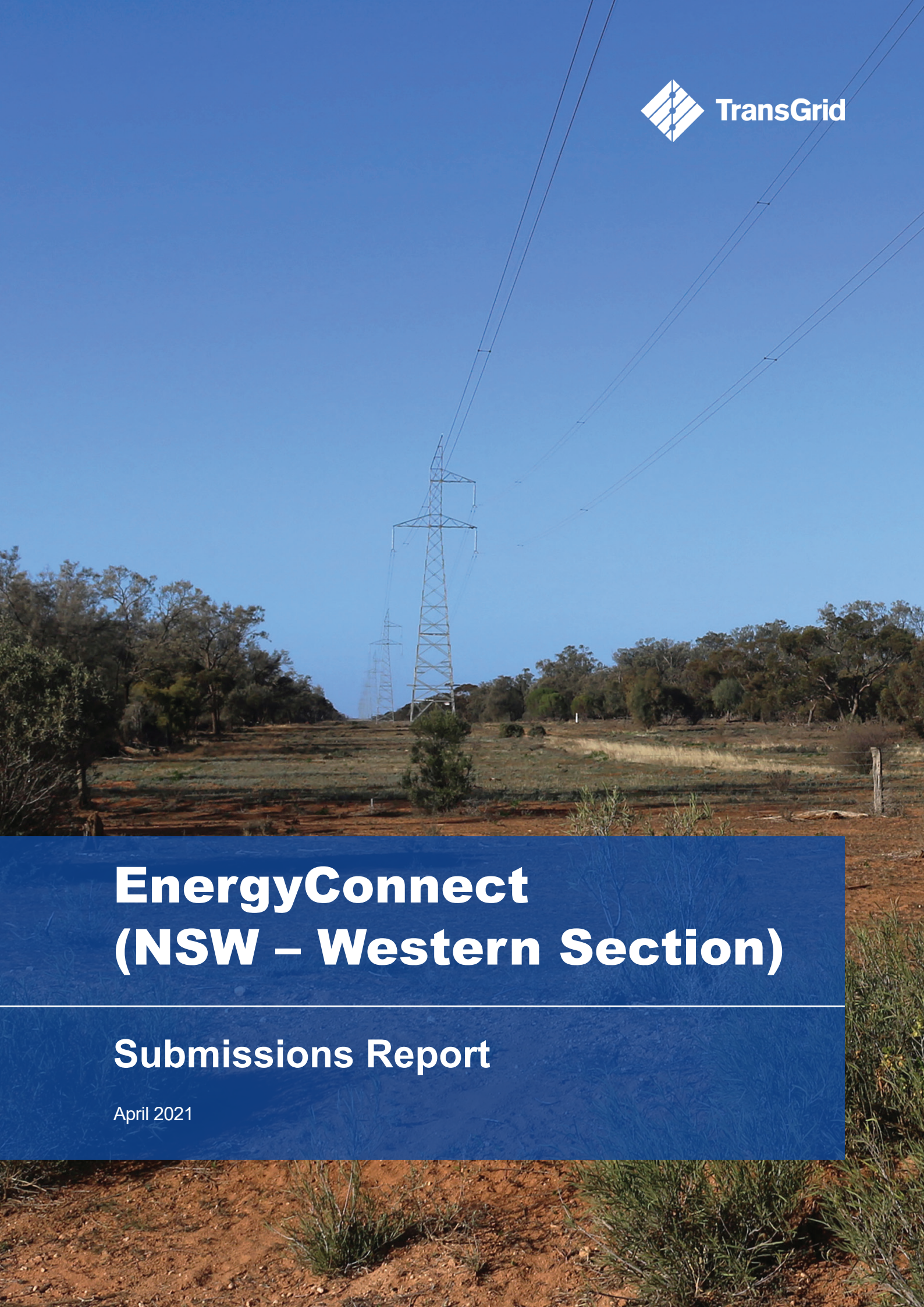

TransGrid

EnergyConnect (NSW – Western Section)

Submissions Report

April 2021

Document Preparation History

Revision	Prepared by	Reviewed By	Date
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Abbreviations

Proposal term / acronym	Definition
AC	alternating current
AER	Australian Energy Regulator
AHIMS	Aboriginal Heritage Information Management System
BAM	Biodiversity Assessment Method
BCD	Biodiversity Conservation Division (part of NSW Department of Planning, Industry and Environment)
BDAR	Biodiversity Development Assessment Report
CEMP	Construction Environmental Management Plan
CSSI	Critical State significant infrastructure
DAWE	(Australian) Department of Agriculture, Water and the Environment
DC	direct current
DPE	(former) NSW Department of Planning and Environment
DPIE	NSW Department of Planning, Industry and Environment
EEC	endangered ecological community
EIS	Environmental Impact Statement
ElectraNet	electricity transmission operator in South Australia
EMF	electric and magnetic fields
EMP	environmental management plan
EMS	environmental management system
EPA	NSW Environmental Protection Authority
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	(Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999*
ERP	Emergency Response Plan
ELA	exploration licence applicant
FTE	full time equivalent
GIS	Geographical Information Systems
HV	high voltage

Proposal term / acronym	Definition
ICNIRP	International Commission on Non-Ionizing Radiation Protection
kV	kilovolt
LGA	local government area
LEMC	local emergency management committee
MNES	Matters of National Environmental Significance
MW	megawatts
NEM	National Electricity Market
NHVR	National Heavy Vehicle Regulator
NML	Noise management level
NSW	New South Wales
OOHW	out of hours works
PAD	Potential Archaeological Deposit
PCT	Plant Community Types
RAP	registered Aboriginal party
RFS	NSW Rural Fire Service
RIT-T	Regulatory Investment Test for Transmission
SA	South Australia
SEARs	Secretary's Environmental Assessment Requirements
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
UXO	Unexploded ordnance
VMP	Vehicle Movement Plan

Glossary

Proposal term	Definition
brake/winch sites	A brake and winch site is a temporarily cleared area where plant and equipment is located for the purposes of spooling and winching a conductor into place on erected transmission line structures along a transmission line corridor. Dependent upon the angle of line deviation, the location of the brake and winch site at that angle may or may not be within the nominated transmission line easement. The brake and winch site is only required for the construction phase of the proposal. It does not need to be maintained for ongoing operation and / or maintenance of the transmission line.
disturbance area	Refers to the area that would be directly impacted by both construction and operation (including the areas that would be impacted by maintenance activities) of the proposal including all proposal infrastructure elements (including the proposed transmission line alignment, substation site works and other ancillary works i.e. the operational footprint) as well as locations for currently proposed construction elements such as construction compounds, access tracks and site access points, laydown and staging areas, concrete batching plants, brake/winch sites, site offices and accommodation camps. This area would be mostly contained within the transmission line corridor and would be determined during detailed design in consideration of avoidance and impact minimisation. For heritage and biodiversity assessments, an *indicative* disturbance area was applied. The disturbance area would have varying degrees of physical disturbance along the transmission line alignment to reflect construction and operational requirements – specifically: > Disturbance area A, in which ground disturbance would be required > Disturbance area B, in which ground disturbance is not required except in limited circumstances From time to time during construction and operation, hazard/high risk trees may be removed from within, or adjacent to, the easement but outside the disturbance area.
disturbance area A	Refers to an area around the transmission line structures and for new/upgraded access tracks in which vegetation would be removed during construction. It would include potential sub-surface impacts through construction activities such as grading, excavation, and full tree removal. Except in areas where only temporary disturbance is required (i.e. temporary access tracks), this area may also be subject to ongoing maintenance during operation (i.e. removal to ground level) for operational and safety requirements (including bushfire). This zone is a subset to the disturbance area.
disturbance area A (centreline clearing)	Refers to the areas between the proposed transmission towers in which all vegetation would be removed during construction to ground however topsoil materials and ground material would be retained (where possible) and would not likely result in sub-surface impacts. This area would also be subject to ongoing maintenance during operation (i.e. removal to maintain vegetation clearance requirements) for operational and safety requirements (including bushfire). This zone is a subset to the disturbance area.

Proposal term	Definition
disturbance area B	Refers to an area between transmission line structures in which removal of vegetation (including trees) would be undertaken where they have the potential to exceed vegetation clearance heights. This removal may result in temporary ground disturbance. Vegetation clearance heights are set by TransGrid for operational and safety requirements, including bushfire risk management. This area would also be subject to ongoing maintenance during operation. This zone is a subset to the disturbance area.
EnergyConnect	An electrical interconnector of approximately 900 kilometres between the electricity grids of South Australia and New South Wales, with an added connection to north west Victoria. In NSW, EnergyConnect comprises two sections – Western Section (the proposal the subject of this EIS) and the Eastern Section (which will be subject to separate environmental assessment).
hazard/high risk tree	Hazard/high risk trees are defined under TransGrid maintenance procedures and include any tree or part of a tree that if it were to fall would infringe on the vegetation clearance requirements at maximum conductor sag of the transmission lines. Hazard/high risk trees shall be identified during detailed designed based on the transmission line conductor profile. All hazard/high risk trees located along the corridor would be removed.
permanent works footprint	Refers to the area that would be directly impacted by permanent components of the proposal, including all proposed infrastructure elements such as the proposed transmission line structures, any new substation infrastructure and permanent access tracks.
proponent, the	The proposal is proposed to be undertaken by NSW Electricity Networks Operations Pty Ltd as a trustee for NSW Electricity Operations Trust (referred to as TransGrid). TransGrid is the operator and manager of the main high voltage (HV) transmission network in NSW and the Australian Capital Territory (ACT), and is the Authorised Network Operator (ANO) for the purpose of an electricity transmission or distribution network under the provisions of the *Electricity Network Assets (Authorised Transactions) Act 2015*.
proposal, the	The proposal is known as 'EnergyConnect (NSW – Western Section)' as described in Chapter 5 and Chapter 6 of the EIS.
proposal study area	The study area for the EIS, which comprises a one-kilometre wide corridor between the SA/NSW border near Chowilla and Buronga substation and a 200 metre wide corridor between Buronga substation and the NSW/Victoria border at Monak, near Red Cliffs. It encompasses the indicative disturbance area and transmission line corridor, which has been applied to identify the constraints nearby to the proposal which may or may not be indirectly impacted by the proposal. Some access tracks could be located within the proposal study area.
transmission line corridor	A 200-metre corridor in which the final transmission line easement and transmission line infrastructure would be contained within. Construction activities associated with the transmission line would be expected to be contained within this area.

Proposal term	Definition
transmission line assessment corridor	A 120-metre corridor that has been assessed for operational assessments for operational noise and electric and magnetic fields (EMF).
transmission line easement	An area surrounding and including the transmission lines, which is a legal 'right of way' and allows for ongoing access and maintenance of the lines and will be acquired from landholders. Generally, the easement width would be up to 80 metres wide for the 330kV transmission line component and 50 metres wide for the 220kV transmission line component.

Executive summary

EnergyConnect

TransGrid (electricity transmission operator in New South Wales (NSW)) and ElectraNet (electricity transmission operator in South Australia (SA)) are seeking regulatory and environmental planning approval for the construction and operation of a new High Voltage (HV) interconnector between NSW and SA, with an added connection to north west Victoria. Collectively, the proposed interconnector is known as EnergyConnect.

EnergyConnect comprises of several sections that would be subject to separate environmental planning approvals under the relevant jurisdictions. It includes:

- NSW sections including:
  - Western Section, which would extend from:
    - the SA/NSW border (near Chowilla in SA) to TransGrid's existing Buronga substation
    - Buronga substation to the NSW/Victoria border at Monak (near Red Cliffs in Victoria)
  - Eastern Section, which would extend from the Buronga substation to the existing Wagga Wagga 330kV substation
- a Victorian Section, which would extend from the NSW/Victoria border to Red Cliffs substation
- a SA Section, which would extend from Robertstown to the SA/NSW border.

Planning approvals process

An Environmental Impact Statement (EIS) was prepared to support TransGrid's application for approval of the proposal in accordance with the requirements of Division 5.2 of the *Environmental Planning and Approvals Act 1979* (EP&A Act). The EnergyConnect – Western Section EIS was placed on public exhibition by the NSW Department of Planning, Industry and Environment (DPIE) between 30 October 2020 and 10 December 2020. During the exhibition period, interested stakeholders and members of the community were able to review the EIS online or at display locations, participate in consultation and engagement activities, and make a written submission to DPIE for consideration in its assessment of the proposal (refer to Section 3).

Following the conclusion of the public exhibition period, TransGrid have prepared a Submissions Report (this document) for the proposal to address the issues raised in community and stakeholder submissions. TransGrid have also prepared a separate *Energy Connect (NSW – Western section) Amendment Report* (WSP, 2021a) (the Amendment Report) to document proposed design changes and additional environmental assessment undertaken since exhibition of the EIS.

Purpose of this Submissions Report

This Submissions Report considers the issues raised in all submissions received during the public exhibition of the EIS, as well as TransGrid's response to these issues. It also provides:

- an overview of the proposal and the key findings of the EIS
- a summary of the consultation activities undertaken prior to, during, and post public exhibition of the EIS, as well as activities proposed during the pre-construction, construction and commissioning phases
- a description and assessment of proposed changes to the proposal as it was presented in the EIS
- revised consolidated environmental mitigation and management measures for the proposal, adjusted in response to the submissions received and the proposed design changes.

Overview of submissions

Submissions from public authorities, organisations and the community were received by DPIE and provided to TransGrid for consideration. A total of 20 submissions were received, comprising:

- 15 submissions from public authorities
- two community submissions
- three organisation submissions.

Of the five submissions received from the community and organisations:

- one provided support for the proposal
- two submissions provided comment on the proposal
- two submissions objected to the proposal.

From the four community and organisation submissions received that provided comments or objected to the proposal, the issues raised as concerns were:

- impacts to biodiversity
- hazards and risks (bushfires and electric and magnetic fields (EMF)
- planning and statutory requirements
- justification regarding the need for the proposal
- impacts to heritage
- land use and property impacts.

Of the 15 public authority submissions received, none provided an objection to the proposal with all providing some comments. Key comments raised across the submissions included, but were not limited to:

- the need to further avoid and minimise impacts to vegetation associated with the proposal during construction and operation
- request for additional information regarding
  - the biodiversity offset strategy
  - the impacts of EMF exposure for some fauna species
  - heavy vehicle haulage routes
- impacts to heritage sites, in particular identified Potential Archaeological Development (PAD) sites
- request for forming up and sealing of certain road sections to minimise impacts from additional construction traffic
- confirmation of availability and location(s) for sourcing water during construction of the proposal including water licencing and access arrangements.

A more detailed breakdown of these issues is provided in Chapter 4 of this Submissions Report.

Design refinements to the proposal

Since the exhibition of the EIS, a series of design changes and refinements have been made to the proposal in response to both ongoing design investigations, submissions received and/or further work regarding outstanding issues previously identified in the EIS. A separate Amendment Report has been prepared following the exhibition of the EIS to describe the proposed changes, outline the justifications for the changes and provide a full assessment of the potential impacts. Where changes have been made as a result of a submission(s), a cross reference to the change has been made in this report.

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

Conclusions and next steps

It is proposed that the proposal, as described in Chapters 5 and 6 of the EIS, and as amended by the Amendment Report, should be submitted for determination by the Minister for Planning and Public Spaces.

The Minister will subsequently decide whether to grant approval, or to refuse the proposal, under Section 5.19 of the EP&A Act. Should the proposal be approved by the Minister, TransGrid would continue to consult with community members, government agencies and other stakeholders during the pre-construction, construction and commissioning phases (refer Chapter 3 of this Submissions Report for further details).

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1. Introduction

This chapter provides an overview of the proposal, the assessment and approval process and the purpose and structure of this report.

1.1 Background

1.1.1 What is EnergyConnect?

TransGrid (electricity transmission operator in New South Wales (NSW)) and ElectraNet (electricity transmission operator in South Australia (SA)) are seeking regulatory and environmental planning approval for the construction and operation of a new High Voltage (HV) interconnector between NSW and SA, with an added connection to north west Victoria. Collectively, the proposed interconnector is known as EnergyConnect.

EnergyConnect aims to secure increased electricity transmission between SA, NSW and Victoria, while facilitating the longer-term transition of the energy sector across the National Electricity Market (NEM) to low emission energy sources.

EnergyConnect has been identified as a priority transmission project in the *NSW Transmission Infrastructure Strategy* (NSW Department of Planning and Environment (DPE), 2018), linking the SA and NSW energy markets and would assist in transporting energy from the South-West Renewable Energy Zone to major demand centres.

EnergyConnect comprises of several sections that would be subject to separate environmental planning approvals under the relevant jurisdictions. It includes:

- NSW sections including:
  - Western Section (the proposal), which would extend from:
    - the SA/NSW border (near Chowilla in SA) to TransGrid's existing Buronga substation
    - Buronga substation to the NSW/Victoria border at Monak (near Red Cliffs in Victoria)
  - Eastern Section, which would extend from the Buronga substation to the existing Wagga Wagga 330kV substation
- a Victorian Section, which would extend from the NSW/Victoria border to Red Cliffs substation
- a SA Section, which would extend from Robertstown to the SA/NSW border.

1.1.2 What are the objectives of the proposal?

The primary objective for the proposal is to secure increased electricity transmission capacity between SA, NSW and Victoria of about 800 megawatts (MW) and facilitate the longer-term transition of the energy sector across the NEM to low emission energy generation sources. More specifically, the proposal aims to:

- lower power prices
- improve energy security
- increase economic activity
- support the transition to a lower carbon emission energy system
- support a greater mix of renewable energy in the NEM.

1.1.3 Proposal need and benefits

EnergyConnect has been identified as one of four priority transmission projects in the *NSW Transmission Infrastructure Strategy* (DPE, 2018), an immediate priority project in the 2018 ISP and a 'no regret' actionable project in the 2020 ISP. This is due to its ability to 'increase transfer capacity between SA and NSW by 750 MW, achieve fuel cost savings and unlock already stranded renewable investments' within the Renewable Energy Zones (REZs) in western NSW, SA and north-west Victoria (AEMO, 2020).

The proposal, which is an essential component of EnergyConnect, would enhance the energy transmission link between the SA, NSW and Victorian transmission networks, as it would:

- complete the missing transmission link between SA and NSW
- enhance the capacity of the network to provide electricity between NSW and Victoria
- enable the development of solar generation around Red Cliffs Terminal Station, and the export of this power to SA and NSW via EnergyConnect.

Further discussion regarding the need for, and benefits of, the proposal is provided in Chapter 2 of the Environmental Impact Statement (EIS).

1.2 The assessment and approval process

The NSW Minister for Planning and Public Spaces declared the NSW portions of EnergyConnect to be Critical State significant infrastructure (CSSI) under section 5.13 of the *Environmental Planning and Assessment Act* 1979 (EP&A Act) and by amendment to Schedule 5, clause 15 of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). As CSSI, the proposal requires approval from the NSW Minister for Planning and Public Spaces under Division 5.2, Part 5 of the (NSW) EP&A Act.

An EIS was prepared to support TransGrid's application for approval of the proposal in accordance with the requirements of Division 5.2 of the EP&A Act. The EIS was placed on public exhibition by the NSW Department of Planning, Industry and Environment (DPIE) for a period of 42 days, commencing 30 October 2020 and concluding on 10 December 2020.

During the exhibition period, interested stakeholders and members of the community were able to review the EIS online or at display locations, participate in consultation and engagement activities, and make a written submission to DPIE for consideration in its assessment of the proposal (refer to Chapter 3).

A referral under the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was also submitted on 27 May 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the proposal to be a controlled action on 26 June 2020 and that it would be assessed using the bilateral assessment process. As such, the proposal also requires approval from the Australian Minister for the Environment under the EPBC Act. This report would be provided to DAWE as part of the package of information to allow them to make their determination regarding the proposal.

1.3 Purpose and structure of this report

The Planning Secretary of DPIE provided copies of the submissions received to TransGrid. This Submissions Report has been prepared in accordance with the requirements for SSI under Division 5.2, Section 5.17(6) of the EP&A Act, which specifies that:

'The Secretary may require the proponent to submit to the Secretary:

a) a response to the issues raised in those submissions, and

b) a preferred infrastructure report that outlines any proposed changes to the State significant infrastructure to minimise its environmental impact or to deal with any other issue raised during the assessment of the application concerned.'

The report is structured as follows:

- an introduction to the report (Chapter 1)
- an overview of the proposal as exhibited (Chapter 2)
- a description of the consultation that was undertaken for the exhibition of the EIS and ongoing consultation activities planned (Chapter 3)
- an overview analysis of the submissions received, including numbers, types of submitters and key issues raised (Chapter 4)
- a summary of the issues raised in community, organisation and public authority submissions (Chapters 5 and 6) and responses to the issues raised
- updated mitigation measures and performance outcomes for the proposal (Chapter 7)
- an updated proposal evaluation and conclusion (Chapter 8)
- an overview of the community submissions, and where they have been responded to in the report (Appendix A)
- *a Community guide to the EIS for EnergyConnect (NSW-Western Section)* (Appendix B)
- *Route study: Port Adelaide to Buronga* (Rex Andrews, 2021) (Appendix C).

TransGrid have also prepared a separate Amendment Report to document proposed design amendments and additional environmental assessment undertaken following exhibition of the EIS (WSP, 2021a).

2. Overview of exhibited proposal

This chapter provides an overview of the proposal as described in the EIS that was placed on exhibition between 30 October 2020 and 10 December 2020, including the key features and proposed timing of the proposal and a summary of the key potential impacts.

2.1 Key features of the proposal

The key components of the proposal include:

- about 135 kilometres of new 330 kilovolt (kV) double circuit transmission line and associated infrastructure between the SA/NSW border near Chowilla and the existing Buronga substation
- an upgrade of the existing 22-kilometre 220kV single circuit transmission line between the existing Buronga substation and the NSW/Victoria border at Monak, near Red Cliffs in Victoria to a 220kV double circuit transmission line, and the decommissioning of the 220kV single circuit transmission line (known as Line 0X1)
- a significant upgrade and expansion of the existing Buronga substation to a combined operating voltage of 220kV/330kV
- a minor realignment of the existing X2 220kV transmission line, in proximity to the Darling River
- new and/or upgrade of access tracks as required
- ancillary works required to facilitate the construction of the proposal (e.g. laydown and staging areas, concrete batching plants, brake/winch sites, site offices and accommodation camps and associated connection to utilities and services).

The proposal is located in western NSW within the Wentworth Local Government Area (LGA), approximately 800 kilometres west of Sydney at its nearest extent. The proposal is around 160 kilometres in length.

An overview of the proposal is provided in Figure 2-1. Further details of the key components of the proposal are provided in Chapters 5 and 6 of the EIS.

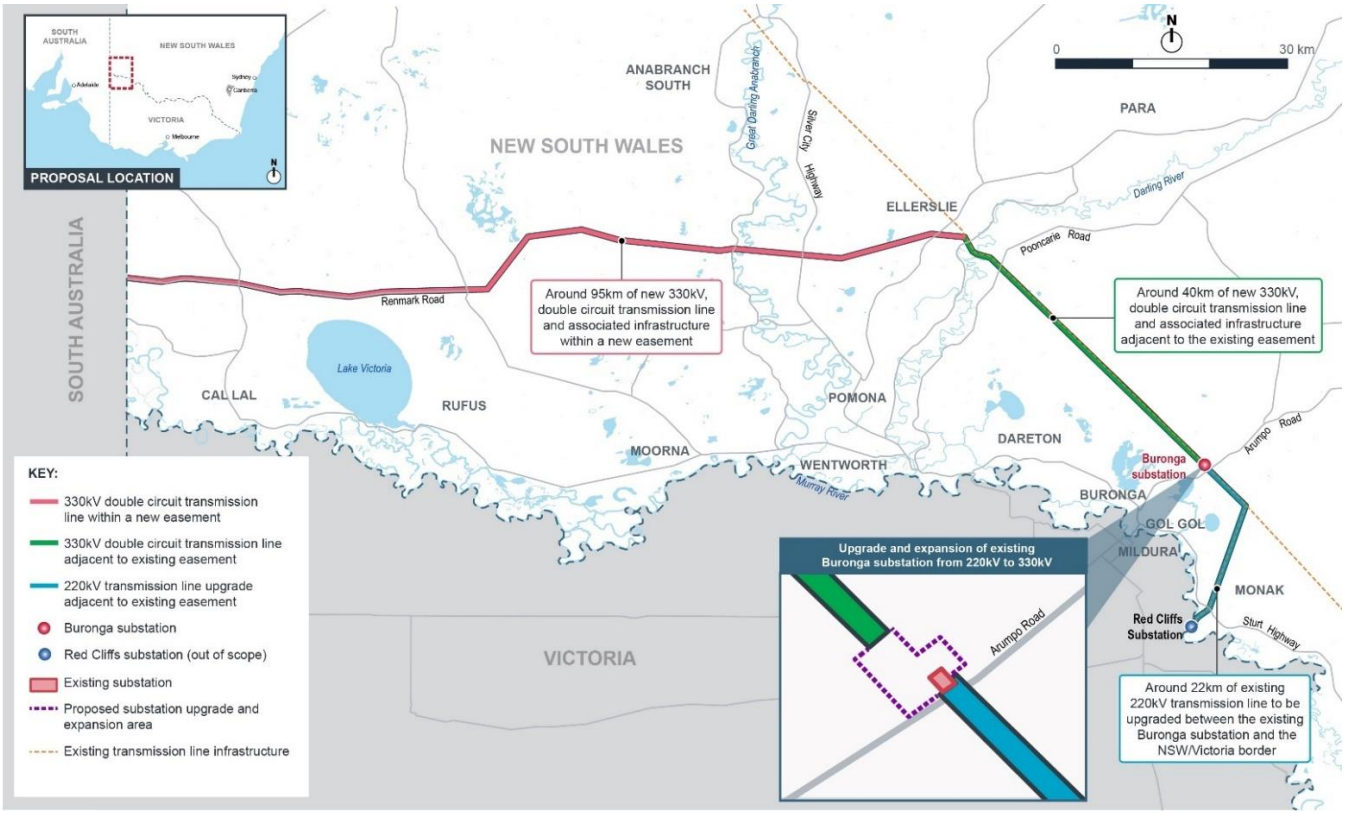


Figure 2-1 Overview of the proposal as shown in the EIS

2.2 Timing and commencement of operation

Subject to approval of the proposal, it is anticipated that construction of the proposal would commence in mid-late 2021. The construction of the transmission lines would be undertaken along multiple work fronts concurrently and take approximately 18 months. The Buronga substation upgrade and expansion would be delivered in two components and would be initially operational by the end of 2022. Site decommissioning and final rehabilitation to be completed by around mid-2024. The final construction program would be confirmed during detailed design.

2.3 Key impacts of the exhibited proposal

The EIS for the proposal identified a range of potential environmental impacts. Table 2-1 provides a summary of the potential positive or negative impacts that may occur during construction and operation of the proposal. Further details of the identified potential impacts of the proposal are provided in Part C of the EIS.

Table 2-1 Summary of potential impacts of the proposal as presented in the exhibited EIS

Issue	Potential impacts
Biodiversity	Based on the conservative indicative disturbance area, the proposal would have the potential to directly impact: > 20 native vegetation Plant Community Types (PCTs) > one endangered ecological community (EEC) listed under the (NSW) *Biodiversity Conservation Act 2016* due to the impacts on 607 hectares of native vegetation (of which 293 hectares would not be completely cleared) > 14 hectares of the Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions EEC (mostly comprised of native vegetation that is not high quality undisturbed native vegetation or habitat) The clearing of native vegetation would also result in direct impacts to 59 threatened species or their habitats. Other minor impacts associated with biodiversity are expected (such as impacts to connectivity, water quality and bird strike). Indirect impacts are considered unlikely given the retention of vegetation (up to two metres in height) within the easement providing a buffer to areas subject to direct and permanent loss of native vegetation.
Aboriginal heritage	The proposal has the potential to directly and/or indirectly impact Aboriginal sites and Potential Archaeological Deposits (PADs) including: > three Aboriginal sites (PEC-W-74 and PEC-W-75), which are isolated finds with low scientific significance at the Anabranch South main construction compound and accommodation camp site > one PAD (PEC-PAD-27) at the Buronga substation upgrade and expansion site > up to 26 PADs, 77 Aboriginal sites (of low and moderate scientific significance) and 17 potential scarred trees within the indicative disturbance area along the transmission line corridor.
Non-Aboriginal heritage	The transmission line corridor passes through the curtilage of three locally listed heritage items, being the Nulla Woolshed, the Nulla Homestead and Sturts Billabong. These partial impacts would not impact the significance of these heritage items, and would not directly impact the built form of the Nulla Woolshed or the Nulla Homestead. An unlisted heritage item, being a survey tree, was found during survey work but would not be directly impacted by the indicative disturbance area.

Issue	Potential impacts
Land use and property	Construction of the proposal would require the acquisition and/or temporary leasing of land. This may temporarily disrupt agricultural land uses within and surrounding the proposal study area. Operation of the proposal would result in permanent land use changes due to the new or modified transmission line easements, access tracks and expanded and upgraded Buronga substation. The easements may restrict certain agricultural activities and/or require different methodologies to be adopted. However, the overall impact on existing agricultural activities is expected to be minor, particularly as grazing activities would be able to continue within the easements. There are also biosecurity risks that animal diseases, plant diseases, feral pests and (especially) weeds could be introduced or spread during the construction and operation of the proposal through vehicle, machinery or personnel movements.
Landscape character and visual amenity	Impacts to views during construction and operation would predominantly range from negligible to low, with moderate impacts to views within the vicinity of Lake Victoria due to the construction of new transmission lines and the visual sensitivity of these areas, and along Arumpo Road due to the upgrade and expansion of the Buronga substation and the scale of change. Distances to closest private properties from the transmission line corridor would range from around five kilometres to 350 metres. Impacts would depend on the distance to the transmission line corridor, as well as presence of vegetation or intervening terrain.
Social and economic	Potential social and economic impacts associated with the construction of the proposal would include: > temporarily increase the population and change the composition of the community in the Wentworth and Mildura LGAs due to the incoming construction workforce > increased competition for existing services and social infrastructure, and available housing stock, in the Wentworth LGA and nearby Mildura > provision of opportunities for local and regional procurement of services and employment during construction, which has the ability to benefit the wider community. During operation, the proposal would facilitate enhanced security and reliability of the energy supply with associated social and economic benefits to consumers at the State level across NSW, SA and Victoria, and would stimulate further investment in local economies, and in particular in the energy sector. Any interest in land which is acquired for the project, would be carried out in accordance with the *Land Acquisition (Just Terms Compensation) Act* 1991.
Hydrology, flooding and water quality	During construction, the proposal has the potential to result in minor localised impacts including changes in water flows due to the temporary works changing local runoff behaviour and increased sediment load from construction area runoff. During operation, the proposal is not expected to result in notable changes to flood levels, depths or velocities. An increase in impervious surfaces at the Buronga substation may increase pollutant loads, however potential water quality impacts would be minimised by an appropriately designed drainage system.
Air quality	Construction of the proposal may result in temporary minor and localised dust and gaseous emissions, and would be manageable. Air quality impacts during operation would be negligible.

Issue	Potential impacts
Noise and vibration	All construction scenarios modelled have the potential to result in noise impacts. A summary of the predicted impacts included: > Site establishment, earthworks and civil construction works are predicted to generate the highest noise levels at the most affected receivers. No sensitive receivers would be highly noise affected. However, exceedances are predicted at six sensitive receivers during standard construction hours, and up to 22 sensitive receivers when works are conducted outside standard construction hours. > The typical noise levels experienced during construction are expected to be below predicted noise levels and each receiver would only be affected for a short duration. > There is potential that vibration intensive equipment could be used within the minimum working distances, however, the risk of vibration impacts would be minimised through refinement of the construction methodology. > As a result of construction traffic, road traffic noise levels on some roads may experience an increase of more than 2 dB (with a maximum increase of 7.1 dB on Renmark Road) due to relatively low existing traffic volumes. However, the overall road noise levels are predicted to comply with relevant criteria for all assessed roads at sensitive receivers. During operation, no sensitive receivers are expected to experience audible noise above the adopted criteria of 35 dBA from operation of the transmission lines in fair weather. However, three residential receivers would be within the 'worst-case' audible noise risk zone during wet weather conditions and are at risk of experiencing noise levels that would exceed the adopted criteria by 6 to 9 dB(A) (distance-dependent). The operational noise levels associated with the Buronga substation upgrade and expansion and road traffic noise are not expected to result in noise impacts.
Traffic and access	Construction of the proposal may result in up to 250 additional light vehicle movements and 80 additional heavy vehicle movements per day on the surrounding road network (during peak construction periods). However, this is not expected to adversely impact the capacity and serviceability of the road network. Traffic and access impacts during operation are expected to be negligible.
Hazards and risks	Hazards and risks during construction and operation of the proposal include: > use and storage of hazardous materials and chemicals > construction or maintenance activities close to active electrical infrastructure > the risk of bushfire to or caused by the proposal > electric and magnetic fields surrounding electrical infrastructure.
Soil, contamination and groundwater	The proposal may result in soil erosion or compaction from construction or maintenance activities as well as localised contamination from leaks and spills. Potential impacts to groundwater due to construction may occur where the depth of excavations for transmission line structures intersect the level of groundwater, and dewatering is required. However, any dewatering would be limited to discrete locations, temporary and managed to minimise impacts to groundwater levels.

Issue	Potential impacts
Waste management and resource use	During construction, the proposal would generate waste and require use of common resources, including about 616 megalitres of water that would be sourced from existing water infrastructure. Minimal operational waste or resource impacts are anticipated during the operation of the proposal.
Cumulative impacts	There is the potential for cumulative impacts (such as noise and vibration and traffic) associated with EnergyConnect where there would be direct interfaces between each section of EnergyConnect, and broader regional impacts with respect to biodiversity. Cumulative impacts with other major projects in the vicinity of the proposal would include cumulative traffic, and noise and vibration impacts. However, any impacts would be minor and manageable.

3. Consultation undertaken during and after the EIS exhibition

This chapter describes the consultation activities undertaken prior to, during and post exhibition of the EIS for the proposal, and the consultation that would be undertaken during future stages of the proposal. TransGrid believes that effective communication and engagement are important to minimising environmental and community impacts which could occur as a result of the proposal.

3.1 Overview of consultation activities to date

During the public exhibition period consultation activities were conducted to involve stakeholders and the broader community in exhibition activities, provide guidance on the submissions process, and encourage parties to engage with the information in the EIS and make a submission accordingly. Submissions on the EIS were made directly to DPIE. Submissions were accepted by DPIE via electronic submission or by post.

The EIS was placed on DPIE Major Project website providing access of all EIS documentation to the public (https://www.planningportal.nsw.gov.au/major-projects/project/25821). The project-specific page on TransGrid's website also included a link to the Major Projects portal for ease of access. Additional engagement activities and tools used to encourage participation during exhibition included:

- information on the EnergyConnect website (transgrid.com.au/energyconnect). This included an overview of the proposal and provided key links including to the DPIE website and other available documentation such as to DPIE website and other available documentation
- an online, interactive digital EIS – an interactive data portal and map was made available (https://western-digitaleis.transgrid.com.au/). The digital EIS provided an online tool to explore the key outcomes of the EIS through interactive mapping and provided another way to view the EIS
- community information sessions during the exhibition period at the following locations:
  - Buronga
    Wednesday 4 November, Buronga Midway Centre, Midway Drive, Buronga
    8:00am – 11:00am and 4:30pm – 7:30pm
  - Wentworth
    Thursday, 5 November Visitor Information Centre (Memorial Room), 66 Darling Street, Wentworth
    8:00am – 11:00am and 4:30pm – 7:30pm
- updates to government agencies, local council, Federal and State MPs and other stakeholders
- TransGrid placed advertisements in major newspapers across the region (specifically *The Mildura Weekly, Sunraysia Daily* and *New South Western Standard Bulletin*), encouraging attendance at the community information sessions. A total of 11 advertisements appeared across these publications during:
  - week commencing 5 October
  - week commencing 19 October
  - week commencing 26 October
- preparation of a *Community guide to the EIS for EnergyConnect (NSW-Western Section)* to provide an overview of the proposal and assist stakeholders understand the EIS documentation (Appendix B)
- social media and digital advertising on:
  - Sunraysia Daily website (18-31 October) and Facebook page (18 and 25 October)
  - Mildura Weekly website (18-31 October) and Facebook page (18 and 25 October)
- ongoing engagement through the EnergyConnect telephone number (1800 490 666) and proposal email address (pec@transgrid.com.au).

Examples of the public information produced for the exhibition of the proposal are shown in Figure 3-1 to Figure 3-4.

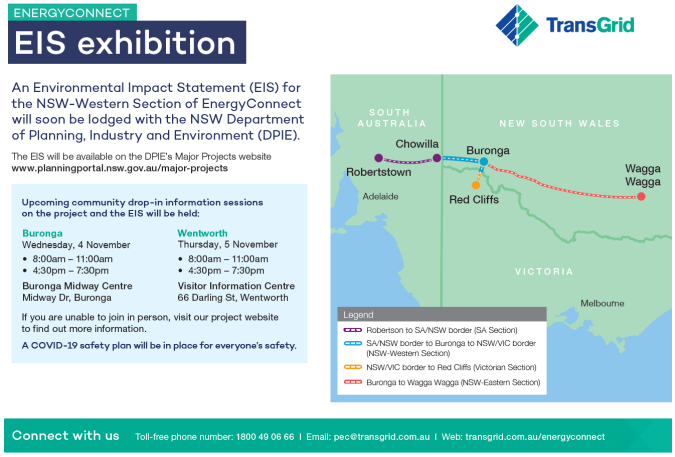


Figure 3-1 Newspaper advertisement

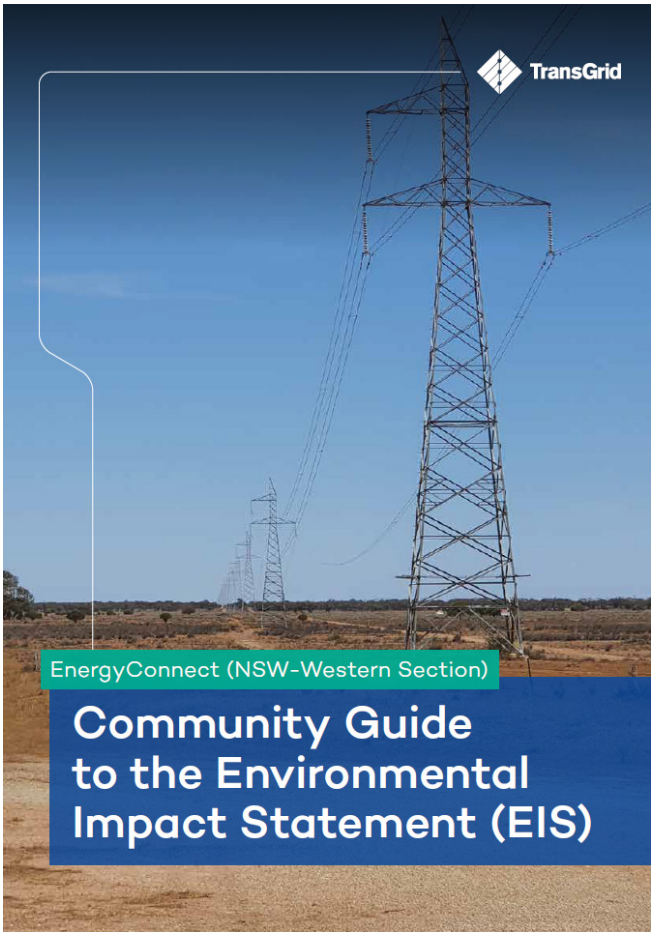


Figure 3-2 Community guide to the EIS

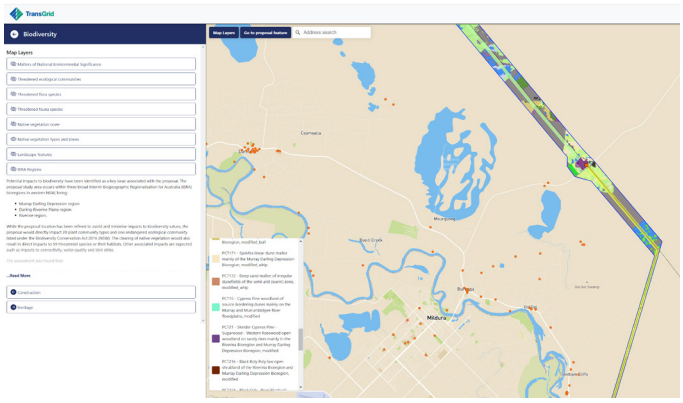


Figure 3-3 Screenshot of the online interactive digital EIS

Figure 3-4 Community information session at Buronga

3.2 Consultation following exhibition of the EIS

Since the exhibition of the EIS, consultation with relevant stakeholders has been carried out in support of the changes and assessments presented in the Amendment Report. An overview of the consultation and outcomes of this engagement is documented in the Amendment Report.

3.3 Ongoing consultation

Consultation with the community and key stakeholders will be ongoing in the lead up to and during construction of the proposal. The consultation activities will aim to provide:

- a high level of awareness of all processes and activities associated with construction of the proposal
- accurate and accessible information and a timely response to issues and concerns raised by the community
- opportunities for feedback and input.

The EnergyConnect phone number (1800 490 666) and email address (pec@transgrid.com.au) would continue to be available during construction. Targeted consultation methods, such as letters, notifications, signage and face-to-face communications would also continue. The TransGrid website and social media platforms would also include updates on the progress of the proposal.

The preferred construction contractor for the proposal would be required to prepare and implement a community communications strategy and complaints management procedure during construction to manage communications with the community and any community concerns or feedback. This strategy and procedure would be approved by TransGrid prior to construction commencing.

4. Overview of submissions

This chapter provides an overview of the submissions received, including a breakdown of the types of submitters, the number of submissions received, and the key issues raised in submissions.

4.1 Submissions received

During the public exhibition of the EIS, submissions from public authorities, organisations and the community were received by DPIE. All submissions received were provided to TransGrid for review and consideration.

A total of 20 submissions were received and registered by DPIE. A breakdown of the submissions by type of stakeholder is provided in Table 4-1.

Table 4-1 Breakdown of submissions received by submitter type

Submitter type	Number of submissions received
Community and organisation submissions	
Community members/individuals	2
Organisations	3
Total community and organisation submissions	***5***
Public authorities	
State government departments/agencies	14
Wentworth Shire Council	1
Total public authority submissions	***15***

4.2 Approach to analysis of submissions

An assessment of each community and organisation submission received during exhibition of the EIS was undertaken, with each submission being numbered and individually reviewed to understand the issues raised.

A unique identifier was assigned to each submitter to link the summary of the issue and the corresponding response (refer to Appendix A). The content of each community submission was then reviewed and categorised according to the key issues (e.g. noise and vibration) and sub-issues (e.g. construction noise) raised. A full list of the categories used is provided in Table 4-2. These categories formed the basis for the structure of responses to the submissions, which are issue-specific. Each issue identified in Chapter 5 is presented as a summary of similar issues raised by individual submissions. This means that, while the exact wording of a particular submission may not be presented in the summary of the issue, the intent of each individual issue raised has been captured. A response has been provided to each grouped issue summary in Chapter 5 of this report.

Public authority submissions were considered separately to community submissions (including submissions from organisations). Where relevant, input to the responses was sought from the specialists who assisted with preparation of the EIS.

The content of each public authority submission was reviewed and a summary of each key issue raised provided in this submissions report. Issues raised by public authority stakeholders were not grouped, as the issues raised were largely dependent on each stakeholder's technical discipline area and/or assets. Responses to each public authority issue is provided in Chapter 6 of this report.

4.3 Support/objection

Of the five submissions received from the community and organisations:

- one submission provided support for the proposal
- two submissions provided comments on the proposal
- two submissions objected to the proposal.

Of the 15 submissions from public authority stakeholders, none provided an overall objection to the proposal, with all providing some level of comment or recommendations regarding the proposal.

4.4 Review of community and organisation submissions

A summary of the issues raised in the community and organisation submissions is provided in Table 4-2 and Figure 4-1.

As most of the submissions raised more than one issue, the number of issues identified is greater than the total number of submissions received. The percentages in Table 4-2 were calculated by determining the number of times a key issue was raised in a submission compared to the total number of issues raised in the submissions. This shows that impacts to biodiversity was the most frequently raised issue (noting that this issue was only raised within two of the five community and organisation submissions overall).

Table 4-2 Summary of key and sub issues raised in community and organisation submissions

Key issue category	Sub-issue	Number of times issue raised
Biodiversity	Undertaking assessment during drought conditions	1
	Impact assessment approach	1
	Impact assessment – vulnerable species	1
	General biodiversity impacts	1
	Impact to Mallee vegetation	1
	Offset strategy	1
Hazard and risks	Bushfire risk – construction	1
	Bushfire risk – operation	2
	Impacts from electric and magnetic fields	1
Planning and statutory requirements	EIS process and documentation	1
	Detail provided in the EIS	1
Proposal justification and need	Benefits of EnergyConnect	1
	Economic assessment and value for money	1
Heritage	Impact assessment approach	1
	Impacts to Sturts Billabong	1
Land use and property impacts	Impact to agricultural farming land	2
	Impact to national parks and private conservation areas	1

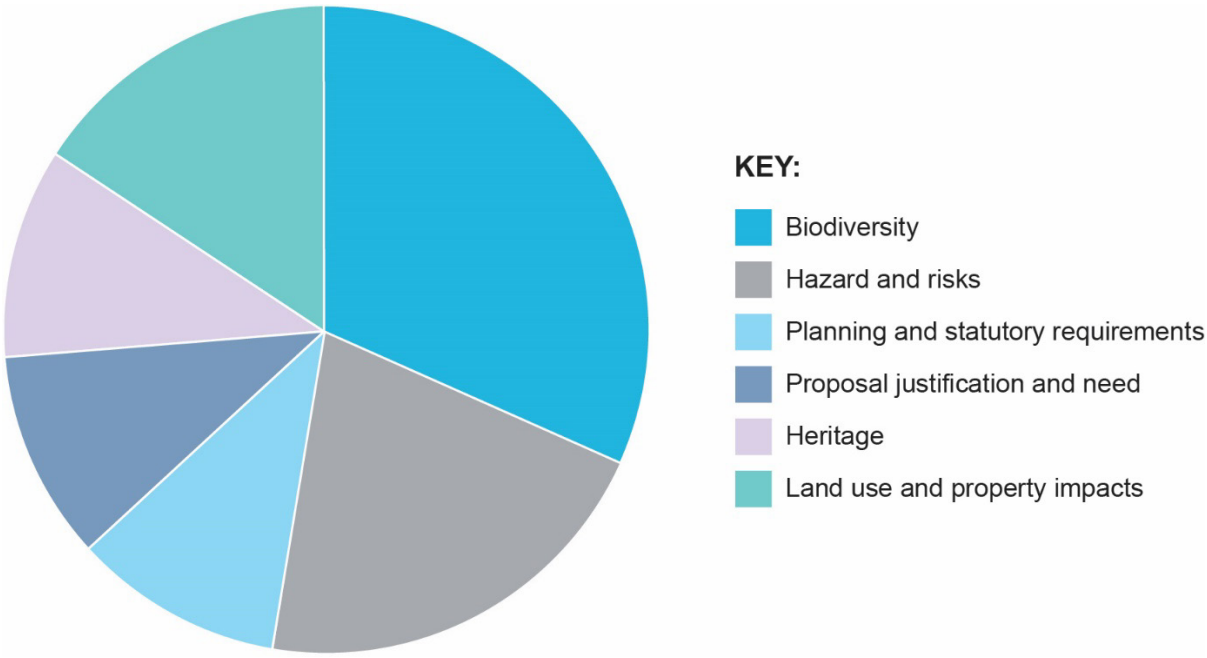


Figure 4-1 Breakdown of the key issues raised in community submissions

4.5 Review of public authority submissions

Responses to exhibition were received from the following public authorities:

- Heritage NSW – Aboriginal Cultural Heritage
- Heritage NSW – Heritage Council of NSW
- NSW Department of Planning Industry and Environment – Biodiversity Conservation Division
- NSW Department of Planning, Industry and Environment – Crown Lands
- NSW Department of Planning, Industry and Environment – Water and the NSW Natural Resources Access Regulator
- NSW Department of Primary Industries (Agriculture)
- NSW Department of Primary Industries (Fisheries)
- NSW Environmental Protection Authority (EPA)
- Transport for NSW
- WaterNSW
- Wentworth Shire Council
- Fire and Rescue NSW
- NSW Rural Fire Service
- The Murray-Darling Basin Authority
- Geological Survey of NSW – Mining, Exploration & Geoscience

Each public authority submission was reviewed and each individual issues raised by the relevant public authority was identified. These issues were then addressed in relation to the amended proposal. Details of each response to each public authority submission are provided in Chapter 6 of this report.

5. Response to community and organisation submissions

This chapter provides a summary of the issues raised by community and organisation submissions, and a response to the issues raised. As described in section 4.2, the issues raised were summarised and grouped according to the identified key issues and sub-issues, and responses are provided according to these categories. Appendix A provides an overview of the community and organisation submissions and a reference to where the issues raised in each submission have been addressed in this chapter.

5.1 Planning and statutory requirements

5.1.1 EIS process and documentation

Submission ID number(s)

5

Summary of issues raised

The submission noted that the exhibition period was too short to allow for proper public consultation and response due to factors such as:

- the impacts of COVID-19 reducing the availability of the general public to review and respond to the exhibited documentation
- the timing of the exhibition period occurring during a primary grain harvest period, impacting the ability of landholders to review documentation while undertaking farming activities
- the overall length of the EIS and associated technical papers.

Response

DPIE is responsible for setting the required exhibition timeframes for an EIS. Under Schedule 1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), the minimum public exhibition period for an EIS for State significant infrastructure under is 28 days. The EIS was on exhibition in excess of the statutory period between the 30 October 2020 and 10 December 2020, exceeding the required exhibition timeframe. During this period, electronic copies of the EIS and supporting technical papers were available on DPIE and TransGrid websites. This allowed for access to the documentation throughout the exhibition period.

While the exhibition did coincide with a harvesting period for some land owners, TransGrid also undertook an extensive consultation program with potentially affected landholders prior to the exhibition of the EIS which provided opportunities to comment on the proposal outside of the formal exhibition period (refer to Chapter 7 of the EIS).

While it is acknowledged that the EIS and technical papers prepared for the proposal was extensive, this information was developed in order to meet the environmental assessment requirements as set out by the Secretary and the level of assessment required to be accepted by DPIE as adequate for exhibition. It is considered that the structure of the document was appropriate to guide people throughout each of the components of the proposal and was considered sufficient to assist respondents to locate specific information within the EIS as needed. TransGrid also produced a *Community guide to the EIS for EnergyConnect (NSW-Western Section)* (refer to Appendix B) in order to assist stakeholders navigate the key aspects of the proposal as described in the EIS.

In order to assist with providing greater accessibility to the EIS, TransGrid developed an online, interactive digital EIS. This was intended to assist with providing opportunities to more easily navigate the large volume of material available. The interactive digital EIS and map was made available at the following link – https://western-digitaleis.transgrid.com.au/. The online tool allowed the community to explore the key components of the proposal and outcomes of the EIS through interactive mapping and provided an alternative way to view the key components of the EIS, while still providing access to the more detailed sections of the assessment.

The digital EIS also assisted with the ability of the public to review the provided documentation due to COVID-19 restrictions which limited the ability to hold more and/or larger public display opportunities.

5.1.2 Detail provided in EIS documentation

Submission ID number(s)

5

Summary of issues raised

The submission raised concern regarding the level of detail provided in the EIS, technical papers and associated documentation. It was the opinion of the submission that the EIS only presented an indicative proposal and construction methodology rather than refined details of elements such as transmission line structure locations or final easement arrangement. The submission commented that this approach did not allow for the associated environmental impacts to be determined.

Response

Chapter 5 of the EIS provided a description of the main elements of the proposal including all key components such as:

- transmission line structures, including heights and typical spacing
- transmission line arrangements including the proposed corridor within which the easement would be established
- transmission line access requirements
- core elements of the upgrade and expansion to the Buronga substation
- operation and maintenance requirements.

The purpose of the EIS was to provide a description of the proposal and overall design sufficient to assess the environmental impacts associated with the proposal. The EIS, the Submissions Report and the Amendment Report will inform DPIE's assessment of the proposal and ultimately the determination by Minister for Planning and Public Spaces. While subject to detailed design, the construction methodology presented in Chapter 6 of the EIS was considered to be sufficient to allow for identification and assessment of the potential construction impacts.

Chapter 5 and 6 of the EIS also noted that some aspects of the design would continue to be refined during detailed design as opportunities to improve and further avoid and/or minimise impacts are further investigated. Opportunities for refinement identified included:

- the location of the transmission line alignment, and micro-sitting of the transmission line structures connecting with the Buronga substation upgrade and expansion area
- construction facilities along the transmission line alignment within the proposal study area.

For example, the EIS identified that there are likely to be opportunities for refinement of the transmission line structure locations during ongoing field validation of constraints, design development or as a result of government, landholder, community or other stakeholder feedback (including feedback received during the exhibition period). This would also inform the final placement of access tracks and ancillary construction support facilities along the transmission line corridor.

The final design and construction methodology would be carried out in accordance with the approval and the EP&A Act and would be guided by:

> the hierarchy of constraints to avoid and/or minimise impacts
> the mitigation measures identified in the EIS (Chapter 23).

The level of assessment undertaken is considered appropriate and was accepted by DPIE as adequate for exhibition and the requirements of the Secretary's Environmental Assessment Requirements (SEARs).

5.2 Proposal need and justification

5.2.1 Benefits of EnergyConnect

Submission ID number(s)

2

Summary of issues raised

The submission objected to the aims and objectives for the proposal, stating that the EnergyConnect project would not provide any benefits.

Response

As stated in Section 1.2.2 of the EIS, the aims of EnergyConnect are to:

> lower power prices
> improve energy security
> increase economic activity
> support the transition to a lower carbon emission energy system
> support a greater mix of renewable energy in the NEM.

This proposal, which is an essential component of the wider EnergyConnect project, would enhance the energy transmission link between SA, NSW and Victorian transmission networks, joining the outreaches of the state networks at Chowilla in SA, Buronga in NSW and Red Cliffs in Victoria.

By expanding power transfer capability between regions, interconnectors such as the current proposal can enable the efficient sharing of generation resources within the NEM and can encourage more efficient investment in low-cost generation sources. This can allow overall demand and system reliability requirements to be met at the lowest cost. Allowing for a greater sharing of resources across regions would also help smooth demand and supply fluctuations, which would improve electricity security and reliability within the NEM and alleviate pressure on supply during peak demand periods.

As a result, EnergyConnect would reduce wholesale market electricity costs in SA, as soon as it can be built, by enabling electricity demand in SA to be met using low-cost generating capacity that currently exists on the east coast of Australia. This would also reduce SA's reliance on increasingly expensive gas generation, price volatility and trading risk. An updated assessment of the impact of EnergyConnect on wholesale electricity prices using updated modelling assumptions was also prepared by AEMO as part of the *Final Integrated System Plan 2020* (FTI Consulting ,2020).

In the longer term, an enhanced ability to import low-cost power to NSW, including significant high-quality renewables, provides market benefits by enabling supply in NSW to be met at a lower overall cost as existing coal-fired plants retire. This is particularly the case for the new interconnection between SA and NSW, as NSW is forecast by AEMO to experience the greatest retirement of coal plant after 2030 and would otherwise rely on higher-cost sources of generation to fill the resulting supply gap. For example, EnergyConnect is scheduled to be constructed around the time the coal-fired Liddell power station is due to retire from the market in NSW, providing timely additional transfer capacity to allow for the sharing of reserves between SA, NSW and north west Victoria (ElectraNet, 2019).

The upgrade of the existing transmission line between Buronga and Red Cliffs would also enhance the capacity of the network to provide electricity between NSW and Victoria and enable the development of solar generation around Red Cliffs Terminal Station in the Murray River REZ. This power can then be exported to SA and NSW via EnergyConnect.

5.2.2 Economic assessment and value for money

Submission ID number(s)

2

Summary of issues raised

The submission questioned the costs for the proposal, stating that there had been no substantial cost benefit analysis undertaken.

Response

As identified in Section 2.5 of the EIS, a detailed economic cost-benefit analysis was prepared for the broader EnergyConnect project as part of the Regulatory Investment Test for Transmission (RIT-T) process for the Australian Energy Regulator (AER). This analysis showed that EnergyConnect is expected to:

- deliver net market benefits of approximately $900 million over 21 years (in present value terms) including wholesale market fuel cost savings in excess of $100 million per year as soon as it is energised (primarily from avoided expensive gas-fired generation in SA)
- provide diverse low-cost renewable generation sources to help service NSW demand going forward, particularly as existing coal-fired generators retire
- avoid substantial capital costs associated with enabling greater integration of renewables in the NEM
- generate sufficient benefits to recover the proposal capital costs within nine years of completion
- deliver annual savings of $180 million for NSW households on power bills
- create economic benefits of around $4 billion in NSW (in present value terms)
- generate around 600 jobs (including around 80 regional jobs) during construction
- improve the security, reliability and resilience of the power network in SA and NSW
- improve the ability of parties to obtain hedging contracts in SA and help relieve the tight liquidity in hedging markets currently.

It is also noted that the EIS stated a generation of around 400 jobs (in the above list) however this has been revised following the exhibition of the EIS. The change to the estimated number of construction staff is presented in greater detail in Section 2.2 of the Amendment Report.

With regard to job creation, over the period from 2021 to 2040, it is projected that approximately 18,800 employee years of full time equivalent direct and indirect jobs would be created by EnergyConnect (Acil Allen, 2019). The proposal is an essential component of the overall EnergyConnect project in order to provide the above benefits.

5.3 Proposal alternatives

5.3.1 Constraints mapping

Submission number(s)

5

Summary of issues raised

The submission stated that the Tier 1, 2 and 3 constraints that were used as part of the constraints assessment presented in Chapter 3 of the EIS (in particular the constraints shown on Figure 3-3) were mapped incorrectly.

The submission noted that the mapping did not appear to show all private conservation areas and important agricultural land/horticultural land as part of the constraints identified (in particular to the south of the Buronga substation).

Response

Section 3.3 of the EIS identified that Tier 1 and Tier 2 constraints (as raised by the submission) were used as the basis for the broader corridor identification processes. Tier 3 constraints were also used predominantly for refinement of identified corridor options.

The underlying source of the tiered constraints information included a mix of existing, publicly available geospatial datasets to develop the tiered constraints and opportunities listed above, together with incorporation of feedback received from early stakeholder engagement activities (where available). This information used up-to-date information as was current at the time of the options assessment.

Following the options assessment, further ground truthing within the preferred corridor was undertaken with the results of the updated information (where identified as being different to the desktop mapping) presented in the EIS and the associated technical reports.

It should also be noted that, within the area identified by the submission as containing missing information, the proposal intends to travel parallel to the existing transmission line easement and infrastructure. This would assist in minimising impacts to any land uses within this area, including impacts to any potential private conservation areas and important agricultural land/horticultural land.

TransGrid has also sought local knowledge to identify current and potential future constraints within the preliminary alignment corridor by working with a number of stakeholders in the region, including:

- all landholders within the proposal study area
- traditional owner groups
- periodic briefings with Wentworth Shire Council and the offices of state and federal MPs throughout the development of the project
- Western Landcare
- NSW Farmers
- The Department of Defence
- mineral and resource tenement holders within the proposal study area.

5.4 Community and stakeholder engagement

5.4.1 Consultation for the proposal

Submission ID number(s)

5

Summary of issues raised

The submission requested that a public hearing be held regarding the proposal.

Response

The purpose of a public hearing is to increase the public scrutiny of the merits of State significant development projects, obtain independent expert advice on complex technical matters, and give the community an additional opportunity to provide feedback to a project. The Minister for Planning Public Spaces may ask the Independent Planning Commission to hold a public hearing into the carrying out of a State significant development. This process does not typically apply to State significant infrastructure projects.

As described in Chapter 7 of the EIS and Chapter 3 of this Submissions Report, a number of consultation activities have been undertaken throughout the development of the proposal, both prior to and during the exhibition of the EIS. These activities have provided a range of stakeholders including government, businesses and the general community opportunities to provide comment and feedback regarding the proposal.

In addition, consultation with the community and key stakeholders would be ongoing in the lead up to and during construction. The consultation activities would aim to provide:

- the community and other interested stakeholders with a high level of awareness of all processes and activities associated with construction
- accurate and accessible information and a timely response to issues and concerns raised by the community
- opportunities for feedback and input.

Based on the level of consultation and community involvement to date (refer to Chapter 7 of the EIS and Chapter 3 of this Submissions Report), it is not considered that a public hearing regarding the proposal is required.

5.5 Biodiversity

5.5.1 Assessment during drought conditions

Submission ID number(s)

5

Summary of issues raised

The submission stated that a significant amount of the biodiversity assessment and field verification of vegetation was undertaken in a period of severe drought with very little groundcover. It was commented on in the submission that the vegetation found during field investigations was therefore not representative of the flora typically present within these areas. The submission requested that further assessment now be undertaken following recent rain.

Further, the submission questioned the adequacy of the bird surveys undertaken, particularly in relation to Mallee Fowl, given they were conducted in severe drought conditions.

Response

The collection of biodiversity survey information took into account potential impacts as a result of recent drought conditions.

As part of the assessment, WSP reviewed existing data that had been collected during extreme drought conditions, acknowledging that the use of these plots may result in an inaccurate reflection of vegetation integrity within the proposal study area. Given this, WSP proposed that additional BAM plot data would be collected if suitable rainfall occurred during the project survey period.

During March and April 2020 above-average rainfall was recorded within the proposed study area. Additional WSP BAM plots were collected during May, July and September 2020. These plots were used to generate vegetation integrity scores except for the inclusion of three previously sourced plots that were deemed representative. Further detail regarding methodology to account for drought conditions is provided in the NSW DPIE-BCD response provided in Section 6.3 of this Submissions Report.

With respect to Malleefowl, *Technical paper 1 – Biodiversity Development Assessment Report* stated that two disused Malleefowl nest mounds were discovered within the indicative disturbance area. One mound was observed in the western mallee habitat, the second in mallee at Trentham Cliffs in the section of the indicative disturbance area that diverts south from the existing indicative disturbance area toward the Murray River crossing to Red Cliffs.

It is considered likely that Malleefowl occur within mallee woodland habitats associated with the proposal study area, but in low densities, as the quality of understorey strata is not sufficient to support a thriving population. Extensive targeted bird surveys were undertaken in drought and post-drought conditions and the recording of 10 threatened bird species in addition to the Malleefowl mounds is reflective of the fauna survey effort applied.

5.5.2 Impact assessment approach

Submission ID number(s)

5

Summary of issues raised

The submission questioned the use of NSW Government mapping overlays noting that the existing data for western NSW at the scale available for biodiversity mapping was not accurate enough to be used for the biodiversity impact assessment.

The submission also raised concern that the EIS stated that, among other investigations, biodiversity investigations would be undertaken during early works, noting that these should occur before and not after the proposal is considered for approval.

The submission also stated that the assessment relied on a very small number of vegetation site surveys and mapping.

Response

NSW Government mapping overlay data was only part of the information used as a basis for the assessment of biodiversity impacts. The methodology adopted for the impact assessment, as detailed in *Technical paper 1 – Biodiversity Development Assessment Report*, was supported by both:

- a desktop assessment, including a review of relevant databases (for an area of 10 kilometres around the proposal study area), vegetation maps, aerial photography, published literature and species expert assessments, to identify threatened species, populations, communities and their habitats with a likelihood of occurrence in areas that may be impacted by the proposal
- a substantial program of field surveys and ground truthing within the whole of the proposal study area across late 2018, 2019 and 2020, including vegetation integrity plots, targeted flora and fauna surveys, fauna habitat assessments, diurnal bird surveys, fauna trapping and anabat surveys.

With respect to the concern that surveys for biodiversity investigations would be undertaken during early works, these surveys are in addition to the extensive surveys that were undertaken between 2018 and 2020. The field surveys that were undertaken were undertaken in general accordance with the relevant guidelines including:

- the *NSW Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft)* (Department of Environment and Conservation 2004)
- *NSW Guide to Surveying Threatened Plants* (Office of Environment and Heritage, 2016)
- *Surveying threatened plants and their habitats; NSW guide for the BAM* (Department of Planning, Industry and Environment, 2020).

The fauna and flora surveys were undertaken by qualified ecologists, with ground truthing occurring along the whole of the proposed study area throughout the survey period, providing substantial vegetation site surveys and mapping. The survey was considered sufficient to meet the requirements of the BAM.

5.5.3 Impact assessment – vulnerable species

Submission ID number(s)

5

Summary of issues raised

The submission stated that the EIS did not adequately consider the impact of the proposal on a number of vulnerable species including:

- Malleefowl
- Regent Parrot
- Numbats
- Bilbies
- Greater Stick-nest rat.

Response

Section 6.2.3 of *Technical paper 1 – Biodiversity Development Assessment Report* (BDAR) provided assessment of both the Malleefowl and Regent Parrot species. These species were also considered as part of an assessment of Matters of National Environmental Significance (MNES) under the EPBC Act. The results of the MNES assessments were presented in Appendix E of Technical paper 1. The extent of the assessment presented was considered to be appropriate to assess the potential impacts of the proposal on these species. Surveys in accordance with survey guidelines were completed, and this included extensive multi-seasonal fauna surveys along the entire proposal study area and indicative disturbance area (refer to the survey effort maps in Appendix A of the BDAR).

With respect to Malleefowl, Section 6.3 of Technical paper 1 stated that two disused Malleefowl nest mounds were discovered within the indicative disturbance area. One mound was observed in the western mallee habitat, the second in mallee at Trentham Cliffs in the section of the indicative disturbance area that diverts south from the existing indicative disturbance area toward the Murray River crossing to Red Cliffs. No individuals of this species were recorded. The assessment considered that it was likely that Malleefowl occur within mallee woodland habitats associated with the proposal study area, but in low densities, as the quality of understorey strata is not considered to be sufficient to support a thriving population. Extensive targeted bird surveys were also undertaken in drought and post-drought conditions. The recording of 10 threatened bird species in addition to the Malleefowl mounds is reflective of the fauna survey effort applied. Any Malleefowl mounds that are identified would be avoided during detailed design.

Further detailed assessment and discussion regarding the potential impacts to the Malleefowl is provided in Section 6.2 and Appendix E, Section E-1.2.9 of Technical paper 1.

With respect to the Regent Parrot, this species was recorded as part of the extensive multi-seasonal surveys undertaken throughout the proposal study area and indicative disturbance area. It was assessed as an affected species and 154 species credits are proposed to be provided as offsets for impacts to this species. The Regent Parrot was recorded during surveys and is known to utilise the proposal study area and habitat within the locality. The proposed action would impact on Riverine Woodland habitat and foraging habitat including Mallee Woodland that is considered important to locally breeding birds. The Riverine Woodland along the Murray River and the Mallee woodland within 20 kilometres of nesting sites (Murray River) is identified as critical habitat for this species. However, in the context of available habitat along the Murray River and the adjacent Mallee foraging grounds, the impacts from the proposal were considered to be low in magnitude. The assessment presented in Technical paper 1 concluded that the proposal is unlikely to result in the long-term decrease in the size of an important population or reduce the area of occupancy for this species. As such, given the impacts are relatively small in comparison to the available habitat the proposal is considered unlikely to significantly impact the Regent Parrot.

Further detailed assessment and discussion regarding the potential impacts to the Regent Parrot is provided in Section 6.2 and Appendix E, Section E-1.2.13 of Technical paper 1.

With respect to the Numbat, Greater Bilby and Greater Stick-nest rat species, the assessment determined that there was a low likelihood of occurrence of these species in the locality based on habitat characteristics in the proposal study area and were not considered further in the assessment. All three species are considered unlikely to persist within the locality and are thought to be extinct in NSW.

Additionally, no change to the potential impact on these species has been identified as a result of the amended proposal (as described in the Amendment Report).

5.5.4 General biodiversity impacts

Submission ID number(s)

2

Summary of issues raised

The submission raised concern regarding the general impact on biodiversity.

Response

It is acknowledged that the proposal would result in various impacts to biodiversity along the alignment.

The proposal has been designed, to the greatest extent practicable, to avoid and minimise impacts to all identified environmental aspects, including biodiversity. This has been achieved through several aspects including:

- selection of the corridor alignment – including consideration of critical areas of vegetation to avoid
- proposal design refinement – including further detailed investigation of corridor and proposal design to further minimise impacts to vegetation (including incorporation of field survey results)
- locating the final transmission line easement parallel with existing transmission lines or road corridors or along property boundaries, where possible
- mitigation measures – including identification of measures to minimise the potential impacts of the proposal during detailed design, construction and operation.

The detailed design and construction methodology would be further developed with the objective of further avoiding and minimising potential impacts on the local and regional environment, and the local community. Opportunities for refinement to minimise vegetation impacts would include:

- further consideration of the location of the transmission line alignment based on feedback provided in community and agency submissions
- ongoing micro-sitting of the transmission line structures along the alignment to avoid areas of more sensitive vegetation.

While impacts to vegetation have been avoided and minimised through design, some residual impacts would remain. These would be addressed through the implementation of the proposed mitigation measures, and the potential residual impacts are considered manageable and/or would be offset.

5.5.5 Impact to Mallee vegetation

Submission ID number(s)

5

Summary of issues raised

The submission questioned the assessment of impacts presented on areas of Mallee vegetation.
The submission disagreed with the assessment presented in the EIS which summarised the existing landscape as mostly comprised of native vegetation that is not high quality undisturbed native vegetation or habitat. The submission also disputed the assertion made that much of the remaining Mallee areas are comprised of younger whipstick Mallee that has regrown following previous clearing for agriculture.

Response

It is acknowledged that the composition and structure of mallee vegetation varies over the broader landscape scale particularly due to variability in rainfall, soil texture and time since rainfall.

The use of ‘whipstick’ and ‘bull’ in assigning Mallee broad condition state was never intended to reduce biodiversity value of the vegetation. The delimitation was predominantly based on patches of Mallee vegetation that contained high density of hollows (bull) or patches of vegetation where hollows very absent or in very low density (whipstick).

The revised BDAR has clarified the references to whipstick and bull mallee and these are both now categorised as being in ‘moderate to good’ condition.

5.5.6 Offset strategy

Submission ID number(s)

5

Summary of issues raised

The submission objected that the final determination of biodiversity credits had not yet been finalised.

Response

The final determination of biodiversity credits would be based on the final design of the proposal once the detailed design has been developed. While an indicative level of biodiversity credit requirements has been identified, ongoing design refinement of the proposal (such as through refinement micro-sitting of the transmission line structures) is currently seeking to reduce the overall level of impact. Once the detailed design has been completed, the final determination of biodiversity credits would be calculated based on the revised design. This would provide greater accuracy as to the amount (and type) of credits required.

As described in Section 12.6 of *Technical paper 1 – Biodiversity Development Assessment Report*, the biodiversity offset strategy for this proposal, that would enable the credit obligations to be met, would comprise four options being:

- the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register
- establishing biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the proposal
- making a payment into the Biodiversity Conservation Fund
- alternative strategic offset outcomes.

5.6 Heritage

5.6.1 Impact assessment approach

Submission ID number(s)

5

Summary of issues raised

The submission stated that the assessment relied on a very small number of site surveys and that it failed to fully investigate cultural heritage impacts by noting that further investigations were required.

Additionally, the submission also raised concern that the EIS stated that, among other investigations, heritage investigations would be undertaken during early works, noting that these should occur before and not after the proposal is considered for approval.

Response

The assessment approach for the heritage assessment is summarised in Section 11.2 of the EIS with greater detail provided in Chapter 3 of Technical paper 2 – *Cultural heritage assessment*. The assessment approach included consideration of a range of data (not just broadscale government mapping) including:

- reviewing the legislative and policy context relevant to the local area
- reviewing relevant historical information including regional and local histories, heritage studies and theses, historical maps to understand both the Aboriginal and non-Aboriginal heritage context
- undertaking desktop searches of relevant heritage registers and schedules including:
  - World Heritage List
  - National Heritage List (Department of Environment and Energy)
  - Commonwealth Heritage List (Department of Environment and Energy)
  - State Heritage Register (NSW Heritage Branch, Office of Environment and Heritage)
  - Section 170 Heritage and Conservation Registers
  - Wentworth LEP
- reviewing existing data to identify known Aboriginal sites, including the Aboriginal Heritage Information Management System (AHIMS) database (NSW Heritage), Atlas of Aboriginal Places (NSW Heritage) and archaeological reports
- undertaking extensive consulting with registered Aboriginal parties (RAPs) at various stages in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (OEH, 2010), including providing the RAPs with the opportunity to provided comment on the proposed assessment methodology
- undertaking a field survey between 22 June and 3 July 2020 to validate the results of the desktop assessment and identify any potential areas of archaeological sensitivity (both Aboriginal and non-Aboriginal)
- developing a predictive model of potential Aboriginal sensitivity based on known regional and local site patterns within a broader 10 kilometre wide corridor centred on the proposal study area.

It is considered that the above approach provided a suitable level of knowledge about the existing cultural environment to enable the assessment of the proposal.

With respect to the concern regarding the proposal to undertake additional field investigations during future stages of the proposal, the approach outlined within the EIS was to defer the test excavation program until a stage when further detailed design was available which would allow for a narrowing of the disturbance areas and to avoid unnecessary impacts to Aboriginal heritage. Given the level of design it was considered that undertaking test excavations prior to refinement of the design would impact substantially more areas and potential heritage items than necessary.

The EIS identified specific mitigation measures which confirm the processes which would be completed post approval and once the detailed design has occurred. To manage this process, the EIS detailed specific mitigation measures which require further design development to avoid and minimise impacts to Aboriginal heritage, which would be informed by test excavations (in areas where an impact is not feasibly avoidable) and further engagement with the RAPs (via their involvement in the test excavation process and in the completion of addendum heritage assessment reports).

These mitigation measures are provided in Chapter 7 and include mitigation measure AH2 (which outlines the proposed consultation process with Aboriginal stakeholders), AH3 (which outlines requirements for Aboriginal heritage surveys) and AH4 (which outlines a process for further avoidance of Potential Archaeological Deposit sites.

5.6.2 Impacts to Sturts Billabong

Submission ID number(s)

5

Summary of issues raised

The submission noted that the impacts to Sturts Billabong as a unique location of both indigenous and European cultural heritage had been downplayed.

Response

Sturts Billabong is an Aboriginal burial site situated in a dune system and contains at least 36 burial sites, ranging from scattered bone, to cremations, and semi-intact burials. The site is located near the Darling River and located around one kilometre south west of the proposal study area.

Consideration of the potential impacts to Sturts Billabong was provided in Section 11.4 of the EIS.
The assessment stated that, while the transmission line corridor would pass through the central portion of the curtilage, the important natural landscape elements of Sturts Billabong are in the south western portion of the curtilage. The proposal would not directly impact any of the features of significance to this item (landscape or mature trees), including the River Redgums.

While the assessment noted that the new transmission structures would be easily visible from Sturts Billabong, the visual impact was considered low given the presence of existing transmission lines within the existing easement (refer to Section 11.4 of the EIS).

Overall, the assessment concluded that the proposal is not considered to impact the significance of this heritage item.

5.7 Land use and property

5.7.1 Impact to agricultural farming land

Submission ID number(s)

2, 5

Summary of issues raised

Two submissions raised concerns regarding the impact that the proposal would have on the ongoing use of farming land.

Response

While it is acknowledged that the proposal study area contains areas of existing farmland, as outlined in Section 12.3.3 of the EIS (and *Technical paper 3 – Agricultural land impact assessment*), the agricultural productivity is relatively low compared to other areas in NSW, largely due to low rainfall, high temperatures and low to moderate fertility soils. This is reflected in the relatively low value of agricultural production on a per hectare basis as well as the small proportions of the proposal study area being used for higher value cropping and improved pastures. As such, the overall impact on agricultural productivity within and surrounding the proposal study area from construction is expected to be negligible.

Section 12.5.2 of the EIS also noted that the land within an easement, and immediately next to the proposal could continue to be used for grazing during operation. However, it is acknowledged that the proposal has the potential to reduce the land available within the proposal study area for some cropping and horticultural land uses where higher intensity crops would be likely to grow within required clearance areas for the transmission lines. These land uses only comprise a small portion of the proposal study area (approximately eight per cent) and the area of land affected would be minimised where possible through design refinement.

Moreover, the proposal study area would cover a small fraction (about 0.6 percent) of the total agricultural land in the Wentworth LGA, and therefore the impacts on the overall agricultural activities in the region are considered to be minimal. Additionally, given the relatively small size of the disturbance area compared to the large average size of the agricultural properties, construction activities are not likely to cause significant loss, fragmentation or alienation of agricultural land or significant disruptions to agricultural operations.

The current proposal has been developed in consultation with impacted land holders, including discussion regarding areas of important agricultural which should be avoided. Where possible, the proposal has sought to take into consideration these land holder requests. To minimise potential impacts, and, as far as practicable, the final design and arrangement would continue be developed in consultation with existing land holders in order to minimise ongoing disruption to agricultural activities (as identified in mitigation measure LP4). Additionally, wherever possible, the final design would be developed in order to minimise impacts to other agricultural infrastructure such as existing irrigation structures.

5.7.2 Impact to national parks and private conservation areas

Submission ID number(s)

5

Summary of issues raised

The submission raised concern that the EIS did not consider the impacts of the proposal on areas such as Mallee Cliffs National Park, Sturts Billabong and other private conservation areas. It was noted in the submission that the area contains many private conservation reserves which were created as part of the Mallee Sustainable Farming initiative.

Response

The proposal would not result in any direct land impacts to the Mallee Cliffs National Park, which is located around 10 kilometres to the east of the proposed alignment. The Mallee Cliffs National Park was however considered as part of the broader landscape character of the landscape and visual impact assessment which concluded that there were no significant vistas or identified scenic views from the proposal study area to this location.

The Sturts Billabong is located within the vicinity of the proposal at the point it crosses the Darling River. The proposal would not have any direct land impacts to this historically significant natural landscape (refer to response in Section 5.6.2) and it has been avoided by the amended proposal.

A property with an existing Property Vegetation Plan (a type of private conservation area) was avoided during initial design of the proposal and conservation areas for *Austrostipa nullanulla* were also purposefully avoided. No other public or private conservation reserves are known to occur within the proposal study area or indicative disturbance area.

5.8 Visual and landscape character

5.8.1 General visual amenity concern

Submission ID number(s)

2

Summary of issues raised

The submission objected to the visual impact that the proposal would have.

Response

It is acknowledged that the proposal would result in some changes to the existing landscape and some visual impacts. Overall, the assessment concluded that where new transmission lines are proposed, there would be a moderate to low magnitude of change. This would be most prevalent where these impacts occur to existing properties along the alignment of the proposal.

As stated in Section 13.5.4 of the EIS, distances to closest private properties from the transmission line corridor range from around 350 metres to five kilometres. Impacts would depend on the distance to the transmission line corridor, as well as presence of vegetation or intervening terrain.

There are a few private properties where there is a potential visual impact, including ‘Regunyah’, within the Lake Victoria Cultural Landscape and semi-arid plains character area; ‘Wilton’ and ‘Dunvegan’ in the Mallee shrubland and rural landscape; and a property about 500 metres east of the proposal alignment in the vicinity of the Sturt Highway within the Arable landscapes on the Murray River plain landscape character area. In the vicinity of residences such as these, mitigation measures (such as maximising the spacing of transmission line structures, or screening) would reduce the extent of visual change and reduce the potential visual impact.

A range of mitigation measures were proposed as part of the EIS to manage potential visual impacts associated with the proposal. These measures are provided in Chapter 7 of this Submissions Report.

5.9 Social and economic

5.9.1 Impacts to existing industries

Submission ID number(s)

2

Summary of issues raised

The submission raised concern regarding the negative impact that the proposal would have on existing industries and manufacturing activities.

Response

The top three industry sectors for the Wentworth LGA comprise of agriculture, mining and manufacturing, and contributed a combined $441 million (or 51.7 per cent) of the Gross Regional Output for the LGA (refer to Section 14.3.4 of the EIS). As discussed in Section 5.6.1 of this Submissions Report, within the proposal study area, the majority of these industries were identified as being agricultural. Construction and operation activities associated are not likely to cause significant loss, fragmentation or alienation of agricultural land or significant disruptions to agricultural operations.

Land within the transmission line easement, and immediately next to the proposal could continue to be used for a wide variety of agricultural uses including grazing. However, it is acknowledged that the proposal has the potential to result in a small reduction in the land available within the proposal study area for cropping and horticultural land uses.

Furthermore, TransGrid would seek to further minimise the areas of land affected where possible through design refinement and consultation with individual landholders regarding elements such as the micro-siting of transmission line structures in order to minimise impacts to existing agricultural operations.

The proposal is also not expected to impact on key mining or manufacturing operations within Wentworth LGA.

5.10 Hydrology, flooding and water quality

5.10.1 Impact assessment approach

Submission ID number(s)

5

Summary of issues raised

The submission questioned the use of NSW Government mapping overlays noting that the existing data for western NSW, at the scale available for flooding was not accurate enough to be used for development assessment.

Response

NSW Government mapping overlay data was only part of the information used as a basis for the assessment of hydrology and flooding impacts. The methodology adopted for the impact assessment was detailed in *Technical paper 6 – Hydrology and flooding impact assessment*. This identified consideration of a range of data sources including:

- publicly available resources and identification of sensitive receiving environments (including NSW Government mapping overlay data)
- existing flood modelling data prepared for the Darling River and Darling Anabranch (BECA, 2020)
- historical water quality assessments and baseline data to determine existing conditions relevant

- existing geomorphic condition of waterways, with reference to the *NSW River Styles mapping* (DPI, 2019)
- existing relevant water sharing plans, and existing water supply, use and storage within the water quality and flooding study area.

It is considered that this range of information was suitable to provide an adequate assessment of the potential impacts of the proposal in accordance with the SEARs for the proposal.

Irrespective of the scale of the available flood mapping, Section 6.1 of Technical Paper 6 concluded that there would be insignificant impacts to flood behaviour including flood levels, flood depths, flood velocities and no loss of flood storage, as a result of the transmission line structures and footings (where they are located in flood prone areas).

5.11 Traffic, transport and access

5.11.1 Construction traffic impacts – general

Submission ID number(s)

4

Summary of issues raised

The submission noted that Renmark Road would be impacted by high levels of construction traffic that would degrade the road surface of the unsealed road. The submission requested that the proposal include provision of a sealed, bitumen surface for the section of Renmark Road between Wentworth and the South Australian border.

Response

The proposed construction methodology for the proposal would not require a substantial upgrade to the Renmark Road. As identified in mitigation measure TA2, road pre-condition surveys on construction haulage routes, including Renmark Road, will be carried out prior to the commencement of construction in consultation with Wentworth Shire Council and other road owners. This will include identification of existing conditions and mechanisms to repair damage to the road network caused by construction vehicles associated with the proposal.

As identified in Section 6.11 of this Submissions Report, TransGrid will also commit to a Road Maintenance Agreement with Wentworth Shire Council to ensure appropriate remediation of roads within the proposal area following completion of the proposal (refer to additional mitigation measure TA11).

TransGrid also met with Wentworth Shire Council staff on 10 February 2021 to discuss the range of amendments relevant to Wentworth Shire Council assets and Wentworth Shire Council's submission regarding Renmark Road. As part of this consultation, Wentworth Shire Council acknowledged the proposed mitigation measure to commit to a Road Maintenance Agreement. TransGrid will continue to maintain contact with the Wentworth Shire Council regarding any matters related to the proposal as part of the ongoing detailed design of the proposal.

5.12 Hazards and risks

5.12.1 Bushfire risk – construction

Submission ID number(s)

5

Summary of issues raised

The submission raised concern regarding the potential for the construction of the proposal to result in the generation of a bushfire within the Mallee Cliffs National Park. The submission was also of the opinion that the EIS downplayed the potential risk of a bushfire by noting that there were large areas of land that had been heavily modified and disturbed.

The submission recommended that a condition of approval be identified that restricted construction activities to periods of low fire hazard.

Response

The Mallee Cliffs National Park is located around 10 kilometres to the east of the proposal. It is therefore not considered that the construction of the proposal would be likely to directly result in generation of a bushfire within the Mallee Cliffs National Park.

Notwithstanding the limited impact expected to the Mallee Cliffs National Park, the potential for the risk of bushfire impacts during construction was acknowledged as part of the assessment presented in Chapter 19 of the EIS and *Technical paper 10 – Bushfire Impact Assessment*. Section 19.4.3 of the EIS acknowledged the bushfire ignition risk associated with the construction of the proposal, by definition, would generally only exist in those areas that are capable of supporting a bushfire. In general, the risk of bushfire impact on the proposal study area during construction would be dependent on factors such as fuel loads, weather and the scale (size) of fires which may occur, including the areas of land that were identified, as part of ground-truthed field surveys as being heavily modified and disturbed.

Section 19.6 of the EIS identified a range of mitigation measures to mitigate potential impacts with respect to potential bushfires during construction. This included preparation of a bushfire risk management sub-plan which would identify protocols for the management of bushfire risk and fuel management during construction, including restriction and/or prevention of certain activities that present bushfire risks on days with a fire danger rating of equal to or greater than ‘high’, and as directed by relevant state authorities

5.12.2 Bushfire risk – operation

Submission ID number(s)

2, 5

Summary of issues raised

Two submissions raised concern regarding the potential for operation to result in the generation of, or be affected by, a bushfire within the Mallee Cliffs National Park.

Response

As noted in Section 19.5 of the EIS, bushfire hazards, including the concerns raised in the submission were identified and considered as part of the impact assessment. The assessment concluded that given the location of the proposal relative to the Mallee Cliffs National Park there would be the potential for impacts to the new infrastructure (or as a result of) during operation. The assessment concluded the risk would be low to moderate, depending on the scale and when the risk would occur (i.e. prevalent weather conditions at the time). The assessment also generally concluded that the risk from bushfires to the new infrastructure would be more likely than the risk of new infrastructure resulting a bushfire.

In order to mitigate the risk of bushfire impacts to, or from, the new infrastructure as far as practicable, mitigation measure HR12 was identified in the Section 19.6 of the EIS which notes that the proposal would be designed, operated and maintained in accordance with TransGrid's Bushfire Risk Management Plan. This includes requirements to undertake periodic fuel load reduction, management of asset protection zones and regular inspections of infrastructure.

5.12.3 Impacts from electric and magnetic fields

Submission ID number(s)

2

Summary of issues raised

The submission raised concern regarding the electric and magnetic fields (EMF) impacts associated with the proposal on residents and animals.

Response

An assessment of the potential EMF impacts associated with the proposal was presented in Section 19.2.2 and Section 19.5.3 of the EIS.

With respect to the new transmission lines, the assessment concluded:

- the magnetic field levels directly under the proposed line would be within the International Commission on Non-Ionizing Radiation Protection (ICNIRP) general public exposure reference levels in all cases
- the electric field levels directly under the proposed transmission lines would be within the ICNIRP Basic Restriction levels in all cases, based on the minimum ground clearance for the proposed lines.

With respect to the Buronga substation upgrade and expansion, the assessment noted that the electrical equipment associated with the upgraded and expanded substation would be contained in metal safety enclosures, which would also serve to shield the public and operators from both alternating current (AC) and direct current (DC) electric fields associated with the electrical equipment. Accordingly, both the alternating and static electric field contribution from the upgraded and expanded substation would be negligible inside and outside the substation.

EMF studies on similarly configured substations have concluded that the magnetic field levels would be well below the general public guidelines in areas outside the metal safety enclosures. As such, it is not expected that the upgraded and expanded substation would result in any potential health risks for future adjacent residents located on the neighbouring blocks.

The new and upgraded infrastructure that will be delivered as part of this proposal would be designed to meet EMF exposure guidelines set out in Table 19-2 of the EIS and worst case scenarios within TransGrid's *Transmission Line Design Manual – Major New Build* (refer to revised mitigation measure HR1 in Chapter 7). Existing mitigation measure HR1 also previously identified that the proposal will be designed and constructed in accordance with the *Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz – 100 kHz)* (ICNIRP, 2010).

5.13 Contamination

5.13.1 Contamination from the proposal

Submission ID number(s)

2

Summary of issues raised

The submission raised concern regarding the potential for the proposal to result in contamination.

Response

Overall, the construction and operation of the proposal would not pose a substantial contamination risk.

Potential contamination as a result of the proposal was described in Chapter 20 of the EIS and detailed in Technical paper 12 – *Contamination impact assessment*. This included consideration of potential contamination impacts during construction and operation.

The proposal has a low potential to result in contamination from construction activities. This risk would predominantly be associated with accidental leaks and spills from the storage of fuels and chemicals and refuelling and other maintenance activities undertaken on plant and equipment. As described in the EIS, all fuels and other chemicals would be appropriately stored according to TransGrid requirements. Whilst the potential for spills or leaks cannot be discounted, these impacts would be localised and able to be managed and rectified to prevent significant impacts to sensitive receivers.

Similarly, there would be a minor risk of contamination during operation from accidental spillage of petroleum, chemicals or other hazardous materials as a result of leakage or vehicle accidents, which could result in pollution of the surrounding environment. Given the minor volume and low risk of occurrence, these risks would be easily managed through standard controls, including the Construction Environmental Management Plan (CEMP) for the proposal (refer to Section 7.1.1) and TransGrid's operational practices, procedures and processes (refer to Section 7.1.2).

As further discussed in Section 5.2.3 of the EIS, all key substation equipment (such as the transmission gantries and transformers) within the expanded substation would be fixed to a reinforced concrete footing. The new transformers within the expanded substation site would be bunded and incorporate a flame trap and drainage point in the event of an emergency. The hardstand areas of the expanded substation site would be designed to drain to a reinforced concrete spill oil containment tank. This would reduce the risk of contamination. Incident response procedures would be also developed by the operator to manage any spills.

The operation of the transmission line structures and electrical transmission wires would not pose a contamination risk.

5.14 Other

5.14.1 Impacts to existing utilities

Submission ID number(s)

3

Summary of issues raised

The submission provided a response outlining a series of considerations that would need to be taken into account regarding potential impacts to their existing natural gas infrastructure within Western NSW. Items raised in the submission for consideration included:

- the need to undertaking a safety management study to assess the risk of the proposal and develop appropriate controls to reduce risks
- design considerations such as the need for any transmission infrastructure to cross the pipeline at 90 degrees
- identification of APAs Third Party Works Authorisation process
- pipeline easement management requirements
- consideration of electrical interference requirements between existing gas pipelines and any proposed electrical transmission line.

Response

Based on the identified location of the closest natural gas infrastructure, no impacts are expected to occur from the proposal.

The location of the identified infrastructure would be located with the vicinity of the future EnergyConnect – NSW Eastern Section. Potential impacts would be considered as part of the ongoing development of the EIS for this section of EnergyConnect.

5.14.2 Other – out of scope to proposal

Submission ID number(s)

2

Summary of issues raised

The submission raised a number of out of scope elements not related to the proposal including:

- general objection to the ongoing development of solar power and other renewable energy proposals within the western region of NSW
- concerns regarding proposal ownership of solar farms in the region
- concern regarding existing solar farm developments including:
  - heavy metal leachate soil/water contamination risk
  - heat island effect impacts
  - increased fire risk from lack of maintenance of current solar infrastructure
  - visual amenity impacts.

Response

These comments do not relate directly to the proposal. The comments are noted by TransGrid.

The broader renewable energy strategies for western NSW are guided by DPIE.

Any matters or concerns in relation to other developments in the region, including solar farms are considerations for the relevant planning / approval authority.

6. Response to public authority submissions

This chapter provides responses to the issues raised in submissions provided by public authorities, including Wentworth Shire Council and a number of NSW State government departments and agencies.

6.1 Heritage NSW – Aboriginal cultural heritage regulation

The Heritage NSW – Aboriginal cultural heritage regulation (Heritage NSW – Aboriginal) provided a response to the exhibition of the EIS dated 24 November 2020. Consideration of the items raised in their submission is provided in Table 6-1.

Table 6-1 Response to Heritage NSW – Aboriginal cultural heritage regulation submission

Issue raised	TransGrid response to issue
Heritage NSW identified that Aboriginal cultural heritage regulation is now part of Heritage NSW in the Department of Premier and Cabinet (as of 1 July 2020) and no longer administered by the Biodiversity Conservation Division in DPIE. Heritage NSW requested all references to DPIE administering Aboriginal objects and Aboriginal places needs to be updated to Heritage NSW.	TransGrid will review and update references of DPIE as required to Heritage NSW. References within the revised mitigation measures summarised in Chapter 7 have also been updated to reflect the correct reference.
Based on a review of the *Non-Aboriginal and Aboriginal cultural heritage assessment* (Navin Officer, 2020), Heritage NSW identified that the assessment was not adequate to address the following SEARs for heritage: > An assessment of the Aboriginal and historic heritage (cultural and archaeological) impacts of the project.	The comment is noted. Specific concerns raised regarding the adequacy of the assessment is addressed against the comments below.
Heritage NSW noted that the *Non-Aboriginal and Aboriginal cultural heritage assessment* did not provide survey information in accordance with the *Code of Practice for Archaeological Investigation in NSW* (DECCW 2010) and the revised SEARs for Aboriginal cultural heritage matters. Heritage NSW noted they were therefore unable to assess the adequacy and effectiveness of the assessment and that the survey information was required for Heritage NSW to make a complete and proper review of the proposal.	Survey coverage data and survey unit mapping was included in Appendix 4 of the *Non-Aboriginal and Aboriginal cultural heritage assessment* (Navin Officer, 2020) (pages 334-354). Discussion between Navin Officer Heritage and Heritage NSW on 30 November 2020 clarified that the survey information provided in this appendix was sufficient and satisfied Requirements 5 to 10 of the Code.

Issue raised	TransGrid response to issue
Heritage NSW noted that Potential Archaeological Deposits (PADs) have yet to be assessed in accordance with the Code and the SEARs. Heritage NSW noted that as test excavations have not been undertaken as part of the EIS, the impacts to Aboriginal cultural heritage values remains unknown.	TransGrid is committed to undertaking an iterative design approach to the ongoing development of the proposal that incorporates two main design phases that are informed by a range of environmental constraints, including minimising impacts on Aboriginal heritage. This is a common approach that has been utilised on large scale infrastructure proposals in the past, with detailed design being varied along proposal corridors to minimise impacts. While the proposal is one of the largest linear infrastructure projects to be implemented in south western NSW, the non-contiguous nature of the transmission line structures (averaging between around 400 and 600 metres between structures), gives the proposal an ability to concertina along the corridor to reduce impacts as far as reasonably practicable. The priority would be given to avoiding and minimising impacts to features or items of archaeological significance. It is acknowledged that an accurate identification of the significance of PADs cannot be assessed prior to excavation. However, archaeological test excavations have not been undertaken to date due to the following reasons: > the proposal is currently only at a concept level and provides an indicative design. While the transmission line corridor has been selected and assessed, the final positions of infrastructure (in particular the final location of the transmission line structures) within the corridor are likely to change as part of ongoing detailed design in order to further minimise currently identified impacts (in particular for elements such as heritage and biodiversity) > a number of PADs and sites identified during archaeological survey and recommended for subsurface testing contain features and/or are assessed to have heightened potential for archaeological features (middens/burials) that precludes these sites/PADs from being excavated under the Code. The overarching approach for the proposal (as outlined in the EIS) was therefore to defer the test excavation program until after approval of the proposal and to a stage when further detailed design was available which would allow for a narrowing of the proposal's impact/disturbance areas.

Issue raised	TransGrid response to issue
	The *Code of Practice for Archaeological Investigation in NSW* (DECCW 2010) typically require test excavations at short (around 10 metre) spacings across the identified PAD areas which would potentially be impacted by a project. Given the level of design it was considered that undertaking test excavations prior to refinement of the design would impact substantially more areas and potential heritage items than necessary. Since exhibition of the EIS, ongoing preliminary designs for specific transmission line structure locations have commenced (following appointment of the preferred construction contractor), with the aim of avoiding locations of environmental (in particular biodiversity) and heritage significance which have previously been identified during field surveys. The ongoing design would prioritise avoidance of moderate and high significance sites wherever possible. When a more detailed design is available that has taken into consideration the existing constraints identified, and following methodology consultation with the nominated RAPs, subsurface testing would be undertaken where proposed infrastructure locations interact with identified archaeological sites and/or PADs. The results of these test excavations would inform preliminary assessments of PAD significance, in consultation with the RAPs, allow for identification of further mitigation measures (i.e. the need for avoidance or salvage) and help refine the locations of infrastructure in the detailed design phase. To manage this process, the EIS detailed specific mitigation measures which require further design development to avoid and minimise impacts to Aboriginal heritage, which would be informed by test excavations (in areas where an impact is not feasibly avoidable) and further engagement with the RAPs (via their involvement in the test excavation process and in the completion of addendum heritage assessment reports). These mitigation measures have been further refined following exhibition of the EIS to strengthen the intent of the timing of test excavations with the design process, and the engagement with RAPs and Heritage NSW in this process to provide sufficient assurances to DPIE (and Heritage NSW) that appropriate safeguards are in place for the proposed test excavations. These measures include > detailed consultation and engagement requirements (AH2) > procedures for survey (AH3) > ongoing avoidance of PADs prior to test excavation where required (AH4).

Issue raised	TransGrid response to issue
	The revised mitigation measures are provided in Chapter 7 of this report. Given the nature of the proposal, the complexity of site types, their excavation requirements under the Code, and a principal of avoiding testing at locations that may not be impacted by the proposal, it is considered that archaeological excavations would be most efficiently carried out under conditions of approval within the SSI framework, following approval of the proposal.
Heritage NSW noted that the protocol for the discovery of human remains is generally adequate. It was however noted that point 3 of the process should be to be amended to contacting only the NSW Police in the first instance.	The final protocol for the discovery of human remains has been amended to address this comment as part of the development of the CEMP for the proposal.
Heritage NSW noted that a section of the powerline corridor could not be assessed due to landowner access restrictions. Heritage NSW noted this section was relatively small compared to the overall length of the assessment area however, it still needs to be subject to field assessment, should construction proceed at the location as proposed; or if landholder access issues persist and an alternate alignment is decided, then the alternate location needs to be assessed as per SEARs.	Mitigation measure AH3 identified that a *survey will be carried out with Registered Aboriginal Party representatives where ground or vegetation disturbance activities are required in all locations outside of the previously surveyed heritage survey area (including water supply points), prior to works occurring in any such areas.* As identified in Table 7-1, this measure applies to all locations within the proposal study area, which would include areas that were not able to be accessed during the preparation of the EIS.
Heritage NSW noted that the assessment identified there was the potential for partial impact to PEC-PAD-27 for Buronga substation upgrade. Heritage NSW advised that this site is of unknown significance and has not been assessed as per the Code with no subsurface testing being undertaken to date.	Ongoing design refinement of the proposal following exhibition has confirmed that impacts to PEC-PAD-27 would be able to be avoided as part of the construction of the Buronga substation expansion and upgrade. This site would be managed in accordance with proposed mitigation measure AH7 which notes that Aboriginal heritage exclusion zones will be established to protect sites that would remain in-situ throughout construction.
Heritage NSW noted that the assessment concluded there would be direct and indirect impacts on 77 sites within the powerline corridor. Sites types vary and range in significance from low to moderate. Heritage NSW advised that the actual harm was yet to be confirmed by detailed analysis.	A summary of the potential impacts to Aboriginal sites associated with the proposal was provided in Table 10-2 of the EIS which identified the potential for impact to the 77 sites within the transmission line corridor. Further detail of this information for the potential impact of each individual site was also provided in Table 10.2 of Technical paper 2 – *Non-Aboriginal and Aboriginal cultural heritage assessment* (Navin Officer, 2020).

Issue raised	TransGrid response to issue
	This assessment provided details for each of the 77 sites including elements such as: > cultural significance of each item > the potential impact type (i.e. potential direct or indirect impact) > the potential loss of significance due to the proposal (i.e. partial loss or total loss). The definitions of harm to Aboriginal items associated with the potential impact types listed in Table 10.2 were also detailed in Section 10.3 of Technical paper 2. These included: > total direct harm or disturbance to all surface and/or subsurface features at an item. This would generally result a total loss of heritage value at a site > partial direct harm or disturbance, where direct impacts would occur to only some of the surface and/or subsurface features at an item. Partial direct harm generally results partial loss of value at a site > potential direct harm or disturbance (total or partial), where direct impacts are occurring adjacent to sites, or where vegetation clearance/maintenance requires the use of heavy machinery to be active near sites. Such impacts would likely be inadvertent. Further refinement of the detail design for the proposal would also continue to seek to further reduce harm to those sites identified as being potentially impacted (refer to mitigation measure AH4). Additional details of the potential impacts of the proposal are provided in the revised *Non-Aboriginal and Aboriginal Cultural Heritage Assessment Report* (Navin Officer, 2021) that has been prepared to respond to the issues raised regarding Aboriginal heritage impacts identified in the NSW Heritage submissions and assess the impacts associated with the amended design, in comparison to those of the proposal as described in the EIS. The revised report is provided as Appendix D of the Amendment Report.

6.2 Heritage NSW – Heritage Council of NSW

The Heritage NSW, as a delegate of the Heritage Council of NSW, provided a response to the exhibition of the EIS dated 18 November 2020. Overall, Heritage NSW did not raise any overarching concerns with, or objections to, the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-2.

Table 6-2 Response to Heritage NSW – Heritage Council of NSW submission

Issue raised	TransGrid response to issue
In their submission, the Heritage NSW noted that, while the assessment concluded that there was little to no potential for unrecorded non-Aboriginal heritage within the area of the proposal, no further analysis of documentary or archaeological resources was provided. Additionally, Heritage NSW noted that the assessment did not further address the predictive statements made in Section 7.3 (Predictive historical archaeology) of the *Non-Aboriginal and Aboriginal Cultural Heritage Assessment* (Navin Officer, 2020) as part of the assessment of impacts.	Following exhibition of the EIS assessment, further analysis of documentary and archaeological resources regarding the historical context for the proposed study area was undertaken. This included preparation of a revised *Non-Aboriginal and Aboriginal Cultural Heritage Assessment Report* (Navin Officer, 2021) to respond to the issues raised regarding Aboriginal heritage impacts identified in the NSW Heritage submissions and assess the impacts associated with the amended design. The revised report is provided as Appendix D of the Amendment Report. The revised information included reviewing parish maps and local heritage studies associated with the areas impacted by the proposal. The additional information, incorporating the inclusion of additional parish mapping, has been included in Section 7.1 and Section 7.3 of the revised *Non-Aboriginal and Aboriginal Cultural Heritage Assessment* (Navin Officer, 2021). With respect to the concern regarding the predictive statements, the purpose of this section was to identify examples of the types of potential unrecorded historic sites and features of heritage significance that may occur within the proposal study area based on the review of the historic heritage information. Section 8.4 of the *Non-Aboriginal and Aboriginal Cultural Heritage Assessment* (Navin Officer, 2021) does however provide additional analysis and discussion of the possible presence of the historic features predicted in Section 7.4. The revised assessment did not identify any additional potential for unrecorded non-Aboriginal heritage within the area of the amended proposal compared to the previous assessment.
Heritage NSW recommended that further research and assessment is required to inform appropriate management recommendations in relation to archaeological relics.	Section 8.4 of the *Non-Aboriginal and Aboriginal Cultural Heritage Assessment* (Navin Officer, 2021) concluded that there was little potential of further unrecorded non-Aboriginal sites to be located in the proposal study area. Additionally, Section 10.6 of the *Non-Aboriginal and Aboriginal Cultural Heritage Assessment* concluded that the proposal would not impact the significance of any of the non-Aboriginal heritage items currently identified within the vicinity of the proposal study area.

Issue raised	TransGrid response to issue
	Existing mitigation measure NAH2 did however provide that that should the disturbance area for the proposal extend beyond the current survey area, further assessment by an archaeologist will be carried to determine the likelihood of occurrence and significance of potential archaeology and impacts from the proposal (including built heritage) prior to the commencement of construction in these areas. The results of this assessment will be reported on in addendum reports for non-Aboriginal heritage. Reports will be provided to Heritage NSW.

6.3 NSW Department of Planning, Industry and Environment – Biodiversity Conservation Division

NSW Department of Planning, Industry and Environment – Biodiversity Conservation Division (DPIE BCD) provided a response to the exhibition of the EIS dated 4 December 2020 regarding the exhibition of the Western Section EIS. An additional submission was provided dated 15 December 2020 that provided an initial assessment against the Matters of National Environmental Significance (MNES).

Overall, the NSW DPIE BCD did not raise any overarching objection to the proposal in their two submissions, however provided a series of comments regarding specific aspects of the proposal's assessment. Consideration of the items raised in their submission is provided in Table 6-3.

In addition to the responses provided below, a revised *Biodiversity Development Assessment Report* (BDAR) (WSP, 2021a) has been prepared following the exhibition of the EIS (refer to Appendix D of the Amendment Report). The revised BDAR was prepared in order to respond to both:

- the submission from NSW DPIE BCD
- assessment of the potential change in impacts associated with the amended proposal (including an amended indicative disturbance area).

Where a response to a submission comment has resulted in a change to the assessment, this change has been accounted for in the revised BDAR.

Table 6-3 Response to NSW Department of Planning, Industry and Environment – Biodiversity Conservation Division submission

Issue raised	TransGrid response to issue
EnergyConnect – Western EIS	
1. Avoidance and minimisation of impacts. The design elements presented are based on standard approaches that do not reflect the local context. No justification has been provided for the proposed extent of tree trimming, easement width and the width of access tracks in the context of the vegetation communities of the project area.	This aspect of the proposal has been further refined following exhibition of the EIS. Further analysis has been undertaken to ensure that the complexities of vegetation impacts associated with the proposal have been considered and that a conservative approach has been taken to identifying unavoidable impacts. The two metre height aspect has been superseded by a more granular assessment in collaboration with TransGrid which is reflected in the revised BDAR (refer to Section 9.1 of the revised BDAR for a more detailed discussion of the revised assessment).

Issue raised	TransGrid response to issue
Recommended action: > Provide justification for proposed removal of all vegetation to 2m height along the entire route length, given the different tower heights proposed for the project. > Provide justification for the need for a standard TransGrid easement width that relate specifically to the low and sparse natural vegetation communities of western NSW. > Finalise the width of all access tracks and provide justification for the required widths. > Append the document *Vegetation clearance requirements at maximum line operating conditions* (TransGrid 2003).	With respect to avoidance and minimisation of biodiversity impacts, the key outcomes of the proposal can be summarised as follows: > positioning of the transmission line corridor to co-locate where possible with existing infrastructure (i.e. Renmark Road and existing Broken Hill to Buronga 220kV electrical infrastructure) > positioning of the transmission line corridor on the northern side of Renmark Road to avoid impacts on the critically endangered threatened flora species Dodonaea stenozyga and the endangered flora species Acacia acanthoclada > realignment of the transmission line corridor as part of the amended proposal at Nulla Station to avoid high biodiversity value areas that contain a population of the endangered flora species Austrostipa nullanulla (refer to Section 2.9.1 of the Amendment Report for details) > identification and focus on the use of existing access tracks to minimise additional disturbance to the transmission line easement wherever possible. This would include the use of existing farm track, alternative property access points and similar existing infrastructure. This has now been accounted for in the definition of disturbance area A (refer to Section 2.8.2 of the Amendment Report for details) > reduction in the use of longitudinal access tracks where existing roads are located adjacent to the proposed transmission line alignment (such as along Renmark Road). > refinement of the proposed transmission line structure footprint to reflect generally smaller footprints for most structures > changes to the categorisation of disturbance along the transmission line alignment to reflect refinements to the vegetation clearing strategy (refer to Section 2.8.2 of the Amendment Report for details).
2. Maintenance areas labelled 'no impact' have not been assessed. **Recommended action:** > Include areas where maintenance actions will occur in the impact area or justify why ongoing maintenance activities will have no impact on biodiversity.	Section 9.1 of the revised BDAR outlines the revised categories of impacts and how these have been assessed. TransGrid are currently preparing proposal specific maintenance procedures to reflect the clearing approach outlined in this BDAR. Vegetation maintenance would occur in accordance with these proposal specific procedures and the revised management activities described in Section 5.4.1 of Appendix A of the Amendment Report – revised project description).

Issue raised	TransGrid response to issue
3. Description of mitigation of prescribed biodiversity impacts **Recommended action:** > Rearrange Table 8.3 in the BDAR to focus on the list of prescribed impacts in Section 6 of the BAM.	Section 6 refers to BAM 2020, not BAM 2017 under which the proposal is being assessed under. BAM 2020 has only recently been released and is not mandatory for projects already under assessment. The matters requiring assessment (including those in Section 6) have been considered as part of the revised BDAR.
Assessment of Serious and Irreversible Impacts **Recommended action:** > Explain why the project alignment cannot avoid the areas of habitat for *Austrostipa nullanulla*.	Further design refinement of the proposal alignment within the vicinity of the *Austrostipa nullanulla* has identified an alignment that would enable reduced impacts of this species and its habitat. The total impact on this species habitat has been reduced from around 2.18 hectares to an estimated impact of around 1.51 hectares. The alignment cannot completely avoid this species due to design and location of the proposed transmission line corridor. However, the amended alignment has, as far as practicable, reduced impacts to only the minimum possible amount required to accommodate the proposal. This has included consideration of reducing impacts as far as practicably possible including focussing on existing disturbed areas for both transmission line structures and access tracks. Further details of the revised alignment is provided in Section 2.9 of the Amendment Report.
Impacts on avifauna **Recommended action:** > BDAR to include more specific mitigation measures for transmission line strike and EMF exposure for larger species, particularly raptors. > Ensure BDAR mitigation measures include actions to minimise disturbance of nesting raptors.	Amended measures have been included in the revised BDAR to address specific issues including line strike, the implementation of a two year monitoring program to better understand and inform interaction of biodiversity, including bird species, with transmission lines, and a one off funding contribution to target further scientific study into the impacts of EMF in Australia (refer to Sections 8.2 and 11.3 of the revised BDAR for detailed information on the proposed mitigation measures). The revised mitigation measures are included in the consolidated list of mitigation measures in Section 7.2 of this Submissions Report. Prescribed impacts via line strike and EMF would also be offset via a nominated approach to calculate biodiversity credits for the most susceptible threatened species being White-bellied Sea-Eagle, Black-breasted Buzzard, Little Eagle, Major Mitchell's Cockatoo and Regent Parrot as outlined in the revised BDAR. This essentially includes calculating the direct habitat impact for the locations proposed where no existing powerlines occur and providing 10 per cent of the 'direct impact' in order to provide compensation for the recognised 'prescribed impacts'.

Issue raised	TransGrid response to issue
Vegetation maintenance and 'partial' impact assessment The BDAR does not provide full details about operational impacts and how these relate to the assessed threatened species habitat and species credit species. No information is presented to justify the assumptions about vegetation management that result in the vegetation integrity score adjustments relating to the vegetation integrity scores in 'partial' impact zones. **Recommended action:** > Provide TransGrid maintenance procedures referenced in BDAR s10.3 that will involve impacts on biodiversity during operation, either in the text or in an Appendix. > Revise the BDAR to include consideration and assessment of all impacts associated with the 'partial' impact zones.	Section 10 of the revised BDAR has been updated to address operational impacts and vegetation management aspects. This has included additional information regarding operational considerations from EMF impacts and potential bird strikes.
The Category 1 land assessment lacks the required evidence relating to the criteria stated in the *Local Land Services Act 2013*. The proposed route includes vegetation communities that have naturally patchy tree cover, no rationale has been presented for classifying areas between patches as Category 1 land. **Recommended action:** > Provide a Category 1 land assessment that shows the Local Land Services Act 2013 (s.60H) criteria for each lot and include specific evidence relevant to the criteria. > Update all EIS/BDAR figures with the correct terminology for areas that are not Category 1 – Exempt land.	A stricter and more conservative application of the requirements for land to be classified as Category 1 has been provided in the revised BDAR, including an amended Figure 5.1. Other mapping (as required) have also been updated accordingly within the revised BDAR.

Issue raised	TransGrid response to issue
The BAM should document all the vegetation zones in the four assessed IBRA subregions. **Recommended action:** > Revise Table 3.9 to include all zones (by BAM-C subregion case). > Provide an explanation as to why the condition state of the PCTs was considered to be the same across the entire alignment. For each IBRA subregion BAM-C case, justify why BAM plot data from outside the subregion was relevant to generate VI scores for vegetation zones.	Native vegetation recorded across the proposal study area was determined to be relatively consistent in broad condition state with variables such as rainfall, agricultural grazing and non-agricultural native and feral herbivore grazing occurring throughout. BAM vegetation integrity plots were sampled across the entire proposal study area and included sampling from all IBRA regions and subregions. An example of the relative consistent broad condition state can be seen for PCT 21 through examining the individual plot data from Q37, Q38, Q42, Q66 and looking at the visual structure from the plot photos (see photos below). In the field, there appeared to be very little discernible difference in broad condition state of PCT 21 over the entire proposal study area and as such the PCT was treated as a single vegetation zone. This is confirmed through the relatively consistent BAM plot data for most important fields.

Plot	NSR	NSC	<5cm	>30cm	TH	LL	Logs	HTW
Q37	30	47.5	0	2	0	32	28	1
Q38	17	41.3	0	1	0	15	12	0.1
Q42	26	46.9	0	2	0	18	27	0
Q66	25	64.7	0	1	0	8	16	0.5

Note: NSR=Native species richness; NSC=Native species cover; <5cm=Tree regeneration; >30cm=Number of trees exceeding large tree threshold; TH=Tree hollows; LL=Leaf litter; Logs=Length of fallen timber; HTW=High threat weed cover

Q37

Issue raised	TransGrid response to issue
	 Q38  Q42  Q66

Issue raised	TransGrid response to issue
	BAM vegetation integrity plots for PCT 21 included additional plots to ensure a consistent data set gave a more accurate overall vegetation integrity score for the community. It is also noted that whilst the BAM gives minimum plot requirements there is no limit on the number of plots that can be used to get a more representative averaging data set. The small patches of PCT 21 that occur within the Pooncarie Darling subregion were considered better represented with data collected from the Murray Darling Depression where larger patch sizes enabled better data representation. In terms of PCT 153, BAM plots Q54, Q55, Q78, Q87 and Q88 provide relatively consistent data for collected BAM fields across the proposal study area. In terms of plot selection for the Pooncarie Darling subregion, Q54, Q55 and Q78 were considered most representative of PCT 153 for this subregion and provided an overall vegetation integrity score of 83.6. This was the highest vegetation integrity score using the combination of representative plots collected and are considered to give an accurate calculation of the biodiversity value. PCT 170 was recorded in modified (or now 'moderate to good condition') for both 'whipstick' (hollows absent) or bull mallee (hollows present). No patches of just modified (unassigned) were mapped or entered the BAM-C. The raw data will be checked to ensure any unassigned modified condition has been captured and assigned to 'moderate to good' bull mallee. Large vegetation types that occur over the length of the proposal study area including PCT 58, PCT 153 and the mallee PCTs of 170, 171 and 172 were recorded in up to three separate broad condition states (vegetation zones) being: Modified whipstick (now 'moderate to good' whipstick mallee), modified bull mallee (now 'moderate to good' bull mallee) and derived. Plot data and subsequent vegetation integrity scores reflect these broad condition states. A revised version of Table 3.9 is provided in the Revised BDAR (WSP 2021).
Modified BAM threatened flora survey methods have been used without endorsement. **Recommended action:** > Provide the dataset showing PCTs in moderate to good condition used to determine threatened flora survey locations (to enable BCD assessment of survey adequacy).	The following field survey techniques were used to undertake targeted seasonal surveys in general accordance with the *NSW Guide to Surveying Threatened Plants* (Office of Environment and Heritage, 2016) and *Surveying threatened plants and their habitats; NSW guide for the BAM* (Department of Planning, Industry and Environment, 2020): > parallel field traverses > representative parallel field traverses (one and 0.5 kilometre sections) > parallel field traverses of microhabitats > rapid data point assessment of threatened flora habitats by local mallee expert Dr Ian Sluiter > driving transects for large and medium tree and shrub forms of plants (driving slowly) along entire indicative disturbance area.

Issue raised	TransGrid response to issue
	It is acknowledged that the later field survey guidelines published by the Department of Planning, Industry and Environment were released during and following completion of most of the surveys for this proposal. It is considered that the method of representative parallel field traverses for one kilometre and 500 metre distances is not strictly in accordance with the recently released guideline *Surveying threatened plants and their habitats; NSW guide for the BAM* (Department of Planning, Industry and Environment, 2020), which provides a preferred method of surveying large areas using a systematic grid based sampling methodology. The adopted systematic parallel transect method applied to this proposal was considered more suitable for the extensive linear nature of the proposal than a systematic plot-based approach for the following reasons: > it more comprehensively provides a sample of the indicative disturbance area within each sample section and > the relatively homogeneous nature of the PCT and condition for large sections provide relatively consistent habitat potential. Furthermore, to demonstrate the adequacy of the adopted systematic parallel transect method compared to the systematic plot-based approach within the guideline, a comparative desktop analysis of the sample area covered by the two approaches was undertaken. The assessment of PCTs in moderate to good condition sampled under an indicative calculation using the new guidelines plot based approach totalled 198 hectares while the actual sampled area subject to the representative parallel field traverses was approximately 2172 hectares. A detailed summary of targeted threatened flora survey effort against *Surveying threatened plants and their habitats; NSW guide for the BAM* (Department of Planning, Industry and Environment, 2020) is provided in Table 3.14 of the revised BDAR.
Categorisation of vegetation condition requires clarification. Vegetation zones would be better classed as good, moderate or poor condition. **Recommended action:** > Replace the term 'modified' in the PCT (vegetation zone) descriptions with a more appropriate term.	The concern with the use of the term 'modified' in the vegetation community description is noted. The use of this term was not intended to diminish the biodiversity values of native vegetation which is ultimately driven by the vegetation integrity score. The term 'modified' has been removed from all vegetation type naming in the revised BDAR and replaced with 'moderate to good'. VI scores ultimately dictate vegetation condition.

Issue raised	TransGrid response to issue
Derived native vegetation communities appear to have been over- estimated. **Recommended action:** > Demonstrate that vegetation mapped as derived is not an open-woodland or natural structural variant of the relevant PCT, such as where the overstorey is absent due to fire or drought.	The broad condition state assigned as derived native vegetation was applied where a PCT has been changed to an alternative stable state because of land management practices since European settlement. Within the proposal study area derived vegetation was applied to patch areas where the canopy and/or shrub layers have been historically removed due to agricultural practices. Derived vegetation was not assigned to patches where natural dieback from events such as drought or fire have modified the landscape. Derived vegetation occurred for four PCTs being PCT 13, PCT 58, PCT 170 and PCT 252. It is acknowledged that variability in canopy cover for woodland or open-woodland structured vegetation occurs and can range from very sparse to sparse. Based on BCD comments, a reanalysis of all derived vegetation patches was undertaken. This involved modifying and reassigning patch of derive vegetation to higher vegetation integrity patches of moderate to good condition. A total of 422 patches were reanalysed which is presented in the revised BDAR.
Arid woodlands/shrubland classification. **Recommended action:** > Bull and whipstick mallee communities should be considered in the BDAR as communities in a natural state unless there is clear evidence that they are significantly modified.	It is acknowledged that the composition and structure of mallee vegetation varies over the broader landscape scale particularly due to variability in rainfall, soil texture and time since rainfall. The use of 'whipstick' and 'bull' in assigning mallee broad condition state was never intended to reduce biodiversity value of the vegetation. The definitions were based on patches of mallee vegetation that contained high density of hollows (bull) or patches of vegetation where hollows are absent or in very low density (whipstick).
The impact of drought on vegetation condition and implications for the assessment of vegetation integrity have not been adequately considered. **Recommended action:** > BDAR to provide an assessment of drought impacts on vegetation condition and assigned vegetation integrity scores.	Prior to WSP engagement on this proposal, Jacobs had been commissioned to undertake preliminary ecological studies that included undertaking BAM vegetation integrity plots. Jacobs completed a total of 86 BAM plots. These plots were collected in August 2019 during the peak of the recent drought. The project brief was to use this BAM data to underpin the BAM-C and collect any additional BAM plot data where shortfalls occurred. WSP reviewed the Jacobs BAM plot data and understood that the plots had been collected during extreme drought conditions and that the use of these plots may result in an inaccurate reflection of vegetation integrity within the proposal study area. Given this, WSP proposed that additional BAM plot data would be collected if suitable rainfall occurred during the project survey period.

<table>
<tr><th>Issue raised</th><th>TransGrid response to issue</th></tr>
<tr><td></td><td>During March and April 2020 above average rainfall was recorded with the proposed study area with Mildura Airport (AWS 076031) recording a combined bi-monthly total of 76.2 mm. This exceeded average rainfall for this period of 38.9 mm (March 19.4 mm & April 19.5 mm).

WSP BAM plots were collected during May (Q27-39), July (Q40-103) and September 2020 (104 -110). These plots were used to generate vegetation integrity scores except for the inclusion of 3 Jacobs plots that were deemed representative (Q105(E5), Q107(E6) and Q108(E18)).

The change in vegetation integrity due to above average autumn rainfall is clear when the WSP / Jacobs plot data is interrogated. For example, a comparison of three PCT 171 (whipstick) plots all sampled closely together shows both native species richness and cover mostly doubled following above average rainfall (see table below).

<table>
<tr><th>WSP Plot</th><th>NSR</th><th>NSC</th><th>Jacobs Plot</th><th>NSR</th><th>NSC</th></tr>
<tr><td>Q43</td><td>22</td><td>51.9</td><td>Q3</td><td>12</td><td>28.1</td></tr>
<tr><td>Q45</td><td>24</td><td>53.6</td><td>Q6</td><td>10</td><td>36.2</td></tr>
<tr><td>Q101</td><td>24</td><td>60.5</td><td>Q37</td><td>9</td><td>29.9</td></tr>
</table>
Note: NSR=Native species richness; NSC=Native species cover

This comparative example is consistent for most of the BAM plots resampled and ensured a more accurate and robust vegetation integrity score for sampled vegetation. With native species richness driving the composition score and native cover driving the structure score, the resampling of BAM plots following above average autumn rainfall has greatly reduced any risk of drought affected data. The EIS assessment presented the potential biodiversity impacts based on the WSP update of vegetation integrity.</td></tr>
<tr><td>Rehabilitation/revegetation mitigation measures.

Recommended action:

> BDAR to provide a summary of mitigation measures that relate to the proposed rehabilitation of vegetation.</td><td>Section 11 of the revised BDAR provides updated mitigation measures including proposed rehabilitation measures.

The revised mitigation measures are included in the consolidated list of mitigation measures in Section 7.2 of this Submissions Report.</td></tr>
<tr><td>Explanation of avoidance and mitigation hierarchy.

Recommended action:

> Restate the hierarchy of avoidance and mitigation in the BDAR to better relate to the relevant biodiversity values.</td><td>Sections 8 and 11 of the revised BDAR provide additional detail regarding the updated avoidance and mitigation hierarchy and proposed updated mitigation measures.

The revised mitigation measures are included in the consolidated list of mitigation measures in Section 7.2 of this Submissions Report.</td></tr>
</table>

Issue raised	TransGrid response to issue
Biodiversity Offset Strategy **Recommended action:** > A Biodiversity Offset Strategy to be developed to demonstrate how the biodiversity credit obligation will be met.	As noted in Section 9.6.3 of the EIS and Section 12.7 of the revised BDAR, a biodiversity offset strategy is proposed to be implemented to meet the proposals offset obligations. The biodiversity offset strategy will continue to be developed throughout the ongoing design development of the proposal and would comprise four options of: > purchasing and retirement of existing biodiversity credits currently available on the biodiversity credit register > establishing a biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the proposal > making a payment into the Biodiversity Conservation Fund > alternative strategic offset outcome. The final obligation would be confirmed as the design of the proposal is further refined and the disturbance area is confirmed. A revised obligation based on the current amended proposal has been discussed in Chapter 12 of the revised BDAR.
The qualitative flood risk assessment completed as part of the EIS does not fully satisfy the submitted BCD environmental assessment requirements related to flooding. **Recommended action:** > In the detailed design phase, complete quantitative flood modelling and assessments for infrastructure that will be located in floodplain areas with the aim to reduce flood impacts to acceptable level of risk.	During the detailed design, TransGrid would complete a quantitative flood modelling and assessment for any proposal infrastructure that will be located in floodplain areas. This assessment would seek to identify opportunities to further refine the design of the proposal in order to minimise flood impacts to acceptable level of risk.
MNES – Initial Assessment	
BCD noted that they considered that: > All relevant EPBC Act-listed threatened species and communities have been identified. > The Biodiversity Assessment Method (BAM) has been applied to all relevant EPBC Act-listed threatened species and communities. > The EIS assesses all of the relevant EPBC Act-listed threatened species in accordance with the SEARs.	The comments from BCD regarding the extent of the assessments scope and methodology is noted.

Issue raised	TransGrid response to issue
It was noted that in order for BCD to complete the MNES assessment, additional information is required on avoidance and mitigation of impacts.	Sections 8 and 11 of the revised BDAR provide additional detail regarding the updated avoidance and mitigation hierarchy and proposed updated mitigation measures. The revised mitigation measures are included in the consolidated list of mitigation measures in Section 7.2 of this Submissions Report.
It was noted that in order for BCD to complete the MNES assessment, additional information is required on biodiversity offsets. Specifically, BCD noted that the exact nature of the impacts has yet to be finalised and this means that the quantum of credits has also not been finalised. Further detail on the Biodiversity Offset Strategy for the EnergyConnect (Western) project is required for BCD to provide the Commonwealth Government with certainty that the offsets proposed to address impacts to EPBC Act-listed entities are in accordance with the requirements under the EPBC Act.	Section 12 of the revised BDAR provides details regarding the updated credit requirements and Biodiversity Offset Strategy.

6.4 NSW Department of Planning, Industry and Environment – Crown Lands

The Department of Planning, Industry and Environment – Crown Lands (DPIE – Crown Lands) provided a response to the exhibition of the EIS dated 23 November 2020. Overall, DPIE – Crown Lands did not raise any overarching concerns with, or objections to, the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-4.

Table 6-4 Response to Department of Planning, Industry and Environment – Crown Lands submission

Issue raised	TransGrid response to issue
Crown Land parcels The department noted that the proposed infrastructure would traverse a number of Crown land parcels, including Western Lands Leases and Travelling Stock Reserves. DPIE – Crown Lands noted that TransGrid would need to identify all Crown land parcels that are proposed to be impacted and undertake appropriate consultation.	To date, TransGrid has conducted more than 20 engagement activities with Crown Lands on matters related to Crown holdings within the proposal area. As noted in Section 7.3.1 of the EIS, initial consultation with the NSW Crown Lands Department related to matters of Crown Land impacts was commenced as part of the preparation of the EIS. Section 12.3.2 of the EIS acknowledges that most of the land zoned for primary production within the proposal study area is Crown Land held under Western Lands Leases, granted under the *Crown Land Management Act 2016*. Section 12.4.1 of the EIS identified that, where required, acquisition of Crown Land would be undertaken in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991, Crown Lands Management Act 2016* and the *Crown Land Legislation Amendment Act 2017*. This process would be undertaken by TransGrid's property team and will include all relevant consultation as required under this legislation with the relevant land authorities and land holders.
Freehold conversion DPIE – Crown Lands noted that TransGrid should consider that some of the Crown land parcels applicable to the project may also be under application for conversion to freehold title, which may have approval granted prior to construction commencing.	The potential for some parcels of crown land to be converted to freehold title prior to construction commencing is noted. This issue will continue to be monitored by TransGrid's property team as part of any land acquisition requirements.
Soil and groundwater DPIE – Crown Lands noted the potential for soil erosion as a result of the construction works and recommended the implementation of progressive rehabilitation during the construction work. In addition, DPIE – Crown Lands stated that the *Salinity Training Manual* (DPI, 2014) should be used where high-risk saline soils are encountered.	Section 20.4.1 of the EIS stated that disturbed areas would be progressively rehabilitated as construction work progresses to minimise the duration of disturbance. Disturbed land would be reinstated to pre-existing conditions or other condition as agreed with the landholder. This would assist in reducing the impact on groundwater and the potential spreading of saline soils should they be encountered and disrupted. No long-term impacts to soils or the land capability of these areas is anticipated. Section 20.3.3 of the EIS noted that the majority of the proposal study area has been mapped as having low salinity potential, with no mapped areas of high salinity occurring.

Issue raised	TransGrid response to issue
	However, as stated in Section 20.4.1 of the EIS, construction within areas of moderate to high-risk saline soils would be managed in accordance with the *Salinity Training Manual* (DPI, 2014). Mitigation measure SCG9 has been updated to reflect this additional training manual.
Construction materials DPIE – Crown Lands noted that all topsoil, construction materials etc will be stored within project acquired land. However, if topsoil plans to be stored outside of the proposal area, and this area is Crown land, a Crown land licence will need to be obtained. Furthermore, should extractive material (sand, gravel etc.) for the project need to be sourced from Crown land, a Crown land licence will need to be obtained.	As identified in Section 6.6.2 of the EIS, in order to reduce potential earthwork requirements, top soils would be stockpiled within the construction disturbance area and reused for re-establishing grasses and other vegetation in areas proposed to be rehabilitated. It is not proposed to stockpile material outside of the proposal study area. DPIE – Crown Lands requirements to obtain licences for use of Crown land outside of the proposal area to store top soil material is noted and would be leased where required. Similarly, should extractive material for the proposal need to be sourced from Crown land, a Crown land licence will be obtained.
Dust and water Water required for dust suppression and general construction is proposed to be potable water from existing Wentworth Shire Council facilities including storage in water tanks along the easement. Non-potable water, including bores, should be treated with caution that its use will not lead to adverse effects like dryland salinisation.	Potable water is not proposed to be used for dust suppression during construction. As noted in Section 6.9.2 of the EIS, potable water is only proposed for concrete batching activities and camp site use. DPIE – Crown Lands comments regarding the use of non-potable water is noted.
Native vegetation offsets DPIE – Crown Lands noted that should a Biodiversity Stewardship Agreement be required as part of the project, concurrence from the department, prior to seeking approval under the *Biodiversity Conservation Act 2016*, will be required.	Section 9.6.3 of the EIS noted that one of the options currently being considered as part of the proposal biodiversity offset strategy is establishing biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the proposal. Should a Biodiversity Stewardship Agreement be required as part of the proposal, TransGrid would consult with DPIE – Crown Lands regarding any concurrence that is required to be sought.

6.5 NSW Department of Planning, Industry and Environment – Water and the NSW Natural Resources Access Regulator

The NSW DPIE – Water and the NSW Natural Resources Access Regulator (NSW DPIE Water and NRAR) provided a response to the exhibition of the EIS dated 26 November 2020. Consideration of the items raised in their submission is provided in the following sections. Overall, the NSW DPIE Water and NRAR did not raise any overarching objection to the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-5.

Table 6-5 Response to NSW Department of Planning, Industry and Environment – Water and the NSW Natural Resources Access Regulator submission

Issue raised	TransGrid response to issue
Water Licencing and Access 1. The proponent should provide clarification of the ability to obtain the necessary water volumes via relevant agreements and demonstrate sufficient water entitlements can be acquired, where necessary. Where the water is to be sourced from a currently unauthorised source and/or where additional water take infrastructure is required, an impact assessment of this water take will be required.	The EIS identified that water would be supplied for the proposal from existing regulated sources and that water would be purchased from the existing water market within the region or from local council facilities. Access to these sources would occur through the use of existing, licensed water extraction infrastructure only. At the time of preparation of the EIS, TransGrid had commenced discussions with Wentworth Shire Council to access the required volume of potable water for the proposal from existing council facilities. For non-potable water supply, commercial discussions with potential suppliers to secure non-potable water had also commenced. Following exhibition of the EIS and engagement of the preferred construction contractor, ongoing discussions have continued with a range of potential water suppliers to provide additional clarity in relation to access to potable and non-potable water during construction. As part of the ongoing discussion with the potential water suppliers, a series of water supply points have been identified which would provide connection points to existing water supply pipelines. No new extraction infrastructure from existing watercourses is proposed as part of the water supply points proposed and that water would be purchased under licencing agreements with the various water suppliers/landholders as required. Indicative locations and works required at each site are described within this section. This would be confirmed during final negotiations with the water supplier. Ongoing consultation with water suppliers may also identify other water sources that may be used by the proposed which would be secured under standard supply /purchase agreement from existing facilities (no infrastructure amendments needed for them). While TransGrid and the preferred construction contractor are yet to enter into formal agreement(s) with these regulators, consultation to date has identified that the necessary water volumes to provide sufficient water entitlements are likely to be available when required from the identified supply points. TransGrid and the preferred construction contractor are continuing to liaise with all water providers in relation to securing sufficient water entitlements. Refer to Section 2.7 and Chapter 6 of the Amendment Report for further detail and the assessment of the proposed construction water supply points (refer to Section 2.7 and Chapter 6 of the Amendment Report).

Issue raised	TransGrid response to issue
The impact assessment of installing works to access water supplies combined with acquiring additional water entitlement will need to meet the rules of the relevant Water Sharing Plan and the Access Licence Dealings Principles Order (2004). Completing the impact assessment for additional water take infrastructure as part of the SSI determination process will enable exclusions from approvals under the *Water Management Act 2000* to apply.	It is acknowledged that the proposal will need to meet the rules of the relevant Water Sharing Plan and the *Access Licence Dealings Principles Order* (2004).
<u>Monitoring bores</u> 2. The proponent should clarify the potential impacts to current monitoring bores and confirm how the desired monitoring outcomes will be achieved into the future via either new monitoring bores or altered construction works. Consultation with relevant monitoring bore owners will be required.	Section 20.4.2 of the EIS stated that three registered bores exist within the transmission line corridor and/or proposal study area. These include GW088454-nested, GW087531 and GW600452. The EIS identified that these bores may be damaged or require removal for construction of the proposal (including potential indirect impacts due to vibration). The submission by NSW DPIE Water and NRAR identified that GW088454-nested and GW087531 are monitoring bores owned by WaterNSW with GW600452 being a privately-owned monitoring bore. Further refinement of the design following exhibition of the EIS has identified that these three monitoring bores would be able to be avoided by the proposal. As identified in mitigation measure SCG7, these bores would be clearly demarcated with a five by five metre exclusion zone during construction. Consultation with WaterNSW and the owner of the private monitoring bore would be undertaken as part of the ongoing detailed design of the proposal (as stated in mitigation measure SCG7).
<u>Geomorphic assessment</u> 3. The proponent should clarify which is correct, as follows: > There is inconsistencies in Table 15-2 (EIS) and Table 4.3 (of Technical Paper 6) where the Great Darling Anabranch is identified as being in 'moderate' geomorphic condition according to the River Styles database (condition field) but 'good' condition in the description field.	The information presented in Table 15-2 of the EIS and Table 4.3 of Technical paper 6 was sourced directly from the classifications provided in the NSW River Styles Mapping (DPI, 2019) (refer to Section 15.3.2 of the EIS and 4.12 of Technical Paper 6). The text provided was a direct copy from the available NSW information. The inconsistency is therefore considered to be in the source information. As the assessment undertaken was desktop based, no field verification was undertaken to confirm the overall condition.

Issue raised	TransGrid response to issue
4. The proponent should clarify the value of minor channels for delivering flow to main channels in flood and include a commitment to avoid direct impacts on lower order channels where possible.	As described in Section 4.12 of Technical Paper 6, the reference to 'poor condition' was developed using the NSW River Styles Mapping terminology (DPI, 2019). This terminology was used as part of the assessment to indicate first and second order streams or overland flow paths would be in a poor geomorphic condition due to having no fixed channel shape or size and have a high fragility because of the significant potential to change with each flood event or be affected by minor changes in the landscape. It is acknowledged that in some of these systems, the minor channels carry flow only in flood and their dry state in low-flow periods do not necessarily constitute poor condition. The categorisation of poor condition did not change the assessment of risk associated with these streams. Section 5.2 of Technical paper 6 notes that impacts to these areas would be minor but could result in local changes to channel shape and location which in turn causes erosion as the channel is moved from its original position. This section also notes that these changes would have to be discussed with landholders and managed during construction.
5. The proponent should clarify that a specific geomorphic monitoring or procedure will be detailed (in the Construction Environmental Management Plan) and in place to identify and address any impacts that arise from the project.	Given the currently anticipated impacts associated with the amended proposal, it is not currently proposed to undertaken any geomorphic monitoring or to prepare geomorphic monitoring procedures. Anticipated impact as a result of the proposal would be managed in accordance with measures to be outlined in the soil and water sub-plan (as part of the CEMP for the proposal).
Post approval recommendations 6. The proponent must obtain relevant approvals and licences under the *Water Management Act 2000* before commencing any works which intercept or extract groundwater or surface water.	Under the provisions of section 5.23(1) of the EP&A Act, a water use approval pursuant to section 89 of the WM Act, a water management work approval pursuant to section 90 of the WM Act, and an activity approval (other than an aquifer interference approval) pursuant to section 91 of the WM Act are not required and accordingly, do not apply to approved State significant infrastructure project. It is not anticipated that the proposal would interfere with any aquifers as the proposal would not likely require excavation to a sufficient depth to intercept an aquifer or result in drawdown. In the event groundwater is encountered, it would be limited to discrete locations and likely from perched, non-permanent and localised groundwater. Under Schedule 4 of the Water Management (General) Regulation 2018, a take of three megalitres of groundwater in a water year during excavation works is exempt from requiring an access licence under the *Water Management Act 2000* as long as the take is not for consumption of supply. Access to water during construction, as outlined earlier in this table, would be purchased from the existing water market (to the extent required) within the region or from local council facilities and the proposal does not seek approval to construct new extraction infrastructure from surface water sources.

Issue raised	TransGrid response to issue
7. The Soil and Water management sub plan of the Construction Environmental Management Plan be provided to DPIE Water for review.	TransGrid would make the Soil and Water management sub plan of the Construction Environmental Management Plan available to DPIE Water for review.
8. Works within waterfront land must be carried out to meet the requirements of the *Guidelines for Controlled Activities on Waterfront Land* (NRA 2018).	Section 15.2 of the EIS noted this guideline as one of the relevant guidelines to the assessment of the proposal. Any works within waterfront land would be carried out in accordance with the requirements of the *Guidelines for Controlled Activities on Waterfront Land*. Mitigation measure HF5 has been updated to clarify this requirement.

6.6 NSW Department of Primary Industries – Agriculture

The NSW Department of Primary Industries – Agriculture (DPI – Agriculture) provided a response to the exhibition of the EIS dated 24 November 2020. Overall, DPI – Agriculture did not raise any overarching concerns with, or objections to, the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-6.

Table 6-6 Response to Department of Primary Industries – Agriculture submission

Issue raised	TransGrid response to issue
DPI – Agriculture raised concern regarding the impacts on areas under cropping and irrigation as they return to productivity post drought. It was noted these land uses cover a smaller amount of land for a higher level of production and for this reason would suffer higher levels of possible disruption from the line. DPI – Agriculture requested further details are required on how these properties will be future proofed against the project's ongoing impacts.	While it is acknowledged that the proposal study area contains areas of existing farmland, as outlined in Section 12.3.3 of the EIS (and *Technical paper 3 – Agricultural land impact assessment*), the agricultural productivity is relatively low compared to other areas in NSW, largely due to low rainfall, high temperatures and low to moderate fertility soils. This is reflected in the relatively low value of agricultural production on a per hectare basis as well as the small proportions of the proposal study area being used for higher value cropping and improved pastures. As such, the overall impact on agricultural productivity within and surrounding the proposal study area from construction is expected to be negligible. As identified in Section 3.3 of the EIS, the avoidance of potential intensive agricultural activities and horticultural uses was considered as part of the Tier 2 constraint areas (areas that are to be avoided wherever possible). Overall, these areas were generally avoided as part of the development of the preferred corridor (as shown in Figure 3-3 and Figure 3-4 of the EIS) Notwithstanding the avoidance wherever possible as part of the development of the preferred corridor alignment, land within an easement, and immediately next to the proposal would continue to be able to be used for grazing during operation (refer to Section 12.5.2 of the EIS). However, it is acknowledged that the proposal has the potential to result in a minor reduction to the land available for some cropping and horticultural land uses where higher intensity crops would be likely to grow within required safety clearance areas for the transmission lines. These land uses only comprise a small portion of the proposal study area (approximately eight per cent) and the area of land affected would be minimised where possible through design refinement.

Issue raised	TransGrid response to issue
	Mitigation measure LP2 also states that, during design, the final location of the transmission line and other permanent structures would be located where possible to avoid or minimise impacts, or as agreed with the affected landholder taking into consideration factors such as cropping or other horticultural requirements. Moreover, the proposal study area would cover a small fraction (about 0.6 percent) of the total agricultural land in the Wentworth LGA, and therefore the impacts on the overall agricultural activities in the region are considered to be minimal. Additionally, given the relatively small size of the disturbance area compared to the large average size of the agricultural properties, construction activities are not likely to cause significant loss, fragmentation or alienation of agricultural land or significant disruptions to agricultural operations.
DPI – Agriculture recommended that construction and operational Weed and Pest Management Plans be developed in consultation with landholders and the relevant agencies.	Section 23.1.2 of the EIS identified the range of proposed construction environmental management sub plans to be developed for the proposal. This included a biodiversity sub-plan that would set out measures to minimise and manage impacts on biodiversity including weed and pest management. The sub plan would also draw on the mitigation measures outlined in Table 23-2 of the EIS which included: > identification of biosecurity controls to be implemented during construction to minimise the risk of off-site transport or spread of disease, pests or weeds (mitigation measure LP7) > where present, weeds will be managed in consultation with Western Local Land Services, Wentworth Shire Council and NSW Department of Primary Industries (mitigation measure LP8) > in the event of new infestations of notifiable weeds as a result of construction activities, the relevant control authority will be notified as per Biosecurity Act 2015 and Biosecurity Regulation 2017 (mitigation measure LP9). As also identified in mitigation measure LP11, biosecurity controls would be implemented during operation to minimise the risk of off-site transport or spread of disease, pests or weeds during maintenance activities.

6.7 NSW Department of Primary Industries – Fisheries

The NSW Department of Primary Industries – Fisheries (NSW DPI Fisheries) provided a response to the exhibition of the EIS dated 27 November 2020. Overall, the NSW DPI Fisheries did not raise any overarching concerns with, or objections to, the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-7.

Table 6-7 Response to NSW Department of Primary Industries – Fisheries submission

Issue raised	TransGrid response to issue
NSW DPI Fisheries policy requires riparian buffer zones to be established and maintained for developments in or adjacent to Type 1 or 2 fish habitats. NSW DPI Fisheries noted that the Murray River, Darling River and the Great Darling Anabranch are considered to be Type 1 habitat and for such habitats DPI Fisheries require a buffer zone of 100 metres.	Given the linear nature of the proposal, it is not possible to completely avoid crossing the Type 1 habitat locations as the proposal fundamentally needs to cross these locations in order to be constructed and to operate. As identified in mitigation measure SCG6, the construction methodology for transmission line structure foundations would ensure that excavations will not occur within 40 metres of the Darling River, Great Darling Anabranch or Murray River. Impacts to the 100 metre buffer areas would be minimised where possible, including locating transmission line structures and direct footprints outside of the 100 metre buffers and by minimising impact to vegetated riparian corridors, wherever practicable (refer to revised mitigation measure B5). Additionally, shrub or ground stratum native vegetation within vegetated riparian zones of the Great Darling Anabranch, Darling River and/or Murray River (and other defined riparian areas) would be protected to the greatest extent practicable, with vegetation clearing ideally limited to the tree stratum only, with trunk bases being retained in-situ (refer to revised mitigation measure B16). Activities within vegetated riparian zones would also be managed to minimise impacts to aquatic environments. Riparian areas subject to disturbance will be progressively stabilised and rehabilitated (refer to revised mitigation measure B17). Further refinement based on detailed habitat assessment would enable further micro siting of transmission line towers and positioning access tracks to further avoid and minimise impacts on these buffer zones during the detailed design phase. Any impacts to these riparian areas that cannot be avoided would be offset under the BAM and supplementary restoration of instream woody habitat will also occur to result in an overall improvement in instream habitat quality post-construction.

Issue raised	TransGrid response to issue
NSW DPI Fisheries noted that fish habitat compensation is calculated on a minimum 2:1 basis for all key fish habitat to help redress other indirect impacts of development. As the proposal identifies vegetation removal and trimming within the riparian zone at river crossings to meet the transmission line clearance height requirements, NSW DPI Fisheries noted that strategy to offset the impacts of the proposed riparian zone vegetation loss is needed to meet the 2:1 habitat offset requirement.	It should be recognised that biodiversity offsetting (including of riverbank Plant Community Types), is already required under the BAM and that this would substantially exceed a 2:1 ratio. As identified in Section 9.4.7 of the EIS, impacts from the proposal on aquatic habitats, particularly mapped key fish habitats are considered likely to be negligible. The only likely impact to occur in an area of key fish habitat would be the removal or trimming of tree canopy on the river banks to facilitate the construction and operation of the powerlines spanning each riparian area. All trunk bases and understorey would be retained in-situ adjoining the river banks. Section 9.4.7 of the EIS also noted that avoiding and minimising impacts on aquatic habitats would be a priority of detailed design and any residual indirect impacts would be subject to mitigation measures. Transmission line structures would be located (where this provides a feasible engineering outcome) around 50 to 100 metres from the waterways to minimise impact to riparian areas. Mitigation measure B14 also states that activities within vegetated riparian zones will be managed to minimise impacts to aquatic environments. Riparian areas subject to disturbance will be progressively stabilised and rehabilitated. In addition, TransGrid would commit to utilising any cleared vegetation to restore instream woody habitat, to ensure no net loss of fish habitat post construction. This would assisting in actually resulting in an increase in instream woody habitat post-construction.

6.8 NSW Environmental Protection Authority

The NSW Environmental Protection Authority (EPA) provided a response to the exhibition of the EIS dated 18 November 2020. The EPA noted that they had reviewed the EIS and that the EIS provided sufficient information to meet the Secretary's Environmental Assessment Requirements (SEARs) for the proposal.

The NSW EPA submission noted that based on the information provided, the proposal did not appear to require an environment protection licence under the *Protection of the Environment Operations Act 1997* (PoEO Act). However, the proposal is being undertaken on behalf of a NSW public authority and therefore the EPA is the appropriate regulatory authority for the proposal.

TransGrid acknowledge that the NSW EPA would be the appropriate regulatory authority for the proposal (subject to proposal approval). No other comments were raised as part of the submission from the EPA on the exhibited EIS.

Since the exhibition of the EIS, an amendment to the proposal has been made to include a crushing and screening plant as part of the construction methodology for the proposal. This plant would meet the thresholds of a scheduled activity as provided in Schedule 1 of the PoEO Act, and therefore may require an environment protection licence (EPL).

As part of the amendment, further consultation was undertaken with the NSW EPA in February 2021. As a result of this consultation, the NSW EPA advised the following:

> confirmation the proposed amendment would trigger the need for an EPL under the 'crushing, grinding or separating' activities schedule of the PoEO Act, noting that under section 5.24 of the EP&A Act, an EPL cannot be refused for an SSI project and must be generally consistent with any SSI approval
> assessment of air quality impacts for the amended proposal should be undertaken in accordance with the EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2016) including consideration of dispersion modelling for dust and particulates
> assessment of noise impacts for the amended proposal should be undertaken in accordance with the *Noise Policy for Industry* (EPA, 2017).

Further detail on the amended proposal and documentation of the additional assessments in accordance with the EPA requirements is provided in the Amendment Report for the proposal.

6.9 Transport for NSW

Transport for NSW provided a response to the exhibition of the EIS dated 10 December 2020. Overall, the Transport for NSW did not raise any overarching objection to the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-8.

Table 6-8 Response to Transport for NSW submission

Issue raised	TransGrid response to issue
Camp locations and road access Transport for NSW has concerns regarding the location of the site remote from Wentworth within a high speed environment. It is understood that the information provided in the EIS does not reflect the latest intentions for the location of the workers camp and compound sites for this project with the revised camp locations being located along Arumpo Road and Renmark Road. Both Arumpo Road and Renmark Road are classified roads and the impact of traffic generated by the proposed compound sites will need to be assessed by Transport for NSW. To enable this, more detailed information is required in relation to the location of the site located on Renmark Road as well as a breakdown of the size and type, and number of vehicles required to access each site on a daily basis. The potential impact on the intersection of Renmark Road with the Silver City Highway will also need to be addressed.	Following appointment of the preferred construction contractor, further consideration of the construction strategy for the proposal was carried out. This has resulted in a revision of the proposed use and location of the previously proposed construction compound and accommodation camp sites. These revisions include: > confirmation of the location for the Wentworth construction compound and accommodation camp location, which would be located along Renmark Road > refinement of the of proposed use of the Anabranch South site along the Silver City Highway to remove the provision of accommodation facilities at this site, while retaining it as a material laydown area only. Detailed information with respect to the location of the new construction compound and accommodation camp located on Renmark Road, including a breakdown of the size and facilities to be accommodated, is provided in Section 2.2 of the Amendment Report. An overview of the number and type of vehicles required to access both the existing compound site at Buronga and the proposed new site at Wentworth is provided in Section 2.9.3 of the Amendment report. The potential impact of the construction compound and accommodation camp site at Wentworth on the intersection of Renmark Road with the Silver City Highway has been considered as part of this impact assessment presented in Chapter 6 of the Amendment Report.

Issue raised	TransGrid response to issue
	In addition, for all the proposed compound sites including those located along sections of roadways with high speed environments, mitigation measure TA1 currently provides for the design of any accesses from public roads to be undertaken in accordance with the *Austroads Guide to Road Design*. This would include (among other elements identified in the design guide) considerations such as those identified by Transport for NSW including minimum driveway widths, sight distance criteria and swept path requirements. Further discussion regarding the potential impact on the intersection of Renmark Road with the Silver City Highway addressed is provided in Section 6.11.2 of the Amendment Report. The assessment concluded that this intersection is considered to provide ample capacity for the existing traffic volumes (less than 50 vehicles per day) and the additional traffic generated by Wentworth main construction compound and accommodation camp site.
Oversize and overmass vehicles Section 18.4.5 refers to the potential haulage routes, however the submitted documentation provides limited information in relation to the number and size of the oversize and overmass vehicles required to deliver components, including substations. The documentation lists four potential haulage routes depending on the port of origin of the components, including from Melbourne and Adelaide. The information provided does not currently address details of potential pinch points and specific mitigation measures required. More detailed information is required to allow for an informed assessment of the potential impacts on the road network.	Following exhibition of the EIS, additional detail regarding the requirements for oversize and overmass vehicles during construction have been developed in consultation with the preferred construction contractor. Details of oversize and overmass vehicle requirements are provided in Section 2.9.3 of the Amendment Report. This includes an indicative number of vehicles required, estimated load sizes and indicative delivery port. A *Transport Route Study* (Rex Andrews, 2021) for the route between Port Adelaide and the Buronga Substation has been undertaken to provide an assessment of this particular route. The *Transport Route Study* provides an initial assessment of the of this haulage route for oversize and overmass vehicles. The report includes consideration of factors such as: > description of the port of import > an overview of the proposed haulage route > a summary of the transport approvals required > an indicative travel schedule breakdown > identification of potential pinch points and mitigation measures/ actions to be undertaken > overviews for elements such as managing queued traffic, emergency stopping and interaction with roadworks. The *Transport Route Study* demonstrates the feasibility for oversized/overmass vehicles and delivery of large scale material and equipment to the Buronga Substation site without requiring any adjustments to the road network. The *Route Study: Port Adelaide to Buronga (Rex Andrews, 2021)* is attached as Appendix C of this Submissions Report. Further detail is provided in Section 2.9.3 of the Amendment report.

Issue raised	TransGrid response to issue
	The current investigation by TransGrid and the preferred construction contractor has utilised the Transport for NSW Overmass Oversize maps as well as advice from transport companies which has identified that, based on currently proposed equipment requirements, and the feasibility assessment of the Port Adelaide to Buronga haulage route, materials would be able to be suitably transported without the need for road modifications or bridge strengthening along the proposed routes. Should the detailed development of the construction methodology identify that movements would be required from other port(s), such as Melbourne, Sydney, Newcastle or Wollongong, a similar review would be carried with the intention that no works would be required to local or regional roads to facilitate movements. Any of the proposed long-distance haul routes required would be subject to permits granted by National Heavy Vehicle Regulator and would be assessed accordingly (refer to mitigation measure TA5).
The logistics associated with the transportation of materials for the development needs to be addressed. When the preferred haulage route is selected, a full and independent risk analysis and inspection of the route may be required to be prepared and supplied for comment. Further analysis and reporting to assess possible damage to, and repair of the route will be required on a regular basis.	The logistics associated with the transportation of materials for the proposal would continue to be refined as part of the ongoing development of the final design for the proposal, development of the construction methodology and ongoing discussion with material suppliers and equipment suppliers. As identified in the EIS, this may require multiple haulage routes from different port(s) depending on the requirements of the nominated material and equipment suppliers. Once determined, full risk analysis and inspection of the finalised haulage routes would be undertaken to ensure the suitability of the route(s), including a baseline assessment of the condition of the routes against which any possible damage could be considered. This requirement would be included as part of the traffic and transport sub-plan for the proposal CEMP.
<u>Construction access tracks</u> The construction of temporary access tracks to the construction works from the public road network will require assessment and approval from the relevant road authority prior to construction.	Consideration of the potential impacts of temporary construction access tracks was undertaken in Section 18.4.2 of the EIS. Where required, TransGrid would seek approval from the relevant road authority for works (such as access tracks) that would require connection to a public road. The requirement for approval from the relevant road authority is identified in mitigation measures TA1.

Issue raised	TransGrid response to issue
Access driveways to the classified road network shall be kept to a minimum. Mitigation measure TA1 lists the proposed mitigation measures to address access related issues. In addition to the items listed the following items need to be considered. > As a minimum, any driveway to a construction compound or camp site from the classified road network shall be constructed as a rural property access driveway as per the *Austroads Guide to Road Design*. > Access driveways to the public road network shall be located at a site that complies with the required sight distance criteria as per the *Austroads Guide to Road Design* for the posted speed limit and be designed for the swept path of the largest vehicles likely to access that driveway.	Access driveways to the classified road network have been kept to a minimum as far as possible. The revised access strategy for the proposal following exhibition of the EIS has sought to preferentially use existing public and private access points and tracks in order to utilise existing infrastructure and minimise impacts such as the need for additional vegetation clearing. Mitigation measure TA1 currently provides for the design of any accesses from public roads to be undertaken in accordance with the *Austroads Guide to Road Design*. This would include (among other elements identified in the design guide) considerations such as those identified by Transport for NSW including minimum driveway widths, sight distance criteria and swept path requirements.
Work across road reserves The methodology for the stringing of power lines across the road reserve of public roads shall be outlined in the documentation.	As outlined in Section 6.6.4 of the EIS, following construction of the transmission line structures, the transmission line would be strung by either a ground pulled draw wire (with brake/winch sites) or a line stringing drone. The final detailed methodology for the stringing of transmission line cables, including traffic management requirements where this would occur across road reserve(s) for public roads, would be outlined in the traffic and transport sub-plan for the proposal. These works may also require section 138 approval and Road Occupancy Licence(s) (see response below) where they are undertaken on or across classified roads.
A section 138 approval and a Road Occupancy Licence will be required for works within the road reserve of a classified road.	The potential requirement for Section 138 approval(s) and/or Road Occupancy Licence(s) is noted. This requirement is addressed by existing mitigation measure TA4 which states: *Road Occupancy Licence(s) will be sought (as required) for any road closures (full or partial) prior to any such closure. The timing of any closures will be carried out to minimise impacts to the road network.* TransGrid is not required to obtain a section 138 approval for works that impact on unclassified roads by reason of clause 5 of Schedule 2 of the *Roads Act 1993*, noting that under section 5.24 of the EP&A Act, to the extent that a section 138 approval is required, this approval cannot be refused and must be generally consistent with any SSI approval.

Issue raised	TransGrid response to issue
Traffic Management Plan A Traffic Management Plan shall be prepared in consultation with the relevant road authorities (Council and Transport for NSW) to outline measures to manage traffic associated with the construction and operation of the development including the movement of plant and components to the site. The Traffic Management Plan for the movement of oversize plant to the site shall involve the transport contractor. The plan shall focus on the management of traffic generated by the development, the potential impacts, the measures to be implemented, and the procedures to monitor and ensure compliance.	As outlined in Section 23.1 of the EIS, a traffic and transport sub-plan would be prepared as part of the overarching approach to environmental management for the proposal during construction. The sub-plan would be contained within the overall Construction Environmental Management Plan (CEMP) for the proposal. As noted in Section 23.1 of the EIS, the sub-plan will be prepared in consultation with Wentworth Shire Council to identify the key management and response strategies to potential delays and disruptions that may arise due to the proposal. It will include (as a minimum): > measures to minimise disruption to pedestrians, cyclists and motorists > management of safe vehicle access/egress from construction compounds and other construction work areas > measures to manage oversize and overmass vehicle movements during construction, which will consider activities of adjoining land uses and safety of the public, such as entering urban areas from rural highways > management of long-distance travel through driver fatigue management measures > measures to ensure safe access to existing properties during construction, or provision of suitable alternatives. The preparation of the sub-plan would also consider any requirement to consult with Transport for NSW (such as with respect of impacts to classified roads) and would take into account the items as outlined in Transport for NSWs' submission.

6.10 WaterNSW

WaterNSW provided a response to the exhibition of the EIS (undated). Overall, WaterNSW did not raise any overarching objection to the proposal in their submission. Consideration of the submission from WaterNSW is provided in Table 6-9.

Table 6-9 Response to WaterNSW submission

Issue raised	TransGrid response to issue
WaterNSW noted that there are a large number of surface and ground water monitoring sites in the vicinity of the proposal. WaterNSW requested that the applicant ensure measures are implemented to provide continued access to these sites by WaterNSW staff and/or contractors during works as part of the traffic management plan.	TransGrid would ensure that WaterNSW would be able to maintain continued access to any of their surface and ground water monitoring sites during construction and operation of the proposal. As discussed in Table 6-5, further refinement of the design following exhibition of the EIS has identified that the identified WaterNSW monitoring bores within the proposal study area would be able to be avoided by the proposal.

6.11 Wentworth Shire Council

Wentworth Shire Council provided a response to the exhibition of the EIS (undated). Overall, the Wentworth Shire Council did not raise any overarching objection to the proposal in their submission. Consideration of the submission from Wentworth Shire Council is provided in Table 6-10.

Table 6-10 Response to Wentworth Shire Council submission

Issue raised	TransGrid response to issue
Council would require [the proponent] to enter into a Road Maintenance Agreement to protect and maintain our unsealed local road network for the duration of the project.	TransGrid will commit to a Road Maintenance Agreement with Wentworth Shire Council to ensure appropriate remediation of roads within the project area following completion of the project (refer to additional mitigation measure TA11).
Council also requires the forming up and sealing of approximately 40km of the Renmark Road in Wentworth. This would contribute to the flow through of traffic to South Australia instead of forcing vehicles unable to travel on unsealed roads down through Victoria on the Sturt Highway.	The proposed construction methodology would not require a substantial upgrade to the Renmark Road. TransGrid met with Wentworth Shire Council staff on 10 February to discuss the range of amendments relevant to Wentworth Shire Council assets including roads and water infrastructure, along with Wentworth Shire Council's submission regarding the Renmark Road. As part of the consultation it was acknowledged that as previously identified in mitigation measure TA2, road pre-condition surveys on construction haulage routes, including Renmark Road, will be carried out prior to the commencement of construction in consultation with relevant councils and road owners. This will include identification of existing conditions and mechanisms to repair damage to the road network caused by construction vehicles associated with the proposal.

6.12 Fire and Rescue NSW

Fire and Rescue NSW provided a response to the exhibition of the EIS dated 24 November 2020. Overall, NSW Fire and Rescue did not raise any overarching concerns with, or objections to, the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-11.

Table 6-11 Response to NSW Fire and Rescue submission

Issue raised	TransGrid response to issue
Regional substations and transmission lines are usually located within NSW Rural Fire Services' (RFS) fire districts. Notwithstanding, in the event of either a significant fire event or hazardous material incident (hazmat), Fire and Rescue NSW will be responded to either assist the RFS or to fulfil the role of the designated hazmat combat agency.	Comment from NSW Fire and Rescue noted regarding fire agency responsibility within rural areas.

Issue raised	TransGrid response to issue
Fire and Rescue NSW noted that in the event of a fire or hazardous material incident, it is important that first responders have ready access to information which enables effective hazard control measures to be quickly implemented. Fire and Rescue NSW noted that the following matters are recommended to be addressed:	
1. That a comprehensive Emergency Response Plan (ERP) is developed for the site.	An Emergency Response Manual is currently in operation for the Buronga substation. As identified in mitigation measure HR14 in Chapter 7 of this Submissions Report (formerly HR13 in the EIS), this plan would be updated to include the new proposed design and required revised emergency response procedures.
2. That the ERP specifically addresses foreseeable on-site and off-site fire events and other emergency incidents (such as fires involving electrical substations, battery energy storage systems, bushfires in the immediate vicinity) or potential hazmat incidents.	The update to the Emergency Response Manual would address all foreseeable on-site and off-site fire events and other emergency incidents (such as fires involving electrical substations, battery energy storage systems, bushfires in the immediate vicinity) or potential hazmat incidents.
3. That the ERP details the appropriate risk control measures that would need to be implemented to safely mitigate potential risks to the health and safety of firefighters and other first responders (including electrical hazards). Such measures will include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures to be instigated, minimum evacuation zone distances and a safe method of shutting down and isolating the photovoltaic system (either in its entirety or partially, as determined by risk assessment).	The update to the Emergency Response Manual would detail the appropriate risk control measures that would need to be implemented for firefighters and other first responders (including electrical hazards) including those identified in the Fire and Rescue NSW submission.
4. Other risk control measures that may need to be implemented in a fire emergency (due to any unique hazards specific to the site) should also be included in the ERP.	Where required, the update to the Emergency Response Manual would outline any additional control measures specific to the Buronga Substation and/or associated transmission line.
5. That two copies of the ERP (detailed in recommendation 1 above) be stored in a prominent 'Emergency Information Cabinet' located in a position directly adjacent to the site's main entry point/s.	Copies of the updated Emergency Response Manual would be made available in an appropriate location at the Buronga Substation (location subject to detailed design)

Issue raised	TransGrid response to issue
6. Once constructed and prior to operation, that the operator of the facility contacts the relevant local emergency management committee (LEMC).	TransGrid would contact the relevant LEMC prior to commencement of operation of the proposal.
7. It is recommended that an emergency services information package be developed for the site and access to this document be provided to emergency service organisations.	TransGrid would consider the requirements of the emergency services information package as part of the detailed design and development of the updated Emergency Response Manual.

6.13 NSW Rural Fire Service

The NSW Rural Fire Service (RFS) provided a response to the exhibition of the EIS dated 23 December 2020. Overall, NSW RFS did not raise any overarching concerns with, or objections to, the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-12.

Table 6-12 Response to Rural Fire Service

Issue raised	TransGrid response to issue
In addition to the identified mitigation measures detailed in the *Bushfire Impact Assessment Report* prepared by Australian Bushfire Protection Planners Pty Limited dated October 2020, the proposed development shall comply with the following:	
All land surrounding the compounds, construction equipment, and accommodation camps shall be managed as an inner protection area (IPA) for a distance commensurate with 10KW/m2 as detailed in Table A1.12.1 of *Planning for Bush Fire Protection 2019*. The IPA shall be managed in accordance with Appendix 4 of *Planning for Bush Fire Protection 2019*.	Mitigation measure HR2 notes that a minimum 50 metre wide managed Asset Protection Zone will be maintained as a hazard perimeter for all fixed construction equipment and camp site buildings at the accommodation camp and compound sites (unless an alternative fire protection approach that achieves the same level of bushfire risk management is identified by a suitably qualified specialist during detailed design). This is considered to meet the requirements of Table A1.12.1 based on the underlying vegetation and slopes surrounding each camp. The asset protection zones would be regularly maintained to provide a maximum grass height of 100 millimetres – 150 millimetres during the prescribed Bushfire Danger Period and when the grassland fuel reaches 70 per cent cured.

Issue raised	TransGrid response to issue
All new construction within the compounds and accommodation camps shall comply with Section 3 and section 5 (BAL 12.5) Australian Standard AS3959-2018 Construction of buildings in bushfire-prone areas or the relevant BAL 12.5 requirements of the NASH Standard - Steel Framed Construction in Bushfire Areas (incorporating amendment A - 2015). New construction must also comply with the construction requirements in Section 7.5 of *Planning for Bush Fire Protection 2019*.	As identified in existing mitigation measure HR3, buildings within the construction compound and camp site will be constructed to comply with Section 3 and Section 5 (BAL 12.5) of A.S. 3959 – 2018 – 'Construction of Buildings in Bushfire Prone Areas'.
All roads shall comply with the design principles and specifications for emergency service vehicle access detailed in Appendix 3 of *Planning for Bush Fire Protection 2019*.	No formal roadways are proposed as part of the proposal. Access tracks required for the construction of the proposal would be expected to meet the requirements for emergency service vehicle access (subject to detailed design of the construction methodology). Access points to the construction compound and accommodation camp sites would also allow for emergency service vehicle access.
The provision of all new and the modification of any existing water, electricity and gas services shall comply with the relevant provisions of *Planning for Bush Fire Protection 2019*. In recognition that an unreliable water supply exists, a minimum 20,000 litre dedicated water supply for fire-fighting operations shall be provided for all compounds and accommodation camps pursuant to the requirements detailed in *Planning for Bush Fire Protection 2019*.	The proposal would be designed, operated and maintained in accordance with TransGrid's Bushfire Risk Management Plan including requirements for managing vegetation near power lines (as noted in *Planning for Bush Fire Protection 2019)*. This will include management of fuel loads, asset protection zones and ongoing inspections requirements for the proposed infrastructure.

Issue raised	TransGrid response to issue
Bush Fire Emergency Management and Evacuation Plan A Bush Fire Emergency Management and Evacuation Plan must be prepared consistent with *Development Planning – A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan* (or equivalent). The Plan shall acknowledge the isolated nature of the proposed works, fire fighting assistance may be limited in the event of a bush fire, and that evacuation may not be possible as escape routes may be blocked. The Plan must be updated on an annual basis for the life of the development following an audit of bush fire protection measures, including maintenance of asset protection zones, buildings, water supply and access roads. The accommodation camps shall provide suitable on-site refuge. The NSW RFS District Office shall be provided with a copy of a Draft Plan for comment. Any comments or recommendations shall be adopted into an amended version of the Plan. The final Plan provided to the NSW RFS District Office must include a site map that clearly illustrates the location of all fire fighting water supplies (including the provision of equipment housed on-site) and access through the sites.	Mitigation measure HR4 stated that water for fire-fighting operations will be confirmed during detailed design with consideration to occupancy density and site layout of the construction compound and accommodation camp sites. This will include onsite static water supply and fire-fighting hose reels. This requirement would be included as part of the bushfire risk management sub-plan to be included in the proposal CEMP. The requirement to provide a minimum 20,000 litre dedicated water supply would be considered during detailed design.

Issue raised	TransGrid response to issue
Prior to the occupation of the sites, all bush fire protection and mitigation measures must be certified as compliant with the numbered conditions above by a suitably qualified bush fire consultant.	A Construction bushfire / hazard management sub-plan would be developed for implementation during the construction of the proposal. This sub-plan would be reviewed as required throughout the construction phase. As part of the detailed planning for the accommodation camps, a suitable on-site refuge area would be identified. This would be noted as part of the Construction bushfire / hazard management sub-plan. A copy of the sub-plan would be made available to the relevant NSW RFS District Office as required. Following construction, the proposal would be operated and maintained in accordance with TransGrid's existing Bushfire Risk Management Plan. Prior to the occupation of the accommodation camps, the proposed bush fire protection and mitigation measures would be developed with appropriate input from a suitably qualified consultant. It is expected that this would occur during detailed design as part of the preparation of the construction bushfire / hazard Management sub-plan. This requirement has been included as revised mitigation measure HR6.

6.14 Geological Survey of NSW – Mining, Exploration & Geoscience

The Geological Survey of NSW – Mining, Exploration & Geoscience provided a response to the exhibition of the EIS dated 25 November 2020. Overall, the Geological Survey of NSW did not raise any overarching concerns with, or objections to, the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-13.

Table 6-13 Response to Geological Survey of NSW – Mining, Exploration & Geoscience submission

Issue raised	TransGrid response to issue
In the EIS, the proponent stated that consultation has occurred with Exploration Licence holder (EL8500) and Exploration Licence Applicant (ELA6062), who have advised the proposal is unlikely to impact their activities. The Geological Survey of NSW identified that since the publication of the EIS, a new Exploration Licence Application (ELA6077) had been submitted on July 12, 2020 by Relentless Resources Limited. The Geological Survey of NSW requested TransGrid to contact Relentless Resources Limited to determine their level of interest.	The original reference ELA 6062 was incorrect in the EIS and is correctly referenced as ELA 6026 (which is marginally within the proposal area). Consultation undertaken with Relentless Resources Limited regarding ELA 6026 has indicated that EnergyConnect would not be expected to impact on their current or planned activity for that site. A review of the MinView Regional NSW Mining, Exploration and Geoscience database (minview.geoscience.nsw.gov.au) has identified that ELA 6077 it is not within the proposal study area and is located near Tamworth. Notwithstanding, as part of the ongoing development of the proposal, TransGrid would consult with Relentless Resources Limited (and other relevant stakeholders) regarding the potential impacts of the proposal on any existing or proposed exploration licences.

Issue raised	TransGrid response to issue
On page 27, the EIS stated to offset the residual impacts to biodiversity, biodiversity offsets would be required in accordance with the Biodiversity Assessment Method. The Geological Survey of NSW requested TransGrid consult with them in relation to the location of any biodiversity offset areas (both on and off site) or any supplementary biodiversity measures to ensure there is no consequent reduction in access to prospective land for mineral exploration, or potential for sterilisation of mineral or extractive resources.	Biodiversity offsets would be met through the implementation of the following (or combination of): > the purchase and retirement of existing biodiversity credits currently available on the biodiversity credit register > establishing biodiversity stewardship site(s) on lands with like for like biodiversity values to those impacted by the proposal > making a payment into the Biodiversity Conservation Fund > alternative strategic offset outcomes. In proceeding with a biodiversity stewardship site, due diligence requirements as detailed in the Biodiversity Stewardship Agreement Application – Supporting Documents Guide (Biodiversity Conservation Trust, June 2020) would be followed. This includes the identification and consideration of mining leases and claims (under the *Mining Act 1992*), production leases (under the *Petroleum (Onshore) Act 1991* or other mining titles (such as exploration licences). If triggered, consent or consultation with the interest holder would be required in accordance with Section 5.9 of the *Biodiversity Conservation Act 2016*. Mining, Exploration & Geoscience would be consulted to confirm any titles present on land being considered as a biodiversity stewardship site, and, if required, could be involved in consultation with titleholders via the Biodiversity Conservation Trust.

6.15 The Murray-Darling Basin Authority

The Murray-Darling Basin Authority provided a response to the exhibition of the EIS dated 24 November 2020. Overall, the Murray-Darling Basin Authority did not raise any overarching concerns with, or objections to, the proposal in their submission.

Consideration of the items raised in their submission is provided in Table 6-14.

Table 6-14 Response to Murray-Darling Basin Authority submission

Issue raised	TransGrid response to issue
The Murray-Darling Basin Authority noted that the proposed works are for significant infrastructure and are therefore considered under Clause 49 Schedule 1 (Murray-Darling Basin Agreement) *Water Act 2007*, being the effect of a proposal on the flow, use, control or quality of water in the upper River Murray and the River Murray in South Australia. The MDBA ensures water quality is maintained or improved, contributing to the protection of the riverine and floodplain environment, and that there is no impact on the flow carrying capacity of the River Murray.	The proposal is located within the Lower Murray-Darling catchment, which is a sub-catchment of the Murray-Darling Basin. TransGrid is also committed to ensuring that water quality is maintained throughout the construction of the proposal. In respect of this commitment, the EIS included mitigation measure HF3 which stated the following: *A water quality monitoring program will be implemented to establish baseline water quality conditions in the Darling River, Darling Anabranch and Murray River prior to construction, and to observe any changes in water quality that may be attributable to the proposal during construction.* *The frequency, location and duration of sampling will be detailed in the monitoring program, but will include:* > *at least two monitoring locations located downstream and upstream of the proposal on the Darling River, Darling Anabranch and, Murray River* > *monitoring for total dissolved solids, total suspended solids, total nitrogen and total phosphorus.* *Sampling will commence at least 6 months prior to the commencement of construction at each respective location, and then monthly during construction until completion of rehabilitation works.*
Based on the information provided, the proposal is not considered to have a detrimental effect on the flow, use, control or quality of water in the River Murray.	Comment from the Murray-Darling Basin Authority is noted.
The Murray-Darling Basin Authority acknowledged the proposal has been located to the north of Renmark Road to minimise biodiversity, Aboriginal heritage and visual impacts. The alignment avoids important landscape features, such as Lake Victoria, with impacts to views predominantly ranging from negligible to low, with moderate impacts to views within the vicinity of Lake Victoria due to the construction of new transmission lines, and visual sensitivity of these areas.	Comment from the Murray-Darling Basin Authority is noted.

Issue raised	TransGrid response to issue
The Murray-Darling Basin Authority anticipate that any risks to water quality including, but not limited to, sedimentation, potential contaminants and stormwater management will be adequately addressed through the development of construction and operational management plans that detail mitigations to potential risks to water quality from this proposal.	Comment from the Murray-Darling Basin Authority is noted. As described in Chapter 23 of the EIS, a range of mitigation measures have been developed to minimise potential risks to water quality, including potential impacts as a result of sedimentation, potential contaminants and stormwater management.
We wish to highlight that Lake Victoria is of significant Aboriginal Cultural Heritage value and, though the alignment of works has been positioned to the north of Renmark Road, the proximity of works to Lake Victoria means an abundance of cultural heritage can reasonably be expected.	TransGrid acknowledge the significance of potential occurrence of Aboriginal cultural heritage associated with Lake Victoria, noting in Section 10.3.1 of the EIS that the oldest archaeological evidence of Aboriginal occupation near the proposal study area is from Lake Victoria, dating back 21,000 years. The Aboriginal heritage assessment undertaken as part of the EIS also acknowledged that culturally significant places near the proposal study area such as Lake Victoria were deemed to be of high aesthetic value to the local Aboriginal community and any development in the area should consider such vistas. Noting the potential to reasonably expect an abundance of cultural heritage within the vicinity of Lake Victoria, the EIS included a mitigation measure (AH10) which noted the following: *If at any time during construction, any items of potential Aboriginal archaeological or cultural heritage significance, or human remains are discovered, they will be managed in accordance with the Aboriginal heritage unexpected finds protocol.* Additionally, (revised) mitigation measure AH1 also provides an overarching requirement to minimise potential impacts to Aboriginal heritage stating: *The detailed design and construction methodology, and associated disturbance area, will be developed to avoid impacts to features/items of Aboriginal archaeological significance as far as practical. Avoidance and minimisation of impact to features/items and PADs of moderate or higher archaeological significance will be prioritised.* *The final disturbance footprint will be designed to avoid impacts to Aboriginal sites as far as practical. Avoidance of sites of moderate or higher archaeological significance will be prioritised.*

7. Revised mitigation measures

This chapter provides the revised approach to environmental mitigation for the proposal, including a revised set of mitigation measures for the proposal. This revised approach to environmental mitigation description supersedes the description previously provided in Chapter 23 of the EIS. New elements or additions to previously proposed proposal are shown in blue text, with deletions or changes shown with a ~~strikethrough~~.

7.1 Approach to environmental management

The construction and operation of the proposal would be consistent with:

- the environmental management system (EMS) of the preferred construction contractor and TransGrid during construction and operation respectively, which are accredited under ISO 14001:2015
- proposal design – measures to avoid and minimise impacts that have been incorporated into the corridor selection and proposal design
- construction and operation environmental management, as described in sections 7.1.1 and 7.1.2. This will be consistent with TransGrid's *HSE Handbook* (TransGrid, 2020), which provides the minimum environmental controls for all construction and maintenance works on the TransGrid network
- mitigation measures – the measures are identified as an outcome of the environmental impact assessment and refined as part of this Submissions Report (refer to Section 7.2).

TransGrid's existing ISO 14001:2015 accredited EMS provides a structured approach to environmental management for the proposal. The EMS includes procedures, training, records, inspections, objectives and policies to guide compliance with environmental laws, regulations and corporate policies while managing potential environmental impacts.

7.1.1 Construction environmental management approach

~~The construction environmental management approach would be staged to allow for tailoring to address specific impacts during the enabling works and main construction works associated with the proposal (refer to Figure 7-1).~~

The proposed approach to environmental management outlined here is indicative. It is based on the concept design and construction methodology, and the types of conditions of approval typically granted in relation to CSSI projects. Depending on the specific conditions of approval, a different approach might be required.

An overarching community and stakeholder engagement plan would be implemented to manage community and stakeholder engagement during all phases of construction.

~~**Figure 7-1 – Approach to construction environmental management**~~

~~Further details of each of the elements identified in Figure 7-1 is provided in Sections 7.1.1 of the EIS.~~

Enabling works

Enabling works are activities proposed early in the overall construction program to facilitate the commencement of substantial construction and collect information required to finalise the detailed design and construction methodology. Typical and expected enabling works are described in Section 6.6.1 of Appendix B of the Amendment Report.

The conditions of approval for CSSI projects typically allow construction staging and require that separate CEMPs are prepared, or existing CEMPs updated as required, to cover each proposed stage. TransGrid anticipates that construction would be staged (refer to Section 6.4 of Appendix B of the Amendment Report), with certain enabling works scheduled to occur ahead of and separate to main construction works. The preferred construction contractor would be responsible for confirming the approach to staging and preparing the required environmental management documentation for each stage in accordance with the conditions of approval.

Minor/low impact enabling works

The conditions of approval for CSSI projects typically require that all construction activities occur in accordance with an approved CEMP. Typical conditions of approval, however, often exclude certain minor pre-construction works and activities with low potential for environmental and community impacts (minor/low impact activities) from the definition of construction. When this occurs, the minor/low impact activities can occur prior to approval of a CEMP (subject to approval of the SSI proposal).

Proposed minor/low impact activities for the proposal include:

- archaeological salvage works that are carried out in accordance with the relevant guideline (*Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW*)
- investigations (including geotechnical, contamination and other testing/sampling, surveying and the placement of survey pegs/marks)
- installation of fencing, gates, barricades, exclusion zones and other access controls
- installation of environmental controls, mitigation measures and monitoring equipment
- adjustments to roads required to facilitate safe ingress/egress at construction compounds, accommodation camps and laydown areas
- archaeological test excavations carried out in accordance with a test excavation methodology developed in consultation with the relevant Registered Aboriginal Parties in accordance with *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (OEH, 2010) and in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010), and any associated salvage
- clearing of vegetation to establish construction compounds, accommodation camps, laydown areas and excavated material sites, and to facilitate other minor/low impact activities proposed prior to approval of a relevant CEMP
- excavations and surface preparation required to establish construction compounds, accommodation camps and laydown areas
- establishing excavated material sites
- installation/erection of camps, offices and associated welfare facilities
- batch plant mobilisation, set up and commissioning
- receiving construction plant and equipment on site and materials at laydown areas
- upgrading existing and creating new access tracks
- installation of temporary site sheds, amenities facilities and storage containers to support other minor/low impact activities proposed prior to approval of a relevant CEMP
- installation of utility service connections to construction locations and ancillary facilities
- protection, adjustment and relocation of utility assets in the vicinity of construction locations, construction compounds and camps, and other ancillary facilities.

Other investigations that meet the definition of exempt development provided in State Environmental Planning Policy (Infrastructure) 2007 could also occur prior to approval of a CEMP.

To be minor/low impact, the activities must:

- not generate noise levels at any sensitive receiver above relevant noise management levels developed in accordance with *Interim Construction Noise Guideline* (DECC, 2009) and
- not result in dust impacts at any residences in the vicinity and
- not affect threatened flora species, vegetation that is part of a threatened ecological communities or is critical habitat for a threatened fauna species (other than associated with the implementation of mitigation measures for biodiversity) and
- not involve excavations in PADs (other than the test excavations and salvage referred to above) prior to the completion of required archaeological test excavations at that location and

- not cause soil disturbance within 40 metres of a watercourse (excluding the installation of sediment and erosion controls in accordance with *Managing Urban Stormwater – Soils and Construction*, Volume 1 (Landcom 2004) and Volumes 2A and 2C (DECCW 2008) (commonly referred to as the 'Blue Book')) and
- be carried out (where required) in accordance with Road Occupancy Licences granted by the relevant roads authority.

The conditions of approval might define other minor/low impact activities.

Minor/low impact activities would still be subject to the relevant mitigation measures and other environmental commitments in the EIS as amended by the Amendment Report. The contractor would prepare Environmental Work Method Statements (EWMSs) for minor/low impact activities. The EWMSs would include all mitigation measures and environmental commitments relevant to the activities. The minor/low impact activities would be carried out in accordance with the relevant EWMSs.

Activities not described above or that are not excluded from the definition of construction or otherwise provided for in the conditions of approval would occur in accordance with an approved CEMP.

Other enabling works

Other enabling works that are construction by definition in the conditions of approval would be covered by a CEMP or CEMPs. Any CEMP(s) prepared for enabling works would guide the approach to environmental management during the works and would consider and address all relevant mitigation measures from the EIS and the conditions of approval that are relevant to the works.

The contractor would confirm the approach to and scope of enabling works and associated timings. Any enabling works CEMP(s) would be reviewed as required, in response to changes such as activities and environmental conditions, to ensure ongoing environmental management.

~~The CEMP(s) would guide the approach to environmental management during the enabling works. An enabling works CEMP would (as relevant):~~

- ~~detail key project information relevant to the enabling works being undertaken~~
- ~~provide reference to all relevant statutory and other obligations, including consents, licences, approvals and voluntary agreements applicable to the proposal~~
- ~~detail key environmental risk issues and the specific mitigation measures that would apply to the enabling works as identified in the EIS, and with consideration of TransGrid's HSE Handbook (TransGrid, 2020). This would include but is not limited to:~~
  - ~~location of environmentally sensitive areas (e.g. threatened species, critical habitat, contaminated areas, heritage zones)~~
  - ~~vegetation and trees to be protected or removed, with any actions required prior to felling~~
  - ~~location of known heritage (Aboriginal or non-Aboriginal) items~~
  - ~~soil and water management~~
  - ~~air quality mitigation~~
  - ~~traffic and access arrangements~~
  - ~~noise and vibration management~~
  - ~~waste management~~
- ~~show (using a graphical tool) where environmental controls will be located and how they will be used~~
- ~~detail processes for managing incidents and non-compliance (including corrective and preventative actions)~~
- ~~document processes for environmental monitoring and inspections, and compliance monitoring~~
- ~~provide procedures for complaints handling and ongoing communication with the community~~
- ~~identify roles and responsibilities for all personnel and contractors, and site inductions.~~

~~The enabling works CEMP(s) would be regularly reviewed, in response to changes such as activities and environmental conditions, to ensure ongoing environmental management.~~

Main construction works

Main construction works would occur in accordance with an approved CEMP prepared in accordance with the conditions of approval. Where the preferred construction contractor proposes to stage construction, a CEMP would be prepared for each stage or an existing CEMP updated to cover each upcoming stage.

~~Developed prior to commencement of the main construction works, the~~ Each CEMP would include:

- a description of the construction contractor's environmental policy and objectives for construction
- a description of the activities to be undertaken during construction
- reference to all relevant statutory and other obligations, including consents, licences, approvals and voluntary agreements required
- environmental targets and measurable performance indicators which compliance would be monitored against
- roles and responsibilities for all personnel and contractors to be employed on site with regards to the planning, implementation, maintenance and monitoring of environmental controls
- specific mitigation measures and controls that would be applied to avoid and minimise environmental impacts
- required sub-plans (as detailed later in this section), which clearly set out the objectives of the sub-plan, relevant conditions of approval and mitigation measures
- processes for managing non-compliance (including corrective and preventative actions)
- procedures for complaints handling and ongoing communication with the community
- inspection, monitoring and auditing requirements, including procedures for regular environmental inspections and monitoring, auditing and review of the performance of environmental controls, and compliance tracking and reporting
- incident and contingency management requirements
- procedures for the control of environmental records
- induction and training requirements for all personnel and contractors.

The CEMP would be adaptive, establishing a continuous cycle of monitoring, assessment, investigation and corrective actions. This process would be used to continuously evaluate and monitor the effectiveness of the environmental management measures proposed in this EIS and identify the corrective actions to be carried out should such measures be identified as being ineffective.

A program of independent audits would be developed as part of the CEMP and implemented by the construction contractor. The program would monitor and report on compliance with this EIS (as amended by the Submissions Report and Amendment Report), relevant conditions of approval, and licences and permits applicable to the proposal.

Outline of sub-plans

Table 7-1 outlines the sub-plans that would be contained within the CEMP. Sub-plans may be replaced by a procedure where appropriate (i.e. when considering the scale and scope of the works), or merged with another sub-plan to streamline the CEMP. The conditions of approval for the proposal may require different and/or additional matters to be addressed in the CEMP or sub-plans.

TransGrid notes some activities covered in the CEMP and sub-plans might also be minor/low impact activities that can occur prior to approval of the relevant plan. This could include additional investigations, salvage, and the installation of environmental controls and mitigation measures. These minor/low impact activities would occur in accordance with the EWMSs, but would be covered by the relevant CEMP sub-plan once approved.

Table 7-1 Outline of CEMP sub-plans

Sub-plan	Purpose and requirement
Biodiversity	The sub-plan will set out measures to minimise and manage impacts on biodiversity. It will include (as a minimum): > measures to minimise impacts to biodiversity, including measures to reduce disturbance to sensitive flora and fauna > procedures for clearing of vegetation, including pre-clearing inspections and procedures for the relocation of flora and fauna > procedures for the demarcation and protection of retained vegetation, including vegetation adjacent to construction areas > weed management > rehabilitation strategies including progressive rehabilitation, and measures for the management and maintenance of rehabilitated areas (including duration) > protocols for unexpected EECs or threatened flora and fauna during construction, including stop work procedures > monitoring requirements and compliance management.
Heritage	The sub-plan will set out the measures to manage impacts on any impacts on heritage items/sites. It will include (as a minimum): > appropriate heritage mitigation measures, including identification, protection and/or management of heritage items/sites within or adjacent to construction areas (including additional investigations, recordings, or measures to protect items/sites that would not be directly impacted in the vicinity of construction works) ~~> procedures for carrying out salvage or excavation of heritage items/sites (as relevant) prior to works commencing that would affect the heritage item~~ > procedures for unexpected finds, including procedures for dealing with human remains > heritage monitoring and compliance management > induction requirements for construction personnel.
Noise and vibration	The sub-plan will identify procedures and measures that will be implemented to mitigate and manage construction noise and vibration impacts at sensitive receivers. It will include but is not limited to: > examine feasible and reasonable noise mitigation where management levels are exceeded > examine feasible and reasonable noise measures to manage traffic noise impacts on public roads where exceedances above 2 dB are identified > develop associated noise and vibration monitoring programs, as required > develop proactive and reactive strategies for dealing with any noise complaints > outline community consultation measures including notification requirements > include an out of hours works protocol.
Air quality	The sub-plan will include measures to control dust and other emissions during construction. It will include (as a minimum): > measures to minimise the potential for dust emissions, including dust suppression > air quality monitoring requirements and compliance management. This includes monitoring of meteorological conditions in order to implement appropriate responses to changing weather conditions, and regular visual inspections.

Sub-plan	Purpose and requirement
Soil and water	The sub-plan will set out measures to mitigate and manage impacts on soil and water, including water quality and potential contaminated soils. It will include (as a minimum): > measures to minimise impacts to soil and water, and to maintain water quality of surrounding surface watercourses. This includes details of erosion and sediment controls, diversion of runoff around disturbed areas and stockpiles, salinity and acid sulfate soils control measures, as well as minimising areas of disturbance and progressive rehabilitation of disturbed areas > stockpile management procedures, including procedures to segregate wastes and contaminated soil > materials tracking and record keeping > unexpected finds protocols for contaminated materials (e.g. soils, building materials and water) and acid sulfate soils > storage of chemicals and other hazardous materials > spill management procedures > measures to minimise water use during construction > a flood emergency management procedure which will provide a series of activities that need to take place should a flood event occur. These activities would focus on the flood emergency and then during the recovery period to assist with starting work again as soon as possible after the flood event.
Traffic and transport	The sub-plan will be prepared in consultation with Wentworth Shire Council to identify the key management and response strategies to potential delays and disruptions that may arise due to the proposal. It will include (as a minimum): > measures to minimise disruption to pedestrians, cyclists and motorists > management of safe vehicle access/egress from construction compounds and other construction work areas > measures to manage oversize and overmass vehicle movements during construction, which will consider activities of adjoining land uses and safety of the public, such as entering urban areas from rural highways > management of long-distance travel through driver fatigue management measures > measures to ensure safe access to existing properties during construction, or provision of suitable alternatives.
Bushfire risk management	The sub-plan will be prepared by a suitably qualified professional and will include (but not limited to): > protocols for the relocation of workers to nominated safe refuge zones during a bushfire emergency, either within or remote to the work zone (Bushfire Emergency and Evacuation Plan (BEEP) > protocols for the management of bushfire risk and fuel management during construction. This will include restriction and/or prevent of certain activities that present bushfire risks on days with a fire danger rating of equal to or greater than 'high', and as directed by relevant state authorities > training to inform construction workers of bushfire risks and preventative actions, including risks associated with the operation (and maintenance) of vehicles, plant and equipment.

Sub-plan	Purpose and requirement
Waste management	The sub-plan will set out waste management strategies that will be implemented in accordance with the waste management hierarchy of avoid, minimise, re-use and dispose. The plan will include but is not limited to: > targets for the recovery, recycling and re-use of construction waste > procedures for the assessment, classification, management and disposal of waste > waste tracking and compliance management.

Community and stakeholder engagement plan

A community and stakeholder engagement plan (CSEP) would be prepared prior to commencement of the enabling works. The plan would be developed in consultation with Wentworth Shire Council. The plan would aim to detail the approach to communication between TransGrid, the construction contractor, the community and government authorities.

The community and stakeholder engagement plan would:

> identify people, organisations and government authorities to be consulted during the works
> set out procedures and mechanisms for the regular distribution of accessible information to keep the community and stakeholders informed of the proposal
> set out the procedures and mechanisms for consulting with relevant councils and government authorities including procedures for nil responses
> describe the method for advertising the telephone line and email address for enquiries relating to the proposal
> set out procedures and mechanisms for response to enquiries and feedback
> include a complaints management system which outlines parameters for recording information on all complaints received during the main construction work
> set out procedures and mechanisms to resolve any issues and disputes that might arise in relation to environmental and stakeholder management associated with the proposal.

7.1.2 Operational environmental management approach

The operation of the proposal will be managed through the practices, procedures and processes within TransGrid's EMS, Environmental Assessment Framework, Environmental checklists, as well as its *HSE Handbook* and *Complaints Handling Policy* (TransGrid, November 2019).

Details of the environmental constraints identified as part of this EIS, that are relevant to the ongoing operation and maintenance of the asset, will be included in the appropriate TransGrid Geographical Information Systems (GIS). Due diligence environmental checks, including environmental information generated from GIS where relevant, will be undertaken before any maintenance works are carried out.

TransGrid's maintenance and operation procedures would also be updated to ensure that the new asset is managed in accordance with the project approval (such as updated vegetation maintenance practices for the transmission line easement and the Buronga substation asset protection zone).

7.2 Revised mitigation measures

The list of mitigation measures presented in Chapter 23 of the EIS has been updated with consideration given to the additional assessment work undertaken, submissions received and the proposed amendments. Some new measures have been added, and the wording of existing measures has been adjusted (where required).

Table 7-2 supersedes the mitigation measures presented in the EIS. New mitigation measures or additions to existing mitigation measures are shown in blue text, with deletions or changes shown with a ~~strikethrough~~. Where measures have been significantly changed, the whole of the previous measure has been struck out and the revised measure provided in underlined text for clarity (for example AH1 to AH4).

The measures are broadly grouped according to the main stage of implementation. However, it is noted that the implementation of some measures may occur across a number of stages. If the proposal is approved, it will be undertaken in accordance with the final list of mitigation measures.

Table 7-2 Compilation of mitigation measures

Reference	Mitigation measures	Timing	Application location(s)
Biodiversity			
B1	~~The final disturbance area will seek to avoid the clearing of native vegetation and habitats as far as practicable.~~ Impacts to matters of biodiversity conservation significance will be avoided to the greatest extent practicable during finalisation of the detailed design and construction methodology for the project. Micro-siting of the transmission line infrastructure and associated construction working areas and other areas of disturbance will occur to avoid impacts wherever practicable. Site features with the highest biodiversity conservation significance, in particular, threatened species recorded and their habitat, including *Acacia acanthoclada*, *Atriplex infrequens*, *Austrostipa nullanulla*, *Dodonaea stenozyga* and *Santalum murrayanum,* will be given the highest priority.	Detailed design	All locations
B2	Where vegetation disturbance activities are required in areas that have not ~~been~~ previously been subject to biodiversity survey, additional survey will be carried out prior to works occurring to inform detailed design and construction methodology ~~in any such areas and to inform detailed design.~~ These surveys will be carried out by a suitably qualified ecologist.	Detailed design	All locations
B3	Opportunities to locate site offices, compounds and ancillary facilities in areas of limited biodiversity value (e.g. cleared land or areas of native vegetation with vegetation integrity scores of less than 17 (in accordance with the NSW Government Biodiversity Assessment Method Operational Manual) will be prioritised ~~during detailed design.~~	Detailed design	All locations
B4	Existing tracks and clearings will be used, where possible, to avoid the construction of new tracks. Where this is not possible, the design will seek to minimise impacts to native vegetation as a priority.	Detailed design	Transmission line corridor

Reference	Mitigation measures	Timing	Application location(s)
B5	~~Transmission line structures will be located at to minimise impact to vegetated riparian zones.~~ Transmission line structures will be located and constructed to minimise impact to vegetated riparian corridors, wherever practicable.	Detailed design	Transmission line within the riparian zone as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012) of Great Darling Anabranch, Darling River and/or Murray River
B6	Conductor line-marking techniques will be implemented during detailed design to minimise bird strike. Use of bird diverters, most likely consisting of the "flapper" variety, will be implemented. Positioning and exact diverter model will be finalised during detailed design but at minimum these will be used within one kilometre of wetland / riverine habitats to reduce impacts on aerial fauna species from collision and allow safer passage within these areas.	Detailed design	Transmission line – within one kilometre of wetland / riverine habitats (i.e. Great Darling Anabranch, Darling River and Murray River)
B7	TransGrid will establish a series of 20-metre-wide connectivity corridors near tower locations that occur in woodland vegetation. These would occur at strategic locations that would be developed as part of a Connectivity Strategy under the Biodiversity Management Plan. These connectivity corridors will involve native vegetation retention up to the 10 metre wide temporary construction centreline clearing zone to better facilitate woodland connectivity.	Detailed design	All locations
B8	A two year monitoring program following the completion of construction will be implemented to better understand interactions of bird species with the transmission lines and towers. Problematic interactions identified during the program would be considered and options for addressing them implemented as practicable. Options that would be considered include nesting deterrents in high risk areas, installation of alternative nest habitat, relocation of nests or their deconstruction in certain circumstances.	Operation	Transmission line – within one kilometre of wetland / riverine habitats (i.e. Great Darling Anabranch, Darling River and Murray River)

Reference	Mitigation measures	Timing	Application location(s)
B9	TransGrid will make a one off funding contribution targeted at further scientific study into the impacts of electric and magnetic fields on birds in Australia.	Prior to completion of construction	Not applicable
B10 ~~B9~~	Nest boxes will be provided to ~~minimise habitat~~ offset the loss ~~to~~ of tree hollow~~-bearing~~ fauna habitat in accordance with a Supplementary Hollow and Nest ~~Box~~ Strategy. The strategy will include the following requirements: > survey of tree hollows and nests within the proposed clearing extents > the size, type, number and location of nest boxes required will be based on the results of the ecological surveys > appropriately sized nest boxes will be installed within the vicinity of hollow-bearing trees (subject to landholder agreement and suitable existing trees being present) no more than two weeks prior to clearing of the tree > all nest boxes in a particular location will be installed within 6 months after clearing > "nest boxes" will include consideration of natural tree hollow re-use and new tree hollow creation > measures to address and manage nests (such as raptor nests) pre-clearing will be included. ~~> hollow-bearing trees will be marked/tagged and mapped in a pre-clearing survey~~ ~~> the size, type, number and location of nest boxes required will be based on the results of the pre-clearing survey~~ ~~> 70 per cent of nest boxes will be installed about one month prior to any hollow-bearing vegetation removal, with all nest boxes to be installed within six months from the date of commencement of clearing.~~	Pre-construction and construction	All locations where hollow bearing trees are being removed

Reference	Mitigation measures	Timing	Application location(s)
B11 ~~B8~~	Pre-clearing surveys will be completed prior to clearing at each location ~~construction~~ by a suitability qualified ecologist. The proposed clearing extents will be marked out on site prior to the pre-clearing surveys. During the surveys, the ecologist will: > survey the proposed clearing extent > identify any fauna that will require relocation prior to clearing > confirm the location and mark out the extents of any biodiversity exclusion zones > confirm that hollow-bearing trees within and adjacent to the clearing extents are prominently marked/tagged > confirm that nest boxes are in place (where required) in suitable locations adjacent to areas to be cleared, or suitable locations for installation have been identified.	Pre-construction	All locations
B12	The results of the pre-clearing surveys will be used to update and confirm the accuracy of sensitive area maps.	Pre-construction	All locations
B13 ~~B10~~	Biodiversity exclusion zones for retained vegetation, including identified threatened flora populations that have a high susceptibility to trampling and compaction, will be clearly identified by a suitably qualified ecologist prior to the commencement of ~~construction~~ clearing or any site activity that could damage the vegetation within the exclusion zone. Biodiversity exclusion zones will be physically marked and demarcated, and included on sensitive area maps, prior to clearing.	Pre-construction	All locations
B14 ~~B11~~	Construction workforce will be supplied with sensitive area maps (showing clearing boundaries and exclusion zones), including updates as required.	Construction	All locations
B15 ~~B12~~	The predicted clearing of native vegetation by the proposal will be monitored against the recorded clearing to inform any final biodiversity offset requirements within the biodiversity offset package.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
B16 ~~B13~~	Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of *Water Management Act 2000*) of the Great Darling Anabranch, Darling River and/or Murray River (and other defined riparian areas) will be protected to the greatest extent practicable, with vegetation clearing ideally limited to the tree stratum only, with trunk bases being retained in-situ. ~~not be removed, with vegetation clearing limited to the tree stratum only, with trunk bases being retained in-situ.~~	Construction	Transmission line within the riparian zone as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012) of Great Darling Anabranch, Darling River and/or Murray River
B17 ~~B14~~	Activities within vegetated riparian zones will be managed to minimise impacts to aquatic environments. Riparian areas subject to disturbance will be progressively stabilised and rehabilitated.	Construction	Transmission line within the riparian zone as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012) of Great Darling Anabranch, Darling River and/or Murray River
B18 ~~B15~~	A species unexpected finds protocol will be implemented if threatened ecological communities, flora and fauna species, not assessed in the biodiversity assessment, are identified in the disturbance area.	Construction	All locations
B19	Implement TransGrid's operational guidelines and requirements for the operations and maintenance of the proposal.	Operation	All locations

Reference	Mitigation measures	Timing	Application location(s)
Aboriginal heritage			
AH1	~~The final disturbance footprint will be designed to avoid impacts to Aboriginal sites as far as practical. Avoidance of sites of moderate or higher archaeological significance will be prioritised.~~ The detailed design and construction methodology, and associated final disturbance area, will be developed to avoid impacts to features/items of Aboriginal archaeological significance as far as practical. Avoidance and minimisation of impact to features/items and Potential Archaeological Deposits (PADs) of moderate or higher archaeological significance will be prioritised.	Detailed design	All locations

Reference	Mitigation measures	Timing	Application location(s)
AH2	~~Aboriginal stakeholder consultation will be carried out in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010a). Registered Aboriginal Parties (RAPs) will be active participants in all proposed mitigation measures for Aboriginal heritage, including site inspections and test excavations, with further cultural information to be gathered during consultation undertaken in association with these activities. All addendum reports to the ACHAR will be provided to RAPs for comment and input.~~ Aboriginal stakeholder consultation will be carried out in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010a). Engagement with Registered Aboriginal Parties (RAPs) will consist of the following: > Aboriginal heritage site surveys (AH3) – review of proposed methodologies and involvement in the survey activities in the field (for ground or vegetation disturbance outside of previously surveyed areas) > test excavation activities (AH4) – review of proposed methodologies and involvement in the test excavation activities in the field > review of the draft addendum report/s (relating to surveys (AH3), test excavations (AH4) and scar trees (AH5)), and consultation on the draft reports which will typically be in the form of a RAP meeting > provision of final addendum report/s will be provided to RAPs (AH3, AH4, AH5) > involvement in establishment of Aboriginal heritage exclusion zones prior to construction commencing (AH7). Further cultural information will be gathered during consultation undertaken in association with these activities. All addendum reports to the Aboriginal Cultural Assessment Report (CHAR) will be provided to RAPs for comment, and input will be considered, and actioned wherever practicable.	Detailed design and pre-construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
AH3	~~A survey will be carried out with Registered Aboriginal Party representatives where ground or vegetation disturbance activities are required in all locations outside of the previously surveyed 100m heritage survey area, prior to works occurring in any such areas.~~ ~~These surveys will be carried out in accordance with the *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW* (2010) and will be reported on in addendum reports to the ACHAR.~~ ~~Reports will be provided to RAPs for comment and to DPIE.~~ ~~If these sites are identified as having moderate or high scientific significance, impacts will be avoided where possible. If impact avoidance is not possible then recommendations included in the addendum reports to the ACHAR (including requirements for further investigation) will be implemented prior to any construction potentially impacting these sites.~~ An Aboriginal heritage survey will be carried out with RAPs where ground or vegetation disturbance activities are required in all locations outside of the previously surveyed heritage survey area (including water supply points), prior to works occurring in any such areas. These surveys will be carried out in accordance with the *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW* (2010). If no sites are found or if sites are found and they will not be impacted, then a letter report will be provided that gives notification of this and clearance to proceed. Where sites are located and will be impacted, a draft survey addendum report/s to the ACHAR will be prepared for each of these survey areas. The report(s) will: > detail findings of the survey activities > detail where test excavation is required in accordance with AH4 to inform detailed design > outline any additional mitigation strategies beyond those required by AH5 to AH12 > be presented to the RAPs for comment. Final reports will be provided to RAPs and to Heritage NSW for their information prior to the commencement of construction that impacts these locations.	Detailed design and pre-construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
AH4	~~Prior to the commencement of construction that would impact areas of moderate and high archaeological significance and/or archaeological subsurface potential (e.g. PADs), test excavation will be carried out in these areas to determine the presence or absence of subsurface archaeological deposits, where direct impacts are anticipated based on the detailed design.~~ ~~The test excavation works will be carried out in accordance with a methodology presented to RAPs. The results of the test excavation will be reported on in addendum reports to the ACHAR. Reports will be provided to RAPs for comment and to DPIE.~~ In developing the detailed design and construction methodology, the construction contractor will review the location of all identified PADs and will aim to avoid and/or minimise direct impacts to the identified PADs. Where direct impacts cannot be avoided, test excavation programs will be carried out in the parts of any PADs where direct impact is likely (including where the root-ball of trees are being removed). The purpose of the test excavations will be to determine the presence or absence and significance of subsurface archaeological deposits. Test excavations works will be carried out in accordance with a methodology that is presented to and consulted on with the RAPs. Test excavation addendum report/s to the ACHAR will be prepared for each test excavation program(s) which will: > detail findings of the test excavation activities > outline how the detailed design has been further developed to avoid or minimise impacts to the identified constraints/features of significance/PADs > as applicable, detail any additional mitigation strategies beyond those required by AH6 to AH12, and the required timing for these to be implemented > be presented to the RAPs for comment. Final reports will be provided to RAPs and to Heritage NSW prior to the commencement of construction that impacts these locations. The addendum report(s) may be staged to enable progressive commencement of construction. Any additional mitigation strategies beyond those required by AH6 to AH12, and the required timing of implementation, will be included with the Construction Environmental Management Plan and implemented accordingly.	Detailed design and pre-construction impacts to sites/features/ PADs	PEC-W-6, PEC-W-11, PEC-W-12, PEC-W-15, PEC-W-17, PEC-W-18, PEC-W-27, PEC-W-31, PEC-W-36, PEC-W-37, PEC-W-45, PEC-W-47, PEC-W-50, PEC-W-51, PEC-W-55, PEC-W-63, PEC-W-100, PEC-W-102, PEC-G-7 PEC-PAD1 through PEC-PAD14, PEC-PAD-16 through PEC-PAD26, and PEC-PAD-28

Reference	Mitigation measures	Timing	Application location(s)
AH5	All scarred trees identified during archaeological survey will be assessed by a qualified arborist to determine tree age and likely cause of the scarring in order to confirm the scientific significance prior to any impact to the scarred trees. Impacts to all scarred trees (including those of cultural significance) will be avoided where possible through design or construction methodology and must only be removed for permanent infrastructure and/or to meet *Vegetation Clearance Requirements at Maximum Line Operating Conditions* (TransGrid, 2003). If any scarred tree cannot be avoided, the tree will be subject to 3D scanning, followed by salvage of the scarred trunk. The results of this assessment will be reported on in addendum reports. Reports will be provided to RAPs for comment ~~and to DPIE.~~ Final reports will be provided to RAPs and to Heritage NSW.	Detailed design and pre-construction impacts	PEC-W-57, PEC-W-67, PEC-W-80, PEC-W-85, PEC-W-86, PEC-W-88, PEC-W-90, PEC-W-91, PEC-W-99, PEC-W-104, PEC-W-105, PEC-W-106, PEC-W-107, PEC-W-108, PEC-W-109, PEC-W-110, PEC-W-111, PEC-W-112, PEC-W-113, PEC-W-115, PEC-W-118, PEC-W-121, PEC-W-122, PEC-W-127, PEC-W-128, PEC-W-130

Reference	Mitigation measures	Timing	Application location(s)
AH6	All portions of artefact scatters that are to be directly impacted will require surface collection prior to construction commencement in those areas. Additionally, based on the outcomes of the test excavation, items or PADs will be subject to surface collection or salvage prior to the commencement of construction in those areas. The activities will be documented in a surface collection report.	Detailed design and pre-construction impacts	Surface collection (artefact scatters impacted by disturbance area A) PEC-W-6, PEC-W-7, PEC-W-11, PEC-W-12, PEC-W-15, PEC-W-17, PEC-W-18, PEC-W-27, PEC-W-31, PEC-W-35, PEC-W-36, PEC-W-37, PEC-W-45, PEC-W-47, PEC-W-50, PEC-W-51, PEC-W-55, PEC-W-63, PEC-W-74, PEC-W-75, PEC-W-100, PEC-W-102, PEC-W-114, PEC-W-119, PEC-G-7, 39-6-0030

Reference	Mitigation measures	Timing	Application location(s)
AH7	Aboriginal heritage exclusion zones will be established to protect ~~sites that would remain in-situ throughout construction:~~ > known features/items of significance that have been identified to remain in-situ throughout construction (and not subject AH6) > scarred trees that are to remain in-situ. Suitable controls will be identified in the heritage management sub-plan, which may include site fencing and sediment control. Aboriginal heritage zones will be demarcated by a suitably qualified archaeologist in consultation with the RAPs prior to the commencement of construction at each location. Areas of PADs that are located within areas of vegetation clearance where ground disturbance will not occur will be managed through construction methodologies and will not be delineated as exclusion zones. These methodologies will be developed in the heritage sub-plan.	Pre-construction	PEC-W-1, PEC-W-4, PEC-W-5, PEC-W-6, PEC-W-7, PEC-W-10, PEC-W-12, PEC-W-23, PEC-W-27, PEC-W-29, PEC-W-30, PEC-W-35, PEC-W-36, PEC-W-37, PEC-W-38, PEC-W-45, PEC-W-46, PEC-W-47, PEC-W-48, PEC-W-49, PEC-W-52, PEC-W-53, PEC-W-54, PEC-W-60, PEC-W-61, PEC-W-62, PEC-W-66, PEC-W-66, PEC-W-78, PEC-W-81, PEC-W-82, PEC-W-100, PEC-W-101, PEC-W-102, 46-3-0086
AH8	Construction planning and management will ensure that indirect impacts to features of heritage significance located outside areas of direct impact do not ~~that could potentially result in a loss of heritage values due to physical disturbance will not~~ occur (including physical disturbance from surface water drainage or other mechanism).	Construction	All locations
AH9	Cultural and historic heritage awareness training will be carried out for all personnel working on the proposal prior to the personnel participating in construction activities. The training shall cover features of heritage significance within and adjacent to project locations and project protocols that must be complied with to minimise and manage potential impacts to those features.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
AH10	If at any time during construction, any items of potential Aboriginal archaeological or cultural heritage significance, or human remains are discovered, they will be managed in accordance with the Aboriginal heritage unexpected finds protocol (refer to Appendix 2 of the *Non-Aboriginal and Aboriginal Cultural Assessment Report* (Navin, 2021)).	Construction	All locations
AH11	A temporary repository of any retrieved archaeological material and Aboriginal objects will be appropriately secured and under the care of the archaeological consultant. The strategy for the long-term conservation of salvaged or collected Aboriginal objects will be determined in consultation with the ~~Registered Aboriginal Parties~~ RAPs.	Construction	As relevant
AH12	~~Sites~~ Features/items of heritage significance that ~~would~~ will remain in-situ within the transmission line easement will be mapped and recorded within GIS systems managed by TransGrid ~~to ensure inadvertent impacts do not occur during maintenance activities.~~ Relevant TransGrid systems and procedures will be updated as required with protocols that will be implemented during operation to ensure that impacts to the features/items of significance do not occur during maintenance activities. to ensure inadvertent impacts do not occur during maintenance activities.	Operation	Transmission line
Non-Aboriginal heritage			
NAH1	A non-Aboriginal heritage exclusion zone will be established for ~~site~~ sites PEC-W-H-1 and PEC-W-SE-H1 (Survey Marker Trees ~~Tree~~). These sites will be fenced during construction and vegetation clearance for the proposal, to avoid inadvertent impacts during works. If impacts cannot be avoided, then the tree ~~should~~ will be archivally recorded and research undertaken to confirm the nature and history of the item prior to impact occurring.	Detailed design and pre-construction	Transmission line
NAH2	Should the disturbance area for the proposal extend beyond the survey area, further assessment by an archaeologist will be carried to determine the likelihood of occurrence and significance of potential archaeology and impacts from the proposal (including built heritage) prior to the commencement of construction in these areas. The results of this assessment will be reported on in addendum reports for non-Aboriginal heritage. Reports will be provided to ~~DPIE~~ Heritage NSW.	Detailed design and pre-construction	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
NAH3	If at any time during construction, any items of potential non-Aboriginal archaeological significance, or human remains are discovered, they will be managed in accordance with the non-Aboriginal unexpected finds protocol (refer to Appendix 2 of the *Non-Aboriginal & Aboriginal Cultural Heritage Assessment Report* (Navin, 2021)).	Construction	All locations
Land use and property			
LP1	During detailed design, access tracks (temporary and permanent) will be determined in consultation with landholders and to minimise impacts to agricultural activities to the greatest extent possible. Where permanent tracks are required, a single access track will be designed to serve both temporary and permanent purposes, where possible.	Detailed design	All locations
LP2	The locations of transmission line structures, ~~(and associated~~ other permanent structures and the extents of associated construction areas or compounds) will be located where possible to avoid or minimise impacts, or as agreed with the affected landholder, on: > cropping and irrigated horticultural land > areas used for set up and pack up of agricultural equipment, entry points and turning areas > radiocommunication sensitive areas > drainage catchments for farm dams > locations of high biosecurity risk.	Detailed design	All locations
LP3	Final transmission line easement will be located parallel with existing transmission lines or road corridors or along property boundaries, where possible, to reduce potential fragmentation of properties and disturbance to existing land uses, subject to the outcomes of land access negotiations with affected landholders.	Detailed design	All locations

Reference	Mitigation measures	Timing	Application location(s)
LP4	To minimise disruption to agricultural activities: > landholders will be consulted regarding any required adjustments to property infrastructure (fences, access tracks, etc) and the proposed timing and location of construction works, especially where some restriction on vehicular or stock movements will be necessary. Appropriate arrangements will be negotiated with the affected parties and in place prior to any such disruption > property infrastructure (such as gates) will be managed in accordance with landholder requirements and any damage caused by construction will be repaired promptly > use of existing roads, tracks and other existing disturbed areas will be prioritised > where access is required across open spaces, care will be exercised to ensure that minimum damage is caused to the surface by confining vehicular or plant movement, as far as possible, to one route.	Pre-construction and construction	All locations
LP5	Disturbed areas will be stabilised and appropriately rehabilitated as soon as feasible and reasonable following the completion of construction. This will be carried out in consultation with the relevant landholder.	Construction	All locations
LP6	Procedures will be implemented so that potential impacts or conflicts between livestock and construction activities are appropriately managed. Procedures will be developed in consultation with ~~effected~~ affected landholders will include management of: > noise intensive activities during sensitive periods within the livestock production cycle (such as lambing and calving) > vehicle movements and other activities within the vicinity of livestock > movement of stock away from potential stressors created by construction activities.	Construction	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
LP7	Biosecurity controls will be implemented during construction to minimise the risk of off-site transport or spread of disease, pests or weeds. Controls will include (but not limited to): > inspections and cleaning of vehicles, machinery, and personnel equipment prior to movement on and off the construction work areas or between properties > minimising movements across adjoining farmland including trip numbers and locations > additional measures where localised areas of high biosecurity risks have been identified. The specific controls applicable to a property will be identified in consultation with the affected landholder. The effectiveness of these controls will be regularly monitored.	Construction	All locations
LP8	Where present, weeds will be managed in consultation with Western Local Land Services (LLS), Wentworth Shire Council and NSW Department of Primary Industries.	Construction	All locations
LP9	In the event of new infestations of notifiable weeds as a result of construction activities, the relevant control authority will be notified as per *Biosecurity Act 2015* and Biosecurity Regulation 2017.	Construction	All locations
LP10	Fencing and access arrangements along the transmission line easement, such as locked gates, will be determined in consultation with landholders and implemented.	Operation	Transmission line
LP11	Biosecurity controls, confirmed in consultation with the affected landholders, will be implemented during operation to minimise the risk of off-site transport or spread of disease, pests or weeds during maintenance activities.	Operation	All locations
LP12	Where present within the operational transmission line easement and associated areas for permanent infrastructure, weeds will be managed in accordance with the *Biosecurity Act 2015*.	Operation	All locations
LP13	Management of access including opening and closing of gates and monitoring of fencing will be done in accordance with landholder requirements. Any damage caused by maintenance activities will be repaired promptly.	Operation	All locations

Reference	Mitigation measures	Timing	Application location(s)
Landscape and visual amenity			
LV1	Opportunities for the retention and protection of existing trees within the disturbance area will be identified during detailed construction planning. Trees that do not pose any risk to the safe operation of the transmission infrastructure will be retained where practicable.	Detailed design	Whole of proposal
LV2	Temporary and permanent access will be designed to minimise vegetation removal, changes to landform, and visual impacts.	Detailed design	Whole of proposal
LV3	Proposed permanent engineering batters and water management measures will be designed to integrate with the existing landforms and natural features.	Detailed design	Whole of proposal
LV4	Lighting at construction compound and accommodation camps will be designed and operated in accordance with AS4282-2019 Control of the obtrusive effects of outdoor lighting.	Detailed design	Construction compound and accommodation camps
LV5	Transmission line structures, where possible, are designed: > to maximise distance from private residences > to use local vegetation and landform to provide screening from residences or from the road > to be regularly spaced to reduce the potential visual impact where the proposal alignment is visible for a long duration, and in open landscapes > to be positioned alongside existing transmission line structures where they are adjacent to existing transmission lines where feasible > to avoid the location of transmission line structures on locally prominent landforms > to minimise clearing along creeklines.	Detailed design	Whole of proposal
LV6	Where the transmission line crosses a roadway, transmission line structures will be located to maximise the distance from the roadway where feasible and where it will achieve an improved visual amenity outcome, where feasible and reasonable.	Detailed design	Transmission line
LV7	The Tree Protection Zone (as defined in AS4970-2009 Protection of Trees on Development Sites) of retained trees within or immediately adjacent to the disturbance area will be protected through the restriction of construction activities (refer Section 4.2 of AS4970-2009), to minimise the impact of the works on the long term health of these trees.	Pre-construction	Whole of proposal

Reference	Mitigation measures	Timing	Application location(s)
LV8	Opportunities for screening vegetation to be provided on private property will be investigated where, once at a mature height, ~~it would~~ will reduce an identified visual impact from a residence. This will be undertaken in negotiation with the affected resident. This will be informed by further assessment to determine the extent of the impact and appropriateness of any screening vegetation.~~, which~~ Any such screening vegetation will be planted prior to completion of construction and will be maintained by the landholder.	Construction	Transmission line
LV9	Lighting at the substation will be designed and operated in accordance with AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting.	Operation	Buronga substation
Social and economic			
SE1	A Community and Stakeholder Engagement Plan will be implemented. This will include: > targeted stakeholder consultation with Local Government, chamber of commerce, Traditional Owners, landholders, emergency services and service providers to ensure plans for the proposal are integrated with local needs and priorities and proactively respond to community or stakeholder concerns including those of neighbouring or nearby landholders ~~> continuation of a consistent, open and transparent land acquisition process, giving due consideration of the interests or needs of directly affected landholders in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991* and the supporting NSW Government Land Acquisition Reform 2016 (where applicable)~~ > culturally appropriate ceremonies of recognition aligned with proposal activities and key milestones, in alignment with the TransGrid Reconciliation Action Plan.	Detailed design and construction	All locations
SE2	All acquisitions of privately-owned land would be carried out in consultation with the landholders through the private treaty process or in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991* and the supporting NSW Government Land Acquisition Reform 2016.	Detailed design	All locations

Reference	Mitigation measures	Timing	Application location(s)
~~SE2~~ SE3	A Local Business and Employment Strategy will be implemented to guide local opportunities during construction, and where possible, align with existing plans and strategies of Wentworth Shire Council and Mildura Rural City Council, and TransGrid's Reconciliation Action Plan. The initiatives will be prepared in consultation with Wentworth Shire Council, Mildura Rural City Council and key community stakeholders and organisations in the region. The strategy will consider local market conditions and capacity, and will include initiatives for: > local supplier and labour procurement targets > Aboriginal workforce and business participation > training and upskilling programs for local labour force > programs to inform local businesses of contracting opportunities and requirements > consideration of use of available local infrastructure and services for construction activities such as the Wentworth Aerodrome, where feasible > transitioning the local workforce following the completion of construction.	Detailed design and construction	All locations
~~SE3~~ SE4	A Community Benefit Plan will be implemented to guide opportunities to deliver benefits to local communities during and following construction. The plan will be prepared in consultation with Wentworth Shire Council, Mildura Rural City Council and key community stakeholders and organisations in the region, and will align with TransGrid's Community Partnerships Program. The plan will include (but is not limited to): > initiatives to create positive social contributions in local communities and to respond to community priorities and needs > initiatives for Aboriginal heritage impacts of the proposal to be managed in partnership with local Aboriginal organisations > exploring opportunities to repurpose temporary infrastructure to address local infrastructure needs.	Detailed design and construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
~~SE4~~ SE5	A Workforce Management Plan will be implemented to provide construction workforce support services to promote health and wellbeing and to manage positive social integration with existing communities. The plan will be prepared in consultation with Wentworth Shire Council, Mildura Rural City Council and social infrastructure service providers near accommodation camps so that the needs of the construction workforce are coordinated to minimise pressure on existing health services and social infrastructure.	Detailed design and construction	All locations
Hydrology, flooding and water quality			
HF1	~~The proposal will be designed, where feasible and reasonable, to mitigate potential alterations to local runoff conditions due to permanent operational infrastructure.~~ Permanent operational infrastructure and landforms within the transmission line corridor will be designed and implemented/formed to minimise any potential scour and erosion risks associated with surface water runoff.	Detailed design	All locations
HF2	Detailed construction planning ~~would~~ will consider flood risk at construction areas. This will include identification of measures that will be implemented to not worsen flood impacts downstream and on other property and infrastructure during construction up to and including the 1% AEP flood event, and review of site layout and staging of construction works to avoid or minimise obstruction of overland flow paths and to limit the extent of flow diversion required. Procedures as detailed in the flood emergency management procedures will be implemented in response to flood events, including the evacuation of personnel.	Pre-construction and construction	Transmission line and construction sites within flood prone land

Reference	Mitigation measures	Timing	Application location(s)
HF3	A water quality monitoring program will be implemented to establish baseline water quality conditions in the Darling River, Darling Anabranch and Murray River prior to construction, and to observe any changes in water quality that may be attributable to the proposal during construction. The frequency, location and duration of sampling will be detailed in the monitoring program, but will include: > at least two monitoring locations located downstream and upstream of the proposal on the Darling River, Darling Anabranch and, Murray River > monitoring for total dissolved solids, total suspended solids, total nitrogen and total phosphorus. Sampling will commence at least 6 months prior to the commencement of construction at each respective location, and then monthly during construction until ~~completion of rehabilitation works~~ the surfaces in the vicinity of the waterways that were disturbed by proposal activities are adequately stabilised and no longer pose a significant sedimentation risk to the waterways. The monitoring program will include corrective and preventative actions that will be taken to address any water quality issues caused by the proposal, as indicated by the water quality monitoring results.	Pre-construction and construction	Transmission line - Darling River, Darling Anabranch, and Murray River
HF4	Water supply options and management will be undertaken in accordance with agreements between the construction contractor and Wentworth Shire Council.	Construction	All locations
HF5	Erosion and sediment measures will be implemented in accordance with the principles and requirements in: > *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004), and *Volumes 2A and 2C* (NSW Department of Environment, Climate Change and Water 2008), commonly referred to as the 'Blue Book' > *Best Practice Erosion and Sediment Control* (IESCA – 2008) > TransGrid's *HSE Guideline* > *Guidelines for Controlled Activities on Waterfront Land* (NRA 2018). ~~Additionally, any water collected from construction areas would be appropriately treated and discharged to avoid any potential contamination.~~	Construction	All locations
HF6	Maintenance works in the vicinity of waterways will be conducted in accordance with the TransGrid's HSE Guideline.	Operation	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
Air quality			
AQ1	Construction air quality management measures will be detailed in the Air Quality Management Plan and implemented during construction to minimise particulate and gaseous emissions as far as possible. Measures will include (but not limited to): > use of water sprays or dust suppression surfactants as required for dust suppression where required and appropriate > adjusting the intensity of activities based on observed dust levels and weather forecasts > minimising the amount of materials stockpiled and position stockpiles away from surrounding receivers > vehicle movements to be strictly limited to designated entry/exit routes and parking areas, and measures to minimise the tracking of material onto paved roads > covering of loads > stabilising disturbed areas as soon as practicable, including new access routes > minimising the extent of disturbance as far as practicable > regularly conducting visual inspections of dust emissions and applying additional controls as required.	Construction	All locations
AQ2	Ensure that all vehicles and machinery are fitted with appropriate emission control equipment and maintained in a proper and efficient manner.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
AQ3	Measures will be implemented at concrete batching plants to minimise emissions to air as far as possible and will be regularly inspected with additional controls implemented as required. Measures to minimise emissions to air may include: > all aggregate and sand will be stored appropriately in storage bins or bays to minimise dust generation, and material will not exceed the height of the bay > cement silos and hoppers will be fitted with dust filters > all inspection points and hatches will be fully sealed > all dry raw materials to be transferred into the bowl of an agitator via front end loaders by maintaining adequate moisture levels and/or an enclosed conveyor > the cement silo will be fitted with fitted with emergency pressure alert and automatic cut off overfill protection > transfer of cement from storage to batching will occur via sealed steel augers > regularly inspect dust emissions and apply additional controls as required.	Construction	Concrete batching plant(s)
AQ4	To minimise dust emissions associated with the proposed crushing and screening activities, the following will be implemented: > ensure screen covers are fitted to the screening operations > control dust emissions from crushing operations using water sprinklers, where required and appropriate > inspect the water sprinklers on a regular basis to ensure operational efficiency > where practicable, install wind breaks in appropriate locations adjacent to the dust generating equipment and processes > prior to crushing, dampen the rocks during dry weather conditions.	Construction	Buronga substation construction compound

Reference	Mitigation measures	Timing	Application location(s)
AQ5	To ensure potential odour emissions from the wastewater treatment plants are minimised, the following additional management measures will be implemented: > prevent excessive inorganic material accumulating on the screens by disposing of screened material in waste bins on a regular basis > place waste bins containing screened material and sludge as far away as practicable from the construction compound and accommodation sites > ensure waste bins are fully closed at all times > remove screened material and sludge from site at regular intervals and dispose in an appropriate manner.	Construction	Buronga substation and Wentworth construction compound and accommodation sites
Noise and vibration			
NV1	An Operational Noise Review will be prepared to confirm the predicted noise impacts from the proposal (based on the final detailed design) and refine the operational mitigation measures that will be implemented so operational noise impacts complies with the ~~project~~ proposal noise trigger levels, where feasible and reasonable.	Detailed design	All locations
NV2	Where exceedances of the ~~project~~ proposal specific trigger noise levels are predicted, feasible and reasonable operational noise and vibration mitigation measures will be further investigated during detailed design, in consultation with the affected receivers. This may include (in order of priority): > land use planning and provision of appropriate buffer distances to increase the distance between the final transmission line alignment and the surrounding sensitive receivers and ultimately minimise the number of sensitive receivers within the audible risk noise zones > noise control at the noise source > noise control along the noise transfer path, such as noise barriers. > noise control at the receiver, such as 'at property' treatment to upgrade aspects of the dwellings including the façade or ventilation systems. Additional measures identified through this process will be implemented prior to commencement of operation.	Detailed design	Transmission line (330kV only)

Reference	Mitigation measures	Timing	Application location(s)
NV3	Construction methodologies and measures that minimise noise and vibration levels during construction will be investigated during detailed design and implemented where feasible and reasonable. This will be supported through the completion of additional assessments (where construction noise levels are likely to exceed relevant noise management levels ~~impacts to sensitive receivers could occur)~~ based on the final construction methodology). This will: > consider the proposed layouts of work areas or construction compounds and accommodation camps > the noise and vibration generating activities that will take place > assess the predicted noise and vibration levels against the relevant management levels > incorporate feasible and reasonable mitigation and management measures in accordance with the ICNG.	Detailed design and construction	All locations
NV4	Further engagement and consultation with affected receivers will be carried out to understand their preferences for mitigation and management measures where exceedances of noise management levels are predicted. Based on this consultation, appropriate mitigation and management options will be considered and implemented where feasible and reasonable to minimise the impacts.	Detailed design and construction	All locations
NV5	A Construction Noise and Vibration Management Plan (CNVMP) ~~would~~ will be prepared by the construction contractor prior to construction works and ~~would~~ will (as a minimum): > examine feasible and reasonable noise mitigation where management levels are likely to be exceeded > examine feasible and reasonable noise measures to manage traffic noise impacts on public roads where exceedances above 2 dB are identified at any sensitive receiver > ~~develop~~ describe associated noise and vibration monitoring programs, as required > ~~develop~~ describe proactive and reactive strategies for dealing with any noise complaints > outline community consultation measures including notification requirements. This CNVMP ~~would~~ will be implemented for the duration of construction.	Detailed design and construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
NV6	An out of hours works (OOHW) protocol will be implemented for all construction activities likely to generate noise levels above the relevant noise management level at any sensitive receiver outside the standard construction hours defined in *Interim Construction Noise Guideline* (DECC, 2009). The OOHW protocol and will include: > details of what works are required outside standard construction hours > noise management safeguards and other reasonable and feasible mitigation and management measures (including agreement with sensitive receivers), including avoiding or minimising activities or the use of equipment likely to generate the highest noise levels, and implementing respite periods ~~and duration respite~~ where works are likely to result in ~~within the identified affectation distances for sensitive receivers loading to~~ NML exceedances for sensitive receivers > community consultation procedures, including letterbox drops, notification protocols, and site contact information for the works > complaints handling procedures. The OOHW protocol would not apply to the operation of the accommodation camps at Buronga and Wentworth.	Detailed design and construction	All locations
NV7	Where noise intensive equipment is to be used near sensitive receivers and is likely to result in an exceedance of the applicable noise management level, the works will be scheduled ~~for~~ during standard construction hours (unless agreements with affected sensitive receivers have been reached). ~~where possible.~~	Construction	All locations
NV8	Where residences or other sensitive receivers/structures ~~works~~ are ~~required~~ within the minimum working distances for vibration (as identified in Table 17-3 of the EIS): > different construction methods with lower source vibration levels will be investigated and implemented, where feasible > attended vibration measurements will be undertaken at the start of the works to determine actual vibration levels at the structure. Works will cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria.	Construction	All locations
NV9	Temporary batching plants along the transmission line corridor will be positioned to ensure compliance with NMLs at the nearest sensitive receivers.	Construction	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
NV10	If blasting is required, a blasting vibration and overpressure assessment will be completed to demonstrate that blasting and associated activities will not exceed noise and vibration limits at residences or other sensitive receivers. Based on outcomes of this assessment, a blast management strategy will be implemented that details how blasting will be carried out in a manner that complies with relevant noise and vibration limits, and notification requirements with landholders.	Construction	Blasting
Traffic			
TA1	Site access / egress points will be designed to minimise conflicts with vehicle movements on the road network and in accordance with relevant safety requirements. This may include the provision of acceleration and deceleration lanes at accommodation camp locations. Any designs will be in accordance with the Traffic Control at Worksites, Austroads Guide to Road Design and Austroads Guide to Traffic Management, and approved by the relevant road authority.	Detailed design	All roads that intersect with the transmission line corridor or are on haulage routes
TA2	Road pre-condition ~~surveys on construction haulage routes~~ will be carried out for the public road network in the vicinity of access points to construction compounds, construction camps and construction areas, and for roads for which proposal-related traffic within the Wentworth Shire LGA will be the main source of traffic prior to the use of the roads by proposal-related heavy vehicles ~~commencement of construction.~~ The pre-condition surveys will be undertaken in consultation with relevant councils and road owners. This will include identification of existing conditions and mechanisms to repair damage to the road network caused by construction vehicles associated with the proposal.	Pre-construction and construction	All roads that intersect with the transmission line corridor or are on haulage routes
TA3	The community will be notified in advance of proposed road network changes through appropriate forms of communication.	Construction	All locations
TA4	Road Occupancy Licence(s) will be sought (as required) for any road closures (full or partial) prior to any such closure. The timing of any closures will be carried out to minimise impacts to the road network in accordance with the conditions of the licence.	Construction	All roads that intersect with the transmission line corridor or are on haulage routes

Reference	Mitigation measures	Timing	Application location(s)
TA5	Permits from the National Heavy Vehicle Regulator (NHVR) will be obtained where required to provide oversized and overmass vehicles access during construction. Permit applications will be supported by a Vehicle Movement Plan (VMP), prepared to indicate the proposed heavy vehicle route(s). The Vehicle Movement Plan will consider activities of adjoining land uses and safety of the public, particularly when entering urban areas from rural highways.	Construction	All roads that intersect with the transmission line corridor or are on haulage routes
TA6	Construction access/egress, and construction movements, will be managed to ensure pedestrian and cyclist safety.	Construction	Sturt Highway (George Chaffey Bridge)
TA7	Adjustments to haulage routes in response to road closures by Wentworth Shire Council (e.g. during wet weather conditions or during other maintenance or other upgrade activities) will be identified in consultation with Wentworth Shire Council and affected residents, and suitable management measures identified and implemented.	Construction	Local roads within the study area
TA8	Access to properties for emergency vehicles ~~would~~ will be provided at all times.	Construction	All locations
TA9	Access to properties will be maintained or alternative arrangements agreed in consultation with landholders.	Construction	All locations
TA10	Following completion of construction, condition surveys will be carried out. Any damage as a result of construction vehicles ~~would~~ will be repaired following the completion of construction (and as needed through the construction period to maintain safe road conditions).	Construction	All roads that intersect with the transmission line corridor or are on haulage routes
TA11	TransGrid will commit to a Road Maintenance Agreement with Wentworth Shire Council to ensure appropriate remediation of roads used by project-related vehicles to address any damage and deterioration caused by the construction of the proposal.	Construction	Roads maintained by Wentworth Shire Council
Hazards and risk			
HR1	The proposal will be designed and constructed in accordance with the Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz – 100 kHz) (International Commission on Non-Ionizing Radiation Protection (ICNIRP), 2010) The design will meet the EMF exposure guidelines set out in Table 19-2 of the EIS and worst case scenarios within TransGrid's *Transmission Line Design Manual – Major New Build*.	Detailed design	All locations

Reference	Mitigation measures	Timing	Application location(s)
HR2	A minimum 50m wide managed Asset Protection Zone will be provided to the hazard perimeter of the fixed construction equipment and camp site buildings unless an alternative fire protection approach that achieves the same level of bushfire risk management is identified by a suitably qualified specialist during detailed design. Any Asset Protection Zone ~~This~~ zone will be regularly maintained to provide a maximum grass height of 100mm -150mm during the prescribed Bushfire Danger Period and when the grassland fuel reaches 70 per cent cured. Vegetation ~~Grass~~ inside the main construction compounds and accommodation camp sites will be regularly maintained to a maximum height of 75mm.	Detailed design and construction	Main construction compounds and accommodation camps
HR3	Buildings within the construction compound and camp site will be constructed to comply with Section 3 and Section 5 (BAL 12.5) of A.S. 3959 – 2018 –'Construction of Buildings in Bushfire Prone Areas'. The sub-floor space of each building will be enclosed with stainless steel flymesh securely fixed to the external wall/s and buried into the ground. All joints will be overlapped and sealed.	Detailed design and construction	Main construction compounds and accommodation camps
HR4	Water for fire-fighting operations will be confirmed during detailed design with consideration to occupancy density and site layout. This will include onsite static water supply and fire-fighting hose reels. All weather access having a minimum width of 4 metres will be provided to the static water supply tanks.	Detailed design and construction	Main construction compounds and accommodation camps
HR5	Consultation with emergency services, including the Rural Fire Service and Fire and Rescue NSW will be undertaken during detailed design to ensure emergency access provisions are provided during operation.	Detailed design	All locations
HR6	Prior to the occupation of the construction camps and offices, all bush fire protection and mitigation measures would be certified as compliant with relevant regulatory requirements by a suitably qualified bush fire consultant	Construction	Main construction compounds and accommodation camps
HR7	Shielding will be used and a water supply (nine kilogram water fire extinguisher) and trained operator present during all outdoor hot works/grinding activities, and during vegetation slashing within and adjacent to the construction compound and camp sites. No outdoor hot works will be undertaken during periods of Total Fire Ban and Catastrophic Fire Weather Days unless there is a suitable fire suppression unit present on site and only with prior agreement with local fire services.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
~~HR6~~ HR8	All chemicals, fuels or other hazardous substances will be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. The capacity of any bunded area shall be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s shall be shown on the site plans.	Construction	All locations
~~HR7~~ HR9	Dangerous goods and hazardous substances will be transported in accordance with relevant legislation and codes, including the *Dangerous Goods (Road and Rail Transport) Act 2008*, Road and Rail Transport (Dangerous Goods) (Road) Regulation 1998 and the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission, 2007).	Construction	All locations
~~HR8~~ HR10	Appropriate spill containment equipment will be provided and located at strategic, accessible locations.	Construction	All locations
~~HR9~~ HR11	Security measures will be implemented to minimise the risk of arson within and adjoining construction areas. The location of appropriate security measures will be determined using a risk based approach.	Construction	All locations
~~HR10~~ HR12	All chemicals or other hazardous substances at the Buronga substation will be stored in bunded and weatherproof facilities away from drainage lines, and in accordance with supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. The capacity of the bunded area will be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s will be shown on the site plans.	Operation	Buronga substation
~~HR11~~ HR13	Emergency spill procedures will be implemented to avoid and manage accidental spillages of fuels, chemicals or fluids during operation and maintenance activities in accordance with the TransGrid's HSE Guideline. Environmental spill kits will be provided at strategic, accessible locations, and staff will be trained in spill response procedures.	Operation	All locations
~~HR12~~ HR14	The proposal ~~would~~ will be designed, operated and maintained in accordance with TransGrid's Bushfire Risk Management Plan. This includes reduction in fuel loads, management of asset protection zones and inspections of infrastructure.	Operation	All locations
~~HR13~~ HR15	The Buronga substation Emergency Response Manual will be updated to include the new proposed design and required revised emergency response procedures.	Operation	Buronga substation

Reference	Mitigation measures	Timing	Application location(s)
Soils, contamination and groundwater			
SCG1	Locations of transmission line structure foundations, and ancillary construction sites will be positioned to avoid disturbance to any known farm dams where practicable.	Detailed design and pre-construction	Transmission line
SCG2	Existing areas of waterlogging and poor drainage will be avoided, where possible, with regard to both access tracks and permanent structures.	Detailed design	Locations mapped as moderate to high-risk salinity
SCG3	Construction materials will be selected to withstand high saline soil and groundwater environment (where applicable).	Detailed design and pre-construction	Locations mapped as moderate to high-risk salinity
SCG4	A review of additional geotechnical and hydrogeology data, and any publicly available mapping of high priority groundwater dependant ecosystems (GDEs) as documented in the latest relevant water sharing plan, will be carried out to confirm the groundwater conditions and to: > determine if any additional mitigation measures are required to limit groundwater inflows, or impacts to ~~groundwater dependant ecosystems~~ GDEs > confirm no or minimal impact to groundwater sources as per the minimal impact criteria listed within the Aquifer Interference Policy.	Detailed design and pre-construction	All locations
SCG5	Disturbance to areas of medium risk of contamination will be avoided or minimised where practicable during construction. This includes the position of foundations for transmission line structures and ancillary construction sites. Areas of medium risk of contamination that will be disturbed by construction activities will be further investigated including completion of a site inspection. Where considered to be required, a Phase 2 investigation will be completed in accordance with NEPM 2013. Mitigation measures identified through further investigation will be implemented.	Detailed design and pre-construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
SCG6	To limit the potential for groundwater inflows, the construction methodology for transmission line structure foundations will ensure that excavations will not occur within 40 metres of the Darling River, Great Darling Anabranch or Murray River. Where groundwater may be encountered, the ~~alternative~~ design and construction methodology will be ~~adopted~~ adjusted ~~in order~~ to minimise ~~avoid~~ groundwater inflows. The depth of groundwater ~~at transmission line structure locations~~ will be confirmed prior to commencement of construction at each relevant transmission line structure locations.	Detailed design and pre-construction	All locations
SCG7	Direct impacts to registered bores GW088454 (nested), GW087531 and GW600452 will be avoided, where possible. If the bores are: > not required to be removed during construction, then they will be clearly demarcated with a 5x5 metre construction exclusion zone > are to be removed during construction or unavoidably damaged, then make good provisions ~~would~~ will apply in consultation with the registered bore owner.	Pre-construction and construction	Transmission line - Registered bores GW088454 (nested), GW087531 and GW600452
SCG8	Prior to ground disturbance in areas of potential acid sulfate soil occurrence (e.g. in low lying areas surrounding former or current lakes and river beds), testing ~~would~~ will be carried out to determine the presence of actual and/or potential acid sulfate soils. If acid sulfate soils are encountered, they will be managed in accordance with the *Acid Sulfate Soil Manual* (ASSMAC, 1998) and TransGrid's HSE Guideline.	Pre-construction and construction	All locations
SCG9	Prior to ground disturbance, a visual inspection ~~would~~ will be undertaken for the presence of saline soils. Areas of known or suspected salinity will be subject to further testing as required. If salinity is confirmed, excavated soils will be managed in accordance with *Book 4 Dryland Salinity: Productive use of Saline Land and Water* (NSW DECC 2008) and the *Salinity Training Manual* (DPI, 2014) to ~~prevent~~ manage salinity impacts ~~from salinity~~. Erosion controls will be implemented in accordance with *The Blue Book* (Landcom, 2004).	Pre-construction and construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
SCG10	Earthworks and construction activities that result in compaction of soils will be limited where possible in areas within 40 metres of the Darling River, Murray River and Great Darling Anabranch to prevent potential impacts to groundwater.	Pre-construction and construction	Transmission line – locations adjacent to the Darling River, Murray River and Great Darling Anabranch
SCG11	A bore condition assessment is to be conducted prior and post construction on GW088454 (nested), GW087531 and GW600452 where required to identify any adverse impact to the bores integrity that may have resulted during construction. If impacts are identified, repair or replacement of the bore will be undertaken in discussion with the registered owner.	Pre-construction and construction	Registered bores GW088454 (nested), GW087531 and GW600452
SCG12	Construction materials, spoil and waste will be suitably stored to minimise the potential for soil, groundwater or water quality impacts.	Construction	All locations
SCG13	The discovery of previously unidentified contaminated material will be managed in accordance with a contamination unexpected finds procedure.	Construction	All locations
SCG14	The application of treated wastewater will be managed so that: > Application rates account for soil conditions and the protection of water quality (including groundwater). This includes salinity conditions and the prevention of runoff from application areas > buffer distances to sensitive receivers (such as waterways and farm dams) as set out in *Designing and Installing On-Site Wastewater Systems* (WaterNSW, 2019) are met > climatic conditions are considered during application to ensure treated wastewater is applied to intended areas > equipment used will reflect the management of human, livestock and environmental risks.	Construction	All
SCG15	Incident response procedures for wastewater treatment plants (and use of treated wastewater) will be implemented to avoid, minimise and manage accidental spills or other incidents that impact the function of the wastewater treatment plants.	Construction	Accommodation camps

Reference	Mitigation measures	Timing	Application location(s)
SCG16	A site-specific risk assessment will occur for locations where there is a risk of encountering UXO. The risk assessment will be carried out prior to any activities that could interact with UXO. This will include field verification to validate the historical assessment of UXO contamination and identify appropriate mitigation practices. The risk assessment will occur with input from an appropriate UXO specialist and will identify if and when an explosives engineer is required during site activities. An unexpected finds procedure will be implemented. The procedure will specify the actions that site personnel must take to minimise the risk to and from any UXO encountered. The management actions identified in the risk assessment will be implemented prior to and during all relevant site activities. All personnel conducting intrusive works within an identified UXO area will be provided with appropriate safety and awareness briefing(s) prior to the participating in the intrusive works.	Construction	Til Til UXO area Oak Plains UXO area
Waste management and resources			
WM1	The proposal will ~~aim to~~ achieve ~~a contractor~~ an ISCA verified 'Design' and 'As-built' rating of Excellent under v1.2 of the IS rating tool ~~rating of at least 60 / Excellent.~~	Detailed design and construction	All locations
WM2	Measures to minimise excess spoil generation will be investigated at detailed design. This ~~would~~ will include a focus on optimising the design to minimise spoil volumes and the reuse of material on-site.	Detailed design	All locations
WM3	Opportunities to re-use or recycle construction and demolition waste ~~would~~ will be investigated during detailed design.	Detailed design	All locations
WM4	All waste will be assessed, classified, managed and disposed of in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014).	Construction	All locations
WM5	Waste streams ~~would~~ will be segregated to avoid cross-contamination of materials and maximise reuse and recycling opportunities.	Construction	All locations
WM6	All waste generated and surplus spoil to be removed from the construction of the proposal will be transported to appropriately ~~licenced~~ licensed waste disposal ~~or~~ transfer facilities or other facilities lawfully able to accept materials.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
WM7	Waste during operations ~~would~~ will be managed in accordance with TransGrid's existing Environmental Management System and processes for the identification, classification, handling and management of waste.	Operation	All locations
WM8	All waste ~~would~~ will be assessed, classified, managed and disposed of in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014).	Operation	All locations
Cumulative impacts			
CI1	Co-ordination of traffic management arrangements between major construction projects will occur in consultation with the relevant road authorities (Transport for NSW and local councils) and/or other proponents as relevant. This will consider any potential conflicts in relation to deliveries and identified haulage routes during the program.	Construction	Silver City Highway and Arumpo Road

7.3 Uncertainties and resolution

The proposal as presented in the EIS (and as amended by the Amendment Report) is conceptual in the sense that a corridor for the proposal has been selected and assessed and final location within the corridor will be subject to further detailed design. As outlined in amended Chapter 5 (Proposal infrastructure and operation) and Chapter 6 (Proposal construction) (refer to Appendix A and B of the Amendment Report), the proposal study area and transmission line corridor have been developed to avoid and minimise environmental impacts, while providing flexibility in the detailed design of the proposal and the final construction methodology. ~~As detailed in the EIS, a~~ Aspects of the proposal that may be subject to further refinement include:

- the final transmission line alignment and design, including the specific location, height and type of transmission line structures, location of access tracks and associated extent of the disturbance area
- the final disturbance area for the Buronga substation upgrade and expansion, including the earthwork material sites
- final ~~locations and~~ layouts of the main construction compound and accommodation camp sites, and the location of any additional sites if required~~, including a potential additional third site in Wentworth (or its surrounds)~~
- construction method and staging.

These refinements may require further field investigations, such as biodiversity and heritage. Refinements to optimise the design outcomes and construction method would be carried out to:

- further avoid or minimise environmental impacts. This includes approaches to avoid or minimise native vegetation clearing, impacts to areas of biodiversity value, and areas of moderate to high Aboriginal archaeological potential
- reduce impacts on the community during construction and/or operation
- reduce the duration of construction
- improve the operation of the proposal without increasing the potential environmental impacts.

The final design would be reviewed for consistency with the assessment contained in ~~this~~ the EIS, this Submissions Report and Amendment Report including ~~any~~ the revised mitigation measures, and any conditions of approval. If design refinements are not consistent with any approval from the Minister for Planning and Public Spaces, approval would be sought from the Minister for any such modifications in accordance with the requirements of Division 5.2 of the EP&A Act.

8. Conclusion

This section provides a synthesis of the findings of the Submissions Report and concludes the environmental impact assessment process.

8.1 Overview

The EIS included a comprehensive assessment of the potential environmental impacts associated with the proposal and, where appropriate, proposed mitigation measures to address these potential impacts. Consultation was undertaken with the community and key stakeholders throughout the environmental impact assessment process, to allow early identification of key issues and addressing of those issues, where possible. The EIS concluded that with the implementation of the proposed mitigation measures the potential environmental impacts of the proposal would be adequately managed.

The EIS was placed on public exhibition between 30 October 2020 and 10 December 2020. A total of 20 submissions were received, comprising two submissions from individual community members, three submissions from organisations and 15 submissions from public authorities.

8.2 Summary of issues raised

The top six issues raised by community members and organisations/businesses were related to:

- impacts to biodiversity
- hazards and risks (bushfires and EMF)
- planning and statutory requirements
- justification regarding the need for the proposal
- impacts to heritage
- land use and property impacts.

Key issues raised by public authorities included, but were not limited to:

- the need to further avoid and minimise impacts to vegetation associated with the proposal during construction and operation
- request for additional information regarding
  - the biodiversity offset strategy
  - the impacts of EMF exposure for some fauna species
  - heavy vehicle haulage routes
- impacts to heritage sites, in particular identified Potential Archaeological Development (PAD) sites
- request for forming up and sealing of certain road sections to minimise impacts from additional construction traffic
- confirmation of availability and location(s) for sourcing water during construction of the proposal including water licencing and access arrangements.

Chapters 5 and 6 of this report provides responses to each issue raised in the submissions. Based on issues raised, some of the mitigation measures presented in the EIS have been updated and some new mitigation measures have been added.

8.3 Concluding statement

The proposal, which is an essential component of EnergyConnect, would enhance the energy transmission link between the SA, NSW and Victorian transmission networks.

The proposal was described in the EIS, which was put on public exhibition to provide the community, organisations, public authorities with an opportunity to respond to the proposal. All submissions received by DPIE regarding the proposal have been reviewed, considered and responded to in this report.

To avoid, minimise or manage the potential impacts identified by the EIS and submissions, Section 7.2 of this report lists the revised mitigation measures that would be implemented during construction and operation of the proposal. This includes implementing the CEMP(s) and community and stakeholder engagement plan during main construction works and TransGrid's environmental management system during operation. With the implementation of the proposed revised mitigation measures, the potential environmental impacts of the proposal would be adequately managed. This would also ensure compliance with relevant legislation and any conditions of approval.

A series of design amendment has also been proposed to the proposal which are identified and assessed in the Amendment Report for the proposal, including amendments which respond to submissions received during exhibition.

8.4 Next steps

The EIS, this Submissions Report and the Amendment Report will be reviewed by DPIE, on behalf of the Minister for Planning and Public Spaces. Once DPIE has completed their assessment, a draft assessment report will be prepared for the Secretary of DPIE, which may include recommended conditions of approval. A final assessment report will then be provided to the Minister for Planning and Public Spaces, who will determine the proposal.

A copy of this Submissions Report will be published on DPIE's website following submission of the report to DPIE for assessment. Following assessment, the Minister for Planning and Public Spaces' determination will also be published on DPIE's website, as well as any conditions of approval (should the proposal be approved).

9. References

AEMO (2020) Integrated System Plan

DECCW (2010) The Aboriginal Cultural Heritage Consultation Requirements for Proponents

Department of Planning and Environment (2018) NSW Transmission Infrastructure Strategy

Department of Primary Industries (2014) Salinity Training Handbook

Department of Planning, Industry and Environment (2020) Surveying threatened plants and their habitats; NSW guide for the BAM

Department of Environment and Conservation (2004) NSW Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft)

EPA (2016) Approved Methods for the Modelling and Assessment of Air Pollutants in NSW

EPA (2017) Noise Policy for Industry

ElectraNet (2019) Transmission Annual Planning Report

Natural Resources Access Regulator (2018) Guidelines for Controlled Activities on Waterfront Land

Office of Environment and Heritage (2010) Aboriginal Cultural Heritage Consultation Requirements for Proponents

Office of Environment and Heritage (2016) NSW Guide to Surveying Threatened Plants

Rex Andrews (2021) Route Study: Port Adelaide to Buronga

TransGrid (2019) HSE Handbook and Complaints Handling Policy

TransGrid (2020) HSE Handbook

WSP (2021a) EnergyConnect (NSW – Western Section) Amendment Report

Appendix A

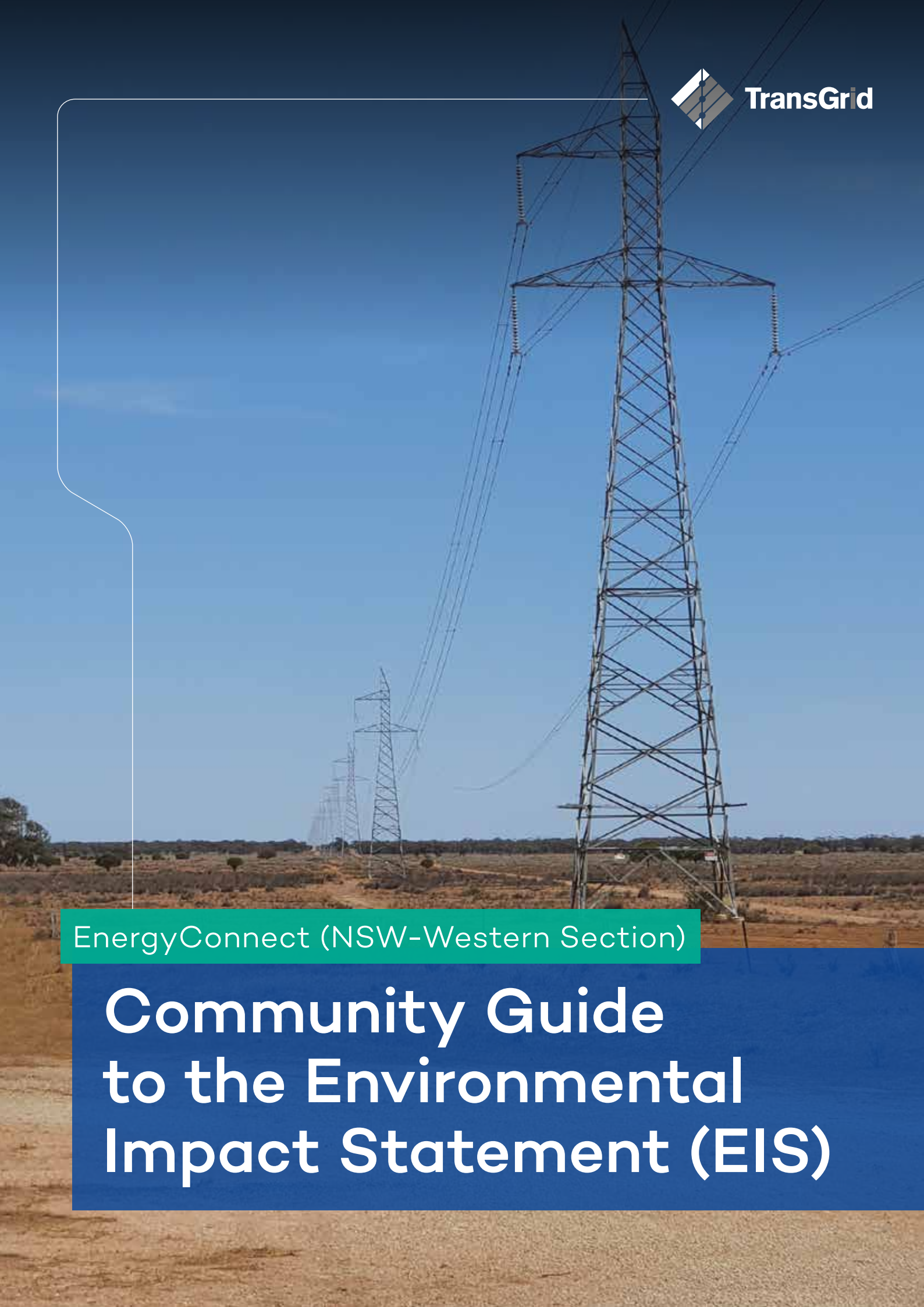
Overview of the community submissions

Appendix A Overview of community submissions

Submission #	Respondent	Key issues raised	Section(s) where issues are addressed
01	Individual	Support for the proposal	Not applicable
02	Individual	Proposal need and justification	Section 5.2
		Biodiversity	Section 5.5
		Land use and property	Section 5.7
		Visual and landscape character	Section 5.8
		Socio economic	Section 5.9
		Hazards and risks	Section 5.12
		Contamination	Section 5.13
		Other – out of scope	Section 5.13
03	Business group – APA Group	Other – utilities and services	Section 5.13
04	Community association – Wentworth Regional Community Project Association Inc	Traffic, transport and access	Section 5.10
05	Community association – restofnsw inc.	Planning and statutory requirements	Section 5.1
		Proposal alternatives	Section 5.3
		Community and stakeholder consultation	Section 5.4
		Biodiversity	Section 5.5
		Heritage	Section 5.6
		Land use and property	Section 5.7
		Hydrology, flooding and surface water	Section 5.10
		Hazards and risks	Section 5.12

Appendix B

Community guide to the EIS for EnergyConnect



TransGrid

EnergyConnect (NSW-Western Section)

Community Guide to the Environmental Impact Statement (EIS)

Contents

This document is a community guide to the EnergyConnect (NSW Western Section) Environmental Impact Statement (EIS). The EIS assesses environmental issues including biodiversity, cultural heritage and visual amenity. Strategies to avoid, mitigate and manage potential impacts have also been identified in the EIS.

To view the EIS, please visit the Department of Planning, Industry and Environment (DPIE) website: **https://www.planningportal.nsw.gov.au/major projects/project/25821**

About the project

Supporting changes in the National Electricity Market.

The Australian energy landscape is undergoing significant change with increased focus on new sources of energy generation. To support this change and growth in the energy market, TransGrid has partnered with ElectraNet (South Australia's electricity transmission operator) to deliver one of the nation's largest energy infrastructure projects, EnergyConnect.

Why is EnergyConnect needed?

A number of contributing factors are driving the evolution of the energy market to low-emission renewable energy, including:

- access to new generation sources as coal-fired plants close
- government commitments to reduce carbon emissions
- the potential for renewable generation to reduce energy prices
- demand for a more reliable energy supply.

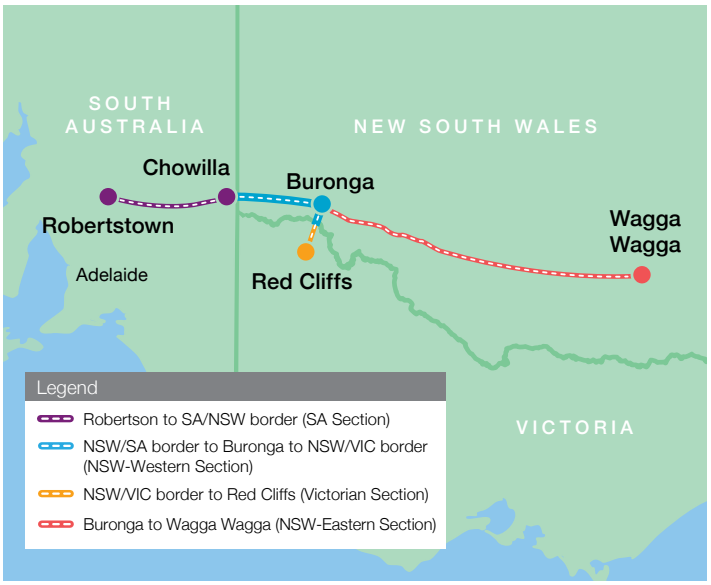
EnergyConnect will deliver the infrastructure required to support this transition by connecting the energy grids of NSW, SA and Victoria and enabling Australian communities and businesses to access new lower-cost energy sources.

What does the project involve?

The NSW section of EnergyConnect is being delivered by TransGrid and was declared *Critical State Significant Infrastructure* by the NSW Minister for Planning and Public Spaces. The project will be progressed through the environmental and planning approvals process in two stages:

- **NSW-Western Section** from the NSW/SA border to Buronga through to the NSW/Vic border
- **NSW-Eastern Section** from Buronga to Wagga Wagga.

Information on the status of these sections within the environmental and planning process, including relevant documentation is available online at the Department of Planning, Industry and Environment's (DPIE) Planning Portal by searching "EnergyConnect" at **www.planningportal.nsw.gov.au/major-projects.**



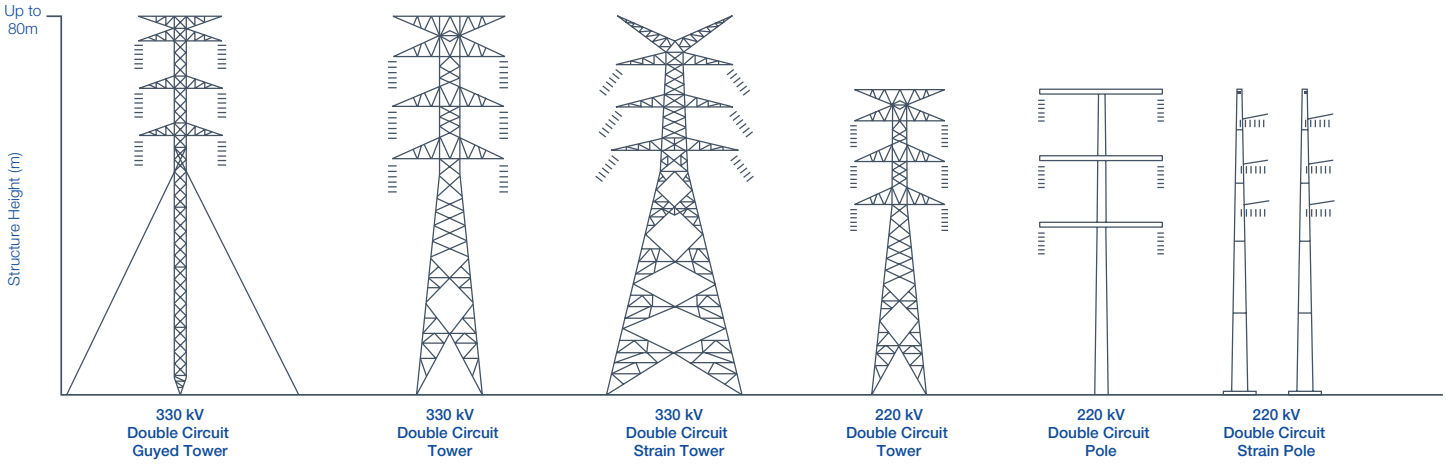
Proposed infrastructure

Transmission line and structures

The NSW-Western Section proposal includes around **160km** of transmission line. This includes:

- construction of around **135km** of 330kV double circuit line from the NSW/SA border near Chowilla to the existing Buronga substation.
- upgrade of around **22km** of the existing 220kV single circuit line from the existing Buronga substation to the NSW/Vic border near Monak to be a 220kV double circuit line.

The transmission line would be supported on a series of towers, typically spaced between **400m** and **600m** apart. The towers would range in height from **30m** to **80m**, depending on local conditions.



Proposed concept design for transmission line structures that may be used for the project. Figure not to scale.

Substation upgrade and expansion

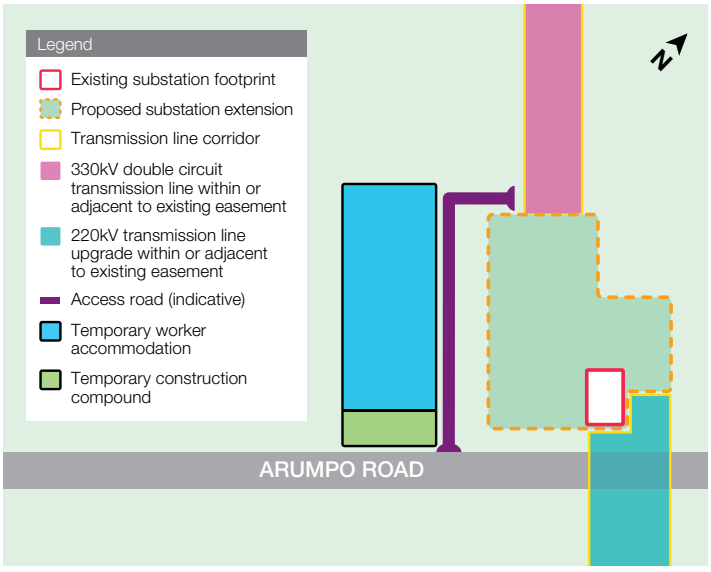
The existing Buronga substation is proposed to be upgraded and expanded to accommodate the new 330kV line from the west and the proposed NSW-Eastern Section of EnergyConnect.

The additional area required for the expansion is around **33.5ha**. The maximum height of new equipment is around **65m**.

Additional safety measures will be in place, including:

- security fencing and public information signage
- operational lighting
- an asset protection zone, which is an area around the substation maintained and cleared of all trees and vegetation.

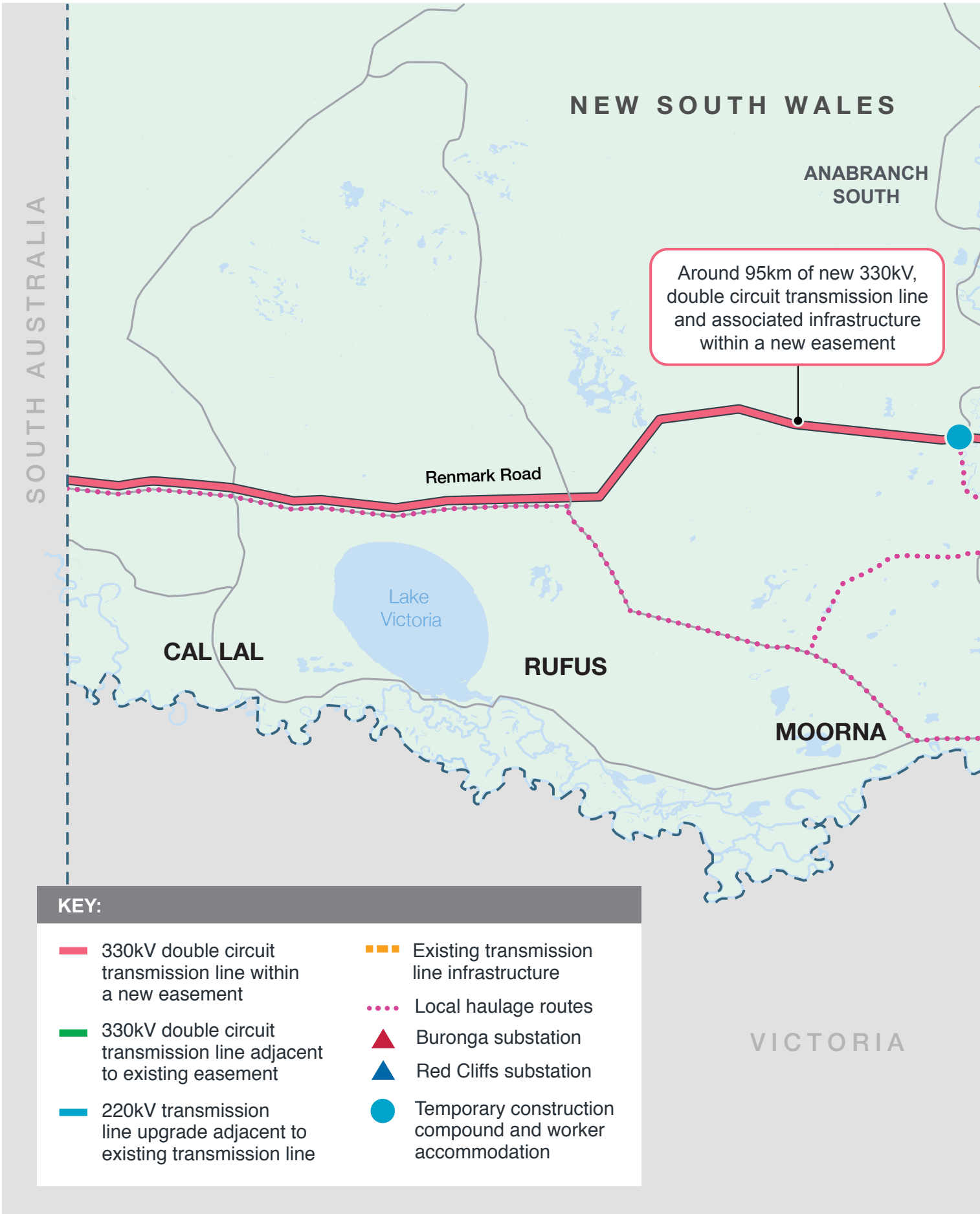
Additional parking bays and access points (entry and exit) are also proposed.



Temporary and/or ancillary infrastructure

In addition to the transmission line and substation, access roads will also be built or upgraded as required. Other ancillary works required for the construction of the transmission line and substation, can include laydown and staging areas, concrete batching plants, brake/winch sites, site offices and accommodation camps.

Map of NSW-Western Section



Worker accommodation and site offices

Temporary accommodation camps will be set up in **Buronga** and **Anabranch South** and be in place throughout the proposed construction period. A third site may also be required at **Wentworth**.

The sites would range in size from around **30ha** to **75ha** with a range of facilities including:

- Accommodation facilities, meal rooms and recreational facilities for 100 200 workers
- Demountable offices for up to 50 workers
- Parking bays for light vehicles, heavy vehicles and buses.

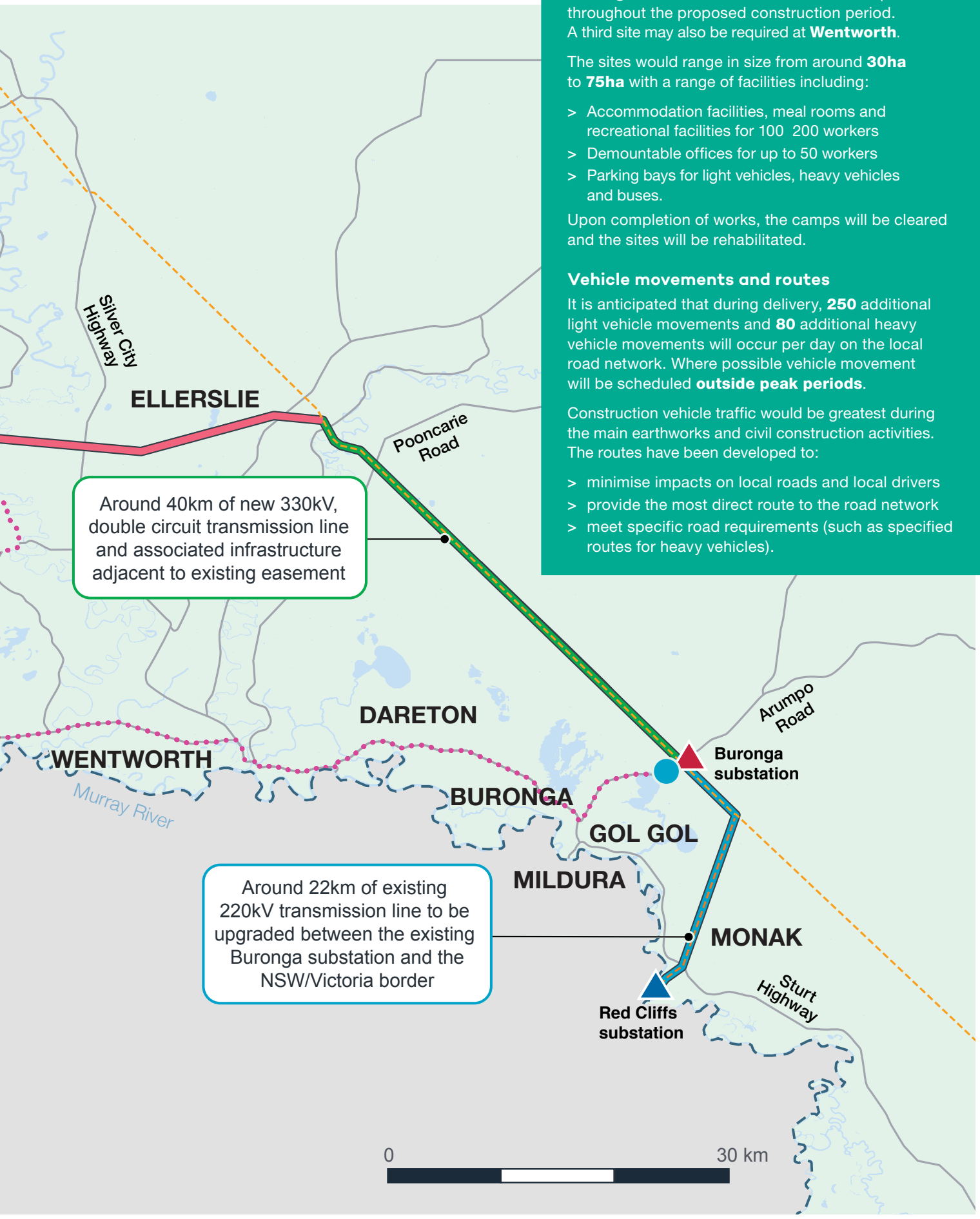
Upon completion of works, the camps will be cleared and the sites will be rehabilitated.

Vehicle movements and routes

It is anticipated that during delivery, **250** additional light vehicle movements and **80** additional heavy vehicle movements will occur per day on the local road network. Where possible vehicle movement will be scheduled **outside peak periods**.

Construction vehicle traffic would be greatest during the main earthworks and civil construction activities. The routes have been developed to:

- minimise impacts on local roads and local drivers
- provide the most direct route to the road network
- meet specific road requirements (such as specified routes for heavy vehicles).



Environmental Impact Statement (EIS)

Under the NSW *Environment Planning and Assessment Act* 1979 (EP&A Act), all Critical State Significant Infrastructure must go through a comprehensive assessment process, which includes the development of an Environmental Impact Statement (EIS).

NSW Western Section EIS

The EIS is informed by a number of studies on specific environmental, economic and social considerations. These studies identify potential impacts to the environment and communities, and propose management measures to avoid or minimise these impacts. Assessment outcomes detailed in the EIS include:

Biodiversity

The outcomes of ecology surveys carried out across the proposal area and spanning the Murray Darling Depression, Darling Riverine Plains and Riverine bioregions is detailed in Chapter 9 of the EIS. The analysis of these surveys found that the NSW Western Section would impact, to some extent,59 threatened species, migratory birds or their habitat, however it is unlikely that this will be significant. Measures to minimise and manage potential impacts include designing the project to avoid areas with high biodiversity value including threatened species' habitats, establishing biodiversity stewardship sites and alternative strategic offset outcomes.

Cultural heritage

Chapters 10 and 11 detail the Aboriginal and Non Aboriginal heritage sites identified within the project area. In addition to previously recorded sites, 131 previously unrecorded Aboriginal site features were uncovered during field surveys, with the highest density and variety found north of Lake Victoria. An additional unrecorded non Aboriginal heritage item was identified, a survey marker tree, west of the Darling River near Sturts Billabong. No items of State, Commonwealth or World Heritage significance were identified. Management measures to protect these sites have been developed, with the transmission line route aiming to protect, conserve and manage the significance of Aboriginal objects and culture, and Non Aboriginal heritage. Strict protocols will be in place to manage any unexpected items found during the construction period.

Land use and property

Potential land use and property impacts resulting from the project, including those related to agriculture, were assessed and can be found in Chapter 12 of the EIS. Most of the land in the proposed project area is leased as grazing land, with only a small portion classified as freehold. There are also several areas of Crown Land within and surrounding the proposal study area. Management measures are also detailed in this chapter and include extensive consultation with landowners to minimise disruption to their operations.

Landscape character and visual amenity

The assessment of local landscape features and visual amenity considers national, state and local government policies and guidelines, which are outlined in Chapter 13. Approaches to avoid and minimise landscape and visual impacts were considered as part of the transmission line location by distancing the alignment north of Mildura, Wentworth and Lake Victoria. Impacts to private properties near the transmission lines would be minimised by maximising the spacing of transmission line structures or with screening in an effort to reduce disruption to views.

Social and economic

Details of the social and economic impacts and benefits of the project are detailed in Chapter 14. Way of life, community, culture and access to and use of infrastructure, services and facilities were some of the categories covered in the study. Measures to manage and reduce potential impacts include consultation with stakeholders, such as landholders, Local Government and emergency service providers to identify ways to minimise impacts to property operations and local activity. The assessment also identified possible project benefits including long term economic gain to the broader regional population.

Traffic and access

Chapter 18 outlines the expected impact the project will have on traffic and the local road network. An increase of less than 2% from current traffic volume at peak periods is anticipated, with up to 250 additional light vehicle movements and 80 additional heavy vehicle activities per day. This is not expected to adversely impact the capacity and serviceability of the local road network. A Construction Traffic Management Plan will be prepared to manage vehicle movements.

Additional areas of assessment

Additional factors that are detailed in the EIS include:

- Hydrology, flooding and water quality (Ch 15)
- Air quality (Ch 16)
- Noise and vibration (Ch 17)
- Hazards and risks (Ch 19)
- Soils, contamination and groundwater (Ch 20)
- Waste management and resource use (Ch 21)
- Cumulative impacts (Ch 22)

Consultation

TransGrid has been consulting extensively with the community, local businesses, government agencies and other stakeholders to inform the route of the transmission line and the development of the EIS.

890+ engagement activities
including with community members and businesses since November 2018

494 face to face meetings, emails and phone calls
with local landowners

310 briefings and updates
to local council, government agencies and other key stakeholders.

TransGrid will continue to work closely with stakeholders to understand any issues of concern.

Where to view the EIS

The EIS is on public exhibition in late 2020 and can be viewed:

- **Online at the DPIE website:**
  www.planningportal.nsw.gov.au/major-projects/project/25821
- **Through an interactive portal:**
  www.transgrid.com.au/energyconnect
- At a community information session, where you can also meet the EnergyConnect project team and ask questions about the project or the EIS.

You can also contact the project team to discuss the EIS by:

Phone: 1800 49 06 66
Email: pec@transgrid.com.au

How to make a submission

Making a submission is an important part of the EIS process and TransGrid encourages all community members, stakeholders and government agencies to have their say on the EIS. DPIE must receive your submission before the close of the exhibition period and include:

1. Your name and address
2. The application name: EnergyConnect (NSW-Western Section)
3. The application number: SSI-10040
4. A brief statement on whether you support or object to the proposal
5. The reasons why you support or object to the proposal

It is DPIE's policy to place a copy of your submission on its website. If you do not want your personal information made public, please state this clearly at the top of your submission.

Mark your submission for the attention of Director – Energy Assessments and send it via the:

- **DPIE website:**
  www.planningportal.nsw.gov.au/major-projects/project/25821
- **Post:**
  Major Projects Assessment Department of Planning, Industry and Environment
  GPO Box 39, SYDNEY, NSW 2001
- **In person:**
  Department of Planning, Industry and Environment at 320 Pitt Street, Sydney
- **Phone:**
  1300 305 695

Your feedback matters

Following exhibition of the EIS, feedback will be summarised in a submissions report, which will be made publicly available. TransGrid will consider all feedback and provide a response. The Minister for Planning and Public Places will then make a decision about whether to approve the proposal.

Disclosure

Anyone lodging submissions must declare reportable political donations (including donations of $1,000 or more) made in the previous two years. For more details, and a disclosure form, go to www.planning.nsw.gov.au/donations

Privacy

Under section 1152(5) of the *Environmental Planning and Assessment Act, 1979* (NSW), the Director-General may provide copies of submissions received during the exhibition period, or a summary of the submissions, to TransGrid. All submissions and information obtained during the public exhibition period will be used in accordance with the Privacy Act 1988. All submissions received will be regarded as public documents and any information contained in them can be published in subsequent assessment documents.

Copies of the submissions received on the project may be issue to interested parties. If the author of a submission does not wish the information to be distributed, this needs to be clearly stated in the submission. For enquiries, please contact DPIE:

Phone: 1300 305 695 **Email:** information@planning.nsw.gov.au

Connect with us

1800 49 06 66
pec@transgrid.com.au
transgrid.com.au/energyconnect

TransGrid

Appendix C

Route study: Port Adelaide to Buronga

REX J ANDREWS
ENGINEERED TRANSPORTATION

ROUTE STUDY: PORT ADELAIDE TO BURONGA

REV 00

Rev.	Date	Change	Responsible	Checked
0.0	19.01.2021	Route Scoped	C Andrews	Y

Index:

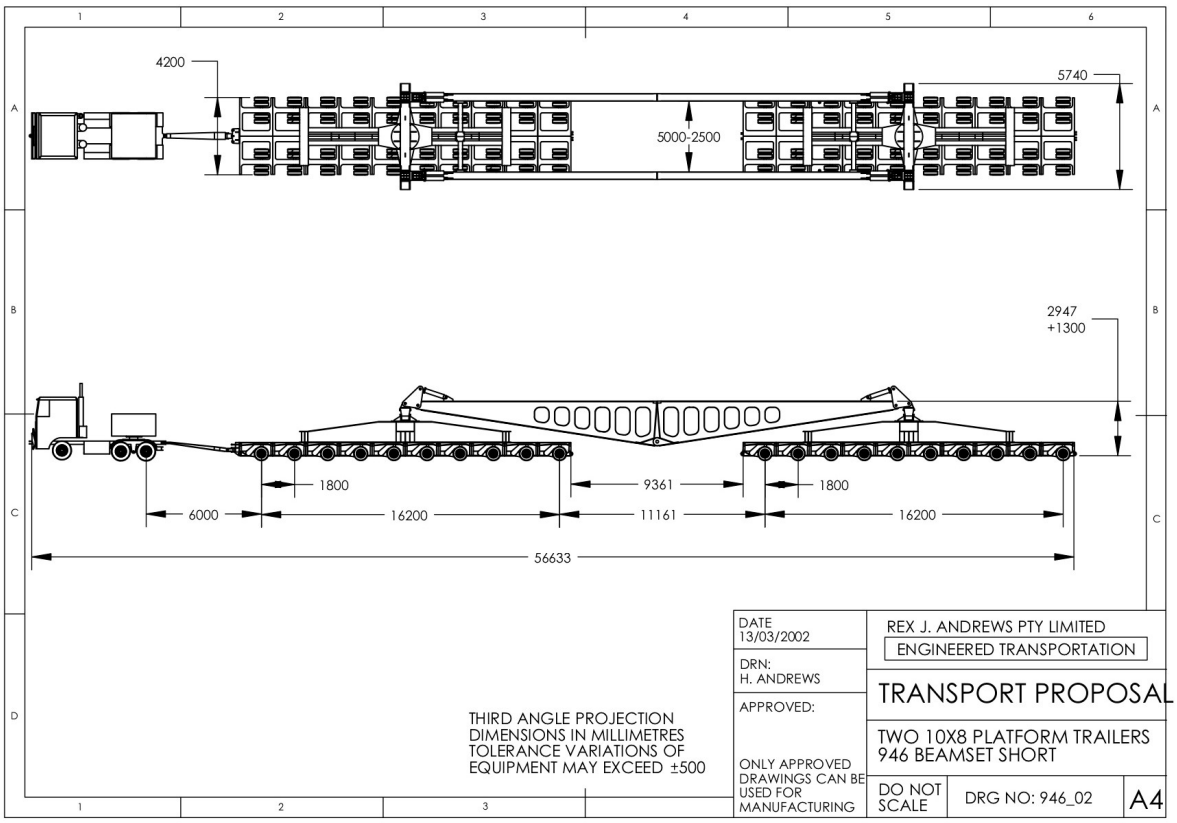
1.0 Introduction

This document describes observations and previous experience on route and explains the transport of a Transformer From Port Adelaide to Buronga NSW

This latest study took place on 19.01.21

2.0 Project data.

Date of latest Route Assessment. 19.01.21
Survey undertaken by. (Rex J Andrews P/L)
Project name. Buronga Sub Station
Location. Arumpo Road Buronga
Transport Combinations:
1 x Transformer 182 tonnes
Configuration 4 Prime Movers with 2 x 10 axle Platform Trailers and Beams Set



3.0 Site Location.

Buronga Sub Station

4.0 Transport Summary

We have based this study on the Transformer, entering Australia via Port Adelaide to Buronga via Broken Hill

Main route: After completing this route survey, we believe the following is the most suitable option.

This route took us via: Eastern Parade, Port Motorway, Port Wakefield Rd, Northern Expressway, Horrocks Hwy, Barrier Hwy, Copperhouse Rd, Copperhouse St, West St, (Bypass Burra), Barrier Hwy, Creedon St, Ryan St, Kanandah Rd, Silver City Hwy, Arumpo Rd.

The Following are conditions for this route:

- No unnecessary noise to be made before 7.00am.
- A pre start meeting to be held between the truck drivers, Pilots & Police before load departs.
- If for any reason communications fail between any of the pilot, escort of load vehicle occurs, the load is to cease until such time as it can be re-established.
- Loads are only to travel in the Adelaide Metro night travel ex port and daylight from Bolivar
- Loads will require a minimum 2 x police escort & 4 x Company Pilots.
- Client to give unrestricted access at site.
- Roadwork's to be checked with NHVR & RMS 5 days prior to leaving, and relayed to client with any potential problems.
- Load to travel at an average speed of 30 km p/hr. However the load will slow down for bridge crossings, corners and inclines/declines.
- Load to slow to 10km per hour for all bridges as per Bridge report no other vehicle to be on bridge at same time

5.0 Emergency contacts and Plans

1st Point of contact: RJA Operations 0247217633

2nd Point of contact: Rex J Andrews's supervisor 24 hrs. (Carl Andrews 0419293423)

STANDARD EMERGENCY NUMBERS IF REQUIRED

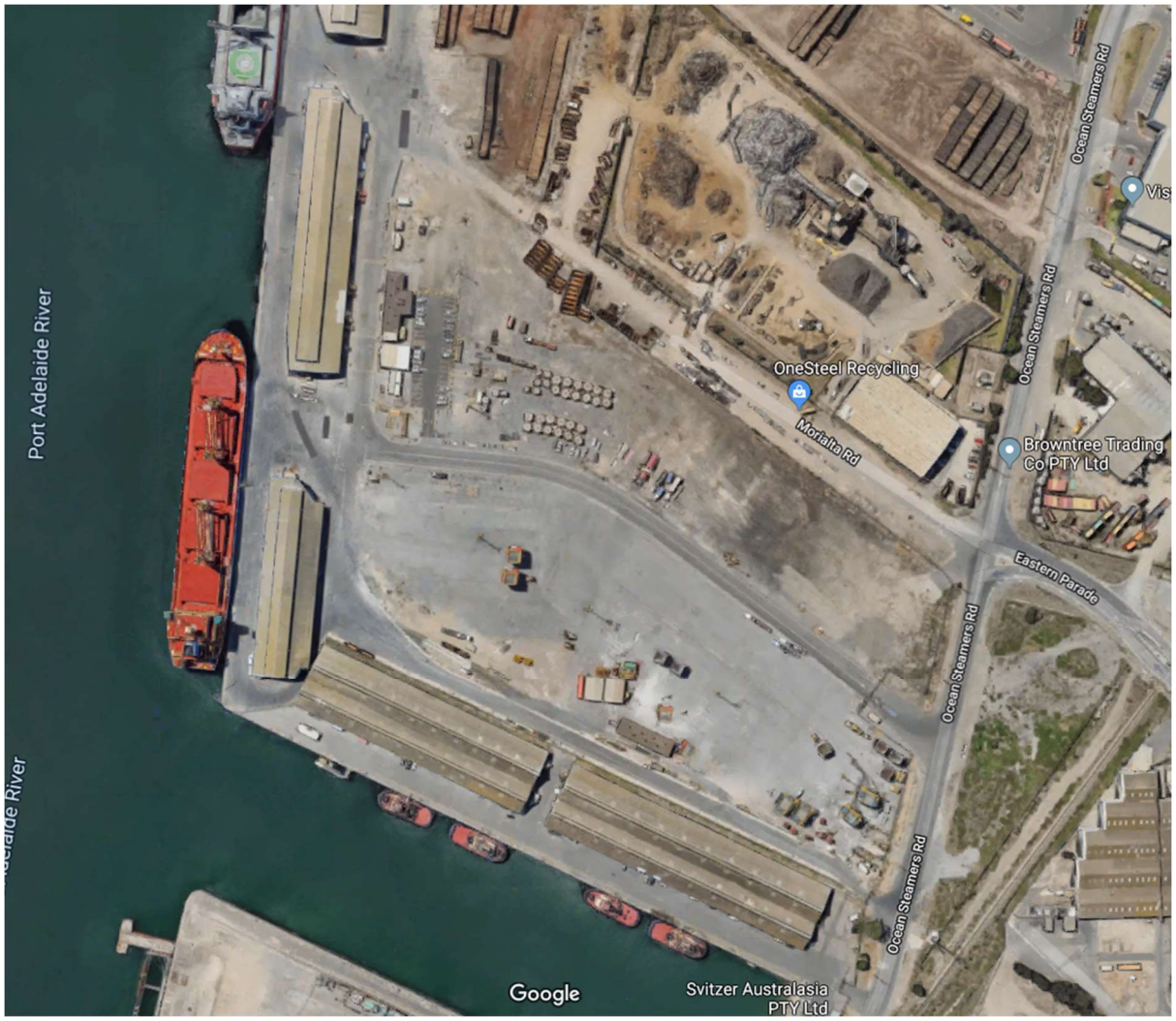
- Main Emergency number (000)
- NSW Traffic Operations (02 88821219)
- TMC Operations room (1800 679782) or (1300725886)
- RMS Western region Phil Standon (131782)
- CRN John Holland (1300 661390)

- In the event of an emergency situation, such as breakdown, the load will be moved to the left hand lane/shoulder to ensure minimal traffic impacts; police and pilots (Under the direction of the police) will manage traffic flow. In such instances the NHVR/TMC should be promptly advised so that all necessary warnings can be made.
- Where a tow is required, the trailer will be unhooked from the prime mover and a standby truck be called.
- If police decide that the movement should be suspended as a result of time or potential traffic impacts the trailer with the load will be moved to a safe parking location and the NHVR/TMC will be notified.
- In the event of bad weather, the driver is to notify the first point of contact before departing.
- If the highway is blocked between the pickup location and drop off location, than the load is not to depart.
- Roadwork's to be checked with NHVR/RMS 2 days prior to leaving, and relayed to client with any potential problems.
- Route to be checked with Live Traffic and TMC 2 days before travel and on the night of travel before departure

6.0 Port of Import.

The Transformer will be imported from overseas, and will arrive on a ship into the Port Adelaide

Image 1: Port overview.

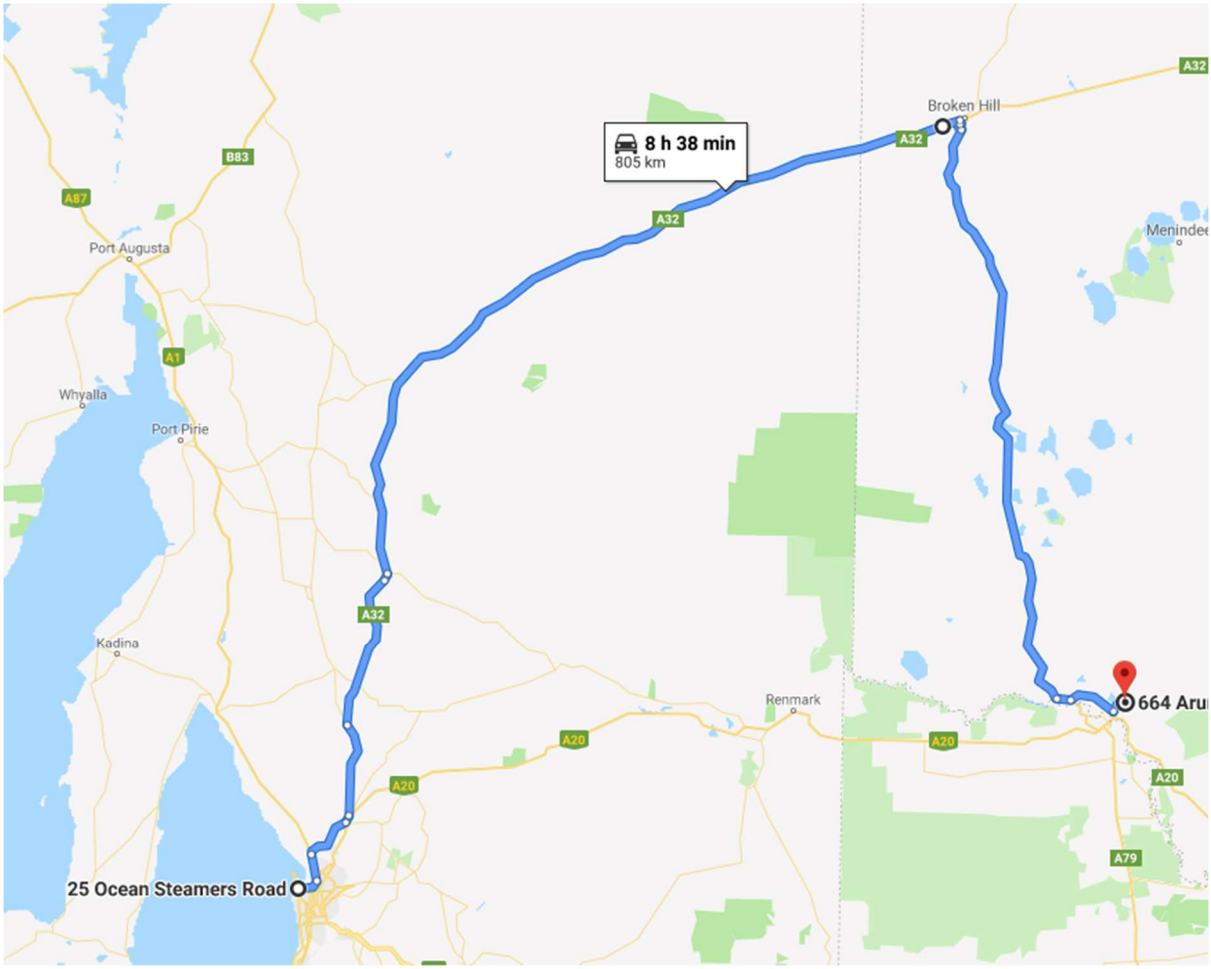


The Port has a large area to discharge the Transformer from Ships hook and assemble Beams Transporter

7.0 Main route:

Distance of route: 805 kms

Route: Eastern Parade, Port Motorway, Port Wakefield Rd, Northern Expressway, Horrocks Hwy, Barrier Hwy, Copperhouse Rd, Copperhouse St, West St, (Bypass Burra), Barrier Hwy, Creedon St, Ryan St, Kanandah Rd, Silver City Hwy, Arumpo Rd.



7.0

Route Index.

Location	Kms	Name of Road	Notes
Port Adelaide	0.0	Eastern Parade	Load to exit port onto Eastern Parade
Port Adelaide	1.2	Eastern Parade onto Port Mwy	Load to enter from incorrect side into Mwy entry Lane
Salisbury	8.8	Port Mwy onto Port Wakefield Rd	Load to exit Mwy using exit ramp and join Port Wakefield Rd
Virginia	20.4	Northern Expressway	Load to exit Port Wakefield Rd and join Northern Expressway using standard Ramp
Gawler	47.3	Horrocks Hwy	Load to exit Expressway and use ramp to join Horrocks Hwy
Giles Corner	87.3	Barrier Hwy	Load to use sweeper to enter Barrier Hwy
Hanson	144.0	Barrier Hwy	Load to park in West St Parking Bay
Burra	154.2	Copperhouse Rd	Load to Use Burra Heavy Vehicle Bypass and return to Barrier Hwy
Manna Hill	357	Barrier Hwy	Load to Park in Parking Bay
Broken Hill	507	Creedon St	Load to turn right onto Creedon St
Broken Hill	508	Ryan St	Load to turn right onto Ryan St
Broken Hill	510	Silver City Hwy	Load to turn right onto Silver City Hwy
Broken Hill	527	Silver City Hwy	Load to Park in Parking Bay
Wentworth	764	Silver City Hwy	Load to park in parking bay
Wentworth	770	Silver City Hwy	Left turn in Wentworth
Curlwaa	777	Silver City Hwy	Left turn in Curlwaa
Buronga	799	Arumpo Rd	Load to turn left onto Arumpo Rd

Transport approvals required.

Approvals will need to be sought from the following departments.

- NHVR
- RMS (Roads and Maritime service)
- NSW Police service
- Regional councils
- Power authorities
- Rail authorities

Travel dates

- Day 1: Port Adelaide to Hanson
- Day 2: Hanson to Manna Hill
- Day 3: Manna Hill to 20kms South of Broken Hill
- Day 4: Broken Hill to Wentworth
- Day 5: Wentworth to Buronga

Schedule.

Schedule details Date: TBA Written by Carl Andrews

Schedule Notes

- This Schedule has been written based on values known at this time for good driving conditions and no fatigue related issues prior to starting this trip
- Do not drive to the schedule if tired Stop Revive Survive
- No attempt should be made to make up for lost time on a schedule
- You must fill out your logbook to the exact hours you work

Please work with the scheduler to make this better for all involved

Start	End	Hr	Day	Km	avg	Type	Location	Notes
0.0	83.0	3.0	1	83.0	30km	Rest	Tarlee	½ hr break
83.0	144	3.0	1	61.0	30km	Rest	Hanson	End day 1
144.0	224	3.0	2	60.0	30km	Rest	Terowie	½ hr break
224	357	4.0	2	133.0	30km	Rest	Mannahill	End day 2
357	472	4.0	3	115	30km	Rest	Cockburn	½ hr break
472	527	4.0	3	55.0	15km	Rest	Broken Hill	End day 3
527	641	4.0	4	114	30km	Rest	Coombah	1/2 hr break
641	764	4.5	4	123	30km	Rest	Wentworth	End day 4
764	799	4.0	5	35	10km	Rest	Gol Gol	Destination

8.0 Pinch Points

PINCH POINT	
CAUTION	
EMERGENCY PARKING	

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
Route: Port Adelaide to Buronga					
0.0	Port Adelaide	Port to Eastern Parade	9 meters through gate	Slight right hand bend across crossroads	Pilots to warn traffic as load travels onto Eastern Parade
1.2	Port Adelaide	Eastern Parade to Port River Exressway	15 mtr into 4.6 mtrs 56 long	Use slip lane to enter Expessway and be aware of light post on left side of ramp	Pilots to warn traffic as load makes turn and warn Expressway traffic of merge, spotters to guide steerer through turn
8.8	Salisbury	Port River Expressway onto Port Wakefield Rd	5.7mtrs into 12.5 mtrs 42 long	Use Exit Slip lane to merge onto Port Wakefield Rd lane is narrow and steerer will need to be guided to avoid climbing onto guttering	Pilots to warn traffic as load makes turn and warn Port Wakefield Rd traffic of merge, spotters to guide steerer through turn
20.4	Virginia	Port Wakefield Rd onto Northern Expressway	6.7 mtrs into 6.7 mtrs 45 long	Use Exit lane to enter Northern Expressway	Pilots to warn traffic as load enters northern expressway spotters to guide steerer
47.3	Gawler	Northern Exressway onto Horrocks Hwy	6.0 mtrs into 18 mtrs 54 long	Use exit lane to Horrocks Hwy intersection and cross the island to incorrect side to make left turn	Pilots to warn traffic both directions on Horrocks hwy as load uses both sides of the road to negotiate turn spotters to guide steerer through turn and load to travel past concrete islands on incorrect side
87.3	Giles Corner	Horrocks Hwy to Barrier Hwy	7.0 mtrs wide 70 mtrs long	Large Right turn to the Barrier Hwy	Pilots to warn traffic while load makes the turn
144	Hanson	Barrier Hwy into West St Parking bay	10.0 mtrs wide 150 mtrs long	Slight Left into Parking Bay	Load to park in parking bay on West St for day 1
154.2	Burra	Barrier Hwy onto Copperhouse Rd Bypass and back to Barrier Hwy	15 mtrs into 13 mtrs 60 long 13 wide straight onto Barrier	Left turn onto Copperhouse Rd then left merge back onto Barrier Hwy both are large turns	Pilots to warn traffic at both turns and spotters to guide steerer
357	Manna Hill	Barrier Hwy into Parking Bay	20 mtrs wide 100 long	Load to Park in Parking bay on the north of Manna Hill	Load to park in parking bay on North side of Town for day 2
507	Broken Hill	Barrier Hwy into Creedon St	13 mtrs into 14 mtrs 50 long	Right turn onto Creedon St Spotters to Guide load through turn	Pilots to warn traffic and spotters to guide steerer care to be taken on poles on inside of turn
508	Broken Hill	Creedon St into Ryan St	16 mtrs into 14 mtrs 43 long	Right turn onto Ryan St Spotters to Guide load through turn	Pilots to warn traffic and spotters to guide steerer care to be taken on poles on inside of turn
509	Broken Hill	Kanandah rail overpass Kanandah Rd onto Silver City Hwy	8.5 wide 5.3 high 12 mtrs into 14.5 mtrs 50 long	Overpass is in a dip Right turn large turn	Pilots to warn traffic and spotters to guide steerer
527	Broken Hill	Silver City Hwy into Parking Bay	20 mtrs wide 150 long	Slight right into Parking bay	Load to park in parking bay 20kms south of Broken hill
764	Wentworth	Silver City Hwy into Parking Bay	15 mtrs wide 150	Slight left into Parking bay	Load to park in parking bay 6kms

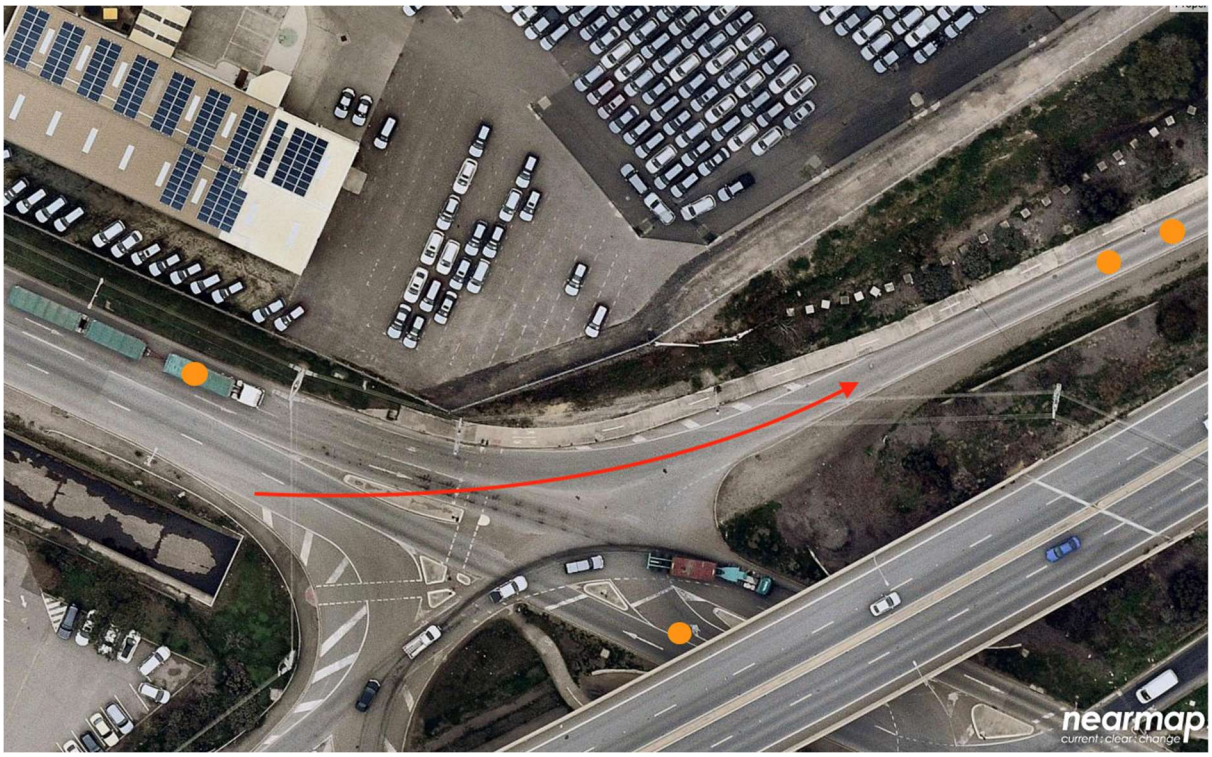
KM index	Location	Section of road	Critical Measurement	Procedure	Notes
			long		north of Wentworth
770	Wentworth	Silver City Hwy Right turn	19 mtrs into 17 mtrs 48 long	Left turn in Wentworth load to use all of intersection and remove and replace pedestrian post to make turn	Pilots to warn traffic at crossroads from all directions load to make left turn and spotters to guide steerer through turn and replace posts
777	Curlwaa	Silver City Hwy Left turn	14 mtrs wide into 13 mtrs 46 long	Left turn in Curlwaa load to use all of intersection and spotters to guide load though turn	Pilots to warn traffic and spotters to guide steerer care to be taken on poles on inside of turn
799	Buronga	Silver City Hwy left turn into Arumpo Rd	14.5 mtrs into 11 mtrs 44long	Tight left turn through roundabout spotters to guide load through turn	Pilots to warn traffic and spotters to guide steerer care to be taken on poles on inside of turn

9.0 Route

0.0kms Port to Eastern Parade

Front 2 pilots to warn traffic westbound on Eastern Parade
Rear 2 pilots to warn both directions on Ocean Steamers Rd
Procedure: Load to exit Port onto Eastern Parade

1.2kms Eastern Parade to Port River Expressway



Front 2 pilots to travel up ramp ready to warn traffic on expressway

Rear pilot to warn traffic behind load

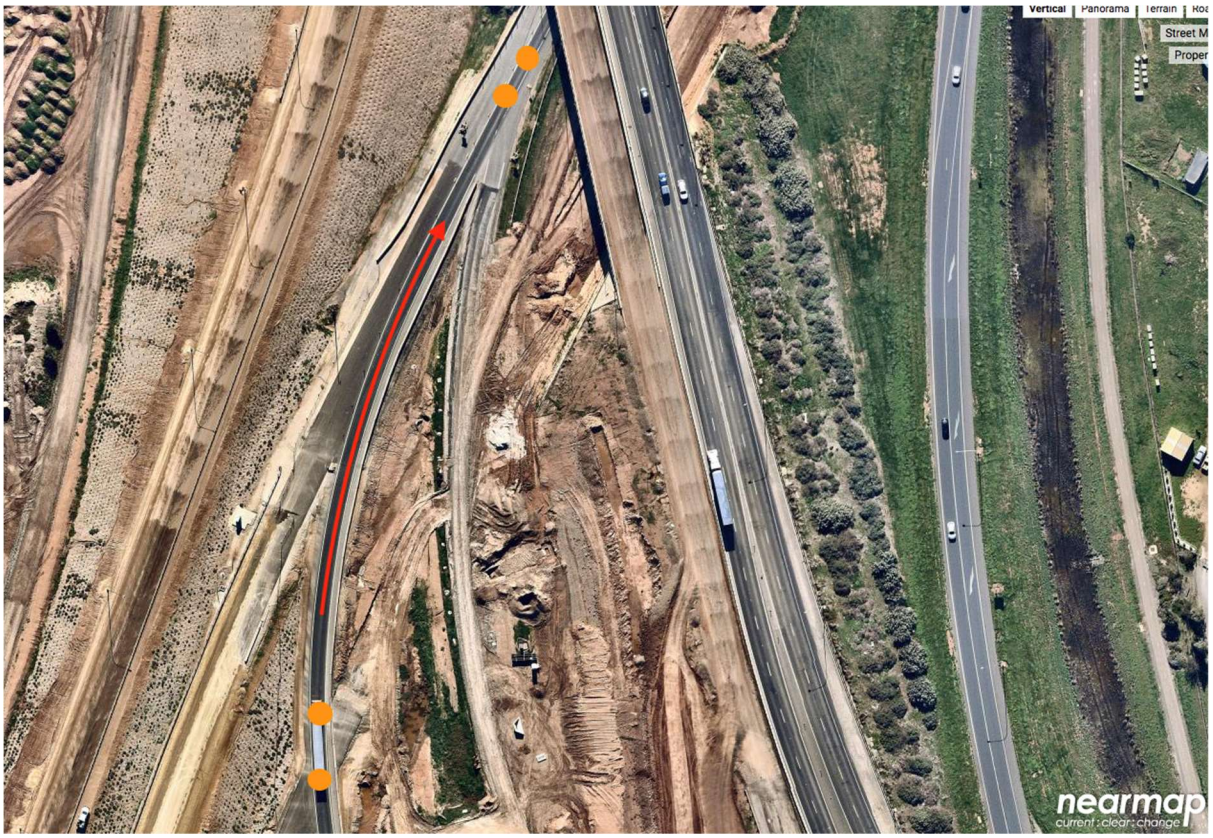
Rear pilot 2 to warn traffic westbound on Eastern Parade

Procedure: load to turn left under guidance of spotters, and merge onto expressway

8.8kms Port Mwy onto Port Wakefield Rd

Front 2 pilots travel up ramp ready to warn traffic on Port Wakefield
Rear 2 pilots to warn traffic behind load
Procedure: load to use slip lane to merge onto Port Wakefield Rd

20.4kms Port Wakefield Rd to Northern Expressway



Front 2 pilots to stay ahead and warn traffic
Rear 2 pilots to warn traffic behind
Procedure: enter Expressway using slip lane

47.3kms Northern Expressway onto Horrocks Hwy

Front 2 pilots to warn traffic north of where the centre island ends

Rear pilot to warn traffic behind the load

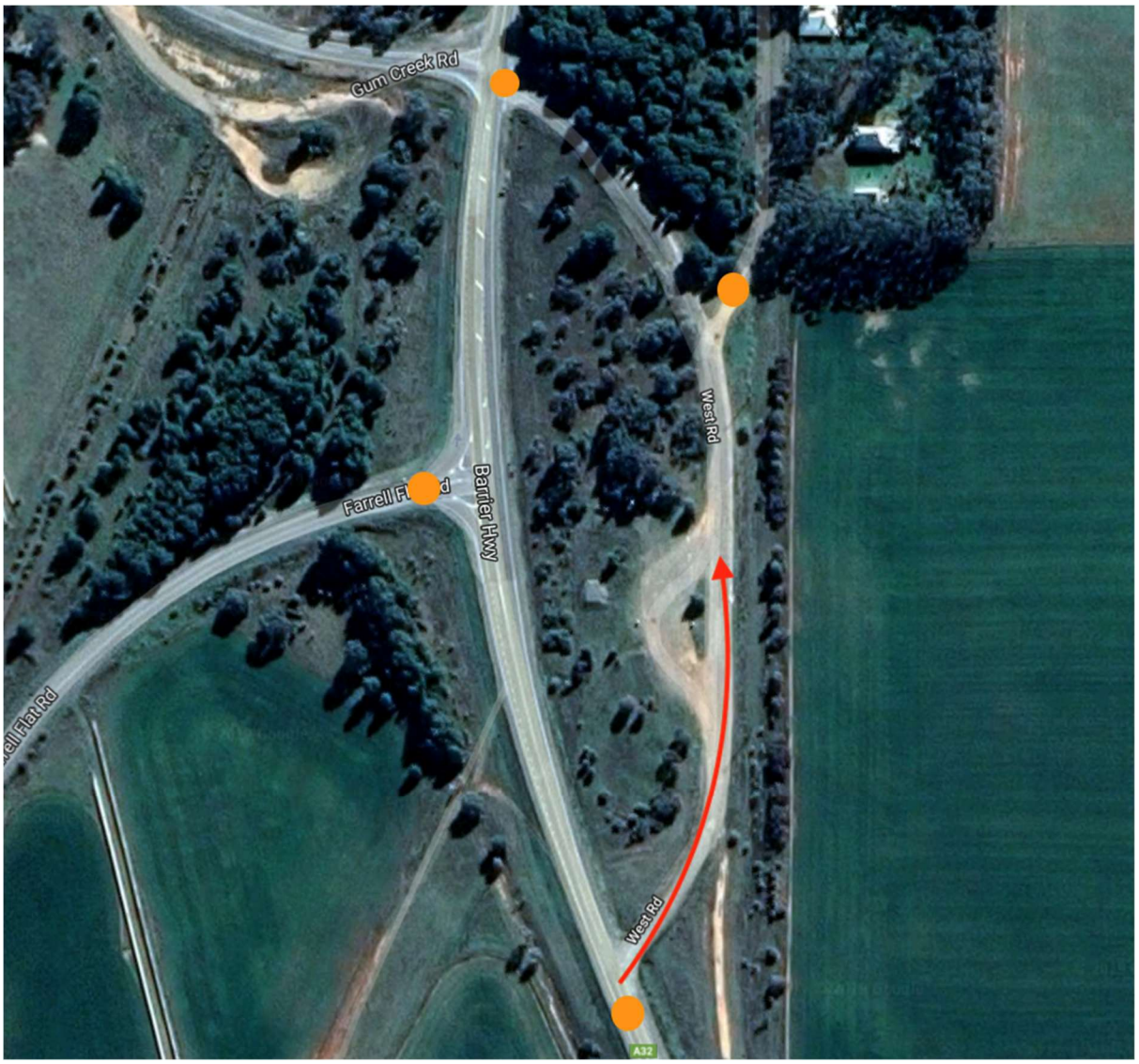
Rear pilot 2 to warn northbound traffic on the Horrocks Hwy

Procedure: load to exit Expressway and cross island to incorrect side to make left turn onto Horrocks Hwy

87.3kms Horrocks Hwy onto Barrier Hwy

Front 2 pilots to warn southbound traffic on Barrier Hwy
Rear 2 pilots to warn traffic behind load
Procedure: load to exit Horrocks Hwy onto Barrier Hwy

144kms Barrier Hwy parking bay at Hanson



Front 2 pilots to warn southbound traffic West St and Barrier Hwy
Rear 2 pilots to warn traffic Farrell Flat Rd and traffic behind load
Procedure: load to exit Hwy and park to one side of parking bay

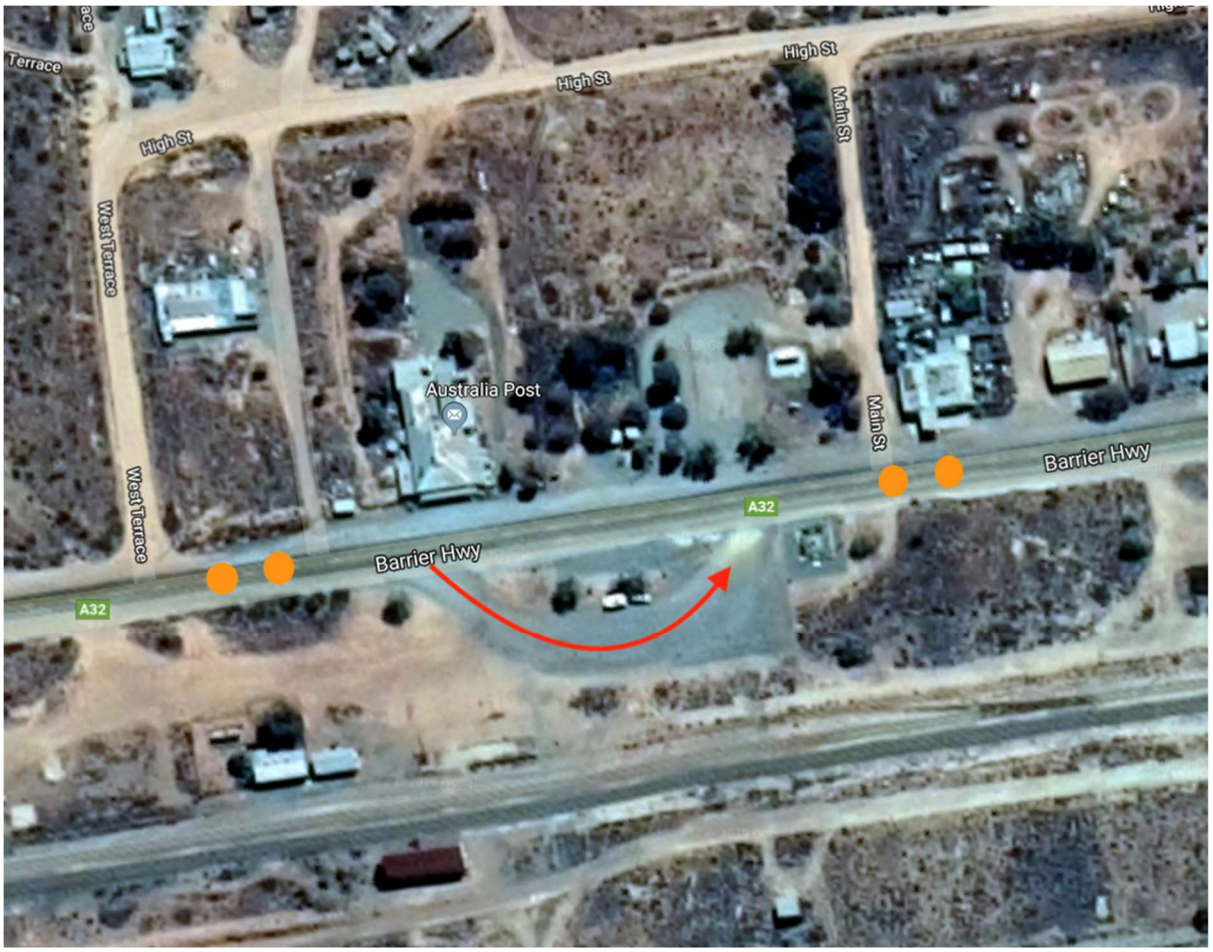
154.2kms Burra Bypass stage 1

Front 2 pilots to warn traffic southbound on Barrier Hwy and Copperhouse Rd
Rear 2 pilots to warn traffic behind load and at the crossroad to the south
Procedure: Load to turn left onto Copperhouse Rd

157.2 Burra Bypass stage 2

Front pilots to warn southbound traffic on Barrier Hwy
Rear pilots to warn traffic behind load on Copperhouse Rd and Barrier Hwy
Procedure: Load to merge onto Barrier Hwy

357kms Barrier Hwy Parking bay Manna Hill



Front Pilots to warn oncoming traffic
Rear Pilots to warn traffic behind
Procedure: Load to park in parking bay

507kms Barrier to Creedon St

Front pilots to warn traffic on Creedon St
Rear pilot to warn traffic westbound on Barrier Hwy
Rear pilot to warn traffic behind load
Procedure: Load to turn right into Creedon St with spotters assistance

508kms Creedon St into Ryan St

Front pilot to warn traffic westbound on Ryan St
Front pilot to warn traffic eastbound on Ryan St
Rear pilot to warn traffic northbound on Creedon St
Rear pilot to warn traffic behind load
Procedure: Load to turn right with assistance from spotters

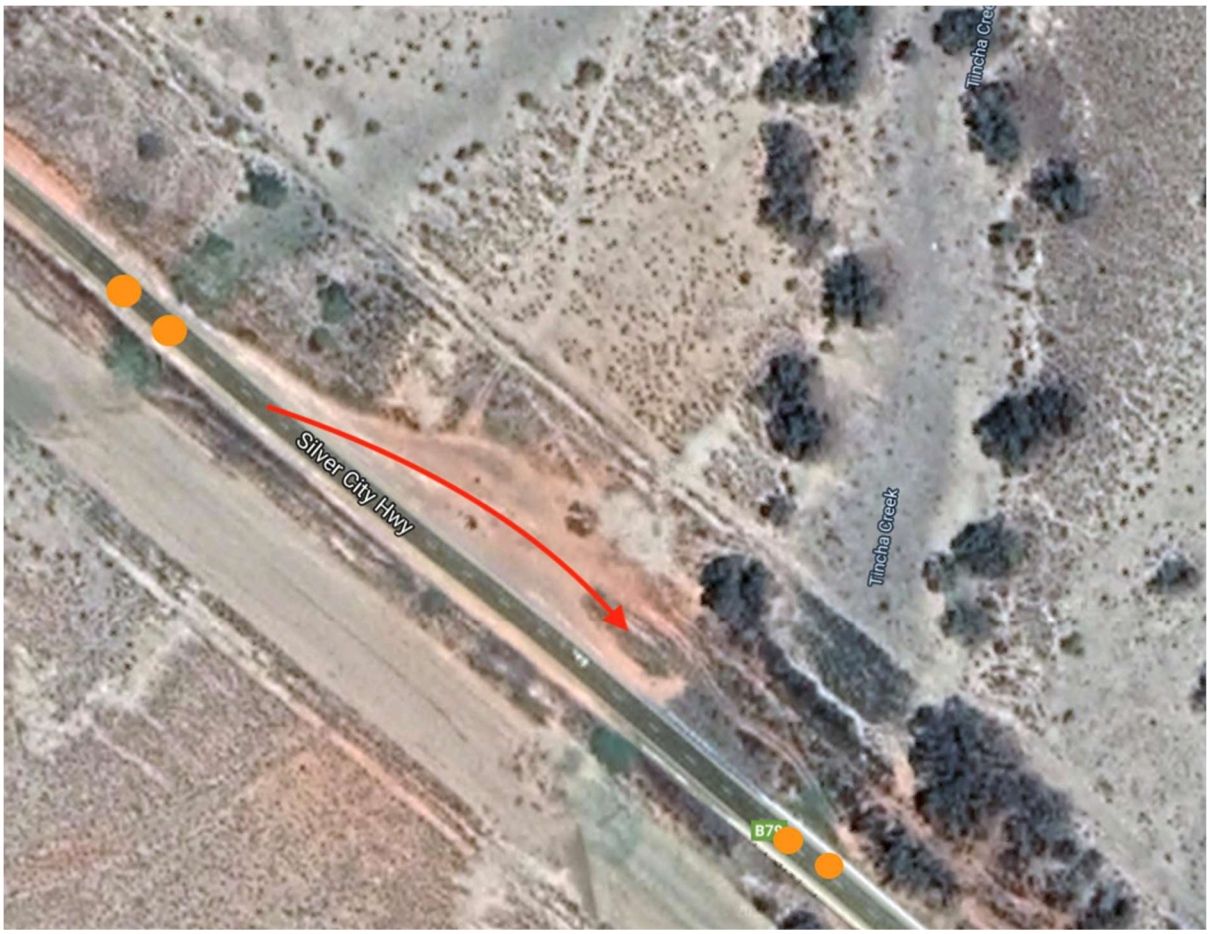
510kms Kananda Rd onto Silver City Hwy

Front pilots to warn traffic northbound on Silver City Hwy
Rear pilot to warn traffic southbound on Silver City Hwy
Rear pilot to warn traffic behind load
Procedure: Load to turn right onto Silver City Hwy

527kms Parking bay on Silver City Hwy

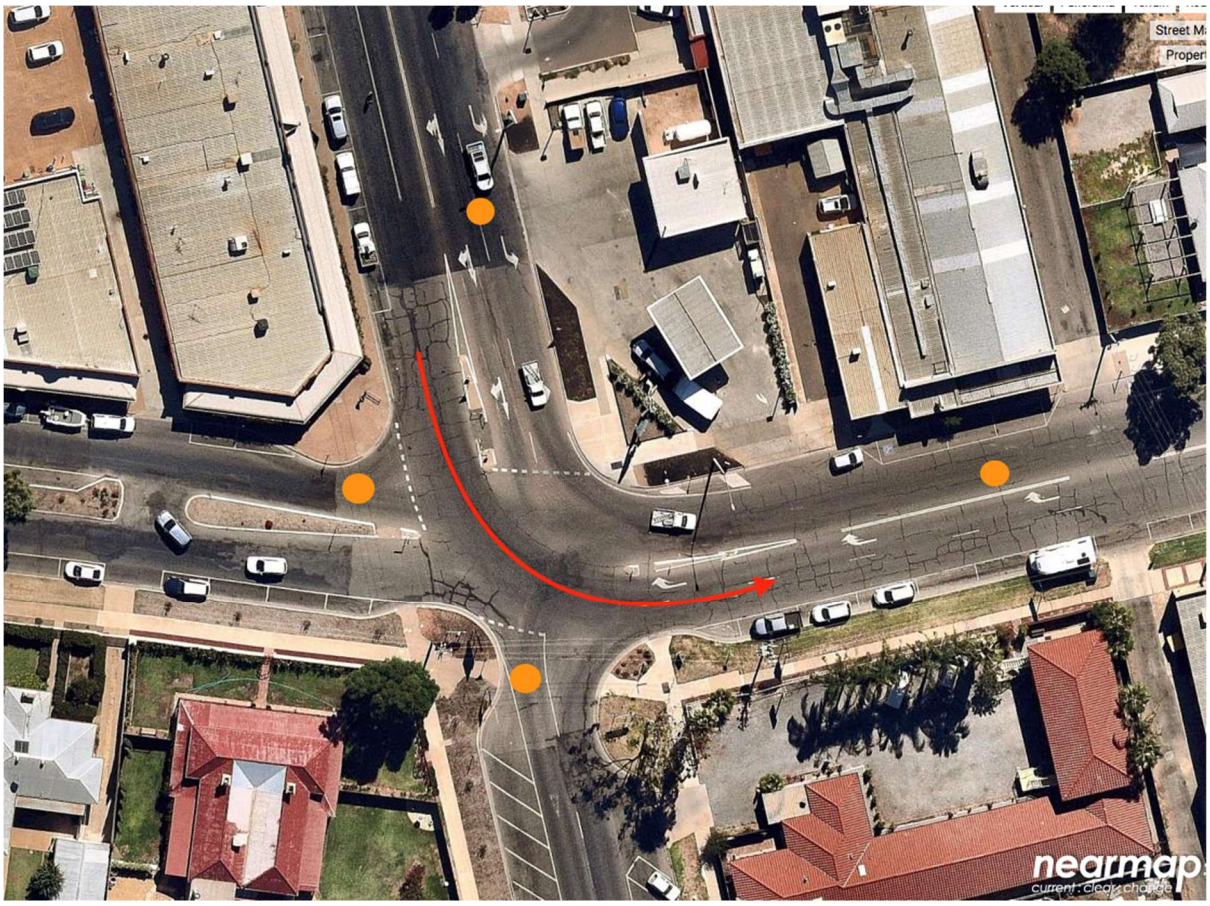
Front 2 pilots to warn traffic northbound on Silver City Hwy
Rear 2 pilots to warn traffic southbound on Silver City Hwy
Procedure: Load to exit Hwy and park in parking bay

764 Silver City Hwy Parking bay



Front 2 pilots to warn traffic northbound on Silver City Hwy
Rear 2 pilots to warn traffic southbound on Silver City Hwy
Procedure: Load to exit Hwy and park in parking bay

770kms right turn on Silver City Hwy at Wenworth



Front pilot to Warn traffic eastbound on Silver City Hwy

Front pilot to warn traffic westbound on Sandwych St

Rear pilot to warn traffic northbound on Adams St

Rear pilot to warn traffic behind load

Procedure: signs to be removed on island load to use all of intersection to make turn signs to be replaced once turn is complete

771kms Right hand sweeper on Silver City Hwy

Front pilots to warn traffic westbound on Silver City Hwy

Rear pilot to warn traffic eastbound on Silver City Hwy for when load goes back to centre of road

Rear pilot to warn traffic behind load

Procedure: Load to use slip lane on incorrect side of road to make turn

777kms Left turn in Curlaa on Silver City Hwy

Front pilots to warn traffic southbound on Silver City Hwy
Rear pilot to warn traffic eastbound on Calder Hwy
Rear pilot to warn traffic behind load
Procedure: Load to use all of the intersection to make the left turn

799kms Left turn from Silver City Hwy to Arumpo Rd

Front pilots to warn traffic southbound on Arumpo Rd
Rear pilot to warn traffic eastbound on Silver City Hwy
Rear pilot to warn traffic behind load
Procedure: Load to use all of the intersection to make the left turn

10.0 Managing queued traffic behind the load.

During the journey the interaction with other road users will require management of queued traffic.

The protocol to provide queued traffic an opportunity to pass the load will be reliant on the rear pilot constantly monitoring the queue of traffic and relaying this information back to the convoy, the lead pilot / Police in conjunction with the driver will identify suitable areas that allow a safe passing point for the passing vehicles.

The lead escort / Police escort will also determine safe areas to halt the load to allow backed up vehicles to pass. Safe pull over areas can include turn off into Private Roads and/or other roads, Pull over on the shoulder during over taking lanes, designated pull over/ rest stop areas or service stations, these areas will be a hardstand area, or an area wide enough for the escort to direct vehicles around the combination.

The load MUST pull over or slow to allow the backed-up vehicles to pass. Rear pilot will inform all other pilots and driver when there has been a lag from last pull over and if other cars have been following for a short distance, in this instance apply the passing protocol again, this will continue through out the journey as required to ensure queued traffic do not experience excessive delays. The driver and pilots will also allow vehicles to pass at any opportunity that allows a safe area for this vehicle and its load to pull over safely and will.

The majority of this route is dual lane which will allow all motorists to pass in the right hand lane at anytime.

11.0 Emergency stopping:

In the event of an emergency or scheduled rest break, establish positive communications with all pilots and driver and identify the next suitable area to halt the transporter, rear pilot should remain 200 metres behind the load to warn approaching traffic.

Ensure the transporter is as far left as possible so as to not impede any traffic from passing.

If the breakdown is major and requires a mechanic to attend contact the TMC and advise them of the disruption to traffic. Minor repairs that can be rectified in a short time do not require the TMC to be advised.

In the event that road works are encountered on route lead pilot is to call in on the nominated UHF channel and advise the local traffic control of the inbound load and await approval to enter the work zone.

Follow normal traffic management procedures as out lined in: SOP_030 Traffic Management Procedures.

The suggested rest areas are an indication only and dependant on the local traffic movements and occupancy of these rest areas it may not be possible to get off the road.

In this instance the lead pilot should travel ahead to identify the next suitable area.

This methodology can also be adopted to allow built up traffic to pass by slowing the transporter down and easing into break down areas to allow traffic to pass before continuing on.

12.0 Interacting with roadwork:

There will possibly be roadworks on the selected routes. It is advisable that all road stakeholders are advised of the movements at least 7 days out from the moves.

Typically road crews are operating on UHF channel 29 and 40.

The lead pilot will make contact with the road crews to advise of the nature of the load, size, dimensions, to establish if the load is ok to enter the work zone.

In this instance the load will work with all reasonable instructions from the road crew to coordinate the safe passage of the load through the affected areas.

Pilots, Police and local traffic controllers will work together to facilitate the necessary actions required to travel through the work zone.

13.0 Pinch Points:

Whilst most pinch points are known along the route and are included in the route study, additional hazards may come up as traffic conditions are constantly changing.

It is crucial that appropriate measures are applied to avoid impact to road users and road infrastructure, the chosen route has been assessed and the load is capable of navigating the route, however local traffic conditions can create pinch points.

A pinch point is an area identified by the lead pilot and relayed to the convoy as having the potential to interfere with the swept path of the load, pinch points can be created by road furnishings, roundabouts, narrow sections of road, road kill, corners, road works, parked vehicles, damaged pavement, this list is not exhaustive.

For the purposes of this traffic management plan identified pinch points will follow the following protocol.

The lead pilot must travel a sufficient distance in front of the load so as to survey the swept path required for the transporter, this will to allow sufficient time to relay back road conditions or choke points to allow the driver to halt the load before causing congestion to other road users.

In the event of parked vehicles or local traffic conditions preventing the load from safely navigating the permitted route, the load cannot proceed until it is safe to do so.

The lead pilot will warn all oncoming traffic of the impending load, when the way forward for the transporter is established as being clear the load may proceed.

If built up queued traffic is behind the load, ensure that an opportunity to allow this traffic to pass is taken at the first safe opportunity.

The procedure for crossing bridges is reliant on only the transporter being on the bridge during the crossing, this will require a concentrated effort from the escort team to ensure that all vehicular traffic both in front of and behind the load are warned of the hazard.

It is crucial that pinch points are discussed at the toolbox briefing and that all parties are aware of the protocols in place.

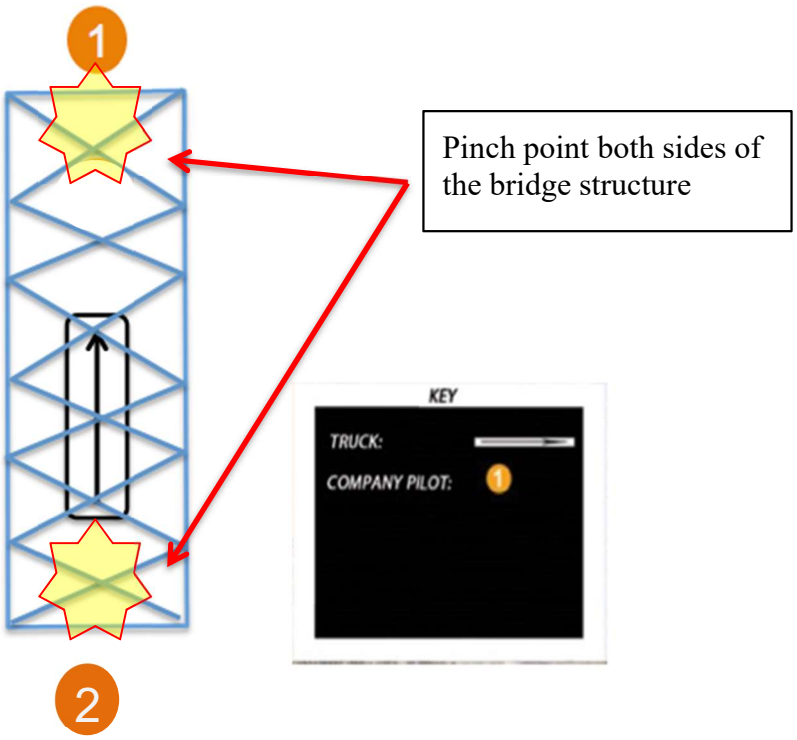
Drivers should familiarise themselves with the route including nominated bypasses for heavy vehicles along the route.

If there is any doubt as to the viability of accessing the permitted route the load must not continue until the way forward has been deemed appropriate.

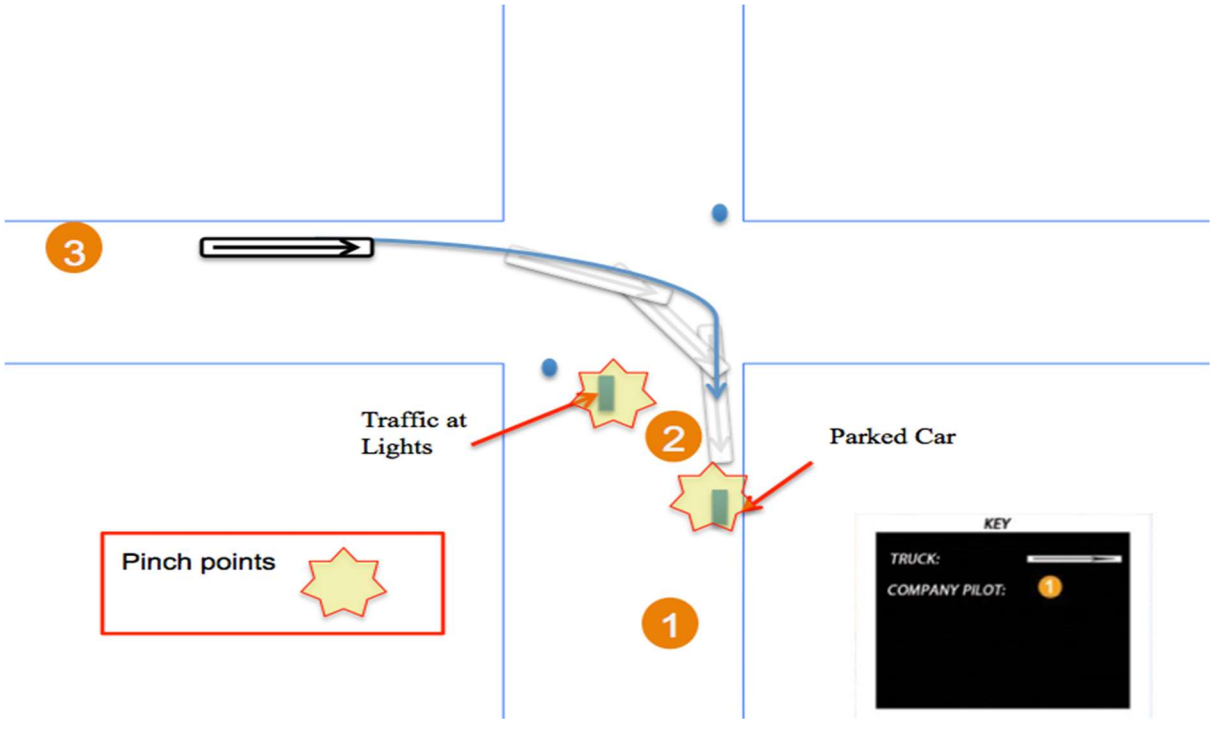
For more detail analysis of coping with roadwork refer to section 13.

Examples of pinch points:

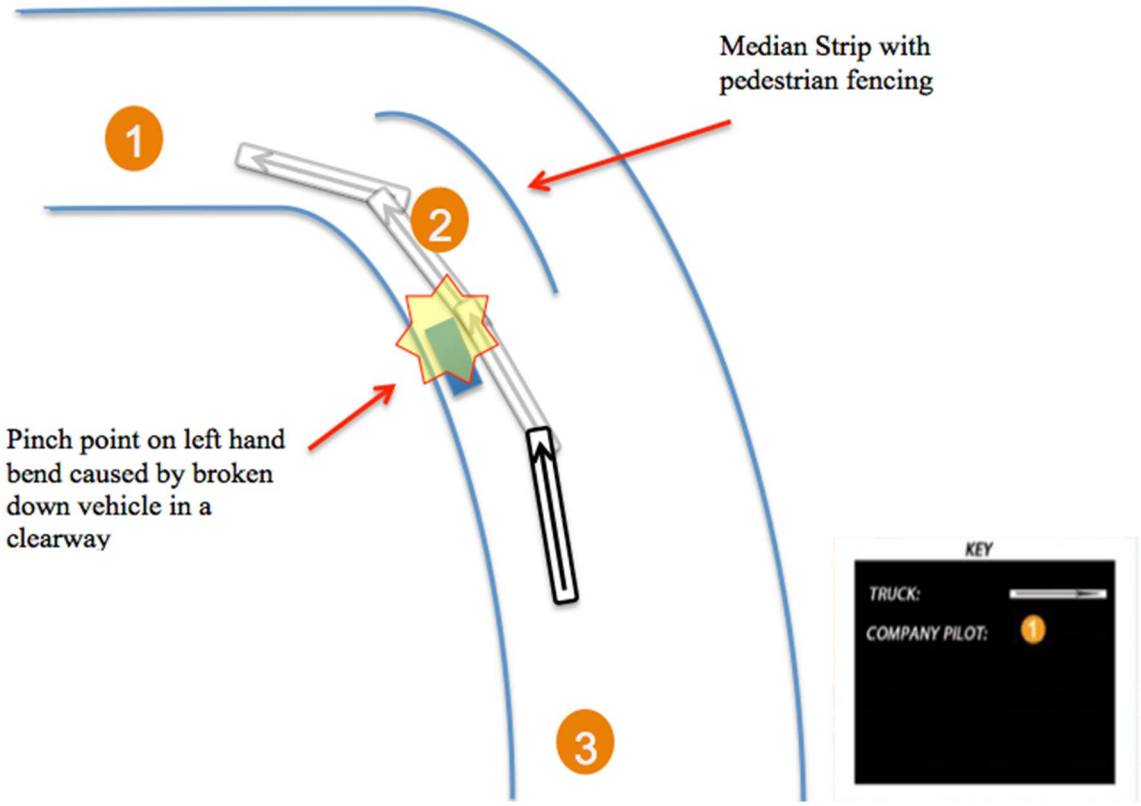
Bridge Crossings:



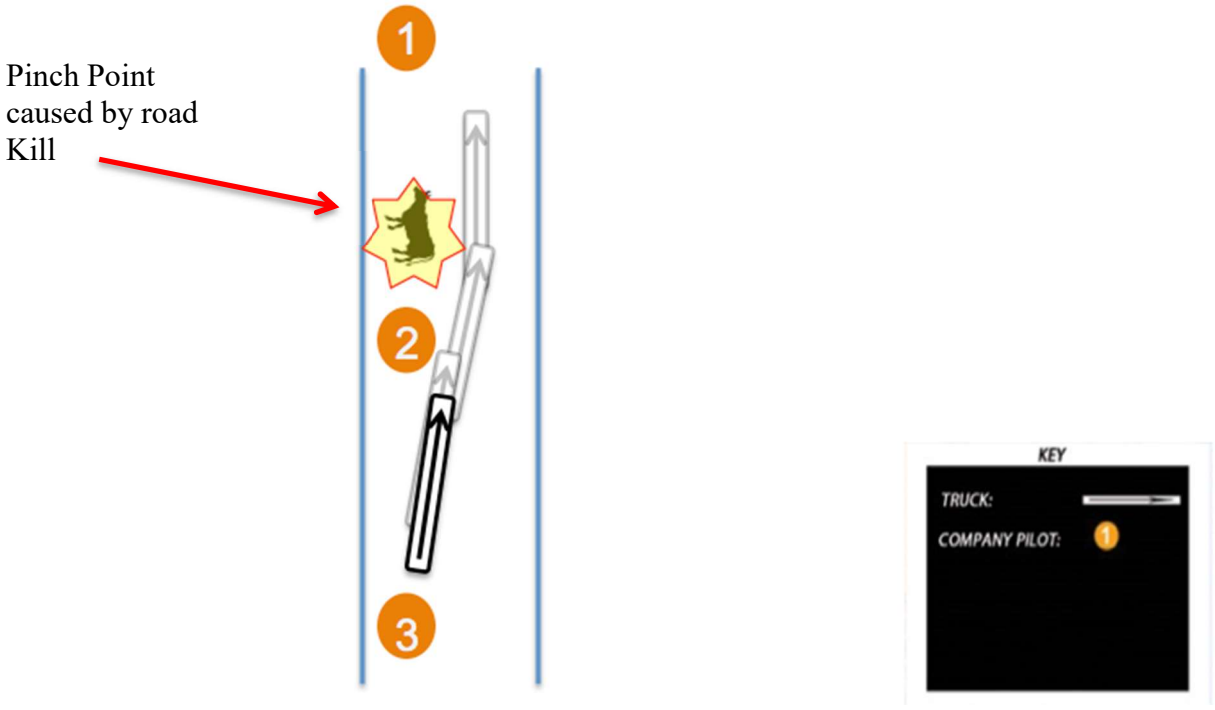
Intersections:



Bends:



Road Kill:



14.0 Conclusion:

After studying all options and undertaking a route survey, we believe with the loads could travel these routes unrestricted.

15.0 References:

Rex J Andrews P/L Drawing
Rex J Andrews route survey
Google Earth/Maps
Nearmaps
NHVAS Maintenance Management (NHVAS21193)
NHVAS Basic Fatigue Management (NHVAS21193)