Modification Application: Wollar Solar Farm

June 2022

Project Number: 20-907

NSW • ACT • QLD • VIC
W. www.nghconsulting.com.au

Document verification

Project Title:	Modification Application: Wollar Solar Farm
Project Number:	20-907
Project File Name:	20-907 Wollar Modification Report Final v1.3 JV.docx

Revision	Date	Prepared by	Reviewed by	Approved by
Draft 1.0	28/02/2022	Rory Taylor	Brooke Marshall	Brooke Marshall
Draft v1.1	10/03/2022	Rory Taylor	Sarah Hillis	Minor changes
Draft v1.2	15/03/2022	Rory Taylor	Sarah Hillis	Sarah Hillis
Draft v1.3	6/04/2022	Rory Taylor	Sarah Hillis	Sarah Hillis
Final V1.0	4/05/2022	Rory Taylor	Sarah Hillis	Brooke Marshall
Final V1.1	9/05/2022	Brooke Marshall minor changes	Brooke Marshall	Brooke Marshall
Final V1.2	30/05/2022	Rory Taylor Brooke Marshall minor changes	Sarah Hillis	Brooke Marshall
Final V1.3	17/06/2022	Brooke Marshall minor changes	Les Seddon	Brooke Marshall

NGH Pty Ltd is committed to environmentally sustainable practices, including fostering a digital culture and minimising printing. Where printing is unavoidable, NGH prints on 100% recycled paper.

W. www.nghconsulting.com.au

E. ngh@nghconsulting.com.au

BEGA - ACT & SOUTH EAST NSW
Suite 11, 89-91 Auckland Street
(PO Box 470) Bega NSW 2550
T. (02) 6492 8333

NEWCASTLE - HUNTER & NORTH COAST
Level 1, 31-33 Beaumont Street
Hamilton NSW 2303
T. (02) 4929 2301

BRISBANE
T3, Level 7, 348 Edward Street
Brisbane QLD 4000
T. (07) 3129 7633

SYDNEY REGION
Unit 17, 21 Mary Street
Surry Hills NSW 2010
T. (02) 8202 8333

CANBERRA - NSW SE & ACT
Unit 8, 27 Yallourn Street
(PO Box 62) Fyshwick ACT 2609
T. (02) 6280 5053

WAGGA WAGGA - RIVERINA & WESTERN NSW
35 Kincaid Street (PO Box 5464)
Wagga Wagga NSW 2650
T. (02) 6971 9696

GOLD COAST
2B 34 Tallebudgera Creek Road
Burleigh Heads QLD 4220
(PO Box 424 West Burleigh QLD 4219)
T. (07) 3129 7633

WODONGA
Unit 2, 83 Hume Street
(PO Box 506) Wodonga VIC 3690
T. (02) 6067 2533

NSW • ACT • QLD • VIC
W. www.nghconsulting.com.au
ABN 31 124 444 622 ACN 124 444 622

Table of contents

Figures

Tables

Appendices

Acronyms and abbreviations

AC	Alternating Current
AV	Articulated Vehicle
CEMP	Construction Environmental Management Plan
Cwth	Commonwealth
DPIE (DPE)	Department of Planning, Industry and Environment (NSW) (now Department of Planning and Environment)
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
GML	General Mass Limits
ha	hectares
km	kilometres
m	metres
MW	megawatt
OSOM	Over-sized over-mass (vehicle)
NHVR	National Heavy Vehicle Regulator
SSD	State Significant Development
TfNSW	Transport for NSW
WSD	Wollar Solar Development Pty Ltd
ZVI	Zone of Visual Influence

Executive summary

Proposed modification

Wollar Solar Development Pty Ltd (ABN 88 621 969 266, incorporated in NSW) (WSD), an Australian developer of utility-scale solar generation, have approval to construct, operate and decommission the up to 290 Mega Watt Wollar Solar Farm (Project). The Project was approved by a development consent SSD 9254 (Development Consent) on 24 February 2020. A Modification (Site access and subdivision) was approved on 12 November 2020, reflected in an updated Consolidated Consent.

During the ongoing detailed design of the Project:

- WSD's contractors identified that some changes are required to the traffic and transport aspects of the Project, including changes to the vehicle movements, number of construction workers and site access routes; and
- WSD has progressed detailed design and this has resulted in minor changes to the indicative specifications provided in the Environmental Impact Statement (EIS; NGH 2019) for the Project.

This modification application seeks to authorise these changes. Specifically, this modification proposes the following changes to the approved Project:

- Update the number of vehicle movements required for the Project during construction, upgrading, and decommissioning to a maximum of:
    - 36 AV/B-double vehicle movements a day;
    - 72 combined medium and/or heavy rigid vehicle movements and AV/B double movements a day; and,
    - 2 over-dimensional vehicle movements a day, with a total of 60 over-dimensional vehicle movements in total will be required during construction, upgrading and decommissioning.
- Update the number of construction workers required for the Project to a maximum of 400.
- Amend the site access arrangements for the two over-dimensional vehicle movements required to deliver the substation transformers so as to enable these to avoid the bridges with incompatible load limits on the current approved access route.
- Make minor updates to the specifications for the solar panels and solar arrays including:
    - the dimensions of the solar panels;
    - the height of the solar arrays and solar panels;
    - the row spacing of the solar arrays; and
    - confirming that it is proposed to use distributed inverters rather than Power Conversion Units.

An updated Project description is provided as Appendix A. There is no proposed change to the site layout of the Project as provided in Appendix 1 of the Development Consent. Similarly, there is no change to the approved development footprint of the Project.

To facilitate these modifications to the approved Project, corresponding updates to the conditions of the Development Consent are proposed. These include:

1. *Definitions* – Amend the definition of AV/B-Double in line with industry standards.
2. *Definitions* – Amend the definition of "EIS" in the Development Consent to add this Modification Report.
3. *Condition 1, schedule 3* – Amend the approved limits on AV/B-Double and over-dimensional movements a day, without increasing overall heavy vehicle movements per day in line with the above.
4. *Condition 1, schedule 3* – Amend the approved limits on over-dimensional vehicles during construction, operation, and decommissioning in line with the above.
5. *Condition 3, schedule 3* – Amend the site access routes for two over-dimensional vehicles in line with the above.

Strategic context

The objectives of the approved Wollar Solar Farm remain unchanged from those set out in the EIS. While it is noted changes in renewable energy and climate change legislation, policy and planning frameworks at a Commonwealth and State level have occurred during this time, the Project remains consistent with the evolved strategic context. This includes with the framework and goals set by the:

- Commonwealth Renewable Energy Target
- Commonwealth Integrated System Plan 2020
- NSW electricity policy, encompassing:
    - *NSW Transmission Infrastructure Strategy (DPE, 2018)*
    - *NSW Electricity Strategy (DPIE, 2019)*
    - *NSW Electricity Infrastructure Roadmap (DPIE, 2020)*

Statutory context

As outlined above, the Wollar Solar Farm is classified as SSD, which is subject to the Development Consent as subsequently modified on 12 November 2020. The statutory context to the Project was described in section 5 of the EIS for the Project. The statutory context remains unchanged to that previously considered in the EIS, subject to the further updates outlined below.

Consultation and engagement

A letter of intent to lodge a modification was submitted to DPE on 26 February 2022 which outlined the proposed modification and assessment approach. DPE's provided a response to the letter of intent on 18 March 2022, indicating general satisfaction with the issues identified in the letter.

In addition, WSD have consulted with Transport for NSW and Mid-Western Regional Council to advise of the proposed modifications as outlined in this modification application. The consultation process is outlined in Section 5.

Assessment of impacts

Visual

- The increase in panel height (from 4m to 5m) affects visual impact assessment modelling assumptions.
- Updated modelling provided in this modification demonstrates the change is negligible. No additional changes to approved mitigation strategies are required.

Traffic and access

- The increased permitted weight of AV/B-Double vehicles aligns with the specifications of NHVR and allows these vehicles to operate as intended with no impact to the road network;
- The proposal to increase the number of AV/B-Double movements permitted per day, but not the overall truck movements per day, is expected to result in a negligible change to the road network given the roads have been assessed as appropriate to accommodate these vehicles.
- The increase in construction workers is expected to have no impact to the road network with all additional staff able to be accommodated within the existing shuttle buses proposed to be used during construction and decommissioning; and
- The proposal to increase the number of Over-Sized Over-Mass (OSOM) vehicles and provide an additional alternative transport route for the two transformers to be delivered, which will only be used in the event the approved route is not suitable. Use of this transport route would be subject to obtaining the appropriate NHVR permits in accordance with the NHVR's standard timeframes as well as adherence to this modification, the EIS and the Conditions of Consent. Where relevant, the Traffic Management Plan will be updated to account for the contents of this Modification.

Noise and vibration

- Modified AV/B-double vehicle movements required under the modification comply with the applicable noise criterion at the nearest affected receivers along arterial and sub-arterial roads.
- For receivers located along local roads, the modified AV/B-double vehicle movements an exceedance is predicted. Exceedances (up to 2dB(A)) were modelled where receivers were within 25m of the road. This affects 20 receivers however, it is noted that an increase of up to 2dB(A) represents a minor impact that is considered barely perceptible to the average person.
- Predicted road traffic noise level contributions from the OSOM vehicle movements associated with the construction, operation and decommissioning of the Wollar Solar Farm comply with the applicable noise criteria at the nearest affected receivers along the proposed routes. Additional noise and vibration of these 2 OSOM vehicle movements along the modified haulage route are considered to be minimal in consideration of the very low numbers and management that will accompany these movements. The modified project would be substantially the same as the approved project.

Heritage

- A number of heritage listed properties and buildings are in close proximity to the modified haulage route for the 2 over-dimensional vehicle movements required to deliver the substation transformers. Assessment has found that the use of the alternative route for the 2 over-dimensional vehicle movements required to deliver the substation transformers is not expected to have adverse impacts on the heritage values of any listed heritage item.

Socio-economic

- A peak workforce of 500 was assessed as being manageable as per information provided in the EIS (NGH, 2019) and revised to 320 in the Submissions Report (NGH 2020) which provided a more detailed monthly breakdown. The modified project which seeks a maximum of 400 would be substantially the same as the approved project and no additional impacts would occur. The peak would occur during Stage 3 and be limited to around 2 months. It would be managed via the Stage 3 Accommodation and Employment Strategy which requires approval by DPE.

Justification of the modified project

The transport changes are requested based on input from construction contractors as detailed design of the Project has progressed and are required to optimise the construction program. In addition, minor updates to the specifications for the solar panels and solar arrays having regard to detailed design, availability and commercial considerations are included. The proposed changes to the Development Consent suggested would ensure that WSD can continue to construct and operate the Project efficiently.

The proposed modifications have been demonstrated to be of minimal environmental impact; they will result in some short-term minor impacts from varied vehicle movements and a negligible increase in the visibility of the array to receivers. These impacts are significantly outweighed by the positive impacts for the Project.

No changes to the mitigation measures are required.

However, if approved, updates to the following plans will be required:

- Haulage plan.
- Traffic Management Plan.
- Accommodation and Employment Strategy.

1. Introduction

1.1 Approved project

The Wollar Solar Farm is located off Barigan Road, approximately seven kilometres (km) south of Wollar and 38 km north-east of Mudgee, in the Central West and Orana region of NSW. Refer Figure 1-1. It is declared State significant development (SSD) and was approved by a development consent SSD 9254 (Development Consent) granted by the Executive Director Department of Planning, Industry and Environment (now the Department of Planning and Environment (DPE)) on 24 February 2020 under section 4.38 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The Development Consent was subsequently modified on the 12 November 2020.

The Development Consent permits the construction, operation and decommissioning of a photovoltaic solar farm generating approximately 290MW directly to the national electricity grid and associated infrastructure. A separate approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was received on 6 July 2020.

1.2 The proponent

Wollar Solar Farm is being developed by Wollar Solar Development Pty Ltd (ABN 88 621 969 266, incorporated in NSW) (WSD), an Australian developer of utility-scale solar generation.

The company is a subsidiary of Beijing Energy International (Australia) Holding Pty Ltd. Beijing Energy International (Australia) Holding Pty Ltd and its subsidiaries (hereafter refer to as “BJEI”) was founded by investors with extensive experience in the renewable energy sector in China mainland and Asia-Pacific.

BJEI has a dedicated management and development team highly experienced in renewable generation project development and operation, transmission network connection, and renewable project transaction and project financing. BJEI is closely related to Beijing Jingneng Clean Energy (Australia) Holding Pty Ltd which owns and manages the Gullen Solar Farm, Gullen Range Wind Farm and Biala Wind Farm. The core team managing these projects are common with those managing the Wollar Solar Farm. These team members have extensive experience in developing, operating and financing utility-scale renewable generation in Australia and internationally.

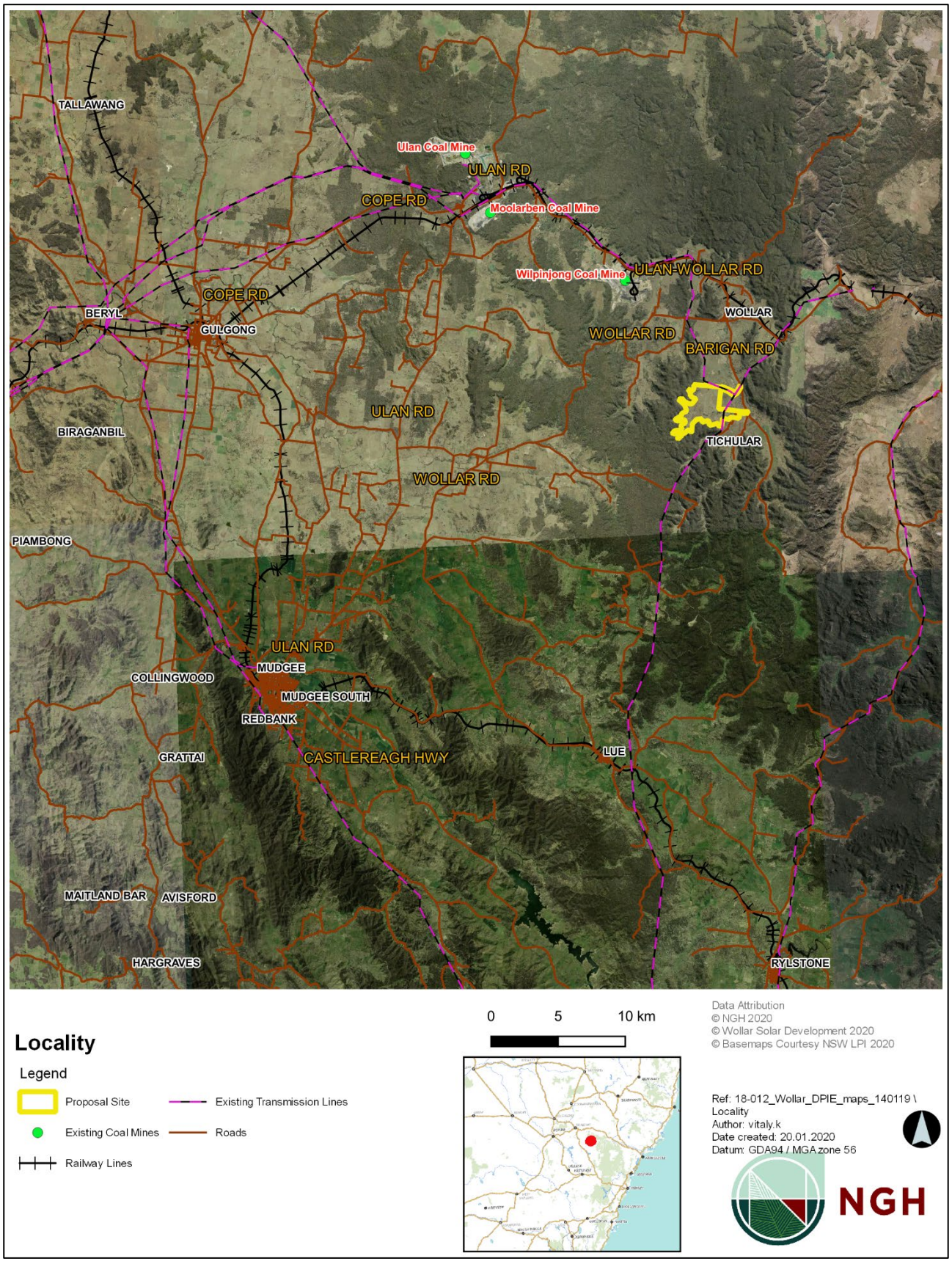

Figure 1-1 Regional setting of the Wollar Solar Farm

1.3 Modification overview

1.3.1 Background to the proposed modifications

During the ongoing detailed design of the Project:

- WSD's contractors identified that some changes are required to the traffic and transport aspects of the Project, including changes to the vehicle movements, number of construction workers and site access routes; and
- WSD has progressed detailed design and this has resulted in minor changes to the indicative specifications provided in the EIS for the Project.

This modification seeks to authorise the changes required to facilitate these changes to the Project.

1.3.2 Description of the proposed modification

This modification proposes the following changes to the approved Project:

- Update the number of vehicle movements required for the Project during construction, upgrading, and decommissioning to a maximum of:
    - 36 AV/B-double vehicle movements a day;
    - 72 combined medium and/or heavy rigid vehicle movements and AV/B double movements a day; and,
    - 2 over-dimensional vehicle movements a day, with a total of 60 over-dimensional vehicle movements in total will be required during construction, upgrading and decommissioning.
- Update the number of construction workers required for the Project to a maximum of 400.
- Amend the site access arrangements for the two over-dimensional vehicle movements required to deliver the substation transformers so as to enable these to avoid bridges with incompatible load limits on the current approved access route.
- Minor updates to the specifications for the solar panels and solar arrays including:
    - the dimensions of the solar panels;
    - the height of the solar arrays and solar panels;
    - the row spacing of the solar arrays; and
    - confirming that it is proposed to use distributed inverters rather than Power Conversion Units.

To facilitate these modifications to the approved Project, corresponding changes to the conditions of the Development Consent are proposed. These include:

1. *Definitions* – Amend the definition of AV/B-Double in line with industry standards.
2. *Definitions* – Amend the definition of "EIS" in the Development Consent to add this Modification Report.
3. *Condition 1, schedule 3* – Amend the approved limits on AV/B-Double and over-dimensional movements a day, without increasing overall heavy vehicle movements per day in line with the above.

4. *Condition 1, schedule 3* – Amend the approved limits on over-dimensional vehicles during construction, operation, and decommissioning in line with the above.
5. *Condition 3, schedule 3* – Amend the site access routes for two over-dimensional vehicles in line with the above.

As required by the *State Significant Development Guidelines – Preparing a Modification Report* (December 2021), a consolidated, detailed description of the modified project (i.e. an updated project description chapter reflecting the modified project) is provided in Appendix A. This includes:

- All of the modifications detailed in this Modification Report; and
- Minor updates arising out of detailed design which remain in accordance with the Development Consent and so do not form part of the proposed modifications to the Project.

There is no proposed change to the general site layout of the Project as set out in Appendix 1 of the Development Consent. Similarly, there is no change to the approved development footprint of the Project. The site layout and development footprint is provided in Appendix B. Final design is still underway and the final layout plans will be provided prior to construction as per Sch 4. Cond. 5 of the current Development Consent. The number of panels estimated at the EIS stage has been reduced from 922,432 to a maximum of 800,000 following more detailed design and procurement. The proposed changes do not impact any additional lots from what was already assessed. No road upgrades are required for the modified haulage route for the two over-dimensional vehicle movements required to deliver the substation transformers. Overall, very minor additional impacts are anticipated from the proposed changes. No changes to the mitigation measures are required. Refer section 6. Updates to the following existing plans will be required:

- Haulage plan, for the substation transformer and associated materials would be required.
- Traffic Management Plan.
- Accommodation and Employment Strategy.

The above plans will be updated with input from Council prior to submission to the Department of Planning and Environment. The plans will be uploaded to the Project's website.

1.3.3 Feasible alternatives

Feasible alternatives were considered as part of the preparation of this Modification Report. It was determined that there are no feasible alternatives because:

- The substation transformers cannot be delivered safely via the currently approved over-dimensional access route;
- The proposed modifications are required to accurately reflect transport requirements so as to facilitate the construction, upgrading and eventual decommissioning of the Project; and,
- Not modifying the Project would require the adoption of a construction methodology that involves a greater total number of heavy vehicle movements, and a longer and less efficient construction program.
- The updated panel design and height optimises the efficiency of the solar farm with less panels and greater spacing in between rows. This slightly increases the visibility of the arrays. The additional height allows flexibility in some areas to reduce earthworks disturbance.

2. Strategic context of the project

2.1 Project objectives

The objectives of the Wollar Solar Farm remain unchanged from the EIS. The project's objectives are to:

- Provide commercial scale solar electricity generation with on-site energy storage capability to support the high voltage transmission network.
- Support efforts to mitigate the effect of climate change through the transition to renewable energy.
- Work collaboratively with key stakeholders to ensure full compliance with all relevant requirements in the location, design, construction and operation of the Project.
- Provide local and regional employment opportunities and other social benefits during the construction and operation of the facility.

The Wollar Solar Farm will generate renewable energy to:

- Assist the NSW and Commonwealth Governments to meet Australia's renewable energy targets.
- Provide a clean and renewable energy source to assist in reducing greenhouse gas emissions.

2.2 Strategic need and project justification

The strategic context of the Project has evolved since the submission of the EIS and amendment report, reflecting changes in renewable energy and climate change legislation, policy and planning frameworks at a Commonwealth and State level.

Electricity generation remains the largest single emitter of greenhouse gas in Australia, contributing 35% of Australia's total greenhouse emissions. Currently, approximately 80% of NSW's energy needs remain derived from fossil fuels, including coal and gas, with only around 20% derived from renewable energy sources. Significant efforts are being made to transition to renewable energy sources of electricity generation and this will continue to accelerate in coming years as further coal-fired power stations close.

The NSW market needs electricity as ageing coal-fired power stations reach the end of their operational life to ensure ongoing energy security and affordability. The Australian Energy Market Operator (AEMO) has forecast that four of the five coal-fired power stations in NSW are expected to retire by 2035. This is equivalent to 9000MW of generation capacity or approximately 75% of electricity supply in NSW. The scheduled retirement of Liddell in 2022-2023 means the NSW electricity market has an immediate need for new generation to bridge this gap.

More recently the AEMO has indicated in the Draft 2022 Integrated System Plan (Draft ISP) (AEMO, 2021) that nationally, coal is retiring at two to three times faster than anticipated. This includes indications of Eraring Power Station closing 1-2 years earlier than previously scheduled. Currently announced closures suggest that 5GW of the current 23GW coal capacity will be withdrawn by 2030. The Draft ISP forecasts faster withdrawals across all scenarios, in particular the suggested most likely Step Change scenario indicates 14GW of coal capacity may be withdrawn by 2030.

2.2.1 Alignment with strategic planning framework

National

Renewable energy target

The Renewable Energy Target (RET) is an Australian Government scheme designed to reduce emissions of greenhouse gases in the electricity sector and encourage the additional generation of electricity from sustainable and renewable sources. The Clean Energy Regulator (CER) administers the both the small and large-scale RET schemes. The Large-scale RET scheme incentivises investment in renewable energy power stations such as wind and solar farms. The Large-scale RET of 33,000 gigawatt hours of additional renewable electricity generation was met at the end of January 2021 (Clean Energy Regulator, 2021). Whilst the annual target will remain at 33,000 gigawatt hours until the scheme ends in 2030, the CER Regulator expects large-scale renewable generation could reach up to 40,000 gigawatt hours in 2021.

The Project would support long term and stable energy policies such as the RET. Additionally, large-scale solar farm projects such as this provide an alternative power generation source resulting in the potential to benefit the Australian community by reducing average household electricity bills and power disruptions.

Specific to Australia's commitments, the Project would provide the following benefits:

- Reduced greenhouse gas (GHG) emissions, contributing to meeting our international climate commitments.
- Aid the transition towards cleaner electricity generation.
- Direct contribution to help in meeting the RET.

Integrated System Plan 2020

The Integrated Systems Plan 2020 (ISP 2020) prepared by AEMO is an "actionable roadmap for eastern Australia's power system to optimise consumer benefits through a transition period of great complexity and uncertainty." A Draft 2022 Integrated System Plan (ISP) was published on 10 December 2021.

REZ's are identified in the ISP 2020 as areas where "clusters of large-scale renewable energy can be developed to promote economies of scale in high quality areas and capture geographical and technological diversity in renewable resources" (Australia Energy Market Operator 2020)

The Project is located on the eastern edge of the Central-West Orana REZ, identified in the ISP and supported by a future ISP project, Central-West Orana REZ network expansion, to connect the renewable generation to the load centre.

NSW

Electricity policy

The NSW Government has released various policy documents since 2018, with the common objective of delivering cheaper, cleaner and more reliability electricity to support future growth. These include:

- *NSW Transmission Infrastructure Strategy* (DPE, 2018)
- *NSW Electricity Strategy* (DPIE, 2019)
- *NSW Electricity Infrastructure Roadmap* (DPIE, 2020)

As highlighted in the *NSW Electricity Infrastructure Roadmap* (the Roadmap):

> *NSW is at a crossroads. As our existing power sources come to the end of their lives and global markets seek cleaner, cheaper and more reliable energy sources, we have a once in a generation opportunity to redefine the State as a modern, global energy superpower*

The *Transmission Infrastructure Strategy* and the Roadmap both consider the establishment of Renewable Energy Zones (REZ) as a key part of delivering against these objectives. Although five zones have been identified, the priority zones for development are in the Central-West Orana, New England and South-West regions of NSW. As highlighted in the *Transmission Infrastructure Strategy* (DPE 2018), these zones have been selected in areas with energy resource potential, reduced land use constraints and where planned transmission upgrades can lower the cost of connection across multiple projects.

The Project is located on the eastern edge of the Central-West Orana REZ. The REZ was formally declared on 5 November, 2021.

The Project would be beneficial to the Roadmap enabled under the *Electricity Infrastructure Investment Act 2020* to provide affordable, clean and reliable energy. It will generate and store clean energy to be fed into the electricity grid servicing the Central-West Orana REZ, prioritised by the Roadmap to support 8000 MW of new transmission capacity.

Climate change policy

The NSW Climate Change Policy Framework was introduced in 2016, with an aspirational long-term objective of achieving net zero emissions by 2050. The NSW Renewable Energy Action Plan was also introduced in 2016, and the Project is consistent with the three goals of the plan which are:

1. Attract renewable energy investment and projects
2. Build community support for renewable energy
3. Attract and grow expertise in renewable energy.

In March 2020, the NSW State Government also introduced the *Net Zero Plan Stage 1: 2020-2030*, and this was updated in September 2021. The updated plan sets an interim target of reducing emissions by 50% by 2030 (when compared to 2005 levels). The Project would help give effect to the Net Zero Plan through a reduction in greenhouse gas emissions by approximately 515,564 metric tonnes per annum.

2.3 Project benefits

The approved Wollar Solar Farm will result in a number of benefits including:

- Supporting Commonwealth and NSW climate change commitments.
- Contributing enough clean renewable energy to provide electricity to about 104,926 average NSW homes and displace approximately 515,564 metric tonnes of carbon dioxide annually.
- Enhancing electricity reliability and security by contributing 290MW of clean energy to the national grid and supporting the energy transition from coal fired to renewables.
- Direct and indirect employment opportunities during all phases of the Project, including up to an estimated 400 construction jobs during the peak construction phase and around 5 equivalent full-time jobs once the project is operational.
- Investment of about $430 million in capital expenditure in total.
- Development of a new land use thereby diversifying local land uses within the locality and offering host landholders an alternative income stream.

The overarching justification of the Project and its benefits would not change as a result of the proposed modifications outlined in this Modification Application. The modifications are intended to support the delivery of the Project by ensuring that construction can be carried out efficiently and in full compliance with the Development Consent.

3. Description of the modifications

The five changes and their effect upon the nature of the Project are set out below in detail. Assessment of their possible environmental impact is provided in section 6. Subject to the minor updates proposed to reflect the final selected solar array and solar panel model, no changes to the consented development footprint would result from the proposed modification.

Section 3.7provides a summary of the specific changes to the conditions of the Development Consent required to facilitate the modification.

3.1 Use of industry standard definition for AV/B Doubles

Currently, the definition of an AV/B-Double in the Development Consent is:

> *An articulated vehicle that has a combined Gross Vehicle Mass or Aggregate Trailer Mass of up to 42.5 tonnes.*

These limits of 42.5 tonnes for AV/B-Doubles are inconsistent with the industry standard maximum limits for an AV/B-Double as described by the National Heavy Vehicle Regulator (NHVR)[1], and the Submissions Report for the Project (NGH Pty Ltd, 2020) which stated:

> *the allowable GVM/GCM for B-Doubles is between 50 tonnes and 62 tonnes depending on the size of the vehicle (i.e. 7 axle or 9 axle).*

The loading for vehicles is based on the arrangement of axles and trailers. An AV has a combined load of 42.5 tonnes which includes 6.0 tonnes for the truck's front tires, 16.5 tonnes for the rear truck tires, and 20 tonnes for the trailer axels. However, adding another trailer to make the B-double arrangement results in an increase in the total weight to 62.5 tonnes. Therefore, the condition does not cover the correct tonnage for a B-Double, only for an AV.

WSD understands based on discussions with the DPE that the Development Consent currently operates so that AV/Doubles above 42.5 tonnes but below 62.5 tonnes are neither "AV/B Doubles" nor "over-dimensional vehicles" (as separately defined in the Development Consent), with the result that **Condition 1 of Schedule 3** of the Development Consent does not limit the total movements of such vehicles.

For the sake of clarity and given the need for the proposed modification to address the other transport related changes, WSD seeks through this proposed modification to correct the definition of AV/B Double in the consent to read as follows in line with the industry standard maximum limits for an AV/B-Double described by the NHVR:

> *An articulated vehicle that has a combined Gross Vehicle Mass or Aggregate Trailer Mass of up to 62.5 tonnes.*

[1] See here: https://www.nhvr.gov.au/files/201707-0577-common-heavy-freight-vehicles-combinations.pdf

3.2 Amend AV/B-Double movements without increasing the overall heavy vehicle movements

Currently the **Condition 1 of Schedule 3** of the Development Consent relevantly provides that:

> *The Applicant must ensure that the:*
>
> *(a) development does not generate more than:*
>
> - *26 AV/B-double vehicle movements a day during construction, upgrading, and decommissioning;*
> - *46 medium and/or heavy rigid vehicle movements a day during construction, upgrading, decommissioning;*
>
> *…*
>
> *unless the Secretary agrees otherwise in writing.*

To reflect further detailed construction program planning for the project, additional daily movements are required so as to enable a maximum during construction, upgrading, and decommissioning of:

- 36 AV/B-double vehicle movements a day; and
- 72 combined medium and/or heavy rigid vehicle movements and AV/B double movements a day.

The proposed combining of medium and/or heavy rigid vehicle movements and AV/B double movements ensures that an overall daily limit will apply to all vehicle movements during construction, upgrading, and decommissioning. This reflects the approach taken in conditioning other, more recently, approved solar farm projects such as the Stubbo Solar Farm (which is located in the same Local Government Area).

The updated vehicle movements proposed are required to enable WSD's contactor to directly transport shipping containers containing key project components via B-doubles as opposed to using a much larger number of medium/heavy rigid vehicles as was originally proposed. This offers a more efficient and safer method of transportation compared to the greater use of medium and/or heavy rigid vehicles. Accordingly, WSD seeks through the proposed modification, to increase the daily limit for AV/B doubles. This is expected to result in a corresponding reduction in the amount of medium and/or heavy rigid vehicle movements.

In order to accommodate this change to the Project, it is proposed that **Condition 1 of Schedule 3** be amended so that it relevantly provides as follows:

> *The Applicant must ensure that the:*
>
> *(a) development does not generate more than:*
>
> - *36 AV/B-double vehicle movements a day during construction, upgrading, and decommissioning;*
> - *72 total combined medium and/or heavy rigid vehicle movements and AV/B double movements a day during construction, upgrading, decommissioning*
>
> *...*
>
> *unless the Secretary agrees otherwise in writing.*

3.3 Amend over-dimensional vehicle movements during construction, operation, and decommissioning

Under the Development Consent, **Condition 1 of Schedule 3** currently relevantly provides that:

> *The Applicant must ensure that the:*
>
> *(a) development does not generate more than:*
>
> *…*
>
> - *5 over-dimensional vehicle movements during construction, upgrading and decommissioning*
>
> *…*
>
> *unless the Secretary agrees otherwise in writing.*

WSD's contractors have now confirmed that the minimum total amount of over-dimensional vehicle movements required to construct, upgrade and decommission the Project is approximately 60 vehicle movements, comprising of:

- 3 over-dimensional vehicle movements for delivery and pick up of the earthmoving equipment for construction of the Stage 2 Northern Access Road (already completed);
- 12 over-dimensional vehicle movements for construction of the Substation as Stage 3A;
- 29 over-dimensional vehicle movements for construction of the Solar Farm as Stage 3B;
- At least 2 over-dimensional vehicle movements to upgrade the Solar Farm as required during its operational life;
- At least 14 over-dimensional vehicle movements during the decommissioning of the Solar Farm and Substation.

Only 15 of the over-dimensional vehicle movements will require a pilot escort, with the remaining 45 over-dimensional vehicle movements being less than 3.5m wide and less than 62 tonne.

No more than 2 over-dimensional vehicle movements are proposed to be carried out on any day.

An indicative breakdown of the over-dimensional vehicles and schedule is provided in Figure 3-1 and detailed in Appendix C.

Accordingly, up to 60 over-dimensional vehicle movements are expected to be required to construct, upgrade and decommission the Project and the proposed modification seeks to authorise this.

In order to accommodate this change to the Project, it is proposed to amend the approved limit for over-dimensional vehicles in **Condition 1 of Schedule 3** as follows:

> *The Applicant must ensure that the:*
>
> *(a) development does not generate more than:*
>
> *…*
>
> - *2 over-dimensional vehicle movements a day and 60 over-dimensional vehicle movements in total during construction, upgrading and decommissioning;*
>
> *…*
>
> *unless the Secretary agrees otherwise in writing.*

The over-dimensional vehicle movements are proposed to be spread out during the construction period to minimise potential impacts on the local road network as indicatively set out in Figure 3-1 below.

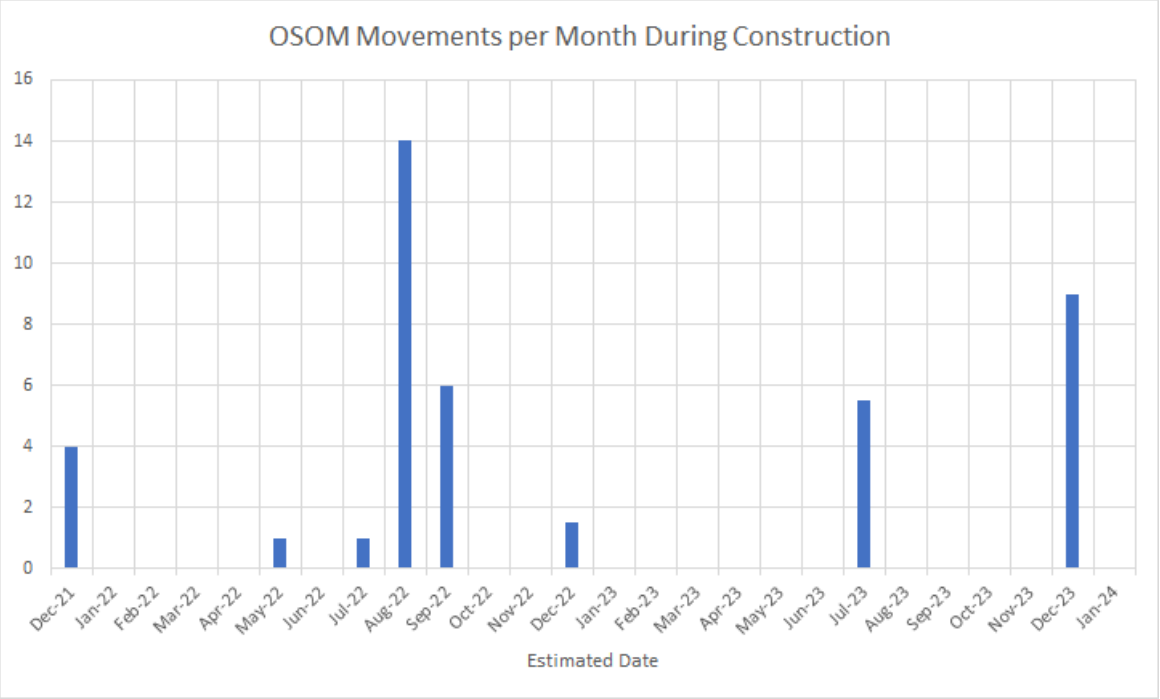

Figure 3-1 Indicative timing of OSOM movements

3.4 Update to the estimated number of construction workers required for the Project

The initial predicted number of construction workers required for the Project was to be 500 as stated in the Environmental Impact Statement (EIS) (NGH Pty Ltd, 2019).

The Submissions Report (NGH Pty Ltd, 2020) clarified this based on further information around the approximate staffing requirements and estimated that the maximum number of workers required at any one time would be 320.

Based on final information from its contractors, WSD confirms that the estimated number of workers required would be closer to 400 as estimated in the EIS and the original Traffic Impact Assessment in Appendix J of the EIS (NGH, 2019).

This number was assessed and considered acceptable with the mitigation measures provided within the EIS, the Supplementary Traffic Impact Assessment (Appendix D), the Submissions Report (NGH Pty Ltd, 2020) and the Accommodation and Employment Strategy (NGH Pty Ltd, 2020). Detailed mitigation measures will be in place to manage construction traffic and workers in accordance with the conditions of the Development Consent, including via the approved Traffic Management Plan and Workforce Transportation Plan and Accommodation and Employment Strategy. The Haulage Plan, Workforce Transportation Plan and Accommodation and Employment Strategy are required to be updated for Stage 3B and approved by Council prior to construction commencing.

Accordingly, the proposed modification seeks to update the estimated number of construction workers to 400. The final estimate of construction worker numbers will be confirmed in an updated Accommodation and Employment Strategy (AES) to be provided for Stage 3B of the Project.

3.5 Amend the site access route for two over dimensional vehicles

Currently, **Condition 3 of Schedule 1** of the Development Consent provides that:

> *All over-dimensional and AV/B-Double vehicles associated with the development must travel to and from the site via:*
>
> *(a) Golden Highway, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road; and/or*
>
> *(b) Castlereagh Highway, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road;*
>
> *as identified in the figure in Appendix 3.*

During detailed design of the Project, TransGrid undertook a route survey for the delivery of substation materials. This confirmed that it is not possible to deliver the substation transformers to site via the approved site access route currently required by Condition 3 of Schedule 1 because the load rating of certain bridges along the approved site access route is insufficient.

Accordingly, WSD seeks to enable the two over-dimensional vehicle movements required to deliver the substation transformers to use an alternative route by modifying **Schedule 3 Condition 3** as follows (underlined text denotes change):

> *3. Subject to 3A, all over-dimensional and AV/B-Double vehicles associated with the development must travel to and from the site via:*
>
> *(a) Golden Highway, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road; and/or*
>
> *(b) Castlereagh Highway, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road; and/or*
>
> *as identified in the figure in Appendix 3.*
>
> *Note: The Applicant is required to obtain relevant permits under the Heavy Vehicle National Law (NSW) for the use of over-dimensional vehicles on the road network.*
>
> *3A. If over-dimensional vehicles are restricted from using the above routes owing to the load rating of any bridge, then two over-dimensional vehicles may travel to site via the routes in condition 3 or via Golden Highway, Castlereagh Highway, Old Mill Road, Rouse Street, Station Street, Cope Road, Robinson Street, MacKay Street, Main Street, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road or any other route approved via a permit granted by the National Heavy Vehicle Regulator under the Heavy Vehicle National Law (NSW).*

A haulage site access map showing the proposed alternative route for the two over-dimensional vehicle movements required to deliver the substation transformers is provided in Appendix E of this modification report. Heavy vehicles would utilise Douro Street and Short Street to travel between Castlereagh Highway and Ulan Road as these are approved B-Double roads.

The comments provided by Mid Western Regional Council in relation to the EIS dated 7 May 2019 confirmed that “the traffic assessment should demonstrate the type, number and timing of vehicle movements across the entire local network and specifically address those that have been mentioned as potential transport routes throughout the EIS.” In line with this, the proposed alternative route for the two over-dimensional vehicle movements required to deliver the substation transformers has been subject to a Supplementary Traffic Impact Assessment (refer Appendix D) and consultation has been conducted with Council (refer section 5.2).

It is noted that the National Heavy Vehicle Regulator (NHVR) will assess the movements required for the two over-dimensional vehicle movements required to deliver the substation transformers and provide permits when they are satisfied the movements can safely occur. Accordingly, the proposed new condition 3A is intended to operate so that the final route will be as approved by the NHVR.

3.6 Minor updates to the specifications for the solar arrays and solar panels

During detailed design, the specifications for the solar panels and solar arrays have changed slightly from the indicative specifications provided in the original EIS for the Project.

Changes to the solar panels and solar arrays are expressly contemplated by:

- the EIS which stated that: "*Detailed design, availability and commercial considerations at the time of construction would inform the final quantity of solar panels and layout configuration*"; and
- Condition 5 in Schedule 4 which provides that WSD must submit detailed plans of the final layout of the development to the Secretary, including details on the siting of solar panels and ancillary infrastructure, via the Major Projects website, prior to the commencement of construction.

However, in the interests of ensuring transparency, it is proposed to modify the Development Consent to make minor updates to the specifications for the solar panels and solar arrays as summarised in Table 3-1 below.

Table 3-1 Proposed modification for panel array

Specification	EIS (NGH 2019)	Proposed Modification
Number of panels	Approximately 922,432	Up to approximately 800,000
Row spacing of solar array	Approximately 6m	Approximately 7.5m
Height of solar array	3-4 metres (less if fixed)	Approximately 5m (less if fixed)
Height of lowest point of solar array above ground	Not less than 1.5 metres	Approximately 0.5 metres

Specification	EIS (NGH 2019)	Proposed Modification
Solar panel dimensions	Approximately 2m x 1m	Approximately 2.3m x 1.2m
Use of PCUs or distributed inverters	Contemplated use of PCUs or, as an alternative, distributed inverters	Confirming that distributed inverters, not PCUs, are proposed.

The updated panel height and width optimises efficiency of the panel design, allowing the solar farm to produce its planned capacity of up to 290MW with less panels.

The updated design allows for greater spacing in between, with minimized earthworks and ground disturbance. As a result, the overall ground disturbance has been minimized. Due to the increase in height, a negligible increase in visibility of the array has been modelled, section 6.1.

3.7 Summary of conditions to be modified

Table 3-2 below summarises the conditions proposed to be modified to reflect the changes proposed to the transport of the Project.

Table 3-2 Summary of proposed modifications to the Development Consent conditions (all changes shown in red text)

Consent reference	Existing condition	Changes proposed as part of the modification
Definition of AV/B-Double	AV/B-Double means *"An articulated vehicle that has a combined Gross Vehicle Mass or Aggregate Trailer Mass of up to 42.5 tonnes."*	AV/B-Double means *"An articulated vehicle that has a combined Gross Vehicle Mass or Aggregate Trailer Mass of up to 62.5 tonnes."*
Definition of EIS	EIS means "*The Environmental Impact Statement for Wollar Solar Farm dated March 2019 as modified by:* • *the Submissions Report dated October 2019 and, the Amendment Report dated October 2019, email titled Voluntary Contribution from Wollar Solar Development Pty Ltd for local road network maintenance, dated 11 October 2019 and additional information memorandum dated 22 January 2020; and* • *Wollar Solar Farm Modification*	To be updated to include this Modification Report.

Consent reference	Existing condition	Changes proposed as part of the modification
	Application Report dated August 2020"	
Condition 1, Schedule 3	*The Applicant must ensure that the:* *(a) development does not generate more than:* • *26 AV/B-double vehicle movements a day during construction, upgrading and decommissioning;* • *46 medium and/or heavy rigid vehicle movements a day during construction, upgrading and decommissioning;* • *5 over-dimensional vehicle movements during construction, upgrading and decommissioning; and* • *7 AV/B-Double, medium and/or heavy rigid vehicle movements a day during operations;* *on the public road network;* *(b) length of any vehicles (excluding over-dimensional vehicles) used for the development does not exceed 19 metres,* *unless the Secretary agrees otherwise in writing.*	*The Applicant must ensure that the:* *(a) development does not generate more than:* • *36 AV/B-double vehicle movements a day during construction, upgrading and decommissioning;* • *72 combined medium and/or heavy rigid vehicle movements and AV/B-double movements a day during construction, upgrading and decommissioning;* • *2 over-dimensional vehicle movements a day or 60 over-dimensional vehicle movements in total during construction, upgrading and decommissioning; and* • *7 AV/B-Double, medium and/or heavy rigid vehicle movements a day during operations;* *on the public road network;* *(b) length of any vehicles (excluding over-dimensional vehicles) used for the development does not exceed 26 [2] metres,* *unless the Secretary agrees otherwise in writing.*
Condition 3, Schedule 3	*All over-dimensional and AV/B-Double vehicles associated with the development must travel to and from the site via:*	*3. Subject to 3A, all over-dimensional and AV/B-Double vehicles associated with the development must travel to*

[2] As allowed under Secretary's Discretion.

Consent reference	Existing condition	Changes proposed as part of the modification
	(a) Golden Highway, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road; and/or *(b) Castlereagh Highway, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road;* *as identified in the figure in Appendix 3.*	*and from the site via:* *(a) Golden Highway, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road; and/or* *(b) Castlereagh Highway, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road; and/or* *as identified in the figure in Appendix 3.* *Note: The Applicant is required to obtain relevant permits under the Heavy Vehicle National Law (NSW) for the use of over-dimensional vehicles on the road network.* *3A. If over-dimensional vehicles are restricted from using the above routes owing to the load rating of any bridge, then two over-dimensional vehicles may travel to site via the routes in condition 3 or via Golden Highway, Castlereagh Highway, Old Mill Road, Rouse Street, Station Street, Cope Road, Robinson Street, MacKay Street, Main Street, Ulan Road, Ulan-Wollar Road, Barigan Street, Maitland Street, Wollar Road and Barigan Road or any other route approved via a permit granted by the National Heavy Vehicle Regulator under the Heavy Vehicle National Law (NSW).*

3.8 Modification pathway

The proposed modification can be assessed under section 4.55(1A) of the EP&A Act. This applies to modifications involving minimal environmental impact as follows:

> ***(1A) Modifications involving minimal environmental impact***
>
> *A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if—*
>
> *(a) it is satisfied that the proposed modification is of minimal environmental impact, and*
>
> *(b) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all),*
>
> *(c) it has notified the application in accordance with--*
>
> *(i) the regulations, if the regulations so require, or*
>
> *…*
>
> *(d) it has considered any submissions made concerning the proposed modification within any period prescribed by the regulations or provided by the development control plan, as the case may be.*
>
> *…*

The proposed modification is of minimal environmental impact for the reasons outlined in section 6 of this report.

If the proposed modification were granted, then the Development Consent as modified would remain substantially the same development as the development for which the Development Consent was originally granted. In particular, the proposed modification makes minor changes to the transport arrangements for the Project and minor updates to the solar panel and array specifications and:

- the Project as modified would be essentially or materially be the same as the originally approved Project - the Project would still involve the construction, operation and decommissioning of an approximately 290 MW solar farm;
- subject to the minor updates to the solar panel and array specifications, the layout of the Project is not changed by the proposed modification;
- the objectives and desired outcomes for the Project are not changed by the proposed modification;
- there would be only minimal changes to the environmental impacts of the Project section 6 of this report; and
- the proposed modification would not result in a "radical transformation" to the Project.

4. Statutory context

As outlined above, the Wollar Solar Farm is classified as SSD, which is subject to the Development Consent as subsequently modified on 12 November 2020.

Section 4.55(3) of the EP&A Act provides that:

> *In determining an application for modification of a consent under this section, the consent authority must take into consideration such of the matters referred to in section 4.15(1) as are of relevance to the development the subject of the application. The consent authority must also take into consideration the reasons given by the consent authority for the grant of the consent that is sought to be modified.*

Section 4.15(1) of the EP&A Act relevantly provides as follows:

> *In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application--*
>
> *(a) the provisions of--*
>
> *(i) any environmental planning instrument, and*
>
> *(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and*
>
> *…*
>
> *(iii) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and*
>
> *(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),*
>
> *that apply to the land to which the development application relates,*
>
> *(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,*
>
> *(c) the suitability of the site for the development,*
>
> *(d) any submissions made in accordance with this Act or the regulations,*
>
> *(e) the public interest.*

The statutory context to the Project was described in section 5 of the EIS for the Project. The statutory context remains unchanged to that previously considered in the EIS, subject to the further updates outlined below. A statutory compliance table for the Project, as amended, is provided in Appendix F.

Updated Relevant Considerations and Changed Statutory Context

Changes to SEPPs

Since the original EIS, there have been changes to State Environmental Planning Policies (**SEPP**) in NSW, including:

- the consolidation of the 45 SEPPS into 11 SEPPs;
- changes to SEPP provisions relating to the state significant development (now contained in the *State Environmental Planning Policy (Plannings Systems) 2021*;
- changes to SEPP provisions relating to koala habitat (now contained in the *State Environmental Planning Policy (Biodiversity and Conservation) 2021*); and
- changes to SEPP provisions relating to renewable energy and regional cities (now contained in the new *State Environmental Planning Policy (Transport and Infrastructure) 2021*).

The Project as modified by the proposed modification would remain consistent with relevant SEPPs and their objectives. No policy changes have been made through the SEPP consolidations.

Reasons given for granting the Development Consent

As outlined above, section 4.55(3) of the EP&A Act requires the consent authority to consider "*the reasons given by the consent authority for the grant of the consent that is sought to be modified."*

The reasons given for granting the Development Consent for Wollar SF were as follows:

- *the project would provide a range of benefits for the region and the State as a whole, including:*
  - *contributing to a more diverse local industry;*
  - *a capital investment of approximately $431 million;*
  - *creating up to 320 construction jobs;*
  - *generating enough electricity to power around 108,000 homes, saving over 614,000 tonnes of greenhouse gas emissions per year;*
  - *storage of energy for dispatch to the National Energy Market with the 30MW/30MWh battery storage facility; and*
  - *assisting in transitioning the electricity sector from coal and gas fired power stations to renewable energy;*
- *the project is permissible with development consent under State Environmental Planning Policy (Infrastructure) 2007;*
- *the project is consistent with relevant NSW Government policies;*
- *the impacts on the community and the environment can be appropriately minimised, managed or offset to an acceptable level, subject to the recommended conditions of consent;*
- *Council is supportive of the project and all submissions received from the general public and special interest groups were supportive of the project; and*
- *weighing all relevant considerations, the project is in the public interest.*

Apart from the changes to the statutory context and strategic context and the minor changes to the Project outlined in this Modification Report, the reasons outlined above would remain applicable to the Project as modified. The Project as modified would, in essence, remain consistent with the reasons provided above.

5. Consultation and engagement

5.1 Community consultation

WSD is strongly committed to engaging with stakeholders on an ongoing basis and will continue to do so if the modification is approved. Based on the impact assessment in section 6 of this Modification Report, additional impacts on the community are considered negligible and it is unlikely the proposed modifications would have perceptible impacts on local residents.

WSD met with the Wollar Progress Association (local community group) to discuss the modification on 12th April 2022. The group did not outline any objections at this meeting.

It is assumed the Modification Application will be exhibited for 14 days, and the community will have the opportunity to raise any objections. Further, WSD continues to engage with the community throughout construction of the Project in accordance with its community consultation plan and will notify key stakeholders and community members if the modification is approved through a newsletter and announcement via email list and call register.

5.2 Consultation with public agencies

A letter of intent to lodge a modification was submitted to DPE on 26th February, 2022 which outlined the proposed modification and assessment approach. DPE provided a response to the letter of intent on 18 March 2022, indicating satisfaction with the issues identified in the letter, and identifying the following items to be incorporated into the Modification report:

- Outcomes of consultation with Transport for NSW and Mid-Western Regional Council and potentially affected receivers on the proposed changes
    - *Refer section 5.3 of the Modification report*
- Justification for the proposed definition changes to AV/B-Double
    - *Refer section 1.3 and 3.2 of the Modification report*
- Assessment of the potential cumulative traffic impacts factoring in the surrounding mine projects
    - *Refer section 6.3 of the Modification report.*
- Assessment of the amenity impacts such as road traffic noise in accordance with the *NSW Road Traffic Noise Policy*.
    - *Refer section 6.4 of the Modification report*

In addition, WSD have consulted with Transport for NSW and Mid-Western Regional Council (MWRC) to advise of the proposed modifications as outlined in this modification application. The consultation process is summarised in Table 5-1 below and its outcomes discussed in section 5.3 below. Relevant correspondence has been attached in Appendix G.

Table 5-1 Public agency consultation log

Agency	Date	Consultation activity
State government/agency		
TfNSW	06/08/2021	Email correspondence to advise of the proposed change to the definition of B-doubles within the Development Consent.
TfNSW	27/09/2021	Email correspondence to advise of the proposed changes to increase the number of over-dimensional vehicles and number of construction workers required for the Project.
TfNSW	15/03/2022	Email correspondence to advise of the status of the modification application, and provision of the supplementary TIA for their review and comment.
TfNSW	24/03/2022	An online meeting was held between representatives of the Proponent, NGH, Amber and TfNSW's development services team to discuss the proposed Modification and TfNSW's comments on it.
TfNSW	11/04/2022	Email correspondence from TfNSW following the meeting on the 24th March 2022 to provide consolidated feedback on the proposed Modification.
Local government		
MWRC	27/09/2021	Email correspondence to advise of the proposed changes to increase the number of over-dimensional vehicles and number of construction workers required for the Project.
MWRC	21/10/2021	An online meeting was held between representatives of the Proponent, NGH, Amber and Council to discuss Council's comments at the early stage of Modification preparation.
MWRC	30/03/2022	Provision of the draft modification report for Council review and comment. Representatives of the Proponent and Council's Development Director met in person to discuss the proposed Modification in detail and Council's comments on it. The AES was also discussed. Council have stated they will review

Agency	Date	Consultation activity
		the A&E issues in the AES management plan, when this is provided for comment. Refer Appendix G.
MWRC	1/04/2022	Email correspondence from Council's Development Director to re-iterate the outcomes of the meeting of the 30 March and Council's key points.

5.3 Outcomes of consultation

5.3.1 TfNSW

TfNSW's Team Leader Development Services – Renewables West provided comment on the proposed modification in October 2021 and again in March 2022. Their comment and the Proponent's response is provided in Table 5-2 below.

Table 5-2 Consultation with TfNSW

Date	Comment	Proponent response
18/10/2021	1. *The Traffic Impact Assessment should be amended to consider the implications of the increased light and heavy vehicle traffic at the intersection of Barrigan Road/Wollar Road past the Fitzpatrick Bridge.* 2. *Assess the difference between the existing and proposed traffic volumes, consider how they will be transported to site, provide an assessment of if the traffic will be split between the two routes or will be utilising one route and provide any details on if there are any changes to the proposed routes.* 3. *In terms of workforce and traffic provide details as to how this will be managed i.e will all the light vehicles be arriving in the AM/PM peak for the network? or is it shift based? What is the worst case scenario? Will the light vehicles/heavy vehicles be travelling to site at the same times? Will this be in the AM/PM peak.* 4. *Any other intersections with the state classified road network such as the*	<u>Regarding all comments</u> NGH responded: *We have engaged with Amber Traffic Consultants who undertook the Traffic Impact Assessment to ascertain if any further assessment would be required based on the proposed modification and with consideration of TfNSW's comments. They have advised that no changes to the Traffic Impact Assessment needs to be undertaken, as the existing assessments cover any impacts from the Modification changes.* A supplementary TIA in letter format has been prepared support this. Refer section 6.3 and Appendix D. Key conclusions are summarised in the supplementary TIA: • The increased permitted weight of AV/B-Double vehicles aligns with the specifications of NHVR and allows these vehicles to operate as intended with no impact to the road network; • The proposal to increase the

Date	Comment	Proponent response
	Castlereagh Highway should be reviewed in terms of the increased traffic generation. *5. The cumulative impacts of the traffic and timing from the Wollar Solar Farm construction and the Wollar Substation upgrade should be considered as a part of the TIA, in particular the intersection with Wollar Road and Barrigan Road.* *6. Assess the traffic volumes in terms of the Austroads Warrants and whether there is a requirement now to upgrade the intersection or does the previous road safety audit still suffice for the intersection.* *7. Provide an update to if the design vehicle has changed and the likely implications of the change to the design vehicle on the number of vehicles and the network.*	number of AV/B-Double movements permitted per day, but not the overall truck movements per day, is expected to result in a negligible change to the road network given the roads have been assessed as appropriate to accommodate these vehicles, and the amendment is expected to result in an overall decrease in truck movements; • The increase in construction workers is expected to have no impact to the road network with all staff able to be accommodated within the existing shuttle buses proposed to be used during construction and decommissioning; and • The proposal to increase the number of OSOM vehicles and provide an additional alternative transport route, which is only to be used in the event the other routes are not suitable, will be assessed based on the individual vehicles as part of the permit application process and can be managed through traffic management measures to ensure there is a minimal impact to the operation of the road network. <u>Specific responses (point by point)</u> 1. It was agreed at a subsequent meeting dated 24/03/2022 that the proposed changes would have a minimal impact on the intersection. While OSOM vehicles will increase from 5 to 60 there will be no increase in heavy vehicle traffic volume and the increase in over-dimensional vehicles will be spaced out over the life of the project with a maximum of 2 movements per

Date	Comment	Proponent response
		day. 2. As above, it was agreed at the meeting dated 24/03/2022 that the proposed changes would have a minimal impact on the vehicle volumes. 3. No change was proposed to light vehicle movements so it was agreed there would be no impact from the increase in staff. The TfNSW representative asked if we were using shuttle buses yet. Not yet but we will when main works start on the solar site and that Council have advised on drop off points. 4. The cumulative traffic impacts of the Wollar Solar Farm and the central west transmission upgrade at the existing Wollar Substation will be negligible because the peak construction periods will not overlap. The Wollar Substation Upgrade has not yet submitted its EIS and so construction is likely to have very little, if any, overlap with Wollar Solar Farm. 5. Agreed there were no other projects that would create a cumulative traffic impact. We discussed where the workforce was coming from and that no other SSD's were nearby (noting the haul network is used for mining operations). 6. Agreed that the increase in traffic would not occur in the peak hour so there was no change to the previous turn treatment assessment. No further action required. The previous road safety audit is sufficient for the intersection. 7. No change.

Date	Comment	Proponent response
		Noted that larger OSOM vehicles could be addressed as part of individual permits. The TfNSW representative noted that they were not a fan of the permit process for wind farms but this was a small number of movements by comparison.
24/03/2022	1. *AV/B-double definition: there should be consideration to changing this condition to reference the length and combinations as per the NHVR classifications instead of the tonnes. Ensure that the weight and length are permitted along the approved heavy vehicle routes by reviewing RAVMAPs.* 2. *Heavy Vehicle Traffic Generation: The change in the permitted AV/B-double vehicle movements and medium/heavy rigid vehicle movements from 26 AV/B-double to 36 AV/B-doubles and a 46 to 72 will need to be reviewed as to the likely changes to the AM/PM peaks at key intersections with the classified road network and would need to be discussed with Mid-Western Regional Council who are the roads authority for the regional roads identified within the modification.* 3. *OSOM Movements: A route assessment would need to be prepared for the proposed change to the OSOM route to identify any road works required along the state and local classified road network, to enable the assessment of the environmental impacts by the consent authority as a part of the modification to the approved development. It is noted that a number of the roads identified within the OSOM alternative route will be local roads and there will*	1. AV/B-Double definition The Proponent agrees that the use of tonnes to describe the type of truck to access the site is impractical. However, in order to minimise the changes to the consent whilst still allowing the operation of the construction traffic as assessed within the traffic report, it is proposed to leave the proposed amended as previously stated. We note that the 62 tonne classification is relevant for a 26m long B-double. While the consent states a limit of 19m, Secretary's Discretion allowed an increase to 26m. We have reviewed RAVMAPs and that the proposed weight and length are permitted. 2. Heavy vehicle traffic generation This has previously been assessed within the supplementary traffic assessment prepared by Amber, dated 8 March 2022, which concluded the increase in truck movements would result in a minimal impact on the road network. This was discussed and agreed upon during the meeting with TfNSW representatives dated 24/03/2022. The TfNSW comment here has misunderstood the modification; we are not proposing an increase from 46 to 72 vehicles. 3. OSOM movements It was agreed at the meeting with TfNSW dated 24/03/2022 that the route

Date	Comment	Proponent response
	need to be discussions as to how this will be managed with Mid-Western Regional Council. What will be the alternative route if this route is not permitted by Mid-Western Regional Council? There will also need to be considerations around night travel and other issues 4. Construction workers: *It is unclear as to how the changes to the construction workforce will be managed, if there will be a cumulative traffic generation of HV/LV occurring in the AM/PM peaks and how shuttle bus commitments will be managed and if there will likely be impacts along the classified road network associated with the increased traffic generation should be considered along the key intersections with the state classified road network. As raised previously within the original assessment and as a part of the TMP review there should be consideration of the mitigation and cumulative impacts associated with using the mine routes.* 5. *It is noted that a Workforce Transportation Plan was required as a part of the TMP as identified in s6.2.4 of the amended TIA. The TIA also identifies that the Workforce Transportation Plan (WTP) has been submitted for stage 3a to the Mid-Western Regional Council for review. Have comments been provided? Where will the pick up and drop off location points be? will they be on local or state classified roads? The TMP should be updated to reflect the requirements of the WTP. Are the approved light vehicle routes consistent with the development consent, the WTP and the TMP?* *TfNSW are not a relevant roads authority*	assessment would be completed as part of the individual permit applications for the OSOM vehicles once the exact vehicles were known. This is a standard approach for solar farm projects. WSD consulted Council regarding the proposed transport route and they had no major concerns. Council's position was that the issues can be adequately managed via relevant conditions of consent, transport plans and permits. 4. Construction workers As outlined within the traffic assessment by Amber, the increase in construction workers is not expected to result in a change to the traffic volumes as the workers are able to be accommodated in the existing shuttle buses. The impact of these vehicles has been assessed within the original Traffic Impact Assessment. 5. Workforce transportation plan The WTP will be developed and implemented in consultation with MWRC prior to construction as part of Construction Traffic Management Plan. This will include identifying pick-up and drop-off locations and approved light vehicle routes. Specific comments from Council have yet to be received. Broader consultation regarding the proposed modification with MWRC indicated that there are no major concerns for Council in relation to the traffic and transport amendments proposed. Refer section 5.3.2 and Appendix G. The Construction TMP will be updated to reflect the WTP once it is finalised. No change was proposed to light vehicle movements so it was agreed during the meeting dated 24/03/2022 that there would be no noticeable impact on the road network from the increase in staff.

Date	Comment	Proponent response
	as a part of this modification and would be a concurrence (pursuant to s138 if works or other components are proposed within the classified road network) or a referral authority (for traffic generating development). It is advised that you seek the relevant roads authorities comments as a part of the proposed modifications.	

5.3.2 MWRC

The MWRC Director of Development has provided commentary on the proposed modification in October, 2021 and again in detail in March 2022. The draft modification report was sent to MWRC for comment in March 2022, with feedback received in early April. Their comment regarding the proposed Modification outlined in this report and the Proponent's response is provided in Table 5-3 below.

Table 5-3 Consultation with MWRC

Date	Comment	Proponent response.
05/10/2021	1. *Council would like to review the traffic assessment and proposed traffic management measures that are proposed to be implemented to account for the increased traffic movements. Road safety for all road users remains the number one priority for Council.* 2. *There is a significant increase in the number of construction workers for the Project (56% increase). Is there are reason that there has been such a significant change? In any case, Council would like to understand see that the additional traffic and social impacts will be managed appropriately. The increased demand for accommodation will need to be addressed as to any plans to prioritise the employment of local workers*	1. A supplementary TIA and traffic noise assessment was prepared for the proposed traffic management measures. They included consideration of the proposed increased traffic movements, any additional impacts, and any additional management measures. The updated Modification report and accompanying TIA and traffic noise assessments were provided to Council for their review in March 2022. The Traffic Management Plan would be updated to account for the Modification and the TMP may be updated in stages as required. 2. The increase in construction workers from the submissions report stage reflects final information from the construction contractor on staffing requirements. A peak

Date	Comment	Proponent response.
	as much as possible	workforce of 500 was assessed as being manageable as per information provided in the EIS (NGH, 2019) and revised to 320 in the Submissions Report (NGH 2020) which provided a more detailed monthly breakdown. The modified project which seeks a maximum of 400 would be substantially the same as the approved project. The peak would occur during Stage 3 and be limited to around 2 months. It would be managed via the Stage 3 Accommodation and Employment Strategy which requires approval by DPE. Council's comments refer to a workforce of 500 and WSD responded by reducing the workforce to 400. 3. Refer section 6.6.
1/04/2022	1. *Based on the Draft report provided, there appears to be no major concerns for Council in relation to the traffic and transport amendments proposed. The main issues discussed were the importance of working with relevant stakeholders along the route to advise of the traffic changes (eg. local mines, local school bus operators, local media), alternate access route for 2 x OSOM vehicle movements and to minimise the traffic around peak times. These issues can be adequately managed via relevant conditions of consent, transport plans and permits. Council will review the Final modification report and provide*	1. Noted. Discussed further in section 6. 2. These will be addressed by the contractor preparing the AES. Noted that MWRC will review the A&E issues in the AES management plan, when this is provided for comment. The Proponent has ensured the AES will be updated in consultation with Council prior to construction of stage 3B commencing. Council's comments on the AES are separate to their comments on this Modification report. The EIS was for 500 workers so the 400 workers is a reduction and just a clarification.

Date	Comment	Proponent response.
	a formal submission during the public exhibition period. 2. *Concerns in relation to the Accommodation and Employment Strategy were also raised.*	

6. Assessment of impacts

This section provides a detailed summary of the findings impact assessment for proposed modification, including details about the impacts of the modification and the impacts of the modified project. This summary has been prepared having regard to the relevant guidance in the Department's *State Significant Development Guidelines – Preparing an Environmental Impact Statement*. It builds upon assessments conducted at the EIS and Amendment Report stages. Refer Table 6-1 for a consolidated high level summary.

The key issues in relation to the Project modification include:

- Visual impact
- Traffic and access
- Noise and vibration
- Heritage
- Socio-economic.

6.1 Summary

Impact assessment for the proposed modification determined that no changes to the mitigation measures are required as indicated in Table 6-1. Note there are some updates to existing plans as identified in section 7.1.

Table 6-1 Evaluation of the environmental Impacts of the proposed Modification

Relevant EIS section	Relevant Modification Report Section	Environmental impact	Proposed modification
7.1	N/A	Biodiversity	No change to impacts. No change to approved mitigation strategies.
7.2	N/A	Aboriginal heritage	No change to impacts. No change to approved mitigation strategies.
7.3	N/A	Land and soil assessment	No change to impacts. No change to approved mitigation strategies.
7.4	N/A	Compatibility with existing land uses	No change to impacts. No change to approved mitigation strategies.
7.5	N/A	Hydrology and flooding	No change to impacts. No change to approved mitigation strategies.
8.1	N/A	Water use and	No change to impacts. No change to approved

Relevant EIS section	Relevant Modification Report Section	Environmental impact	Proposed modification
		water quality	mitigation strategies.
8.2	6.2	Visual amenity and landscape character	Increase in panel height affects visual impact assessment modelling assumptions. Updated modelling provided in this modification demonstrates the change is negligible. No additional changes to approved mitigation strategies are required.
8.3	6.3	Noise and vibration	Modified AV/B-double vehicle movements required under the modification comply with the applicable noise criterion at the nearest affected receivers along arterial and sub-arterial roads. For receivers located along local roads, the modified AV/B-double vehicle movements an exceedance is predicted of up to 2dB(A) for 20 receivers was modelled however, it is noted that this represents a minor impact that is considered barely perceptible to the average person. Predicted road traffic noise level contributions from the OSOM vehicle movements associated with the construction, operation and decommissioning phases comply with the applicable noise criteria at the nearest affected receivers along the proposed routes. Additional noise and vibration of these 2 OSOM vehicle movements along the modified haulage route are considered to be minimal in consideration of the very low numbers of movements. A notification letter will be distributed to residents along the over-dimensional haulage route from the turn off Castlereagh Highway to Wollar prior to the haulage commencing. No additional changes to approved mitigation strategies are required.
8.4	6.4	Historic heritage	Changes to the haul route may generate additional vibration impacts on nearby heritage items. Updated assessment undertaken demonstrates no adverse impacts are anticipated. No change to impacts. No change to approved mitigation strategies.

Relevant EIS section	Relevant Modification Report Section	Environmental impact	Proposed modification
8.5	6.5	Social and economic impacts	A minor increase in impacts to accommodation availability arising from the updated number of construction workers as outlined below. The Stage 3b Accommodation & Employment Strategy (AES) will ensure there is sufficient accommodation for the proposed peak 400 person workforce and provide alternatives where required.
8.6	6.2	Traffic, transport and road safety	The changes to over-dimensional movements and site access represent a minor change in the traffic impacts of the Project. However, as the vehicle movements will be distributed across the construction, operation and decommissioning of the Project and mitigation measures will be developed as part of the updated Traffic Management Plan it is concluded that the impact generated by the proposed increase in over-dimensional vehicles is minimal. No changes to approved mitigation strategies are required. However, a notification letter will be distributed to residents along the over-dimensional haulage route from the turn off Castlereagh Highway to Wollar prior to the haulage commencing.
8.7	N/A	Bushfire	No change to impacts. No change to approved mitigation strategies.
8.8	N/A	Electric and magnetic fields	No change to impacts. No change to approved mitigation strategies.
8.9	N/A	Air quality and climate	No change to impacts. No change to approved mitigation strategies.
8.10	N/A	Resource use and waste generation	No change to impacts. No change to approved mitigation strategies.
8.11	N/A	Hazardous materials and development	No change to impacts. No change to approved mitigation strategies.

Relevant EIS section	Relevant Modification Report Section	Environmental impact	Proposed modification
8.10	6.3	Cumulative impacts	Cumulative impacts of the traffic on the additional haul route were investigated. No noticeable change to impacts. No change to approved mitigation strategies.

6.2 Visual impact

The updates to the panel array specifications set out in Table 3-1 affect the modelling assumptions that supported the EIS's assessment of visual impact.

The EIS modelled the view shed of the solar array by generating a 'zone of visual influence' (ZVI). This method models proposed infrastructure heights against topographic information to determine areas in which views of infrastructure may be visible. It does not take into account shielding by existing vegetation or structures and is therefore considered conservative. The EIS infrastructure was originally modelled as 4m high for arrays and 6m high for ancillary infrastructure (i.e. inverters). Topography was based on a 2m resolution Digital Elevation Model (DEM).

An updated ZVI was produced to support this modification report, changing only the height of the arrays to 5m. The results are reproduced in Figure 6-1 below. Figure 6-2 was produced through GIS-based raster analysis by comparing the difference in visual influence between the EIS and Modification ZVI modelling across the entire study area. It demonstrates that the difference that 1m in panel height makes is negligible in relation to the visual impact of the project; a small peripheral area of difference occurs marginally extending the visibility of the infrastructure. Most receivers remain shielded entirely by topography (Receivers 1-3, 7,8,10,12,13,15-19). The low profile of the infrastructure is expected to attenuate rapidly with distance from the site so that receiver 11 (non-involved) is not expected to notice the minor increase in visibility at more than 2km from the site. The inset in Figure 6-3 confirms this, identifying that receiver 11 will experience negligible difference in visual influence as a result of the panel height increase.

The closest receiver, 9, remains in an area of low visibility (<5%). It is noted this receiver is project-involved. Furthermore, given the vegetation screening along Barigan Road, views for motorists on this road are also expected to be similar to that predicted in the EIS.

In addition, the Proponent has sought additional independent visual impact analysis of the proposed changes in panel height from Moir Landscape Architecture (Moir). Following review of the EIS and the proposed modification to panel height, Moir has concluded:

> *"In my experience it is highly unlikely that an increase in height of the solar panels of 1m would be easily discernible over a distance of 1.4km and subsequently it is my opinion that the level of visual impact would remain moderate from Viewpoint 6* [which represents Receiver 11 [3]]…
>
> *Due to the lack of concern by the community surrounding the potential for visual impact of the approved proposal and the outcomes of the assessment by NGH it is my opinion that,*

[3] NGH have included the original EIS impact assessment table and viewshed as Appendix J.2, to show that Viewpoint 6 represents Receiver 11.

> *in visual terms, any impacts associated with the proposed modification are acceptable and do not differ significantly from the approved proposal."*

Moir's assessment is provided in Appendix J.

No additional changes to approved mitigation strategies are required.

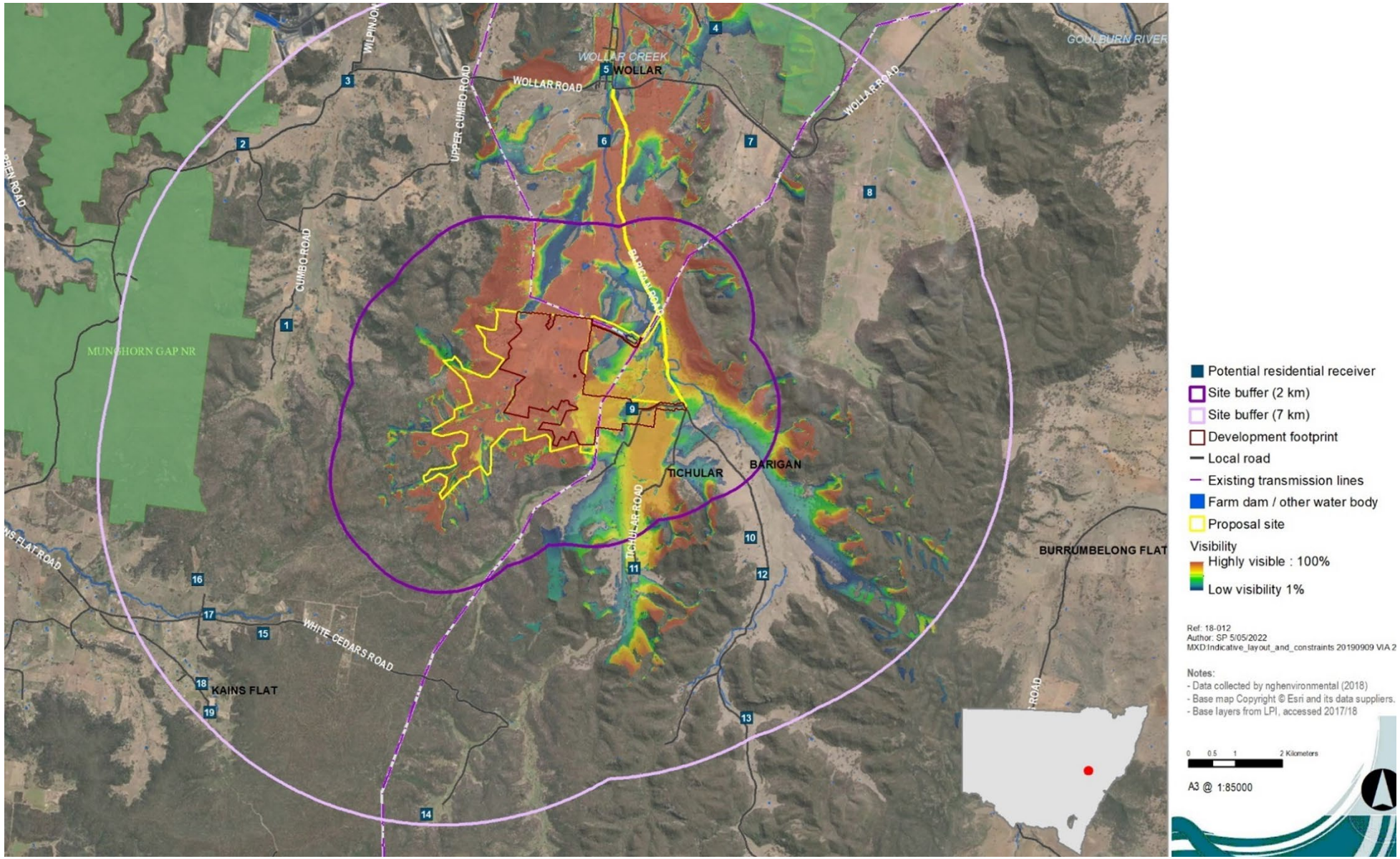

Figure 6-1 Modification Zone of visual influence modelling; 5m panel height

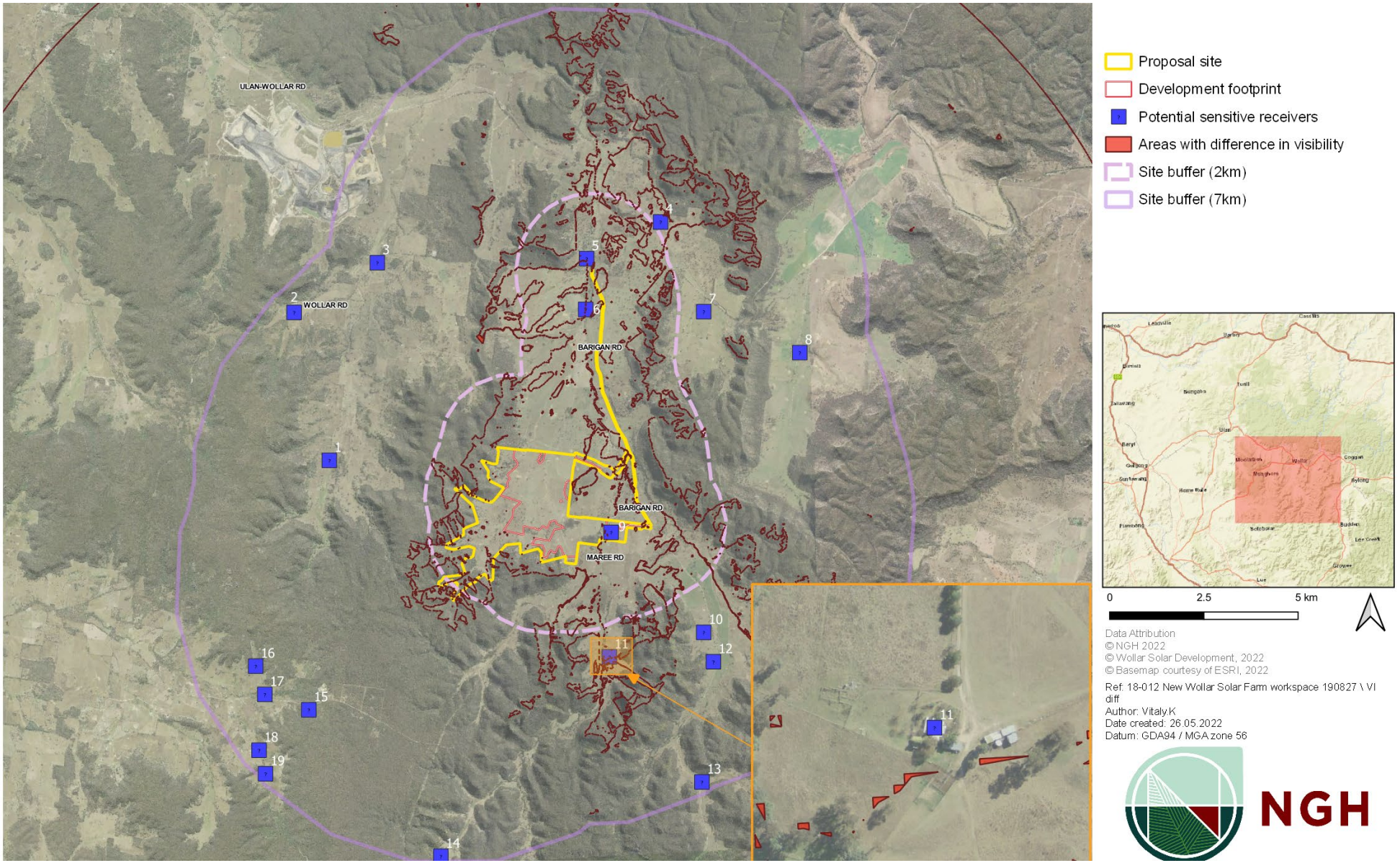

Figure 6-2 Minor areas of difference on the periphery of the view shed as a result of the proposed Modification.

6.3 Traffic and access

The proposed modifications represent a minor change to the construction, upgrading and decommissioning activities assessed as part of the original Traffic Impact Assessment (TIA), and as such, a revised assessment has been conducted by Amber to assess the proposed changes and confirm whether any amendments are required to the mitigation measures proposed. The Supplementary Amber Traffic Impact Assessment is provided in full in Appendix D and summarised for each proposed modification below:

6.3.1 Use of industry standard AV/B Doubles

The permitted General Mass Limit (GML) for a B-Double vehicle (Common 9 Axle B-Double) specified by the National Heavy Vehicle Regulator is 62.5 tonnes for trucks that are 25-26m long. The limit is 42.5 tonnes for trucks that are 19m long. The original TIA had assessed the B-Double vehicle based on the weight limits provided by NHVR (i.e. 62.5 tonnes). Accordingly, the use of AV/B Doubles of up to 62.5 tonnes would not result in any additional impacts to traffic numbers or roads along the haulage route as compared to the impacts described in the original TIA. However, it is a change to the Project as currently approved.

6.3.2 Amend AV/B-Doubles movements without increasing overall heavy vehicle movements.

The proposed modification would increase the number of AV/B-Double vehicles that are able to access the site per day but would not increase the overall maximum number of heavy vehicle movements per day during construction, upgrading and decommissioning periods.

The access route by AV/B-Double vehicles has previously been assessed within the original TIA for the Project as being suitable to accommodate AV/B-Double vehicles. It has also been assessed as being able to accommodate the traffic volumes generated by the solar farm which is not expected to change.

As such, it is considered that the conclusions of the TIA remain unchanged, and the proposed modification is expected to result in a negligible change to the road network and result in minimal environment impacts.

It is noted that WSD have advised that the use of additional AV/B-Double vehicles is expected to reduce the overall number of trucks that are required to access the site, subsequently reducing the overall traffic volumes on the road network.

6.3.3 Amend over-dimensional vehicle movements during construction, operation, and decommissioning

The proposed changes to the vehicle movements would be of minimal and temporary environmental impact. Any impacts on the local road network would continue to be fully mitigated in accordance with the existing conditions of the Development Consent and the voluntary planning agreement entered into between WSD and Council which covers all fair wear and tear to the local road network. In addition, under the approved Traffic Management Plan (TMP) for the Project, WSD have also committed to repair any damage to Ulan-Wollar Road, Wollar Road, Philip Street, Barigan Street, Maitland Street, Barigan Road and Maree Road attributable to the Project which is not fair wear and tear. Any damage will be identified through the dilapidation surveys required under the Development Consent.

OSOM vehicles are subject to specific road permits, from the National Heavy Vehicle Regulator, that will be applied for by the contractor once the dimensions of the load and the specific delivery vehicle are known. The vehicle movements will be spread across the Project construction period and typically occur outside of peak times to minimise disruption to the road network.

Access permits required to operate on the NSW road network and to travel interstate would be obtained for vehicles and the requirements under the approved TMP (NGH Pty Ltd, 2020) for over-dimensional vehicles will be adhered to. This includes the provision of a haulage plan for Stage 3a and Stage 3b (the Stage 2 haulage plan was provided to DPE prior to the Stage 2 works commencing and Stage 3a haulage plan has also been provided) to document sensitive times of day to be avoided, such as operating times for school buses, and provide for notification to surrounding mines of proposed over-dimensional vehicle movements.

6.3.4 Update to estimated number of construction workers required for the Project

There would be no additional traffic impacts arising from an increase in workforce numbers, due to the use of shuttle busses which was assessed in the original TIA (Amber Organisation, 2019) for 40 vehicle movements per day. With a capacity of 25 workers on each shuttle bus, this provides sufficient transport for the increase in workers. The number of shuttle bus movements is not expected to change from what was assessed within the original TIA. The number of light vehicle movements is not expected to change from what was assessed in the original TIA.

A Workforce Transportation Plan (WTP) is a requirement of the Development Consent to be approved by Council as provided as part of the TMP. A WTP has been submitted for stage 3a. The stage 3b WTP would provide plans for workforce vehicle parking at their accommodation and within local towns so as not to overwhelm parking facilities. The WTP will mitigate any impact that the increase in workers could have.

As such, the proposed modifications are not expected to result in any additional impact to the road network.

6.3.5 Amend the site access route for over dimensional vehicles

Overall, this route amendment is considered to be of minimal environmental impact because this will be only required for the 2 over-dimensional vehicle movements required to deliver the substation transformers and would not have materially different impacts to those assessed.

OSOM vehicles are subject to specific road permits that will be applied for by the contractor once the dimensions of the load and the specific delivery vehicle are known. The route would be required to be assessed based on the proposed OSOM vehicle with any impacts able to be managed through traffic management measures that will be confirmed at the time of applying for the individual permits. The amended site access for haulage vehicles will also need to be addressed and accommodated for in an updated haulage plan and TMP. Road dilapidation reports for local roads for the modified haulage route will be undertaken upon request by Council.

6.4 Noise and vibration

The proposed modifications represent a change to the proposed haulage route for over-dimensional vehicles (refer section 3.5). This haulage route has not been assessed in previous environmental reporting associated with the proposed Wollar Solar Farm. A targeted traffic noise and vibration assessment has been conducted by Renzo Tonin & Associates to determine the

possible impacts of the movement of over-dimensional vehicles along the proposed over-dimensional vehicle haulage route. Their assessment is provided in full in Appendix H and summarised below.

6.4.1 Amend AV/B-Double movements without increasing overall heavy vehicle movements

Although the proposed modification to the number of AV/B-double vehicle movements increases, the total number of heavy vehicle movements will remain the same as the approved number of movements; that is, a total of 72 heavy vehicle movements.

Therefore, based on the proposed modification the maximum number of AV/B-double vehicle movements is proposed to increase from 26 to 36 per day.

To address the noise impacts due to the changes in the number of AV/B-double vehicle movements, traffic noise levels for the approved AV/B-double movements and the proposed modified movements were predicted at the nearest affected residences along the proposed routes and results were compared.

It is noted that the predicted noise levels represent the traffic noise contribution from the AV/B-double vehicle movements only and does not take into account existing traffic noise levels as existing traffic volumes along the proposed routes are unknown.

Furthermore, the roads along the proposed routes consists of arterial, sub-arterial and local roads. Therefore, the traffic noise assessment is based on these road classifications.

Table 6-2 Predicted road traffic noise levels along public roads due to AV/B-Double & MRV/HRV movements (Renzo Tonin & Associates, 2022)

Road classification	Criteria (external)	Max AV/B-Double Vehicle Movements	Speed (km/hr)	Approx. distance to road	Predicted noise level dB(A)	Exceedance
Arterial and sub-arterial roads	*LAeq,15hr 60*	*Approved: 26 per day.* Modified: 36 per day.	60	15m[1]	*Approved number: 56.* Modified number: 58	*Approved: No* Modified: No
Local roads	*LAeq,1hr 55*	*Approved: 4 per hour.* Modified: 6 per hour.	50[3]	25m[2]	*Approved number: 55.* Modified number: 57	*Approved: No* Modified: Yes

Note: Only the day period assessed as AV/B-double vehicles are expected to travel during the day period only.

LAeq is the Equivalent Continuous Sound Pressure Level. Equivalent Continuous Sound Pressure Level, or Leq/LAeq, is the constant noise level that would result in the same total sound energy being produced over a given period.

1. *Approximate distance of nearest residences to the edge of arterial / sub-arterial roads along the proposed routes.*
2. *Approximate distance of nearest residences to the edge of local roads along the proposed routes.*
3. *A previous version of the table indicated local roads had a speed of 55km/h. This was a typo. The correct speed, and the speed assessed in the Noise and Vibration Assessment was 50. The table has been updated to reflect this.*

From the Table 6-2 above, it can be seen that predicted road traffic noise level contributions from the approved and modified AV/B-double vehicle movements required during the construction, upgrading and decommissioning of the Wollar Solar Farm comply with the applicable noise criterion at the nearest affected receivers along arterial and sub-arterial roads.

For receivers located along local roads, the approved AV/B-double vehicle movements comply with the applicable noise criterion, while an exceedance is predicted with the modified vehicle movements. Exceedances (up to 2dB(A) were modelled where receivers were within 25m of the road. In order to have 0dB(A) exceedance (compliance), receivers would need to be 32m or more from the edge of a local road. Spatial analysis of Geocoded National Address File (GNAF) data verified using satellite imagery identified up to 20 receivers within 32m of local roads along the access route for AV/B-Doubles & MRV/HRVs (as shown in Appendix E). All exceedances are where the access route traverses through or near to settled areas, specifically Wollar township, known to have low occupancy rate. Refer Figure 6-3 below.

However, it is noted that an increase of up to 2dB(A) is predicted between the modified and approved vehicle movements. Reference is made to the NSW 'Road Noise Policy' (RNP – EPA 2011), which states the following:

> "*In assessing feasible and reasonable mitigation measures, an increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person.*"

Therefore, based on the RNP, the increase in traffic noise level between the modified and approved AV/B-double vehicle movements along the local roads would be barely perceptible to the average person and no further feasible and reasonable noise mitigation measures would be required.

Figure 6-3 Receivers within 25m of local roads along the access route for AV/B-Doubles & MRV/HRVs as a result of the proposed Modification.

It is proposed that a maximum of two (2) OSOM vehicle movements per day and one (1) OSOM vehicle movement per hour will travel to and from site along the modified haulage route during the daytime period. The predicted traffic noise levels at the nearest affected residences along the proposed routes due to the OSOM vehicle movements are presented in Table 6-3 below.

It is noted that the predicted noise levels represent the traffic noise contribution from the OSOM vehicle movements only and does not take into account existing traffic noise levels as existing traffic volumes along the proposed routes are unknown.

Furthermore, the roads along the proposed routes consists of arterial, sub-arterial and local roads. Therefore, the traffic noise assessment is based on these road classifications.

Table 6-3 Predicted road traffic noise levels along public roads due to OSOM vehicle movements (Renzo Tonin & Associates, 2022)

Road classification	Criteria (external)	Max OSOM Vehicle Movements	Speed (km/hr)	Approx. distance to road	Predicted noise level dB(A)	Exceedance?
Arterial and sub-arterial roads	*LAeq,,15hr 60*	2 per day.	60	15m[1]	45	No
Local roads	*LAeq,,1hr 55*	1 per hour	50[3]	25m[2]	49	No

Note: Only the day period assessed as OSOM vehicles are expected to travel during the daylight hours in regional areas.

1. Approximate distance of nearest residences to the edge of arterial / sub-arterial roads along the proposed routes.

2. Approximate distance of nearest residences to the edge of local roads along the proposed routes.

3. A previous version of the table indicated local roads had a speed of 55km/h. This was a typo. The correct speed, and the speed assessed in the Noise and Vibration Assessment was 50. The table has been updated to reflect this.

From the above table, it can be seen that predicted road traffic noise level contributions from the OSOM vehicle movements associated with the construction, operation and decommissioning of the Wollar Solar Farm comply with the applicable noise criteria at the nearest affected receivers along the proposed routes.

Additional noise and vibration of these 2 OSOM vehicle movements along the modified haulage route are considered to be minimal in consideration of the very low numbers and management that will accompany these movements.

The modified project would be substantially the same as the approved project.

6.5 Heritage

6.5.1 Amend the site access route for over dimensional vehicles

A number of heritage listed properties and buildings are in close proximity to the modified haulage route for the 2 over-dimensional vehicle movements required to deliver the substation transformers. Four are within 10m of the proposed route, as summarised in Table 6-4 below. Each of the adjacent haulage route sections, far right column, are already well trafficked routes.

Table 6-4 Listed heritage items within 10m of the modified OSOM haulage route

LEP		ID	Item	Significance	Adjacent haulage route section
Mid-Western Regional Local Environmental Plan 2012	Conservation Area - General	C2	Gulgong [conservation area]	Local	Rouse street/Cope Road
Mid-Western Regional Local Environmental Plan 2012	Item - General	I222	House	Local	Castlereagh Highway
Upper Hunter Local Environmental Plan 2013	Item - General	I152	Bow Palaeontological site	Local	Golden Highway
Mid-Western Regional Local Environmental Plan 2012	Item - General	I391	'The Lagoon', Homestead	Local	Castlereagh Highway

In general, the movement of large over-dimensional vehicles could have indirect vibration and dust impacts on the surrounding environment, including on heritage structures.

The proposed haulage route modification outlined in this report, and illustrated in Appendix E, is sealed at the location of each of the heritage items identified above. The movement of over-dimensional vehicles are not likely to incur additional dust impacts on heritage items beyond what already occurs.

The proposed haulage route is already well trafficked. Only 2 over-dimensional vehicles associated with the Project would be utilising this route. In addition, heritage buildings were identified as within the haulage route assessed at the EIS stage of the Wollar Solar Farm. Advice provided by a qualified heritage consultant advised during EIS preparation that these heritage items would not be impacted by vibration from any construction traffic, including over-dimensional vehicles (NGH, 2019, p. 204).

Accordingly, NGH consider the use of the alternative route for the 2 over-dimensional vehicle movements required to deliver the substation transformers is similarly not expected to have adverse impacts on the heritage values of any listed heritage item.

6.6 Socio-economic

6.6.1 Update the estimated number of construction workers required for the Project

A peak workforce of 500 was assessed as being manageable as per information provided in the EIS (NGH, 2019) and revised to 320 in the Submissions Report (NGH 2020) which provided a more detailed monthly breakdown. The modified project which seeks a maximum of 400 would be substantially the same as the approved project and no additional impacts would occur. The peak would occur during Stage 3 and be limited to around 2 months. It would be managed via the Stage 3 Accommodation and Employment Strategy (AES) which requires approval by DPE.

A review of the locally available accommodation was conducted for the Accommodation and Employment Strategy (NGH, 2020) undertaken for the Stage 2 works. Stage 3a was approved by DPE on 30/11/2021 Appendix I). The Stage 3b AES will be prepared in consultation with Council and is required to be approved by DPE prior to construction commencing. Council have stated they will review the Accommodation and Employment issues to be addressed in the separate AES management plan rather than in this modification report. Refer section 5.3.2. The Stage 3b AES will contain the final estimate of construction worker numbers which are expected to reach a peak of up to 400 and will ensure there is sufficient accommodation for the construction workforce and provide any required mitigation measures.

The modified project would be substantially the same as the approved project.

7. Justification of the modified project

This proposed modification primarily relates to the transport aspects of the construction program for the approved Wollar Solar Farm. The transport changes are requested based on input from construction contractors as detailed design of the Project has progressed and are required to optimise the construction program and minimise the overall length of the construction period. In addition, minor updates to the specifications for the solar panels and solar arrays having regard to detailed design, availability and commercial considerations are included.

The proposed modification will result in some minor impacts from varied vehicle movements and a negligible change in visual impacts of the operational array. These represent minimal changes to the impacts of the currently approved Project and are considered to be outweighed by the positive impacts of the Project; improving construction efficiencies and optimising yield for the operational life of the project. There is no proposed change to the general layout or approved development footprint as provided in Appendix 1 of the Development Consent. The final layout plans will be provided as per Sch 4. Cond. 5. of the Development Consent.

Once constructed, the Project will provide enough clean renewable energy to power around 104,926 average NSW homes and displace approximately 515,564 metric tonnes of carbon dioxide annually. The EIS assessed the Project against the principles of ecologically sustainable development (ESD) (section 5.5.2 of the EIS). Given the minimal impact, the Project would continue to comply with ESD principles under the proposed modification. The Project as modified would be consistent with all relevant government legislation, plans, policies and guidelines and would assist in driving the energy transition towards renewable energy in NSW.

7.1 Actions pending approval of the modification

Table 6-1 summarises the impacts of the modification. Taken together with the updated consent conditions and project description, the changes proposed do not affect the project in meeting any of its mitigation commitments or other consent conditions. No changes to the mitigation measures are required.

However, actions that would result from approval of the modification would be as follows:

- OSOM road permits will be applied for by contractor prior to the OSOM movements commencing.
- The haulage route would need to be assessed based upon the confirmed OSOM vehicle model prior to the movements occurring. The NHVR will determine if the original route or the proposed route is preferred for the delivery of the transformers. Any mitigation measures required by the NHVR permit will be implemented.
- Road dilapidation reports for local roads on the modified haulage route will be undertaken upon request by Council.
- Updates to the following plans will be required:
    - Haulage plan, for the substation transformer and associated materials would be required.
    - Traffic Management Plan
    - Accommodation and Employment Strategy, with Council input.

8. References

Amber Organisation. (2019). *Wollar Solar Farm - Traffic Impact Assessment.*

Amber Organisation. (2022). *Wollar Solar Farm - Modification traffic assessment .*

NGH. (2019). *Environmental Impact Assessment.* Bega: NGH environmental.

NGH Pty Ltd. (2020). *Accommodation and Employment Strategy (Stage 2) Wollar Solar Farm.*

NGH Pty Ltd. (2020). *Submissions Report Wollar Solar Farm.*

NGH Pty Ltd. (2020). *Traffic Management Plan Wollar Solar Farm.*

NGH Pty Ltd. (2019). *Wollar Solar Farm Environmental Impact Statement.*