Stubbo Solar Farm

Intended for
UPC Renewables Australia Pty Ltd

Date
June 2021

STUBBO SOLAR FARM
AMENDMENT REPORT

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UPC AC Renewables AUSTRALIA
A joint venture of UPC & AC Energy

STUBBO SOLAR FARM
AMENDMENT REPORT

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Checked by	**Jon Williamson**
Approved by	**Jon Williamson**
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V2					
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Ramboll Australia Pty Ltd.
ACN 095 437 442
ABN 49 095 437 442

EXECUTIVE SUMMARY

Introduction

UPC Renewables Australia Pty Ltd, operating as UPC\AC Renewables Australia (UPC\AC), the Proponent, proposes to develop the Stubbo Solar Farm, a grid-connected photovoltaic solar farm of up to 400 megawatts in the New South Wales Central West Orana region (the project). The project would be located approximately 90 kilometres east of Dubbo and approximately 12 kilometres north of Gulgong, in the Mid-Western Regional Council Local Government Area. The project is located within the proposed Central-West Orana Renewable Energy Zone.

The capital value of the project would be in excess of $30 million. Accordingly, the project is a State Significant Development under the *State Environmental Planning Policy (State and Regional Development) 2011* and Part 4 of the *Environmental Planning and Assessment Act 1979*.

A development application and environmental impact statement were submitted for the project under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* on 11 December 2020. The development application and environmental impact statement for the project were publicly exhibited from 12 January 2021 to 19 February 2021.

Project amendments and clarifications

UPC\AC proposes one amendment to the project that was the subject of the development application and environmental impact statement, to include an upgrade of Blue Springs Road and its intersection with Cope Road, in response to submissions provided by Mid-Western Regional Council and Transport for NSW.

A total of four clarifications to the environmental impact statement are provided where they have been identified through review of the environmental impact statement or sought through ongoing discussions with stakeholders, landholders and the local community. Clarifications include the following:

- additional non-associated property identified after lodgement of the environmental impact statement in December 2020
- clarification of the intended use of the proposed development footprint shown within the TransGrid easement
- configuration of potential battery energy storage system
- layout of proposed switchyard within the substation area for the purpose of subdivision.

Purpose of this report

This amendment report has been prepared to consider and assess the potential environmental, economic, and social impacts associated with the proposed amended project and any clarifications where further assessment is warranted and should be read in conjunction with all documentation that forms the environmental impact statement package.

A separate response to submissions report has been prepared and submitted to Department of Planning, Industry and Environment in conjunction with this report, that responds to the matters raised in these submissions in accordance with clause 82(2) of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

Additional assessments since the EIS

Additional assessments have been undertaken to assess potential impacts of the proposed upgrade of Blue Springs Road and its intersection with Cope Road. Additional assessments have also been undertaken to consider potential impacts associated with the following clarifications:

- assessment of potential noise and visual impacts at a non-associated property not previously identified in the environmental impact statement
- update of the preliminary hazard assessment to provide further clarity and additional information.

A revised summary of management and mitigation measures has been provided to address the refinements made to the project and to address matters raised in the submissions.

Conclusion

The environmental impact assessment undertaken for the project as part of the environmental impact statement and the additional assessment undertaken as part of the amendment report, has determined that the project would not result in significant impacts to environmental, cultural, social and economic values and residual impacts can be managed with the management and mitigation measures in place.

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1. INTRODUCTION

1.1 Overview

UPC Renewables Australia Pty Ltd, operating as UPC\AC Renewables Australia (UPC\AC), the Proponent, proposes to develop the Stubbo Solar Farm, a grid-connected photovoltaic solar farm of an intended capacity of 400 megawatts in the New South Wales (NSW) Central West Orana region (the project). The project would be located approximately 90 kilometres east of Dubbo, in the Mid-Western Regional Council Local Government Area (LGA). The project is located within the proposed Central-West Orana Renewable Energy Zone, recently identified by the NSW Government to help meet its objective to achieve net zero emissions by 2050.

The project as described in the environmental impact statement (EIS) would include the construction, operation and decommissioning of a 400-megawatt solar farm that would supply electricity to the National Electricity Market (NEM). Key infrastructure for the project would include:

- photovoltaic modules (solar panels) installed on a single axis tracking system in a series of rows aligned north – south across the development footprint
- power conversion units (PCUs) designed to convert the direct current (DC) electricity generated by the photovoltaic modules into alternating current (AC) form, compatible with the electricity network
- onsite substation containing, indicatively, two main transformers and associated switchgear
- transmission infrastructure including up to 33 kilovolt overhead and/or underground electrical reticulation; and connection from the substation to the existing 330 kilovolt transmission line (Line 79) operated by TransGrid
- a centralised or decentralised battery energy storage system (BESS), which may involve a possible third and fourth transformer at the substation if an AC coupled system is installed
- operational and maintenance ancillary infrastructure including staff office and amenities, car parking, spare parts storage and maintenance facilities; and supervisory control and data acquisition (SCADA) facilities
- access roads and local road upgrades, both to the project and internal access roads
- temporary facilities required during the construction and decommissioning phases, such as construction compounds and laydown areas, site office and amenities; and access tracks and associated infrastructure, including gates and fencing.

UPC\AC proposes one amendment to the project that was the subject of the Development Application (DA) and EIS, to include an upgrade of Blue Springs Road and its intersection with Cope Road, in response to submissions provided by Mid-Western Regional Council and Transport for NSW. An indicative project layout is provided in **Figure 4-1**, which shows the proposed amended project compared to the project as described in the EIS.

The layout of the amended project shown in **Figure 4-1** also shows several clarifications about the project where it has been sought during the exhibition period and through ongoing discussions with stakeholders, landholders and the local community.

1.2 Purpose of this amendment report

This amendment report has been prepared to consider and assess the potential environmental, economic, and social impacts associated with the proposed amended project and any clarifications where further assessment is warranted and should be read in conjunction with the EIS.

This report has been submitted to the Department of Planning, Industry and Environment (DPIE) to consider, along with the EIS, the submissions received on the project and the response to submissions report to determine the project.

A separate response to submissions report has been prepared and submitted to DPIE in conjunction with this report, that responds to the matters raised in these submissions in accordance with clause 82(2) of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

1.3 Confirmation of approval process

The capital value of the project would exceed $30 million. Accordingly, the project is a State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SR&D) and Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

A DA and EIS were submitted for the project under Part 4, Division 4.1 of the EP&A Act on 11 December 2020. The DA and EIS for the project were publicly exhibited from 12 January 2021 to 19 February 2021.

At the conclusion of the exhibition period, the Department of Planning, Industry and Environment (DPIE) had received 17 submissions from the public, two submissions from interest groups and advice from 17 government agencies.

Following receipt of this amendment report and the response to submissions report, DPIE will prepare its assessment report considering the EIS, this amendment report, all submissions received during the exhibition process and the response to submissions report to make a determination on the project.

1.4 Document structure

This Response to Submissions Report is structured as follows:

- **Section 1. Introduction** – provides background on the project and introduces the document purpose and structure
- **Section 2. Clarifications to the EIS** – outlines the clarifications sought from stakeholders, landholders and the local community about the project
- **Section 3. Project amendments** – provides a summary of the proposed Blue Springs Road upgrade
- **Section 4. The amended project** – provides an updated consolidated project description and layout, including the clarifications outlined in Chapter 2 and amendment described in Chapter 3
- **Section 5. Consultation** – provides a summary of the consultation undertaken during the project amendment phase, following submission of the EIS
- **Section 6. Revised assessment of impacts** – assesses the changes to the potential impacts of the proposed project amendment and clarifications
- **Section 7. Revised management and mitigation measures** – provides an updated summary of management and mitigation measures

- **Section 8. Project evaluation and conclusion** – presents the overall impacts and benefits of the project of the amended project
- **Section 9. References**
- **Appendices** – the appendices to the amendment report which support the main document. Appendices include:
    - **Appendix 1**: Correspondence with TransGrid
    - **Appendix 2**: Blue Springs Road upgrade concept design
    - **Appendix 3**: Blue Springs Road upgrade concept design endorsement
    - **Appendix 4**: Correspondence with Transport for NSW
    - **Appendix 5**: Correspondence with Forestry Corporation NSW
    - **Appendix 6**: Addendum biodiversity report
    - **Appendix 7**: Addendum Aboriginal cultural heritage assessment report
    - **Appendix 8**: Dwelling analysis at additional property 'R11'
    - **Appendix 9**: Revised noise and vibration assessment
    - **Appendix 10**: Nosie and vibration assessment Blue Springs Road
    - **Appendix 11**: Revised preliminary hazard assessment.

2. CLARIFICATIONS TO EIS

2.1 Overview

A total of four clarifications to the EIS are provided where they have been identified through review of the EIS or sought through ongoing discussions with stakeholders, landholders and the local community. An overview of these clarifications is provided in **Table 2-1**.

Table 2-1: Overview of clarifications

Clarification	Source of clarification	Clarification overview
Additional non-associated property identified after lodgement of the EIS in December 2020	Review of EIS	Clarification to include an additional non-associated property that was not identified in the EIS
Clarification of the intended use of the proposed development footprint shown within the TransGrid easement	Review of EIS and consultation with TransGrid during exhibition	Clarification to show some restrictions of the proposal where it encroaches into the existing easement for the 330 kilovolt and 132 kilovolt transmission lines
Configuration of potential battery energy storage system	Clarification requested by DPIE	Clarification that both a centralised and a de-centralised configuration for a battery energy storage system have been considered
Layout of proposed switchyard within the substation area for the purpose of subdivision	Clarification requested by DPIE	Clarification to show an indicative layout of the area to be subdivided (switchyard within the substation areas)

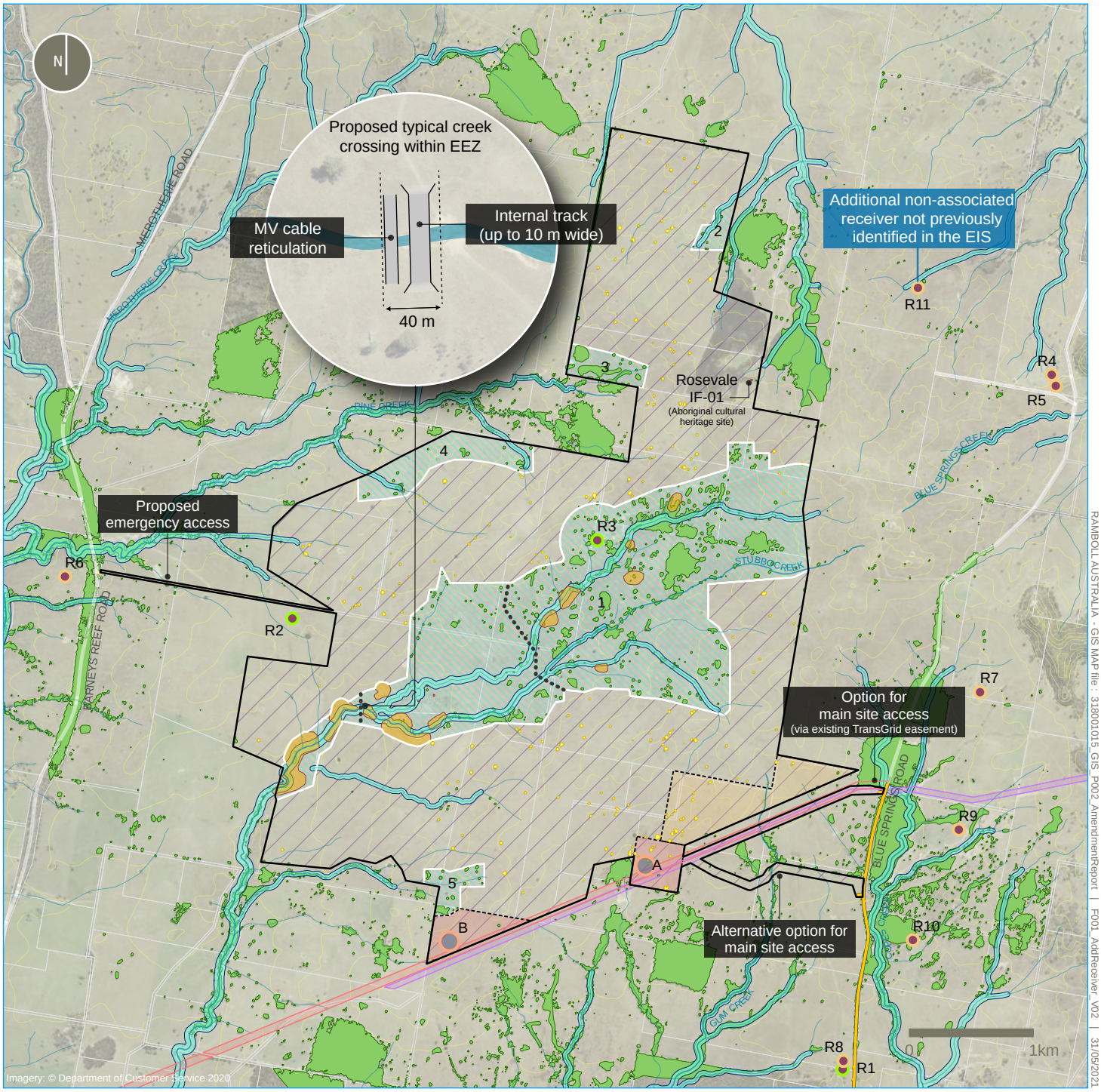
2.2 Additional non-associated property identified after EIS lodgement in December 2020

Review of the EIS during the exhibition period noted that one non-associated property was not shown on the key environmental and other land use constraints figure in the EIS (Figure 3-3 in the EIS).

Despite UPC\AC's best endeavours to contact all neighbours, including letters sent to all landholders surrounding the site, after the EIS was lodged it was brought to the company's attention that one dwelling on a nearby property had not been identified through searches of the NSW Six Map imagery. The dwelling has been relatively recently constructed and is not easily visible from accessible roads or neighbouring properties.

Contact with the landholder was established after the EIS was lodged in December 2020 and this figure has now been updated. The additional non-associated property is identified as 'R11' in **Figure 2-1**.

Additional environmental assessment has been undertaken for the dwelling to assess potential noise and visual impacts. These assessments are discussed further in **Section 6.3** (landscape character and visual) and **Section 6.4** (noise and vibration).



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Key

- Study area
- Indicative temporary construction ancillary facilities (site compound, laydown area and car park)
- Proposed operational infrastructure area including substation, operational facility and BESS
- Indicative connection point to the NEM (option A or B)
- Road upgrade design
- Proposed development footprint
- Environmental exclusion zones
- Indicative access across EEZ
- 330kV transmission line easement
- 66kV transmission line easement
- Road
- Creek
- Sensitive receivers: Associated
- Sensitive receivers: Non-associated
- Vegetation to be removed
- Native vegetation to be retained
- Riparian buffer
- Aboriginal cultural heritage sites including buffer

Figure 2-1 | Update of EIS Figure 3-3 to show additional non-associated property ('R11')

2.3 TransGrid easement

Review of the EIS during the exhibition period noted that the development footprint in the key environmental and other land use constraints figure in the EIS (Figure 3-3 in the EIS) was shown as encroaching into the existing easement for the 330 kilovolt and 132 kilovolt transmission lines on the western side of the development footprint.

The development footprint was shown as encroaching in three locations, including the proposed access track and the indicative substation location options ('A' and 'B'), without clarification as to the intended use of the development footprint in these areas.

An updated figure is provided in **Figure 2-2** to show that only infrastructure that is allowable in accordance with TransGrid's guidelines or as specifically required by TransGrid would be permitted in areas where the development footprint encroaches into the easement. For example, infrastructure such as solar arrays or substation infrastructure would not be permitted within the easement. However, access tracks and fences/gates can be constructed in accordance with the guidelines and the easement would be a possible location for the access track from Blue Springs Road as described in the EIS.

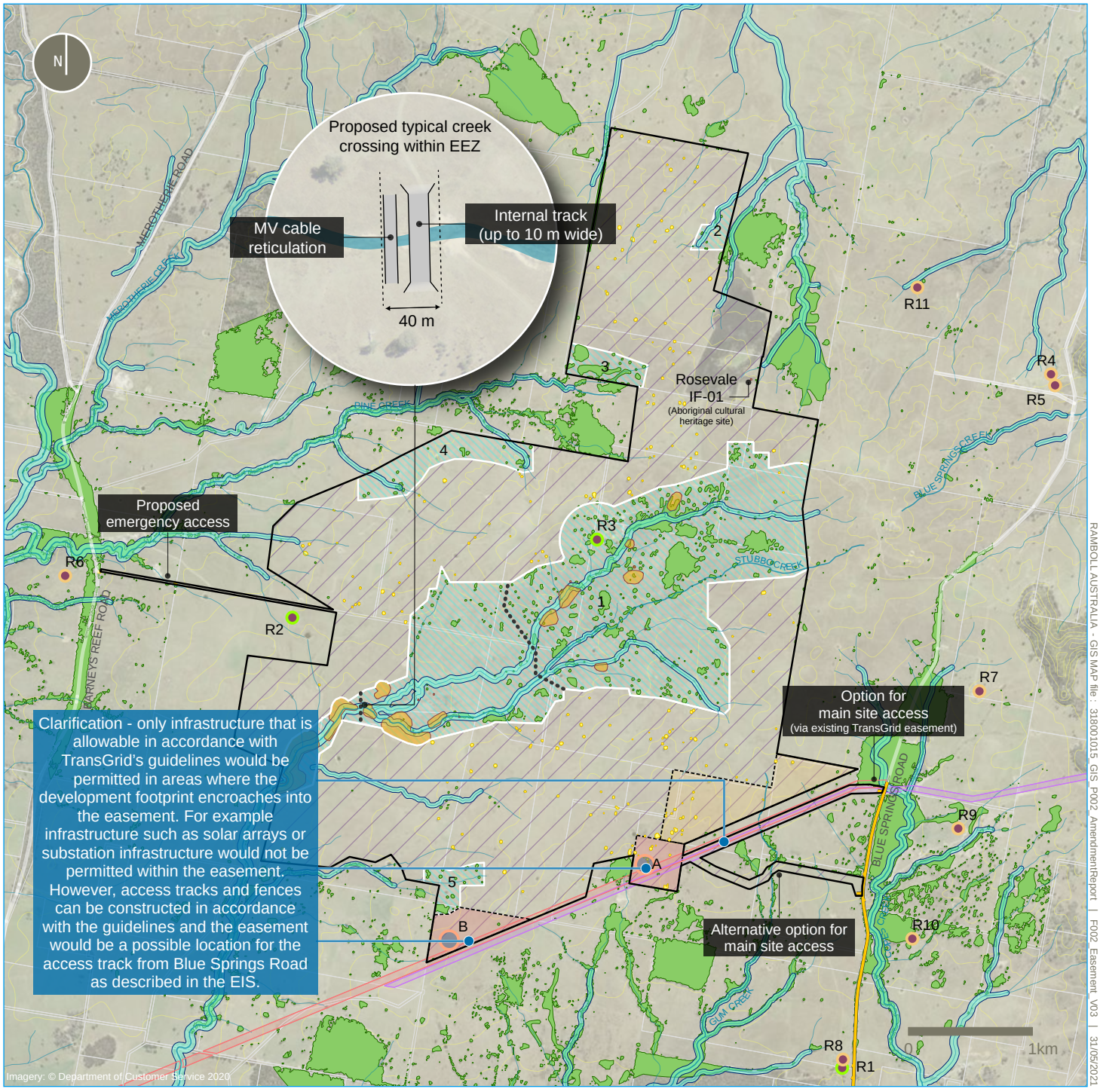
It is noted as a clarification that UPC\AC continues to consult with TransGrid about the use of the transmission line easement as an option for access to the site because this access track option minimises vegetation clearance and farming impacts.

If this option is selected, the existing access track along the easement would be upgraded to a suitable standard for construction and operations traffic and the design would be agreed in consultation with TransGrid. Consultation undertaken with TransGrid to date is summarised in **Section 5.8** and a copy of correspondence received is provided in **Appendix 1**.

Following feedback from TransGrid during consultation about the use of the easement, UPC\AC is committed to ongoing consultation through detailed design and compliance with TransGrid's design requirements including:

- ensuring that the design and construction of the access track is compliant with the TransGrid Easement Guidelines
- ensuring that any fencing and gates within the easement corridor are designed and installed in accordance with the TransGrid Fencing Guidelines and that access to the easement by TransGrid is provided for
- maintaining the condition of the track into the future
- accounting for times when TransGrid may need to close or modify the track to operate and maintain their assets
- continued consultation with the landowner to put in place any requisite property interests and consultation with TransGrid to ensure that their usage of the easement is not materially impaired.

This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID C1).



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Key

- Study area
- Indicative temporary construction ancillary facilities (site compound, laydown area and car park)
- Proposed operational infrastructure area including substation, operational facility and BESS
- Indicative connection point to the NEM (option A or B)
- Road upgrade design
- Proposed development footprint
- Environmental exclusion zones
- Indicative access across EEZ
- 330kV transmission line easement
- 66kV transmission line easement
- Road
- Creek
- Sensitive receivers: Associated
- Sensitive receivers: Non-associated
- Vegetation to be removed
- Native vegetation to be retained
- Riparian buffer
- Aboriginal cultural heritage sites including buffer

Figure 2-2 | Update of EIS Figure 3-3 to clarify use of the development footprint within the TransGrid easement

2.4 Configuration of battery energy storage system

The EIS notes that if a battery energy storage system (BESS) is provided as part of the project, it would be either a centralised 'AC Coupled' BESS adjacent to the substation (at one of two locations A or B) or a decentralised 'DC Coupled' BESS with BESS units connected to some or all of the PCUs distributed throughout the site.

The decision to proceed with either the centralised or decentralised option is subject to a number of financial and technical considerations, further development of the layout and would be resolved during detailed design and procurement. The preliminary hazard assessment included in the EIS has been updated to include consideration of both options and is discussed further in **Section 6.5**. Both options would be expected to have a similar degree of acceptable impacts and that either option is considered viable at this stage.

The major components of the BESS included in the updated preliminary hazard assessment are consistent with those discussed in the EIS and include:

- **Batteries** – most likely a lithium-ion technology type
- **Inverters** – convert the DC electricity generated by the photovoltaic modules into AC. The decentralised DC Coupled arrangement will utilise battery DC to DC converters connected to the solar inverters rather than additional battery inverters. DC to DC converters are a simplified version of an inverter missing components such as the AC to DC transformation equipment
- **Transformers** – there would be two types of transformers within the centralised AC Coupled BESS if this option is chosen: a low-voltage to medium-voltage transformer incorporated into the battery inverters and a medium-voltage to high-voltage "step up" transformer if a separate grid connection for the BESS is required. Alternatively, the BESS could connect through one of the solar farm transformers. The decentralised BESS option does not require any additional transformers (aside from the transformers at the grid substation)
- **Heating ventilation air conditioning** (HVAC) – the HVAC would maintain the batteries at a temperature to optimise their lifetime and performance. This would include small package units and large chillers or a liquid cooling system
- **Fire protection** - active gas-based fire protection systems would be installed within the BESS enclosure. Thermal sensors and smoke/gas detectors would be installed and connected to a fire control panel.

2.5 Layout of subdivision area for the switchyard for the purpose of subdivision

Prior to connecting to the NEM, medium voltage electricity from the solar farm reticulated typically at 33 kilovolts, would be increased ("stepped up") to high voltage 330 kilovolt electricity at a substation to be located at one of two possible connection points (A or B) shown in **Figure 4-1**. The indicative areas shown at either A or B would incorporate the substation, BESS (if the centralised option is preferred) and ancillary infrastructure.

The footprint for the substation and centralised BESS as shown at either 'A' or 'B' would be approximately 17 hectares, noting that the exact layout would be provided in the detailed design, prior to construction and would depend on topographical and environmental constraints as outlined in the EIS and the requirements of the TransGrid design guidelines discussed in **Section 2.3**.

The substation itself would consist of an indoor switch room to house the medium voltage switchboard and circuit breakers, and an outdoor switchyard to house the transformer(s), gantries and associated infrastructure. A security fence would be installed around the substation to maintain site security and public safety.

A subdivision for the purpose of the outdoor switchyard component would be required within the substation area, as specifically required by TransGrid for connection to Line 79. TransGrid requires transfer of the land title for this subdivided land during the construction of the switchyard. A subdivision is not required for other components within the substation area.

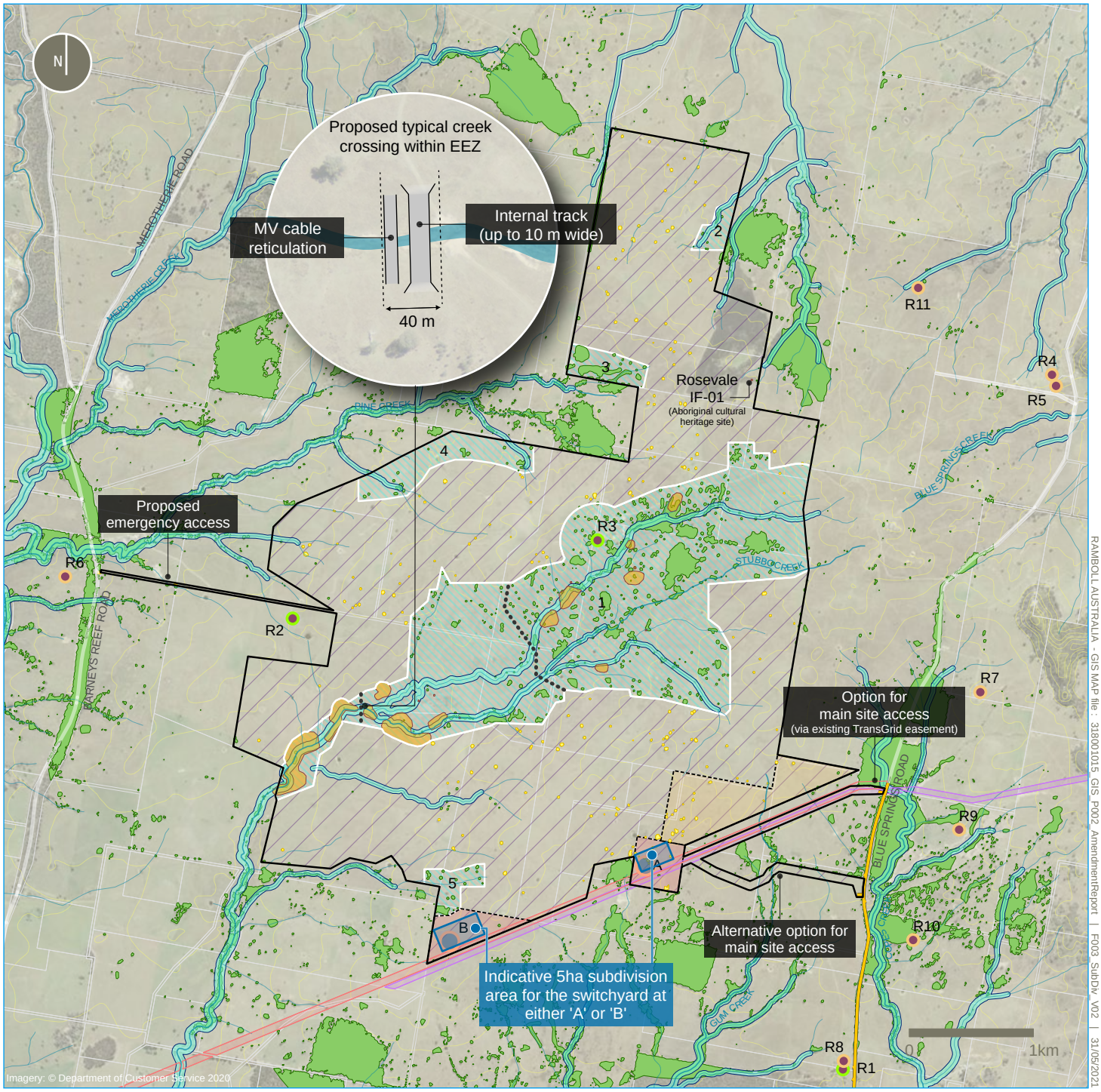
The development footprint is located within zone 'AD' for subdivision. Section 4.1 of the Mid-Western Regional Council LEP states that the size of any lot resulting from a subdivision of land in zone AD is not to be less than 100 hectares. Clause 4.1E applies to subdivision of land in zone RU1 for non-agricultural land uses. Sub-clause 2 states that:

> "*Land in Zone RU1 Primary Production may be subdivided to create a lot of a size that is less than the minimum size shown on the Lot Size Map in relation to that land if the consent authority is satisfied that the use of the land after the subdivision will be the same use permitted under the existing development consent for the land (other than for the purpose of a dwelling house or dual occupancy).".*

Although the subdivision required for the substation would result in a lot that is less than the minimum 100 hectares, it would be permissible under Section 4.38 of the EP&A Act subject to the approval of the Minister for Planning.

UPC\AC have also discussed the subdivision with Mid-Western Regional Council through ongoing consultation and no further issues have been raised by Mid-Western Regional Council.

An indicative layout of the outdoor switchyard area based on an example of similar infrastructure at the New England Solar Farm, is provided in **Figure 2-3**.



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Key

- Study area
- Indicative temporary construction ancillary facilities (site compound, laydown area and car park)
- Proposed operational infrastructure area including substation, operational facility and BESS
- Indicative connection point to the NEM (option A or B)
- Road upgrade design
- Indicative subdivision area
- Proposed development footprint
- Environmental exclusion zones
- Indicative access across EEZ
- 330kV transmission line easement
- 66kV transmission line easement
- Road
- Creek
- Sensitive receivers: Associated
- Sensitive receivers: Non-associated
- Vegetation to be removed
- Native vegetation to be retained
- Riparian buffer
- Aboriginal cultural heritage sites including buffer

Figure 2-3 | Indicative layout of subdivision area for switchyard

3. PROJECT AMENDMENTS

3.1 Overview of proposed Blue Springs Road upgrade

UPC\AC proposes one amendment to the project that was the subject of the DA and EIS, to include an upgrade of Blue Springs Road in response to submissions provided by Mid-Western Regional Council and Transport for NSW. Additional environmental assessment has been undertaken to consider the potential impacts of the upgrade. These additional environmental assessments are outlined in **Chapter 6**.

3.2 Methodology

The methodology undertaken to develop the proposed upgrade of Blue Springs Road and the intersection with Cope Road has been developed through extensive consultation with DPIE and Mid-Western Regional Council, with the intent to provide adequate environmental and technical assessment of the proposed upgrade in line with the timeframes of the response to submissions report preparation. The methodology has included:

- detailed topographic survey to inform the concept design and future detailed design. Survey was carried out by a local survey company in April and May 2021. It included survey of existing road formation, significant trees and roadside vegetation, drainage structures, road reserve and adjacent property cadastral boundaries and fences.
- cadastral validation was undertaken to outline discrepancies between digital boundaries and surveyed boundaries and inform discussions with landholders, Mid-Western Regional Council and the Forestry Corporation of NSW.
- preparation of a full geometric concept design to provide a clear understanding of the potential impacts of the proposed upgrade and facilitate ongoing consultation
- extensive ongoing consultation during design development with Mid-Western Regional Council, Forestry Corporation of NSW, adjoining landholders and Transport for NSW to ensure that the proposal provides a satisfactory outcome.

The concept design has been developed to inform the environmental assessment and development application process and will be refined through detailed design prior to construction. Additional investigations and assessments will be undertaken to inform the detailed design development including geotechnical investigation, pavement design and hydrology assessment where required to inform the drainage design.

3.3 Objectives and scope of proposed upgrade

The scope of the proposed upgrade to Blue Springs Road and the Cope Road intersection has been developed in consultation with Mid-Western Regional Council and Transport for NSW. The scope includes the following objectives:

- develop a design that complies with current Austroads standards and guidelines, whilst providing least impact to existing trees – especially hollow-bearing trees - and maintenance of wildlife corridors in remnant vegetation in the road reserve where possible
- minimise impacts to roadside furniture, property boundaries and fences
- upgrade the full 5.4-kilometre length of Blue Springs Road from the intersection of Cope Road and Blue Springs Road, to about 100 metres north of the northern site access (to allow tie-in back to the existing alignment)
- upgrade the intersection of Blue Springs Road and Cope Road to allow maintenance of the existing basic right-turn (BAR) and provide basic left-turn (BAL) intersection treatment for the design vehicle (26 metre B-double)

- design to suit 100 kilometres per hour operating speed (with some sections limited to 80 kilometres per hour during construction)
- upgrading intersections with existing driveways within the Blue Springs Road reserve as per standards
- upgrading the road geometry including improvement of superelevation and pavement widening on curves
- widening of road pavement in other areas where needed
- design of intersections for the two solar farm access options (noting that only one access option would be constructed)
- adjustment and extension of existing culverts and improving existing drainage
- provision of safety barriers where required.

The extent of the proposed upgrade is shown in **Figure 3-1** and concept design drawings are provided in **Appendix 2**.

3.4 Design guides and references

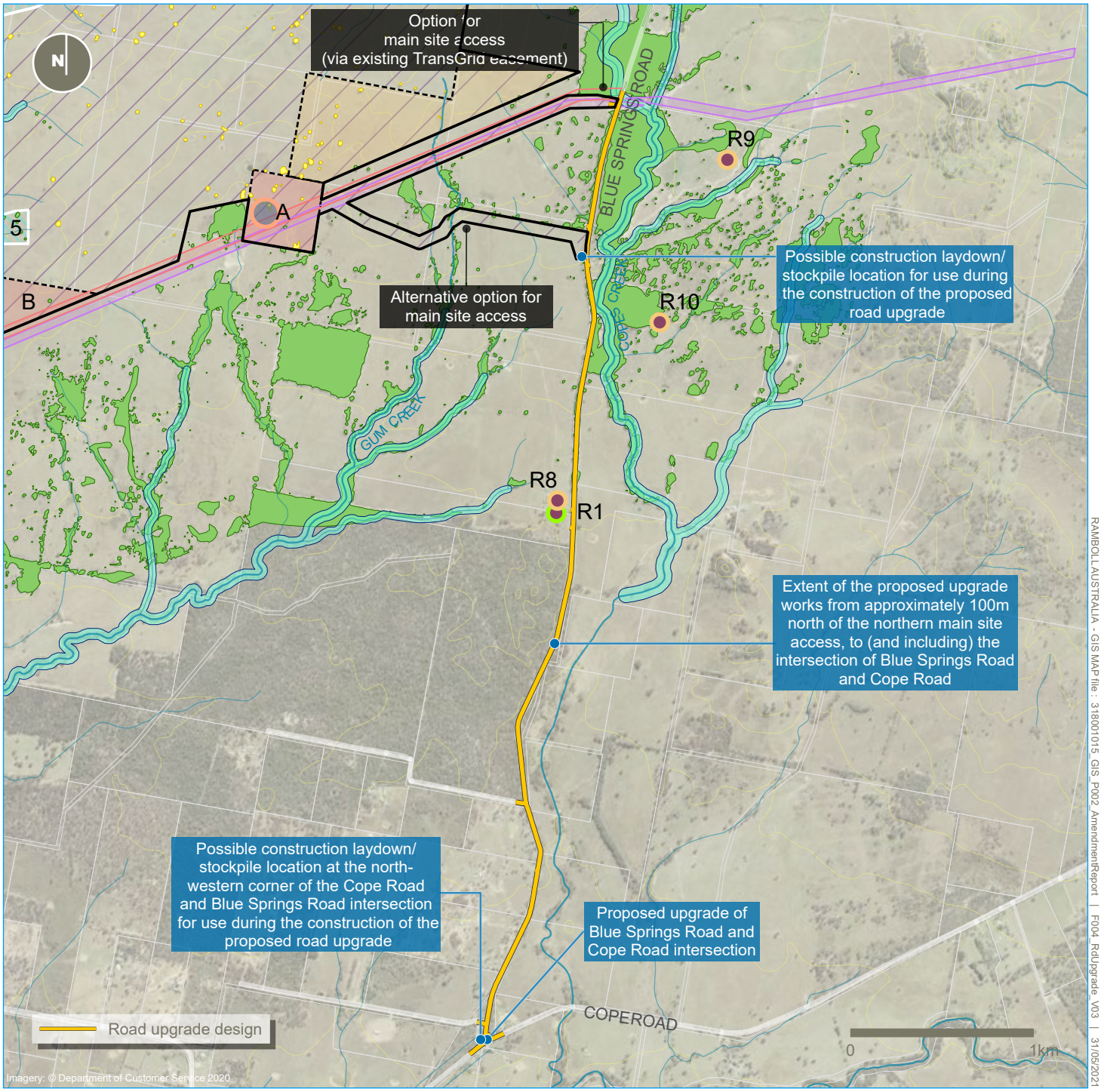
The design of the proposed upgrade has been carried out with reference to the following design guides:

- Austroads Guide to Road Design (AGRD)
- IPWEA NSW standard details
- Australian Standards
- TfNSW Supplements to AGRD, Standard drawings, CADD Manual and specifications.

3.5 Refinement to alternate solar farm access option

The proposed alternate access option to the solar farm from Blue Springs Road proposed in the EIS was refined during development of the concept design in consultation with Mid-Western Regional Council.

The proposed alternate access option was moved approximately 80 metres to the south to improve road safety and provide better sight distance for vehicles exiting the solar farm site and is shown in **Figure 3-2**.



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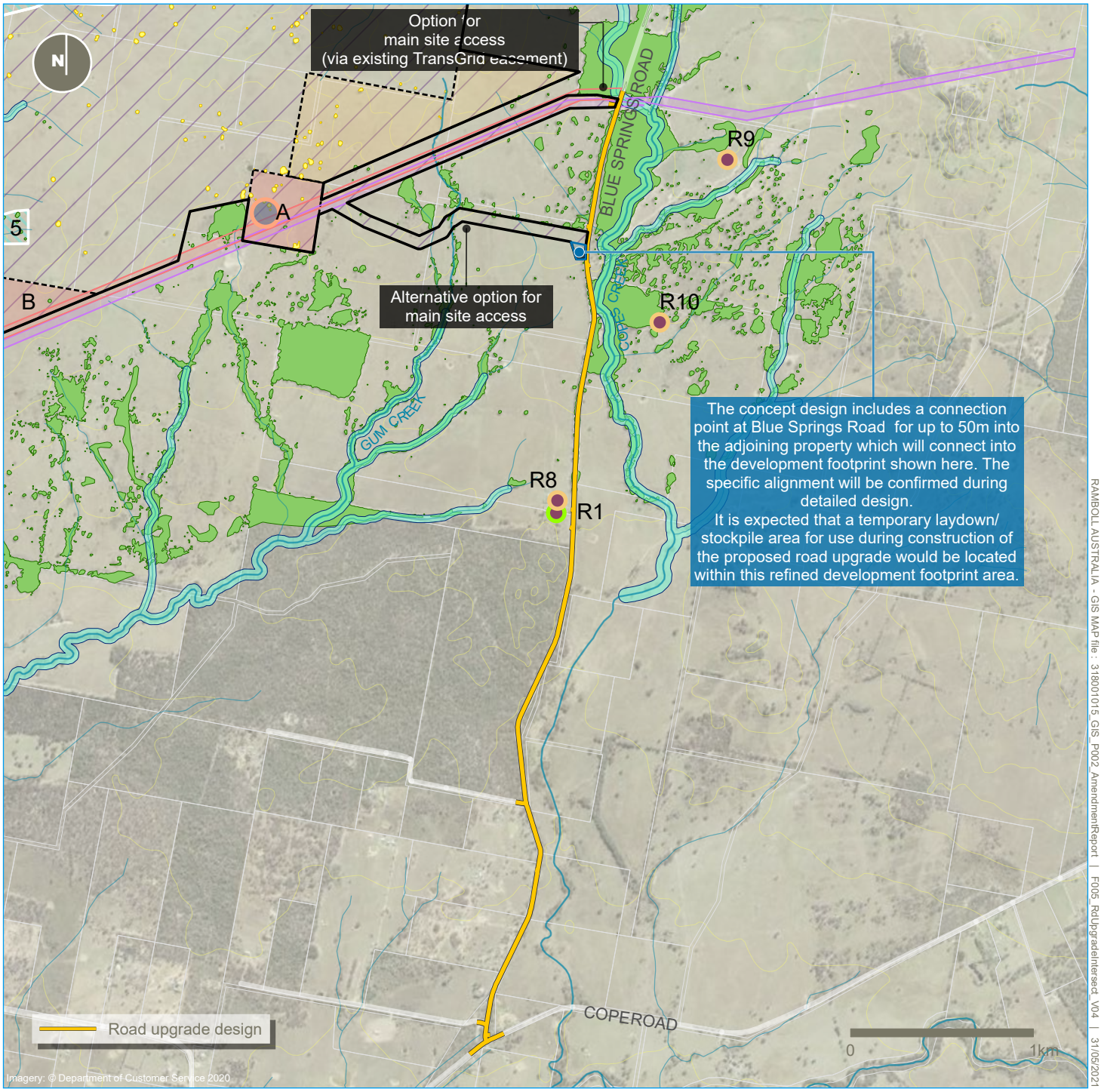
Key

- Study area
- Indicative temporary construction ancillary facilities (site compound, laydown area and car park)
- Proposed operational infrastructure area including substation, operational facility and BESS
- Indicative connection point to the NEM (option A or B)
- Proposed development footprint
- Environmental exclusion zones
- Indicative access across EEZ
- 330kV transmission line easement
- 66kV transmission line easement
- Road
- Creek
- Sensitive receivers: Associated
- Sensitive receivers: Non-associated
- Vegetation to be removed
- Native vegetation to be retained
- Riparian buffer
- Aboriginal cultural heritage sites including buffer

Figure 3-1 | Extent of the proposed Blue Springs Road upgrade



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Key

- Study area
- Indicative temporary construction ancillary facilities (site compound, laydown area and car park)
- Proposed operational infrastructure area including substation, operational facility and BESS
- Indicative connection point to the NEM (option A or B)
- Proposed development footprint
- Environmental exclusion zones
- Indicative access across EEZ
- 330kV transmission line easement
- 66kV transmission line easement
- Road
- Creek
- Sensitive receivers: Associated
- Sensitive receivers: Non-associated
- Vegetation to be removed
- Native vegetation to be retained
- Riparian buffer
- Aboriginal cultural heritage sites including buffer

Figure 3-2 | Refinement of alternative access option at Blue Springs Road

3.6 Safety barriers

Safety barriers have been provided as part of the concept design at locations which pose a higher risk to drivers of vehicle crashes. This includes some curves, fill batters steeper than 1V:4H (or fill batters steeper than 1V:2H where the batter is greater than one metre high), and where there are existing fixed roadside objects.

Locations of existing trees that are to be retained within the clear zone (particularly on curves) would be further reviewed and the safety barrier locations further assessed during detailed design.

3.7 Intersections and property accesses

There are ten property accesses along Blue Springs Road and one property access on Cope Road that would be maintained as part of the proposed road upgrade.

It is proposed to construct a BAL intersection treatment on Cope Road at the intersection of Blue Springs Road and maintain the existing BAR treatment to suit the storage of a 26 metre B-double.

3.8 Surface water and drainage

Generally, in sections of fill embankments along the proposed upgrade, the existing roadside drainage is to remain unaltered where it is not impacted from the proposed road profile. Where this is not possible a new table drain has been provided in the concept design.

Existing drainage culverts and headwalls would be retained where possible, with the existing headwall removed and the culvert extended with a new headwall. Where this is not possible, the existing culverts and headwalls would be removed and replaced.

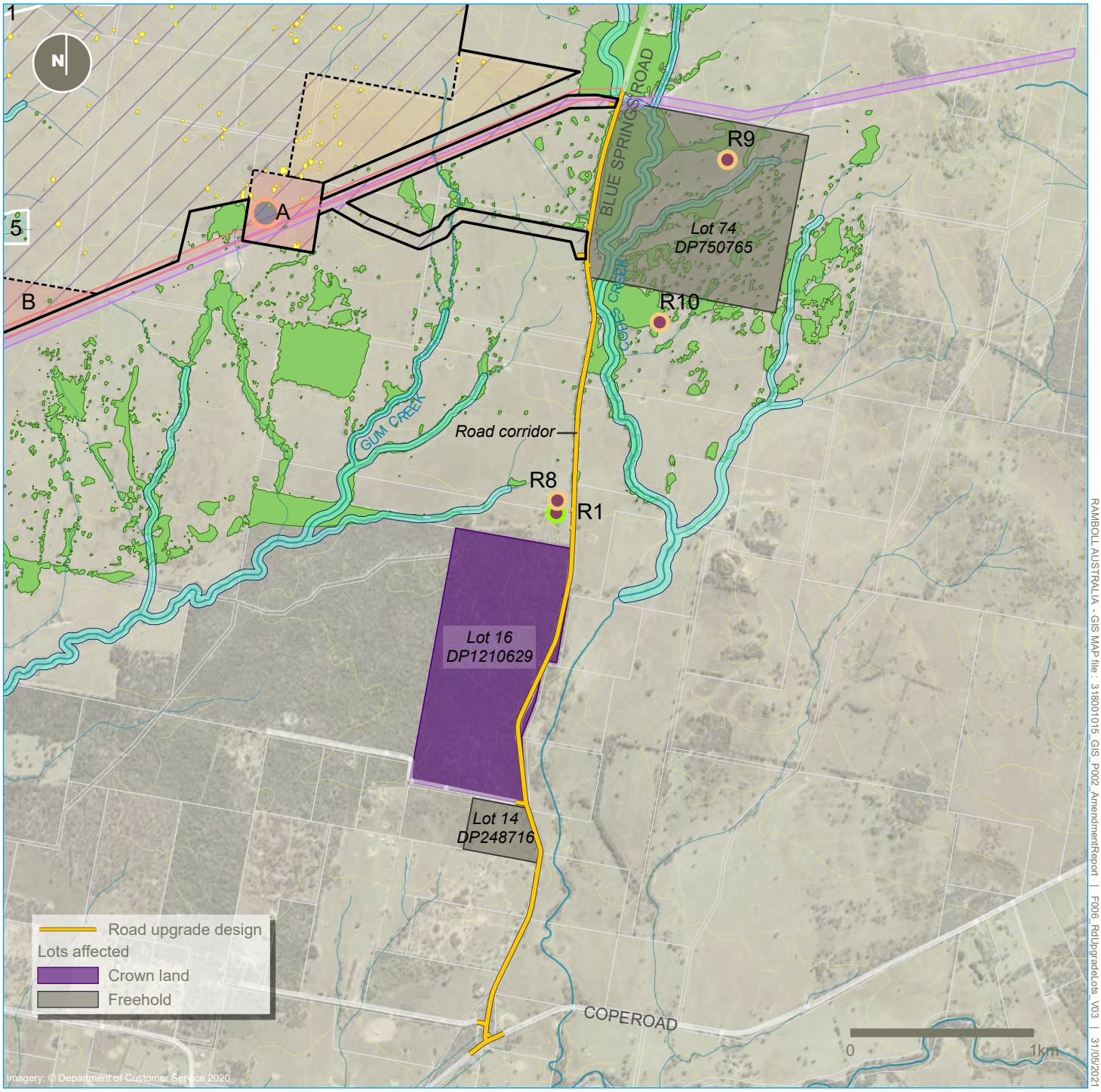
Where sections of new table drain are required along the side of the road, it has been designed to match the existing table drain capacity at a minimum and maintain existing flow regimes.

3.9 Land tenure

Detailed topographic survey was undertaken as part of the development of the concept design, which included survey of adjacent property and cadastral boundaries. Cadastral validation was undertaken to outline discrepancies between the publicly available digital boundaries and surveyed boundaries and to inform discussions with landholders, Mid-Western Regional Council and the Forestry Corporation of NSW.

In addition to the road reserve (owned and operated by Mid-Western Regional Council), the cadastral validation only identified two freehold lots and part of the Cope State Forest as likely to be impacted by the proposed upgrade. These lots are shown on **Figure 3-3** and include the following:

- Lot 14/DP248716 (freehold)
- Lot 74/DP750765 (freehold)
- Lot 16/DP1210629 (Crown land managed by Forestry Corporation of NSW under Forestry Act 1916).



Key

- Study area
- Indicative temporary construction ancillary facilities (site compound, laydown area and car park)
- Proposed operational infrastructure area including substation, operational facility and BESS
- Indicative connection point to the NEM (option A or B)
- Proposed development footprint
- Environmental exclusion zones
- 330kV transmission line easement
- 66kV transmission line easement
- Road
- Creek
- Sensitive receivers: Associated
- Sensitive receivers: Non-associated
- Vegetation to be removed
- Native vegetation to be retained
- Riparian buffer

Figure 3-3 | Blue Springs Road upgrade affected properties

3.10 Construction

The following construction phase traffic management measures have been discussed with Mid-Western Regional Council to improve safety of road users along the section of road during construction:

- implement a temporary lowered signposted speed limit from 100 kilometres per hour (existing) to 80 kilometres per hour during construction
- restrict heavy vehicle operation on Blue Springs Road during school bus operation times.

These have been included as an additional management and mitigation measure for the project in **Chapter 7** (ID T10).

It is expected that two construction stockpile locations would be required during construction, one at each end of the proposed upgrade works. It is proposed that one would be within the refined development footprint area for the alternate solar farm access as shown in **Figure 3-2**. The other would be at the existing north-western corner of the Cope Road and Blue Springs Road intersection, where there is an existing cleared area of suitable size. Consultation with Mid-Western Regional Council will be ongoing regarding the use of this area during construction. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID T11).

The proposed road upgrade would be constructed during Standard construction hours:

- Monday to Friday 7 am to 6 pm
- Saturday 8 am to 1 pm
- no work on Sundays or public holidays.

Out of hours work and extended construction hours would not be expected for the proposed upgrade but under exceptional circumstances approval for this may be sought from the Secretary of the DPIE.

3.11 Consultation during concept design

UPC\AC has undertaken extensive consultation during the development of the proposed road upgrade and has included the following stakeholders:

- Mid-Western Regional Council
- TfNSW
- DPIE
- Forestry Corporation of NSW
- Landholders along the road reserve.

Consultation has included site inspections with Mid-Western Regional Council, Forestry Corporation of NSW, landholders and the project team to present strategic designs and refine aspects of the concept design to minimise impacts on vegetation, especially hollow-bearing trees, property boundaries and to ensure that the proposed upgrade can be supported by Mid-Western Regional Council.

Consultation regarding the proposed road upgrade is discussed further in **Chapter 5**.

3.12 Acceptance of proposed design

The proposed road upgrade has been reviewed and is supported by both Mid-Western Regional Council and TfNSW.

Correspondence from Mid-Western Regional Council confirms that the proposed concept design provided to Council meets Council's design standards and specifications for this class of works and that the proposed temporary speed reduction (to 80 kilometres per hour) during construction, can be granted by Council under delegated authority. Council's support letter is provided in **Appendix 3**.

Correspondence received from TfNSW confirms that the proposed concept design provided for review aligns with advice provided by TfNSW and notes the requirement for UPC\AC to apply for a s138(2) application (under the Roads Act) with Mid-Western Regional Council, who will refer to TfNSW to obtain concurrence prior to the commencement of works. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID T12). Correspondence from TfNSW is provided in **Appendix 4**.

3.13 Additional environmental assessment

Additional environmental assessment has been undertaken to consider the potential impacts of the proposed road upgrade and this is discussed in detail in **Chapter 6**.

4. THE AMENDED PROJECT

Following submission of the EIS, UPC\AC has made one amendment to the project and provides four clarifications to the information presented in the EIS.

Clarifications and the proposed amendment are discussed in **Chapter 2** and **Chapter 3** and include the following:

- **Amendment** – proposed upgrade of Blue Springs Road
- **Clarification** – additional non-associated property identified
- **Clarification** – restrictions on works within the TransGrid easement
- **Clarification** – configuration of potential battery energy storage system
- **Clarification** – layout of proposed switchyard within the substation area for the purpose of subdivision.

4.1 Summary of the amended project

A summary of the amended project and how it has changed from the project as presented in the EIS, is provided in **Table 4-1** with a project overview figure is provided in **Figure 4-1**.

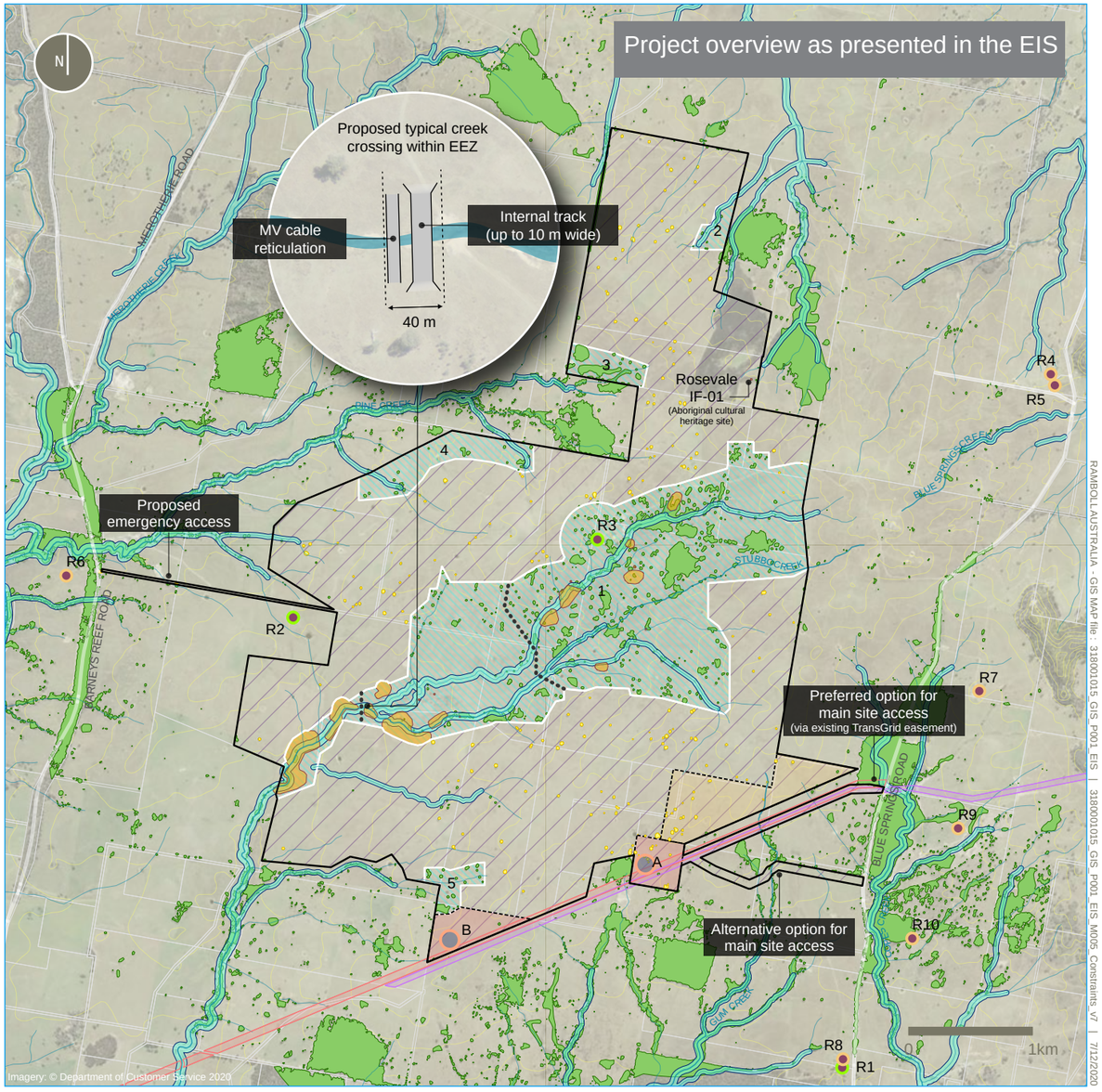
Table 4-1: Summary of amendments to the project

Project element	Project description from the EIS	Amendments to the project
Study area	1,772.89 ha comprising (wholly or partly) 30 cadastral lots	Minor changes due to realignment of southern access track option by 80 metres to the south
Development footprint	1,243.18 ha comprising the maximum extent of all ground disturbing work associated with construction and operation of the project	No change in area, but clarification provided on some restrictions within TransGrid easement
Road upgrade study area	Not previously included	Limited to the road reserve or existing fences for environmental assessment purposes
Road upgrade development footprint	Not previously included	Limited to the proposed road upgrades, within the road reserve except for two properties and parts of Cope State forest
Environmental exclusion zones	461.5 ha higher environmental value land excluded from the development footprint	No change
Project life	Construction to be undertaken over a 24-month period Operation over 30 years	No change
Indicative capacity	400 MW(AC)	No change
Solar arrays	Approximately 800,000 single axis tracking photovoltaic panels* installed	No change

Project element	Project description from the EIS	Amendments to the project
	across the development footprint, spaced approximately 5 m to 8 m apart^ within three array areas *Note: the actual number is highly dependent on the power rating of the panels chosen during procurement. ^Note: this assumes a "1P" panel configuration (single panel in portrait mounted on the tracker tube).	
Power conversion units	Approximately 70 to 100 power conversion units	No change
Electrical reticulation cable network	Overhead or underground medium voltage reticulation network with a maximum capacity of 33 kilovolts to connect the power conversion units to the substation	No change
Substation	Consists of an indoor switch room, outdoor switch yard, gantries and associated infrastructure located in one of two locations (option A or B) From the substation, electricity generated by the solar farm would be injected into the National Energy Market via the existing Wellington to Wollar 330 kilovolt transmission line owned by TransGrid	No change (Clarification at **Section 2.5**)
Battery energy storage system	Either a centralised 'AC Coupled' BESS adjacent to grid substation (one of two locations A or B will be chosen) or a decentralised 'DC Coupled' BESS with small BESS units connected to some or all of the power conversion units distributed throughout the site	No change (Clarification at **Section 2.4**)
Permanent (operational) ancillary infrastructure	• staff office, operations room, meeting facilities and amenities • car parking • a temperature-controlled spare parts storage facility • SCADA facilities • a workshop and associated infrastructure • permanent security fencing	No change
Temporary (construction) infrastructure	• construction compounds and laydown areas suitable for plant and equipment • site office and amenities • parking areas	Potential additional temporary laydown area to the west of the Blue Springs Road and Cope Road intersection for use during the proposed upgrade of Blue Springs Road

Project element	Project description from the EIS	Amendments to the project
	• containers for storage o access tracks and associated infrastructure, including gates and fencing	
Plant and equipment	• cranes • drum rollers • dump truck • road truck • concrete truck • excavators • forklifts • grader • compactor • small pile driving rig • water truck • cable trenching and laying equipment • generator • light vehicles	Additional plant and equipment required for the proposed upgrade of Blue Springs Road: • backhoe • bulldozer • chipper / mulcher • vibratory roller • line marking truck
Grid connection	Onsite dedicated substation and outdoor switchyard connecting to the existing 330 kilovolt line (line #79)	No change
Water supply	Approximately 200 kilolitres per day for dust suppression during construction and decommissioning activities. Approximately five megalitres of non-potable water during operations for ongoing maintenance Water will be sourced from: • commercial suppliers of treated wastewater in the nearby region • opportunistically sourced from farm dams located within the study area • sourced from town water	No change
Electricity for site offices	Via the local distribution network where available or via diesel generation	No change
Telecommunications	Use of the cellular network during construction and via optic cable with cellular backup during operations	No change
Sewer	Amenities to be pumped out via tanker and delivered to Gulgong treatment facility	No change
Waste management	Reuse and recycling where possible. Disposal at either: • Gulgong Waste Facility • Mudgee Waste Facility • Kandos Waste Facility	No change Clarification is provided in the response to submissions report UPC\AC notes that Gulgong and Kandos Waste Transfer Stations are not equipped to accept the waste generated

Project element	Project description from the EIS	Amendments to the project
	• Whylandra Waste and Recycling Centre	from the project. UPC\AC has undertaken preliminary consultation with Mudgee waste facility and with Dubbo waste facilities (Whylandra and Wellington)
Personnel	Up to 400 construction personnel (50% local hires) Up to 10 operational personnel (100% local hires)	No change
Site access	Via Blue Springs Road from the East either from the north utilising the existing TransGrid transmission line easement or via a new access road through a corridor adjacent to the TransGrid easement	Minor refinement of the proposed alternate site access – connection with Blue Springs Road moved approximately 80m south to provide safe sight distance
Traffic movements	230 light vehicles, 60 heavy vehicles, 20 over dimensional trucks, and 10 water truck movements daily during peak construction 10 operational staff would generate 20 daily light vehicle movements	No change
Construction hours	Standard construction hours: • Monday to Friday 7 am to 6 pm • Saturday 8 am to 1 pm • no work on Sundays or public holidays Out of hours work and extended construction hours may be required on limited occasions e.g. special deliveries or in the case of emergencies	No change
Decommissioning	Returned to pre-existing land use (suitable for grazing of sheep and cattle, or another land use as agreed by the project owner and the landholder at that time)	No change



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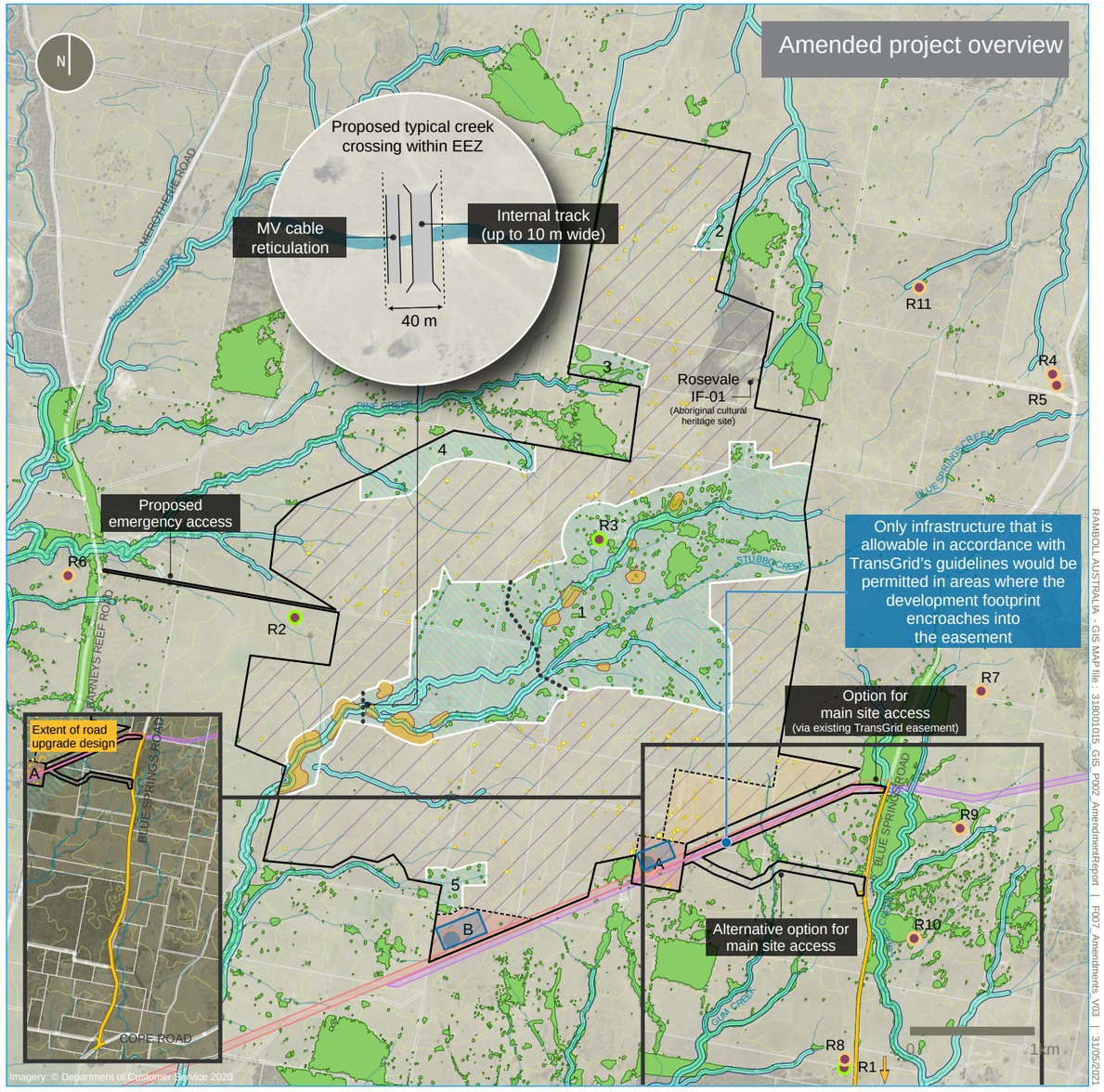

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Key

- Study area
- Indicative temporary construction ancillary facilities (site compound, laydown area and car park)
- Proposed operational infrastructure area including substation, operational facility and BESS
- Indicative connection point to the NEM (option A or B)
- Proposed development footprint
- Environmental exclusion zones
- Indicative access across EEZ
- 330kV transmission line easement
- 66kV transmission line easement
- Road
- Creek
- Sensitive receivers: Associated
- Sensitive receivers: Non-associated
- Vegetation to be removed
- Native vegetation to be retained
- Riparian buffer
- Aboriginal cultural heritage sites including buffer

Key

- Study area
- Indicative temporary construction ancillary facilities (site compound, laydown area and car park)
- Proposed operational infrastructure area including substation, operational facility and BESS
- Indicative connection point to the NEM (option A or B)
- Road upgrade design
- Indicative subdivision area
- Proposed development footprint
- Environmental exclusion zones
- Indicative access across EEZ
- 330kV transmission line easement
- 66kV transmission line easement
- Road
- Creek
- Sensitive receivers: Associated
- Sensitive receivers: Non-associated
- Vegetation to be removed
- Native vegetation to be retained
- Riparian buffer
- Aboriginal cultural heritage sites including buffer

Figure 4-1 | Amended project overview

5. CONSULTATION

5.1 Overview

UPC\AC has undertaken extensive consultation since the exhibition of the EIS and throughout development of the proposed upgrade of Blue Springs Road and its intersection with Cope Road and in response to clarifications. Ongoing consultation has included a range of stakeholders including Government agencies, the local community, and other industry or special interest groups.

5.2 Consultation objectives

The objectives for the consultation that has occurred since the EIS have been to:

- Ensure identified stakeholders have a sufficient understanding of the proposed amendments to the project
- Ensure identified stakeholders have a sufficient understanding of how the amended project may affect them
- allow UPC\AC to understand the interests that stakeholders have in the amended project, and that those stakeholders have a sufficient understanding of how residual impacts are predicted to be experienced from their perspective
- provide clarifications to the EIS where needed.

5.3 Public exhibition of the EIS and submissions

The Development Application and EIS for the project were publicly exhibited from 12 January 2021 to 19 February 2021. The public exhibition period allows for agencies, organisations and members of the public to raise submissions on the project.

At the conclusion of the exhibition period, DPIE had received 17 submissions from the public, two submissions from interest groups and advice from 17 government agencies.

The submissions raised during the public exhibition period have been considered in the project amendment process. A separate response to submissions report has been prepared and has been submitted to DPIE to respond to the matters raised in these submissions.

5.4 Overview of consultation since the EIS

Since the submission of the development application and EIS and the commencement of the exhibition period, the following community and stakeholder consultation has been undertaken:

- community information session held on 25 March 2021 at the Country Women's Association Hall in Gulgong. Approximately 15 people attended the drop-in session, including a number of close neighbours. Questions or concerns raised included visual impact from neighbouring properties, road upgrades, positive safety impacts on neighbour's driveways and community benefit sharing.
- regular project update on project website, email, Facebook page. Advertising in local newspapers. Ongoing discussions with local stakeholders such as Gulgong Chamber of Commerce
- further landholder meetings, phone calls and face to face meetings with some of the closest neighbours of the project regarding road upgrades in April and May 2021
- meetings, phone calls and emails with Mid-Western Regional Council in March, April and May 2021 to discuss the proposed upgrade of Blue Springs Road, terms of the voluntary planning agreement and waste management services
- ongoing discussions with Transport for NSW regarding the proposed upgrade of the Blue Springs Road and Cope Road intersection

- ongoing discussions with TransGrid regarding the proposed use of the transmission line easement for the preferred access to the solar farm
- consultation with potential water suppliers including Ulan Water, A1 Earthworks, Adrian Ingram and Mudgee Water
- consultation with Dubbo waste facilities (Whylandra and Wellington)
- consultation with the Forestry Corporation of NSW regarding road upgrade works within the Cope Road State Forest, including a site inspection with representatives on 12 May 2021.

5.5 Consultation with Mid-Western Regional Council

Consultation with Mid-Western Regional Council has focussed on the proposed Blue Springs Road upgrade and the terms of the voluntary planning agreement (refer to response to submissions report).

4 March 2021 – meeting with Mid-Western Regional Council in Mudgee to discuss Mid-Western Regional Council's submission and discuss requirements to upgrade to widened to provide for no less than a seven-metre wide bitumen sealed pavement, with a one-metre wide unsealed shoulder on each side / and other requirements (refer to response to submissions report and specific requirement). During the meeting, the UPC\AC and Mid-Western Regional Council agreed in principle on proposing upgrades that improve safety while avoiding impacts on native vegetation where practicable.

Mid-Western Regional Council also pointed out discrepancies between road reserve and actual road alignment. UPC\AC would be responsible for consultation with affected landholders where proposed upgrades impact on land outside of the road reserve. Affected landholders' consent would also be required to continue with the SSD process. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID T13).

Week of 10 March 2021 – preliminary biodiversity assessment of the road reserve as well as survey of potential species where survey season is suitable under BAM (refer to amended BDAR in **Appendix 6**). The general outcome was that any impact on roadside vegetation would trigger ecosystem impacts, potential species impacts, including where hollow-bearing trees are present (to be refined in spring for some of the species) and offset requirements.

At the same time, preparation of a preliminary concept design to get an initial understanding of potential impacts on biodiversity and neighbouring properties if Mid-Western Regional Council's requirements are strictly applied. The outcome was that large areas of PCTs are potentially impacted and a number of properties are potentially impacted.

24 March 2021 – meeting with Mid-Western Regional Council in Mudgee to discuss potential impacts of full upgrade. Mid-Western Regional Council confirms it would support design considerations that provide safety while avoiding some of biodiversity impacts. UPC\AC commits to preparing a Concept Design on the basis of a topographic survey (April/May 2021). This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID T14).

11/12 May 2021 – meetings and site inspections with Mid-Western Regional Council along Blue Springs road and its intersection with Cope Road. Discussion over a draft concept design. The site inspections included representatives of Mid-Western Regional Council, Forestry Corporation of NSW, BTE consulting (UPC\AC's road designer), ELA and UPC\AC representatives. Discussions were focused on providing sufficient level of upgrades while avoiding specific areas of high

biodiversity value and/or impacts on neighbouring properties. Feedback from Mid-Western Regional Council, road designer and biodiversity consultants were considered for refinement of design considerations and final concept design.

14 May 2021 – following site inspection, Mid-Western Regional Council confirmed in writing they would support the proponent's design considerations.

25 May 2021 – as discussed in **Section 3.12**, Mid-Western Regional Council has confirmed in writing that the proposed upgrade of Blue Springs Road and the concept design provided to Mid-Western Regional Council meets Mid-Western Regional Council's design standards and specifications for this class of works. Mid-Western Regional Council have also confirmed that the proposed temporary speed reduction (to 80 kilometres per hour) during construction, can be granted by Mid-Western Regional Council under delegated authority.

UPC\AC and Mid-Western Regional Council have also reached agreement on the terms of the voluntary planning agreement (VPA). The VPA will include provisions for the payment, collection, management and distribution contributions under the agreement, with a focus on funding community enhancement in the area surrounding the project and/or any localities or community infrastructure impacted by the project. Details and outcome of the consultation are provided in the response to submissions report.

UPC\AC will work in consultation with Mid-Western Regional Council and affected landholders to re-align the road reserve where it does not match the proposed upgrade section. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID T15). UPC\AC notes that re-alignment of the road reserve is not relevant to this DA and does not constitute a condition of consent as long as affected landholders' consents are provided.

5.6 Consultation with Transport for NSW

Consultation with Transport for NSW has focussed on the proposed upgrade of Blue Springs Road and TfNSW have confirmed that the proposed concept design provided for review aligns with advice provided by TfNSW.

UPC\AC provided the proposed concept design for the upgrade of the Cope Road and Blue Spring Road intersection to Transport for NSW for comment on 19 May 2021 and subsequently held further discussions with Transport for NSW regarding the Basic Right (BAR) and Basic Left (BAL) turn treatments on 25 May 2021.

UPC\AC clarified that as noted in the design report, the design criteria was revised to upgrade the intersection of Blue Springs Road and Cope Road to suit BAL intersection treatment only and to utilise the existing BAR treatment provided on the westbound carriageway on Cope Road following a site inspection undertaken on 12 May 2021 involving representatives from UPC\AC, Mid-Western Regional Council, ELA (biodiversity specialists), the NSW State Forestry Corporation and BTE Consulting.

It was noted that the existing BAR treatment on Cope Road at Blue Springs Road intersection width does not comply with *Austroads Guide to Road Design* part 4A treatment requirements by less than 0.5 metres in some sections. However, it is proposed to retain the existing BAR treatment to avoid property impacts (including existing trees, fences and property boundaries) and as providing further widening with no roadside drainage treatment would cause wearing of the pavement/verge/embankment.

Transport for NSW responded to the above clarifications on 26 May 2021 noting that the proposed concept design provided for review aligns with advice provided by TfNSW. Correspondence provided by TfNSW is provided in **Appendix 4**.

UPC\AC and/or its selected Engineer Procure and Construct (EPC) contractor will work towards a full detailed design prior to commencing construction. The full detailed design will be prepared in consultation with Transport for NSW and Mid-Western Regional Council and any other relevant public agencies as part of a Traffic Management Plan and relevant Development Consent conditions. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID T9).

It is also noted that there is a requirement for UPC\AC to apply for a s138(2) application (under the Roads Act) with Mid-Western Regional Council. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID T12).

5.7 Consultation with State Forestry Corporation of NSW

UPC\AC has undertaken extensive consultation with the State Forestry Corporation of NSW regarding the proposed upgrade of Blue Springs Road and works within the Cope State Forest, including a site inspection on 12 May 2021.

It is noted that all works in the State Forest area would be undertaken in accordance with a forest permit issue by Forestry Corporation of NSW as per section 60 Forestry Act 2012. State Forestry Corporation of NSW has provided its consent to lodge the application. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID T16).

Correspondence received is provided in **Appendix 5,** and UPC\AC will continue to consult with State Forestry Commission of NSW throughout development of the proposed Blue Springs Road upgrade.

5.8 Consultation with TransGrid

UPC\AC have undertaken ongoing consultation with TransGrid to discuss the proposed use of the transmission line easement for the proposed solar farm access and clarification about the intended use and extent of development within the easement corridor.

Following consultation UPC\AC has confirmed that if this site access option goes ahead the design and construction and operation of the access would be undertaken in accordance with TransGrid's design requirements including:

- ensuring that the design and construction of the access track is compliant with the TransGrid Easement Guidelines
- ensuring that any fencing and gates within the easement corridor are designed and installed in accordance with the TransGrid Fencing Guidelines and that access to the easement by TransGrid is provided for
- maintaining the condition of the track into the future
- accounting for times when TransGrid may need to close or modify the track to operate and maintain their assets
- continued consultation with the landowner to put in place any requisite property interests and consultation with TransGrid to ensure that their usage of the easement is not materially impaired.

Correspondence received from TransGrid on this matter is provided in **Appendix 1**.

5.9 Other consultation activities

A summary of the consultation undertaken during the project amendment process and outcomes of the consultation is included in **Table 5-1**.

Table 5-1: Summary of consultation undertaken during the project amendment process

Stakeholder	Engagement activities	Consultation outcomes
Community	Community information session held on 25 March 2021 at the Country Women's Association Hall in Gulgong	Approximately 15 people attended the drop-in session, including close neighbours. Questions or concerns raised included visual impact from neighbouring properties, road upgrades, positive safety impacts on neighbours' driveways and community benefit sharing
Community	Further meetings with close neighbours in March, April and May 2021	Multiple attempts to call and/or meet other close neighbours of the proposed Solar Farm and road upgrades
Community	Regular project updates on the project website, via email and the project Facebook page and advertising in local newspapers	Community kept informed on project updates.
Directly involved landowners	Phone calls and face to face meetings in April 2021 with some of the closest neighbours of the project regarding road upgrades	Information letter regarding the proposed Blue Springs road upgrade (with invitation to contact UPC\AC for further discussion) dropped in every mailbox between Cope Road and the proposed access entrances Onsite and/or phone discussions with most of road neighbours
Directly involved landowners	Discussions with the landowner not identified in the EIS (ID R11)	Clarification to include the additional landowner in the noise and visual assessments (including onsite meetings)
Gulgong Chamber of Commerce	General project presentation on 11 May 2021	Opportunity for UPC\AC to understand local businesses' needs Additional opportunity for the community (business owners) to raise concerns regarding the proposed solar farm
Registered Aboriginal Parties	A project update letter was sent to all RAPs informing them of the addendum study areas (road upgrade and access tracks) and survey methodology which will be used to assessed them. A copy of the letter	Representatives from the RAPs participated in the fieldwork as site officers

Stakeholder	Engagement activities	Consultation outcomes
	sent is included as Appendix 1 Figure 2 of the addendum ACHAR (**Appendix 7**). A log of all correspondence in relation to the addendum study areas is provided in Appendix 1 Figure 1 of the addendum ACHAR	
Water suppliers	Consultation with potential water suppliers including Ulan Water, A1 Earthworks, Adrian Ingram and Mudgee Water	The organisations have confirmed their experience in civil construction and have provided some technical information and equipment availability on how they could provide assistance with dust suppression during construction. Further details of consultation outcomes are included in Section 4.11.1 of the response to submissions report. UPC\AC will continue consultation with local suppliers until an EPC Contractor has been selected
Waste facilities	Consultation with Mudgee waste facility and Dubbo waste facilities (Whylandra and Wellington)	UPC\AC has undertaken preliminary consultation with Mudgee waste facility in order to have a better understanding of landfill capacity and type of waste material accepted within the facility. Further details of consultation outcomes are included in Section 4.1.5 of the response to submissions report. UPC\AC will continue consultation with the facility. Both Dubbo facilities have previous experience with waste disposal from solar farms and have confirmed they have capacity to accept waste

6. REVISED ASSESSMENT OF IMPACTS

Additional assessments have been undertaken to consider potential impacts of the proposed upgrade of Blue Springs Road and the following clarifications:

- assessment of potential noise and visual impacts at a non-associated dwelling not previously identified in the EIS
- update of the preliminary hazard assessment to provide further clarity and additional information about the potential BESS as discussed in the EIS.

Other clarifications discussed in **Chapter 2** are consistent with the EIS and no additional environmental and social impact assessment is warranted for those clarifications.

6.1 Biodiversity

A biodiversity development assessment report (BDAR) was prepared as part of the EIS to assess the potential impacts to biodiversity associated with the project. This assessment was completed in accordance with the NSW *Biodiversity Conservation Act 2016* (BC Act) and with the Biodiversity Assessment Method (BAM). The BDAR is summarised in Chapter 6 and presented in full in Appendix C of the EIS.

An addendum BDAR has been prepared to consider the potential biodiversity impacts associated with the proposed upgrade of Blue Springs Road and the Cope Road intersection. The addendum BDAR is summarised below and provided in full in **Appendix 6**.

6.1.1 Assessment methodology

The addendum BDAR was prepared in accordance with the BC Act and BAM. The addendum BDAR includes survey and assessment of the Blue Springs Road corridor and the area around the intersection of Blue Springs Road and Cope Road as described in **Section 3.2**. As the final road upgrade alignment is subject to detailed design, the BDAR assessed a maximum development footprint, or 'worst-case scenario', within which all direct impacts would occur (referred to as the 'addendum survey area').

The addendum survey area was defined following consultation with Mid-Western Regional Council (refer to **Section 5.5**) and an initial survey was undertaken on 12 March 2021 of a larger area to identify areas of highest biodiversity value. The results of this survey were used to inform the strategic design development and minimise impacts as the concept design was developed further. The addendum survey area covers seven hectares and includes the 5.5-kilometre section of existing paved area and a corridor averaging 3 to 4 metres on either side, consisting predominantly of native roadside vegetation.

Vegetation integrity surveys for the addendum survey area were undertaken on 29 and 30 March 2021. A total of 10 full-floristic vegetation plots were undertaken in accordance with the BAM to identify plant community types (PCTs) and threatened ecological communities (TECs). All field data collected at the full-floristic and vegetation integrity plots is included in Appendix B of the addendum BDAR (**Appendix 6**).

Targeted surveys including spotlighting for mammals and birds, diurnal bird surveys and koala SAT surveys were also undertaken in September 2020 and March 2021.

6.1.2 Revised assessment of potential impacts

Vegetation

The addendum survey area is characterised by the edges of moderate-good condition native roadside vegetation with remnant trees (**Photo 6-1**), low condition native roadside vegetation with a largely absent overstory (**Photo 6-2**) and areas of highly modified non-native vegetation with no remnant trees (**Photo 6-3**).

Photo 6-1: Areas of moderate-good condition native roadside vegetation

Photo 6-2: Areas of low condition native roadside vegetation

Photo 6-3: Areas of cleared/highly disturbed non-native vegetation

Source: (EcoLogical Australia, 2021)

The PCTs identified within the addendum survey area are shown on **Figure 6-1**. Four PCTs were recorded that would be directly impacted by the road upgrade (under the worst-case scenario) totaling 3.7 hectares including:

- PCT 81 Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion (0.9 hectares)
- PCT 266 White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion (0.03 hectares)
- PCT 281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion (2.07 hectares)
- PCT 1177 Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion (0.7 hectares).

Two TECs were recorded within the addendum survey area that would be directly impacted by the road upgrade (under the worst-case scenario) (**Figure 6-2**):

- areas of PCT 81 conform to the '*Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions'* and '*Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-Eastern Australia*' Endangered Ecological Community (EEC) listings under the BC Act and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (0.9 hectares)
- areas of PCT 266 and PCT 281 conform to the '*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland' Critically Endangered Ecological Community (CEEC) listed under the BC Act and EPBC Act* (2.1 hectares).

Habitat

Flora and fauna habitats across the addendum survey area range in condition and attributes. The immediate roadside edges consist of low-quality habitat, grading towards higher quality habitats in remnant roadside woodland. The woodland and forest vegetation within the addendum survey area generally have moderate to high habitat connectivity.

The proposed concept design retains vegetation and habitat values wherever possible, particularly within areas of high condition EEC and CEEC, areas of important connectivity and habitat features. Under the worst-case scenario, the proposed road upgrade would directly impact on 3.7 hectares of potential habitat.

Threatened species

Five threatened fauna species were recorded within or adjacent to the addendum survey area as shown on **Figure 6-3**:

- Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*)
- Little Lorikeet (*Glossopsitta pusilla*)
- Dusky Woodswallow (*Artamus cyanopterus*)
- Diamond Firetail (*Stagonopleura guttata*)
- Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*).

All the above species are listed as Vulnerable under the BC Act.

Additional threatened flora and fauna species have been assumed present within the addendum survey area in accordance with the BAM (refer to Table 24 in **Appendix 6**). However, further targeted threatened species surveys are proposed during the appropriate survey season prior to construction to confirm their presence/absence.

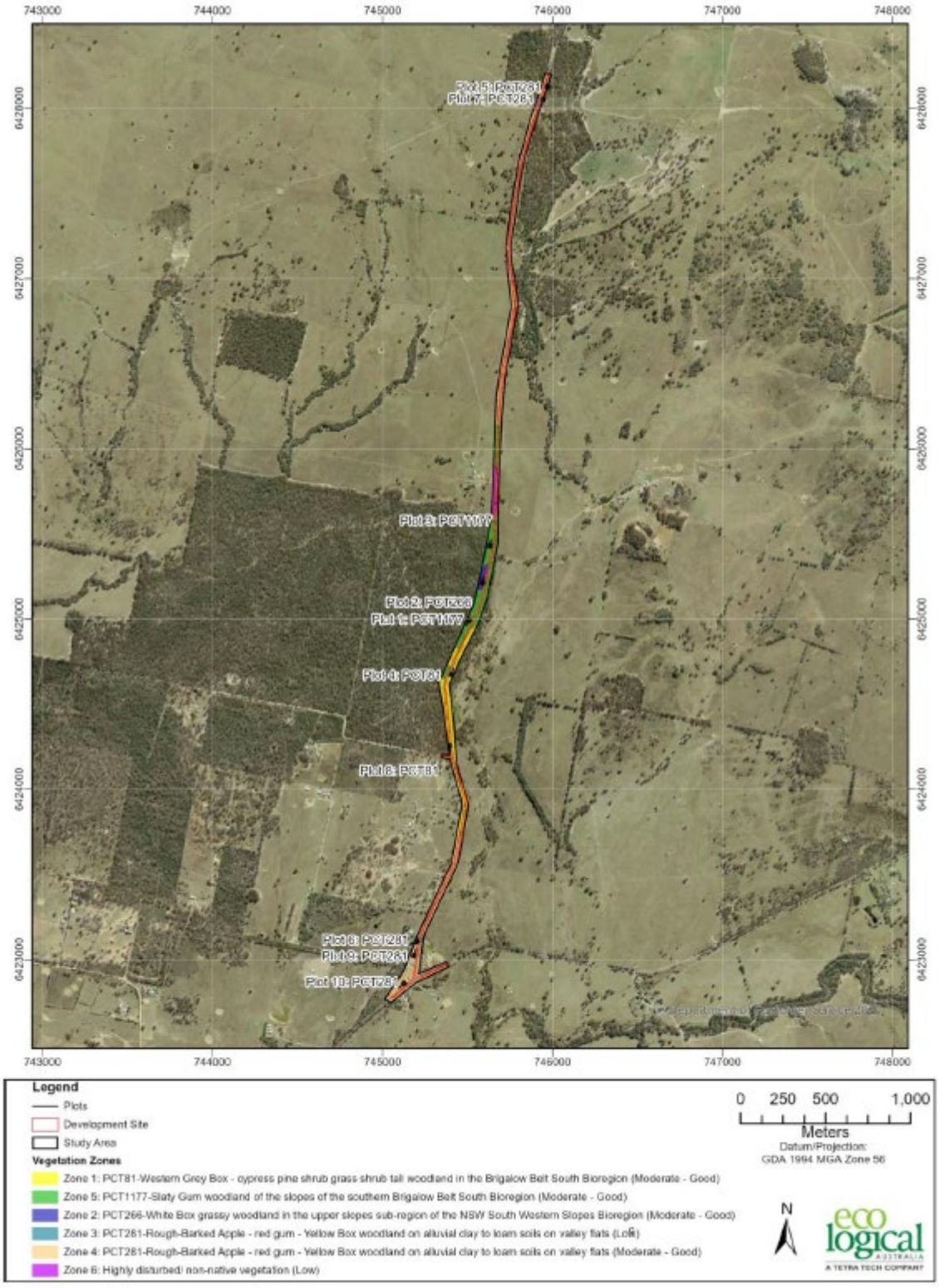

Figure 6-1: Plant community types and survey effort

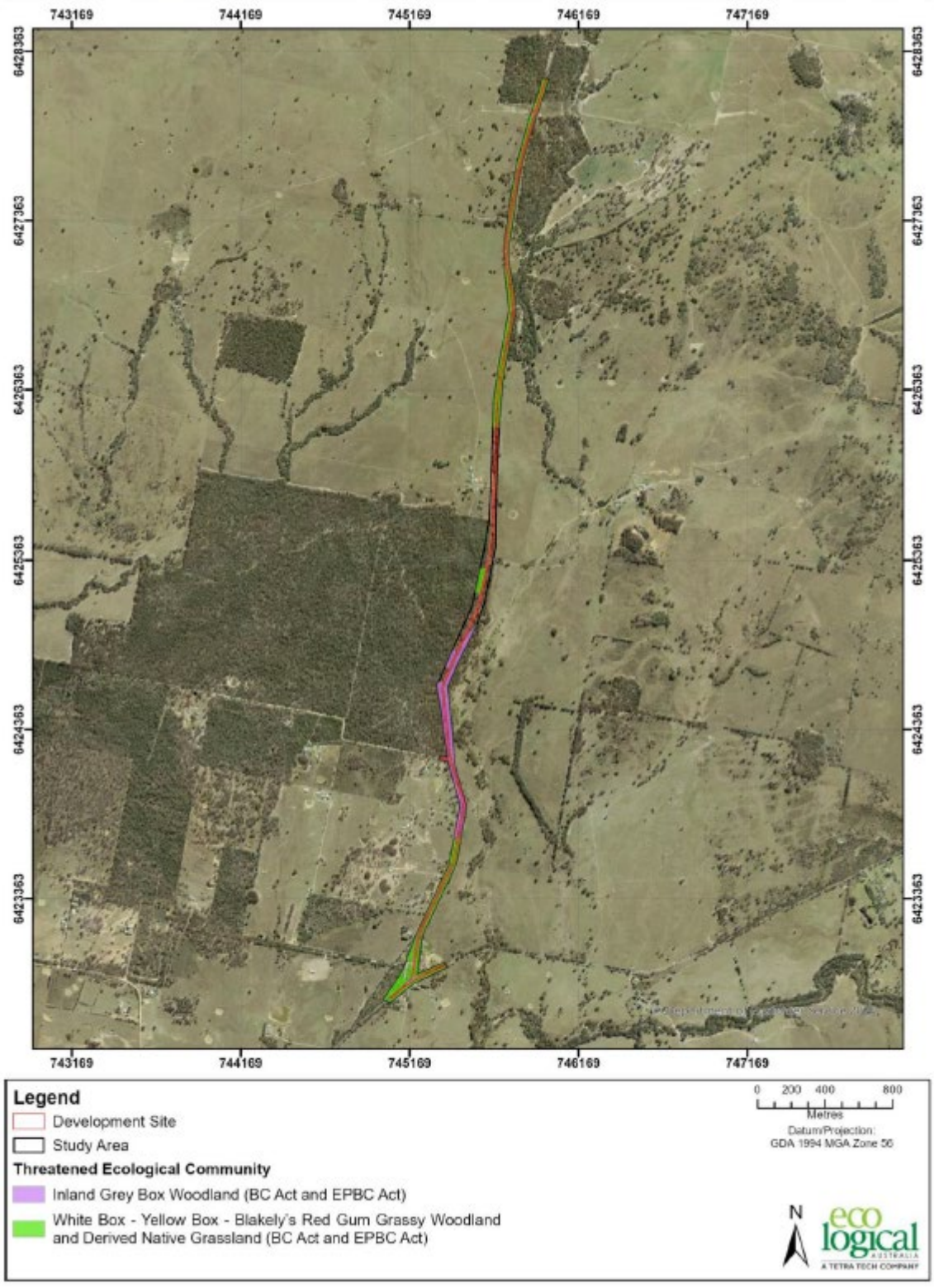

Figure 6-2: Threatened ecological communities

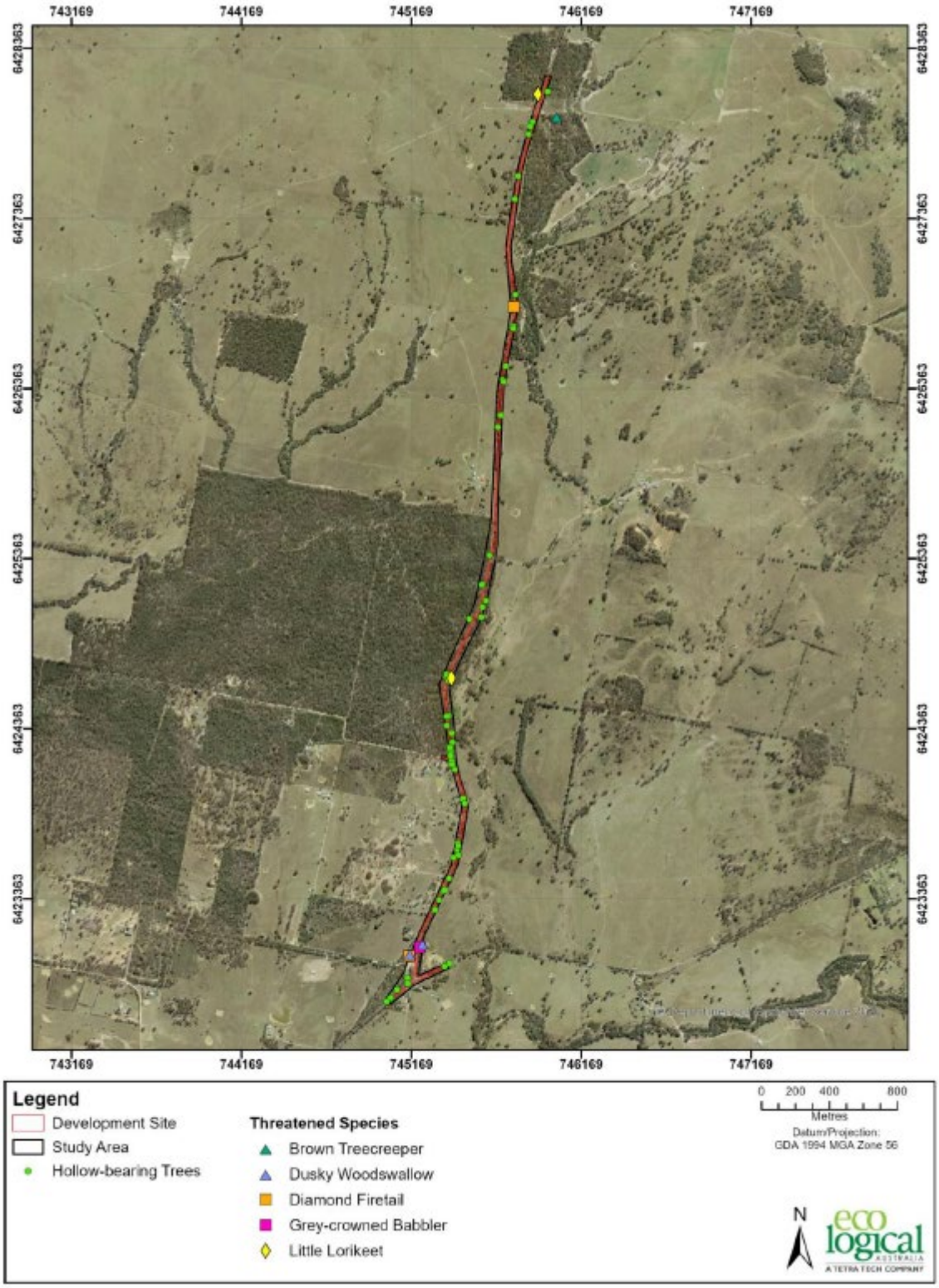

Figure 6-3: Threatened species recorded

Aquatic ecology

An assessment of the likely impacts of the project on aquatic ecology, including aquatic and riparian biodiversity and key fish habitats was undertaken.

Two unnamed ephemeral drainage lines are present within the addendum survey area, one a third order waterway (at the northern extent) and one a second order waterway (close to the southern end). These areas have moderate habitat for amphibian and bird species.

The addendum survey area intersects Blue Springs Creek, a mapped key fish habitat, at the northern extent of the proposed road upgrade (refer to Figure 8 in **Appendix 6**). The creek is an ephemeral drainage line with an existing concrete culvert under the road, presenting low quality habitat for aquatic species.

There are no areas of mapped distribution of threatened aquatic species present within the addendum survey area.

No impacts to groundwater dependent ecosystems (GDE), if present, are expected to occur because of the proposed road upgrade.

Offsets

The residual impact of the proposed road upgrade requires 149 ecosystem credits and 2,129 species credits (total of 2,278 credits). Impacts requiring offsets are listed in **Table 6-1**.

The species credit calculations have been developed assuming additional threatened flora and fauna species are present within the addendum survey area in accordance with the BAM. Further targeted surveys during the relevant season will allow this assessment to be refined and UPC\AC may request the Secretary refine the offset requirements.

The combined residual impacts of the Stubbo Solar Farm and Blue Springs Road upgrade is 236 ecosystem credits and 2,195 species credits (total of 2,431 credits).

Table 6-1: Impacts requiring offsets

Biodiversity value	Area (hectares)	Credits required
Ecosystem credits		
PCT 81 Western Grey Box - cypress pine shrub grass shrub tall woodland in the Brigalow Belt South Bioregion. Mod-good	0.9	40
PCT 266 White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion. Mod-good	0.03	1
PCT 281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion. Mod-good	2	87
PCT 281 - Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion. Low	0.07	2

Biodiversity value	Area (hectares)	Credits required
PCT 1177 - Slaty Gum woodland of the slopes of the southern Brigalow Belt South Bioregion. Mod-good	0.7	19
Species credits		
Acacia ausfeldii (Ausfeld's Wattle)	3.7	152
Diuris tricolor (Pine Donkey Orchid)	3.7	114
Grevillea wilkinsonii (Tumut Grevillea)	3.7	229
Small Purple-pea (*Swainsona recta*)	3.7	152
Silky Swainson-pea (*Swainsona sericea*)	3.7	152
Major Mitchell's Cockatoo (*Lophochroa leadbeateri*)	3.7	152
Gang-gang Cockatoo (*Callocephalon fimbriatum*)	3.7	152
Glossy Black-Cockatoo (*Calyptorhynchus lathami*)	3.7	152
Sloane's Froglet (*Crinia sloanei*)	3.7	114
Brush-tailed Phascogale (Phascogale tapoatafa)	3.7	152
Powerful Owl (Ninox strenua)	3.7	152
Barking Owl (Ninox connivens) (Breeding)	3.7	152
Superb Parrot (Polytelis swainsonii)	3.7	152
Masked Owl (Tyto novaehollandiae)	3.7	152

Matters of national environmental significance

An assessment of the impacts of the proposed road upgrade on matters of national environmental significance (MNES) within the addendum survey area was undertaken to determine whether referral of the project to the Commonwealth Minister for the Environment is required. The assessment concluded that no significant impact to MNES is likely to result from the proposed road upgrade.

6.1.3 Revised environmental management and mitigation measures

Potential impacts to biodiversity for the road upgrade will be managed in accordance with the management and mitigation measures identified for the project in the EIS (refer to **Section 7.3**). Therefore, no additional management measures are proposed in addition to those included in the EIS.

6.2 Aboriginal heritage

An Aboriginal cultural heritage assessment report (ACHAR) was prepared as part of the EIS to assess the potential impacts to Aboriginal cultural heritage associated with the project. This assessment was completed in accordance with the relevant legislative, policy and guidance requirements and in consultation with registered Aboriginal parties (RAPs) identified for the project. The ACHAR is summarised in Chapter 7 and presented in full in Appendix D of the EIS.

An addendum ACHAR has been prepared to consider the potential Aboriginal heritage impacts associated with the proposed upgrade of Blue Springs Road and to assess the potential impacts of

the proposed solar farm access tracks as presented in the EIS. The addendum ACHAR is summarised below and provided in full in **Appendix 7**.

6.2.1 Assessment methodology

Study area
The addendum ACHAR includes survey and assessment of the Blue Springs Road corridor described in detail in **Section 3.2**. It also surveys and assesses the two access road options connecting Blue Springs Road to the solar farm, and the proposed emergency access track from Barneys Reef Road from the west.

Consultation
A project update letter was sent to all Registered Aboriginal Parties (RAPs) informing them of the addendum study areas (road upgrade and access tracks) and survey methodology to be used to assessed them. A copy of the letter sent and a log of all correspondence received in relation to the addendum survey area is included in the addendum ACHAR in **Appendix 7**.

Assessment scope
The field survey was undertaken on 15 and 16 April 2021. The following RAPs or representatives of RAPs participated in the fieldwork as site officers:

- Steven (George) Flick (Muronggialinga) 15 April 2021
- Brenda Waters (WVWAC and GAC) 15 April 2021
- Tammy Peterson (MLALC) 16 April 2021
- Lincoln Pennell (Warrabinga Native Title Claimants Aboriginal Corporation) 16 April 2021.

All landforms were surveyed and survey transects were approximately 30 metres wide along Blue Springs Road, with surveyors at 10-metre intervals, (excluding the existing paved areas). Survey transects were narrower where visibility was higher and in areas of higher archaeological potential (i.e. near watercourses).

Survey transects at the proposed solar farm access tracks were 60 metres wide, with surveyors spaced at 20-metre intervals in accordance with feedback received from the RAPs on the survey methodology (this was consistent with the survey methodology for the EIS). The proposed emergency access route on the western side of the solar farm is narrower than those proposed on the eastern side and survey transects 15 metres wide, with surveyors spaced every five metres was agreed with the RAPs. The pedestrian survey effort is shown in **Figure 6-4**.

6.2.2 Revised assessment of potential impacts
No new Aboriginal sites or previously recorded sites were identified during the pedestrian survey of the addendum survey area.

6.2.3 Revised environmental management and mitigation measures
No Aboriginal sites were identified during the assessment of the addendum survey area and therefore no additional management measures are proposed in addition to those included in the EIS.

The addendum survey area would be included in the Aboriginal cultural heritage management plan (ACHMP), which will detail the processes for managing unanticipated Aboriginal heritage items or potential human remains encountered during the life of the project. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID AH4).

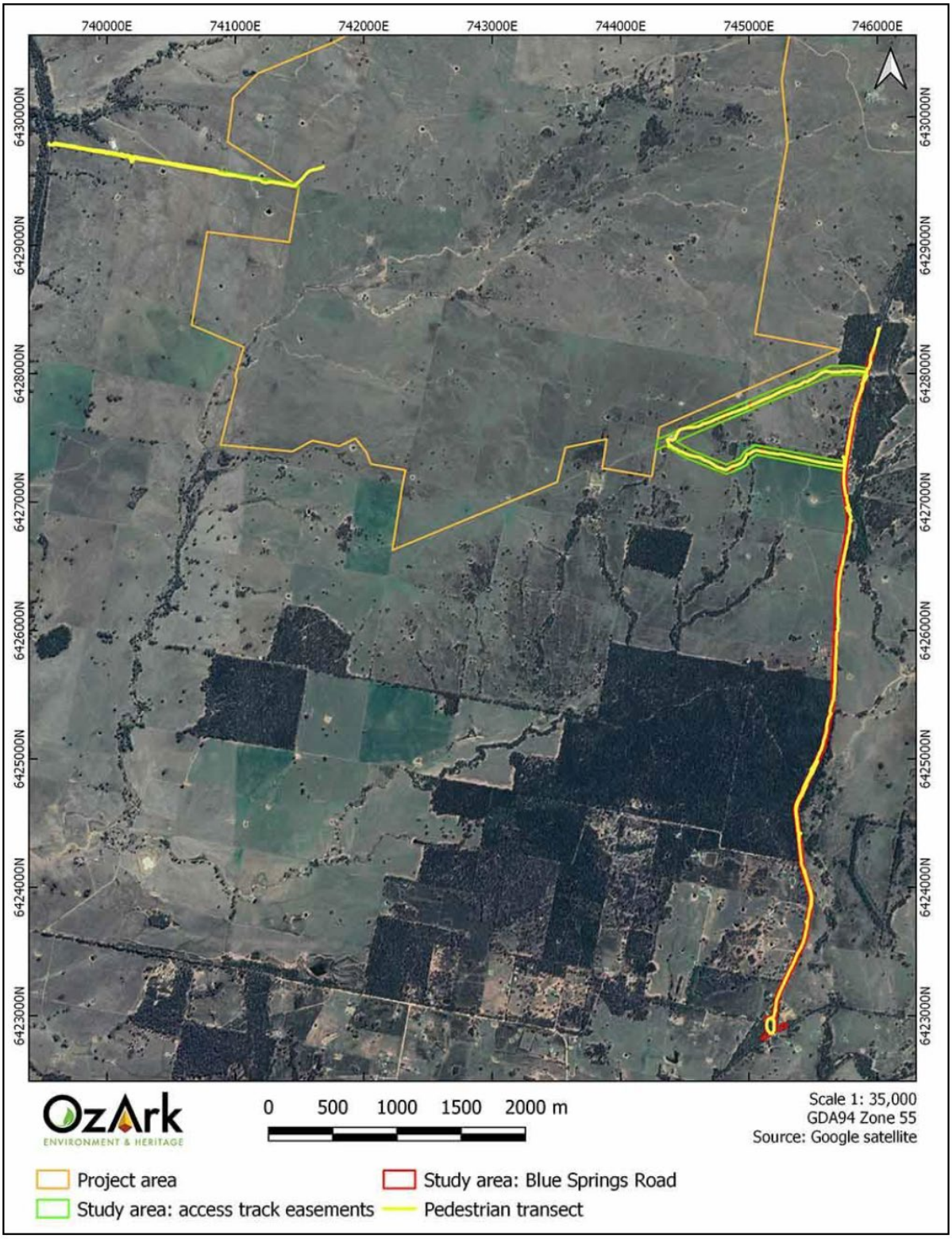

Figure 6-4: Pedestrian survey of addendum ACHAR study area

6.3 Landscape character and visual

A landscape character and visual impact assessment was prepared as part of the EIS to assess the potential visual impacts of the project. The landscape and visual assessment is summarised in Chapter 11 and presented in full in Appendix F of the EIS. An addendum assessment has been prepared to consider the potential impacts associated with the additional non-associated property at R11 and the proposed upgrade of Blue Springs Road and the intersection of Blue Springs Road and Cope Road.

6.3.1 Assessment methodology

A site inspection was undertaken on 16 March 2021 at the location of the additional property to consult with the landholder and to inform the dwelling assessment. The site inspection provided an understanding of the visual sensitivity of the land and how it relates to current land use.

A subsequent site inspection of the proposed upgrade of Blue Springs Road and the intersection of Blue Springs Road and Cope Road was undertaken on 6 May 2021 to inspect the corridor and understand the potential changes and visual impacts associated with removal or trimming of vegetation along the corridor.

6.3.2 Revised assessment of potential impacts

Dwelling assessment at 'R11'

The property at R11 is located to the north east of the solar farm and at its nearest point, the project is 1.21 km from the existing dwelling location, in a generally west direction. The visual sensitivity at this location is considered High due to the land use (Rural Dwelling) and proximity to the Project. However, it is noted that the project would not be visible from this dwelling due to topography to the west as shown in **Figure 6-5**. The dwelling analysis is provided in **Appendix 8**.

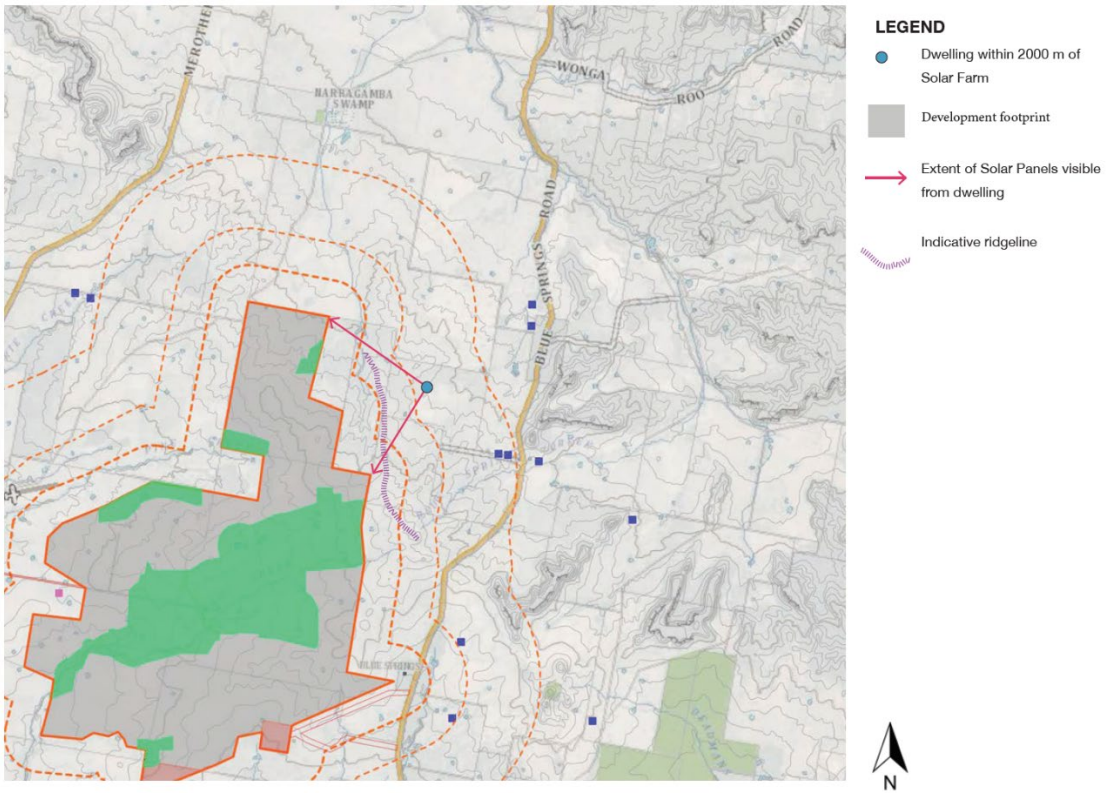

Figure 6-5: Viewshed analysis from existing dwelling at property R11

Blue Springs Road upgrade

Existing roadside vegetation along the western side of the Blue Springs Road corridor provides a role in screening the project from motorists and the proposed road upgrade between the intersection with Cope Road and the proposed solar farm access location, would require some removal of vegetation in some locations.

Source: Moir, 2021

Figure 6-6: Existing vegetation screening along Blue Springs Road

It is noted that minimising disturbance and vegetation clearing has been one of the main objectives during the development of the concept design of the proposed upgrade and where possible the existing screening vegetation would be unaffected by the works. It is also noted that impacts to existing vegetation at the intersection of Blue Springs Road and Cope Road would be limited to canopy trimming where possible to provide safe sight distance for vehicles turning out of Blue Springs Road to head east along Cope Road.

A desktop assessment concluded that removal of small patches of screening vegetation at some locations along the alignment and some trimming of vegetation at the intersection with Cope Road would not result in a significant increase in visual impact. Vegetation to the west of the roadside and scattered through the landscape would generally fragment views to the project from motorists and due to the speed and direction of travel along Blue Springs Road, small breaks in vegetation are unlikely to result in significant views to the project.

6.3.3 Revised environmental management and mitigation measures

Given the limited potential for visual impacts at the existing dwelling at property at R11 no additional management measures are proposed in addition to those included in the EIS.

Noting that minimising vegetation removal has been a key objective in developing the proposed road upgrade concept design, opportunities to further reduce impacts to vegetation would be considered where possible during the detailed design and construction and impacts at the intersection of Cope Road would be limited to trimming of vegetation needed to provide safe sight distance where possible. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID B14).

6.4 Noise and vibration

A noise and vibration assessment was prepared as part of the EIS to assess the potential noise and vibration impacts associated with the project. The noise and vibration assessment is summarised in Chapter 12 and presented in full in Appendix G of the EIS.

The EIS noise and vibration assessment has been revised to include the potential noise and vibration impacts to the additional non-associated property that was not identified in the EIS (property 'R11'). The revised noise and vibration assessment is summarised below and provided in full in **Appendix 9**.

A noise and vibration assessment was also prepared to consider the potential noise and vibration impacts of the proposed upgrade of Blue Springs Road and the Cope Road intersection. The noise and vibration assessment for the Blue Springs Road upgrade is summarised below and provided in full in **Appendix 10**.

6.4.1 Assessment methodology

Dwelling assessment at 'R11'

For the assessment of the additional dwelling R11, the noise model created for the EIS noise and vibration impact assessment was updated to include the assessment of residence R11 and the assessment undertaken consistent with the methodology for the EIS.

Blue Springs Road upgrade

Operator attended measurements were conducted on 17 May 2021 and unattended noise monitoring was undertaken from 17 May to 23 May 2021 to establish background and ambient noise levels. The monitoring was undertaken at R7 Lot 1 DP1018333 303 Blue Springs Road.

Monitoring locations and sensitive receivers are shown in **Figure 6-7**.

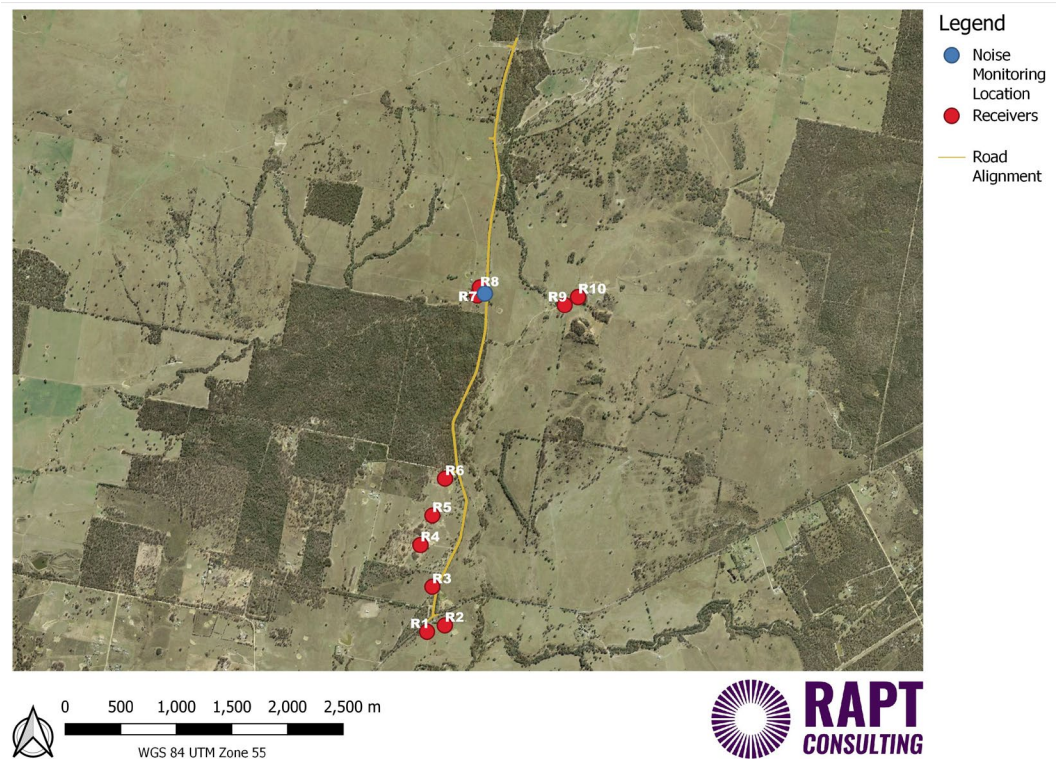

Figure 6-7: Noise monitoring locations and sensitive receivers for Blue Springs Road Upgrade

Site observations indicated the location was indicative of the local ambient noise environment and during site visits it was noted that road traffic noise was not prominent and natural wildlife primarily described the ambient noise environment and is indicative of a rural noise environment.

The additional assessments undertaken to consider the amended project were undertaken in accordance with the following policies and guidelines:

- Interim Construction Noise Guideline (ICNG), Department of Environment and Climate Change, 2009
- Assessing Vibration: A Technical Guideline, Department of Environment and Conservation (DEC), 2006
- British Standard BS7385.2 - 1993 Evaluation and Measurement for Vibration in Buildings, Part 2 - Guide to damage levels from ground borne vibration 1993
- German Standard DIN 4150: Part 3-1999 Structural vibration – Effects of vibration on structures 1999
- NSW Road Noise Policy (RNP), Department of Environment, Climate Change and Water (DECCW), 2011
- The NSW Roads and Maritime Services (RMS) Procedure – Preparing an Operational Traffic and Construction Noise and Vibration Assessment Report
- Noise Criteria Guideline / Noise Mitigation Guideline (NMG, RMS, 2015)
- Noise Policy for Industry (NPfI), Environment Protection Authority (EPA), 2017.

6.4.2 Revised assessment of potential impacts

Dwelling assessment at 'R11'

Construction and operation noise assessment for the additional dwelling were found to be consistent with those presented in the EIS and are provided in detail in Table 4.2 (construction) and Table 4.6 (operation) of **Appendix 9**. The specific results for the additional dwelling at R11 are highlighted.

The maximum predicted noise levels from each of the construction scenarios at identified residential receptors are summarised in Table 4.2 of Appendix 9. As outlined in the EIS, noise levels comply with the NMLs at all residential receptors for day period. While not expected, out of hours work and extended construction hours may be required on limited occasions such as for special deliveries to minimise disruption or in the case of emergencies. Consistent with the EIS, the only out of hours work exceedance predicted would be at R2, which is associated with the project.

The operational noise and vibration assessment found that the potential impacts at R11 would be consistent with the findings of the EIS and that all project noise trigger levels can be met for day, evening and night-time situations. As all items were modelled at their nominated maximum sound power levels, the results also conclude the maximum noise level assessment is also complied with for sleep disturbance.

Blue Springs Road upgrade

Five construction scenarios were modelled which were:

- site preparation
- utilities infrastructure
- vegetation removal
- drainage/paving
- finishing works.

The vegetation removal has the greatest potential for noise impacts. Modelled construction noise results predicted to be experienced at each residential receiver based on a worst-case scenario are presented in Table 4-3 to Table 4-7 of **Appendix 10**. The results of the construction assessment indicate exceedances of NML's may occur depending on work location, work activity and proximity to receivers.

However, the Highly Affected Noise Level is expected to be complied with in all situations with the exception of R3 during vegetation removal when these works are being conducted closest to that receptor. These potential exceedances are based on worst case scenarios and would be expected to be short term and within standard construction hours only.

6.4.3 Revised environmental management and mitigation measures

Construction noise and vibration management measures will be implemented consistent with recommendations contained within the ICNG and no additional management measures are proposed in addition to those included in the EIS.

6.5 Hazards and risks

A preliminary hazard analysis (PHA) was prepared as part of the EIS to assess the potential hazards and risks posed by the project in accordance with the requirements of SEPP 33. The PHA is described in Chapter 15 and presented in full in Appendix J of the EIS.

A revised PHA has been undertaken to provide clarification on the potential arrangement for the BESS and to capture the potential hazards and risks associated with both a centralised and de-centralised option for the BESS. The revised PHA is summarised below and provided in full in **Appendix 11**.

The revised PHA is intended to address comments raised by DPIE Hazards Group on the EIS (refer to Section 1.3.2 of the revised PHA in **Appendix 11**).

6.5.1 Assessment methodology

The methodology applied for the PHA included:

- identification and analysis of potential hazards associated with the project
- analysis of the potential consequence of each of the identified hazards
- estimate the likelihood of each of the potential hazards occurring
- determination of a risk level for the project
- assessment against risk criteria
- outline relevant operational, maintenance and management procedures required to manage potential hazards associated with the project.

6.5.2 Revised assessment of potential impacts

The PHA was been reviewed to confirm it is site and project specific. No changes to the potential impacts of the project were identified following this review.

Additional detail on the BESS options being considered for the project is provided in Section 2.2.2 of the revised PHA. The BESS options have not changed materially following submission of the EIS. The BESS will be either a centralised 'AC Coupled' BESS adjacent to grid substation (one of two locations A or B will be chosen, as shown in **Figure 4-1**) or a decentralised 'DC Coupled' BESS with small BESS units connected to some or all of the solar PCUs distributed throughout the site. Both options have been assessed in the revised PHA. The final BESS design would be assessed by a Fire Safety Study and other risk assessments post approval (and submitted for DPIE approval prior to construction).

6.5.3 Revised environmental management and mitigation measures

UPC\AC has included the following additional management and mitigation measures to address comments from DPIE Hazards Group on the EIS and to address matters raised by Rural Fire Services and Fire and Rescue NSW as part of the response to submissions:

> "*Prior to construction, a Fire Safety Study will be prepared by a suitably qualified bushfire expert providing full details of the required water storage for fire-fighting requirements. The report will include location and capacity of tanks, methods of pumping to provide sufficient pressures, and details of any proposed internal reticulation or hydrant network.*" (ID H5)
>
> "*From the start of building works, the property around all buildings will be managed as an asset protection zone for a distance of 50 metres in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019. Road access to the site, power transmission, fencing and any other services to the site are excluded from this requirement. The following requirements will apply when establishing and maintaining an asset protection zone:*
>
> - *tree canopy cover should be less than 15% at maturity*
> - *trees at maturity should not touch or overhang the building*
> - *lower limbs should be removed up to a height of 2 metres above the ground*
> - *tree canopies should be separated by 2 to 5 metres*
> - *preference should be given to smooth barked and evergreen trees*
> - *large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings*
> - *shrubs should not be located under trees*
> - *shrubs should not form more than 10% ground cover*
> - *clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation*
> - *grass should be kept mown (as a guide grass should be kept to no more than 100mm in height)*
>
> *leaves and vegetation debris should be removed*." (ID H6)
>
> "*UPC\AC will prepare a Fire Safety Study (FSS) for the battery energy storage system in consultation with Fire and Rescue NSW as required under the development consent for the project. The FSS would be prepared prior to construction of the battery energy storage system*." (ID H7)
>
> "*The principles from NFPA 855, AS 5139, IEC 62897, UL 9540, UL 9540A and the FM Global's Development of Sprinkler Protection Guidance for Lithium Ion Based Energy Storage Systems will be considered during detailed design of the BESS, where they are appropriate for the project and feasible*." (ID H5)

These management and mitigation measures have been included in the revised summary of management and mitigation measures in **Chapter 7**.

6.6 Traffic and transport

A traffic and transport assessment report was prepared as part of the EIS to assess the potential traffic and transport impacts of the project. The traffic and transport assessment is summarised in Chapter 13 and presented in full in Appendix H of the EIS.

Since exhibition of the EIS, further assessment of potential traffic and transport impacts has focussed on the functional performance of the local road network and in particular the requirement to upgrade Blue Springs Road and the intersection with Cope Road, in response to the submission from Mid-Western Regional Council and TfNSW.

The detailed assessment by UPC\AC, extensive consultation (including with Mid-Western Regional Council, TfNSW, DPIE, State Forestry Corporation of NSW and landholders) and design development process undertaken to address the stakeholder requirements is discussed in detail in **Chapter 3**.

6.6.1 Revised environmental management and mitigation measures

Additional management and mitigation measures have been developed throughout the assessment and design development process and extensive consultation undertaken for the proposed upgrade of Blue Springs Road and the Cope Road intersection.

UPC\AC has included the following additional management and mitigation measures relating to the proposed Blue Springs Road upgrade:

> *"UPC\AC and/or its selected Engineer Procure and Construct (EPC) contractor will work towards a full detailed design for the proposed Blue Springs Road upgrade prior to commencing construction. The full detailed design will be prepared in consultation with Mid-Western Regional Council and Transport for NSW and any other relevant public agencies as part of a Traffic Management Plan and relevant Development Consent conditions."* (ID T9)
>
> *"The following traffic management measures will be implemented during construction of the Blue Springs Road upgrade to improve safety of road users along the section of road:*
> - *implement a temporary lowered sign posted speed limit from 100 kilometres per hour (existing) to 80 kilometres per hour during construction*
> - *restrict heavy vehicle operation on Blue Springs Road during school bus operation times where possible."* (ID T10)
>
> *"Consultation with Mid-Western Regional Council will be ongoing regarding the use of the existing cleared area located at the north-western corner of the Cope Road and Blue Springs Road intersection as a potential laydown area/stockpile location during construction of the Blue Springs Road upgrade."* (ID T11)
>
> *"UPC\AC will apply for a s138(2) application (under the Roads Act) for the Blue Springs road upgrade with Mid-Western Regional Council, who will refer to Transport for NSW to obtain concurrence prior to the commencement of works."* (ID T12)
>
> *"UPC\AC would undertake consultation with landholders affected by the Blue Springs Road upgrade where proposed upgrades impact on land outside of the road reserve. Affected landholders' consent would also be required to continue with the SSD process."* (ID T13)
>
> *"UPC\AC commits to preparing a Concept Design for the Blue Springs Road upgrade on the basis of a topographic survey (April/May 2021)."* (ID T14)

"UPC\AC will work in consultation with Mid-Western Regional Council and affected landholders to re-align the road reserve where it does not match the proposed upgrade section.". (ID T15)

"UPC\AC will continue to consult with State Forestry Commission of NSW throughout development of the proposed Blue Springs Road upgrade. All works in the State Forest area for the proposed Blue Springs Road upgrade would be undertaken in accordance with a forest permit issue by Forestry Corporation of NSW as per section 60 Forestry Act 2012. State Forestry Corporation of NSW has provided its consent to lodge the application." (ID T16)

These management and mitigation measures have been included in the revised summary of management and mitigation measures in **Chapter 7**.

6.7 Other environmental aspects

Consideration of other environmental aspects relating to the proposed amended project and the clarifications discussed in **Chapter 2** and **Chapter 3**, is provided in **Table 6-2**. Where relevant, the potential environmental impacts associated with the amended project have been compared to the project as assessed in the EIS.

Table 6-2: Assessment of other environmental aspects

Environmental aspect	Impact assessment
Historic heritage	No historic heritage objects were identified during the assessment of the addendum survey area and therefore no specific management measures are proposed. The addendum survey area will be included in the Unanticipated Finds Protocol for Historic Heritage which will detail the processes for managing unanticipated historic heritage items during the life of the project. This has been included as an additional management and mitigation measure for the project in **Chapter 7** (ID HH4).
Geology, soils and land capability	Impacts to soils may occur during construction of the proposed upgrade of Blue Springs Road and the Cope Road intersection. These impacts would be generally consistent with those identified in the EIS for the project, including: • removal of topsoil during vegetation clearing and other ground disturbance works, resulting in increased erosion and sedimentation, and associated impacts on waterways • reduced soil stability resulting in an increased potential for erosion due to vegetation removal or exposure to elements such as wind or precipitation • reduced permeability of the soil as a result of soil compaction for the road, resulting in increased run-off • potential for disturbance and exposure of contaminants (e.g. pesticides) as a result of ground disturbance activities. These impacts would be minimised through the implementation of the proposed management and mitigation measures for the project (refer to **Chapter 7**). No additional management and mitigation measures are required.

Environmental aspect	Impact assessment
Land use	No changes to land use would occur because of the project amendments. The proposed upgrade of Blue Springs Road and the Cope Road intersection is consistent with the current land use as an extension of the existing road. In addition to the road reserve (owned and operated by Mid-Western Regional Council), the cadastral validation following topography survey only identified two freehold lots and part of the Cope State Forest as likely to be impacted by the proposed upgrade. These lots are shown on **Figure 3-3** and include the following: • Lot 14/DP248716 (freehold) • Lot 74/DP750765 (freehold) • Lot 16/DP1210629 (Crown land managed by Forestry Corporation of NSW under Forestry Act 1916). Details of the cadastral validation and actual surveyed cadastral boundaries are shown on in the concept design drawings in **Appendix 2**. The Figure specifically shows where the proposed upgrades are likely to impact neighbouring properties. Landholder consent has been granted for the purpose of this SSD application for the two freehold properties and the State Forest, and all works in the State Forest area would be undertaken in accordance with a forest permit issue by Forestry Corporation of NSW as per section 60 Forestry Act 2012.
Water	Impacts to water may occur during construction of the Blue Springs Road upgrade. These impacts would be generally consistent with those identified in the EIS for the project, including • a small increase to the impervious fraction of the area through increased paved area of the road compared to existing • construction of the road would disturb soils which can potentially lead to sediments or pollutants mobilising in runoff and entering local waterway • potential water pollution risks from hydrocarbon spills, or from the storage and use of paints, solvents and other chemicals. These impacts would be minor, and any impact will be minimised through the implementation of the proposed management and mitigation measures for the project (refer to **Chapter 7**). No additional management and mitigation measures are required. Water required for dust suppression during the proposed road upgrade construction would be sourced from water suppliers around the Mid-Western Regional Council area. Further detail on the water supply arrangement for the project is included in Section 4.11.1 of the response to submissions report. The proposed road upgrade is not expected to have an adverse impact on surface water, hydrology and drainage. Generally, in sections of fill embankments along the road corridor, the existing roadside drainage is to remain unaltered where it is not impacted from the proposed road

Environmental aspect	Impact assessment
	profile. Where this is not possible a new table drain has been provided by the concept design. Along Blue Springs Road, the existing drainage culverts and headwalls are nominated to be retained, with the existing headwall removed and the culvert extended with a new headwall, or to be removed and replaced. The depth of the proposed table drain varies along the length of the route. Sections of new table drain have been designed to generally match the existing table drain capacity (minimum).
Socio-economic	Minor, temporary amenity impacts may occur during construction of the road such as noise, dust and equipment/machinery movements. There is also potential for construction works to impact the traffic on the local road network and cause issues of public safety if not managed appropriately. These impacts would be minor and can be minimised through the implementation of the proposed management and mitigation measures for the project (refer to **Chapter 7**). During construction of the road, regional contractors are likely to have the opportunity to bid for the relevant work packages. Local and regional residents will be considered preferentially for job opportunities where they have the required skills and experience. UPC\AC has compiled the enquiries received from local businesses through the portal on the project website and will continue to do so to establish a register of preferred local contractors in the lead up to construction. Once complete, the proposed road upgrade would result in positive socio-economic impacts by improving the safety of the road for users.
Waste and resources	A small amount of waste would be generated during construction of the proposed Blue Spring Road upgrade, including: • construction waste such as concrete and construction material packaging • asphalt • excavated materials • green waste, primarily grass and weeds • General domestic wastes (e.g. food scraps, aluminium cans, glass bottles, plastic, and paper containers) • liquid wastes (e.g. fuels, oils). The quantities of waste produced by the road construction works would be negligible in the overall scale of the project. Waste impacts will be minimised through the implementation of the proposed management and mitigation measures for the project (refer to **Chapter 7**). No additional management and mitigation measures are required. Further detail on waste disposal for the project is included in Section 4.1.5 of the response to submissions report.
Air quality	There is potential for minor additional generation of dust associated with the construction of the Blue Springs Road upgrade from grading, levelling and vegetation clearing activities.

Environmental aspect	Impact assessment
	Other relatively minor sources of air emissions would likely be associated with the combustion of diesel fuel and petrol from the use of vehicles, equipment and machinery during the roadworks. These air quality impacts would however be negligible and will be minimised through the implementation of the proposed management and mitigation measures for the project (refer to **Chapter 7**). No additional management and mitigation measures are required.
Climate change and greenhouse gas	There would be minor additional generation of greenhouse gasses associated with the construction of the Blue Springs Road upgrade including: • combustion of fuel in construction plant, equipment and vehicles resulting in the release of scope 1 emissions • emissions from vegetation clearance or construction waste resulting in the release of scope 1 emissions • electricity consumption for equipment and machinery resulting in the release of scope 2 emissions. These impacts would however be negligible in the overall scale of the project. No additional management and mitigation measures are required.
Cumulative impacts	UPC\AC understands the road upgrades will have to be completed prior to commencement of the solar farm construction. No cumulative impacts between road upgrade and solar farm construction are envisaged to occur because of the project amendments. No additional management and mitigation measures are required.

6.8 Summary of licences, approvals and permits

A summary of additional licences, approvals and permits that are likely to be required for the amended project (in addition to those outlined in the EIS) is included in **Table 6-3**.

Table 6-3: Summary of licences, approvals and permits required for the project

Legal instrument	Licence of approval requirement	Consent or approval authority
Roads Act	Section 138 permits for works involving a public road (permit cannot be refused for SSD that is authorised by a development consent)	Mid-Western Regional Council
Forestry Act 2012	All road upgrades work within the Cope State Forest must be undertaken in accordance with a forest permit issue by Forestry Corporation of NSW as per section 60 Forestry Act 2012.	Forestry Corporation of NSW

7. REVISED MANAGEMENT AND MITIGATION MEASURES

7.1 Changes to the management and mitigation measures from the EIS

A summary of the changes made to the management and mitigation measures identified for the project in the EIS following project amendment is provided in **Table 7-1**.

Table 7-1: Changes to the management and mitigation measures from the EIS

ID	Management/mitigation measure	Timing
	Traffic and transport	
T3	The safe sight distance analysis undertaken at the Cope Road / Blue Springs Road intersection and at the proposed site access point **options** from Blue Springs Road will be ground-truthed to determine if vegetation trimming or speed limit reductions need to be applied to provide the required safe sight distance for all vehicle types expected to access the project. **Ground-truthing of the analysis undertaken for the emergency-only access point proposed from Barneys Reef Road will also be undertaken, with appropriate measures to be put in place for the (unlikely) event of this access point being utilised.**	Prior to construction

7.2 Additional management and mitigation measures

A summary of the additional management and mitigation measures identified for the project following project amendment is provided in **Table 7-2**.

Table 7-2: Additional management and mitigation measures

ID	Management/mitigation measure	Timing
	Consultation	
C1	UPC\AC is committed to ongoing consultation through detailed design and compliance with TransGrid's design requirements including: • ensuring that the design and construction of the access track is compliant with the TransGrid Easement Guidelines • ensuring that any fencing and gates within the easement corridor are designed and installed in accordance with the TransGrid Fencing Guidelines and that access to the easement by TransGrid is provided for • maintaining the condition of the track into the future • accounting for times when TransGrid may need to close or modify the track to operate and maintain their assets • continued consultation with the landowner to put in place any requisite property interests and consultation with TransGrid to ensure that their usage of the easement is not materially impaired.	Prior to construction / construction
	Biodiversity	
B14	Noting that minimising vegetation removal has been a key objective in developing the proposed Blue Springs road upgrade concept design, opportunities to further reduce impacts to vegetation would be considered where possible during the detailed design and construction and impacts at the intersection of Cope Road would be	Detailed design

ID	Management/mitigation measure	Timing
	limited to trimming of vegetation needed to provide safe sight distance where possible.	
	Aboriginal heritage	
AH4	The addendum survey area would be included in the Aboriginal cultural heritage management plan (ACHMP), which will detail the processes for managing unanticipated Aboriginal heritage items or potential human remains encountered during the life of the project.	Prior to construction
	Historic heritage	
HH4	The addendum survey area will be included in the Unanticipated Finds Protocol for Historic Heritage which will detail the processes for managing unanticipated historic heritage items during the life of the project.	Prior to construction
	Traffic and transport	
T9	UPC\AC and/or its selected Engineer Procure and Construct (EPC) contractor will work towards a full detailed design for the proposed Blue Springs Road upgrade prior to commencing construction. The full detailed design will be prepared in consultation with Mid-Western Regional Council and Transport for NSW and any other relevant public agencies as part of a Traffic Management Plan and relevant Development Consent conditions.	Prior to construction
T10	The following traffic management measures will be implemented during construction of the Blue Springs Road upgrade to improve safety of road users along the section of road: • implement a temporary lowered sign posted speed limit from 100 kilometres per hour (existing) to 80 kilometres per hour during construction • restrict heavy vehicle operation on Blue Springs Road during school bus operation times where possible.	During construction
T11	Consultation with Mid-Western Regional Council will be ongoing regarding the use of the existing cleared area located at the north-western corner of the Cope Road and Blue Springs Road intersection as a potential laydown area/stockpile location during construction of the Blue Springs Road upgrade.	Prior to construction / construction
T12	UPC\AC will apply for a s138(2) application (under the Roads Act) for the Blue Springs road upgrade with Mid-Western Regional Council, who will refer to Transport for NSW to obtain concurrence prior to the commencement of works.	Prior to construction
T13	UPC\AC would undertake consultation with landholders affected by the Blue Springs Road upgrade where proposed upgrades impact on land outside of the road reserve. Affected landholders' consent would also be required to continue with the SSD process.	Prior to construction
T14	UPC\AC commits to preparing a Concept Design for the Blue Springs Road upgrade on the basis of a topographic survey (April/May 2021).	Detailed design
T15	UPC\AC will work in consultation with Mid-Western Regional Council and affected landholders to re-align the road reserve where it does not match the proposed upgrade section.	Prior to construction / construction

ID	Management/mitigation measure	Timing
T16	UPC\AC will continue to consult with State Forestry Commission of NSW throughout development of the proposed Blue Springs Road upgrade. All works in the State Forest area for the proposed Blue Springs Road upgrade would be undertaken in accordance with a forest permit issue by Forestry Corporation of NSW as per section 60 Forestry Act 2012. State Forestry Corporation of NSW has provided its consent to lodge the application.	Prior to construction / construction
	Hazards and risks	
H8	The principles from NFPA 855, AS 5139, IEC 62897, UL 9540, UL 9540A and the FM Global's *Development of Sprinkler Protection Guidance for Lithium Ion Based Energy Storage Systems* will be considered during detailed design of the BESS, where they are appropriate for the project and feasible.	Detailed design/ prior to construction

7.3 Consolidated management and mitigation measures for the amended project

A consolidated summary of the amended management and mitigation measures that will be implemented during the construction and operation of the project is presented in **Table 7-3**.

Table 7-3: Summary of amended management and mitigation measures

ID	Management/mitigation measure	Timing
	Consultation	
C1	UPC\AC is committed to ongoing consultation through detailed design and compliance with TransGrid's design requirements including: • ensuring that the design and construction of the access track is compliant with the TransGrid Easement Guidelines • ensuring that any fencing and gates within the easement corridor are designed and installed in accordance with the TransGrid Fencing Guidelines and that access to the easement by TransGrid is provided for • maintaining the condition of the track into the future • accounting for times when TransGrid may need to close or modify the track to operate and maintain their assets • continued consultation with the landowner to put in place any requisite property interests and consultation with TransGrid to ensure that their usage of the easement is not materially impaired.	Prior to construction / construction
	Biodiversity	
B1	Clearing protocols will be developed that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance (e.g. removal of native vegetation by chainsaw instead of heavy machinery where only partial clearing is proposed). Fencing (or other barriers as required) and signage will be placed around those areas of vegetation to be maintained to prevent any accidental construction damage and provide a permanent barrier between the development footprint and retained areas. The type of fencing during construction may be of a temporary nature and scale that is robust enough to withstand damage during this stage of work. Use of appropriate machinery for vegetation removal adjacent to retained areas.	Prior to construction / construction
B2	Pre-clearance surveys will be undertaken prior to tree clearing. Active breeding or nesting identified during pre-clearance surveys will be avoided in August, September and October which is the breeding/nesting period for most fauna species.	Prior to construction / construction

ID	Management/mitigation measure	Timing
	A qualified ecologist/licenced wildlife handler will supervise tree removal in accordance with best practise methods.	
B3	A procedure will be developed for the relocation of habitat features (e.g. fallen timber, hollow logs) to adjacent retained habitat.	Prior to construction
B4	Monitoring will be undertaken within the environmental exclusion zones to ensure biodiversity values are not significantly affected by indirect impacts. This may include: • comparison against EIS baseline monitoring • consideration of natural seasonal variation • development of trigger values for the commencement of adaptive management actions • details of proposed adaptive management actions to reduce or eliminate recorded impacts.	Construction / decommissioning
B5	Appropriate controls will be implemented to manage exposed soil surfaces and stockpiles to prevent sediment discharge into waterways. All works within proximity to the drainage lines will have adequate sediment and erosion controls (e.g. sediment barriers, sedimentation ponds). Revegetation will also commence as soon as is practicable to minimise risks of erosion.	Prior to construction / construction
B6	Construction works will only be undertaken during daylight hours and night lights will not be used. Lights associated with operation will be directional to avoid unnecessarily shining light into adjacent retained vegetation where possible.	Construction / operation
B7	Dust suppression measures will be implemented to limit dust onsite. Revegetation will also be commenced as soon as practicable to minimise areas likely to create dust.	Construction
B8	All machinery will be cleaned prior to entering and exiting the study area to minimise the transport of weeds to vegetated areas to be retained. Weeds that are present within the study area that are listed under the *NSW Biosecurity Act 2015* will be managed.	Construction
B9	All personnel working on the project will undertake an environmental induction as part of their site familiarisation. This will include: • site environmental procedures (vegetation management, sediment and erosion control, exclusion fencing and noxious weeds) • what to do in case of environmental emergency (e.g. chemical spills, fire, injured fauna) • key contacts in the case of an environmental emergency.	Construction

ID	Management/mitigation measure	Timing
B10	A Traffic Management Plan will be developed which includes speed limits and controls to reduce risk of fauna strike. Any vehicle strike incidents will be recorded.	Construction / operation
B11	A strategy will be developed and implemented to protect vegetation and habitat adjacent to the project. This will outline the following: • rubbish disposal guidance • prohibition of wood collection • prohibition of lighting of fires • no-go-zones for native vegetation outside the development footprint • speed limits on the surrounding road network	Construction
B12	Suitable species will be used as ground cover species in any revegetation areas.	Construction
B13	All waterway crossings will be designed in accordance with *Policy and Guidelines for Fish Friendly Waterway Crossing* (DPI, n.d.) where appropriate.	Detailed design
B14	Noting that minimising vegetation removal has been a key objective in developing the proposed Blue Springs road upgrade concept design, opportunities to further reduce impacts to vegetation would be considered where possible during the detailed design and construction and impacts at the intersection of Cope Road would be limited to trimming of vegetation needed to provide safe sight distance where possible.	Detailed design
	Aboriginal heritage	
AH1	The proponent will develop the ACHMP which is to be agreed to by the RAPs and DPIE. The ACHMP will also include an unanticipated finds protocol, unanticipated skeletal remains protocol and long-term management of any artefacts.	Prior to construction
AH2	The Aboriginal site (Rosevale IF-01) within the development footprint for the project will be salvaged by a surface collection of visible artefacts. The recommended methodology for the salvage will be finalised after the approvals process has been completed in the ACHMP but will include the measures outlined in Section 9.3.1 of the ACHAR (**Appendix D**). The salvage works will include the mapping, analysis and collection of the surface artefact at the affected site. Results will be included in a brief report to preserve the data in a useable form and an Aboriginal Site	Prior to construction

ID	Management/mitigation measure	Timing
	Impact Recording Form (ASIRF) will be submitted to Aboriginal Heritage Information Management System (AHIMS).	
AH3	All land-disturbing activities will be confined to within the development footprint and associated tracks and/or crossings. Should the parameters of the proposed work extend beyond this, then further archaeological assessment may be required.	Construction
AH4	The addendum survey area would be included in the Aboriginal cultural heritage management plan (ACHMP), which will detail the processes for managing unanticipated Aboriginal heritage items or potential human remains encountered during the life of the project.	Prior to construction
	Historic heritage	
HH1	If items of historic heritage significance are uncovered during the project, then the Unanticipated Finds Protocol for Historic Heritage included in Appendix 5 of the Aboriginal cultural heritage and historic heritage assessment (**Appendix D**) will be enacted.	Construction
HH2	To avoid the potential for harm to historic objects on unassessed adjacent landforms, all ground surface disturbing activities will be confined to the development footprint.	Construction
HH3	An unanticipated finds protocol for historic heritage will be developed and implemented as required during construction.	Construction
HH4	The addendum survey area will be included in the Unanticipated Finds Protocol for Historic Heritage which will detail the processes for managing unanticipated historic heritage items during the life of the project.	Prior to construction
	Soils	
S1	Disturbed areas will be progressively stabilised and rehabilitated as construction is completed to minimise the extent of bare soil.	Construction
S2	The following measures will be implemented to manage the risk of contaminants and impacts on surrounding environments: • appropriate storage (including bunding) of all potential contaminants (i.e. chemicals and fuels) onsite to reduce risks of spills contaminating waterways and land • protocol for the discovery of contaminants in the study area during works, including requirements to stop work, remediate and dispose of contaminants as necessary	Prior to construction / prior to operation

ID	Management/mitigation measure	Timing
	• measures for mitigating soil contamination by fuels or other chemicals (including notification to EPA, emergency response requirements etc) • measures for the ongoing inspection and maintenance of machinery/vehicles to ensure that they remain in a clean condition free of fluid leaks.	
S3	The photovoltaic arrays will be designed to allow for enough space between rows of panels for establishment of groundcover and implementation of weed controls.	Detailed design
S4	A baseline soil survey of the development footprint will be undertaken prior to construction. The baseline soil survey will be undertaken in conjunction with a geotechnical assessment to identify any potential amelioration that is required so as to ensure erosion is minimised and plant growth establishment potential is maximised. The results of the baseline soil survey and geotechnical assessment will be used to inform the Decommissioning and Rehabilitation Plan and assist in recovering the development footprint to its original land and soil capability or better.	Prior to construction
	Land use	
LU1	Land management within the study area will include measures to minimise impacts to surrounding agricultural land use with reference to DPI's publication *Infrastructure proposals on rural land* (Kovac, M and Briggs, G, 2013). These measures will also be implemented during operation of the project and will include strategies to minimise impacts of aerial spraying. The land management measures will aim to minimise impacts on: • land and soil capability within the development footprint • biosecurity both at a local and regional level • soil erosion • surface water runoff • agricultural activities on neighbouring properties.	At all times
LU2	Biosecurity management will include: • measures to manage the impacts of weeds, disease and pest animals during construction, operation, and decommissioning activities • biosecurity response measures where impacts are identified • contingency measures in the event that existing measures are inadequate in managing the risk/impact.	At all times

ID	Management/mitigation measure	Timing
LU3	Consultation will be undertaken with Mid-Western Regional Council, DPIE and other relevant stakeholders including mining and exploration licence holders, and native title claimants where relevant in order to identify potential impacts on surrounding land uses and develop measures to address concerns.	Detailed design / prior to construction
LU4	Consultation will continue to be undertaken with participating landholders to minimise disruption to agricultural activities during construction and operation.	Detailed design / prior to construction
LU5	Options will be further investigated to consider the feasibility of grazing within the study area throughout operation, in consultation with landholders.	Detailed design / prior to operation
LU6	A decommissioning and rehabilitation plan will be prepared and submitted to Mid-Western Regional Council for approval within 5 years of the commencement of operation that outlines the rehabilitation objectives and strategies to return the study area to its pre-existing condition for agricultural land use. This will include but not be limited to: • rehabilitation objectives and strategies • describing the design criteria of the final land use and landform • performance indicators to be used to guide the return of the land back to agricultural production • expected timeline for the rehabilitation program. The plan will be reviewed every 5 years, so that it is readily available should operations cease earlier than planned.	Prior to decommissioning
	Landscape character and visual	
LCV1	The design will retain the existing roadside planting where possible along the eastern boundary of the site to reduce the overall visual impact.	Detailed design
LCV2	Consideration will be given to the colours of the PCUs, the battery facility enclosures, O&M buildings and the spare parts storage shed to try to help blend into the surrounding landscape to the extent practicable.	Detailed design
LCV3	Existing vegetation within the environmental exclusion zones will be retained and protected to maintain the existing level of screening.	Construction / operation
	Noise and vibration	
NV1	Construction noise and vibration management measures will be implemented consistent with recommendations contained within the Interim Construction Noise Guideline.	Construction

ID	Management/mitigation measure	Timing
	Traffic and Transport	
T1	UPC\AC will continue to consult with Mid-Western Regional Council to agree the appropriate treatment or upgrade requirements for the safe use of Blue Springs Road during construction and the process for undertaking any treatment or upgrade works in accordance with Development Consent conditions	Prior to construction

T2	A construction traffic management plan will be prepared in consultation with TfNSW and Mid-Western Regional Council, to the satisfaction of the Secretary. The plan will include:
	• details of:
	  ○ the transport route to be used for all project-related traffic
	  ○ the origin, number, size, frequency and final destination of vehicles accessing/exiting the site
	  ○ loads, weights and lengths of haulage and construction related vehicles and the number of movements of such vehicles
	  ○ existing and projected background traffic, peak hour volumes and types and their interaction with projected development related traffic
	  ○ local climate conditions that may affect road safety for vehicles used during construction, operation and decommissioning of the facility (e.g. fog, dust, wet weather).
	• details of any road upgrade works required by Development Consent
	• identification of the routes which are to be used to access the site
	• a protocol for undertaking independent dilapidation surveys to assess the existing condition of the proposed construction routes prior to construction, upgrading or decommissioning activities and the condition of the proposed construction routes following construction, upgrading or decommissioning activities
	• a protocol for the repair of the construction routes if dilapidation surveys identify these roads to be damaged during construction, upgrading or decommissioning works
	• details of the measures that will be implemented to minimise traffic impacts during construction, upgrading or decommissioning works, including:
	  ○ temporary traffic controls, including detours, temporary reduced speed limits and signage
	  ○ notifying the local community about project-related traffic impacts
	  ○ procedures for receiving and addressing complaints from the community about project related traffic
	  ○ minimising potential for conflict with school buses, other road users during peak hours and rail services as far as practicable (measures also required during operation of the project)
	  ○ minimising dirt tracked onto the public road network from project-related traffic
	  ○ scheduling of haulage vehicle movements to minimise convoy length or platoons
		Prior to construction

ID	Management/mitigation measure	Timing
	○ responding to local climate conditions that may affect road safety such as fog, dust and wet weather ○ responding to any emergency repair or maintenance requirements ○ a traffic management system for managing over-dimensional vehicle trips to and from the project • a program to ensure drivers associated with the project receive suitable training on the Driver Code of Conduct and any other relevant obligations under the CTMP • a flood response plan detailing procedures and options for safe access to and from the site in the event of flooding • controls for transport and use of dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, Australian Dangerous Goods Code and Australian Standard 4452 Storage and Handling of Toxic Substances. Following the Secretary's approval, UPC\AC will implement the construction traffic management plan.	
T3	The safe sight distance analysis undertaken at the Cope Road / Blue Springs Road intersection and at the proposed site access point options from Blue Springs Road will be ground-truthed to determine if vegetation trimming or speed limit reductions need to be applied to provide the required safe sight distance for all vehicle types expected to access the project. Ground-truthing of the analysis undertaken for the emergency-only access point proposed from Barneys Reef Road will also be undertaken, with appropriate measures to be put in place for the (unlikely) event of this access point being utilised.	Prior to construction
T4	Parking requirements for the project construction and operation workforce will be provide onsite and parking will not be provided on public roads adjacent to the site.	Prior to construction
T5	A full and detailed assessment will be undertaken by a suitably qualified bridge Engineer of the structural and load capacity of all bridges and culverts on any and all proposed access routes to be used by oversize/over mass vehicles. The assessment reports will be provided to Mid-Western Regional Council for approval prior to commencement of construction.	Prior to construction
T6	Pre and post dilapidation reports, with the exception where road upgrades are being undertaken by UPC\AC as part of the project, will be prepared for existing road assets along the proposed transport routes in consultation with Council for each phase of the development (construction, operation, decommissioning). Damage to existing road assets caused by the project would be repaired at the full cost of the proponent.	Prior to construction
T7	Prior to the commencement of the relevant construction work involving heavy vehicle movements to site, 'Advance truck warning signs' (W5-22 Size B) with distance plates (W8-5 Size B), will be erected adjacent	Prior to construction

ID	Management/mitigation measure	Timing
	to Cope Road, 250 metres from its intersection with Blue Springs Road. The signs will be removed at completion of construction.	
T8	Relevant approvals from the National Heavy Vehicle Regulator and TfNSW will be obtained by the proponent prior to the transportation of any oversize/over mass loads on public roads.	Prior to construction
T9	UPC\AC and/or its selected Engineer Procure and Construct (EPC) contractor will work towards a full detailed design for the proposed Blue Springs Road upgrade prior to commencing construction. The full detailed design will be prepared in consultation with Mid-Western Regional Council and Transport for NSW and any other relevant public agencies as part of a Traffic Management Plan and relevant Development Consent conditions.	Prior to construction
T10	The following traffic management measures will be implemented during construction of the Blue Springs Road upgrade to improve safety of road users along the section of road: • implement a temporary lowered sign posted speed limit from 100 kilometres per hour (existing) to 80 kilometres per hour during construction • restrict heavy vehicle operation on Blue Springs Road during school bus operation times where possible.	During construction
T11	Consultation with Mid-Western Regional Council will be ongoing regarding the use of the existing cleared area located at the north-western corner of the Cope Road and Blue Springs Road intersection as a potential laydown area/stockpile location during construction of the Blue Springs Road upgrade.	Prior to construction / construction
T12	UPC\AC will apply for a s138(2) application (under the Roads Act) for the Blue Springs road upgrade with Mid-Western Regional Council, who will refer to Transport for NSW to obtain concurrence prior to the commencement of works.	Prior to construction
T13	UPC\AC would undertake consultation with landholders affected by the Blue Springs Road upgrade where proposed upgrades impact on land outside of the road reserve. Affected landholders' consent would also be required to continue with the SSD process.	Prior to construction
T14	UPC\AC commits to preparing a Concept Design for the Blue Springs Road upgrade on the basis of a topographic survey (April/May 2021).	Detailed design
T15	UPC\AC will work in consultation with Mid-Western Regional Council and affected landholders to re-align the road reserve where it does not match the proposed upgrade section.	Prior to construction / construction

ID	Management/mitigation measure	Timing
T16	UPC\AC will continue to consult with State Forestry Commission of NSW throughout development of the proposed Blue Springs Road upgrade. All works in the State Forest area for the proposed Blue Springs Road upgrade would be undertaken in accordance with a forest permit issue by Forestry Corporation of NSW as per section 60 Forestry Act 2012. State Forestry Corporation of NSW has provided its consent to lodge the application.	Prior to construction / construction
	Water	
W1	Infrastructure with the potential to cause pollution to waterways in the event of flooding, such as inverters and battery storage will be located with a minimum 300 mm freeboard above the maximum 1% annual exceedance probability (AEP) flood level.	Detailed design
W2	Solar panels will be designed to provide a minimum of 300 mm freeboard for the lowest edge above the maximum 1% AEP flood level.	Detailed design
W3	The panel structure will be designed to withstand the flood velocities expected at the site.	Detailed design
W4	No infrastructure will be placed within 20 m of any Strahler 3 or above order streams.	Detailed design
W5	All waterway crossings will be designed and constructed in compliance with the Department of Primary Industries, Office of Water, Guidelines for riparian corridors on waterfront land and Guidelines for watercourse crossings on waterfront land.	Detailed design
W6	Further flood investigations and hydrological and hydraulic modelling will be carried out where required during detailed design to ensure the flood immunity objectives and design criteria for the project are met. The modelling will be used to define the nature of both main stream flooding and major overland flow across the development footprint under pre- and post- project conditions and to define the full extent of any impact that the project will have on patterns of both main stream flooding and major overland flow.	Detailed design
W7	A construction soil and water management plan (CSWMP) will be prepared to outline measures to manage soil and water impacts associated with the construction works, including contaminated land. The CSWMP will provide: • measures to minimise/manage erosion and sediment transport both within the construction footprint and offsite including requirements for the preparation of erosion and sediment control plans (ESCP) for all progressive stages of construction Measures to manage waste including the classification and handling of spoil • procedures to manage unexpected contaminated finds	Prior to construction

ID	Management/mitigation measure	Timing

	• measures to manage stockpiles including locations, separation of waste types, sediment controls and stabilisation
	• measures to manage accidental spills including the requirement to maintain materials such as spill kits
	• controls for receiving waterways which may include:
	  ○ Designation of 'no go' zones for construction plant and equipment
	  ○ Creation of catch/diversion drains and sediment fences at the downstream boundary of construction activities where practicable to ensure containment of sediment-laden runoff
	• erosion and sediment control measures will be implemented and maintained at all work sites in accordance with the principles and requirements in Managing Urban Stormwater – Soils and Construction, Volume 1 (Landcom 2004) and Volume 2D (NSW Department of Environment, Climate Change and Water 2008b), commonly referred to as the "Blue Book".	

W8	The use of any farms dams during construction will be agreed with the landholder and the estimated maximum harvestable right dam capacity will not be exceeded.	Construction
W9	No artificial structures planned to be installed in the creek in the central environmental exclusion zone except for two waterway road and cable crossings. The waterway road and cable crossings would be designed and constructed in compliance with the *Guidelines for Controlled Activities on Waterfront Land (NRAR 2018)*.	At all times
	Hazards and risks	
H1	A Construction Bushfire Management Plan (BMP) will be prepared in consultation with the Rural Fire Service, and to the satisfaction of the Secretary. The BMP will include the management and mitigation measures described in **Section 4.14.1** of the response to submissions report.	Prior to construction
H2	An Operation BMP will be prepared in consultation with the Rural Fire Service, and to the satisfaction of the Secretary. The BMP will include the management and mitigation measures described in **Section 15.3.3** of the EIS.	Prior to operation
H3	A Bush Fire Emergency Management and Evacuation Plan will be prepared consistent with 'Development Planning A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan (NSW RFS, 2014) and Australian Standard AS3745 2010 'Planning for Emergencies in Facilities'. The plan will include: • detailed measures to prevent or mitigate fires igniting; • work that should not be carried out during total fire bans;	Prior to construction / prior to operation

ID	Management/mitigation measure	Timing
	• availability of fire-suppression equipment, • access and water; • storage and maintenance of fuels and other flammable materials; • notification of the local NSW RFS Fire Control Centre for any works that have the potential to ignite surrounding vegetation, proposed to be carried out during a bush-fire fire danger period to ensure weather conditions are appropriate; and • appropriate bush fire emergency management planning. A copy of the plan will be displayed and available for review in a prominent location directly adjacent to the site's main entry point/s.	
H4	The operator will contact Mid-Western Local Emergency Management Committee (LEMC) to discuss how the site will be considered under the Mid-Western Local Disaster Plan (DISPLAN).	Prior to operation
H5	Prior to construction, a Fire Safety Study will be prepared by a suitably qualified bushfire expert providing full details of the required water storage for fire-fighting requirements. The report will include location and capacity of tanks, methods of pumping to provide sufficient pressures, and details of any proposed internal reticulation or hydrant network.	Prior to construction
H6	From the start of building works, the property around all buildings will be managed as an inner protection area for a distance of 50 metres in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019. Road access to the site, power transmission, fencing and any other services to the site are excluded from this requirement. The following requirements will apply when establishing and maintaining an inner protection area: • tree canopy cover should be less than 15% at maturity • trees at maturity should not touch or overhang the building • lower limbs should be removed up to a height of 2 metres above the ground • tree canopies should be separated by 2 to 5 metres • preference should be given to smooth barked and evergreen trees • large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings • shrubs should not be located under trees • shrubs should not form more than 10% ground cover • clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation	During construction and operations

ID	Management/mitigation measure	Timing
	• grass should be kept mown (as a guide grass should be kept to no more than 100mm in height) • leaves and vegetation debris should be removed.	
H7	UPC\AC will prepare a Fire Safety Study (FSS) for the battery energy storage system in consultation with Fire and Rescue NSW as required under the development consent for the project. The FSS would be prepared prior to construction of the battery energy storage system.	Prior to construction
H8	The principles from NFPA 855, AS 5139, IEC 62897, UL 9540, UL 9540A and the FM Global's *Development of Sprinkler Protection Guidance for Lithium Ion Based Energy Storage Systems* will be considered during detailed design of the BESS, where they are appropriate for the project and feasible.	Detailed design/ prior to construction
	Socio-economic	
SIA1	An Accommodation and Employment Strategy will be developed and implemented for the project in consultation with Mid-Western Regional Council. This strategy will: • consider various workforce scenarios assuming the construction period overlaps with other major projects and considering peak tourism activity • propose measures to manage workforce accommodation to minimise the effects of non-local hires during construction on short-term accommodation availability and the local housing market • include a code of conduct for the projects workforce, particularly to avoid anti-social behaviour at peak construction and align with Mid-Western Regional Council's existing industry agreements • to the extent possible and within UPC\AC's control, consider the cumulative impacts associated with other State significant development projects in the area, including nearby mines • investigate options for prioritising the employment of local workers for the construction and operation of the project, where feasible and appropriate given the required skills and experience • include a program to report measures undertaken or implemented in line with the strategy include a program to monitor and review the effectiveness of the strategy over the life of the project, including regular monitoring and review during construction • include detailed information regarding the number of beds and types of accommodation to be-utilised monthly for the period of construction. The strategy will be approved by Mid-Western Regional Council prior to commencement of construction.	Prior to construction

ID	Management/mitigation measure	Timing
SAI2	UPC\AC will develop initiatives for sharing of benefits with the local community. Funding need will be identified and prioritised based on potential project impacts and in collaboration with the local community centered around Gulgong and surrounds, Mid-Western Regional Council and the NSW Government. Opportunities may include sponsorship, grant assistance, strategic community partnerships or co-ownership schemes.	Prior to construction
SIA3	Investigation will be undertaken into the value of investment in local tertiary training institutions to address skills shortages where identified during the development of the Accommodation and Employment Strategy. Where value is identified and a strategy is defined, investment will be targeted through the community benefit share fund.	Prior to construction
SIA4	During development of the Accommodation and Employment Strategy, further consultation with local short-term accommodation providers will be undertaken to identify and where appropriate secure, accommodation for the non-local portion of the construction workforce.	Prior to construction
SIA5	During development of the Accommodation and Employment Strategy, further consultation with local employment service providers will be undertaken to identify and where appropriate secure, local hires.	Prior to construction
	Waste and resources	
WR1	A construction waste management plan will be prepared in consultation with Mid-Western Regional Council. The waste management plan will include: • details of the quantities of each waste type and the proposed reuse, recycling and disposal locations • details on how the waste will be transported to disposal locations during construction and decommissioning • details on measures to reduce the types and volumes of waste • measures to maximise reuse and recycling. UPC\AC will continue to consult with Mid-Western Regional Council around specific details of the waste management strategy throughout the life of the project.	Prior to construction
WR2	All waste generated from the project will be assessed, classified and managed in accordance with the *Waste Classification Guidelines* (EPA, 2014)	At all times
WR3	Wastes will be disposed of at suitable facilities permitted to accept the waste	At all times

ID	Management/mitigation measure	Timing
WR4	Management of wastes will follow the resource management hierarchy principles in accordance with the WARR Act (i.e. avoid > reduce > reuse > recycle > recover > disposal)	At all times
WR5	Skip bins will be made available onsite to enable waste separation for recycling (e.g. separate skip bins for cardboard recycling, plastics and timber collection)	Construction / operation
WR6	General waste bins will be provided for disposal of materials that cannot be cost-effectively recycled	Construction / operation
WR7	The site septic system will be installed and operated in accordance with Council regulations	Construction / operation
WR8	All trucks transporting waste from the site will have covered loads to prevent spillage and other nuisances	Construction / operation
WR9	All materials will be removed from the site following decommissioning and the site will be left waste-free	Decommissioning
	Air quality	
AQ1	Protocols to minimise air quality impacts will be included in the CEMP	Prior to construction
AQ2	Water trucks will be used for dust suppression along internal, unsealed access roads and disturbed areas when required (i.e. if visible dust emissions are observed).	At all times
AQ3	The traffic management plan will include optimisation of vehicle movements onsite reducing wheel generated dust.	At all times
AQ4	Dust suppression measures will take into consideration weather, extended dry periods and Mid-Western Regional Council water restriction levels.	At all times
	Cumulative	
CU1	Develop and implement a community and stakeholder engagement plan that includes ongoing consultation with neighbouring operations to manage any cumulative impacts	Construction / operations

8. PROJECT EVALUATION AND CONCLUSION

8.1 Overview

This amendment report has been prepared to consider and assess the potential environmental, economic, and social impacts associated with the proposed amended project and any clarifications where further assessment is warranted and should be read in conjunction with the EIS.

This report has been submitted to the DPIE to consider, along with the EIS, the submissions received on the project and the response to submissions report to determine the project.

8.2 Project refinements

Following submission of the EIS, UPC\AC has made one amendment to the project, which involves a proposed upgrade of Blue Springs Road and the Cope Road intersection in response to submissions provided by Mid-Western Regional Council and Transport for NSW.

The amendment report also provides further clarification about the project where it has been sought during the exhibition period and through ongoing discussions with stakeholders, landholders and the local community. Four clarifications to the environmental impact statement are provided where they have been identified through review of the environmental impact statement or sought through ongoing discussions with stakeholders, landholders and the local community. Clarifications include the following:

- additional non-associated property identified after lodgement of the environmental impact statement in December 2020
- clarification of the intended use of the proposed development footprint shown within the TransGrid easement
- configuration of potential battery energy storage system
- layout of proposed switchyard within the substation area for the purpose of subdivision.

A revised summary of management and mitigation measures has been provided to address the refinements made to the project and to address matters raised in the submissions.

8.3 UPC\AC project commitments

As a signatory to the Clean Energy Council's *Best Practice Charter for Renewable Energy Developments*, UPC\AC has demonstrated their intention to:

- engage respectfully with the communities in which they plan and operate projects
- be sensitive to environmental and cultural values
- make a positive contribution to the regions in which they operate.

Stakeholder engagement on the Stubbo Solar Farm has been comprehensive to date and reflects the importance UPC\AC places on this aspect of its business. UPC\AC will continue to work with all stakeholders as the approval process for the project progresses and detailed design and approval schedule for the project is better defined.

The environmental management strategy will govern the avoidance, minimisation and management of impacts during the construction and ongoing operation of the project and will be set out to ensure the responsibilities and accountabilities for environmental performance are clear.

Throughout community engagement undertaken to date, UPC\AC has also demonstrated their intention to establish a positive, long-term connection with the local community. As part of this,

UPC\AC has already committed to develop a community benefit sharing model with local community and stakeholders, including TAFE and local business groups.

8.4 Conclusion

The environmental assessment undertaken for the project as part of the EIS and the additional assessment undertaken for the subsequent amendments to the project as part of the amendment report, has determined that the project would not result in significant impacts to environmental, cultural, social and economic values and residual impacts can be managed with the management and mitigation measures in place. Furthermore, the project is consistent with the principles of ESD, and the objectives of the EP&A Act and therefore should be approved under the EP&A Act.

Throughout the project refinement process, UPC\AC has made considerable effort to avoid potential environmental impacts, where possible. In those instances where potential impacts cannot be avoided, UPC\AC's design principles have sought to minimise environmental impacts and/or implement mitigation measures to manage the extent and severity of any residual environmental impacts. During detailed design and prior to the commencement of construction, the placement of infrastructure and extent of construction activities would be further refined to ensure avoidance and minimisation objectives are met.

The project forms an important part of Australia's transition to renewable energy generation and would positively contribute in meeting Commonwealth and State targets. The project would enhance the reliability and security of electricity supply by contributing to the anticipated capacity gaps in the electricity market following the closure of major coal-fired power generators within NSW.

Should the project not proceed, the potential project benefits described within the EIS would not be realised. In addition, it will be more difficult in the short-term for the Commonwealth and NSW Government to achieve their respective renewable energy and greenhouse gas emission reduction targets.

9. REFERENCES

DPI. (n.d.). *Policy and Guidelines for Fish Friendly Waterway Crossings.*

EcoLogical Australia. (2021). *Blue Springs Road Upgrade - Biodiversity Development Assessment Report.*

Kovac, M and Briggs, G. (2013). *Infrastructure proposals on rural land*. Retrieved from http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0020/359030/infrastructure-proposals-on-rural-land.pdf

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