batch plants | 3 batch plants | Increase by 1 facility |
| Construction compounds | 3 construction compounds | 2 construction compounds | Decrease by 1 facility |

Indicative Development Footprint – External Roads

The Indicative Development Footprint – External Roads comprises the areas of roadside where it is anticipated that widening will be required for external road upgrades along the Preferred Transport Route.

The Preferred Transport Route has been selected from the multiple local public road sections approved for use within the existing Development Consent and considering their relevant road upgrade requirements. The required external road upgrades were not previously assessed as potential ground disturbance as part of the Original EIS or RTS. As such, the Indicative Development Footprint – External Roads has been developed to ensure the ground disturbance of the required road upgrades as considered as part of the Project.

The selection of the Preferred Transport Route is described in Section 4.4.1.

¹⁰ Ibid. p.22

¹¹ Ibid. p.22

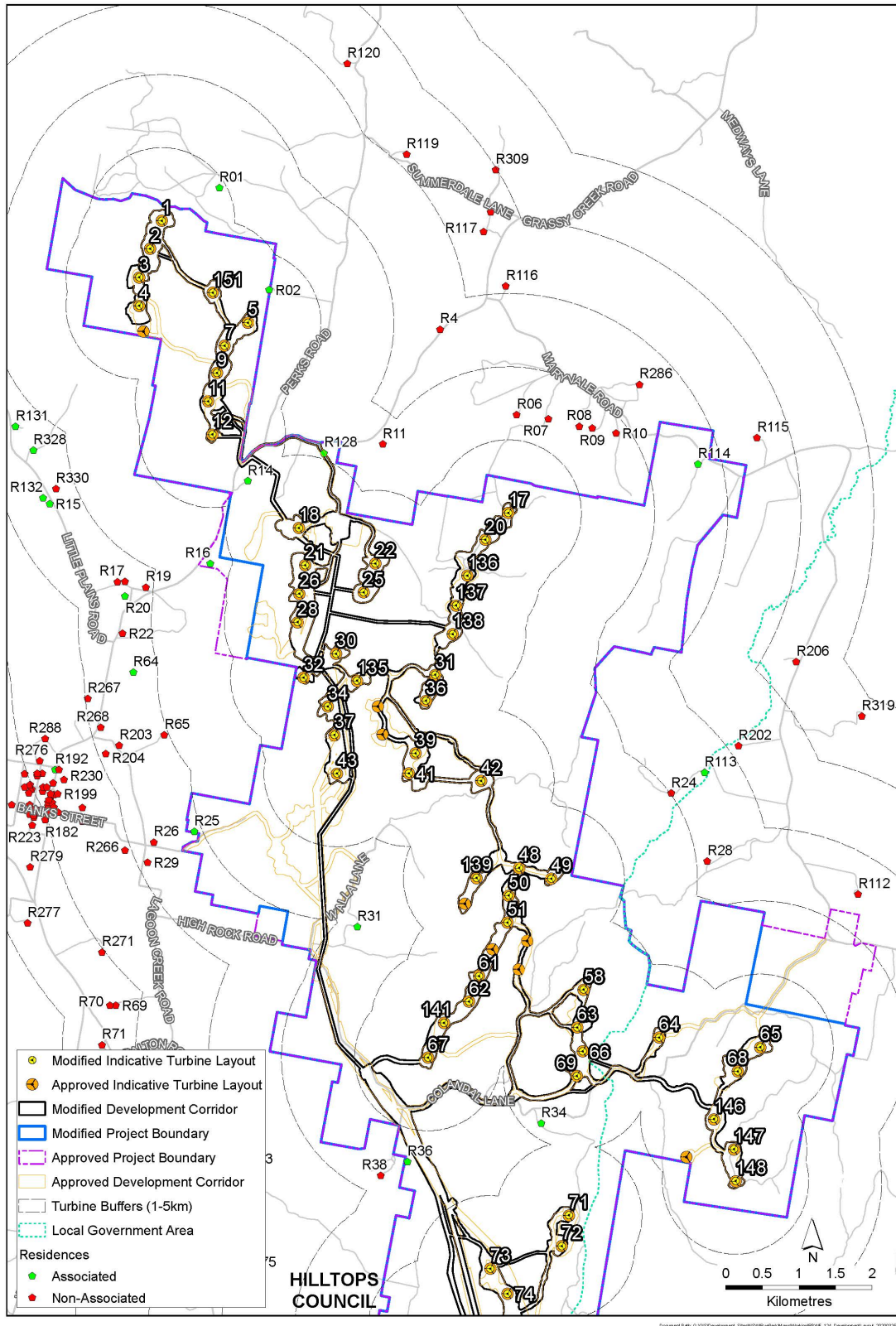


Figure 2: Development Corridor (Figure 1 of 3)

4.3.1 Turbine Foundations & Hardstands

The Indicative Development Footprint – Wind Farm reflects the increase in size of the wind turbine foundation and crane hardstands due to the overall increase in the wind turbine envelope and the optimised design assumptions. The wind turbine foundation refers to the concrete and steel structure on which the wind turbine is secured and the hardstand refers to the areas immediately adjacent to the wind turbine that is sufficiently compacted to handle the load of the crane whilst lifting the wind turbine components.

The design optimisation process identified a number of changes to the design assumptions that needed to be considered, including:

- The variance of each hardstand footprint depends on the surrounding topography and subsequent earthworks required. However, on average the design optimisation process found that the foundation and hardstand area (excluding batters) is equal to approximately 3,732 m² (compared with the combined foundation and hardstand footprint (ground disturbance) of 1,525 m², an increase of 2,207 m², estimated in the Original EIS);
- Refinements to the hardstand layouts allow for the erection and use of the crane. The main crane must be erected at each wind turbine location as it is too large and unstable to move fully rigged on the internal access tracks. At each wind turbine locations, the cranes lattice boom, which comes in several pieces, must be assembled to reach its full length. This activity is carried out by support cranes which lift the boom segments into place¹²;
- An in-depth analysis of bulk earthworks required and subsequently hardstands were modified in targeted locations to ensure ground disturbance were minimised; and
- Ground disturbance due to the fill from the installation of blade fingers (e.g. two 'fingers' of temporary fill extending from the edge of each hardstand, creating a level area to laydown wind turbine blades ready for installation) has been minimised where possible. Whilst not optimal from a construction perspective, the construction schedule will allow 'just in time' delivery at some locations rather than having additional laydown areas for the blades.

4.3.2 Internal Access Tracks

The Indicative Development Footprint – Wind Farm considers a revised indicative access track layout to reflect the reduction in wind turbine numbers, realignment of ancillary infrastructure and design optimisation.

The design optimisation process found that the carriageway width of the internal access tracks requires a permanent pavement width of 5.5m, consistent with what was assumed within the RTS. However, the average 'worst case' temporary ground disturbance width for internal access tracks across the site is 30 m (compared with the original 12 m construction ground disturbance width assumed in the RTS).¹³

The design assumptions now allow for an adequate amount of temporary ground disturbance (including ancillary drainage, batters and construction disturbance buffers, cut and fill and works to prevent erosion) compared with what was originally assumed. This is primarily driven by the complex and varied terrain at the Project site.

An indicative access track ground disturbance is illustrated in the cross section in Figure 5.

¹² The layout of the hardstands is based on the LG1750 lattice boom mobile crane type, which is currently the most common crane for erection of this size turbine.

¹³ The assessment of vegetation impacts contained within Biodiversity Development Assessment Report (BDAR) is based on the temporary disturbance footprint (see Section 7.5 for further details).

Figure 5: Indicative Access Track Ground Disturbance (Cross Section) (Source: Zenviron)

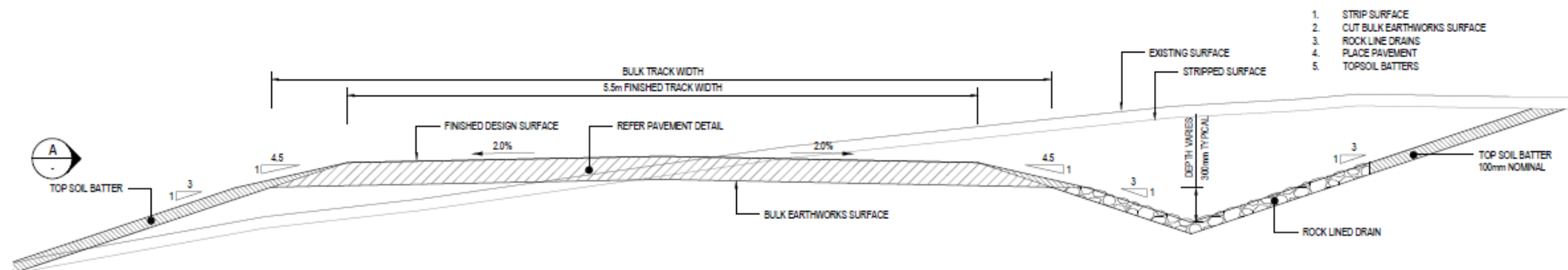
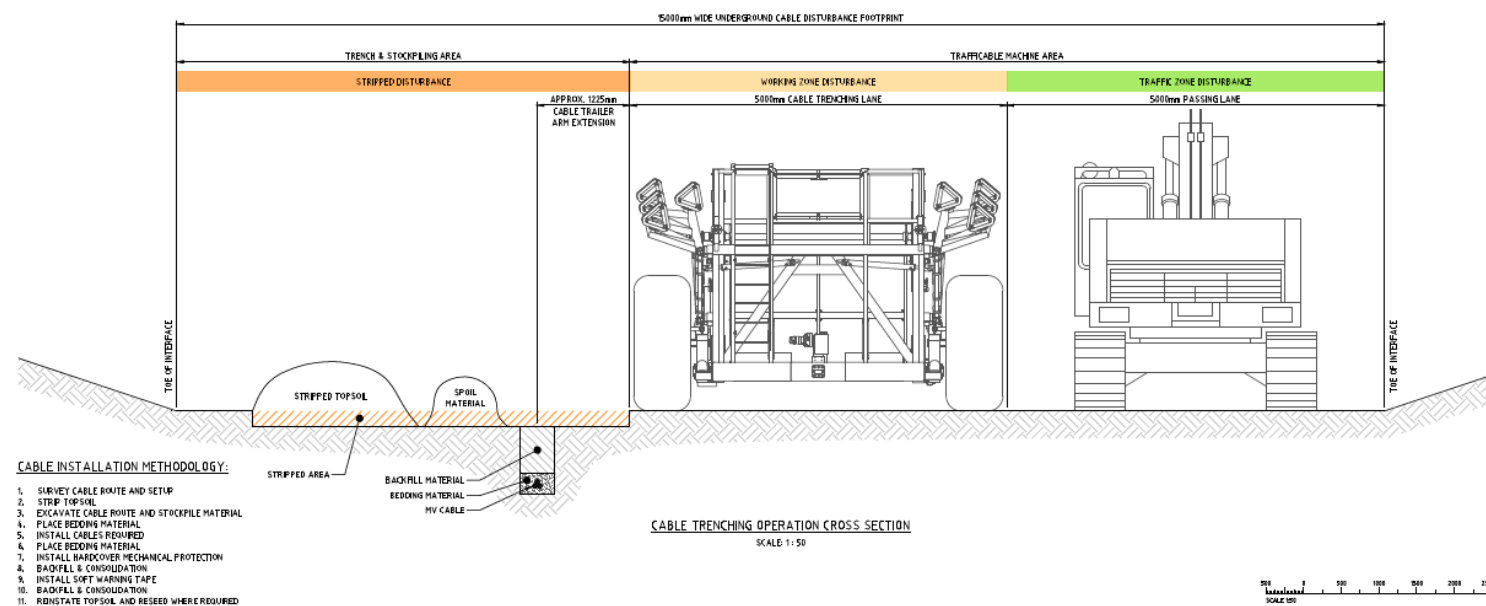


Figure 6: Indicative Underground Cable Ground Disturbance (Cross Section) (Source: Zenviron)



The design optimisation includes a reduction in the overall length of the indicative access tracks to approximately 89 km (a reduction of 22 km).

Revisions to the indicative internal access track layout can be summarised as follows:

- The southern section of the access track was realigned off the ridgeline on to lower terrain connecting to Rye Park Dalton Rd. The realignment on to less steep terrain resulted in significantly less quantities of cut and fill;
- The track between Turbine No. 64 and Turbine No. 65 was removed due to adverse terrain and a track was added outside of the original development corridor to ensure connectivity. This option has also reduced the quantities of cut and fill required;
- Removal of the access point along Flakney Creek Road and replacement with access along an internal track via access point 12. This access point was removed due to concern around the extent of Box Gum Woodland removal required (see Section 7.5 / Appendix C.5.); and
- Access tracks have been added to provide alternate access routes to connect the south of the site to the central portion of the site and improve the efficiency of the site. This enables southern access to the site is via access point 12.

The revisions to the indicative access track layout is shown on Figure 2, Figure 3 and Figure 4 has been updated on the Development Layout on Appendix C.2. The revisions to the indicative access track layout is shown on Figure 2, Figure 3 and Figure 4 has been updated on the Development Layout on Appendix C.2.

4.3.3 33kV Connection Infrastructure

The Indicative Development Footprint – Wind Farm considers a revised indicative underground 33kV underground cable routes and 33kV overhead line route, to reflect the reduction in wind turbine numbers and further design optimisation.

33kV Underground Cabling

The Original EIS and RTS proposed that the underground portions of the underground 33 kV cabling would be co-located within the access tracks. However, this does not align with contemporary best practice to prevent safety issues during construction and to ensure the use of access to tracks is not restricted by the cabling construction works. The modified underground cabling route has enabled the length of cable to be reduced by approximately 22 km, which reduces the electrical transmission losses and increases the overall efficiency of the Project.

The design optimisation process found that the indicative underground cable layout could generally run in parallel with the access tracks where practical to minimise the overall ground disturbance, however the cables will sit outside of the tops and toes of the construction batters.

As a result, the design optimisation clarifies that that a 7.5 m width of disturbance either side of the cable needs to be assumed. There are ground disturbance savings where the cable disturbance can overlay with the access track disturbance, however it will not reduce the ground disturbance to zero as per the assumptions in the. As such, an average 'worst case' temporary ground disturbance width for underground cables is assumed to be 15 m.¹⁴

An indicative underground cable ground disturbance footprint is illustrated in the cross section in Figure 6.

The design optimisation includes a reduction in the overall length of the indicative underground cabling to approximately 60 km (a reduction of 22 km).

Revisions to the indicative underground cable routes have been made to ensure cable lengths are minimised to

¹⁴ The assessment of vegetation impacts contained within BDAR is based on the temporary ground disturbance footprint (see Section 7.5 for further details).

maximise energy efficiency, that the cable can be installed safely while other construction work is underway (e.g. if located in parallel with the access tracks, it is important to have width sufficient enough to account for passing vehicles), disturbance to vegetation is minimised and construction costs are optimised.

The revisions to the indicative 33kV underground cabling is shown on Appendix E and has been updated on the Development Layout on Appendix C.2.

33kV Overhead Line

The 33kv overhead line that was part of the Approved Project remains in the modified layout and provides connection to the underground cabling.

The design optimisation process identified a number of changes to the ground disturbance assumptions. These have now been considered as part of the development of the Indicative Development Footprint – Wind Farm, including:

- The 33 kV transmission line easement has been reduced from a width of 30 m to 20 m;
- The ground disturbance for transmission line poles and string pads were not accounted for in the Original EIS. Each pole will require ground disturbance of approximately 400m² and the string pads will require approximately 2,500m².¹⁵; and
- The average ground disturbance width of the transmission line maintenance track is 12 m compared to 4 m.

These design assumptions have been used in the area calculations provided in Table 8.

The revisions to the indicative overhead line layout are shown on Appendix E, and has been updated on the Development Layout on Appendix C.2.

4.3.4 Transmission Line Up to 330kV and 330kV Connection Infrastructure

The Indicative Development Footprint – Wind Farm considers a revised indicative transmission line route, reduction in collector substations, and to reflect design optimisation.

Collector Substation

Three collector substation locations were included in the approved layout however as an outcome of optimisation of the wind farm layout only one collection substation is required. As an outcome of the design optimisation process it was identified that a single collection substation in the north of the wind farm was most efficient and the location has been shifted into the centre of the site. The RTS stated that typically each collection substation would occupy an area of approximately 1 ha (100 m x 100 m). The number of collector substations in the Modified Project has reduced and the footprint size of the collector substation remains consistent with the Approved Project.

Transmission Line Up to 330kV

Similarly to the 33kV underground cable routes, revisions to the indicative transmission line (up to 330kV) route have been made to ensure transmission line infrastructure is minimised to maximise energy efficiency, to provide sufficient space between existing transmission line routes and wind turbine locations, to minimise disruption to construction by maintaining access to internal roads, to minimise disturbance to vegetation through avoidance of adverse terrain and to optimise construction costs.

The Approved Project authorises a line of up to 330kV. The design assumptions used for the Modified Project relates to a 132kV line and can be considered 'worst case' impact for ground disturbance.

¹⁵ In the BDAR it is assumed that the full easement is cleared if the vegetation is above 4m but if the vegetation is below 4m it is assumed that only the areas for the poles, string pads and maintenance tracks will be cleared. These assumptions are based on guidance from Transgrid.

The design optimisation process identified a number of changes to the ground disturbance assumptions. These have now been considered as part of the development of the Indicative Development Footprint – Wind Farm, including:

- The transmission line easement has been reduced from a width of 60 m to 40 m;
- The ground disturbance for transmission line poles and string pads were not accounted for in the Original EIS. Each pole will require ground disturbance of approximately 400 m² and the string pads will require approximately 2,500 m² ¹⁶; and
- The average ground disturbance width of the transmission maintenance track is 12 m compared to 4 m.

These design assumptions have been used in the area calculations provided in Table 9.

The primary change to the transmission line route is the realignment off a section of ridgeline into the nearby valley. Moving the transmission line from the ridgeline has significantly reduced the cut and fill required for construction and therefore reduced the amount of vegetation removal required. The transmission line route to the south of the site has also been realigned to ensure there is sufficient space between the line and a larger wind turbine rotor diameter.

Together with the changes to the 33kV connection infrastructure and the optimised transmission line, these changes will reduce the electrical transmission losses by reducing the overall length of the connection infrastructure, and improving the efficiency of the Project.

Connection Substation

The connection to the 330kV Transgrid transmission line through the connection substation in the south remains the same as the Approved Project. The connection substation is a combined switching station and collector substation and the footprint of the connection substation is consistent with the Approved Project.

The revisions to the indicative collector substations, transmission line and connection substation is shown on Appendix E and has been updated on the Development Layout on Appendix C.2.

4.3.5 Other Infrastructure

The Proposed Modifications includes the optimisation of other infrastructure, including:

- Removal of one of the two approved operation and maintenance facilities;
- Removal of one of the three approved construction compounds; and
- Addition of one temporary concrete batch plant, totaling three temporary concrete batch plants.

The reasons for the changes are outlined below:

- The number of operations and maintenance facilities has been reduced based on a more detailed review of the layout and further consideration of construction and long-term maintenance requirements;
- The number of construction compounds has been reduced from two to three based on further consideration of construction requirements. One of the construction compounds has been moved to a central access point to improve accessibility to the southern sections of the site; and
- Due to the increase in size of the wind turbine footings required for the larger wind turbine, it is estimated that more concrete will be required (see Section 4.3.1). Therefore, the modified layout includes an additional temporary concrete batch plant to allow for the increased requirement for concrete. One batch plant has also

¹⁶ In the BDAR it is assumed that the full easement is cleared if the vegetation is above 4m but if the vegetation is below 4m it is assumed that only the areas for the poles, string pads and maintenance tracks will be cleared. These assumptions are based on guidance from Transgrid.

been relocated on a central access point adjacent to the construction compound.

4.3.6 Construction Material, Water and Equipment

Modifications to the Indicative Development Footprint – Wind Farm, wind turbine numbers, ancillary infrastructure and inclusion of the new Development Footprint – External Roads has resulted in changes to the likely construction material, water and equipment required for the Project.

Turbine Construction

Each wind turbine foundation will be excavated, with formwork and reinforcement prepared prior to the concrete foundation being poured. Each wind turbine foundation will equate to a total foundation volume of approximately 800 m³. Table 12 compares the total cement, sand, aggregate and water required between each iteration of the Project.

Given the amount of cement, sand, aggregate and water specifically required per wind turbine foundation was never calculated for the wind turbine configuration associated with the RTS Project nor the Approved Project, these volumes have been re-baselined using the same assumptions for the Modified Project.

Table 12: Aggregate and water required for wind turbines against each project iteration

| Project iteration | Turbine specifications | Cement, sand, and aggregate (tonnes) | | Water (Megalitres) | |
|-------------------------|----------------------------------------------------------------|--------------------------------------|---------|--------------------|-------|
| | | Per Turbine | Total | Per Turbine | Total |
| Original EIS | 126 turbines 350 m ³ foundation ¹⁷ | 778 | 99,996 | 0.06 | 7.6 |
| RTS Project | 109 turbine 350 m ³ foundation | 1,722 | 187,698 | 0.15 | 16.35 |
| Approved Project | 92 turbines 350 m ³ foundation | 1,722 | 135,750 | 0.15 | 13.6 |
| Modified Project | 80 turbines 800 m ³ foundation | 1,756 | 140,480 | 0.14 | 11.2 |

For both the Approved Project and Modified Project, it is assumed there will be no onsite quarry and all materials will be transported to site (discussed in Section 7.9 and the TIA contained at Appendix G.8).

Water Required for Construction

During the RTS, it was predicted 900 ML was required for the Project over the construction period¹⁸. This was primarily for dust control in addition to supplying the onsite concrete batching plants. The RTS does not specify how 900 ML was calculated.

The Department heard several submissions in relation to the availability of local water resources for the Project's construction, and authorised Condition 16 of Schedule 3 of the Development Consent the requires the Applicant to ensure it has adequate water supplies and obtains all necessary licenses for water use under the *Water Act 1912* and/or the *Water Management Act 2000*.

¹⁷ Amounts taken directly from the original EA.

¹⁸ Total volume of construction water was never calculated for the Approved Project.

For the Modified Project, ongoing consultation with the community has identified construction water supply as a key matter of consideration, with the region being under drought conditions in recent years. Likewise for the Approved Project, Yass and Burrinjuck Dams continue to be considered as the primary source of water whilst the Applicant progresses investigating alternative water sources.

During the construction phase, an estimated 118.4 ML of water will be required primarily for wind turbine foundations, substations, internal overhead lines and general construction activities (including dust settling and road construction), 781.6 ML less than what was estimated in the RTS. This is outlined in Table 13.

Table 13: Construction water requirements for the Modified Project

| Construction Component | Water Requirement (ML) |
|------------------------------------------|------------------------|
| Turbine Foundations (including blinding) | 11.2 |
| Substations | 0.8 |
| General Construction | 83.7 |
| Internal Overhead Line | 22.7 |
| Total | 118.4 |

At this stage the Project, the Applicant does not have a detailed water sourcing and minimisation strategy, however investigations are away. Table 14 below identifies the available water associated with the Yass Catchment Water Source Aquifer Water Access Licenses (WALs), Burrinjuck Dam and Yass Dam.

Table 14: Available Water (as at March 2020)

| Source | Total Available | Used / Available | Project Needs |
|-------------------------------------------------|----------------------------------------------------------|------------------------------------------|----------------------------------------------------------------------|
| Yass Catchment Water Source (for 2018/19 FY) | 152 available Aquifer Water Access Licenses 3,475.5ML | 405.5 ML used (about 11.6% available) | 3.4% of the water volumes available |
| Burrinjuck Dam | 1,028GL | At 37.5% capacity | 0.01% of capacity (or approximately 0.03% of the current storage) |
| Yass Dam | 1,125 ML (total operating capacity) | At full capacity | 10.7% of capacity (and current storage) |

As the 118.4 ML of water required for construction over a 18-24 month construction period would be sourced over the entire construction program, it is unlikely that use of these water storages would restrict or reduce community access to water.

Given the current drought conditions, the Applicant (in consultation with a local hydrogeologist) have commenced investigations into alternative water supplies. These alternative options include the extraction of groundwater under a water access license and/or trading of groundwater access rights from existing water access licenses. This will be explored further as the detailed design progresses to allow greater flexibility in water supply sources should current drought conditions continue.

Regardless of the final water source, the Modified Project will not inhibit compliance with Condition 16 of Schedule 3 of the Development Consent. The Applicant will continue to investigate viable and appropriate water supplies to ensure the community's access to water is not impacted by the Project.

Equipment

The crane type that will be used for erection of the wind turbines will be the LG1750 lattice boom mobile crane. The other equipment required during the construction phase of the Project is not expected to change from the equipment described in the RTS and accordingly the Approved Project.

4.4 Preferred Transport Route

Transportation of heavy and over-dimensional vehicles requires the use of the major road network for traffic coming from the ports and the local road network within closer proximity to the Project site.

4.4.1 Road Transport via Local Road Network

At the time the Development Consent was granted, a preferred transport route via the local road network had not been selected and design work on the public road upgrades required, to enable the use of local roads for heavy and over-dimensional vehicles, had not been completed.

The Development Consent authorised the use of several alternative transport routes along local roads contained within Schedule of Road Upgrades, Appendix 6 of the Development Consent. Appendix 7 of the Development Consent also illustrates the multiple access points to the Project site.

The Proposed Modifications includes selection of a preferred heavy and over-dimensional vehicle traffic route, the Preferred Transport Route, based on the multiple road upgrade options authorised in the Schedule of Road Upgrades.

Quantification of the ground disturbance and vegetation clearing associated with the road upgrades was not included in the Original EIS or RTS as a single transport route via the local road network had not been selected. Quantification of the ground disturbance and assessment of the vegetation clearing has now been addressed for the Modified Project (see Section 7.5).

Options Analysis

A Preliminary Road Upgrade Investigation (Appendix H) has been undertaken with the aim of identifying the most appropriate transport route for heavy and over-dimensional vehicles, including an assessment of associated road upgrades required for the Modified Project.

The preliminary investigation took into consideration the following:

- Consultation with Hilltops, Yass Valley and Upper Lachlan Shire Council to confirm understanding of the road standards required (see Table 15 for details);
- Consultation with BCD;
- Assessment of the current condition of the proposed access routes through visual inspection;
- Refinement of access points considering both the Preferred Transport Route and internal access track revisions;
- Assessment of the extent/type of vegetation along roadsides which would be required to be removed to accommodate the road upgrades, with a focus on minimising disturbance and vegetation clearing;
- Identification of bridges and major culverts that may require upgrade works;
- Identification of the intersections requiring upgrades, based on swept path analysis longer indicative blade length;
- Identification at a high level any road upgrade that may lead to works within private property; and
- Provision of high-level cost estimate for identified upgrade works.

Table 15: Local Council Road Upgrade Requirements

| Council | Description of Requirements |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hilltops Council | <ul style="list-style-type: none"> - Road standards as per the agreed standard in the Development Consent and EIS <ul style="list-style-type: none"> o Unsealed roads to be sealed: 200 mm road base topped with double spray seal (14/7 double/double). 7.0 m seal and 8.5 m formation width. o Unsealed Roads: Construction width minimum 6 m wide, maximum 8 m wide. Pavement minimum thickness 100 mm on existing sheeted road. - 80km/h design speed is acceptable. Higher design speeds are likely to be unachievable. - Where possible roads to be designed to follow existing road alignments to minimise impacts on vegetation. Some minor realignment may be required in isolated locations and at intersections. - Council will require a dilapidation assessment, prefer visual assessment, report and video. |
| Yass Valley Council | <ul style="list-style-type: none"> - Road standards as per the agreed standard contained in the Development Consent and EIS as follows: <ul style="list-style-type: none"> o Unsealed roads to be sealed: 200 mm road base topped with double spray seal (14/7 double/double). 7.0 m seal and 8.5 m formation width. o Unsealed Roads: Construction width minimum 6 m wide, maximum 8 m wide. Pavement minimum thickness 100 mm on existing sheeted road. - 80km/h design speed in accordance with YVC Road Standards policy. |
| Upper Lachlan Shire Council | <ul style="list-style-type: none"> - Any roads to be upgraded will need to be upgraded to a sealed standard. - Roads to be designed in accordance with Austroads standards. Some flexibility will be allowed on a case by case basis to design the road generally along existing alignments and to minimise vegetation removal. - Road widths required for Regional Roads (Rye Park-Dalton Road) is a 9 m formation with 8 m seal. Widths of Local Roads to be agreed as part of design process. - Pavement construction works to utilise DGB20 road base or equivalent. - Sight distance to be addressed at all intersections. - Cadastral survey of all road reserve boundaries is required to confirm that the road is within the existing road reserve. - Geotechnical investigation is required to inform pavement design. Pavement designed in accordance with Austroads standard for 25-year design life. - Council fees apply for review of designs. Approval for works to be via a Works Authorisation Deed based on RMS template. Section 138 approval also required. - Specific consideration to be given to upgrade of the Jerrawa Road and Cooks Hill Road intersections to meet community expectations. |

A copy of the Preliminary Road Upgrade Investigation is included in Appendix H, whilst outcomes are summarised in Table 16. Figure 7 visually illustrates the road sections that were reviewed in detail as part of the Preliminary Road Upgrade Investigation.

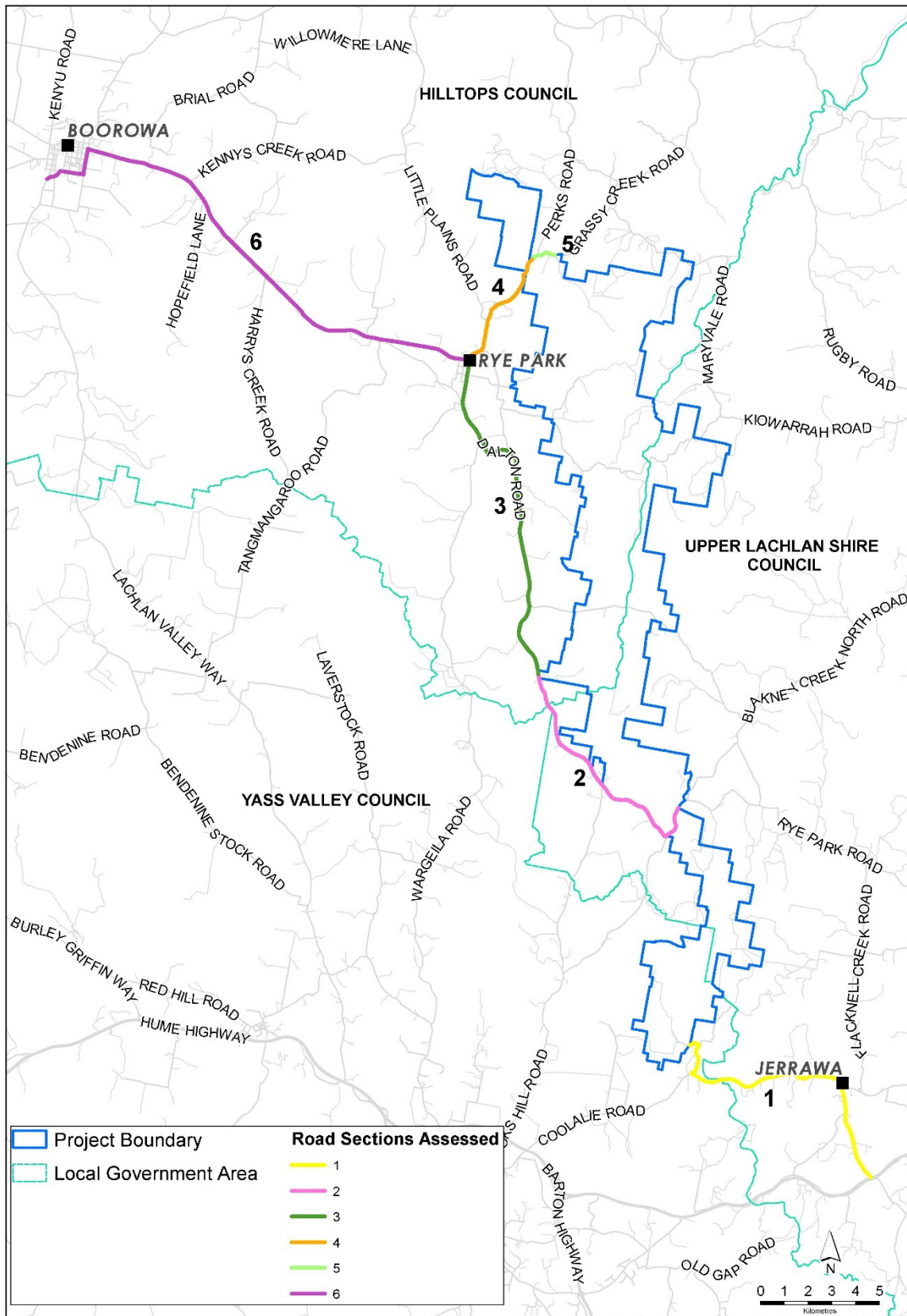


Figure 7: Road Sections Assessed

Table 16: Roads Assessed in the Preliminary Investigation & Associated Key Constraints

| Road Section No. | Description | Approx. Length | Key Considerations | Selection as part of Preferred Transport Route? |
|------------------|---------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| 1 | Jerrawa Rd/Coolalie Rd/Bushs Rd Roads from Hume Highway to southern end of site | 13.5km | Jerrawa Road <ul style="list-style-type: none"> - Jerrawa Road runs between Hume Highway and the village of Jerrawa, is 4.1 km long and is sealed. - It is located within the Upper Lachlan Shire Council. - Its nominal width is 6.0 m, and it is of insufficient width for the use of heavy vehicles. - The road shows signs of wear associated with age, having potholes and minor pavement defects, and is assessed as being unlikely to have sufficient pavement strength to cater for larger numbers of heavy vehicles. - The road reserve is heavily vegetated and contains Box Gum Woodland a Threatened Ecological Community (TEC). | No – due to extent of vegetation clearing and extensive road upgrades required |
| | | | Coolalie Road <ul style="list-style-type: none"> - Coolalie Road runs from Jerrawa, west to Yass, with a 6.6 km section from Jerrawa to Bushes Road proposed as an access route. - The first 880 m of the road is sealed with a narrow 5.0 – 6.0m wide pavement. The remainder of the road is unsealed and its pavement is generally 6.0 – 6.5m within Upper Lachlan Shire Council and 7.0 – 8.0 m wide on the section within the Yass Valley Shire LGA. - The alignment would generally meet an 80 km/h horizontal design speed apart from two 90 degree bends located approximately 2 km west of Jerrawa. - This section of road is likely to need significant earthwork for road realignment to meet Council requirements and also to allow for use by over dimension vehicles. - The road reserve has significant amounts of native vegetation and the associated earthworks required would impact on this vegetation. | No – due to extent of vegetation clearing and extensive road upgrades required |
| | | | Bushs Road <ul style="list-style-type: none"> - The first 880m of the road is sealed but is very narrow at 5.0 – 6.0m wide. The remainder of the road is unsealed and is generally 6.0 – 6.5m within Upper Lachlan Shire Council and 7.0 – 8.0m wide on the section within Yass Valley Council LGA. - Bushs Road/Days Road are very low standard unsealed roads that currently provide access to a limited number of farms and residences. | No – due to extensive road upgrades required and possible road crossing upgrade |

| Road Section No. | Description | Approx. Length | Key Considerations | Selection as part of Preferred Transport Route? |
|------------------|----------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| | | | <ul style="list-style-type: none"> - Both roads have pavement widths of approximately 3 – 4 m and would need significant works to upgrade them to meet council standards. - There is also an existing railway crossing at the intersection which would require upgrading to allow use by heavy vehicles. | |
| 2 | Rye Park/Dalton Rd from site access 12, to site access 13 | 11km | Rye Park-Dalton Road <ul style="list-style-type: none"> - Rye Park-Dalton Road runs from Rye Park to the village of Dalton. - The proposed access route covers the section of Rye Park-Dalton Road from site access point 12 to site access 13 located which is approximately 1.5 km north of the Blakney Creek South Road intersection. This section of road is predominately within Upper Lachlan Shire Council LGA however the most northern section is within Hilltops LGA. - The portion in the Upper Lachlan Shire Council LGA is predominantly unsealed with pavement widths varying from 6.0 – 8 m. - Along with major earthworks required to widen the road, there are numerous bridges, major culverts and causeways that may require upgrading and widening to cater for usage by heavy vehicle. - The road reserve is well vegetated and along some sections there is the TEC Box Gum Woodland. | No - due to extent of vegetation clearing and extensive road upgrades required |
| 3 | Rye Park/Dalton Rd from the Boorowa-Rye Park Road intersection to site access 12 | 14.7km | Rye Park-Dalton Road <ul style="list-style-type: none"> - Rye Park-Dalton Road runs from Rye Park to the village of Dalton. - The proposed access route covers the section from Rye Park to site access point 12 and is located in the Hilltops LGA. - This portion of road in Hilltops LGA is sealed with a pavement width of 8.0 – 8.2 m, | Yes |
| 4 | Grassy Creek Rd from Boorowa-Rye Park Rd to site access 2 | 5.3km | Grassy Creek Road <ul style="list-style-type: none"> - Grassy Creek Road runs from Rye Park northward towards the village of Rugby. - The road is sealed but narrow, with a paved width of 5.4 – 5.6 m. - The road is meandering and there are numerous curves that would need realignment to meet requirements. - The road reserve is well vegetated with large sections of the road being identified to contain the TEC, Box Gum Woodland | Yes |

| Road Section No. | Description | Approx. Length | Key Considerations | Selection as part of Preferred Transport Route? |
|------------------|--------------------------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 5 | Grassy Creek Rd from site access 2 to site access 10 | 1.2km | <ul style="list-style-type: none"> - This section of Grassy Creek Road is narrow and good to fair pavement condition. - There will be widening required along this section and it is assumed that 10% heavy patching will be needed. - A substandard bend on this section of road will require realignment | Yes |
| 6 | Trucking Yard Road /Long Street/Boorowa-Rye Park Rd from Lachlan Valley Way to Yass Street in Rye Park | 22km | Trucking Yard Road / Long Street <ul style="list-style-type: none"> - Trucking Yard Road / Long Street are urban streets within Boorowa. - They are generally in reasonable condition but are quite narrow with some sections between 5.3 – 6.0 m wide. - It is likely that some sections will need widening and/or pavement strengthening to allow their use by heavy and over-dimension vehicles. | Yes |
| | | | Boorowa-Rye Park Road <ul style="list-style-type: none"> - Boorowa-Rye Park Road links Boorowa and Rye Park, and it is proposed that a 18.9 km section would be utilised for access to the wind farm. - The road is sealed for the entire length and is generally of suitable standards for use by heavy vehicles. - There are isolated sections which will require widening or pavement strengthening but this would involve minimal earthworks and disturbance to vegetation outside of the road reserve. - There are numerous bridges and major culverts along this section of road which may require upgrading or widening to meet to the satisfaction of the relevant roads authority | Yes |

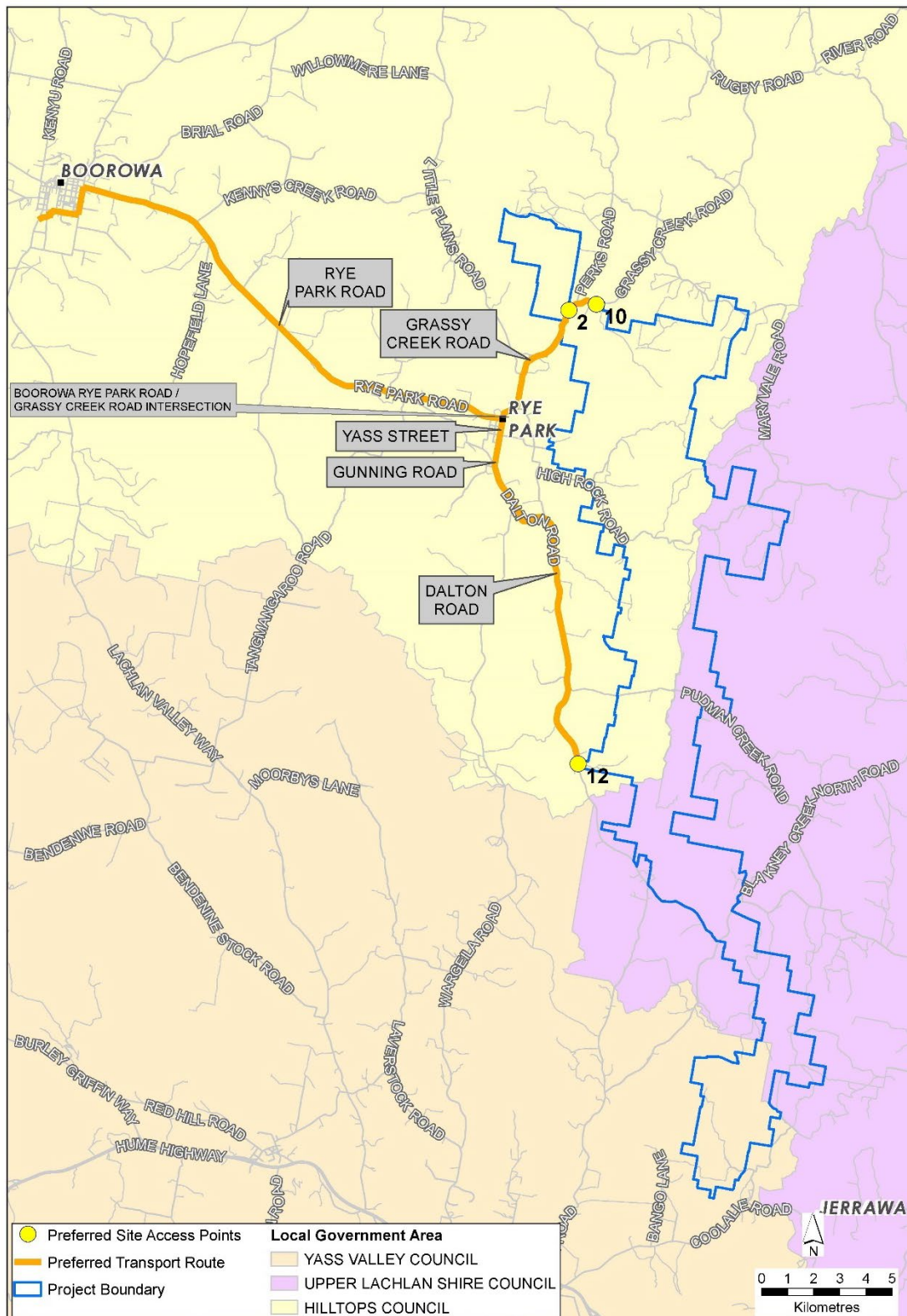


Figure 8: Preferred Transport Route

Selected Route

Based on the outcomes of the Preliminary Road Upgrade Investigation Options, a preferred transport route was selected and forms part of the Proposed Modifications. The Preferred Transport Route (shown on Figure 8) is accessed from Borrowwa via Long Street, Dillon Street, Rye Park Road, Grassy Creek Road, Yass/Gunning Street and Rye Park/Dalton Road.

The selection of a preferred transport route provides increased certainty in relation to traffic distribution and extent of road upgrades required. Road upgrades will also provide the local community with a consistent sealed road of higher quality than the current local road conditions.

The external road upgrades described in the Development Consent are still applicable under the Modified Project and do not need to be changed as part of the Modification Application. The external road upgrades that form the Preferred Transport Route have been highlighted in the modified Road Upgrade Schedule (Appendix C.1).

Using the Preferred Transport Route, compared with the transport route options permitted by the existing Development Consent, access would no longer be proposed from the south, off the Hume Highway via Jerrawa and subsequent local roads. Flakney Creek Road and Maryvale Road, that have been authorised in the Development Consent, would also not be used.

The Preferred Transport Route is located entirely within the Hilltops Local Government Area. The Hilltops Council has been consulted and their requirements, summarised in Table 15, form a commitment of the Modified Project.

In certain sections, the road corridor extends beyond the public road corridors and into private land, this is particularly the case along bends and narrow sections of road. These areas were identified in Preliminary Road Upgrade Investigation and the specific land parcels have been included in the Schedule of Land presented in Appendix B. The extent of disturbance on these land parcels will be further clarified during the concept and detailed design process. At this time the Applicant will consult with Council and confirm arrangements with the relevant landowners.

The Indicative Development Footprint – External Roads provides a conservative, ‘worst case’ estimate of the extent of widening required for the road upgrades along the Preferred Transport Route as described in Section 4.3.

Preferred Site Access Points

The approved Development Layout allows for eight site access points, to which three have been selected as preferred as part of the Preferred Transport Route. These will be accessed via Rye Park Dalton Road and Grassy Creek Road. Details concerning proposed site access points is presented in Table 17 with a map showing their location in Figure 8.

Table 17: Site Access Points

| Site Access Point | Access Road | Proposed Use |
|-------------------|-------------------|------------------------------------------------------------------------|
| 2 | Grassy Creek Road | Access via Grassy Creek Road to northern section of site |
| 10 | Grassy Creek Road | Access via Grassy Creek Road northern section of site |
| 12 | Dalton Road | Access to the southern section of the site south of Flakney Creek Road |

4.4.2 Road Transport Via Major Road Network

The Approved Project only considered an over-dimensional and heavy vehicle transport route option from Port Kembla as per Appendix 7 of the Development Consent. In addition to Port Kembla, the TIA for the

Modified Project assessed an additional route option from the Port of Newcastle.

The additional route has been included as an option as the respective wind turbine suppliers are considering all feasible options for transporting over-dimensional vehicles traffic to site, including their preferred ports for delivery. This will provide the Applicant flexibility to select the most suitable wind turbine on the market, and to not be restricted to a single Port and over-dimensional transport route.

The suitability of the routes from both ports to handle over-dimensional vehicles was assessed in two separate route survey reports, including swept path analysis using wind turbine parameters indicative of the proposed modified wind turbine model. Both surveys determined that whilst several modifications to roads and intersections would be required to accommodate over-dimensional vehicles, the transport route from both ports remain viable options.

These routes are summarised and appended in the Transport Impact Assessment (Appendix G.8) and described in Section 7.9.

In addition to the transport route from Newcastle to site via Gunning, wind turbine suppliers are currently investigating an alternative transport route from Newcastle via Dubbo. A detailed route survey, including a swept path analysis is currently being undertaken to fully assess the feasibility of this route.

5.0 Justification

The Proposed Modifications are required to enable the Project to utilise improvements in wind energy technology to enable significantly more renewable energy production to be achieved with fewer, larger wind turbines and to reflect the outcomes of the ongoing design optimisation and assessment carried out as the Project progresses towards construction.

This Modification Application is based on extensive additional site and design information and reflects the outcomes of additional consultation with near neighbours, the broader community and agencies. This provides rigour and certainty to this Modification Application.

The benefits from the Proposed Modification include better energy yields and higher generation capacity making best use of the available resources, maximising the environmental benefits and improving the cost of energy from the Project. Furthermore, they translate to enhanced local and broader benefits, from increased employment opportunities, better diversification of income for agricultural areas, a more competitive cost of energy supply, and larger positive contributions to addressing the adverse effects of climate change.

This section sets out the justification for the modification; why it is necessary and what benefits would result.

In summary, the Proposed Modifications will deliver the following primary benefits:

- By using the more efficient wind turbine models now proposed as part of the Proposed Modification, the Project has the potential to generate more renewable electricity from the same project footprint, ultimately resulting in a lower cost of energy from the Project with clear benefits to the end user and energy consumer;
- Greater efficiency; optimised cabling and transmission line infrastructure minimising electrical losses and maximising the generation capacity of the Project. Subsequent benefits as a result of this include:
 - o Reduction of transmission losses;
 - o Minimisation of resource use and waste generation;
 - o Reduced project cost and timelines; and
 - o Reduced haulage requirements.
- The Project is strongly aligned with the NSW Government energy and Commonwealth climate policies. The Project will provide 100% emissions free, renewable energy and help NSW with its inevitable transition away from its current reliance on fossil fuels which are continuing to contribute to climate change impacts;
- The Project will make a significant contribution to the shortfall in generation that will arise with the forecast retirement of Lidell Power Station in the near future and other coal-fired generators over the coming years;
- The Project will provide full time employment for up to 250 staff during construction and up to 10 ongoing regional jobs during its operational life providing increased employment opportunities; and
- The Project will also result in a direct injection of approximately \$2-\$3 million per annum to the local community through payments to landholders, permanent staff and benefit sharing plan contributions providing better diversification of income and a drought proof and post retirement income for farmers and shared benefits.

5.1 Technology Advancement

The key change in technology of relevance to the Modification Application is the move to newer, taller and

more efficient wind turbine models.

The height of the wind turbines of the Approved Project (up to 157 m tip height) included some of the largest wind turbines on the market at the time of application. At this time, only two larger projects were approved and none were near construction ready. Wind farm technology, as is true for the broader renewable energy generation sector, is a rapidly evolving industry. Increased global uptake is driving greater efficiency which is resulting in larger and much more efficient wind turbine models that can produce energy at a lower cost per unit.

The Proposed Modifications provide for the selection of newer wind turbines models, allowing significantly more energy to be generated from the Project, reducing the cost of energy production with clear benefits to end energy consumers, and enabling the most beneficial use of the land.

Whilst a wind turbine model has not yet been selected for the Project, modelling of indicative wind turbines suggests that using the more efficient wind turbine models¹⁹, the Modified Project has the potential to generate approximately 1,365 GWh of renewable electricity per year - sufficient for the average consumption of approximately 240,000 homes, approximately 70,000 more homes than the Approved Project. This is an increase of approximately 35% total generation capacity compared to the Approved Project, with a reduction in the number of wind turbines of 13%. Fewer wind turbines reduces the environmental impact of the Project, particularly with respect to visual impact.

The key benefit that would accrue from Proposed Modifications is the increased renewable energy generation as a result of the increase in the maximum wind turbine tip height and the associated significant increase in associated environmental benefits in relation to climate change policy and objectives.

The wind turbine envelope changes proposed in this Modification Application align the Project with other contemporary and nearby approved projects, including the Bango Wind Farm (located to the west of the site) which is currently under construction.

5.2 Optimised Design

5.2.1 Additional Investigation

Since the Project, the Applicant has continued development activities as outlined in Section 2.0. As a result, new information is now available and has been used to inform the Proposed Modifications and the Modification Application, including:

- Updated biodiversity assessments on the wind farm and roadsides used to minimise impacts on biodiversity;
- Updated heritage field survey and assessments on the wind farm and roadsides used to minimize impacts to areas of Aboriginal cultural heritage;
- Engineering designs for internal access tracks, connections infrastructure and the external transport route (discussed further in Section 4.3);
- A transport route options analysis, and detailed rotor swept path design, in the context of transporting longer wind turbine blades (Section 4.4); and
- Additional and updated information regarding community interests and concerns, delivered through extensive additional community consultation.

¹⁹ The increase to the maximum turbine tip height proposed as part of the Proposed Modification would allow for the installation of a turbine model with an installed capacity of up to approximately 6 MW, as compared to the turbine models ranging between 1.5 and 3.5 MW which were previously considered for the Project.

This information had informed the final project layout and description presented in this Modification Application.

5.2.2 Industry Maturation / Learnings

The additional information provided in this Modification Application reflects a level of maturation of the wind industry in NSW. The burgeoning wind farm industry now includes several large-scale projects in NSW that have completed construction with many lessons learned, particularly in terms of constructability.

The Applicant is familiar with the wind industry in NSW as it owns and operates the 5 MW (8 wind turbines) Blayney Wind Farm near Lake Corcoar, south of Blayney and the 10 MW (15 wind turbines) Crookwell Wind Farm near Goulburn, two of the first utility scale wind farms to be connected in Australia, in the case of Crookwell, over 20 years ago. Approximately one third of the Applicants development pipeline is also in NSW, including the proposed Liverpool Range Wind Farm in the Central-West, near Coolah.

The Applicant has also been able to apply recent construction experience to this Project as the company is currently constructing the 336 MW Dundonnell Wind Farm in Victoria and 133 MW Waipipi Wind Farm in New Zealand. Lessons learnt at an industry wide level and through the Applicant's direct experience have been used to inform the construction assumptions.

For example, in comparison to the Original EIS and RTS, this application includes consideration of:

- Appropriate cut and fill allowances for tracks in steep landscapes;
- Improved underground cabling design to locate the cabling outside of the access track footprint and avoid the efficiency losses, safety and operational issues which may otherwise arise; and
- Additional vegetation clearing requirements for maneuvering wind turbine blades along haulage routes or internal access tracks.

The updated disturbance footprint has been calculated in Section 4.3 based on this information.

Design Progression

The Proposed Modification reflects the outcomes of ongoing design optimisation of the Project and progression of the Preferred Transport Route. Progression of the Project and optimisation of the design, detailed in Section 4.3 include the following:

- Wind turbines including the foundations and hardstands;
- Internal access tracks;
- Connection infrastructure including underground cabling and transmission lines;
- Other infrastructure including substations, construction compounds and operations and maintenance facilities; and
- Transport route selection and estimation of the upgrades requirements.

More detailed engineering design has been undertaken to ensure that the modified indicative development layout is constructible and that the corresponding Indicative Development Footprint and Development Corridor is adequate. The design optimisation process has aimed to minimise ground disturbance and vegetation clearing as far as practicable, for example moving access tracks and the transmission line off ridgelines to reduce the cut and fill requirements, therefore reducing ground disturbance during construction.

The development layout remains subject to further detailed design work which will continue up to the construction phase. Any further changes made to the Project during ongoing detailed design will remain within the micro-siting limits authorised under the conditions of the Development Consent (see Section 3.1).

The changes to the 33 kV connection infrastructure and optimisation of the up to 330 kV transmission line

will reduce the electrical transmission losses by reduce the overall length of the connection infrastructure and improve the efficiency of the Project by reducing electrical losses. The improved electrical efficiency of the internal connection infrastructure will also ensure that the Project is able to export the maximum renewable energy to the National Electricity Grid.

As part of the Modified Project, the Preferred Transport Route has been progressed to provide greater understanding of the upgrades required, the associated ground disturbance and assessment of vegetation clearing along the local road network as detailed in Section 4.4.1. The progression of the Preferred Transport Route has involved consultation with BCD and Councils and their feedback has been incorporated into the preliminary design of the road upgrades.

Further investigations have also been undertaken into the transport route from the port via the major transport route options as detailed in Section 4.4.2.

5.3 Government Policy

The Project is strongly aligned with the NSW Government and Commonwealth energy and climate policies summarised in Table 18. The Project will provide 100 percent emissions free, renewable energy and help NSW transition away from its current reliance on fossil fuels which are continuing to contribute to climate change impacts. In particular the Project will:

- Generate approximately 1,365 GWh per annum, enough to power around 250,000 homes per year;
- Offset more than one million tonnes of carbon emissions per annum – equivalent to removing 370,000 cars from the roads each year;
- Offset construction and manufacturing carbon emissions well within the first year of operation; and
- Contribute meaningfully to the NSW Government's goal of net zero emissions by 2050.

Table 18: NSW Energy and Commonwealth Climate Policy

| Policy | Summary |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electricity Strategy November 2019 | <p>A core pillar of the States policy settings is its recently unveiled Electricity Strategy (DPIE, 2019). This is summarised as follows:</p> <ul style="list-style-type: none"> - The NSW Electricity Strategy is the NSW Government's plan for a reliable, affordable and sustainable electricity future that supports a growing economy. - We recognise the NSW electricity system must change. Traditional generators are aging, and our transmission system is congested. Electricity prices are putting pressure on households and businesses. - This strategy will respond to these challenges and support a new affordable and reliable energy system – one that meets both our generation needs and our emissions reduction target. - It will do this by: <ul style="list-style-type: none"> o delivering Australia's first coordinated Renewable Energy Zone; o saving energy, especially at times of peak demand; o supporting the development of new electricity generators; o setting a target to bolster the state's energy resilience; and o making it easier to do energy business in NSW. - The strategy encourages an estimated \$8 billion of new private investment in NSW's electricity system over the next decade, including \$5.6 billion in regional NSW. It will also support an estimated 1,200 jobs, mostly in regional NSW. |
| Net Zero Plan (Stage 1: 2020 – 2030) March 2020 | <p>Most recently, in March 2020, the NSW Government also unveiled its Net Zero Plan (Stage 1: 2020 – 2030) (DPIE, 2020). The NSW State Government has set a goal of net zero emissions by 2050, and the first stage of this plan is targeted at fast-tracking emissions</p> |

| Policy | Summary |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>reduction over the next decade and establishing a platform for the decades to follow. The Plan sets out four priority areas for action:</p> <ul style="list-style-type: none"> - Drive uptake of proven emissions reduction technologies that grow the economy, create new jobs or reduce the cost of living – this is focused on providing a pathway to deploy firm renewable generation (including the pilot REZ), home energy efficiency products and electrification of transport and industry; - Empower consumers and businesses to make sustainable choices – providing consumers with information about the carbon impact of key goods and services and give them opportunities to offset that impact; - Invest in the next wave of emissions reduction innovation to ensure economic prosperity from decarbonisation beyond 2030 – to accelerate the research, development and demonstration of low emissions technologies that show potential for becoming scalable, replicable and cost-effective. Investment in this area will be focused on linking research with industry, including through grants, low-interest loans and a new clean technology innovation hub; - Ensure the NSW Government leads by example – for the NSW Government to play a leading role by bringing sustainable goods, services and practices into the market and maximising the environmental value of the assets it oversees. |
| <p>NSW Transmission Infrastructure Strategy November, 2018</p> | <p>This follows the NSW Transmission Infrastructure Strategy (DPE, 2018), introduced in November 2018, the core elements of this strategy include:</p> <p>NSW is undergoing an energy sector transformation not seen for several decades, which will transform how we generate and use energy. The NSW Transmission Infrastructure Strategy is the NSW Government's plan to unlock private sector investment in priority energy infrastructure projects, which can deliver least-cost energy to customers to 2040 and beyond.</p> <p>The Strategy forms part of the government's broader plan to make energy more affordable, secure investment in new power stations and network infrastructure and ensure new technologies deliver benefits for consumers.</p> <p>Building on existing programs to reduce household and business energy bills and secure energy supplies, the Strategy aims to:</p> <ul style="list-style-type: none"> - Boost our interconnection with Victoria, South Australia and Queensland, and unlock more power from the Snowy Hydro Scheme. - Increase NSW's energy capacity by prioritising Energy Zones in the Central-West, South West and New England regions of NSW, which will become a driving force to deliver affordable energy into the future. - Work with other states and regulators to streamline regulation and improve conditions for investment. |
| <p>NSW and Commonwealth MOU January 2020</p> | <p>On 31 January 2020, a memorandum of understanding (MOU) between the NSW and Commonwealth governments was signed with the aim of setting out a clear, long-term path to help the state meet its target of net zero emissions by 2050. The MOU targets reduced emissions across key sectors, including agriculture, mining and transport.</p> <p>As well as reducing emissions, the initiatives set out in the MOU aim to improve the affordability and reliability of the NSW electricity system, benefiting households, businesses and communities.</p> <p>Key initiatives in the MOU include:</p> <ul style="list-style-type: none"> - improving transmission interconnection and network access, including accelerating and delivering: <ul style="list-style-type: none"> o NSW's first Renewable Energy Zone (per above); o the Humelink project to unlock existing and future generation from Snowy Hydro; and o upgrades to the Queensland to NSW interconnector; - keeping existing electricity generation plants available and reliable until they close; - setting a target to inject an additional 70 petajoules of gas per year into the NSW market, and agreeing to a gas market review if this target is not met by 2022; |

| Policy | Summary |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none"> - ensuring emissions reduction in the electricity sector stays on track; - committing to invest \$2 billion in reducing emissions in NSW; and - supporting new generation investment in NSW. <p>Around \$2 billion of the MOU supports initiatives that reduce emissions in non-electricity sectors. These include the majority of the key initiatives contained in the recently released Net Zero Plan summarised above:</p> <ul style="list-style-type: none"> - \$450 million from the Commonwealth's Climate Solutions Fund to NSW based projects that support businesses, farmers and land managers to take practical, low cost abatement actions; - a \$450 million Emissions Intensity Reduction Program to support large NSW-based sources of emissions to transition their plant, equipment and other assets to low emissions alternatives; - a Clean Technology Program to research, develop and commercialise emissions reduction technologies and establish a clean technology hub in NSW; - a Hydrogen Technology Program to support the commercialisation of hydrogen technologies in NSW, including recommendations arising from the National Hydrogen Strategy; - an Electric Vehicle Infrastructure and Model Availability Program to fund a reverse auction for electric vehicle fast charging stations and private fleet procurement by 2024; - an Energy Efficiency Program to support initiatives that reduce electricity bills, ease pressure on the electricity grid and reduce emissions; - a Coal Innovation Program to commercialise and deploy technologies to reduce emissions from the extraction, preparation and use of coal; and - a Primary Industries Productivity and Abatement Program to support primary producers and landowners in regional NSW to commercialise low emissions technologies and maximise revenue from carbon offset programs. |
| Commonwealth Climate Policy | <p>Australia has a range of initiatives aimed at meeting its climate change targets, improving the environment and supporting an effective international response.</p> <p>The Paris Agreement is a symbol of countries' commitment to a low-carbon, climate resilient future. On 10 November 2016, Australia ratified the Paris Agreement and the Doha Amendment to the Kyoto Protocol, reinforcing its commitment to action on climate change.</p> <p>Australia has a suite of policies to reduce domestic emissions, support effective international efforts without compromising economic growth and driving up energy prices.</p> <p>The Government's climate change plan includes:</p> <ul style="list-style-type: none"> - Reducing emissions by 5 per cent below 2000 levels by 2020; - Reducing emissions by 26 to 28 per cent below 2005 levels by 2030; - Doubling Australia's renewable energy capacity to be achieved in 2020 which is driving innovation, creating jobs and providing a cleaner future; - Encouraging the uptake of renewables through the Renewable Energy Target to deliver over 23 per cent of Australia's electricity supply in 2020; - Helping improve energy productivity by 40 per cent, by 2030; - Ensuring big business and Australia's largest emitters do their part and continue to reduce emissions; - Helping expand and protect green spaces and iconic places such as the Great Barrier Reef; - Spurring businesses, communities, households and individuals into ongoing action to reduce emissions; - Investing in innovation and clean technology to help capture the opportunities of a cleaner future; and - Managing climate risks by building resilience in the community, economy and environment. <p>The Project is well aligned with the Commonwealth Governments climate policy objectives, and will make a meaningful contribution to emissions target reductions.</p> |

Furthermore, the Australian Energy Market Operator (AEMO) noted in its December 2019 Draft Integrated System Plan (ISP) (AEMO, 2018) that:

“Over 30 GW of new grid-scale renewables is needed in all but the Slow Change scenario. This is to replace the approximately 15 GW or 63% of Australia’s coal-fired generation that will reach the end of its technical life and so likely retire by 2040. More renewables are required to replace conventional generators because of their naturally lower capacity factor, which has been fully accounted for in this technical and economic analysis. To ensure a gradual, orderly transition, there must be sufficient new generation in place before each major plant exits.”

As noted, AEMO assumes that approximately 15 GW of generation (14 GW of coal fired and about 1 GW of GPG) will reach its end of technical life by 2040 and retire across the National Electricity Market (NEM). This is projected to result in an overall reduction in the energy generated from coal, with the coal-fired power stations retiring currently generating approximately 70 TWh, equivalent to around one-third of current total NEM consumption (i.e. very significant).

As set out in the 2018 AEMO ISP (see Figure 9), NSW faces more age-driven retirement of coal fired generation than any other State, with closure of the Liddell Power Station likely to occur within the next few years, and the majority of the remainder of its coal-fired fleet expected to be retired by 2040.

AEMO also notes in its August 2019 Electricity Statement of Opportunities:

“...following the gradual closure of Liddell, a combination of high summer demand and unplanned generator outages will leave New South Wales exposed to significant supply gaps and involuntary load shedding if no mitigation action is taken. In 2023-24, AEMO forecasts a risk to between 135,000 and 770,000 households in New South Wales being without power for three hours during an extreme heat event (that is, a 1-in-10 year peak demand event).”

Figure 2 NEM coal-fired generation fleet operating life to 2040, by 50th year from full operation or announced retirement

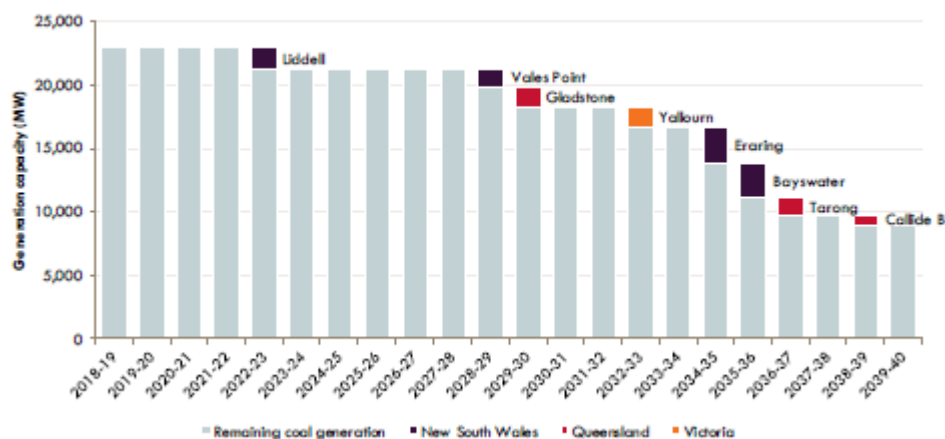


Figure 9: NEM coal-fired generation fleet operating life to 2040 (AEMO, 2018)

The period over which these closures will occur, is well within the expected 30-year life of the Project. Clearly, the Project will make a significant contribution to the shortfall in generation that will arise with the forecast retirement of Liddell in the near future and other coal-fired generators over the coming years.

Renewable energy contributed 24% of total electricity generation in Australia (more than 35% of which is generated by wind energy) in 2019 and represents the lowest-cost form of new electricity generation (Clean Energy Council, 2020). As of March 2020, 11,149 MW of renewable energy projects were under construction

or financially committed, creating 14,678 jobs and \$20.4 billion of investment in Australia.

5.4 Local Benefits

In addition to the benefits listed in the above sections, other key local benefits include:

Wise use of natural resources

The Proposed Modification has been informed by additional environmental assessments of the site and consultation with local stakeholders. It provides the best project design to make use of the site's energy resources to a significantly higher level than previously achieved while minimising environmental impacts associated with the construction and operation of the Project. Wise use of the site's resources reflects local community concerns and benefits the locality.

Drought proofing and diversification of income streams

In 2019, NSW experienced one of the hottest and driest years on record. Droughts, while crippling local agricultural output and driving up prices for consumers, also place additional pressure on natural resources. Pastures are overgrazed, dams dry up and habitat is lost or at best degraded. Wind farms occupy a small percentage of the overall agricultural land that host them (typically less than 2% of the total land area) and allow a significant additional income stream to the involved landowners. In times of drought this can be particularly important when considering:

- Stocking rates; and
- When to destock or rest paddocks.

The reduced water requirements of the Modified Project leaves more water available for other uses in the catchment; a reduction of 781.6 ML of water during construction than what was assessed as part of the Approved Project.

Economic benefits

During construction, approximately 250 jobs would be created along with an additional 10 jobs during long-term operation across an estimated 30 year operational period. In The Original EIS estimated that the direct impact for the local region will be approximately \$115 million during the construction phase.

The Modified Project would create local employment and economic stimulus within the townships of Rye Park, Boorowa and Yass and the surrounding LGAs of Hilltops, Upper Lachlan and Yass Valley. These areas would provide accommodation, food, fuel and trade equipment and services, mostly during the construction phase.

During the operation of the wind farm, economic benefits would be less than the construction phase, focusing on monitoring and inspections, maintenance, repair and upgrade of infrastructure, much of which is likely to be provided by the local labour force.

In addition to the economic benefits associated with the operations and maintenance of the Project, while in operation the Project will deliver a range of local, state and national economic benefits including:

- At least \$230,000 per year in community funding;
- Around \$3 million per year in direct payments to local landowners;

Further detail on how benefits will be shared for the Project is described in Section 6.5.

6.0 Stakeholder and Community Engagement

The Applicant prides itself in fostering strong landowner and community relationships, and is committed to an open and honest dialogue with all stakeholders. The Applicant aims to build and enhance community acceptance and trust in all projects and the renewable energy industry as a whole.

The objectives of the community and stakeholder engagement for the Project are to:

- Build strong connections with the community, including host landowners, neighbours and the wider community.
- Set clear expectations for the community, to build trust in the process and acceptance or understanding of the Project.
- Provide opportunities for the community and stakeholders to ask questions, provide feedback and ideas, and participate in decision making.
- Provide timely responses and feedback to the community's concerns; and to use this feedback to positively influence the development of the Project where possible.
- Build a deeper understanding within the community of the potential benefits and impacts of the Project and how these will be managed.
- Ensure that the potential shared benefits of the Project with the host landowners and neighbours is communicated, as well as local and regional communities.

Contact with stakeholders began early in the Project lifecycle and will continue to the end of the lifecycle during decommissioning. The Applicant strives to ensure community engagement occurs throughout all aspects of the Project's lifecycle and that project staff are proactive in engaging with the communities the Applicant are guests within, in a method that is open, inclusive, responsive and accountable.

Since the Project was conceived in 2008, there has been extensive engagement, most notably throughout the original approval process.

The following sections provide a summary of the engagement undertaken throughout the development of the Project, specifically the engagement and feedback received associated with the Modification Application.

Furthermore, Appendix I contains a copy of the current Stakeholder and Community Engagement Plan for the Project.

The Stakeholder and Community Engagement Plan is a live document which outlines the engagement approach throughout the development phases of the Project (with a particular focus on the current phase), including:

- Stakeholder mapping;
- Objectives and guiding principles for engagement;
- Timing and methods of engagement; and
- Identification of issues and risks.

Additionally, the Plan provides more detail on the engagement undertaken, including summary of engagement to date, engagement action plan and summary of feedback received.

6.1 Engagement Undertaken – Original Approvals Phase

Extensive consultation and engagement activities were undertaken in relation to the Project prior to and during the application of the Development Consent. Key activities during this time included:

- The distribution of two newsletters, one fact sheet and several media releases, and one information day;
- Community Consultative Committee (CCC) meetings. The CCC has been meeting regularly since 2012, including 20 meetings since its inception;
- Face to face meetings, which were offered to all host landowners and adjoining landowners within 5 km, as well as all local government bodies within the affected area and other relevant stakeholders; and
- Public exhibition of both the Original EIS and RTS, during which submissions on the Project were also received.

Key issues raised in the submissions received in relation to the Original EIS were in relation to the size and site selection of the Project, impacts to biodiversity and aboriginal cultural heritage, traffic and transport impacts, visual amenity and noise impacts, and neighbour benefit agreements. Further details on the issues raised is contained in Section 6.4.

In response to these submissions, amendments were made to the Project to further reduce its impacts, including a reduction in the number of wind turbines.

The RTS was submitted in May 2016 and was publicly exhibited, receiving a total of 244 submissions from the public, of which approximately 50 percent were in support of the Project.

The PAC held a public hearing as part of its formal consideration of the development application in March 2017, during which approximately 50 percent of community presentations were reported to be also in favour of the Project.

6.1.1 Engagement with government agencies

Face to face briefings were held with the involved councils to encourage deeper understanding and engagement with the Project. During the course of eleven meetings, the key issues raised by Hilltops Council, Upper Lachlan Shire Council and Yass Valley Council included potential transport impacts, upgrades to council roads, and the community and neighbour benefits.

The DGRs for the Project required liaison with the following agencies, during the Original EIS and RTS. These agencies provided comment directly to the Department and all comments were addressed prior to Development Consent being granted for the Project.

- Boorowa Shire Council (now part of Hilltops Council);
- Yass Valley Council;
- Upper Lachlan Shire Council;
- Department of Environment, Climate Change and Water (now known as BCD)
- NSW Office of Water;
- Industry and Investment NSW (now known as Department of Industry);
- NSW Roads and Traffic Authority (now known as Roads and Maritime Services);
- NSW Rural Fire Service;
- Land and Property Management Authority (now known as NSW Land Registry Services);
- Lachlan Catchment Management Authority;
- Commonwealth Department of Defense;
- Civil Aviation Safety Authority;
- AirServices Australia;

- Aerial Agricultural Society of Australia;
- Relevant service providers;
- Relevant mineral stakeholders (including exploration and mining title holders); and
- The local community and landowners (including “associated” and “non-associated properties”).

6.2 Engagement Undertaken – Post Approval

Since the Development Consent was issued, community consultation has continued utilising a range of methods including: one-on-one meetings where required, meetings with key stakeholders, four project newsletters distributed by email and post, fact sheets, and maintaining an up to date project website.

In February 2019, the Applicant held a meeting with host landowners to provide an update on the Project. Additionally, the CCC is ongoing, with a total of eight CCC meetings held for the Project since the Development Consent was issued in 2017, the meetings generally occur twice yearly. The most recent CCC meeting was held in March 2020 to present on the Modification Application.

In addition to this, the Applicant has undertaken several activities that require participation of the community, such as:

- Scoping the Benefit Sharing Plan for the Rye Park community;
- Responding to project related enquiries regarding the provision of goods or services during construction;
- Consulting with government agencies such as Regional Development Australia to explore partnership opportunities for educational programs at the local school;
- Consulting with project landowners and neighbours regarding potential vegetation offset sites; and
- Attending a Rye Park Progress Association meeting to understand the key obstacles facing the community.

6.3 Engagement Undertaken – Modification Application

Since mid-2019, the Applicant has consulted with stakeholders and local communities in relation to the Proposed Modifications.

A number of consultation and engagement strategies have been employed to ensure stakeholders and the community are:

- aware of the Proposed Modifications;
- provided with information about the Proposed Modifications, justification and modification process;
- provided with the opportunity to present any new or changed concerns or ideas; and
- provided with an opportunity to talk with representatives of the Applicant about the Project.

The key activities and outcomes are set in the sections below.

6.3.1 Landowners and Neighbours

Consultation activities with host landowners has included a variety of communication methods, including telephone, email and face-to-face meetings with representatives of the Applicant. Discussions with associated landowners since issue of the Development Consent have centered around the status of the Project, timeline for delivery of the Project, construction planning and matters regarding specific landowner agreements for the Project.

In mid-2019, associated landowners were consulted on the plan to modify the Development Consent and liaison with them has been ongoing to aid in the delivery of the technical assessments, review the terms of the relevant landowner agreements and to keep landowners informed more generally about the Project status.

Associated landowners have a designated contact person for the development of the Project and regular communication with landowners is undertaken to ensure these integral stakeholders are informed and can provide valuable input into the development of the Project.

Prior to issue of the Development Consent for the Project, the Applicant undertook a process of offering neighbour agreements to landowners within 2 km of a turbine associated with the Project. At the time a small number of neighbour agreements were entered into with surrounding landowners.

In late-2019, the Applicant undertook a program of offering further neighbours of the Project to share in the financial benefits of the Project by entering into a neighbour agreement with the Applicant. Approximately 40 offers were made to neighbours surrounding the Project to further share the financial benefit and to contribute more broadly to the local community. These offers were based on the draft outcomes of the specialist assessments undertaken for the modification to the Development Consent and reflect the level of potential impact (e.g. noise, shadow and visual) of the Project.

The Applicant continues to have discussions with a number of parties regarding these voluntary agreements and will continue to offer them as the development of the Project continues. Further information on what this involves is outlined in the Appendix I (Stakeholder and Community Engagement Plan).

In addition to the neighbour agreement discussions, meetings with neighbours and community members were held in response to queries raised during the drop-in sessions in November 2019. Attending properties for 1:1 meetings not only provided opportunities to build and strengthen relationships but also ensured direct action to close out questions asked.

Follow up phone calls, email communication and 1:1 meetings continue on a regular basis to close out queries or concerns raised. As technical assessments for the Modification Application have been progressed, the Applicant has been able to have more informed discussions with landowners and community members.

6.3.2 Community

Consultation activities with the community has included:

- The three most recent CCC meetings (including May 2019, September 2019, March 2020) where the Applicant has presented information and has sought feedback on the Proposed Modifications;
- Newsletters communicating information and seeking feedback on the Proposed Modifications were distributed in October 2019 (to 650 residents by Australia Post mail drop) and in December 2019 (to 235 residents who had registered their interest directly by the Applicant). The newsletters were also sent to approximately 50 online subscribers, while copies of the newsletters were also made available in council offices in Yass and Boorowa, and at the post office in Rye Park, as well as via the Project webpage;
- Approximately 130 letters were sent to host landowners, neighbours, prior submitters, councils and local Members of Parliament;
- Four advertisements were placed in local newspapers, Boorowa News and Yass Tribune inviting people to 'drop in' to discuss the Proposed Modifications (discussed further below);
- Fact sheets, newsletters and up-to-date project information including an online feedback form, which was available from 1 November to 4 December 2019 was accessible via the Project website;
- Hilltops Council's community Facebook page promoted the drop-in sessions and provided information on the Proposed Modification; and

- Information was also shared via the Rye Park community noticeboard.

In addition, drop-in information sessions were held in Rye Park, Yass and Boorowa during mid-November with an estimated 100 local residents in attendance over three days.

Sessions were conducted from 1pm - 7pm on 12, 13 and 14 November 2019. These early engagement sessions focused on the Proposed Modifications and sought feedback from local residents. Handouts were also available for attendees to take away for further reading, which consisted of a project newsletter to present an overview of the Proposed Modifications, a fact sheet with information about location, status, benefits and next steps, a wind farm FAQs pamphlet and a Tilt Renewables company profile.

Copies of the collateral used leading up to and during the information sessions is provided in the Stakeholder and Community Engagement Plan in Appendix I.

Participants provided feedback using the following methods:

- feedback forms (hard copies received at the community sessions or e-forms online);
- verbally at a community drop-in session or by telephone; and
- written feedback via email or letter.

There were 220 individual comments were recorded, a quarter of which were specifically relevant to the Proposed Modification with a clear preference towards face-to-face engagement and feedback rather than online engagement.

Comments were grouped into four categories to enable a clear understanding of feedback:

- The Modification Application (27% of feedback);
- Other environmental impacts (16% of feedback);
- The Approved Project (47% of feedback); and
- Wind farms generally (11% of feedback).

A breakdown of the key topics of interest, as well as our response to these, is contained in Section 6.4.

6.3.3 Councils

Yass Valley, Upper Lachlan Shire and Hilltops Councils have been consulted with throughout the preparation of the Modification Application.

Proposed Modifications

In July and August 2019, meetings were held with Yass Valley, Upper Lachlan Shire and Hilltops Councils to discuss the Proposed Modifications and the proposed approach to stakeholder engagement.

A further Councilor briefing session was held with Yass Valley Council on Monday 20 January 2020. The objective of the briefing session was to update the Council on the Project and allow Council to ask questions.

The Applicant has attempted to arrange a similar briefing session with Upper Lachlan Shire Council and is awaiting confirmation on a preferred date.

Hilltops Council declined the offer of a briefing session and instead were provided briefing session documents by email.

Road Upgrades

Consultation with Hilltops, Yass Valley and Upper Lachlan Shire Councils was held to discuss requirements and considerations for road upgrades in late 2019.

Once the Preferred Transport Route was selected, this included a workshop with Hilltops Council and BCD

regarding required road upgrades and subsequent vegetation removal, held on 31 January 2020.

The objectives of this workshop were to communicate the required road upgrades associated with the wind farm (with or without the modification), clarify the related vegetation impacts and identify areas of concern for both Hilltops Council and BCD. The outcome of this workshop was that the engineering consultancy, Genium, who conducted the preliminary route transport survey, identified that a lower road standard could be applied to Grassy Creek Road, which would subsequently reduce the road upgrade widths and subsequent vegetation removal.

The Applicant had a follow up meeting with Hilltops Council on 7 February 2020 to discuss the reduced road standards along Grassy Creek Road. It was agreed The Applicant would progress concept designs of the preferred standard.

Hilltops Council and Genium also identified several bridges and road structures that would require upgrades along the Preferred Transport Route. The Applicant is now progressing structural assessments to upgrade these bridges and road structures.

6.3.4 State Government

Targeted meetings have been held with representatives from the NSW State Government from a number of departments as follows.

Department of Planning, Industry and Environment

Crown Lands

The Applicant met with the Crown Lands Division of the Department on 5 February 2020. Following this meeting the Applicant provided the Crown Lands Division with a list of the relevant Crown land within the wind farm site boundary that may be affected by the proposed wind farm infrastructure to assist with the Division's assessment of the potential application of licensing Crown land in respect to the Project. The Applicant also provided a map to identifying the location of the Crown land that intersects with the broader wind farm site. The Applicant will continue to consult with Crown Lands the Department to discuss options for securing tenure required for construction and operation over the Crown Land within the Project site.

Biodiversity Conservation Division

Meetings were held with BCD on 19th September 2019 and 25th September 2019 to discuss the Project, specifically biodiversity offsets and Bird and Bat Adaptive Management Plan. As mentioned above, BCD have also been consulted with on the road upgrades proposed for the Modified Project.

Planning Division

The Applicant met with the Planning division of the Department to discuss the proposed modification on 22 January, 5 June and 25 October 2019 for face-to-face meetings and numerous other tele-conferences over the last year. The discussions with the Department have been around the level of assessment required for the modification, specific issues (such as biodiversity and transport) and plans for community engagement.

Other

The Applicant has in recent months undertaken targeted engagement with NSW Government as part of a broader NSW engagement strategy, including the Proposed Modifications. Meetings have been held with:

- NSW Department of Planning, Industry and Environment - Director, Energy Infrastructure and Zones (REZ development);
- Office of the NSW Premier – Senior Policy Advisors;
- NSW Treasury – Trade & Investment; and

- Minister for Energy and Environment – Matt Kean.

Key themes of discussions included:

- The Applicants background, existing NSW footprint and future investment opportunities;
- Approach to stakeholder engagement and benefit sharing;
- Technology changes and economic benefits (and driver for modifications at the Project); and
- Energy and environmental policy – challenges and opportunities.

6.4 Key Topics of Interest

Key topics of community interest raised through engagement and submissions have generally remained consistent through the Project life cycle.

The details of the key issues raised specifically during engagement to inform the Modification Application are provided in Table 19 below.

Table 19: Key Issues Raised – During Community Drop-in Sessions (n = number of comments)

| Site Access Point | Key Issues raised |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Modification Application (n = 59) | <ul style="list-style-type: none"> - Concerns about potential change to environmental impacts, including: <ul style="list-style-type: none"> o Native bird and bat impacts o Vegetation removal o Visual impacts o Electromagnetic Interference o Aviation o Cultural heritage o Operational noise o Proximity to homes/property values o Shadow flicker o Ground disturbance - Questions about why a modification is needed and what benefits/impacts it will bring, including: <ul style="list-style-type: none"> o Site layout o Rationale for modification - Concerns that an increase in tip height could have greater impacts - A desire to access new information such as maps, photomontages and noise data - Questions about next steps in the assessment process |
| Benefit Sharing (n = 9) | <ul style="list-style-type: none"> - Suggestions on how the Applicant could support their community, including upgrading local roads, sponsoring a school project, regeneration of local waterways and supporting the establishment of new accommodation services. - Support for potential opportunities including work experience and training, funding for community projects, sponsorship, education programs and local volunteering. - Some local community groups discussed the potential to work together to deliver or maximise community benefits (Rye Park Progress Association, Boorowa Ex-services and Citizens Club and Ngunnawal Aboriginal Corporation). - Jobs and procurement of local goods and services to ensure local business is maximised. |
| Communication and Consultation Preferences (n = 24) | <ul style="list-style-type: none"> - Concerns about a lack of communication and information in the past resulting in concerns about the accuracy and thoroughness of information (46%). - Suggestions about how best to reach local people without access to mail or email, or individuals or groups to engage with. |
| Feedback on other topics (n = 69) | <ul style="list-style-type: none"> - General environmental impacts not specific to the Modification Application (operational noise, visual, native bird and bats, erosion, vegetation removal, ground disturbance, historic heritage). - Other aspects of the Project (construction transport routes, water sources for construction, fire management, proximity to homes/property value). |

| Site Access Point | Key Issues raised |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | - Wind farms in general including queries about other the Applicant wind farms, statements of perceived wind farm impacts and statements of general support or opposition. |

Figure 10 and Figure 11 below provide a breakdown of the comments by topic (generally) and comments relating to the modification specifically.

Figure 10: Comments by topic

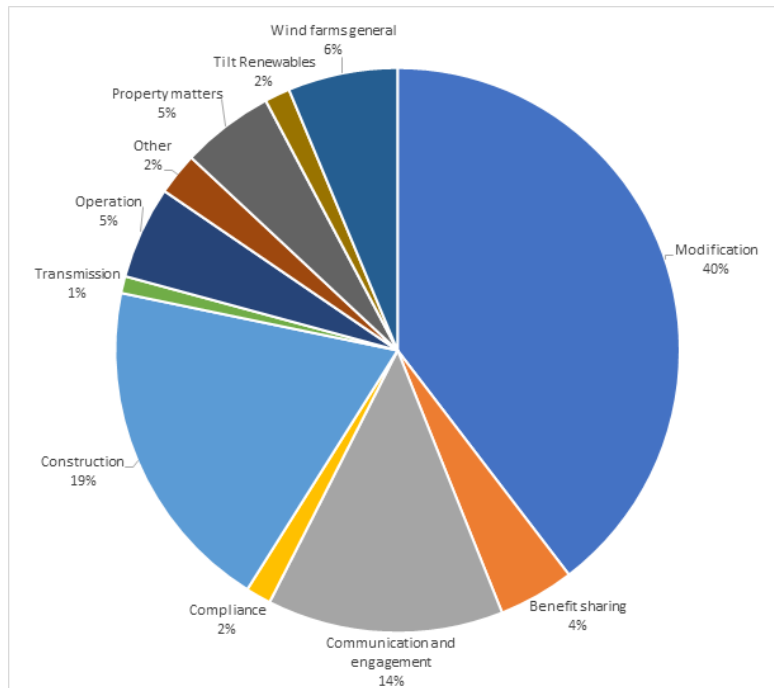
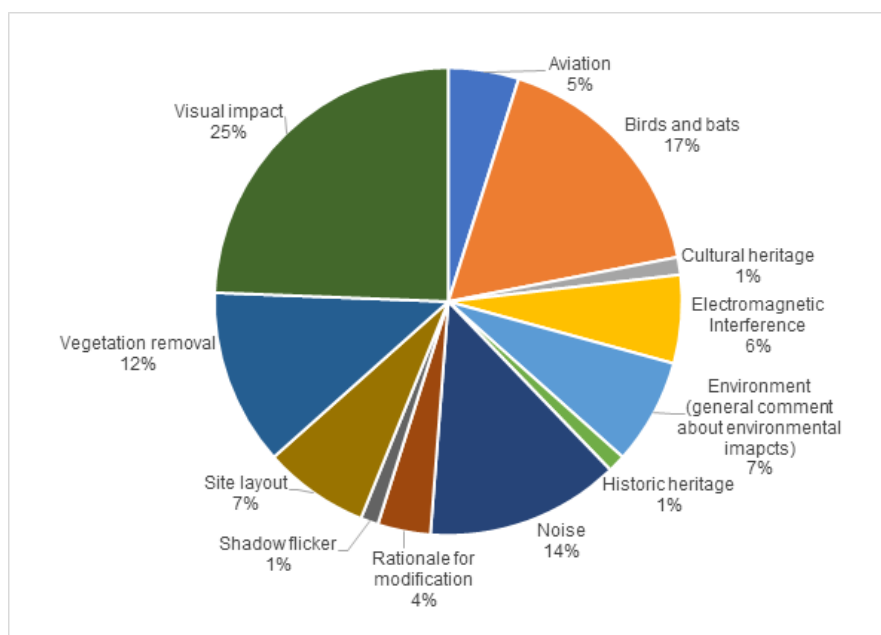


Figure 11: Breakdown of comments relating to the modification by topic



Furthermore, Table 20 below outlines the Key Topics of Interest and how we have responded to each through the preparation of the Modification, or where otherwise appropriate, through developing benefit sharing opportunities, refining engagement activities and the sharing of information.

Table 20: Key Topics of Interest

| Topic | Response |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Modification Application | |
| Native bird and bat impacts | <p>During the November consultation, specific bird species were raised as topics of concern. In response, the following actions were taken:</p> <ul style="list-style-type: none"> - A Bird and Bat Strike Risk Assessment has been undertaken, see Section 7.6, to assess the Modified Project, including an assessment of the impact to the species raised of concern (e.g. Superb Parrot, Swift Parrot and Diamond Firetail Finch) - Since the November consultation sessions, the Applicant has responded to all incoming enquiries relating to this topic and made sure to include a specific section in the December consultation follow up newsletter. |
| Vegetation removal | <p>The Applicant is taking measures to reduce impacts on vegetation through:</p> <ul style="list-style-type: none"> - Revised biodiversity assessments along all road update options. - Biodiversity surveys have been conducted over a 1-year period to understand the seasonality of the flora and fauna species on the wind farm and roadsides - Updated management strategies and an offset liability <p>A biodiversity assessment has been undertaken see Section 7.5.</p> <p>Furthermore, the Applicant has addressed the concerns through communicating updates in newsletters, CCC meetings and responding to enquiries via email.</p> |
| Visual impacts | <p>Visual impact concerns have been addressed by:</p> <ul style="list-style-type: none"> - A Visual Impact Assessment, which also includes the potential cumulative visual impacts of the nearby Bango Wind Farm, outlined in Section 7.2 - Through the reinvigorated Neighbour Agreement Program that was originally rolled out by the previous proponent - Through committing to a visual impact mitigation measures, consistent with the requirements of the Development Consent. <p>Furthermore, 1:1 discussions with community members continue upon request, wireframes have been developed for properties within proximity of the Project and information has been shared in the December newsletter.</p> |
| Electromagnetic Interference | <p>Concerns raised at the November consultation session around electromagnetic interference were largely to do with health impacts. These have been addressed in the Human Health Risk section of this table.</p> <p>In addition, an Electromagnetic Interference Assessment has been undertaken outlined in Section 7.10.</p> <p>The Applicant follows a strict Complaints Handling Procedure, available on the Applicants website, and will prepare a tailored, fit-for-purpose Complaints Management Plan for the Project.</p> <p>The Complaints Management Plan will include specific protocols to address any complaints regarding electromagnetic interference.</p> |
| Aviation | <p>Access to the airspace over the wind farm was raised as a concern during the Modification Application consultation sessions.</p> <p>The preparation of an Aeronautical Impact Assessment, see Section 7.11, including consultation with relevant authorities.</p> |
| Cultural heritage | <p>Concerns were raised around the impact on culturally significant sites within and near the Project area. Follow up actions were taken to discuss and recognise these concerns, including 1:1 meetings with neighbouring residents to establish a better understanding of these concerns and the history associated with the area.</p> |

| Topic | Response |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | An Aboriginal Cultural Heritage Assessment and Historical (European) Heritage Assessment has been prepared, see Section 7.7 and Section 7.8, including additional survey and consultation with the local Registered Aboriginal Parties (RAPs). |
| Operational noise | <p>Concerns that the larger wind turbines would be noisier were raised during consultation and the following measures have been taken to address these:</p> <ul style="list-style-type: none"> - Additional information on noise was included in the December newsletter - An Environmental Noise Assessment has been prepared, see Section 7.4, including an assessment of the noisiest wind turbines currently available on the market to ensure 'worst case' scenario is considered. <p>Additionally, similarly to the electromagnetic interference, specific protocols to address any complaints regarding noise will be included in the Complaints Management Plan.</p> |
| Proximity to homes / property values | <p>Concerns regarding property values were raised during consultation around the Proposed Modification. Relevant impacts that may affect property values, such as visual and noise, have been considered through the updated assessments (see Section 7.2 and Section 7.4).</p> <p>Further to this, the following information has been provided upon request:</p> <ul style="list-style-type: none"> - The NSW Valuer General commissioned a report entitled <i>Preliminary Assessment of the Impact of Wind Farms on Surrounding Land Values in Australia</i> (Preston Rowe Paterson Newcastle And Central Coast, 2009). The report used property sales data surrounding wind farm developments in NSW and Victoria to determine what impact wind farm developments have. This analysis found that 'wind farms erected to date do not appear to have negatively affected property values in most cases, and the wind farms assessed in this study were predominantly in rural areas. - The NSW former Office of Environment and Heritage commissioned the <i>Review of the Impact of Wind Farms on Property Values</i> (Urbis, 2016). This review did not find any evidence that wind farms impact the value of rural land as rural industry is not impacted by the presence of wind farms. |
| Shadow Flicker | Following the concerns raised during the most recent engagement, additional information was included in the December newsletter. The newsletter confirmed that shadow flicker has been reassessed (see Section 7.3) considering the proposed increase in tip height. The Development Consent has requirements for shadow flicker to not exceed 30 hours per annum at nearby non-associated residences, and this has not changed as part of the Proposed Modification. |
| Ground disturbance | <p>Information on ground disturbance that was available was provided during consultation and specifically in the CCC meeting held in early March 2020.</p> <p>A comparative summary of project infrastructure and their (temporary and permanent) disturbance areas is shown in Section 4, Table 8 (including increases and reductions), whilst Section 4.3 contain further details on the changes to the design assumptions.</p> <p>This detailed and rigorous process to designing the modified layout has been undertaken to ensure that the ground disturbance is not underestimated and that the Project is constructible.</p> |
| Project rationale (including site layout) | <p>All project related material presented during consultation and in follow up material has explained the justification of the Proposed Modifications, including the reasons the changes are required and the associated benefits.</p> <p>Refer to Section 5.0 for a detailed justification for the Modification Application.</p> |
| Benefit Sharing | |
| Community division | <p>To help combat the potential community division around the Project, a Benefit Sharing Plan will be prepared to ensure benefits of the Project are shared with the community. Ideas have been sought at all consultation events, on the Project website and within all Project material where appropriate.</p> <p>The Benefit Sharing Plan will seek to restore or establish confidence that the Applicant is committed to sharing the benefits of the Project and will be prepared in consultation with the</p> |

| Topic | Response |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | community. This has already included consultation with the Rye Park Progress Association, the CCC and feedback from the wider community. |
| Voluntary Planning Agreement (VPA) | <p>There were specific concerns raised regarding the contribution to the VPA considering the proposed reduction in turbines.</p> <p>The VPA commits \$2500 per constructed wind turbine per year to the Community Enhancement Fund. While the Modified Project includes a reduction of turbine numbers the Applicant has communicated a commitment to contribute funds equivalent to the 92 wind turbines to alleviate concerns raised.</p> <p>Additional benefit sharing commitments communicated have included:</p> <ul style="list-style-type: none"> - 30% of funds from the VPA are committed to educational programs - The reinvigorated Neighbour Agreement Program is being rolled out to eligible residences. - Those interested should register their interest for local employment opportunities using the Goods and Services Register. - The Applicant is commitment to the Project's Australian Industry Participation Plan |
| Ideas | <p>A number of ideas have been put forward including coordination with other wind farm developers – cumulative benefits, financial contributions to expand local businesses, partnerships with Regional Development Australia and the Australian Agricultural Centre, education programs and additional road upgrades.</p> <p>The Applicant will investigate these as part of the development of the Benefit Sharing Plan.</p> |
| Communication and Consultation Preferences | |
| Fact sheets | <p>Frustrations have occurred in the community regarding the inability of the Applicant to provide definitive responses due to the assessments still being in progress. Fact sheets and FAQs have been prepared in response to frequently asked questions to endeavour to provide the most up-to-date, accurate information as possible. These materials have been used during the drop-in sessions and are also available on the Project webpage.</p> |
| Newsletters | <p>Newsletters have generally been prepared to pre-empt or in response to consultation topics and concerns, and have been distributed biannually or on a milestone basis. Concerns were raised with how these newsletters have been distributed, specifically that the Applicant's use of the Australia Post distribution service (including 650 household distribution for the October newsletter) meant that many were not received / undelivered.</p> <p>As such, an alternative approach has been taken for all subsequent newsletters, where interested parties are invited to sign up to the Project newsletter distribution list (electronically or via post). Currently this includes 235 interested parties. Additionally, newsletters are made available to collect from the local post offices and council offices.</p> |
| Community drop-in sessions | <p>In response to feedback about previous consultation sessions, face to face consultation regarding the Modification Application was held as drop-in sessions over three days. Additionally, 1:1 meetings were offered as well as emailing information to interested parties where appropriate.</p> <p>Further details on the outcome from the community drop-in sessions is outlined in Appendix I.</p> |
| Feedback on other topics | |
| Erosion | <p>Following the concerns raised, further information was provided in the December newsletter. The following information has been communicated:</p> <ul style="list-style-type: none"> - Erosion will be managed through improvements in the detailed design of the site and through the implementation of construction measures tailored to the landscape. - Skilled and knowledgeable locals will be consulted and where possible, employed to support site preparation and construction efforts of the Project - Design assumptions allow for an adequate amount of temporary disturbance, including ancillary drainage, batters and construction disturbance buffers, cut and fill and works to prevent erosion, compared with what was originally assumed. |

| Topic | Response |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Construction transport routes | <p>All route options were displayed and communicated during the November consultation. Based on the outcomes of the Preliminary Road Upgrade Options Investigation, including consultation with the local Councils, a preferred transport route has been selected. More information on the transport route options are found in Section 4.4.</p> <p>The following has been communicated to the CCC in March 2020:</p> <ul style="list-style-type: none"> - The selection of a Preferred Transport Route provides increased certainty in relation to traffic distribution and extent of road upgrades required. Road upgrades will also provide the local community with a consistent sealed road of higher quality than the current local road conditions. - The transport route road upgrades described in the Development Consent are still applicable under the Modified Project. |
| Water Sources for construction | <p>Water has been highlighted as a major concern for the community. Understandably, due to extreme weather conditions, it is important that the Applicant addresses these concerns responsibly and appropriately.</p> <p>The following has been communicated in the December newsletter:</p> <ul style="list-style-type: none"> - A detailed water sourcing and minimisation strategy will be developed to ensure the supply of water does not adversely impact the community's access to this resource - The reduced water requirements of the proposed Modified Project leave more water available for other uses in the catchment; <p>More detailed information on the management of water for construction is outlined in Section 4.3.6.</p> |
| Fire management | <p>The summer of 2019-2020 was unprecedented in Australia for bushfires. A key contributor to the increased bushfire risk is climate change resulting from the burning of fossil fuels. The following information has been shared via newsletters and responding to email enquiries:</p> <ul style="list-style-type: none"> - Fire safety is a high priority for the Applicant from site development through construction to operations. A variety of preventative and reactive controls are in place across all operating and construction sites. The Applicant will consult further with key fire authorities in preparing the specific management plans for the Project, as well as during the construction and operation. - The Project includes permanent access tracks at 5.5m in width within the site. This will allow additional access for fire fighting vehicles should they require it on site. - Depiction of the location of wind turbines on aeronautical charts will provide information for pilots planning to operate in the vicinity of the Project. - The Project will assist in reducing the impacts of climate change by producing clean energy from a renewable resource, and the Modified Project will provide a more significant contribution to the transition to net zero emission electricity generation. |
| Human Health Risk | <p>Concerns raised during consultation regarding human health risks have been addressed by providing information to community members via email.</p> <p>Furthermore, it is noted that the Department's assessment of infrasound for the Project (PAC, 2017) has been guided by reach undertaken by the National Health and Medical Research Council which concluded that <i>"there is no direct evidence that exposure to wind farm noise affect physical or mental health"</i>.</p> <p>Additionally, they noted that a statement on Wind Farms and Health (2014) by the Australian Medical Association also states that,</p> <p><i>"The infrasound and low frequency sound generated by modern wind farms in Australia is well below the level where known health effect our, and there is no accepted physiological mechanism where sub-audible infrasound could cause health effects."</i></p> <p>In the previous assessment process, the PAC was satisfied with this assessment and recommend that the Project would not pose an acceptable risk to the health of residents.</p> <p>Where interested parties have raised concerns, they have been directed to this information.</p> |

| Topic | Response |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cumulative Impacts | Cumulative impacts have been addressed in the environmental assessments where required, specifically the VIA includes an assessment of potential cumulative visual impacts with the nearby Bango Wind Farm. This is outlined in Section 7.2. |
| The Applicants other wind farms | The Applicant has made efforts to improve the company's reputation in the community, for example by producing a Wind Farm FAQs brochure and Business Profile brochure, providing details on the Applicant's operations within Australia and New Zealand. Information shared has included communicating the Applicant's strong track record of developing, owning and operating wind assets in both Australia and New Zealand (detailed in Section 1.2). |

6.5 Benefit Sharing

As a long-term corporate citizen the Applicant is committed to sharing the benefits of their projects, including the Project. A Benefit Sharing Plan will be prepared for the Project. The Plan will endeavor to capture the needs of the community by seeking their input in its development.

The objectives of the plan are to:

- Ensure that the immediate community directly benefits from the presence of the Project in their community;
- Contribute towards broader public benefits and economic development that address the needs of the region throughout the lifecycle of the Project;
- Build on strategic opportunities to drive local innovation; and
- Create a legacy beyond the immediate benefits of the Project.

In addition to the VPA, host landowner payments, neighbour agreements and local employment, the Applicant will consider developing local, regional and educational programs, and specific objectives as part of the Benefit Sharing Plan.

The plan will be prepared in consultation with the CCC and the Rye Park Progress Association, along with broad consultation with the overall community, in order to identify areas of need and Kiwi opportunities.

7.0 Environmental Assessment

This section of the report provides an Environmental Assessment of the Modified Project, including an assessment of the potential change in impacts compared with the Approved Project. This Environmental Assessment has taken into consideration the relevant environmental issues identified in the Original EIS and RTS.

Table 21 considers if the Proposed Modification would have any potential change in impacts compared to the Approved Project, if further assessment is required in the Modification Application and how it will be addressed.

The assessment of the following environmental aspects were identified as being required to assess the Modified Project:

- Visual Impacts;
- Shadow Flicker and Blade Glint;
- Noise;
- Biodiversity: impacts to native vegetation ;
- Biodiversity: operational bird and bat;
- Aboriginal Cultural Heritage ;
- Historic (European) Heritage;
- Traffic and Transport; and
- Hazards and Risks, including:
 - o Aeronautical Impacts; and
 - o Electromagnetic Interference.

The Department confirmed in a response to the letter of intent (dated 11 December 2019) that they were satisfied with the level of assessment proposed which specifically included the specialist studies listed above.

The environmental assessments for each aspect are summarised in Section 7.2 to Section 7.11, whilst copies of specialist assessment reports are included in Appendix G.1 to Appendix G.10.

7.1 Overarching Assessment Approach

For the purpose of the environmental assessments 'worst case' scenarios for each environmental issue has been considered in relation to the modified wind turbine parameters and other wind farm infrastructure. For example, the noise assessment is based on one of the noisiest wind turbines currently available on the market, whilst the operational bird and bat assessment is based on the largest rotor diameter currently being considered.

Table 8 in Section 4.0 outlines the key proposed modifications, parameters or assumptions which have been used to assess the potential change in impact of the Proposed Modifications.

Additionally, to adequately assess the potential change in impacts compared with the Approved Project a number of project iterations (and their corresponding environmental assessment) have been considered, i.e. Original EIS, RTS, Approved Project and Modified Project.

The environmental assessments undertaken in the Original EIS and RTS reflected and assessed the Project as it continued to evolve in response to ongoing assessment and consultation and accordingly

made different infrastructure assumptions, to ensure that a 'worst case' but realistic assessment was carried out.

For example, the Original EIS assessed a 126 wind turbine layout but by the time the RTS was prepared the Project was reduced to 109 wind turbines which were assessed in the RTS. As only 92 wind turbines were ultimately approved by the Development Consent, there is no quantified assessment of the approved 92 wind turbine layout. As such, to quantify and assess the differences between the approved Project (consisting of 92 wind turbines) and the Modified Project (consisting of 80 wind turbines), different comparison strategies have been undertaken in this Modification Application.

A summary of the different project iterations is provided below:

- *Original EIS* – A 126 wind turbine project, with a 157 m tip height. However, following the Department assessment process a number of revisions were made to reduce the potential impacts. The impacts presented in the Original EIS have generally not been used unless the assessment was not updated in the RTS stage.
- *RTS Project* – A 109 wind turbine project, with a 157 m tip height. The number of turbines was further reduced during the RTS phase due to community and regulator feedback. However, the RTS Project has the same development corridor as the Approved Project.
- *Approved Project* – A 92 wind turbine project, with a 157 m tip height. The Development Consent limited the maximum wind turbines to 92 in order to reduce visual impact. No assessment was undertaken of the 92 wind turbine layout at the time of approval, as such several of the environmental assessments have been re-baselined for the Approved Project to enable an accurate comparison to be made with the Modified Project (e.g. shadow flicker and blade glint, traffic and transport, etc.) including construction material assumptions.
- *Modified Project* – An 80 wind turbine project, with a 200 m tip height. The Project as result of the Proposed Modifications of this Application, as defined in Section 4.0.

The specific or technical methodology which applies to each environment assessment is included in the relevant sections below.

Table 21: Assessments Required to Address Potential Change in Environmental Impact

| Environmental Issue | Potential for Change in Impacts | Assessment of Proposed Modifications Required | Addressed By | |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Visual Impact | Yes. The larger wind turbines proposed have the potential to result in increased visual impacts. The proposed reduction in turbine numbers and other changes such as the removal of one of the approved operation and maintenance facilities and two of the three approved collector substations may potentially reduce the extent of visual impacts. The character of the landscape has remained the same and therefore does not need to be assessed. | Yes. An updated visual assessment for the Modified Project is required. | Updated visual assessment has been completed by Green Bean Design Pty Ltd and peer reviewed by Moir Landscape Architecture | Summarised in Section 7.2 and provided in full Appendix G.1. |
| Shadow Flicker | Yes. The proposed reduction in wind turbine numbers and use of larger turbines affect the assessment assumptions and require further assessment for the Modified Project | Yes. Updated assessment required. | Assessment completed by DNV-GL Pty Ltd. | Summarised in Section 7.3 and provided in full Appendix G.2. |
| Noise | Yes. The proposed larger wind turbines have the potential to result in increased noise impacts. The reduced wind turbine numbers and varied hub height also affect the noise modelling assumptions of the previous assessment. | Yes. Updated modelling and assessment for the Modified Project is required. | Noise assessment completed by Sonus Pty Ltd. | Summarised in Section 7.4 and provided in full Appendix G.3. |
| Biodiversity (Vegetation) | Yes. The proposed reduction in wind turbine numbers, changes to the infrastructure layout and identification of a Preferred Transport Route and assessment of the extent of clearing required for the road upgrades affect the previous native vegetation clearing assumptions and significance assessments for threatened species. Offset commitments and clearing limits that were approved require updating to reflect the new assessment methodology under the Biodiversity Conservation Act 2016 (BC Act). | Yes. Updated field survey and assessment and offset calculations are required. | Biodiversity Development Assessment Report completed by Umwelt Pty Ltd for the wind farm and Preferred Transport Route impacts. | Summarised in Section 7.5 and provided in full Appendix G.4. |
| Biodiversity (Bird and Bat) | Yes. The proposed reduction in turbine numbers and use of larger wind turbines affect the potential collision risk assessment assumptions and require further assessment for the Modified Project. | Yes. Updated risk assessment required. | Risk assessment completed by Umwelt Pty Ltd for the wind farm. | Summarised in Section 7.6 and provided in full Appendix G.5. |

| Environmental Issue | Potential for Change in Impacts | Assessment of Proposed Modifications Required | Addressed By | |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Aboriginal Cultural Heritage | Yes. The proposed reduction in wind turbine numbers and changes to the infrastructure layout, identification of a Preferred Transport Route and assessment of the extent of clearing required for the road upgrades result in different impacts which require assessment for the Modified Project. | Yes. Updated field survey and assessment are required. | Aboriginal Cultural Heritage Assessment Report completed by NGH for the wind farm and Preferred Transport Route impacts. | Summarised in Section 7.7 and provided in full Appendix G.6. |
| Historic (European) Heritage | Yes. The proposed reduction in wind turbine numbers and changes to the infrastructure layout, identification of a Preferred Transport Route and assessment of the extent of clearing required for the road upgrades result in different impacts which require assessment for the Modified Project | Yes. Updated assessment required. | Assessment completed by NGH for the wind farm and Preferred Transport Route impacts. | Summarised in Section 7.8 and provided in full Appendix G.6. |
| Traffic and Transport | Yes. The identification of a Preferred Transport Route and over dimensional transport routes and the potential changes to construction traffic impacts resulting from the Modified Project affect the assessment assumptions and require further assessment for the Modified Project | Yes. Updated assessment required. | Assessment completed by SMEC for the wind farm and Preferred Transport Route impacts. | Summarised in Section 7.9 and provided in full Appendix G.7. |
| Electromagnetic Interference | Yes. The proposed reduction in wind turbine numbers and use of larger wind turbines affect assessment assumptions and require further assessment for the Modified Project | Yes. Updated assessment required. | Assessment completed by DNV-GL Pty Ltd. | Summarised in Section 7.10 and provided in full Appendix G.8. |
| Aviation | Yes. The proposed reduction in wind turbine numbers and use of larger wind turbines affect assessment assumptions and require further assessment for the Modified Project | Yes. Updated assessment required. | Assessment completed by Landrum and Brown Pty Ltd. | Summarised in Section 7.11 and provided in full Appendix G.9. |
| Fire and Bushfire | No. The Modified Project does not differ in terms of ignition risks or management strategies to combat fire. However, in light of the increased bushfire risks resulting from climate change impacts and the fact that bush fire risk were raised during consultation in relation to the Proposed Modification make it appropriate to provide an update on the fire and bushfire assessment for the Project. This issue is considered in the context of stakeholder and community engagement. | No | - | Further response provided in Section 6.4. |
| Blade Throw | No. The Modified Project does not differ in terms of blade throw risks. Any potential change to blade throw distance | No. | - | - |

| Environmental Issue | Potential for Change in Impacts | Assessment of Proposed Modifications Required | Addressed By | |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------|-------------------------------------------|
| | due to increased size of blades is considered likely to be offset by their increased weight. Risk remain low and strategies remain justifiable in this context. | | | |
| Water supply, water quality and hydrology | No. Changes to water requirements that may result from the Modified Project is described in Section 4.3.6. In the context of drought conditions, additional investigation is required to ensure adequate water can be sourced. This issue is considered in the context of the changes in design assumptions for the proposed Modified Project. | No. | - | Further detail provided in Section 4.3.6. |
| Soils and landforms | No. Additional development footprint is likely to require additional ground disturbance. The requirement for Cement, Sand & Aggregates is also likely to change due to the changed to wind farm infrastructure (e.g. increase in wind turbine footing size). Issue considered in the context of the changes in design assumptions for the proposed Modified Project. | No. | - | Further detail provided in Section 4.3.6. |
| Climate and air quality | No. The Proposed Modification will result in some changes to the renewable generation capacity of the Project. These changes, and ongoing policy developments in relation to climate change, make it appropriate to provide an update on the climate impacts of the Modified Project. This is considered a project benefit and included in Section 5.0. The Modified Project does not affect the assumptions regarding health impacts and air quality impacts related to dust generation. | No. | - | Further detail provided in Section 5.0. |
| Mineral and petroleum exploration | No. The wind farm boundary is similar to the Approved Project. | No. | - | - |
| Social and economic impacts | No. The Proposed Modification results in some changes to the economic impacts of the Project. This issue is considered as a project benefit and in the context of a topic of interest for the community. This issue is also discussed in the Project justification and benefits section. | No. | | Further detail provided in Section 5.0. |

| Environmental Issue | Potential for Change in Impacts | Assessment of Proposed Modifications Required | Addressed By | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------|-------------------------------------------|
| Property values | No. Concerns regarding property values were raised during consultation regarding the Proposed Modification. The Modified Project does not affect the assumptions regarding property value impacts. Relevant impacts that may affect property values are considered above; visual and noise. This issue is considered in the context of stakeholder and community engagement. | No. | - | Further response provided in Section 6.4. |
| Health impacts | No. The Modified Project does not affect the assumptions regarding health impacts. This issue is considered in the context of stakeholder and community engagement. | No. | - | Further response provided in Section 6.4. |

7.2 Visual Impact Assessment

7.2.1 Approach

A Visual Impact Assessment (VIA) (contained at Appendix G.1) was prepared by Green Bean Design (GBD) to assess the change in potential visual impacts from the Approved Project to the Modified Project.

The Wind Energy Guidelines (the Guidelines) (DPE, 2016a) state:

“...The consent authority will give consideration to the acceptability of impacts on landscape values and the amenity of landholders and community, and the adequacy of the measures which are proposed to avoid, reduce or otherwise manage these impacts, having regard to the Visual Assessment Bulletin.”

Accordingly, the VIA was prepared with regard to the Visual Assessment Bulletin December 2016 (the Visual Bulletin) (DPE, 2016b), where considered relevant to the Modified Project²⁰.

The VIA was undertaken in accordance with the relevant conditions of the Development Consent that relate to Visual Impact as outlined in Table 22.

Table 22: Relevant Visual Impact Conditions

| Development Consent Condition | Description |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Condition 1 of Schedule 3 Acquisition Upon Request | This Condition gives the owner of residence R38 the right to request the Applicant to acquire their land and compensate them accordingly if specified turbines are constructed as part of the Project. |
| Condition 2 of Schedule 3 Visual Agreement | This Condition prohibits the construction of turbine 145 unless a visual agreement is entered into with the owner of residence R56. |
| Condition 3 of Schedule 3 Visual Impact Mitigation | This Condition gives the owner of any non-associated residence within 4 km of any wind turbine the right to have reasonable and feasible visual impact mitigation measures, such as landscaping and screening, implemented on their land to minimise the visual impacts of the Approved Project. |
| Condition 4 of Schedule 3 Visual Appearance | This Condition outlines general controls to mitigate the visual impacts of the Project. |
| Condition 5 of Schedule 3 Lighting | This Condition outlines the requirements for hazard lighting. |

The VIA considers the change in potential visual impacts as a result of the removal of 12 wind turbines, increase of the wind turbine envelope and changes to ancillary infrastructure. The assessment focused on the observable differences between the Modified Project and Approved Project, utilising the approved layout and findings of the previous landscape and visual impact assessment (undertaken to support the RTS) that provided a baseline for the current assessment.

A comparison of indicative wind turbine dimensions for the Approved Project and Modified Project dimensions used to consider ‘worst case’ impacts²¹ is shown in Figure 12 and outlined in Table 23. Modifications to ancillary infrastructure is outlined in Section 4.0, Table 8.

²⁰ Stage 1 and 2 of the Guidelines were not addressed as they relate specifically to non-consented projects. A peer review of the VIA (conducted by Moir Landscape Architecture) confirmed excluding these stages was appropriate.

²¹ A 165m rotor diameter was considered to be the ‘worst case’ scenario as this configuration represents the highest hub height and tallest tower structure for the 200m tip height.

Comparisons of visual impact were determined through:

- Zone of Visual Influence modelling showing the increase/decrease in the extent of theoretical visibility of the Project
- Comparison of distance to nearest wind turbine and number of visible hubs and blade tips when viewed from receivers within 4km
- Graphic representation comparing the scale of the wind turbines
- Graphic representations comparing the wind turbines when viewed from a distance of 2.7km and 4km
- Comparison of visual effect upon receivers
- Comparison of wireframes from receivers, and
- Comparison of photomontages from three public viewpoints.

The potential change in cumulative impacts, specifically in relation to the nearby Bango Wind Farm was also assessed.

Table 23: VIA Indicative Turbine Dimensions

| Turbine Design Component | Approved Project | Modified Project | Extent of Change | Percentage difference |
|--------------------------|------------------|------------------|------------------|-----------------------|
| Number of turbines | 92 | 80 | -12 | -13% |
| Modelled hub height | 101m | Up to 117.5m | +16.5m | +16% |
| Modelled rotor diameter | 130m | Up to 165m | +35m | +27% |
| Tip height | 157m | Up to 200m | +43m | +27% |

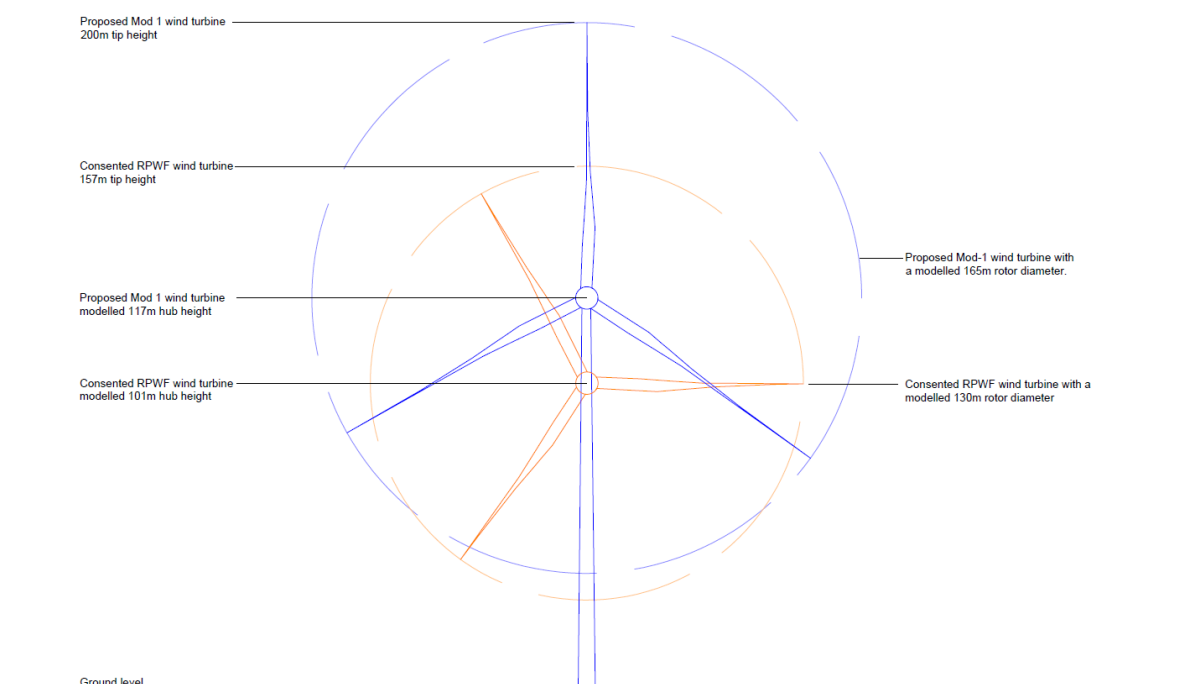


Figure 12: VIA Indicative Wind Turbine Dimensions Comparison

To ensure confidence in the assessment and to address community concerns, the VIA was peer reviewed by Moir Landscape Architecture (Appendix J). The peer review focuses on assessment methodologies and conclusions whilst commenting on the assessment's response to the requirements of the Bulletin.

7.2.2 Assessment

The visual impact assessment that supported the RTS determined the Project would have an overall medium visual significance on the majority of non-associated and associated residences within the Project's 10km viewshed. Furthermore, the Project would have a slightly lower visual significance on views from surrounding road corridors and public spaces.

Considering issues raised in public submissions, the Department identified visual amenity as a key impact of the Project and concluded that:

- Wind turbines in the North-Western precinct of the Project site would impact the visual amenity of Rye Park village and a large number of surrounding non-associated residences.
- Wind turbines in the Intermediate precinct of the Project site would have a moderate/high or high impact on 9 non-associated residences.
- One dwelling entitlement in the Central precinct would be highly impacted if a dwelling were to be constructed
- Wind turbine No.145 would have a moderate-high impact on one non-associated residence in the Southern precinct.
- The nature and extent of the impacts on visual amenity, combined with the potential cumulative impacts of the proposed Bango Wind Farm, would transform the rural character of the landscape in those areas.
- The visual impact on non-associated residents in the northern, north eastern, central and southern parts of the site would be moderate to low (excepting one residence with a predicted moderate/high impact).

The Department recommended removal of 17 wind turbines identified as having a high visual impact on surrounding residences

However, with regard to the overall public benefit of renewable energy generation and contributions to the local economy, the PAC considered wind turbines in the north-west part of the site should remain with the exception of those that would have unacceptable visual impacts on Rye Park village and nearby residence. Consequently, wind turbines 16, 29, 44, 45, 47, 133, 134 and 144 were excluded from the North West. However, PAC agreed with the Department's recommendation to remove the nine wind turbines from the Intermediate precinct. As a result, the Development Consent was granted to approve a total of 92 wind turbines and imposed detailed conditions to further minimise and mitigate the impacts on visual amenity of the Approved Project (as outlined in Table 22).

Proposed Modifications

Photomontages have been prepared to illustrate the difference in visual impact between the Modified Project and Approved Project from three surrounding view locations. The locations were selected to represent a range of distances and view angles to illustrate the potential influence of distance on visibility. All photomontages are contained in the VIA in Appendix G.1.

Other than removal of the 12 wind turbines, no other changes are proposed to the locations of the approved wind turbines.

Accordingly, no wind turbines will be located closer to residences as part of the Modified Project and for 17 residences, there will be an increased separation distance between the residences and the wind turbines.

Residences within Rye Park village are located over 4 km²² away from the closest wind turbine and are not considered to be subject to any increased level of visual effect as a result of the Proposed Modification.

The VIA distinguishes between the perceived and relative height differences of the Approved Project and Modified Project to assess the level of visual impact from certain distances. From a view distance of 4 km, the Modified Project wind turbines would be perceived at less than half the height of the Modified Project wind turbines when perceived at a viewed distance of 2.7km, illustrated in Figure 13 below. This is considered to be a small increase within the field of view of normal human vision.

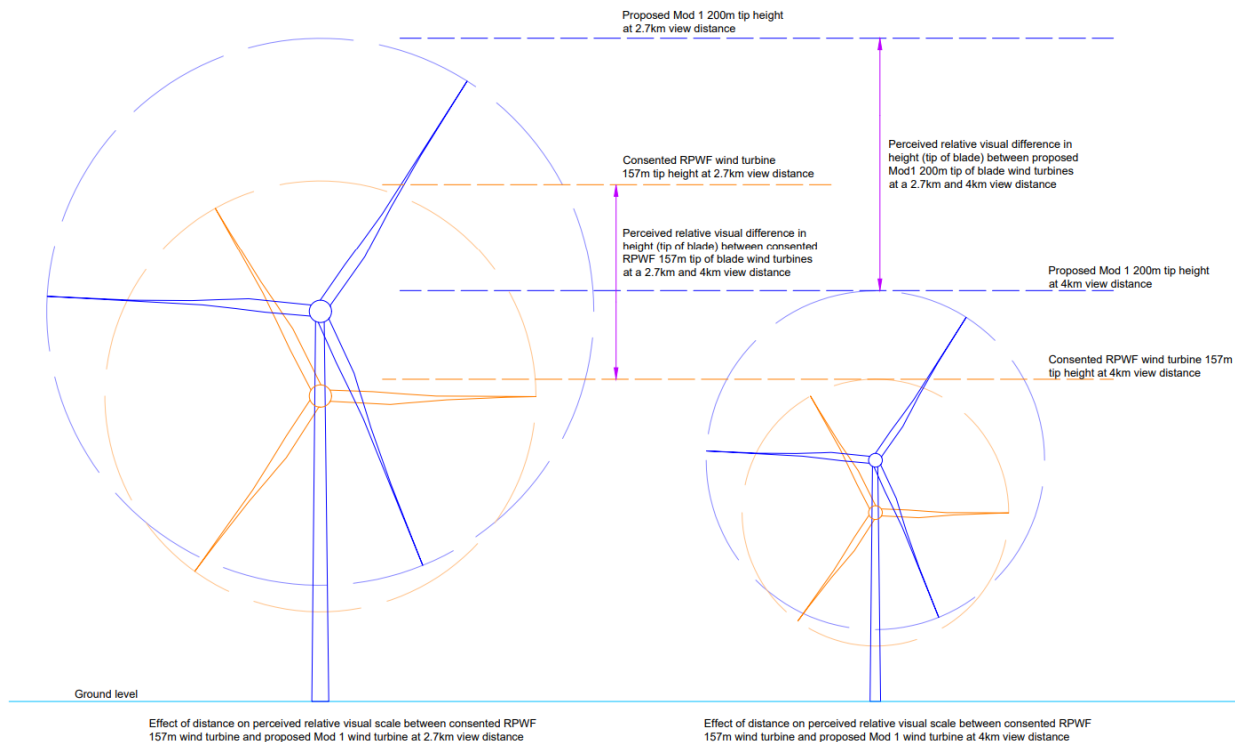


Figure 13: Effect of distance on Views Approved Project and Modified Project at 2.7km and 4km

The Modified Project would result in an additional view angle of less than one degree above the approved wind turbines from a 2.7 km distance as specified by the Visual Bulletin. However, this is not considered to give any significant additional magnitude of visual change.

The VIA concluded that the change of the Modified Project would be discernible from some surrounding and proximate view locations. Overall, the number of visible wind turbine hubs and blade tips (as modelled) would be subject to marginal increases and decreases from residences within 4 km of the Approved Project. Some areas, including residences within the Rye Park Village would have an overall reduction in the number of visible wind turbine hubs and blade tips.

Visual significance of ancillary infrastructure associated with the Approved Project would be low due to their location relative to existing residences together with the screening influence of the surrounding topography and vegetation. The VIA determined the proposed changes to ancillary infrastructure associated with the Modified Project would not result in any additional visual impacts to those associated with the Approved Project.

²² The 4km threshold distance has been established by reference to the Visual Bulletin.

The Proposed Modifications is not considered to result in a magnitude of visual change that would significantly increase visual effects (and former visual impact ratings) associated with the Approved Project.

Cumulative effect

GBD prepared a detailed cumulative impact assessment as part of the Bango Wind Farm Landscape and Visual Impact Assessment that supported an application for Development Consent for CWP Renewables. The assessment for the Bango Wind Farm specifically considered the potential cumulative impacts associated with the Approved Project. The Department recommended approval (subject to conditions) of the Bango Wind Farm in February 2018. The IPC's findings and determination stated that the Bango Wind Farm *'would not create significant or local cumulative visual impacts'*.

The Bango Wind Farm cumulative impact assessment included consideration of 65 of the wind turbines belonging to the RTS Project. Since the assessment was prepared, a total of 20 wind turbines have now been removed (reflecting removals associated with the Approved Project, and now the Modified Project).

Given the Modified Project is not considered to result in any significant increase in magnitude of visual effect, and that the overall number of wind turbines has been reduced since the preparation of the Bango Wind Farm cumulative impact assessment, **the VIA determined that the potential cumulative visual impact of the Modified Project will be no greater than the determination of cumulative visual impacts for the Approved Project.**

Peer Review

During the peer review process, several recommendations were made to GBD to provide further clarification in the draft VIA that were subsequently addressed and reflected in the final VIA. The peer reviewer was satisfied with the methodology applied by GBD and stated the conclusions were well demonstrated and defended. It was concluded that the VIA reflected current best practice in visual assessment and responded appropriately to the assessment guidelines defined in the Bulletin.

The existing conditions of the Development Consent are considered to remain appropriate to manage the potential visual impacts of the Modified Project.

Particularly, implementation of off-site landscape works pursuant to Condition 3 of Schedule 3 would provide visual mitigation for several residences surrounding the Project site. Additionally, all wind turbines are to be consistent with the Approved Project regarding their visual form, design, pattern and colour consistent with Condition 4, of Schedule 3 of the Development Consent.

Accordingly, **the Modified Project will not impact with Conditions 2 – 4 of Schedule 3 of the Development Consent that relates to visual impact.**

7.3 Shadow Flicker and Blade Glint

7.3.1 Approach

A Shadow Flicker and Blade Glint Assessment (contained in Appendix G.2) was prepared by DNV GL to assess the change in potential shadow flicker impacts from the Approved Project to the Modified Project.

The Shadow Flicker and Blade Glint Assessment has been prepared in accordance with the Guidelines outlined in Table 24 and the relevant Conditions of the Development Consent outlined in Table 25.

Table 24: Relevant Shadow Flicker Guidelines

| Relevant Guidelines | Description |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Draft National Wind Farm Development Guidelines (EPHC, 2010)</i> | Recommends a limit of 30 hours per year on the theoretical shadow flicker duration, and 10 hours per years on the actual shadow flicker duration. |
| <i>NSW Wind Energy Visual Assessment Bulletin (DPE, 2016b)</i> | Recommends a shadow flicker limit of 30 hours per year at residences in the vicinity of a wind farm. |

Table 25: Relevant Shadow Flicker Conditions

| Relevant Conditions | Description |
|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Condition 6 of Schedule 6 of the Development Consent Shadow Flicker | Requires that shadow flicker from operational wind turbines does not exceed 30 hours per year at any non-associated residence. |
| Condition 4(b) of Schedule 3 of the Development Consent Visual Appearance | Requires turbines to be painted off white/grey, surface treatment applied that minimises the potential for glare and reflection and visual appearance of all ancillary infrastructure to blend in as far as possible with the surrounding landscape to minimise off-site visual impact. |

The Shadow Flicker and Blade Glint Assessment considers the change in potential shadow flicker impacts as a result of the removal of 12 wind turbines and increase to the wind turbine envelope (outlined in Table 8).

Given potential impacts on shadow flicker and blade glint against the Approved Project was never assessed, the Shadow Flicker and Blade Glint Assessment modelled the indicative wind turbine locations and increased wind turbine envelope against the rebaselined Approved Project to assess the changes between the Approved Project and the Modified Project²³.

7.3.2 Assessment

A shadow flicker and blade glint assessment that supported the RTS found that no Non-associated Residences would experience any shadow flicker above the accepted limit of 30 hours per year, however two Associated Residences exceeded the accepted limit of 30 hours per year.

The Department accepted the Draft *National Wind Farm Development Guidelines* recommendation of a 30 hour limit and required that the Project meet this through the authorisation of Condition 6 of Schedule 3.

Furthermore, the Department agreed blade glint could be managed through appropriate wind turbine finishes and authorised Condition 4(b) of Schedule 3.

The PAC supported the Department's assessment and did not identify shadow flicker nor blade glint as a key impact associated with the Project.

The Shadow Flicker and Blade Glint Assessment found that for the Modified Project, seven residences are predicted to experience some theoretical shadow flicker. Three residences are noted to experience durations

²³ Calculation of the theoretical shadow flicker durations does not consider any reduction due to cloud cover, turbine rotor orientation, low wind speed, vegetation, or other shielding effects around each residence. Therefore, the values presented are likely to be conservative and may exceed the actual impacts of the Project.

that exceed the annual 30 hour limit, however, all three of these are Associated Residences. The location of these residences, in addition to all other Associated Residences and Non-associated Residences in vicinity of the Project are shown in Appendix C.2.

The expected changes in shadow flicker from the Approved Project to the Modified Project are summarised in Table 26.

Table 26: Summary of Shadow Flicker Assessment Results

| Predicted theoretical shadow flicker within 50 m of residence | Approved Project | Modified Project | Extent of Change |
|---------------------------------------------------------------|---------------------------------------|---------------------------------------------------------|--------------------------|
| Above 0 hours/year | 4 residences (R001, R002, R014, R016) | 7 residences (R001, R002, R014, R016, R044, R056, R128) | Increase in 3 residences |
| Above Development Consent limit of 30 hours/year | 2 residences (R002, R0016) | 3 residences (R002, R014, R016) | Increase in 1 residence |

Overall, **the Shadow Flicker and Blade Glint Assessment found the Modified Project will have no increased shadow flicker impacts at any Non-associated Residences.** However, it was noted that the shadow flicker durations at some Associated Residences would be high. The assessment recommended that through development of the final layout once a wind turbine model is selected²⁴, further assessment would determine the final predicted shadow flicker durations at these residences.

The assessment reiterated that blade glint is not typically an issue for modern wind turbines, provided blades are coated with a non-reflective finish. This would be the case for wind turbines used for both the Approved Project and Modified Project.

The effects of shadow flicker can be reduced through several mitigation measures including the installation of screening structures or planting of trees to block shadows cast by the wind turbines, the use of wind turbine control strategies which shut down wind turbines when shadow flicker is likely to occur, or by micro-siting wind turbines to reduce impacts.

Accordingly, **the Modified Project will not impact the ability to comply with Condition 6 and Condition 4 (b) of Schedule 3 of the Development Consent that relates to shadow flicker and blade glint.**

In accordance with Condition 6 of Schedule 2, the Applicant must ensure the final layout after micro-siting does not result in shadow flicker from operational wind turbines exceeding 30 hours per year at any Non-associated Residence. R002, R014 and R016 are expected to exceed this limit, however all these residences are Associated.

In accordance with Condition 4 (b) of Schedule 2, the Applicant will implement a non-reflective finish for wind turbine blades to curtail any potential effects of blade glint.

²⁴ Assessment against the Modified Project used a 'worst case scenario' rotor. The final turbine model selected will include a final rotor diameter. Additionally, the results presented are conservative and did not consider any reduction due to cloud cover, turbine rotor orientation, low wind speed, vegetation, or other shielding effects around each residence.

7.4 Noise

7.4.1 Approach

An Environmental Noise Assessment (ENA) (contained in Appendix G.3) was prepared by Sonus to assess the change in potential construction and operational noise from the Approved Project to the Modified Project.

The Guideline states:

“... the rotation of wind turbines generates both aerodynamic and mechanical noise. When assessing the potential annoyance from a noise source, both the level and character of the noise need to be taken into consideration.”

Additionally, the assessment has been prepared in accordance with the applicable guidelines and relevant Conditions of the Development Consent outlined in Table 27 and Table 28 respectively.

Table 27: Relevant Noise Guidelines

| Relevant guidelines and conditions of the Development Consent | Description |
|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational Noise | |
| <i>South Australian Environment Protection Authority's Wind Farms – Environmental Noise Guidelines</i> (SA EPA Guidelines) (SA EPA, 2009) | Operational noise predictions were assessed in accordance with the SA EPA Guidelines which have been adopted in NSW being: <ul style="list-style-type: none"> - 35 dB(A) or 5 dB(A) above the background noise level for non-associated residences; and - indoor limit of 30 dB(A) and outdoor limit of ~45 dB(A) with windows open for associated residences. |
| Construction Noise | |
| <i>Interim Construction Noise Guideline</i> (ICN Guideline) (DECC, 2009) | Provides an emphasis on implementing “feasible” and “reasonable” noise reduced measures. |

Table 28: Relevant Noise Conditions

| Relevant guidelines conditions of the Development Consent | Description |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational Noise | |
| Condition 11 of Schedule 3 Operational Noise Criteria – Wind Turbines | Requires the Applicant to ensure noise generated by the operation of the wind turbines does not exceed the relevant criteria specified in Table 4 at any non-associated residence. |
| Condition 12 of Schedule 3 Operational Noise Criteria – Ancillary Infrastructure | Requires the Applicant to ensure noise generated by the operation of ancillary infrastructure does not exceed 35 dB(A) at any non-associated residence. |
| Condition 13-14 of Schedule 3 Operational Noise Monitoring | Requires the Applicant to undertake operational noise monitoring. |
| Construction Noise | |
| Conditions 7-8 of Schedule 3 Construction and Decommissioning Noise | Requires the Applicant to minimise construction and decommissioning noise, including associated traffic noise in accordance with the ICN Guideline and specifies specific hours for construction and decommissioning activities. |

The ENA considers the change in potential impact as a result of the removal of 12 wind turbines, increase to the wind turbine envelope (outlined in Table 8) and modifications to ancillary infrastructure, including realignment of the transmission lines.

Given potential noise related impacts for the Approved Project were not assessed, the ENA compares the Modified Project to the RTS Project.

Noise predictions have been based on an indicative wind turbine model being the GE 158 5.5MW wind turbine with a tip height of 200m. The modelled wind turbine used has one of the highest noise emissions of those currently on the market and has been used to provide a conservative 'worst case' assessment.

7.4.2 Assessment

The environmental noise assessment that supported the RTS found that noise generated from the wind turbines could comply with the specified operational noise criteria whilst noise generated from ancillary infrastructure would not impact on the amenity of nearby residences. Similarly, corona and aeolian noise were not considered an issue for separation distances greater than 50-100m from the transmission lines.

Accordingly, the Department recommended the Applicant comply with the relevant noise criteria and authorised Conditions 7 – 14 of Schedule 3 of the Development Consent²⁵.

The PAC was satisfied with the Department's determination on noise related impacts of the Project.

Operational Wind Farm Noise

Based on the Modified Project, the ENA found that the noise generated from the indicative wind turbines is predicted to achieve the operational noise criteria at all residences in the vicinity of the Project, with the exception of four Non-Associated Residences, R06, R07, R11 and R38. Contours of the predicted noise level at nearby residences are provided in Figure 14 and Figure 15 below.

A curtailment regime was determined to ensure noise from the Modified Project can achieve the criteria at all residences. This would involve operating selected wind turbines in a noise reduced mode at the wind speeds where the predictions indicate that the criteria would be exceeded.

With the curtailment strategy implemented for wind speeds of 8m/s and above, **the noise level from the Modified Project is predicted to achieve the noise criteria at all nearby residences.**

The need for a curtailment strategy will be further evaluated and finalised once the final wind turbine model (which could be quieter) has been selected, the layout finalised and as part of a pre-construction noise assessment to ensure compliance with the relevant criteria.

Consistent with the Approved Project, **the impact from corona and aeolian noise for the Modified Project will be inconsequential as the transmission line separation distances are to be maintained.**

²⁵ Several submissions were received regarding infrasound. The Department determined the Project would not generate unacceptable levels of low frequency noise or infrasound, and the health risks of the Project would be negligible.

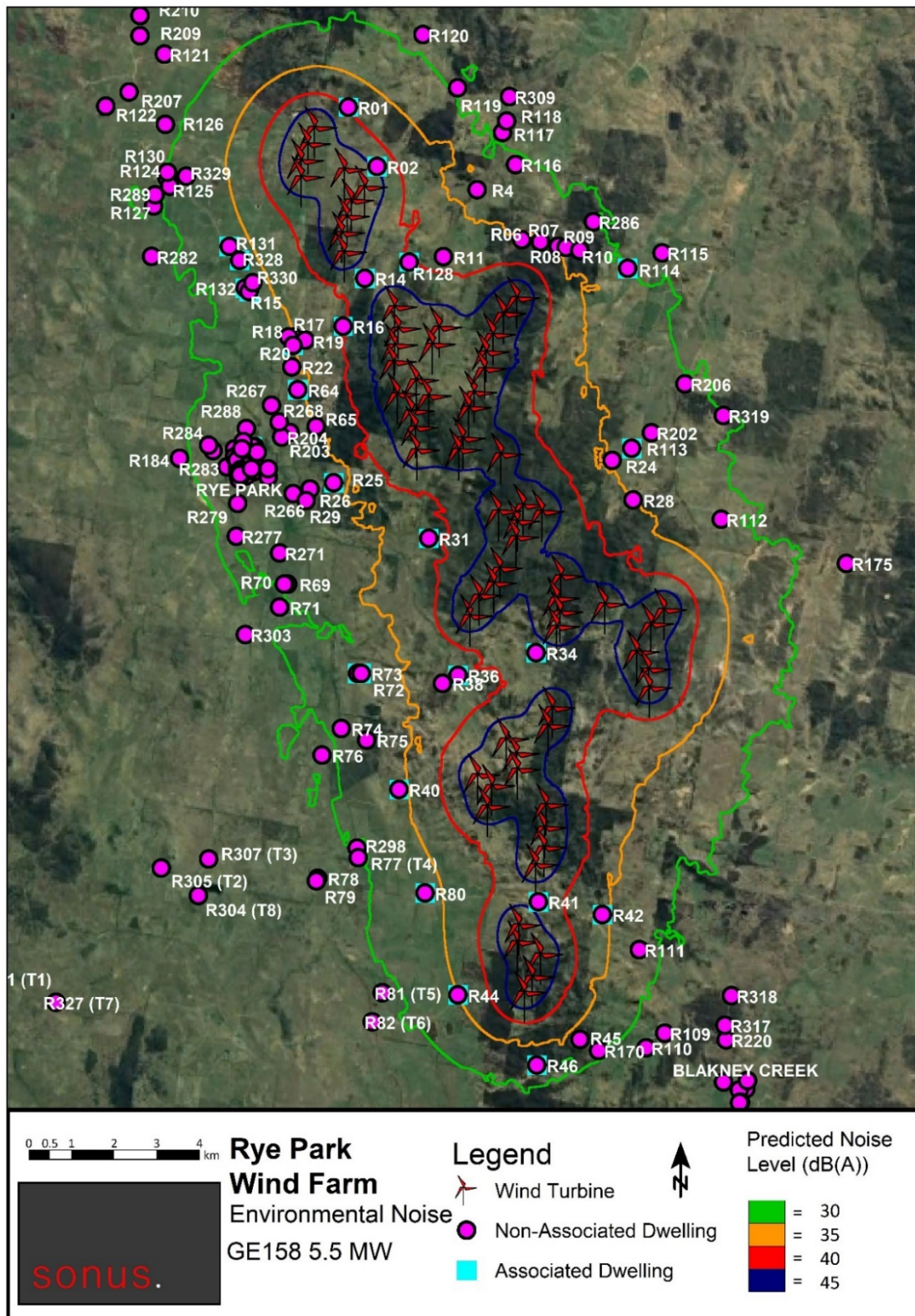


Figure 14: Predicted Noise Level Contour at 10m/s for generation of noise by operation of wind turbines (northern)

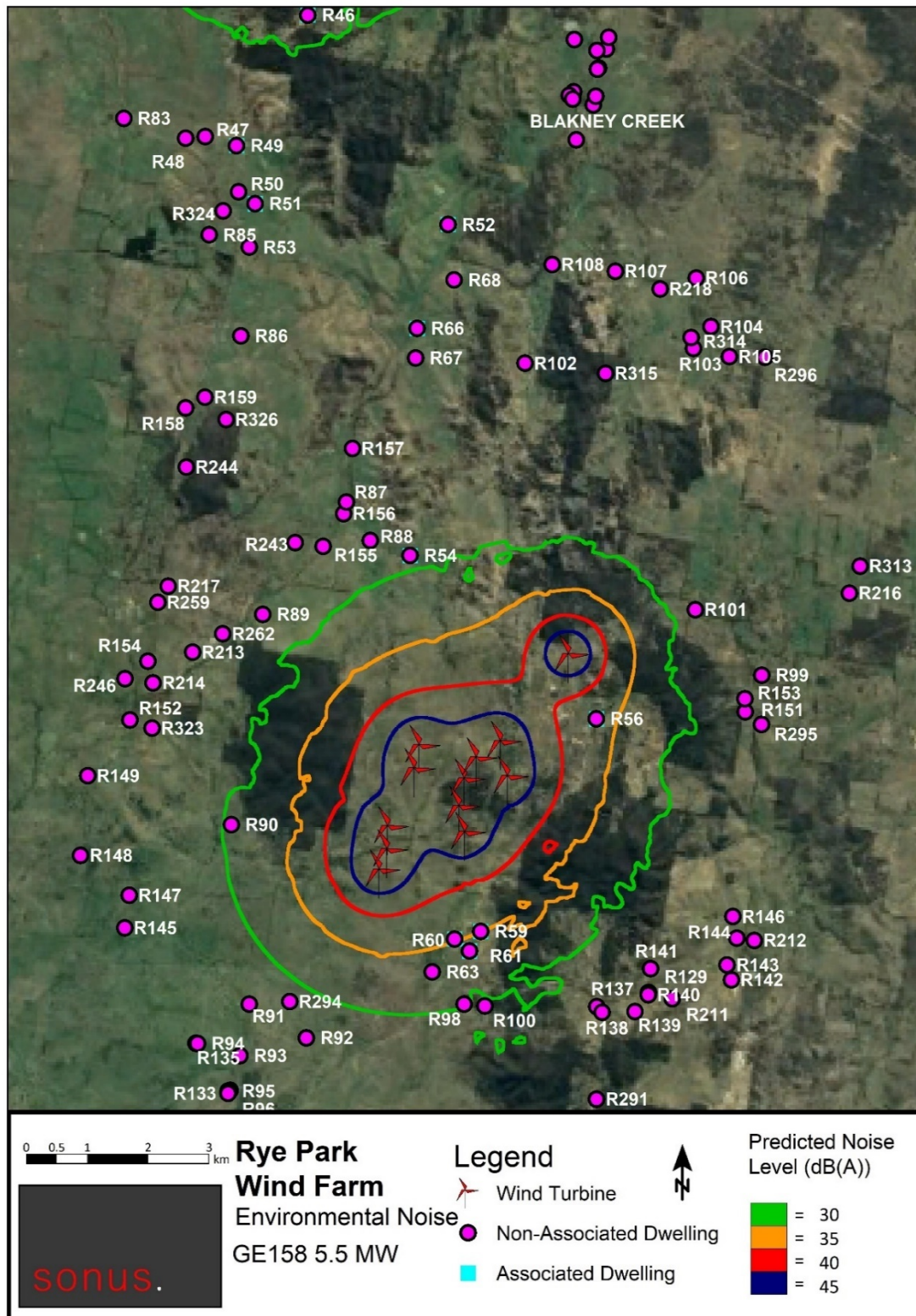


Figure 15: Predicted Noise Level Contour at 10m/s for generation of noise by operation of wind turbines (southern)

Construction Noise

The ENA determined that based on the predicted noise levels, it is expected that construction noise from wind turbine construction will be greater than 40 dB(A) at a distance of 1200m. This noise limit is significantly less than the 75 dB(A) limit provided in the ICN Guidelines. Against the ICN Guidelines, these residents will be 'noise affected', which means there may be some community reaction to noise.

Based on the predicted noise levels, it is expected that road construction of the internal access tracks will be 61 dB(A) at 330m from the closest non-associated residence. Against the ICN Guidelines, these residents will be 'noise affected'.

Further, the closest non-associated residence to a proposed batching plant is approximately 1100m away. The noise from typical batching plant machinery, such as cement trucks, loaders, and delivery trucks has been predicted to be 34 dB(A) at 1100m.

Where residences are classed as 'noise affected' in accordance with the ICN Guidelines, the Applicant is required to apply all feasible and reasonable work practices, and to inform residents of the proposed construction work. The ENA suggests such strategies are to be incorporated into a Construction Noise Management Plan, which could include:

- Scheduling construction work, including heavy vehicle movements to between 7am and 6pm Monday to Friday, and between 8am and 1pm on Saturdays (per the requirements of Condition 8, Schedule 3)
- Locating fixed noise sources as far as reasonably practicable from residences
- Installing acoustic screens around fixed noise sources
- Enclosing generators and compressors
- Implementing alternative processes (where feasible and reasonable), and
- Ensuring effective site, equipment and vehicle management

The noise mitigation measures proposed and required by the conditions of the Development Consent are considered to remain appropriate to manage the noise impacts from the Modified Project. Accordingly, **the Modified Project will not impact the ability to comply with Conditions 7 - 14 of Schedule 3 of the Development Consent that relates noise.**

7.5 Biodiversity (Vegetation)

7.5.1 Approach

A Biodiversity Development Assessment Report (BDAR) (contained in Appendix G.4) has been prepared by Umwelt (Australia) Pty Ltd (Umwelt) to assess the change in potential biodiversity impacts from the Approved Project to the Modified Project.

The Guidelines state:

"...including the extent to which impacts of the wind energy project on biodiversity values has been avoided, minimised or offset to an acceptable level, in accordance with the NSW Biodiversity Offsets for Major Projects having regard to the advice of the NSW Office of Environment & Heritage for terrestrial biodiversity or the Department of Primary Industries (Fisheries) for aquatic biodiversity.."

As the Project seeks to modify a major project approval, it requires a Biodiversity Assessment Method (BAM) assessment under the *Biodiversity Conservation Act 2016* (BC Act). The BAM was established:

"...for the purpose of assessing certain impacts on threatened species and threatened ecological communities (TECs), and their habitats, and the impact on biodiversity values, where require under the BC Act..."

Section 7.17 of the BC Act states that if the modification will not increase the impact on biodiversity values, then a BDAR is not required for the modification. However, as there will be a change in the potential impacts of the Modified Project compared to the Approved Project and therefore a BDAR is considered to be required. The Applicant also consulted with BCD, the Department and DoEE to seek approval to use the BAM in order to calculate the biodiversity credit liability.

Accordingly, the BDAR has been prepared primarily in accordance with the BAM, however also has regard to the Guidelines and Conditions outlined in Table 29 and Table 30.

Table 29: Relevant Biodiversity Guidelines

| Guidelines, Planning Policies | Description |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft (DEC, 2004) | <p>The Threatened Biodiversity Survey and Assessment provides a framework for decision making when considering a proposed development and assists applicants by identifying their responsibilities, outlining relevant procedures and providing considerations for the interpretation of results.</p> <p>Species-credit surveys have been undertaken in accordance with the Threatened Biodiversity Survey and Assessment Guidelines.</p> |
| NSW Guide to Surveying Threatened Plants (OEH, 2016) | <p>The purpose of this guide is to assist applicants identify the minimum standards to use when surveying threatened plants.</p> <p>Species-credit surveys have been undertaken in accordance with the NSW Guide to Surveying Threatened Plants.</p> |
| Draft Koala Habitat Protection Guidelines and Koala Habitat Protection SEPP (DPIE, 2020) | <p>The State Environmental Planning Policy No. 44 - Koala Habitat Protection did not strictly apply to the Approved Project, though the Minister could choose to consider the SEP in determining the Rye Park Wind Farm application.</p> <p>SEPP 44 has since been repealed by the State Environmental Planning Policy (Koala Habitat Protection) 2019 and only applies to development applications determined by councils (local and regional development). The proposal relates to State Significant Development and it is therefore considered the KHP SEPP does not apply.</p> <p>However, various surveys have been undertaken to assess Koalas in the Project area as described in Appendix G.4.</p> |

Table 30: Relevant Biodiversity Conditions

| Conditions | Description |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Condition 20, Schedule 3 Biodiversity Offset | <p>Requires the Applicant to update the baseline mapping of the vegetation and key habitat within the disturbance areas and calculate biodiversity offset credit liabilities in accordance with the <i>Framework for Biodiversity Assessment</i> under the <i>NSW Biodiversity Offset Policy for Major projects</i>.</p> <p>The Approved Project was required to calculate the biodiversity offset credit liabilities in accordance with the Framework for Biodiversity Assessment (FBA) under the NSW Biodiversity Offset Policy for Major Projects. In August 2017, the Biodiversity Assessment Methodology (BAM) was established under section 6.7 of the BC Act which repealed the <i>Threatened Species Conservation Act 1995</i> (TSC ACT). Through its</p> |

| Conditions | Description |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>establishment, the BAM replaced the FBA.</p> <p>While FBA still remains an assessment option for projects under existing transitional arrangements, as BAM is the current assessment method for NSW the Applicant discussed the ability to assess the Project under BAM. An approach that was supported by BCD and also the Department.</p> |
| Condition 21, Schedule 3 Biodiversity Offset | Requires the Applicant to retire the required biodiversity credits in accordance with the <i>NSW Biodiversity Offsets Policy for Major Projects</i> . |
| Condition 22, Schedule 3 Biodiversity Management Plan | Requires the Applicant to prepare a Biodiversity Management Plan (BMP) that will outline mitigation measures to monitor and manage potential impacts to Biodiversity. |

The BDAR considers the change in potential impacts on biodiversity values as a result of the modified Indicative Development Footprint – Wind Farm and the addition of the Indicative Development Footprint – External Roads (discussed in Section 4.3)²⁶.

Biodiversity surveys and vegetation mapping that supported the BDAR was undertaken to:

- Update the baseline mapping of the vegetation and key habitats within the indicative ground disturbance areas in accordance with the requirements of Condition 20(a) of Schedule 3 of the Development Consent, and
- Map vegetation within areas of the Development Corridor and Indicative Development Footprint – External Roads that were previously not considered

In accordance with Condition 20 of Schedule 3, the vegetation mapping will be finalised following finalisation the Project layout (i.e. through micro-siting and realignment of infrastructure) and the associated ground disturbance.

In accordance with the BAM, vegetation was mapped within a 500m Development Footprint Buffer. The buffer was determined based on the outer extent of the Indicative Development Footprint – Wind Farm, including the full extent of the Development Corridor. This has allowed greater flexibility for micro-siting the wind turbines and ancillary infrastructure subject to specific limits.

In addition to general ecosystem surveys, targeted surveys were undertaken for both threatened flora and fauna species.

7.5.2 Assessment

Several ecological assessments were undertaken prior to the assessment prepared to support the RTS. Based on these assessment findings and concerns raised by OEH, the infrastructure layout and possible transport route options were revised and a Development Corridor was identified that minimised (where practicable) impacts on biodiversity. Following these revisions, the Project was determined to have a total ground disturbance of 256.8 ha of native vegetation, including 50.2 ha of Box Gum Woodland endangered ecological community (EEC).

²⁶ Potential impacts associated with the Indicative Development Footprint – Wind Farm and the Indicative Development Footprint – External Roads have been separated to quantify the differences between the Approved Project (which only considered the wind farm footprint) and the Modified Project.

The Department's assessment found that despite the proposed ground disturbance, the Project would not result in any significant impacts on threatened species or EECs. Accordingly, the Department determined that with implementation of Conditions 19-22 of Schedule 3 of the Development Consent, the residual biodiversity impacts would be suitably minimised, managed and/or offset.

The PAC identified impacts on biodiversity as a key issue associated with the Project, however, was satisfied with the Department's determination and subsequent conditions requiring the Applicant to implement mitigation and offsetting measures. The PAC also accepted the Department's recommendation to remove one wind turbine (No. 90) based on biodiversity concerns.

A total of 542.1 ha and 32.62 ha of vegetation (inclusive of non-native vegetation) is proposed to be removed associated with the Indicative Development Footprint – Wind Farm and the Indicative Development Footprint – External Roads respectively. For the Wind Farm, this is 285.3 ha more than proposed for the Approved Project as outlined in Table 31.

Table 31: Project Area Ground Disturbance

| Project Component | Approved Project | Modified Project | Extent of Change |
|---------------------------------------------------|------------------|------------------|-------------------|
| Indicative Development Footprint – Wind Farm | 256.8 ha | 542.1 ha | Increase 285.3 ha |
| Indicative Development Footprint – External Roads | - | 32.62 ha | n/a |

Four native Plant Community Types (PCTs) were found to be impacted within the Indicative Development Footprints. Following the application of avoidance and minimisation measures, the BAM assessment identified biodiversity credits required to offset the impacts of the Project. The credits required for PCTs and fauna species are outlined in Table 32 and Table 33 respectively.

Table 32: Direct Impacts of the Modified Project on Biodiversity Features and Ecosystem Credits

| Description | Impact – Wind Farm (ha) | Impact – External Roads (ha) | Ecosystem credits |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|------------------------------|-------------------|
| PCT 289 Mugga Ironbark - Inland Scribbly Gum - Red Box shrub/grass open forest on hills in the upper slopes sub-region of the NSW South Western Slopes Bioregion | | 1.07 ha | 34 |
| PCT 335 Tussock grass - sedgeland fen - rushland - reedland wetland in impeded creeks in valleys in the upper slopes sub-region of the NSW South Western Slopes Bioregion | 9.15 ha | - | 233 |
| PCT 350 Candlebark - Blakely's Red Gum - Long-leaved Box grassy woodland in the Rye Park to Yass region of the NSW South Western Slopes Bioregion and South Eastern Highland Bioregion | 38.10 ha | 1.39 ha | 907 |
| PCT 351 Brittle Gum - Broad-leaved Peppermint - Red Stringybark open forest in the north-western part (Yass to Orange) of the South Eastern Highlands Bioregion. | 358.07 ha | 1.76 ha | 5,551 |

Table 33: Direct Impacts of the Modified Project on Species

| Species-credit Species Habitat | Impact – Wind Farm (ha) | Impact – External Roads (ha) | Ecosystem credits |
|-----------------------------------------------|-------------------------|------------------------------|-------------------|
| Striped legless lizard (<i>Delma impar</i>) | 3.58 ha | - | 34 |

| Species-credit Species Habitat | Impact – Wind Farm (ha) | Impact – External Roads (ha) | Ecosystem credits |
|--------------------------------------------------|-------------------------|------------------------------|-------------------|
| Southern myotis (<i>Myotis macropus</i>) | - | 0.10 ha | 3 |
| Squirrel glider (<i>Petaurus norfolcensis</i>) | 103.0 ha | 3.19 ha | 3,436 |
| Superb parrot (<i>Polytelis swainsonii</i>) | 18.68 ha | 1.14 ha | 557 |
| Golden sun moth (<i>Synemon plana</i>) | 27.55 ha | - | 552 |

Compared with the Approved Project, the Modified Project has a reduced impact on:

- **White Box Yellow Box Blakely's Red Gum Woodland EEC** under the BC Act. Impact on Box Gum Woodland will be reduced by 10.71ha compared to the Approved Project, and
- **Habitat for striped legless lizard, superb parrot, and golden sun moth** listed under the EPBC Act (discussed in Section 8.1).

However, the Modified Project has an increased impact on matters listed within the EPBC Approval:

- **White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grassland** Critically Endangered Ecological Community (CEEC) under the EPBC Act. Impacts on CEEC is 27.77 ha more than the impact threshold of 9.5 ha as identified in Condition 3 of the EPBC Approval (discussed in Section 8.1), and
- Hollow bearing trees suitable for the superb parrot. Compared to the 170 hollow bearing trees authorised in the EPBC Approval, the Modified Project will impact on an additional 61 hollow bearing trees.

Although the Indicative Development Footprints have increased in size compared with the Approved Project, numerous measures have been employed to adequately avoid significant biodiversity values, building upon previous efforts to modify the Development Corridor to minimise potential impacts to biodiversity values.

The steps of minimisation and avoidance are outlined in Table 34.

Table 34: Summary of Avoidance Measures

| Measure | Outcome |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reduction of 12 turbines | Avoided approximately 47.64 ha of PCT 351 |
| Reduction in O&M facilities from two to one | Removal of the O&M building along Flakney Creek Road avoids: <ul style="list-style-type: none"> - More than approximately 1 ha of native vegetation which is likely to have been Box Gum Woodland TEC - More than approximately 1 ha of known habitat for the golden sun moth |
| Reduction in Substations from three to one | Removal of one collector substation near Grassy Creek Road avoids: <ul style="list-style-type: none"> - Less than approximately 1 ha of native vegetation which is likely to have been Box Gum Woodland TEC - Less than approximately 1 ha of suitable habitat for striped legless lizard Removal of one collector substation along Flakney Creek Road avoids: <ul style="list-style-type: none"> - More than approximately 1 ha of native vegetation which is likely to have been Box Gum Woodland TEC - More than approximately 1 ha of known habitat for the golden sun moth |
| Modification to the internal access | Redesign avoids: |

| Measure | Outcome |
|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| track, underground cabling and Overhead Transmission Line | <ul style="list-style-type: none"> - Approximately 260 ha of PCT 351 - Approximately 4.5 ha of Box Gum Woodland TEC - Approximately Nine hollow bearing trees that provide suitable habitat for the superb parrot - Approximately 11 ha of native vegetation which is likely to have been Box Gum Woodland TEC |
| Selection of Preferred Transport Route | <p>By not including Coolalie Road or Bushes Road in the Preferred Transport Route, this has avoided:</p> <ul style="list-style-type: none"> - Approximately 10 ha of native vegetation, 5 ha of which would likely to have been Box Gum Woodland TEC - A known population of hoary sunray (<i>Leucochrysum albicans</i> var. <i>tricolor</i>) - Approximately 2 ha of known habitat for the golden sun moth <p>By not including Flakney Creek Road in the Preferred Transport Route, this has avoided:</p> <ul style="list-style-type: none"> - More than approximately 1 ha of native vegetation, 5 ha of which would likely to have been Box Gum Woodland TEC - More than approximately 1 ha of known habitat for the golden sun moth <p>By not including certain areas of Dalton Road, Rye Park Road and Blakney Creek South Road, this has avoided:</p> <ul style="list-style-type: none"> - Approximately 14 ha of Box Gum Woodland TEC - Approximately 14 ha of superb parrot habitat, including 223 hollow bearing trees - Approximately 30 ha of habitat for squirrel glider <p>In consultation with BCD and Hilltops Council, a reduced road standard along Grassy Creek Road was agreed upon which in turn resulted in a reduced road widening width and amount of native vegetation required to be removed. ²⁷</p> |

The Applicant has committed to the design and implementation of a comprehensive biodiversity mitigation strategy to mitigate the unavoidable impacts of the Project. These measures will be designed and described within the Biodiversity Management Plan (BMP) which will be prepared in accordance with the existing Conditions of Consent and Roadside Vegetation Management Plan (RVMP) which will be prepared in accordance with the conditions of the EPBC approval.

These management plans will contain control measures to mitigate impacts on biodiversity features of the Indicative Development Footprint for both the Wind Farm and External Roads.

Table 35 outlines how the Applicant has satisfied and/or will satisfy relevant Conditions of Consent and comply with the required mitigation measures.

Table 35: Management / Mitigation Requirements

| Conditions of Consent | Assessment |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Condition 19, Schedule 3 Restrictions on Clearing Habitat | <p>The Applicant has demonstrated avoidance as part of the Proposed Modifications of approximately 10.82 ha of Box Gum Woodland and remains under the 50.2 ha clearance limit.</p> <p>The Crimson Spider Orchid (<i>Caladenia concolor</i>) was not recorded within the Development Corridor.</p> <p>Impacts to Southern Pygmy Perch will be avoided through detailed design and</p> |

²⁷ Following the Project public roads upgrade workshop, BCD provided a written response on the 26 February 2020. Further details are provided in the BDAR in Appendix G.4. BCD commended the Applicant's efforts to avoid Bush's road and Flakney Creek Road.

| Conditions of Consent | Assessment |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>appropriate fauna construction management.</p> <p>Where possible, hollow-bearing trees and termite mounds have been avoided. Pre-clearance surveys for key fauna habitat will be undertaken to limit removal of these habitats.</p> <p>Once a final wind turbine is selected, the layout of the final Development Footprints will be designed to ensure this condition continues to be met.</p> |
| Condition 20, Schedule 3 Biodiversity Offset | <p>As part of this BDAR, that Applicant has updated baseline mapping and calculated the biodiversity offset credit liabilities.</p> <p>Once a final wind turbine is selected, and final Development Footprints confirmed, the biodiversity offset credit liabilities will be confirmed.</p> |
| Condition 21, Schedule 3 Biodiversity Offset | <p>The Applicant is in the process of securing the required offsets and will do so within 2 years of the commencement of construction.</p> <p>In accordance with the BC Act, the biodiversity credits identified in Table 32 are required to offset the impact of the Project. A Biodiversity Offset Strategy that appropriately compensates for the loss of biodiversity values is currently being prepared. Surveys of potential land-based biodiversity offsets are being progressed by the Applicant through surveys to identify potential credit yield from various sites. Currently, a number of potential sites have been identified and are being investigated for their suitability for the required biodiversity offsets. The Applicant</p> <p>Further details of the Biodiversity Offset Strategy are provided in the BDAR in Appendix G.4. When the Indicative Development Footprints are finalised, the Applicant will seek to further minimise impacts to biodiversity values and this will be reflected in the Biodiversity Offset Strategy.</p> |
| Condition 22, Schedule 3 Biodiversity Management Plan | <p>A comprehensive biodiversity mitigation strategy to mitigate impacts of the Project will be designed and detailed with the BMP.</p> |

Accordingly, **the Modified Project will not impact that ability to comply with Conditions 19 – 22 of Schedule 3 of the Development Consent that relates to Biodiversity.**

7.6 Biodiversity (Birds and Bats)

7.6.1 Approach

A Bird and Bat Strike Risk Assessment (contained in Appendix G.5) was prepared by Umwelt to assess the change in potential impacts to bird and bat species from the Approved Project to the Modified Project.

The Guidelines state:

“A key biodiversity issue for wind energy development is bird and bat strike and whether suitable measures are proposed to manage potential bird and bat strike fatalities resulting from either direct collision or through barotrauma...”

For those species where the comparative risk assessment indicated an increased risk from the Modified Project, the impacts were considered against the BC Act, and where relevant, the EPBC Act. These, in addition to the relevant Conditions of the Development Consent are outlined in Table 36 and Table 37 respectively.

Table 36: Relevant Bird and Bat Guidelines

| Relevant Guidelines | Description |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section 7.3 of the BC Act | The purpose of the Section 7.3 test is to determine whether the proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. These tests were not undertaken in detail, but rather summarised the outcome in a table format for comparative purposes to the Approved Project. |
| Matters of National Environmental Significance Guidelines (MNES Guidelines) | The purpose of these guidelines is to determine whether or not a referral to the Australian Government Department of the Environment (the Department) for a decision by the Australian Government Environment Minister (the minister) on whether assessment and approval is required under the EPBC Act |

Table 37: Relevant Bird and Bat Conditions

| Relevant Conditions | Description |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Condition 23 of Schedule 3 Bird and Bat Adaptive Management Plan | Requires the Applicant to prepare a Bird and Bat Adaptive Management Plan (BBAMP) prior to construction. |

The Bird and Bat Strike Risk Assessment considers the change in potential impacts to threatened and non-threatened bird species and threatened microbat species as a result of the removal of 12 wind turbines, increase to the wind turbine envelope (specifically the overall increase in rotor swept area) outlined in Section 4.0.

7.6.2 Assessment

A revised bird and bat strike assessment that supported the RTS Project was completed to assess the change in potential impacts to bird and bat species from the Original EIS to the RTS. The assessment found that reduction in the number of wind turbines would reduce the magnitude of collision risks to avifauna. However, changes in the rotor dimensions resulted in a lower rotor sweep area which increased the potential collision risks for some low flying species.

The Department found the Project would not pose a significant or unacceptable level of risk to bird and bat species in the vicinity of the proposed wind turbines and prescribed the Applicant must prepare a BBAMP per the requirements of Condition 23, Schedule 2 to monitor and respond to actual on ground collision results.

The PAC was satisfied with the Department's recommendation on bird and bat related impacts of the Project and subsequent conditions to monitor such impacts. The Bird and Bat Strike Assessment found that the Modified Project is likely to influence the risk of blade strike as follows:

- A reduction from 92 to 80 wind turbines will reduce the risk to species that occur at such locations and fly at RSA height
- The 3m increase in maximum RSA height will increase the vertical range in which several highly aerial species are at risk of blade strike, however, is likely to have a negligible or minor effect on the risk of blade strike to species which occur above and below this height
- The 49% increase in the total RSA is likely to increase risk to certain species which either occur occasionally, regularly or exclusively above 30m above ground level (AGL).

Birds

Due to the increase in RSA, several highly aerial species are likely to be placed at greater risk of blade strike. This is in addition to several non-threatened species.

Threatened species known to occasionally or regularly occur 30M AGL such as the Superb Parrot, Dusky Woodswallow and White-fronted Chat are likely to be at a higher risk of blade strike under the Modified Project. For species which rarely occur above 20m AGL, the difference in blade strike from the Approved Project to the Modified Project is expected to be negligible.

The Modified Project is unlikely to increase the risk of blade strike or adverse impact to species listed under the BC Act or EPBC Act.

Bats

Due to the increase in RSA, several bat species are likely to be placed at high risk of blade strike.

However, the Modified Project is unlikely to increase the level of risk of blade strike and subsequent adversely impact on any threatened bat species listed under the BC Act. No bats listed under the EPBC Act were recorded in the Project Area.

The predicted impacts to the avifauna species identified above are to be managed in accordance Condition 23 of Schedule 3 of the Development Consent that requires the Applicant to prepare a Bird and Bat Adaptive Management Plan that will monitor and respond to actual collision results and manage bird and bat blade strike risks.

Accordingly, **the Modified Project will not impact the ability to comply with Conditions 23 of Schedule 3 of the Development Consent that relates bird and bat strike management.**

7.7 Aboriginal Cultural Heritage

7.7.1 Approach

The Aboriginal Cultural Heritage Assessment (ACHA) (contained at Appendix G.6) was prepared by NGH Pty Ltd to assess the change in potential Aboriginal and Cultural Heritage (ACH) impacts from the Approved Project to the Modified Project.

The assessment was undertaken in accordance with the guidelines and relevant Conditions of the Development Consent as outlined in Table 38²⁸ and Table 39 respectively.

Table 38: Relevant Aboriginal and Cultural Heritage Guidelines

| Relevant Guidelines | Description |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW</i> (OEH, 2011) | This guideline provides guidance on the process when investigating and assessing whether Aboriginal cultural heritage values and objects are present and the harm a proposed activity may cause to them. |
| <i>Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales</i> (OEH, 2010a) | This code provides information about how to protect and conserve Aboriginal cultural heritage by specifying minimum standards for archaeological investigation |
| <i>Aboriginal cultural heritage consultation requirements for</i> | Consultation with Aboriginal groups undertaken in accordance with this guideline. |

²⁸ The *NSW Wind Energy Guideline* (the Guideline) states Aboriginal Cultural Heritage will continue to be dealt with through existing policies and practices.

| Relevant Guidelines | Description |
|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>proponents 2010 (OEH, 2010b).</i> | |
| <i>National Parks and Wildlife Amendment (Aboriginal Objects and Places) Regulation 2010.</i> | Aboriginal Heritage in NSW is primarily protected under this regulation. Consultation with Aboriginal groups was also undertaken in accordance with this regulation. |

Table 39: Relevant Aboriginal and Cultural Heritage Conditions

| Relevant Conditions | Description |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Condition 24, Schedule 3 Protection of Aboriginal Heritage Items | Requires the Applicant to ensure the development does not cause any direct or indirect impacts on the Aboriginal heritage items identified in Table 1 in Appendix 5, or located outside the approved disturbance area, minimise any impacts on the Aboriginal heritage items identified in Table 2 in Appendix 5 and minimise any impacts on the Aboriginal heritage items identified in Table 3 in Appendix 5 |
| Condition 25, Schedule 3 Heritage Management Plan | Requires the Applicant to prepare a Heritage Management Plan that will outline suitable measures to management the impacts of the development on Heritage Items within and outside of The Project disturbance areas |

The ACHA considers the change in potential impacts on ACH values as a result of the modified Indicative Development Footprint – Wind Farm (discussed in Section 4.3) and the addition of the Indicative Development Footprint – External Roads.

7.7.2 Assessment

The aboriginal cultural heritage assessment report that supported the RTS Project was updated from the ACHA that supported the Original EIS. For the revised ACHA, an additional 105 ha was subject to physical inspection to which much of that area was on the elevated ridge crests along the proposed Development Corridor, containing the wind turbines and majority of internal access tracks. The assessment found that:

- The high ridge crests on which the wind turbines were proposed had low archaeological sensitivity, potential and significance
- Valleys near water courses had some archaeological sensitivity, heritage value and significance.
- Artefact density was likely to be higher in open valleys with artefacts expected to be distributed across discrete landforms, especially close to streams, and
- The proposed wind farm setting generally had low archaeological and cultural potential and sensitivity, except areas adjacent and close to higher order streams.

Overall, no areas were identified that could be characterised as places with a high probability of possessing subsurface Aboriginal objects with high potential conservation value.

Accordingly, the Department was satisfied the Project would unlikely result in a significant impact on Aboriginal heritage values and authorised Condition 24 and 25, of Schedule 3 of the Development Consent that relate to the protection of Aboriginal Heritage items and development of a Heritage Management Plan.

The Commission did not identify impacts to ACH values as a key issue associated with the Project.

The following archaeological site types were identified during field surveys:

- Potential Archaeological Deposits (PADs)

- Artefact scatters (AFT), and
- Isolated finds (IF)

Table 40 and Table 41 summarises the unrecorded Aboriginal Heritage items identified as part of the Modified Project. their likely impact, level of significance and applicable mitigation or management measure to minimise harm²⁹.

Table 40: Potential Impacts to Aboriginal Heritage Items for the Wind Farm

| ACH Object | Significance ³⁰ | Likely Impact | Mitigation / Management |
|-------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| PAD + AFT 2 | Low to moderate. Potential for subsurface deposit | Direct underground cabling through site will result in a total loss of value. | Archaeological test excavations to salvage any artefacts present prior to construction. |
| PAD + AFT 3 | Low to moderate. Potential for subsurface deposit. | Direct 132kV overhead transmission line through site may cause partial loss. | Archaeological test excavations to salvage any artefacts present prior to construction if impact is unavoidable. |
| PAD + AFT 4 | Low to moderate. Potential for subsurface deposit. | Direct 132kV overhead transmission line through site may cause partial loss. | Archaeological test excavations to salvage any artefacts present prior to construction if impact is unavoidable. |
| AFT 1 | Low | Direct underground cabling through site will result in a total loss of value. | Salvage artefact prior to construction. |
| AFT 2 | Low | Direct underground cabling through site will result in a total loss of value. | Salvage artefact prior to construction. |
| AFT 4 | Low | Direct underground cabling through site will result in a total loss of value. | Salvage artefact prior to construction. |
| AFT 5 | Low | Direct underground cabling through site will result in a total loss of value. | Salvage artefact prior to construction. |
| IF 4 | Low to moderate | Direct 132kV overhead transmission line track through site may cause partial to no loss of value. | Salvage artefact prior to construction. |
| IF 5 | Low | Direct underground cabling through site will result in a total loss of value. | Salvage isolated find prior to construction |
| IF 6 | Low | Direct underground cabling through site will result in a total loss of value. | Salvage isolated find prior to construction |
| IF 7 | Low | Direct underground cabling through site will result in a total loss of value. | Salvage isolated find prior to construction |
| IF 8 | Low | Direct underground cabling through site | Salvage isolated find prior |

²⁹ Aboriginal Heritage Items where impact is not expected to occur have been excluded from this table.

³⁰ The significance value is based on the Aboriginal Heritage Item's scientific value (potential to assist in the development of site modelling for the local area).

| ACH Object | Significance ³⁰ | Likely Impact | Mitigation / Management |
|------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| | | will result in a total loss of value. | to construction |
| IF 9 | Low | Direct 132kV overhead transmission line track through site may cause partial to no loss of value. | Archaeological test excavations to salvage any artefacts present prior to construction if impact is unavoidable. |
| IF 10 | Low | Direct 132kV overhead transmission line track through site may cause partial to no loss of value. | Archaeological test excavations to salvage any artefacts present prior to construction if impact is unavoidable. |
| IF 13 | Low | Direct underground cabling through site will result in a total loss of value. | Salvage isolated find prior to construction |
| PAD 1 | Low to moderate. Potential for subsurface deposit. | Direct underground cabling through site will result in a total loss of value. | Archaeological test excavations to salvage any artefacts present prior to construction. |

Table 41: Potential Impacts to Aboriginal Heritage Items for road upgrades along the Preferred Transport Route

| ACHA Object | Description | Likely Impact | Mitigation / Management Option |
|-------------|-------------|-------------------------------------------------------------------------|----------------------------------------------|
| IF 3 | Low | Direct road widening through site will result in a total loss of value. | Salvage isolated find prior to construction. |
| IF 12 | Low | Direct road widening through site will result in a total loss of value. | Salvage isolated find prior to construction |

The ACHA found that based on the Modified Project, there would be a moderate level of impact upon the archaeology identified at the site, and in-turn a high level of harm would be placed upon the sites within the impacted areas. This level of harm however, is referring to the destruction of the archaeological context and not the Aboriginal object itself. To minimise harm, the mitigation measures outlined in Table 40 will ensure the Aboriginal Object is projected.

In addition to the new Aboriginal finds, 16 existing sites as identified by the Approved Project are expected to be impacted associated with the Modified Project as outlined in Table 42.

Table 42: Approved Project compared to the Modified Project

| | Approved Project | Modified Project | Extent of Change |
|-----------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Total area surveyed | 303 ha | 414 ha | Increase of 111 ha |
| Archaeological sites impacted by the Indicative Development Footprint | 32 sites | 42 sites (16 sites identified in the Approved Project and 26 new, unrecorded sites) | Avoidance of 16 sites from the Approved Project 26 additional sites as part of the Modified Project. |

Whilst the Modified Project contains an additional 26 Aboriginal sites, it has actively avoided 16 of the 32

sites identified with the Approved Project. However, compared to the Approved Project that covered approximately 303ha of surveys that supported investigations between 2013 - 2015, the surveys conducted for the Modified Project covered 414 hectares (including the Indicative Development Footprint – External Roads).

A majority of these surveys were concentrated in the lower lying valleys that were not previously subject to archaeological investigations³¹. It was noted that these lower lying valleys contain higher densities of artefacts compared to those found on high ridge crests that typically have low archaeological sensitivity, significance and potential for finds.

The Preferred Transport Route has avoided several Aboriginal sites along the southern portions of public road sections approved for use within the Development Consent. The Indicative Development Footprint – External Roads will only impact two recorded sites (IF3 and IF12), avoiding potential harm to multiple Aboriginal sites.

All AFTs were noted to be of low scientific value, with little research potential to assist in the development of site modelling for the local area.

The PADs were noted to be of low to medium scientific value. This is because a scientific value (potential to hold intact contextual information regarding past Aboriginal land use) will not be known until the site has been subject to archaeological test excavations.

Appendix 5 of the Development Consent contains Aboriginal heritage items whereby impacts are to be avoided, minimised or items salvaged in accordance with Condition 24 of Schedule 3. Table 43, Table 44 and Table 45 shows the existing Aboriginal Heritage Items of the Development Consent and Additional Aboriginal Heritage Items as part of the Modified Project. For the Modified Project, the level of mitigation for SU17/L1 has been modified from 'avoid impacts' to 'minimise impacts' to allow the opportunity for salvage.

Table 43: Aboriginal heritage items - avoid impacts

| Survey Unit | Site Name / Item |
|-----------------------------------------------------------------------------|------------------|
| Existing Aboriginal Heritage Items of the Development Consent | |
| SU15 | SU15/L1 |
| SU17 | SU17/L2 |
| SU27 | SU27/L1 |
| Additional Aboriginal Heritage Items as part of the Modified Project | |
| SU 55 | AFT 1 + PAD |
| SU 63 | AFT 5 + PAD |
| SU 60 | IF1 |
| SU 61 | IF2 |
| SU 181 | PAD 2 |
| SU 62 | PAD 3 |
| SU 66 | Cultural Site 1 |
| SU 116 | Cultural Site 2 |

³¹ The internal access tracks have been moved from the high ridge crests to the lower lying valleys to reduce the amount of vegetation clearing required and for constructability purposes.

Table 44: Aboriginal heritage items - minimise impacts

| Survey Unit | Site Name / Item |
|-----------------------------------------------------------------------------|-----------------------------------------------------|
| Existing Aboriginal Heritage Items of the Development Consent | |
| SU3 | SU3/L1, SU3/L2 |
| SU4 | SU4/L1 |
| SU6 | SU6/L1 |
| SU8 | SU8/L1 |
| SU23 | SU23/L1, SU23/L2 |
| SU24 | SU24/L1 |
| Additional Aboriginal Heritage Items as part of the Modified Project | |
| SU17 | SU17/L1 |
| SU109 | AFT 2 + PAD (salvage if impacts can't be minimised) |
| S83 | AFT 3 + PAD (salvage if impacts can't be minimised) |
| SU116 | AFT 4 + PAD (salvage if impacts can't be minimised) |

Table 45: Aboriginal heritage items - undertake salvage excavations

| Survey Unit | Site Name / Item |
|-----------------------------------------------------------------------------|---------------------------|
| Additional Aboriginal Heritage Items on the Development Consent | |
| SU30 | SU30/L1, SU30/L2, SU30/L3 |
| SU33 | SU33/L3 |
| Additional Aboriginal Heritage Items as part of the Modified Project | |
| SU172 | PAD 1 |

The ACHA identifies that where sites are close to the Indicative Development Footprint – Wind Farm, a 20m buffer is to be applied to avoid harm to these sites. For item SU17/L1, as this site was previously identified to have PAD, the ACHA recommends the area be avoided with a 10m buffer or utilise underground boring to avoid impacts. If impacts can't be avoided, then archaeological test excavations will be required prior to construction. Once the final wind turbine locations are confirmed in accordance with the micro-siting conditions of the Development Consent, ancillary infrastructure can be maneuvered to avoid direct impacts to these sites, where applicable.

With the implementation of mitigation measures, the Modified Project would result in a similar to moderately increased level of harm in comparison to the Approved Project.

Consultation for Aboriginal and Cultural Heritage in relation to the Project commenced in 2012. Five groups registered their interest in the Project:

- Onerwal LALC;
- Buru Ngunawal Aboriginal Corporation;
- Gundungurra Aboriginal Heritage Association Inc;
- Carl and Tina Brown; and

- Gunjeewong Cultural Heritage Aboriginal Corporation.

Consultation with the Registered Aboriginal Parties (RAPs) for the Modified Project has involved:

- Confirmation from BCD that continued consultation with the RAPs is considered adequate
- Notification of the proposed modifications and need for additional surveys to the RAPs
- Preparation of the methodology, provided to the RAPs with no comments received in response
- Fieldwork completed with participants from the Onerwal LALC and Buru Ngunawal Aboriginal Corporation

A draft of the ACHA was provided to the RAPs for comment, with the final report to incorporate information provided by the RAPs.

Mitigation of harm to cultural heritage sites can be through avoiding sites or direct management measures of the Aboriginal objects.

Prior to construction, all surface artefacts (IF and AFT sites) identified in Table 40 and Table 41 are to be collected by a qualified archaeologist and RAP representatives and Aboriginal heritage information management system (AHIMS) site cards updated to reflect that salvage has been undertaken and reburial locations identified.

Additionally, subsurface testing and salvage excavation will be required across areas identified as PAD where ground disturbance cannot be avoided. Any artefacts found should be collected and reburied in a safe area near the original PAD, unless otherwise requested by the RAPs.

Accordingly, **the Modified Project will not impact the ability to comply with Condition 24 and 25, Schedule 3 of the Development Consent.**

An updated schedule of Aboriginal heritage items is to form part of the Modified Development Consent, contained in Appendix C.4

A draft Aboriginal Heritage Management Plan (AHMP) was prepared in accordance with Condition 25, Schedule 2 of the Development Consent. This AHMP will be amended in accordance with the Modified Project and subsequent changes to impacts on ACH values. The amended AHMP will outline suitable measures to management the impacts of the development on Aboriginal Heritage Items within and outside of the Project Indicative Development Footprints.

7.8 Historic (European) Heritage

7.8.1 Approach

A Historic (European) Heritage Assessment (HHA) conducted in association with the ACHA (contained in Appendix G.6) was prepared by NGH Pty Ltd to assess the change in potential impacts on Historic Heritage from the Approved Project to the Modified Project.

The assessment involved:

- Registered search to identify known heritage items within the vicinity of the modified Development Corridor
- Review of historic land use, and
- Field surveys to identify any potential historic items and/or archaeological deposits.

The HHA considers the change in potential impacts on historic heritage values as a result of the Modified Indicative Development Footprint – Wind Farm (discussed in Section 4.3) and addition of the Indicative Development Footprint – External Roads.

The Guideline states:

“...Aboriginal Cultural Heritage will continue to be dealt with through existing policies and practices...”

No Conditions of Consent relate specifically to matters to do with historic heritage.

7.8.2 Assessment

The aboriginal cultural heritage assessment report that supported the RTS Project was updated from the ACHA that supported the Original EIS. For the revised ACHA, the assessment concluded that the three historic heritage items recorded did not warrant heritage listing, however it was confirmed that they would be avoided as part of finalising the final wind turbine and infrastructure layout.

As such, there were no identified Historic Heritage impacts for the Approved Project.

Accordingly, the Department did not identify Historic Heritage as a key impact associated with the Project, which was supported by the PAC.

For the Modified Project, the HHA found:

- No historic heritage listings of Commonwealth, National, or NSW State Significance were found within the proposal area for the Modified Development Corridor
- No current historic heritage listings of local significance within 5km of the Modified Project site will be impacted, and
- No potential historic heritage items were identified within the Indicative Development Footprint – External Roads.
- Eight areas of historic (European) archaeological subsurface potential have been identified within the Indicative Development Footprint.
 - o One of the areas has high subsurface potential and may be impacted by cabling;
 - o Six of the areas have moderate subsurface potential that may be impacted by the transmission lines or cabling; and
 - o One of the areas has low subsurface potential and may be impacted by cabling.

The ACHA that supported the RTS Project found that as with the Original EIS, the revised layout would not impact on any items of European heritage.

Whilst the Modified Project contains additional areas with historic heritage archaeological potential, the surveys conducted for the Modified Project covered 414 ha (including the Indicative Development Footprint – External Roads) compared to the 303 ha surveyed in the previous ACHA. The previous ACHA further noted that a majority of the transmission lines had not been surveyed.

Compared with the Approved Project, **the overall impact on Historic Heritage is considered to be slightly higher.**

The ACHA recommends that for the Modified Project, works should avoid the locations of historic archaeological potential as identified in Appendix G.6 and a buffer distance of 20m is to be applied to avoid harm to these areas. Once the final turbine locations are confirmed in accordance with the micro-siting conditions of the Development Consent, ancillary infrastructure can be realigned to avoid direct impacts to these areas, where applicable. If impacts to these areas is unavoidable, the HHA recommends the areas be subject to further investigations in the form of a Statement of Heritage Impact and/or an Archaeological Assessment.

The required mitigation measures for impacts on historic heritage will be further detailed in a Heritage Management Plan in accordance with Condition 25 of Schedule 3 of the Development Consent.

Accordingly, the **Modified Project will not impact the ability to comply with Condition 25 of Schedule 3 of the Development Consent that relates to heritage management.**

7.9 Traffic and Transport

7.9.1 Approach

A Traffic Impact Assessment (TIA) (contained in Appendix G.7) was prepared by SMEC to assess the change in potential traffic and transport impacts from the Approved Project to the Modified Project.

The Guideline states:

“...the consent authority will give consideration to the extent to which the local and classified road network can accommodate the type and volume of traffic generated by the wind energy project, including the adequacy of any proposed road upgrades and maintenance commitments, having regard to the advice of relevant road authorities.”

The TIA has considered the relevant conditions of the Development Consent (Table 46) and was prepared in accordance with the DGRs for the Original EIS which broadly included:

- Details of traffic volumes
- Traffic impacts on the road network function
- Capacity of the existing road network to accommodate the type and volume of traffic
- Mitigation measures to manage potential impacts
- Detail of access roads within the site and how they connect to the existing public road network, and
- Consideration of Council traffic/road policies.

Table 46: Relevant Traffic and Transport Conditions

| Relevant Conditions | Description |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Condition 26 of Schedule 3 Designated Heavy and Over-Dimensional Vehicle Routes | Requires the Applicant to ensure all over-dimensional and heavy vehicle access to and from the site is via the designated routes identified in the figures in Appendix 7. |
| Condition 27 of Schedule 3 Road Upgrades | Requires the Applicant to implement the road upgrades identified in Appendix 6 in accordance with the relevant timing requirements, to the satisfaction of the relevant roads authority. |
| Condition 28 of Schedule 3 Road Maintenance | Requires the Applicant to prepare dilapidation surveys of the designated over-dimensional and heavy vehicle route and to make good any development-related damage. |
| Condition 30 of Schedule 3 Traffic Management Plan | Requires the Applicant to prepare a Traffic Management Plan to manage traffic related impacts of the Project. |

The TIA considers the change in potential traffic and transport impacts as a result of:

- Selection of the Preferred Transport Route via the local road network (discussed in Section 4.4.1)
- Consideration of three over-dimensional and heavy vehicle transport route. One from Port Kembla and two from the Port of Newcastle via the major road network (discussed in Section 4.4.2), and
- Modification to the, Indicative Development Footprint- Wind farm and reduction in wind turbine numbers, that has influenced the amount of construction material, water and equipment requiring transportation

to site (discussed in Section 4.3.6).

The comparative assessment focused on the difference between the construction generated traffic between the Modified Project and Approved Project, utilising both the rebaselined construction traffic volumes and findings of the previous TIA (undertaken to support the RTS) ³².

7.9.2 Assessment

The traffic impact assessment that supported the RTS found that the primary traffic impacts were temporary and associated with the construction phase of the Project. In particular, delivery of over-dimensional and heavy vehicles may impact on local traffic flows. However, with the implementation of mitigation and management measures, the likely traffic impacts were considered acceptable.

The Department identified traffic and transport as one of the key issues associated with the Project. However, the Department agreed that with suitable road upgrades, regular road maintenance, and the implementation of a detailed Traffic Management Plan (TMP), the Project would result in acceptable impacts on the capacity, efficiency and safety of the road network.

Accordingly, the Department authorised Conditions 26-28 and Condition 30, of Schedule 3 of the Development Consent to be actioned in consultation with the RMS and the Councils.³³

The PAC agreed with the Department's assessment and consideration of mitigation measures. The PAC further acknowledged the community would benefit from road improvements undertaken as part of the Project.

Consistent with the Approved Project, the Modified Project will generate a large amount of additional traffic, particularly during the construction phase of the Project. Operational traffic is expected to be low, limited to operational staff carrying out scheduled and un-scheduled activities during standard work hours.

Construction traffic generated by the Project involves the delivery of plant, equipment and materials including the movement of standard road vehicles up to over-size and over-dimensional vehicles³⁴, which has the potential to impact the local and regional traffic network. Table 47 summarises the total and daily predicted heavy vehicle construction traffic volumes for all three scenarios³⁵.

The Modified Project represents a 92% increase in traffic from the RTS traffic impact assessment. Whilst this is a significant increase, the construction traffic assumptions used to estimate in the RTS traffic impact assessment construction traffic are significantly different to those used to estimate the construction traffic in the re-baselined Approved Project, and Modified Project, which are considered more accurate.

³² Construction traffic estimates for the Approved Project were rebaselined against a 350m³ turbine foundation using the same construction traffic inputs assumptions as the Modified Project.

³³ 'Councils' refers to Hilltops Council, Upper Lachlan Shire Council and Yass Valley Council

³⁴ An over-mass / over-dimensional vehicle is a heavy vehicle that is carrying, or specially designed to carry large, indivisible items. An indivisible item is one that cannot be divided or cannot be carried on a vehicle without contravening a mass requirement or dimension requirement.

³⁵ Daily heavy vehicle construction traffic assumes an 18-month construction period with 22 working days per month. It is assumed that the total construction traffic is distributed uniformly over the entire construction phase. It has also been assumed that excess spoil does not require to be transported from the site, as it will be reused on site.

Table 47: Heavy Vehicle Construction Traffic Generation

| Traffic generated | RTS Project | Approved Project (re-baselined) | Modified Project |
|--------------------------------------|-------------|---------------------------------|--------------------------|
| Total traffic (One-way) | 15,055 | 33,031 | 32,986 |
| Change from RTS (%) | - | 119.4% (Increase) | 119.1% (Increase) |
| Change from the Approved Project (%) | - | - | -0.1% (reduction) |

As a result of the 13% reduction of wind turbines from the Project, **the Modified Project is estimated to decrease heavy vehicle traffic generated during the construction phase of the project by 0.1%.**

The 0.1% reduction is against the Approved Project where construction traffic generation was rebaselined against the approved 92 wind turbine layout. The 33,031 heavy vehicle traffic movements reflect the actual traffic generation of the Approved Project, should it have been constructed.

The main traffic and transport impacts of the Modified Project will be during the construction phase and on local roads around the Project boundary. These impacts include potential damage to local road surfaces and impacts on local traffic, particularly by over-dimensional and heavy vehicle traffic movements during the construction period.

Details on the likely impacts on local roads and RMS roads along the Preferred Transport Route are outlined in Section 4.4. The required road upgrades to facilitate transportation of over-dimensional and heavy vehicle traffic is also discussed in Section 4.4. Measures to mitigate potential impacts to local traffic during the construction period will be outlined in a Traffic Management Plan in accordance with Condition 28, of Schedule 3 of the Development Consent. The TMP will be prepared in consultation with the relevant Councils to ensure that applicable safety standards are achieved and disruption to local traffic is minimised.

Accordingly, **The Modified Project will not impact the ability to comply with Conditions 26-28 and Condition 30, of Schedule 3 of the Development Consent that relates to traffic.**

As outlined in Section 4.0, the Modified Project requires amendment to Appendix 6 to reflect the Preferred Transport Route and Appendix 7 to reflect the Over dimensional and heavy vehicle access routes with multiple options and access points for the Preferred Transport Route.

7.10 Electromagnetic Interference

7.10.1 Approach

An Electromagnetic Interference Assessment (EMIA) (contained in Appendix G.8) has been prepared by DNV GL to assess the change in potential electromagnetic interference (EMI) impacts from the Approved Project to the Modified Project.

The Guideline states:

“...the consent authority will give consideration to the risk of electromagnetic interference with telecommunication services in the area, and the adequacy of the measures proposed to ensure the level of service is maintained.”

The methodology adopted for the EMIA has been undertaken in accordance with the Guideline as outlined in Table 48 and Conditions of the Development Consent outlined in Table 49.

Table 48: Relevant EMI Guidelines

| Relevant Guidelines | Description |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Draft National Wind Farm Development Guidelines (EPHC, 2010) | The guidelines provide best practise guidance about the issues associated with EMI impacts, and details methods for assessing the potential of such impacts. They also advise on which stakeholders should be consulted and the information they may require. |

Table 49 Relevant EMI Condition

| Relevant Condition | Description |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Condition 33 of Schedule 2 Radiocommunications | Requires the Applicant to 'make good' any disruption to radiocommunication services as soon as possible following the disruption. |

The EMIA considers the change in potential EMI impacts as a result of the removal of 12 wind turbines and increase to the wind turbine envelope (outlined in Table 8).

Given potential impacts on EMI against the Approved Project were never assessed, the EMIA modelled the indicative wind turbine locations and increased wind turbine envelope against the rebaselined Approved Project to assess the changes between the Approved Project and the Modified Project.

7.10.2 Assessment

The telecommunications impacts assessment that supported the RTS found that no adverse impacts to EMI were anticipated from the RTS Project, including impacts on existing telecommunications and aviation navigation services. Several mitigation strategies were proposed to curtail any identified impacts.

Accordingly, the Department authorised Condition 33 of Schedule 2 that requires the Applicant to mitigate any unforeseen disruption to services during operation of the Project.

The PAC supported the Department's assessment and did not identify EMI as a key impact associated with the Project.

The EMIA, of the Modified Project, found:

- **No increased impact to nearby radiocommunication towers, point-to-point links, emergency services communications, meteorological radar, trigonometrical stations, citizen's band radio communications, or satellite television and internet signals;**
- **Potential for interference with point-to-area style communications such as mobile phone signals, radio broadcasting and terrestrial television broadcasting. However, mitigation measures are available to rectify potential impacts; and**
- **Increased potential for cumulative impacts on mobile phone, radio, and television signals. However, mitigation measures are available to rectify potential impacts.**

Table 50 summarises the results of potential impacts to broadcast towers and transmission paths and assesses the extent of change in impacts from the Approved Project to the Modified Project.

Table 50: EMI assessment results

| Licence or service type | Assessment findings for the Approved Project | Assessment findings for the Modified Project |
|---------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Radiocommunication Towers | No towers within 2 km of any proposed wind turbine locations. No expected interference | No change from approved 92 wind turbine configuration findings. |

| Licence or service type | Assessment findings for the Approved Project | Assessment findings for the Modified Project |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | with existing signals. | |
| Fixed point-to-point links | Two links crossing the Project boundary operated by NSW Rural Fire Service and Office of Environment and Heritage. Wind turbines not within exclusion zone and far from towers to avoid impacts. | No change from approved 92 wind turbine configuration findings. |
| Fixed point-to-multipoint links | Two base stations within 20 km of the Project boundary operated by Hilltops Council and Yass Valley Council. Potential for interference if links cross Project site in proximity to wind turbines. | <p>Unable to determine extent of change from approved 92 wind turbine configuration findings.</p> <p>Consultation has commenced with operators to confirm impacts. This feedback as well as further engagement once a final is selected will inform the final layout and any mitigation measures required.</p> <p>Operators consulted include:</p> <ul style="list-style-type: none"> - ACTEW AGL Distribution, - Hilltops Council, - Upper Lachlan Shire Council, - Water NSW, and - Yass Valley Council. |
| Emergency Services | <p>One point-to-point link operated by NSW Rural Fire Service (as identified in fixed point-point links service type).</p> <p>Mobile telephone systems unlikely to be affected.</p> | No change from approved 92 wind turbine configuration findings. |
| Meteorological Radars | Unlikely to be affected | No change from approved 92 wind turbine configuration findings. |
| Trigonometrical Stations | Unlikely to be affected | No change from approved 92 wind turbine configuration findings. |
| Citizen's Ban (CB) Radio and Mobile Phones | Unlikely to be affected | No change from approved 92 wind turbine configuration findings. |
| Wireless Internet | Mobile phone networks and wireless internet in proximity to Wind Farm. | <p>Larger wind turbines may lead to interference of services. Unable to determine extent of change from approved 92 wind turbine configuration findings.</p> <p>Consultation with applicable operators will be undertaken once a final wind turbine is selected which will inform the final layout and mitigation measures required.</p> <p>Potential mitigation measures are outlined in Table 51.</p> |
| Satellite Television and Internet | Services identified for Australia unlikely to be affected. Signals from satellites not intended for Australia intercepted at 13 residences, however signals are not intended to be | One additional residence potentially affected from the approved 92 wind turbine configuration layout. |

| Licence or service type | Assessment findings for the Approved Project | Assessment findings for the Modified Project |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | received at residences. | |
| Radio broadcasting | AM signals unlikely to be affected. FM signals may experience interference. Digital radio signals not available in vicinity of the Project. | Larger wind turbines may increase potential for interference. Consultation with applicable operators will be undertaken once a final wind turbine is selected which will inform the final layout and mitigation measures required. Potential mitigation measures are outlined in Table 51. |
| Television broadcasting | May experience interference in areas with poor or marginal reception. | Larger wind turbines may increase potential for interference. Consultation with applicable operators will be undertaken once a final wind turbine is selected which will inform the final layout and mitigation measures required. Potential mitigation measures are outlined in Table 51. |

The expected cumulative EMI impact of the Project was assessed considering the nearby Bango Wind Farm, currently under construction approximately 8 km west of the Project site.

For services where impact from the Project itself is considered unlikely or non-existent, it is anticipated there will be no cumulative impact. For services that may experience potential impacts, the same mitigation measures applicable for the Modified Project may be applicable should cumulative interference occur for impacts (outlined in Table 51).

Consultation has commenced with key point-to-multipoint stakeholders to better understand the link paths and determine likely impacts. These include:

- ACTEW AGL Distribution
- Hilltops Council
- Upper Lachlan Shire Council
- Water NSW, and
- Yass Valley Council

Of the several responses received back from the stakeholders, no point-to-multipoint links have been identified to cross the Project boundary. Potential cumulative impacts will also be established through consultation with these stakeholders. Once a wind turbine model selected and the final layout is being designed in accordance with the micro-siting conditions of the Development Consent, consultation with the relevant operators will be undertaken to determine appropriate mitigation measures for potential impacts (if required).

Table 51 outlines the mitigation measures available to curtail potential interference with point-to-area style communications. Point-to-point links are unlikely to be affected by the Project whilst mitigation measures for point-to-multipoint services will be determined in consultation with the relevant stakeholders.

Table 51: Available mitigation measures

| License or service type | Available Mitigation Measures |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mobile Phones and Wireless Internet | Moving a short distance to a new or higher location until the signal improves, or using an external antenna to improve the signal |
| Wireless Internet | Moving outdoor antennas for impacted residences, to micro-siting wind turbines or installing a new NBN tower. |
| Radio broadcasting (FM Radio) | Installing high-quality antennas or amplifiers at affected residences, increasing the broadcast signal strength from the transmission tower, moving the tower away from the Wind Farm or installing a signal repeater on the opposite side of the Project. |
| Television broadcasting | Realigning or relocating the resident's television antenna, tuning antenna into an alternative source, installing a more directional or higher gain antenna, installing satellite television or installing a television relay station. |

The Modified Project will not impact the ability to comply with Condition 33 of Schedule 2 of the Development Consent that relates to radiocommunication. In accordance with Condition 33 of Schedule 2, the Applicant must implement mitigation measures within one month following any disruption as a result of the development.

7.11 Aviation

7.11.1 Approach

An Aeronautical Impact Assessment (AIA) (contained in Appendix G.9) has been prepared by Landrum & Brown Worldwide (Australia) Pty Ltd to assess the change in potential aeronautical impacts from the Approved Project to the Modified Project.

The Guidelines state:

“...wind energy projects need to consider potential safety hazards for aircraft through intrusion of the wind turbines into the airspace; and potential effects on navigation instruments.”

The AIA had regard to:

- The Aeronautical Information Publication (effective 27 February 2020)
- The Aeronautical Charts (effective 7 November 2020)
- Relevant Acts and Regulations applicable to developments near airports and air traffic routes, and
- The requirements of relevant aviation authorities.

Additionally, The AIA considered the relevant conditions imposed on the Development Consent as outlined in Table 52.

Table 52: Relevant Aviation Conditions

| Relevant Conditions | Description |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Condition 31 – 32, Schedule 3 Notification of | Requires the Applicant to provide the final co-ordinates, height and ground level of each turbine and details of any proposed aviation hazard lighting to CASA, Air services Australia, and the RAAF. |

| Relevant Conditions | Description |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aviation Authorities | |
| Condition 5(b)(c), schedule 3 Lighting | Requires the Applicant to ensure aviation hazard lighting complies with CASA's requirements and hazard lighting design includes all reasonable and feasible measures to minimise visual impact. |

The AIA considers the change in potential impact as a result of the removal of 12 wind turbines and increase to the wind turbine tip height.

As aeronautical impacts were never assessed against the Approved Project, this AIA compares the Modified Project to the results of the assessment that supported the Original EIS³⁶.

7.11.2 Assessment

The aeronautical impact assessment that supported the Original EIS determined that the Project would not result in impacts to registered or certified aerodromes, performance of any navigation aids or impact the Mt Majura Primary Surveillance Radar (PSA) and Secondary Surveillance Radar (SSR). The Project was predicted to impact on four published air routes (Lowest Safe Altitude, LSATs), however Airservices confirmed these impacts could be mitigated. Additionally, the Project would likely impact aerial agricultural applications adjacent to wind turbine locations³⁷. Furthermore, it was not considered appropriate to install wind turbine lighting due to the physical separation between the wind farm and closest airport, the wind turbine height being below the lowest safe altitude for aviation and general community concerns around wind turbine obstacle lighting at night.

Accordingly, the Department authorised Condition 5(b)(c), of Schedule 3 and Conditions 31-32 of Schedule 2 (Table 4) to mitigate any potential impacts to aviation as a result of the Project.

The PAC accepted the Department's determination on aviation related impacts as a result of the Project

Since preparation of the AIA that supported the RTS, air routes and navigational aid infrastructure has changed. Table 53 compares the likely impacts between the Approved Project and the Modified Project.

Table 53: Aeronautical impacts of the Approved Project and Modified Project

| Type of Impact | Approved Project | Modified Project |
|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| OLS and PANS-OPS surfaces of any registered or certified aerodrome | Will not infringe on any OLS and PANS-OPS surfaces of any registered or certified aerodrome | Will not infringe on any OLS and PANS-OPS surfaces of any registered or certified aerodrome |
| Navigational Aids | Outside of the clearance zones for navigational aids | Outside of the clearance zones for navigational aids |
| Mt Majura SSR radar and Mt Bobbara SSR radar | No expected impact | No expected impact |
| Mt Majura PSR radar | No expected impact | The wind farm may generate radar plots, however radar filters are likely to restrict |

³⁶ The AIA prepared for the Original EIS was not updated for the RTS report.

³⁷ Mitigation measures regarding impacts to aerial agriculture are not specified in the Development Consent, however were committed to in the Statement of Commitments (SoC) outlined in the RTS. An assessment against SoC is provided at Appendix D.

| Type of Impact | Approved Project | Modified Project |
|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | false plots appearing on radar controller's display. However, no significant adverse effect to the performance of the radar is anticipated due to the distance of the radar from the wind farm. |
| Lowest Safe Altitude (LSALT) protection surfaces for published air routes | Will infringe on LSALT protection surfaces for four published air routes. However, this would be addressed through an administrative change to the Lowest Safe Altitudes for these routes prior to construction. | Will infringe on the LSALT protection surfaces for four published air routes. However, this would be addressed through an administrative change to the Lowest Safe Altitudes for these routes prior to construction. |

The findings of the Modified Project are generally in line with those found in the AIA that supported the RTS report, thus **the change in aviation related impacts from the Approved Project to the Modified Project is considered negligible.**

Feedback on the AIA for the Project was sought from Civil Aviation Safety Authority (CASA), Air Services Australia and Department of Defence on 13 December 2019. A response from Airservices Australia confirmed they had no objection to the Project. CASA and the Department of Defence (DoD) are yet to respond with feedback.

It is understood that CASA have previously indicated, for other projects, that obstacle lighting is likely required for wind turbines exceeding the minimum altitude of 152m AGL and the need to ensure that low level flights are able to identify and avoid the wind turbines.

As part of the consideration of this Modification Application, the Department will refer the application to CASA for their advice on whether the Project is likely to cause a hazard without appropriate obstacle lighting.

Furthermore, as the Modified Project wind turbine tip heights will exceed 110m AGL, formal notification to CASA and DoD is required as part of the tall structures notification process in accordance with:

- CASA Advisory Circular AC 139-08(0) "Reporting of Tall Structures" to enable inclusion of the wind farm location and height of wind turbines in relevant aeronautical information publications; and
- CASA Form 406 – "Operational Assessment of Existing and Proposed Structures".

In accordance with Conditions 31 – 32 of Schedule 3, the relevant aviation authorities will be provided details of the wind farm once a wind turbine model has been selected and the layout finalised. The aviation authorities will not assess or comment on the wind farm until then.

Accordingly, **the Modified Project will not impact the ability to comply with Condition 5(b)(C) and Conditions 31 and 32, Schedule 3 of the Development Consent that relate to aviation.**

8.0 Other Legislation

8.1 State Legislation and Policies

NSW Environmental Planning and Assessment Act 1974

As outlined in Section 2.0, a development consent may be modified on further application, provided the modified development is 'substantially the same' as the Approved Project. The proposed modification is considered a modification of minimal environmental impact, pursuant to 4.55(2) of the Act.

NSW Protection of the Environment Operations Act 1997

At the time of initial approval, a requirement for the Environmental Protection Licence (EPL) was not imposed for the Project, given the provisions of the *Protection of the Environment Operations Act 1997* (POEO Act) in force did not include wind power generation in the category of 'general electricity works' that must be licensed (Section 48 and Schedule 1, clause 17(1)). However, the Environment Operations Amendment (Scheduled Activities) Regulation 2013 which came into force on 28 June 2013 amended these provisions. Schedule 1 clause 17(1) of the POEO Act now requires an EPL for electricity works (wind farms) that meet the specified approval criteria. An EPL would be required for the Project.

NSW Biodiversity Conservation Act 2016

The original biodiversity assessment (NGH Environmental 2014; NGH Environmental 2016) was undertaken under the now repealed Section 5A of the EP&A Act to consider impact to species, population and ecological communities listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act). This has since been superseded by the BC Act 2016 through Section 1.7 of the EP&A Act.

The BC Act requires that a modification application under the EP&A Act be accompanied by a biodiversity development assessment report unless the Environment Agency Head (the Department, BCD) is satisfied that modification will not increase the impact of the Project on biodiversity values.

A BDAR has been prepared by Umwelt (Australia) Pty Limited (Umwelt) to assess the potential biodiversity impacts of the Modified Project, in accordance with the BAM (Appendix G.4).

NSW Roads Act 1993

The *Roads Act 1993* provides for the regulation of activities relating to public roads. The Approved Project required upgrade works to various public local roads to facilitate access to internal access roads for the Project for construction vehicles. Under Section 138 of the *Roads Act 1993*, it is necessary to obtain approval from the appropriate road authority for proposed upgrade works on public roads.

The Development Consent identifies the road upgrades required for the Project if specific transport routes are used. However, at the time the development consent was granted, further design work on the public road upgrades had not commenced and no assessment was able to be made of the extent of any vegetation clearing required to accommodate the road upgrades.

The Proposed Modification clarifies the Preferred Transport Route, has determined whether any further upgrades are required to accommodate the longer wind turbine blades now proposed; and assesses the vegetation removal which will be required to accommodate the proposed road upgrades.

Relevant approvals under Section 138 of the *Roads Act 1993* will be sought. Section 4.42 of the EP&A Act operates so that once SSD consent (including any modification) is granted, consent under Section 138 of the Roads Act cannot be refused and must be granted on terms substantially consistent with the SSD consent.

NSW Crown Lands Management Act 2016

Approval under the *Crown Lands Act 1989* for access via an existing Crown road was provided for the

Approved Project. The Crown Lands Act has been repealed by the *Crown Land Management Act 2016*.

The Applicant has consulted with the Department, Crown Lands division, to discuss options for securing tenure required for construction and operation over the Crown land paper roads within the Project site. A licence will be sought by the Applicant for the proposed upgrade of existing Crown paper roads.

State Environmental Planning Policy (Infrastructure) 2007

The Approved Project is defined as electricity generating works. The proposal was permitted with consent in accordance with Clause 34 of the *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP). As outlined in Section 2.0, the Project as proposed to be modified remains substantially the same as the Approved Project. No additional and distinct land use is proposed. The Modified Project is permitted with consent under ISEPP.

State Environmental Planning Policy (Koala Habitat Protection) 2019

The State Environmental Planning Policy No. 44 - Koala Habitat Protection did not strictly apply to the Project, though the Minister could choose to consider the SEPP in determining the development consent application.

SEPP 44 has since been repealed by the State Environmental Planning Policy (Koala Habitat Protection) 2019 and only applies to development applications determined by councils (local and regional development). The proposal relates to State Significant Development and it is therefore considered the Koala Habitat Protection SEPP does not apply.

8.2 Environment Protection and Biodiversity Conservation Act 1999

A referral under the EPBC Act was made for the Project (EPBC 2014/7163). The Project was determined to be a Controlled Action. The Project was granted approval under the EPBC Act, subject to conditions, on 6 December 2017 (EPBC Approval).

The EPBC Approval was varied on 19 June 2019 to amend the definition of 'construction' and clarify that minor works and activities do not constitute construction.

Discussions with Department of Agriculture, Water and the Environment (DAWE) are in progress in order that the EPBC approval can be brought in line with the NSW approval; re-referral is being undertaken on the basis of Box Gum Woodland CEEC and hollow bearing tree impacts. The EPBC approval process will be undertaken independently of the State process.

9.0 Conclusion

The Proposed Modifications are required to enable the Project to utilise improvements in wind energy technology to enable significantly more renewable energy production to be achieved with fewer, larger wind turbines and to reflect the outcomes of the ongoing design optimisation and assessment carried out as the Project progresses towards construction.

The justification for the Proposed Modifications and the associated benefits can be summarized as follows:

- By using the more efficient turbine models the Project has the potential to generate more renewable electricity from the same project footprint, ultimately resulting in a lower cost of energy from the Project with clear benefits to the end user and energy consumer;
- Greater efficiency; optimised cabling and transmission line infrastructure minimising electrical losses and maximising the generation capacity of the Project. Subsequent benefits as a result of this include:
 - o Reduction of transmission losses;
 - o Minimisation of resource use and waste generation;
 - o Reduced project cost and timelines; and
 - o Reduced haulage requirements.
- The Project is strongly aligned with the NSW Government energy and Commonwealth climate policies. The Project will provide 100% emissions free, renewable energy and help NSW with its inevitable transition away from its current reliance on fossil fuels which are continuing to contribute to climate change impacts;
- The Project will make a significant contribution to the shortfall in generation that will arise with the forecast retirement of Lidell Power Station in the near future and other coal-fired generators over the coming years;
- The Project will provide full time employment for up to 250 staff during construction and up to 10 ongoing regional jobs during its operational life providing increased employment opportunities; and
- The Project will also result in a direct injection of approximately \$2-\$3 million per annum to the local community through payments to landholders, permanent staff and benefit sharing plan contributions providing better diversification of income and a drought proof and post retirement income for farmers and shared benefits.

Contact with stakeholders began early in the Project lifecycle and will continue to the end of the lifecycle during decommissioning. The Applicant strives to ensure community engagement occurs throughout all aspects of the Project's lifecycle and that project staff are proactive in engaging with the communities the Applicant are guests within, in a method that is open, inclusive, responsive and accountable. Since mid-2019, the Applicant has consulted with stakeholders and local communities in relation to the Proposed Modifications. The Applicant has engaged extensively with landowners and neighbours, community members, Councils and State government.

A detailed assessment of the key impacts of the Proposed Modification has been undertaken by technical specialists. The assessment focused on the potential change in impacts compared with the Approved Project. The assessment has also taken into consideration the relevant environmental issues identified in the Original EIS and RTS. The following table summarises changes to impacts, mitigation strategies and Development Consent conditions:

Table 54 Summary of change in impact, mitigation strategies and Development Consent conditions

| Specialist assessment type | Change in impact | Changes to mitigation strategies | Changes to Development Consent |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Visual | Not considered to result in a magnitude of visual change that would significantly increase visual effects (and former visual impact ratings) associated with the Approved Project. | No | No |
| Shadow Flicker and Blade Glint | No increased shadow flicker impacts on non-associated residences and no impact of blade glint. | No | No |
| Noise | With the implementation of the curtailment strategy, noise level from the Modified Project is predicted to achieve the noise criteria at all nearby residences, consistent with the Approved Project. | Yes Implementation of a curtailment strategy | No |
| Biodiversity | No increased impact on <i>White Box Yellow Box Blakely's Red Gum Woodland EEC</i> under the BC Act. Impacts on Box Gum Woodland reduced by 10.71ha. | No | No |
| Bird and Bat | Increased risk to blade strike to species that regularly occur above 30m AGL. No increased impact or adverse impacts to species listed under the BC Act. | No | No |
| Aboriginal Heritage | Increased number of Aboriginal Heritage Items identified, however with the implementation of mitigation measures, the Modified Project would result in a similar to moderately increased level of harm in comparison to the Approved Project. | No | Yes See Section 4.0 for the description of the Proposed Modifications and impact assessment in Section 7.7 |
| Historic (European) Heritage | No impact on historic heritage listings of Commonwealth, National, or NSW State Significance however additional areas of archaeological potential identified. Overall, impact on Historic Heritage is slightly higher compared to the Approved Project. | Yes A 20m buffer to be applied to areas of archaeological potential. Further mitigation to be outlined in a Heritage Management Plan. | No |
| Traffic and Transport | A 0.1% reduction in heavy vehicle construction traffic, however impacts would not be significant if appropriate mitigation is applied. Two additional over-dimensional routes from the Port of Newcastle identified. | No | Yes See Section 4.0 for the description of the Proposed Modifications and impact assessment in Section 7.9 |
| Electromagnetic Interference | Potential for interference with point-to-area style communications such as mobile phone signals, radio broadcasting, and terrestrial television | No | No |

| Specialist assessment type | Change in impact | Changes to mitigation strategies | Changes to Development Consent |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------|
| | broadcasting. A range of options are available to rectify difficulties. Increased potential for cumulative impacts on mobile phone, radio, and television signals. | | |
| Aviation | No infringement of any OLS, PANS OPS surfaces or the Grid LSALTS. Little to no impact upon local flying activities and unlikely to affect ATC surveillance systems. The modified project will infringe the LSALT protection surfaces for four air routes, however this is consistent with the Approved Project. | No | No |

The assessments prepared confirm that the Proposed Modification will result in some increased impacts but that most of these impacts may continue to be appropriately managed by the existing mitigation measures under the Development Consent conditions and the statement of commitments.

The Applicant is strongly committed to ensuring that these measures are implemented in accordance with best practice as informed by the most up to date and detailed information available for the project. This will ensure the best possible outcome for the Rye Park Wind Farm and the local and wider community.

Considering the benefits of the Modified Project, the findings of environmental assessment and the implementation of the existing and additional mitigation strategies it is recommended that the proposed modification can be approved without significant impact to the environment.

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