PUBLIC

Compliance Report
EnergyConnect NSW - Eastern Section
EPBC 2020/8766
5 December 2024 to 4 December 2025

45860-HSE-REP-D-0053

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	APPROVED
A	16/02/2026	Issued for Transgrid review	R.Walker-Edwards	G.Crighton	F.Delgado Davara
B	2/03/2026	Revised to address Transgrid comments	R.Walker-Edwards	G.Crighton	F.Delgado Davara

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal and Transgrid review
B	Revised to address Transgrid comments

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed:

Full name (please print): Jared Lipton

Position (please print): Environment and Sustainability Manager

Organisation (please print including ABN/ACN if applicable):

NSW Electricity Networks Operations Pty Limited (trading as Transgrid)

ACN: 609 169 959

Date: 2 March 2026

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Abbreviations

Acronym	Definition
Amendment Report	*Amendment Report EnergyConnect (NSW – Eastern Section)*
AS/NZ	Australian Standard/New Zealand Standard
BC Act	*Biodiversity Conservation Act 2016*
CEMP	Construction Environmental Management Plan
CSSI	Critical State significant infrastructure
DAWE	(former) Department of Agriculture, Water and the Environment
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DPE	Department of Planning and Environment
DPHI or Department	Department of Planning, Housing and Infrastructure
DPIE	Department of Planning, Industry and Environment, now known as Department of Planning, Housing and Infrastructure
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
EMS	Environmental Management System
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
MNES	Matters of National Environmental Significance
NEM	National Electricity Market
NSW	New South Wales
project, the	EnergyConnect NSW - Eastern Section
Response to DPE Request for Information	*EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (30 August 2022)
SA	South Australia
SecureEnergy	Transgrid has engaged Elecnor Australia, trading as SecureEnergy, to design and construct the EnergyConnect project.
SSI	State significant infrastructure
Stage 1	Stage 1 of construction of the project. This includes establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation and water supply points.
Stage 2	All construction activities associated with EnergyConnect (NSW – Eastern Section). Once approved the Stage 2 CEMP and the relevant Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP and Stage 1 CEMP sub-plans. The Stage 2 CEMP and Stage 2 CEMP sub-plans do not address the operational phase of the project.
Submissions Report	*Submissions Report EnergyConnect (NSW – Eastern Section)*
Vic	Victoria

1 Introduction

1.1 Background

On 29 August 2019 the NSW Minister for Planning and Public Spaces declared EnergyConnect a critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. Within NSW, EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – SA/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS) was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with five from special interest groups, nine from local councils and 44 from the public. In addition, 17 government agencies also provided advice during this time.

The *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared a separate *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report) to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report was also finalised in May 2022.

On 2 June 2022, the Department requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response TransGrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to address the requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI 9172452) on 2 September 2022.

Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment on 5 December 2022.

1.2 Purpose

This Compliance Report has been prepared on behalf of NSW Electricity Networks Operations Pty Limited trading as Transgrid.

The report has been prepared to address the requirements of condition 23 of the EnergyConnect NSW - Eastern Section approval (EPBC 2020/8766) (Commonwealth Approval) issued under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Condition 23 of the Commonwealth Approval requires the following:

> *The approval holder must prepare a **compliance report** for each 12-month period following the date of this approval, or as otherwise agreed in writing by the **Minister**.*

1.3 Reporting period

The reporting period for this annual compliance report covers the period of 5 December 2024 to 4 December 2025.

1.4 Declaration of accuracy

The declaration of accuracy of this compliance report is provided on page 3.

1.5 Project name

The project name is EnergyConnect NSW - Eastern Section.

1.6 EPBC number

The EPBC number for EnergyConnect NSW - Eastern Section is EPBC 2020/8766.

1.7 Approval holder and CAN or ABN

The approval holder is NSW Electricity Networks Operations Pty Limited.

The ABN is 70 250 955 390.

1.8 Person accepting responsibility for the project

The person accepting responsibility for the project is Jared Lipton, Transgrid.

2 Description of activities

2.1 Overview of EnergyConnect

Transgrid and ElectraNet have obtained approval for the construction and operation of a new electrical interconnector and network support option between NSW and SA, with an additional connection to Red Cliffs in north-west Victoria. Collectively, the interconnector is known as EnergyConnect.

The interconnector is aimed at reducing the cost of providing secure and reliable electricity transmission between NSW and SA in the near term, while facilitating the transition of the energy sector across the National Electricity Market to low emission energy sources.

The interconnector involves constructing a new high voltage electricity transmission lines, approximately 900km long, between the power grids of SA (starting at Robertstown) and NSW (finishing in Wagga Wagga). EnergyConnect comprises several sections (as shown on Figure 2.1), being:

- Victorian section, which extends from the NSW/Victoria border to an existing electrical facility at Red Cliffs;
- NSW sections including:
  - Western section which extends from:
    - the SA/NSW border (near Chowilla in SA) to Buronga;
    - Buronga to the NSW/Victoria border at Monak (near Red Cliffs in Victoria);
  - Eastern section, which extends from Buronga to Wagga Wagga; and
- SA section, which extends from Robertstown to the SA/NSW border.

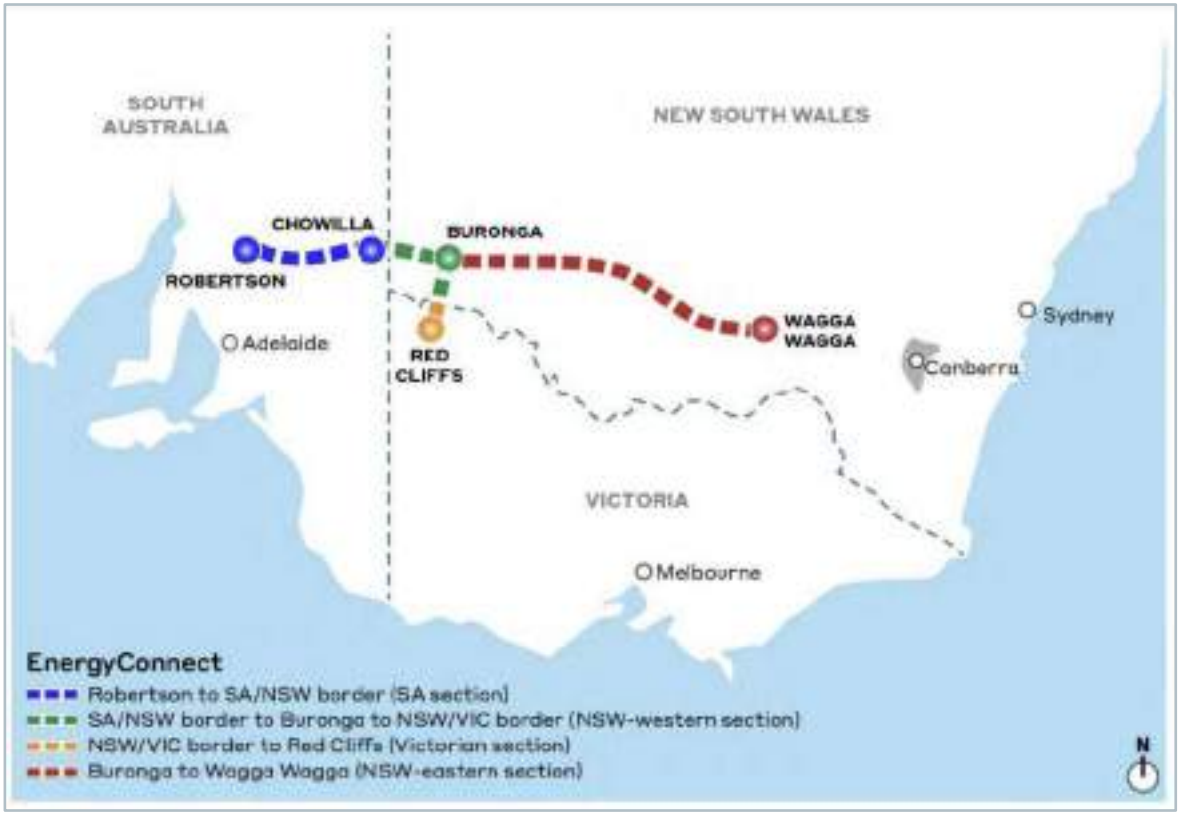


Figure 2.1 - Overview of EnergyConnect (WSP)

2.2 EnergyConnect NSW – Eastern Section

The EnergyConnect NSW – Eastern Section project will traverse from Buronga substation in the west to a new substation at Dinawan, then continue across to Wagga Wagga substation, which will be upgraded as part of the project, to form a total distance of approximately 540 kilometres. The project layout is outlined in Figure 2.2.

EnergyConnect NSW – Eastern Section will traverse across the following local government areas: Wentworth, Balranald, Murray River, Edward River, Hay, Murrumbidgee, Federation, Lockhart and Wagga Wagga.

The key components of the EnergyConnect NSW - Eastern Section include:

- approximately 375km of new 330kV double circuit transmission line and associated infrastructure between the Buronga substation and the proposed Dinawan 330kV substation (Line 2);
- construction of a new 330kV substation approximately 30km south of Coleambally, referred to as the proposed Dinawan substation;
- approximately 162km of new 500kV double circuit transmission line and associated infrastructure between the proposed Dinawan substation and the existing Wagga Wagga substation at Wagga Wagga, NSW (Line 5);
- upgrade and expansion of the Wagga Wagga substation to accommodate the new transmission line connections including the installation of new line bays, relocation and upgrade of existing bays and associated electrical and civil works (road, kerb, gutter, drainage works, and earthworks);
- provision of three optical repeater structures and associated connections to existing local electrical supplies;
- new and/or upgrades 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)
- construction of a new electrical substation called Dinawan substation, located south of Coleambally;
- upgrade and expansion of the existing Wagga Wagga substation;
- installation of three optical repeater structures and associated connections to existing local electrical supplies; and
- ancillary works required to facilitate the construction of the project (e.g. accommodation camps, construction compounds, site offices, laydown and staging areas, concrete batching plants, an earthworks material site, crushing and screening plant and brake/winch sites).

The project is occurring in three stages. Stage 1 and 2 relate to construction of the infrastructure. Elecnor Australia (Elecnor) is responsible for delivering Stage 1 and 2.

Stage 1 related to works at the accommodation camps and construction compounds, and the substations and has been completed.

Stage 2 involves all remaining works including but not limited to construction of the transmission lines. The management plans for Stage 2 incorporated, and superseded, the Stage 1 plans and cover the entire construction phase of the project.

Stage 3 relates to the post-construction period and includes operation and maintenance of the infrastructure, any future upgrades or upgrading and decommissioning. Transgrid is responsible for Stage 3. Operation of some components of the infrastructure may commence prior to the

completion of construction of other components, subject to meeting all relevant pre-operation requirements.

During the reporting period, the key activities which occurred included the following:

- use of camps and compounds;
- clearing activities;
- tower assembly and erection;
- stringing works;
- earthing of towers;
- Wagga Wagga substation expansion; and
- Dinawan substation.

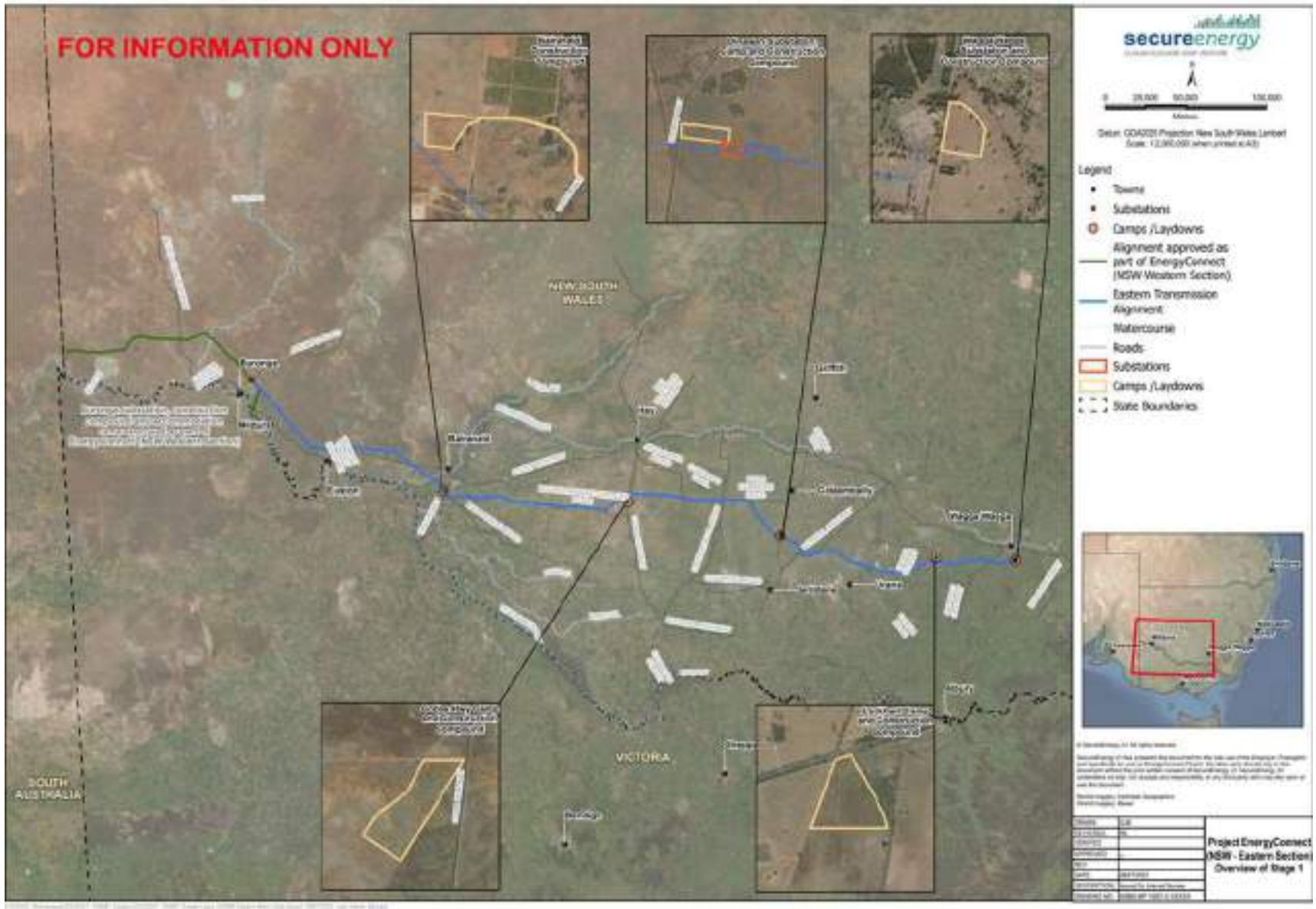


Figure 2.2 - Key features of EnergyConnect NSW - Eastern Section

Table 2.1 - Key project components of construction

Key activity		Description of key activity
Construction of the Dinawan and Wagga Wagga substations		Continuation of the following activities: • construction activities at Dinawan substation; • construction activities at Wagga Wagga substation. During the reporting period, construction works were completed at Wagga Wagga substation and rehabilitation works occurred. The laydown at Wagga Wagga substation was removed and decommissioned.
Establishment and operation of the camps and construction compounds		This included: • continued operation of the accommodation camp and compound at Camp 2 (Lockhart); • continued operation of the accommodation camp and compound at Camp 4 (Cobb Highway); • continued operation of the accommodation camp and compound at Camp 3 (Dinawan); • operation of Laydown 5 (Balranald). During the reporting period, operations ceased and stabilisation works have occurred.
Transmission line construction	Earthworks and transmission tower footing construction	Excavation works and establishment of construction pads at each tower site for the installation of foundations, levelling around the individual tower foundations, drainage and grading or preparation for construction at the tower site. Construction of footings and foundation works for the new transmission line towers including: • piling. Typical transmission line tower piling depth would be generally up to 6-15 metres below ground level and would depend on ground conditions (e.g. greater piling depths would be required where soft soil types are present); • steel fabrication works; and • concrete pours.
	Assembly and erection of transmission line towers	The transmission line towers are typically be erected by assembling in sections on the ground and hoisting or lifting successive sections into place using cranes. Alternatively, towers are erected in place on the footings by installing individual members. These towers include infrastructure such as step bolts, climbing attachment plates, ladders, platforms, climbing barriers, identification plates, warning plates, other fixtures and fittings for the attachment of earthwires and insulators.
	Stringing of transmission lines including conductors and overhead earth wires and optical ground wires	Following erection and securing of the tower, the transmission line is strung by either a ground pulled draw wire (with brake/winch sites) or a line stringing drone. Where a transmission tower is proposed to allow for a direction change of the transmission line, a larger area would be required to allow for brake and winching sites. At a typical site, this would include a temporary area of up around 60 metres by 80 metres at each transmission line tower location. The transmission line required spanning watercourses. A drone is typically used to take a lead wire over the river to allow cables to then be pulled and strung tower to tower.
	Installation of earthing conductors and connection to substations	The following key activities will be undertaken: • installation of earthing conductors at each of the transmission tower arms; • installation of earthing or isolation sections of fences and gates where the transmission line crosses or closely runs parallels to a metallic fence; and • connection of incoming transmission lines at the Dinawan and Wagga Wagga substations.
Utility adjustments and protection		General utility protection and adjustment works, where required, to allow for the Wagga Wagga substation expansion and upgrades works to occur, the optical

Key activity	Description of key activity
	repeater sites, the establishment and operation of the construction compounds and accommodation camps, and elsewhere as required.
Property adjustment work, including adjustments to property fencing	Minor adjustment of gates and fences at some locations along the alignment to enable access.
Water supply points – establishment and/or use	The water supply points established and / or used include: • Lake Benanee*, Balranald Shire Council; • 159 Church Street, Balranald Shire Council; • 10 Perry Street, Euston*, Balranald Shire Council; • Ivanhoe Road*, Iluka Fill Point, Balranald Shire Council; • Carey Street/Sturt Highway, Euston*, Balranald Shire Council; • Ravensworth, Hay Shire Council [Ravensworth in Amendment Report]; • Moulamein Road 2, Edward River Council [Moulamein Road, Moulamein in Amendment Report]; • Burraburoon*, Edward River Council; • Carathool Road, Four Corners*, Edward River Council; • Kidman Way*, Murrumbidgee Council; • Crosby Road*, Murrumbidgee Council; • Newell Highway, Morundah*, Federation Council; • Urana-Lockhart Road, Brookong*, Lockhart Shire Council; • Brookdale*, Lockhart Shire Council; • Federation Way/Coonong Road*, Federation Council; • Newell Highway/Arrawidgee Road*, Federation Council; • Federation Way*, Federation Council; • Red Hill Road, Wagga Wagga, Wagga Wagga City Council [Glenfield in Amendment Report]; • 1254 Four Corners Road, Coleambally, Murrumbidgee Council [1254 Four Corners Road in Amendment Report]; • Wonga Station, Four Corners Road, Edward River Council [Wonga in Amendment Report]; • Four Corners Road Mabins Well; Edward River Council [Four Corners Road, Mabins Well in Amendment Report]; • Booroorban-Tchelery Road*, Booroorban, Edward River Council; • Strongs Lane*, Lockhart, Lockhart Shire Council; • Slys Lane*, Lockhart Shire Council; • Bullenbung-the-Rock Road*, Lockhart Shire Council; • French Park-Bullenbung Road*, Lockhart Shire Council; • Napier Road*, Lockhart Shire Council; • Albury Road*, Lockhart, Lockhart Shire Council; • 3 Bencubbin Avenue, Coleambally, Murrumbidgee Council [3 Bencubbin Avenue in Amendment Report]; • Keri Keri Road, Moulamein, Murray River Council [Keri Keri in Amendment Report]; • 78 Murray Street, Tooleybuc*, Murray River Council; • intersection of Young Street and Carne Street*, Murray River Council; • Federation Way* (near corner Federation Way and Stephen Street), Federation Council; • Mclennons Bore Road, Coleambally, Murrumbidgee Council [Mclennons Bore Road in Amendment Report];

Key activity	Description of key activity
	• 8955 Newell Highway Bundure, Murrumbidgee Council [Newell Highway, Bundure in Amendment Report]; • Paraway at Four Corners Road*, Murrumbidgee Council; • Paraway at Cobb Highway*, Hay Shire Council; • North Boundary Road*; Murrumbidgee Council; • Off Sturt Highway* Wentworth Shire Council; • 16 Mile Gums*, Hay Shire Council; • Cadell Street, Hay, Hay Shire Council; • Jerilderie Road*, Hay Shire Council; • 59 Thelangerin Road, Hay*, Hay Shire Council; • Court Street/Sturt Highway*, Balranald Council; • Boiling Down Road*, Wagga Wagga City Council; and • continued use of the Stage 1 water supply points. * The water supply points denoted above with an asterisk are additional to the water supply points identified in the EIS.
Construction access tracks	Access to each tower would be required during construction. Access tracks fall into the following groups: • un-improved access tracks - using existing roads or tracks, or driving on existing soil or ground surface with minimal or no prior preparation; • improved access track – using existing roads or tracks where minor modification (such as grading or widening of the existing track) is required; and • constructed access tracks – around six metres wide and would generally follow the natural contour of the land as far as practicable to minimise the amount of cut and fill and soil disturbance. Access tracks would also include drainage control features such as table drains or cross banks to minimise erosion. Constructed access tracks are required in areas where there are no existing roads or tracks, or where terrain conditions prevent continuous access along the line easement between road crossings. Local waterway spans and causeways may be required, where alternative access routes are impractical, along the length of the proposal.
Temporary works	The project requires a significant quantity of temporary works during construction. The temporary works include, but are not limited to, the following: • earthworks, including trenches, excavations, temporary slopes, stockpiles, and embankments; • equipment/plant foundations, such as work platforms, crane, and piling platforms.
Optical repeater sites	The optical repeater sites are communication huts to ensure the stability of the communications system over great distances during the operation phase. The key activities for the construction of the optical repeater sites would consist of the following: • site establishment, including vegetation removal and establishment of temporary construction site office, if required; • earthworks and preparation of the site for concrete foundations; • construction of a new communication hut building at each site; • installation of new pole-mounted transformers; • installation of electrical cables and terminations (either through the installed conduits or stringing of the aboveground poles); • installation of site wiring and electrical control equipment within each building; • trenching for underground conduit between the Balranald optical repeater hut and transmission line;

Key activity	Description of key activity
	• installation of new above ground poles between the transmission line and the respective Booroorban and Lockhart optical repeater sites; • provision of power connections between the transmission line and associated optical repeater site; and • removal of waste and remediation of site areas.
Progressive site rehabilitation and landscaping	Site rehabilitation is being carried out progressively along completed sections of the transmission line as well as the substation sites. This phase would occur following the completion of construction and involve the removal of materials not required during the operation of the substation and/or transmission lines. This phase would include the removal/remediation of the construction compounds and camp sites, removal of temporary facilities and site buildings and temporary environmental controls. Works may also be undertaken to restore: • water infrastructure facilities to pre-existing conditions before arrival on site in consultation with landowners; • natural drainage in areas where temporary facilities were provided; and • fences, gates, etc., which may have been damaged during construction. Installation of the permanent Transgrid property boundary fence surrounding the new and expanded substation sites would also likely occur during this phase.
Demobilisation	Elecnor is downsizing the construction team with gradual demobilisation as particular key construction activities are completed.
Pre-commissioning phases	Pre-commissioning activities form part of the final construction and installation works and incorporate all tests and checks to confirm that construction quality assurance documentation, inspection and test plans, checklists and associated activities have been completed for each individual component of plant. The key pre-commissioning activities which would be undertaken would include: • testing and commissioning of the new substation equipment; • point to point testing of the new transmission lines and substation connections; • earthing testing; • high voltage testing; • high voltage equipment operational checks; • testing of the installed protection, metering, control, and communication systems; and • cut over (energisation) of electricity between the existing and new transmission lines (where required).

3 Conditions

The EPBC approval provides a list of conditions which must be complied with to construct and operate EnergyConnect NSW, Eastern Section.

The conditions and evidence of compliance are provided in Table 3.1.

Table 3.1 - Commonwealth conditions

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
1.	To minimise the impacts of the action on protected matters, the approval holder must not, unless otherwise agreed to in writing by the Minister, clear more than: a) 34.89 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland b) 17.56 ha of Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia c) 101.83 ha Weeping Myall Woodlands d) 62.47 ha Natural Grasslands of the Murray Valley Plains e) 132.18 ha of habitat for Mossgiel Daisy f) 144.71 ha of habitat for Chariot Wheels g) 241.99 ha of habitat for Slender Darling Pea	Compliant	The clearing which has occurred on protected matters during the reporting period, has not exceeded the limits listed within condition 1. The current clearing as of December 2025 are as follows: a) 16.39 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland b) 11.76 ha of Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia c) 68.39 ha Weeping Myall Woodlands d) 54.16 ha Natural Grasslands of the Murray Valley Plains e) 20.58 ha of habitat for Mossgiel Daisy f) 14.96 ha of habitat for Chariot Wheels g) 54.71 ha of habitat for Slender Darling Pea.
2.	The approval holder must not clear outside the Biodiversity Study Area unless either or both of the following are met: a) such clearing is limited to locations with no habitat of protected matters. b) such clearing is limited to locations required to facilitate minor design or access adjustments, such as access points, minor access tracks and water supply points, and only as allowable under the State Infrastructure Approval; and i) a suitably qualified expert undertakes surveys of proposed clearing that supports the approval holder to verify that the total extent of clearing for the Action will not exceed the limits	Compliant	Only very minor clearing occurred outside the Biodiversity Study Area during the reporting period. In each instance, an assessment occurred to determine if protected matters existed or not. Where protected matters were identified, the clearing was required to facilitate minor design or access adjustments, and was allowable under the State Infrastructure Approval. Any assessments which involved the clearing of protected matters outside of the Biodiversity Study Area were submitted to the Department prior to the clearing.

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
	specified in condition 1 of this approval, and ii) all clearing is offset in accordance with the requirements of condition 8 of this approval, and iii) assessment records are submitted to the Department prior to the clearing occurring.		
3.	The approval holder must undertake and complete pre-clearance surveys of each area where disturbance is proposed prior to commencing any clearing or ground disturbance in that area.	Potential non-compliance	A very large number of pre-clearance surveys have been prepared and completed during the reporting period. These are all available on the project website. A potential non-compliance with conditions 3 and 5 was reported to DCCEEW on 5 February 2025. The matter related to minor impacts to *Swainsona murrayana* (Slender Darling Pea) habitat along Line 2 between Towers 235 and 236, where works occurred within the easement but not at the GIS-indicated location. Preclearance surveys were completed for the area, with two corresponding reports published on the project website prior to clearing. All clearing limits remain compliant. A detailed report was submitted to DCCEEW on 19 February 2025, in accordance with condition 29, and the Department issued its response on 18 September 2025.
4.	The approval holder must ensure that all pre-clearance surveys are developed and supervised by a suitably qualified expert.	Compliant	All pre-clearance survey reports have been developed and supervised by the project ecologists, each of which are suitably qualified to complete this task. The project ecologists are from NGH Pty Ltd and SMEC Holdings Limited.
5.	The approval holder must prepare a report for the pre-clearance surveys of each area where disturbance is proposed. Each report must identify the quantum of habitat (in hectares) of all protected matters in the areas where disturbance is proposed and indicate the management actions required to avoid or minimise impacts to each protected matter. Each report must be published on the website prior to commencing any clearing in that area where disturbance is proposed and each report must remain published on the website until construction of the action is completed.	Potential non-compliance	Each of the pre-clearance survey reports: • identifies the quantum of habitat (in hectares) of all protected matters in the area where the disturbance is proposed; and • indicate the management actions required to avoid or minimise impacts to each protected matter. Each of the pre-clearance survey reports have also been uploaded to the Transgrid website prior to clearing the relevant area. The pre-clearance survey reports are publicly available here - https://www.transgrid.com.au/projects-innovation/energyconnect. Refer to the potential non-compliance reported on 5 February 2025 and included in response to condition 3 (the project reported a potential non-compliance against both condition 3 and 5 for the one event).
6.	To mitigate impacts on protected matters the approval holder must implement conditions B1,	Compliant	Condition B1 of the State Infrastructure Approval requires that prior to commencing construction, a Construction Environmental Management Plan (CEMP) must be prepared to

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
	B2 and C26 of the State Infrastructure Approval, where they relate to monitoring, managing, mitigating, and avoiding impacts to protected matters.		the satisfaction of the Planning Secretary (the Secretary of the NSW Department of Planning, Industry and Environment), and then implemented. Condition B2 of the State Infrastructure Approval requires the preparation of five CEMP Sub-plans in consultation with various listed agencies. Condition B5 requires that construction must not commence until the Planning Secretary has approved the CEMP and CEMP Sub-plans. The project was staged to assist with delivery of certain components of the project whilst Stage 2 documents were being approved. The Stage 1 CEMP (CEMP1) and its associated CEMP Sub-plans were approved in full on 9 March 2022. These were provided in the first compliance report and have not been included for the purpose of this second compliance report. The Stage 2 CEMP (CEMP2) and its associated CEMP Sub-plans were approved in full on 15 July 2022. Refer to **Appendix A** for the approval of the CEMP2 documents. Agency consultation occurred as required by condition B2 prior to lodging the documents with the then NSW Department of Planning and Environment (DPE). The Planning Secretary subsequently approved the CEMPs and associated CEMP Sub-plans, indicating adequate agency consultation. Due to the confidential information contained within, redacted versions of the Agency Consultation Reports are provided within **Appendix B**. The CEMP2 documents are currently being implemented during Stage 2. Ongoing Independent Environmental Audits, carried out in accordance with condition E11 of the NSW State Infrastructure Approval, assess compliance with the conditions of approval for that approval. Only the Biodiversity CEMP Sub-plan addresses the protected matters present within the project site.
7.	To offset the impacts of the action on protected matters, the approval holder must implement condition C24 and C25 of the State Infrastructure Approval.	Compliant	Conditions C24 and C25 of the State Infrastructure Approval relate to the Biodiversity Offset Package. The final Biodiversity Offset Package was approved in accordance with condition C24 on the 1 September 2025. The Bank Guarantees relating to condition C25 were in place prior to carrying out any development that could impact the biodiversity values requiring offset. Evidence in the form of a letter to NSW DPHI from the relevant Banks was supplied to the Independent Auditor as part of the initial Independent Environment Audit (IEA) for the project, confirming compliance with condition C25.
8.	The final Biodiversity Offset Package must be submitted for approval by the Minister and must include:	Compliant	The Biodiversity Offset Package was approved by the Planning Secretary on 1 September 2025.

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
	a. details of the residual impact to all protected matters that will be compensated for by offsets. b. details of the credit requirements to be retired. c. a contingency plan specifying how any impacts of the Action on protected matters that are additional to the impacts specified in accordance with condition 8.a. above will be offset in accordance with the Environmental Offsets Policy to the satisfaction of the Minister		
9.	The approval holder must submit to the department the final Biodiversity Offset Package approved by the Secretary of the NSW Department of Planning and Environment within 5 business days of the final Biodiversity Offset Package being approved by the Secretary.	Compliant	The final Biodiversity Offset Package was submitted to the Department on 8 September 2025.
10.	The approval holder must submit a credit retirement report for biodiversity credits (as specified in the Biodiversity Offset Package) to the department within 10 business days of retiring the credits and, in any case, no later than 11 September 2024.	Non-compliant	On 16 September 2024, Transgrid notified DCCEEW of a non-compliance with condition 10. Transgrid is unable to submit all credit retirement reports per the Biodiversity Offset Package, prior to the 12 September 2024 due to delays in execution and approval of Biodiversity Stewardship Agreement (BSA) sites. This is due to an administrative modification of the State Infrastructure Approval which provides Transgrid an additional 12 months to finalise all credit retirements. Credit retirement reports were submitted during the reporting period to the Department on the following dates: • 22 January 2025 (transaction No. CT-11069, CT-11070, CT-11071, CT-11072, CT-11073, CT-11074, CT-11075, CT-11076, CT-11089, CT-11096 CT-17989, CT-18001, CT-18003, CT-18004, CT-18005, CT-18006, CT-18007, CT-18010, CT-18011, CT-18017, CT-18030) • 15 April 2025 (transaction No. CT-13881, CT-13882, CT-13883, CT-13885, CT-13886, CT-13887, CT-13889, CT-13890, CT-13891, CT-13892, CT-13894, CT-13895, CT-13896) • May 2025 (transaction No. CT-13722, CT-13723, CT-13728, CT-13656, CT-13657, CT-13658, CT-13663, CT-13664, CT-13665, CT-13666, CT-13668, CT-13669, CT-13604) • 1 September 2025 (transaction No. CT-17989, CT-18001, CT-18003, CT-18004, CT-18005, CT-18006, CT-18007, CT-18010, CT-18011, CT-18017, CT-18030)

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
Submission and Publication of Plans			
11.	The approval holder must submit all plans required by these conditions electronically to the Department.	Compliant	The definition of 'plans' within the Commonwealth Approval means any of the documents required to be prepared under the conditions of the State Infrastructure Approval for which conditions 1, 2a and 2b apply. Conditions 1, 2a and 2b relate to protected matters. The plans which apply to these conditions are the Stage 1 and Stage 2 Construction Environmental Management Plan (main document) and the Biodiversity Management Plan. Irrespective of this, on 9 February 2023 all Stage 1 plans were provided to DCCEEW in accordance with condition 11: • PEC East Stage 1 CEMP Rev 1; • PEC East Stage 1 BMP Rev 1; • PEC East Stage 1 HMP Rev 1; • PEC East Stage 1 NVMP Rev 1; • PEC East Stage 1 SWMP Rev 2; • PEC East Stage 1 TTMP Rev 5. Likewise on 28 July 2023, then again on 2 August 2023, the following Stage 2 plans were provided to DCCEEW: • PEC East Stage 1 and 2 CEMP Rev 2; • PEC East Stage 1 and 2 BMP Rev 4; • PEC East Stage 2 HMP Rev 1; • PEC East Stage 2 NVMP Rev 1; • PEC East Stage 2 SWMP Rev 1; • PEC East Stage 1 and 2 TTMP Rev 3. During the reporting period the following plan was approved and is publicly available: • PEC East Stage 1 and 2 TTMP Rev 11. Refer to **Appendix D.** The Stage 2 CEMP and Stage 2 BMP are undergoing revision and will be provided to DCCEEW upon approval.
12.	Unless otherwise agreed to in writing by the Minister, the approval holder must publish each plan on the website within 15 business days of the date:	Compliant	The plans were uploaded to the Transgrid project website within 15 business days of approval of each of the plans. The approved plans are available at the following location:- https://www.transgrid.com.au/projects-innovation/energyconnect

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
	a. the plan is approved by the Secretary of the NSW Department of Planning and Environment as required under a state/territory government condition which must be complied with in accordance with these EPBC Act conditions.		
13.	The approval holder must keep all plans required by these conditions published on the website until the expiry date of this approval.	Compliant	The plans continue to be published on the project website.
14.	The approval holder is required to exclude or redact sensitive ecological data from plans published on the website or otherwise provided to a member of the public.	Compliant	There is no sensitive ecological data within the plans published on the website. A review of the ecological data within the Biodiversity Management Plan has occurred, and has determined that redaction is not required.
15.	If sensitive ecological data is excluded or redacted from a plan in accordance with condition 14, the approval holder must notify the department in writing what exclusions and redactions have been made in the version published on the website.	Compliant	A review of the ecological data within the Biodiversity Management Plan has occurred, and has determined that redaction is not required.
Notification of date of commencement of the Action			
16.	The approval holder must notify the department electronically of the date of commencement of the Action, within 5 business days of commencement of the Action.	Compliant	Notification to DCCEEW was provided on 31 January 2023 for the commencement of the Action. Refer to **Appendix C.**
17.	If the commencement of the Action does not occur within 5 years from the date of this approval, then the approval holder must not commence the Action without the prior written agreement of the Minister.	Not applicable	Notification of the commencement of the action was provided to DCCEEW on the date detailed above. The notification dates provided are within the 5 year period required for commencement from the date of approval.
Compliance records			
18.	The approval holder must maintain accurate and complete compliance records.	Compliant	Records of works, including compliance records are maintained by the project and include (but are not limited to): • Pre-clearance survey reports;

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
			• Clearing and Land Disturbance Permits; • Clearing and Land Disturbance Register; • environmental inspections and records of associated actions; and • observations and associated actions.
19.	If the department makes a request in writing, the approval holder must provide electronic copies of compliance records to the department within the timeframe specified in the request. **Note**: Compliance records may be subject to audit by the department, or by an independent auditor in accordance with section 458 of the EPBC Act, and/or be used to verify compliance with the conditions. Summaries of the results of an audit may be published on the department's website or through the general media.	Not applicable	No request for such records was received during the reporting period.
20.	The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the department's *Guidelines for biological survey and mapped data* (2018), or any subsequent official version or as otherwise specified by the Minister in writing.	Compliant	Condition 22 requires that all monitoring data (including sensitive ecological data), surveys, maps, other spatial and metadata and all species occurrence record data is submitted electronically within 12 months of the approval. This information, which included spatial data, was submitted on 4 December 2023. The data was prepared by the project ecologists and included: • biodiversity vegetation; • flora threatened species points; • fauna threatened species points; • flora threatened species polygons; and • fauna threatened species polygons. For the threatened flora and fauna, the scientific species name, geocode of observation, site identifier and date of observation were included as required by the Guidelines.
21.	The approval holder must ensure that any monitoring data (including sensitive ecological data), surveys, maps, and other spatial and metadata required under the conditions of this approval are prepared in accordance with the department's *Guide to providing maps and boundary data for EPBC Act projects* (2021), or	Compliant	Condition 22 requires that all monitoring data (including sensitive ecological data), surveys, maps, other spatial and metadata and all species occurrence record data is submitted electronically within 12 months of the approval. On 4 December 2023 this information was submitted to the Department and included the clearing register, pre-clearance survey reports, weekly inspections and Clearing and Land Disturbance Permits. There are no physical maps required to be prepared as part of this

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
	any subsequent official version or as otherwise specified by the Minister in writing.		information, however spatial data was prepared and provided in line with the requirements of condition 20.
22.	The approval holder must submit all monitoring data (including sensitive ecological data), surveys, maps, other spatial and metadata and all species occurrence record data (sightings and evidence of presence) electronically to the department within 12 months of the approval.	Compliant	On 4 December 2023, the following was submitted to the Department in accordance with this condition: • estimate of predicted clearing limits for the condition 1 protected matters; • the clearing register; • pre-clearance survey reports; • weekly inspections; • Clearing and Land Disturbance Permits; and • spatial data.
Annual Compliance Reporting			
23.	The approval holder must prepare a compliance report for each 12-month period following the date of this approval, or as otherwise agreed to in writing by the Minister.	Compliant	This report is the Compliance Report for the 12-month period of 5 December 2024 to 4 December 2025, and is the third report prepared for the project.
24.	Each compliance report must be consistent with the department's *Annual Compliance Report Guidelines* (2014), or any subsequent official version.	Compliant	This report has been prepared to be consistent with the Department's *Annual Compliance Guidelines* (2014) (Guidelines). In line with Section 3 of the Guidelines, the compliance report includes: • a Declaration of Accuracy; • document version control; • a Table of Contents; • a description of the activities undertaken during the reporting period; • how all conditions have been addressed; • a compliance table similar to that within Appendix A of the Guidelines; • findings against each condition (eg compliant; non-compliant or not applicable); • there were no non-compliances identified, therefore there are no corrections to non-compliances; and • new environmental risks.
25.	Each compliance report must include: a) Accurate and complete details of compliance and any non-compliance with	Compliant	The details for each of the required items is provided in the following sections:

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
	the conditions and the plans, and any incidents. b) One or more shapefile showing all clearing of any protected matters, and/or their habitat, undertaken within the 12-month period at the end of which that compliance report is prepared. c) A schedule of all plans in existence in relation to these conditions and accurate and complete details of how each plan is being implemented.		a. details of compliance is provided within this table (Table 3.1). There have been three potential non-compliances which have been reported to DCCEEW. Refer to the information provided against conditions 3, 5 and 29; b. the shapefile showing clearing of protected matters is provided as an attachment; c. all plans prepared and in existence in relation to the conditions during the relevant 12-month period are provided within **Appendix E**. Appendix E also includes a schedule of all plans in existence in relation to the conditions and details of how each plan is being implemented. It must be noted that the definition of 'plans' within the Commonwealth Approval means any of the documents required to be prepared under the conditions of the State Infrastructure Approval for which conditions 1, 2a and 2b apply. Conditions 1, 2a and 2b relate to protected matters. The plans which apply to these conditions are the Stage 1 and Stage 2 Construction Environmental Management Plan (main document) and the Biodiversity Management Plan.
26.	The approval holder must: a) Publish each compliance report on the website within 60 business days following the end of the 12-month period for which that compliance report is required.	Compliant	The end of the 12-month compliance reporting period is 4 December 2025. Sixty business days after this is 4 March 2026. This compliance report will be published on the project website by 4 March 2026.
	b) Notify the department electronically, within 5 business days of the date of publication that a compliance report has been published on the website.	Not applicable	The first compliance report (2022-2023) was notified to DCCEEW within 5 business days of publication of the compliance report. The notification was provided on 4 March 2024 and the report was made public on 1 March 2024. The second compliance report (2023-2024) was notified to DCCEEW within 5 business days of publication of the compliance report. The notification was provided on 7 March 2025 and the report was made public on 4 March 2025. The third compliance report (2024-2025) is this report.
	c) Provide the weblink for the compliance report in the notification to the department.	Not applicable	The notification to the Department issued on 7 March 2025 included a weblink to the compliance report.
	d) Keep all published compliance reports required by these conditions on the website until the expiry date of this approval.	Not applicable	The compliance report remains on the project website.

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
	e) Exclude or redact sensitive ecological data from compliance reports published on the website or otherwise provided to a member of the public.	Compliant	There is not considered to be sensitive ecological information within this report which requires redaction. Other sensitive information (personal details in agency consultation reports) were redacted.
	f) If sensitive ecological data is excluded or redacted from the published version, submit the full compliance report to the department within 5 business days of its publication on the website and notify the department in writing what exclusions and redactions have been made in the version published on the website. Note: Compliance reports may be published on the department's website.	Compliant	The full compliance report was submitted to the Department.
Reporting non-compliance			
27.	The approval holder must notify the department electronically, within 2 business days of becoming aware of any incident and/or potential non-compliance and/or actual non-compliance with the conditions or commitments made in a plan in relation to protected matters.	Compliant	The potential non-compliance detailed in the response to condition 3 was notified to the Department within 2 business days of becoming aware.
28.	The approval holder must specify in the notification: a) Any condition or commitment made in a plan which has been or may have been breached. b) A short description of the incident and/or potential non-compliance and/or actual non-compliance. c) The location (including co-ordinates), date, and time of the incident and/or potential non-compliance and/or actual non-compliance.	Compliant	The potential non-compliance issued to the Department, included the information required by condition 28.

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
29.	The approval holder must provide to the department in writing, within 12 business days of becoming aware of any incident and/or potential non-compliance and/or actual non- compliance, the details of that incident and/or potential non-compliance and/or actual non- compliance with the conditions or commitments made in a plan. The approval holder must specify: a) Any corrective action or investigation which the approval holder has already taken b) The potential impacts of the incident and/or non-compliance and/or non-compliance c) The method and timing of any corrective action that will be undertaken by the approval holder.	Compliant	There have been no incidents associated with the conditions, or the commitments made in plans. There have been three potential non-compliances reported during the reporting period. Details of the potential non-compliances are included within the response to condition 3 and 5, and in the paragraph below. The first potential non-compliance is detailed in response to condition 3, and was reported to the Department on 5 February 2025. A detailed report was provided within 12 business days, on 19 February 2025. In March 2025, an independent audit report was issued following an audit of the State Infrastructure Approval. The audit report noted two potential non-compliances relating to nest boxes and a verification report. On 24 March 2025, and in accordance with condition 29, the two potential non-compliances were reported to the Department. Please note that there were no impacts to protected matters in relation to these potential non-compliances. Both reports were provided within 12 business days of becoming aware of the potential non-compliance, and included the detail required by condition 29.
Independent Audit			
30.	The approval holder must ensure that an independent audit of compliance with the conditions is conducted for every five-year period following the commencement of the Action until this approval expires, unless otherwise agreed to in writing by the Minister.	Not applicable	The Action commenced on 31 January 2023. The first independent audit is therefore due in 2028.
31.	For each independent audit, the approval holder must: a) Provide the name and qualifications of the nominated independent auditor, the draft audit criteria, and proposed timeframe for submitting the audit report to the department prior to commencing the independent audit. b. Only commence the independent audit once the nominated independent auditor, audit criteria and timeframe for submitting	Not applicable	The first independent audit is due in 2028.

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
	the audit report have been approved in writing by the department. c. Submit the audit report to the department for approval within the timeframe specified and approved in writing by the department. d. Publish each audit report on the website within 15 business days of the date of the department's approval of the audit report. e. Keep every audit report published on the website until this approval expires.		
32.	Each audit report must report for the five-year period preceding that audit report.	Not applicable	The first independent audit is due in 2028.
33.	Each audit report must be completed to the satisfaction of the Minister and be consistent with the department's *Environment Protection and Biodiversity Conservation Act 1999 Independent Audit and Audit Report Guidelines* (2019), or any subsequent official version.	Not applicable	The first independent audit is due in 2028.
Completion of the Action			
34.	The approval holder must notify the department electronically 60 business days prior to the expiry date of this approval, that the approval is due to expire.	Not applicable	This approval has effect until 31 October 2122.
35.	Within 20 business days after the completion of the Action, and, in any event, before this approval expires, the approval holder must notify the department electronically of the date of completion of the Action and provide completion data.	Not applicable	The Action is currently on-going.
Changes to State Infrastructure Approval			
36.	The approval holder must notify the Department in writing of any proposed change to the State Infrastructure Approval that may relate to	Compliant	There have been no change to the State Infrastructure Approval during the reporting period.

Cond no.	Condition	Is the project compliant with this condition?	Evidence / comments
	protected matters within 2 business days of formally proposing a change and within 5 business days of becoming aware of any proposed change.		
37.	The approval holder must notify the Department in writing of any change to the State Infrastructure Approval conditions that may relate to protected matters, within 10 business days of a change to conditions being finalised.	Compliant	There have been no change to the State Infrastructure Approval during the reporting period.

4 Environmental risks

There are no new environmental risks which have been identified during the reporting period.

5 Other information

There is no other known relevant information.

Appendix A – Approval of the CEMP2 documents

Department of Planning and Environment

Our ref: SSI-9172452-PA-20

Mr John Fisher
Environmental Manager, Project EnergyConnect
Transgrid
180 Thomas Street
Haymarket NSW 2000

06 July 2023

Subject: Project EnergyConnect (NSW – Eastern Section) Biodiversity EMP Sub-plan

Dear Mr Fisher

I refer to the Biodiversity EMP Sub-plan Stage 1 and 2 submitted to the Department of Planning and Environment (the Department) in accordance with conditions B1, B2 and C26 of Schedule 2 of the Infrastructure Approval for Project EnergyConnect (NSW - Eastern Section) (SSI-9172452). I also acknowledge your responses to the Department's review comments and requests for additional information.

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions of approval (SSI-9172452).

Accordingly, as nominee of the Planning Secretary, I approve the Biodiversity EMP Sub-plan Stage 1 and 2 (Revision 4, 5 July 2023). Please note that this plan supersedes and now includes the Biodiversity EMP Sub-plan Stage 1.

You are reminded that if there are any inconsistencies between the Biodiversity EMP Sub-plan Stage 1 and 2 and the conditions of approval, the conditions prevail.

Please make the document publicly available on the project website at your earliest convenience.

If you wish to discuss the matter further, please contact Tatsiana Bandaruk on 02 8275 1349.

Yours sincerely

A/Director
Energy Assessments

As nominee of the Planning Secretary

Department of Planning and Environment

Our ref: SSI-9172452-PA-19

Mr John Fisher
Environmental Manager, Project EnergyConnect
Transgrid
180 Thomas Street
Haymarket NSW 2000

06 July 2023

Subject: Construction Environmental Management Plan for Stage 1 & 2

Dear Mr Fisher

I refer to Construction Environmental Management Plan for Stage 1 and 2 submitted to the Department of Planning and Environment (the Department) in accordance with Condition B1 that includes the Environmental Management System required under the Condition D1 of Schedule 2 of the Infrastructure Approval for the Project EnergyConnect (NSW - Eastern Section) (SSI-9172452). I also acknowledge your response to the Department's review comments and request for additional information.

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions of approval (SSI-9172452).

Accordingly, I approve the Construction Environmental Management Plan for Stage 1 and 2 (Revision 2, dated 20 June 2023). Please note that the approved Construction Environmental Management Plan supersedes and now includes the Construction Environmental Management Plan for Stage 1. I note that the Environmental Management Sub-Plans required under condition B2 of the approval are the subject of separate approvals.

You are reminded that if there are any inconsistencies between the Construction Environmental Management Plan and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Tatsiana Bandaruk on 02 8275 1349 or tatsiana.bandaruk@planning.nsw.gov.au.

Yours sincerely

A/Director
Energy Assessments
As nominee of the Planning Secretary

Department of Planning and Environment

Our ref: SSI-9172452-PA-23

Mr John Fisher
Environmental Delivery Manager
Transgrid
180 Thomas Street
Haymarket NSW 2000

11/5/2023

Subject: Project EnergyConnect (NSW - Eastern Section) - Noise and Vibration EMP Sub-plan Stage 1 & 2 and Out of Hours Work Protocol

Dear Mr Fisher

I refer to the Noise and Vibration EMP Sub-plan Stage 1 & 2 submitted to the Department of Planning and Environment (the Department) in accordance with conditions B1, B2 and C10 of Schedule 2, and the Out-of-Hours Work Protocol (OOHWP) submitted in accordance with condition C10(f) of Schedule 2 of the Infrastructure Approval for the Project EnergyConnect (NSW - Eastern Section) (SSI-9172452). I also acknowledge your response to the Department's review comments and request for additional information.

The Department has carefully reviewed the documents and, as nominee of the Planning Secretary, I approve the Noise and Vibration EMP Sub-plan for Stage 1 & 2 (Revision 1, 17 March 2023), including the OOHWP (Revision 5, 17 April 2023) under the following conditions:

- complaints registers should be submitted to the Department's Compliance team for information on a weekly basis when complaints are received;
- the OOHWP approval is subject to a two-monthly review by the Department and can be terminated at any time.

Please note that the approved Noise and Vibration EMP Sub-plan Stage 1 & 2 (Revision 1, 17 March 2023) supersedes and now includes the Noise and Vibration EMP Sub-plan Stage 1.

You are reminded that if there are any inconsistencies between the Noise and Vibration EMP Sub-plan Stage 1 & 2 or OOHWP and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Jess Watson on 02 9373 2845 or jess.watson@dpie.nsw.gov.au

Yours sincerely



Nicole Brewer
Director
Energy Assessments
As nominee of the Planning Secretary

Department of Planning and Environment

Our ref: SSI-9172452-PA-18

Mr John Fisher
Environmental Manager, Project EnergyConnect
Transgrid
180 Thomas Street
Haymarket NSW 2000

20/03/2023

Subject: Project EnergyConnect (NSW – Eastern Section) Soil and Water EMP Sub-plan for Stage 1 & 2

Dear Mr Fisher

I refer to the Soil and Water EMP Sub-plan Stage 2 submitted to the Department of Planning and Environment (the Department) in accordance with conditions B1, B2 and C22 of Schedule 2 of the Infrastructure Approval for Project EnergyConnect (NSW - Eastern Section) (SSI-9172452). I also acknowledge your response to the Department's review comments and request for additional information.

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions of approval (SSI-9172452).

Accordingly, as nominee of the Planning Secretary, I approve the Soil and Water EMP Sub-plan Stage 2 (Revision 1, 14 March 2023). Please note that the approved Soil and Water EMP Sub-plan Stage 2 (Revision 1, 14 March 2023) supersedes and now includes the Soil and Water EMP Sub-plan Stage 1.

You are reminded that if there are any inconsistencies between the Soil and Water EMP Sub-plan Stage 1 & 2 and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Iwan Davies on 02 9274 6296 or iwan.davies@planning.nsw.gov.au.

Yours sincerely

Nicole Brewer
Director
Energy Assessments
As nominee of the Planning Secretary

Department of Planning and Environment

Our ref: SSI-9172452-PA-32

Mr John Fisher
Environmental Manager, Project EnergyConnect
Transgrid
180 Thomas Street
Haymarket NSW 2000

01/06/2023

Subject: Project EnergyConnect (NSW – Eastern Section) Traffic and Transport EMP Sub-plan Stage 1 & 2

Dear Mr Fisher

I refer to the Traffic and Transport EMP Sub-Plan Stage 1 & 2 submitted to the Department of Planning and Environment (the Department) in accordance with Condition B1 and B2 of Schedule 2 of the Infrastructure Approval for the Project EnergyConnect (NSW - Eastern Section) (SSI-9172452). I also acknowledge your response to the Department's review comments and requests for additional information.

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions of approval (SSI-9172452). Please note that the approved Traffic and Transport EMP Sub-Plan Stage 1 & 2 (Revision 3, dated 18 May 2023) supersedes and now includes the Traffic and Transport EMP Sub-Plan Stage 1.

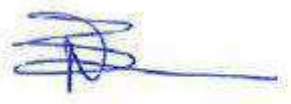
Accordingly, as nominee of the Planning Secretary, I approve the Traffic and Transport EMP Sub-plan Stage 1 & 2 (Revision 3, dated 18 May 2023).

You are reminded that if there are any inconsistencies between the Traffic and Transport EMP Sub-plan for Stage 1 & 2 and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Jess Watson on 02 9373 2845 or via email at jess.watson@dpie.nsw.gov.au

Yours sincerely



Nicole Brewer
Director
Energy Assessments
As nominee of the Planning Secretary

Department of Planning and Environment

Our ref: SSI-9172452-PA-29

Mr John Fisher
Environmental Delivery Manager
Transgrid
180 Thomas Street
Haymarket NSW 2000

06/04/2023

Subject: Project EnergyConnect (NSW – Eastern Section) Heritage EMP Sub-plan for Stage 1 & 2

Dear Mr Fisher

I refer to the Heritage EMP Sub-plan Stage 2 submitted to the Department of Planning and Environment (the Department) in accordance with Condition B1, B2 and C30 of Schedule 2 of the Infrastructure Approval for Project EnergyConnect (NSW – Eastern Section) (SSI-9172452). I also acknowledge your response to the Department's review comments and request for additional information.

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions of approval (SSI-9172452).

Accordingly, as nominee of the Planning Secretary, I approve the Heritage EMP Sub-plan Stage 2 (Revision 1, 15 March 2023). Please note that the approved Heritage EMP Sub-plan Stage 2 (Revision 1, 15 March 2023) supersedes and now includes the Heritage EMP Sub-plan Stage 1.

You are reminded that if there are any inconsistencies between the Heritage EMP Sub-plan Stage 1 & 2 and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Jess Watson on 02 9373 2845 or jess.watson@dpie.nsw.gov.au

Yours sincerely

Nicole Brewer
Director
Energy Assessments
As nominee of the Planning Secretary

Appendix B – Agency Consultation Reports

Information redacted for public display

Appendix C – Written notification of commencement

Information redacted for public display

Appendix D – Submission of management plans

Information redacted for public display

Appendix E – Plans in existence during the 12-month period

Details of how each plan was implemented during the reporting period is provided below.

Table E.1 - Key project components of construction

Management Plan	How implemented
Construction Environmental Management Plan (Rev 2)	• Preparation and issue of Environmental Work Method Statements for key activities. • Preparation and issue of Sensitive Area Plans with the Clearing Permits and No-go Zone permits. • Implementation of progressive erosion and sediment control plans across the easement. • Preparation and implementation of progressive erosion and sediment control plans at the substations and to assist with stabilisation of laydowns. • Having an environmental team in place on the project. This includes a delivery team consisting of Environmental Coordinators, Environmental Advisors and Senior Environmental Advisors; a Deputy Environmental Manager; an Approvals Coordinator; a sustainability team and an Environmental Manager. • Continued site inductions, prestart meetings, and targeted environmental briefings. • Complaints management process managed by an Engagement Team. • Incident response and notification system (Hammertech).
Biodiversity Management Plan (Rev 4)	• Hundreds of Pre-clear Survey Reports prepared during the year and placed on the project website. • Further preclearance surveys occurring just prior to clearing works. • Having two teams of ecologists and fauna spotters present during the year for preclear and during clearing surveys. • Development and issue of Clearing and Land Disturbance Permits. • Preparation and issue of Sensitive Area Plans with the Clearing Permits and No-go Zone permits. • Tracking clearing numbers within the Clearing Register. • Using both Sensitive Area Plans and GIS to inform clearing locations. • Installation of delineation and flagging in areas of ecological sensitivity such as Plains-wanderer habitat and the Special Biodiversity Protection Zones. • Transgrid have progressively retired credits under the Biodiversity Offset Package. • Installation and monitoring of nest boxes. • Design of squirrel glider poles for connectivity corridors. • Implementation of the Unexpected Threatened Species Finds Procedure. • Commencement of rehabilitation works. • Implementation of numerous biosecurity measures across the project – wheel washes, Come-clean Go-Clean process. Vehicle inspections etc. • Development of bespoke methodologies for construction activities within the Special Biodiversity Protection Zones. • Implementation of the Plains-wanderer Protocol. • Having a dedicated Environmental Advisor (Biodiversity) employed on the project. This was not required by the management plan. • Having an environmental team in place on the project. This includes a delivery team consisting of Environmental Coordinators, Environmental Advisors and Senior Environmental Advisors; a Deputy Environmental Manager; an Approvals Coordinator; a sustainability team and an Environmental Manager. • Continued site inductions, prestart meetings, and targeted environmental briefings.

PUBLIC

Construction Environmental Management Plan
EnergyConnect (NSW - Eastern Section)
Stage 1 and Stage 2

45860-HSE-PL-D-0114

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	10/08/2022	Issued for internal review	M.Lee	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
B	7/09/2022	Issued for Transgrid review	M.Lee	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
C	28/10/2022	Issued for ER review	A.Kriegel	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
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Key Document Stakeholders
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Abbreviations

Acronym	Definition
Amendment Report	*Amendment Report EnergyConnect (NSW – Eastern Section)*
AS/NZ	Australian Standard/New Zealand Standard
BC Act	*Biodiversity Conservation Act 2016*
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CSSI	Critical State significant infrastructure
Commonwealth Approval	The Notification of Approval issued by the Department of Climate Change, Energy, the Environment and Water for EnergyConnect – Eastern Section (EPBC 2020/8766) on 5 December 2022.
DAWE	Department of Agriculture, Water and the Environment, now known as Department of Climate Change, Energy, the Environment and Water
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DPE or Department	Department of Planning and Environment
DPIE	Department of Planning, Industry and Environment, now known as Department of Planning and Environment
EECs	Endangered ecological communities
EIA	Environmental Impact Assessment
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
EMS	Environmental Management System
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
ER	Environmental Representative
FMEA	Failure mode and effects analysis
HAZID	Hazard Identification
HAZOP	Hazard and operability
HSSE	Health, Safety, Sustainability and Environment
HSSE Manual	Health, Safety, Sustainability and Environment Management Manual
JHA	Job hazard analysis
LGA	Local Government Area
MNES	Matters of National Environmental Significance
NCR	Non-conformance report
NEM	National Electricity Market
NP&W Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
PESCP	Progressive erosion and sediment control plan
POEO Act	*Protection of the Environment Operations Act 1997*
project, the	EnergyConnect (NSW - Eastern Section)
Response to DPE Request for Information	EnergyConnect (NSW - Eastern Section) Response to Department of Planning and Environment Request for Information (30 August 2022)

Acronym	Definition
RMMs	Revised mitigation measures
ROLs	Road occupancy licences
SA	South Australia
SAPs	Sensitive area plans
SecureEnergy	Elecnor and Clough Projects Australia Pty Ltd have formed the SecureEnergy Joint Venture (SecureEnergy). SecureEnergy is the contractor who will be carrying out the project on behalf of Transgrid.
Stage 1	Stage 1 of construction of the project. This includes establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation and water supply points.
Stage 2	All construction activities associated with EnergyConnect (NSW – Eastern Section). Once approved the Stage 2 CEMP and the relevant Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP and Stage 1 CEMP sub-plans. The Stage 2 CEMP and Stage 2 CEMP sub-plans do not address the operational phase of the project.
SSI	State significant infrastructure
Submissions Report	*Submissions Report EnergyConnect (NSW – Eastern Section)*
TBD	To be determined
TfNSW	Transport for NSW
Vic	Victoria
WM Act	*Water Management Act 2000*
WMS	Work method statement

1 Introduction

1.1 Context

Transgrid and ElectraNet will deliver a high voltage electricity interconnector between the power grids of South Australia (SA) and New South Wales (NSW), with an added connection to Victoria, known collectively as EnergyConnect. EnergyConnect will reduce the cost of providing secure and reliable electricity transmission between NSW, SA and north-west Victoria in the near term and facilitate the transition of the energy sector across the National Electricity Market (NEM) to low emission energy sources.

Transgrid is responsible for the portions of EnergyConnect within NSW, which includes the construction of transmission line from the NSW/SA border to Buronga, expansion of the Buronga substation, construction of transmission line from Buronga substation to the NSW/Victoria connect to the existing Red Cliff substation, and construction of transmission line from Buronga to Wagga Wagga.

Elecnor and Clough Projects Australia Pty Ltd have formed SecureEnergy for the purpose of the design and construction of EnergyConnect.

1.2 Background

On 29 August 2019 the NSW Minister for Planning and Public Spaces declared EnergyConnect a critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. Within NSW, EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – SA/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS) was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with five from special interest groups, nine from local councils and 44 from the public. In addition, 17 government agencies also provided advice during this time.

The *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared a separate *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report) to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report was also finalised in May 2022.

On 2 June 2022, the Department requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response TransGrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information*

(Response to DPE Request for Information) to address the requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning and Public Spaces (Infrastructure Approval SSI-9172452). Approval of the project will lapse if the project has not physically commenced the project within five years of the date the approval was granted. Approval for the project under the EPBC Act (the Commonwealth Approval) was granted by the Australian Minister for the Environment.

1.3 Scope

This Construction Environmental Management Plan (CEMP) and the associated Stage 2 sub-plans have been prepared to describe the environmental management practices and procedures to be implemented for the construction of EnergyConnect (NSW – Eastern Section) (the project). Section 2.3 outlines the scope of works included in Stage 2.

Once approved, this CEMP and the relevant Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP and Stage 1 CEMP sub-plans. Refer to Section 4.3.1 for further details on the sub-plans relevant to Stage 2. This plan does not address the operational phase of the project.

All construction personnel and sub-contractors will be required to undertake works in accordance with this CEMP and the management measures identified in any relevant site-specific documents.

1.4 Purpose

This CEMP has been prepared to primarily address the requirements of conditions B1, B2 and D1 of the Infrastructure Approval.

The purpose of this CEMP is to provide a structured approach to the management of environmental issues during construction of the project. This plan defines the environmental management principles, processes, procedures, systems, tools, and templates implemented for use throughout the duration of construction of the project with the aim to prevent and, where prevention is not reasonable and feasible, minimise environmental harm during the construction phase.

In particular, this CEMP:

- describes the project and activities to be undertaken;
- describes the environmental management system and documents that will be implemented;
- states the objectives and targets for the project;
- provides management measures to minimise environmental impacts;
- describes the roles and responsibilities of personnel in relation to environmental management;
- outlines a monitoring regime during construction; and
- supports the project team in completing the requirements of the project.

1.5 Preparation of this plan

In accordance with condition B1 of the Infrastructure Approval, this plan has been prepared by a suitably qualified and experienced person. This plan was originally prepared by Martin Lee and reviewed by Rebecca Walker-Edwards.

1.6 Consultation

The Infrastructure Approval requires the CEMP sub-plans to be prepared in consultation with relevant government agencies and stakeholders. The CEMP sub-plans that require consultation with the relevant stakeholders are marked with a letter ‘C’ as shown in Table 1.1 below.

Table 1.1 - CEMP sub-plans that require consultation

CEMP Sub-plan required under condition B1 of the Infrastructure Approval	Relevant council	DPE Water	BCS	Heritage NSW	Heritage Council	Aboriginal stakeholders	NPWS	TfNSW
Noise and Vibration[1]	C							
Soil and Water	C	C						
Biodiversity			C					
Heritage				C	C	C	C	
Traffic and Transport	C							C

[1] The Out of Hours Work Protocol forms part of the Noise and Vibration Management Plan, and must be prepared in consultation with the relevant Council, as required under condition C10 of the Infrastructure Approval.

In accordance with condition A7, the consultation records of the CEMP sub-plans listed under condition B1 and other approval documents that required consultation with an identified party will be provided and submitted to the Department with the relevant CEMP sub-plan.

1.7 Submission and approval

In accordance with condition B1 of the Infrastructure Approval, the CEMP and CEMP sub-plans listed under condition B1 must be submitted and approved by the Secretary of Department of Planning and Environment (Planning Secretary) prior to the commencement of construction. The sub-plans may be submitted along with, or subsequent to, the submission of this CEMP.

The Stage 1 CEMP and CEMP sub-plans were submitted to the Department to seek approval for the commencement of Stage 1 works. This CEMP will be submitted for the Stage 2 works.

Stage 2 construction will not commence until the CEMP and CEMP sub-plans required under condition B1, or where staging is proposed the plans required for that stage, have been approved by the Planning Secretary.

This CEMP will be implemented for the duration of construction of Stage 2 of the project.

Transgrid and/or SecureEnergy will comply with the requirements that arise from the DPE's assessment of submitted plans, reports or audits.

Any document prepared in accordance with the Infrastructure Approval that must be prepared within a specified timeframe may be submitted within a later timeframe agreed with the Planning Secretary.

1.8 Distribution

SecureEnergy's Environmental Manager will coordinate the preparation, review and distribution, as appropriate, of the environmental documents. During construction, environmental documents will be stored electronically at the site office and will be available upon request to SecureEnergy's Environmental Manager.

This CEMP and CEMP sub-plans will be available to all personnel and sub-contractors via hard copy (if requested) or through the project document control system. Documents which are required to be made public will also be placed on the project website which is located at https://www.transgrid.com.au/projects-innovation/energyconnect.

Registered copies will be distributed to the following:

- Project Director;
- Deputy Project Director;
- Project Operations Director;
- Project HSSE Manager;

- Environmental Manager;
- Transgrid's Document Controller;
- Transgrid's Environmental Manager; and
- Environmental Representative.

1.9 Continuous improvement

The Plan-Do-Check-Act model will be applied to the continuous improvement process.

The Plan stage outlines the environmental objectives and the process to achieve the results. This is outlined through the Environmental Management System (EMS) described in Section 4 of this CEMP and supported by the Environmental Aspect and Impact Register provided within Appendix A3.

The Do stage focuses on the implementation of the EMS. Tools such as Work Packs and Work Method Statements described in Section 4.4 will be prepared to facilitate the implementation of the EMS. The Work Packs and Work Method Statements will be supported by drawings, forms and plans. The roles and responsibilities in carrying out the Do stage is provided in Section 4.9, while Section 6 outlines the various communication methods.

The Check stage comprises ongoing monitoring of the environmental management performance against the environmental objectives, for the purpose of identifying opportunities for improvement. This will be undertaken through regular environmental inspections, monitoring and auditing as described in Section 9.

The Act stage include undertaking the required actions in order to achieve the environmental objectives. Corrective and preventive actions are further described in Section 11. In addition to this, for any issues or items within the documents that are either redundant or in need of updating, it is the responsibility of the Environmental Manager to coordinate the preparation of the revised documents, as further described in Section 1.10.

1.10 Updating the CEMP

In accordance with condition D2 of the Infrastructure Approval, SecureEnergy will review and, if necessary, revise the applicable strategies, plans or programs required by the Infrastructure Approval to the satisfaction of the Planning Secretary within three months of the following:

- submission of an incident report under condition D6 of the Infrastructure Approval;
- submission of an audit report under condition D11 of the Infrastructure Approval; or
- any modifications to the Infrastructure Approval.

Further to this, a document review process will be implemented to ensure that the environmental management practices and procedures which are to be implemented for construction as required by this CEMP, are updated as appropriate for the specific works that are occurring on-site. The document review process of the CEMP, sub-plans or other approval documents required under the Infrastructure Approval will be undertaken:

- in response to changes in the applicable legislation;
- where requested or required by DPE (condition A3);
- where deficiencies in the CEMP are identified in inspections, monitoring, or complaints;
- in response to project changes as described in Section 1.11; and
- annually where the above circumstances do not arise.

Should the document review process identify any issues or items within the documents that are either redundant or in need of updating, it is the responsibility of the Environmental Manager or their delegate to prepare the revised documents. The revised document will then be issued to the Project Director for internal approval and provided to Transgrid prior to re-issue.

Minor changes to the CEMP, sub-plans or other approved documents required under the Infrastructure Approval may be required during delivery of the project. The Environmental Representative will consider and approve minor changes to the CEMP, sub-plans or other approved documents. Minor changes involve updating the approved environmental documents that:

- are administrative in nature (e.g. staff and agency/authority name changes);
- do not increase impacts to nearby sensitive receivers;
- are consistent with the terms the Infrastructure Approval and the other documents approved by the Planning Secretary;
- are in response to audit findings relating to procedures and processes of the environmental management system;
- in response to changes in the applicable legislation such that the project complies with the amended legislative requirements; or
- any other changes or updates that considered minor by the Environmental Representative (ER).

SecureEnergy will provide the documentation requested by the ER in order for the ER to perform their function.

Changes to the CEMP, sub-plans or other approved documents required under the Infrastructure Approval that are not defined as minor will be discussed with DPE to confirm the need for further review and approval. If required, the updated CEMP or sub-plans will be submitted to the ER for endorsement prior to being submitted to DPE for review and approval.

As permitted by condition A8, with the agreement of the Planning Secretary, staged or updated strategies, plans or programs may be prepared without undertaking all of the consultation required under the applicable condition in the Infrastructure Approval.

1.11 Changes to the project

The project may only be carried out:

- in compliance with the conditions of the Infrastructure Approval;
- in accordance with all written directions of the Planning Secretary;
- generally in accordance with the EIS; and
- generally in accordance with the Development Layout in Appendix 1 of the Infrastructure Approval.

In the event of an inconsistency, ambiguity or conflict between any of the documents listed in last two dot points above, the Infrastructure Approval and/or directions of the Planning Secretary, or the most recent document between those documents would prevail to the extent of the inconsistency, ambiguity or conflict.

Amendments or changes to the project may result from detailed design refinements or changed methodologies throughout construction.

Design and construction methodology changes will be communicated to SecureEnergy's Environmental Manager. The Environmental Manager will review the proposed change in consultation with the Transgrid Environmental Manager, where required, to determine whether it is consistent with the approved project.

Changes that are not consistent with the approved project will be discussed with the Department to confirm requirements. Transgrid as the Proponent will apply for any required formal modifications to the approved project.

If any changes to the project require changes to the CEMP, the Environmental Manager will identify the required changes and update the CEMP as required by Section 1.10.

2 Project description

2.1 Overview of EnergyConnect

Transgrid and ElectraNet are currently seeking approval for the proposed construction and operation of a new electrical interconnector and network support option between NSW and SA, with an additional connection to Red Cliffs in north-west Victoria. Collectively, the proposed interconnector is known as EnergyConnect.

The interconnector is aimed at reducing the cost of providing secure and reliable electricity transmission between NSW and SA in the near term, while facilitating the transition of the energy sector across the National Electricity Market to low emission energy sources.

The preferred option involves constructing a new high voltage electricity interconnector, approximately 900km long, between the power grids of SA (starting at Robertstown) and NSW (finishing in Wagga Wagga). EnergyConnect comprises several sections (as shown on Figure 2.1), being:

- Victorian section, which extends from the NSW/Victoria border to an existing electrical facility at Red Cliffs;
- NSW sections including:
  - Western section which extends from:
    - the SA/NSW border (near Chowilla in SA) to Buronga;
    - Buronga to the NSW/Victoria border at Monak (near Red Cliffs in Victoria);
  - Eastern section (the subject area of this CEMP) which extends from Buronga to Wagga Wagga; and
- SA section, which extends from Robertstown to the SA/NSW border.

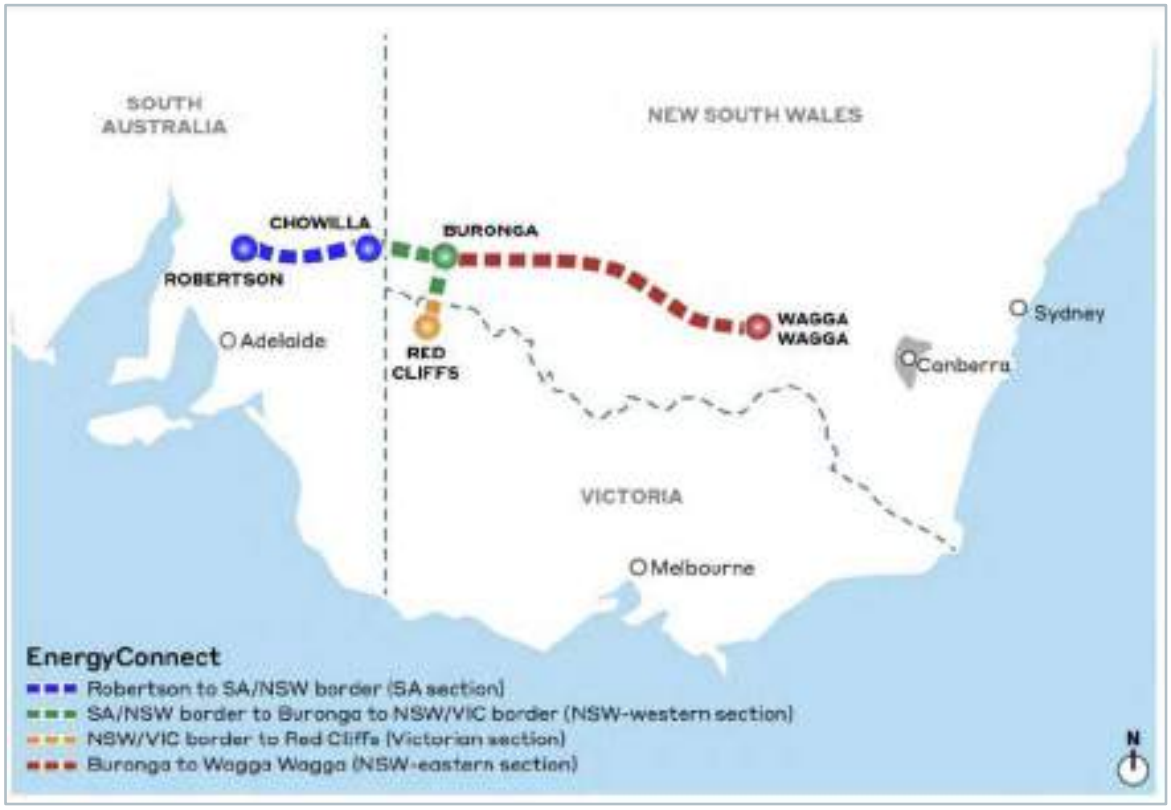


Figure 2.1 - Overview of EnergyConnect (WSP)

2.2 EnergyConnect (NSW – Eastern Section)

The key components of the proposed works for EnergyConnect (NSW - Eastern Section) will involve construction of transmission lines from Buronga to Wagga Wagga, a distance of approximately 540 kilometres, construction of a new substation, Dinawan substation, located south of Coleambally and the upgrade and expansion of the existing Wagga Wagga substation. Refer to Figure 2.2. EnergyConnect (NSW - Eastern Section) will traverse across the following local government areas: Wentworth, Balranald, Murray River, Edward River, Hay, Murrumbidgee, Federation, Lockhart and Wagga Wagga.

2.3 Staging

Condition A8 allows the preparation of plans on a staged basis with the approval of the Planning Secretary. Where a plan is staged, the scope of works can be carried out without addressing the particular requirements of conditions that are not applicable to the particular stage. This CEMP and associated CEMP sub-plans are staged in accordance with condition A8.

This CEMP has been prepared specifically for EnergyConnect (NSW – Eastern Section) Stage 2 of construction and will be implemented for the duration of Stage 2 of construction.

Stage 1 of construction is proposed to occur ahead of the main transmission line works in order to expedite the overall delivery program for EnergyConnect. Transgrid will notify the Department in writing via the Major Projects website portal of the commencement date of Stage 2 in accordance with condition D3.

The key project components of Stage 2 of construction include, but are not limited to, the activities provided in Table 2.1.

The plans for Stage 2 incorporate and supersede the Stage 1 plans and cover the entire construction phase of the project.

Table 2.1 - Key project components of construction (Stage 2)

Key activity	Description of key activity
Pre-construction minor works permitted in accordance with the Infrastructure Approval.	The definition of 'construction' within the Infrastructure Approval excludes the following 'pre-construction minor works' activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. Key activities include: • environmental investigations, including biodiversity and heritage protection, salvage and recordings; • Aboriginal heritage assessment, mitigation (e.g. exclusion zones) and salvage activities including subsurface testing/test excavation, additional survey, and consultation with RAPs; • other survey work, such as road dilapidation surveys, and surveys of the general alignment and existing utilities; • installation of environmental management measures (including erosion and sediment controls), fencing, signage and security measures, enabling works; and • connections and pre-commissioning of utilities (wastewater treatment plant, electrical power, lighting, etc.) for the construction facilities.
Continuation of any outstanding Stage 1 construction activities	Construction activities undertaken during Stage 1 of the project will continue where required. This includes, but is not limited to continuation of the following activities: • any outstanding construction activities at Dinawan and Wagga Wagga substations; • operation of laydown areas including the crushing and screening plant, where required; • operation of the construction compounds including offices and laydown area; and • use of traffic haulage routes and access and egress points.

Key activity	Description of key activity
Establishment ancillary facilities along the transmission line corridor	A number of minor staging, storage and laydown ancillary areas would be required within the project corridor for temporary storage of materials, plant and equipment required to construct the various elements of the proposal (in particular transmission line structures). Some temporary mobile batching plant locations may also need to be established to enable easy access to concrete. Upon completion of works, these ancillary sites would be cleared of any temporary infrastructure and equipment, and rehabilitated. These sites would be in place for shorter periods at locations suitable to support the construction works as they move along the alignment.
Property adjustment work, including adjustments to property fencing	Installation or adjustment of gates and fences would be required at some locations along the alignment to enable access from the nearest roadway to construction areas. These would be constructed in consultation with the relevant council and/or affected landholder.
Water supply points – establishment and/or use	A number of water supply points have been along the length of the project to support construction water needs for the project. The proposed water supply points which are to be established and / or used include: • Euston Coop*, Balranald Shire Council; • Lake Benanee*, Balranald Shire Council; • Sturt Highway/Meilman Road*, Balranald Shire Council; • Mylatchie Track*, Balranald Shire Council; • 159 Church Street, Balranald Shire Council; • Ravensworth*, Hay Shire Council [Ravensworth in Amendment Report]; • Moulamein Rd 1*, Edward River Council; • Moulamein Rd 2, Edward River Council [Moulamein Road, Moulamein in Amendment Report]; • Burraburoon*, Edward River Council; • X5 Mabins Well*, Edward River Council; • Gala Vale*, Murrumbidgee Council; • Kidman Way*, Murrumbidgee Council; • Crosby Road*, Murrumbidgee Council; • Newell Highway, Morundah*, Federation Council; • Urana-Lockhart Road, Brookong*, Lockhart Council; • Brookdale*, Lockhart Council; • Federation Way/Coonong Road*, Federation Council; • Federation Way*, Federation Council; • Coonong Road*, Federation Council; • Red Hill Road, Wagga Wagga, Wagga Wagga City Council [Glenfield in Amendment Report]; • 1254 Four Corners Road, Coleambally, Murrumbidgee Council [1254 Four Corners Road in Amendment Report]; • Cooinbil Water Bore, Coleambally, Murrumbidgee Council [Cooinbil, Four Corners Road, Coleambally in Amendment Report]; • Carrathool Road, Edward River Council [shown in Figure 6-9 of the Amendment Report, however, unclear of name in Table 6-5]; • Wonga Station, Four Corners Road, Edward River Council [Wonga in Amendment Report]; • Four Corners Road Mabins Well; Edward River Council [Four Corners Road, Mabins Well in Amendment Report]; • North Bundy Station, North Bundy Road, Booroorban, Edward River Council [North Bundy, Booroorban-Tchelery Road, Booroorban in Amendment Report]; • Booroorban-Tchelery Road*, Booroorban, Edward River Council; • Strongs Lane*, Lockhart, Lockhart Shire Council; • Strongs Lane/Ben Hoffmanns Lane*, Lockhart, Lockhart Shire Council; • Urana-Lockhart Road 2*, Lockhart, Lockhart Shire Council;

Key activity	Description of key activity
	• Slys Lane*, Lockhart Shire Council; • The Rock - Collinguillie Road*, The Rock, Lockhart Shire Council; • Bullenbung-the-Rock Road*, Lockhart Shire Council; • Tuttys Lane*, Tootool, Lockhart Shire Council; • French Park-Bullenbung Road*, Lockhart Shire Council; • Napier Road*, Lockhart Shire Council; • Albury Road*, Lockhart, Lockhart Shire Council; • 3 Bencubbin Avenue, Coleambally, Murrumbidgee Council [3 Bencubbin Avenue in Amendment Report]; • Kerr Kerri Rd, Moulamein, Murray River Council [Keri Keri Road, Keri Keri in Amendment Report]; • Urana (between Osborne Street and Stephen Street), Federation Council [Urana in Amendment Report]; • Federation Way* (near corner Federation Way and Stephen Street), Federation Council; • Cadell Road, Coleambally, Murrumbidgee Council [Cadell Road Coleambally in Amendment Report]; • Mclennons Bore Road, Coleambally, Murrumbidgee Council [Mclennons Bore Road in Amendment Report]; • 8955 Newell Highway Bundure, Murrumbidgee Council [Newell Highway, Bundure in Amendment Report]; • Coomera Wilson Lane Urana*, Lockhart Council; • Commera Wilson Lane/Urana-Lockhart Road*, Lockhart Shire Council; • Paraway at Four Corners Road*, Murrumbidgee Council; • Paraway at Cobb Highway*, Hay Shire Council; • North Boundary Road*; Murrumbidgee Council; • Tooleybuc*, Wentworth Shire Council; • Maynard* Wentworth Shire Council; • Off Sturt Highway* Wentworth Shire Council; • 16 Mile Gums*, Hay Shire Council; • Cadell Street, Hay, Hay Shire Council; • Jerilderie Road*, Hay Shire Council; • Court Street/Sturt Highway*, Balranald Council; • Boiling Down Road*, Wagga Wagga City Council; and • continued use of the Stage 1 water supply points. The water supply points may require works to the existing infrastructure to enable connection and use by the water supply vehicles. The definition of ‘construction’ within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. * The water supply points denoted above with an asterisk are additional to the water supply points identified in the EIS. Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would: • confirm that the water supply point could be accessed using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary’s agreement in accordance with condition C32; • reach agreement with the water supplier regarding the use of the water supply point for the project; and

Key activity	Description of key activity
	• carry out any additional assessments which may be required (ie heritage or biodiversity).
Traffic access routes and access points	Construction vehicle movements will be required for a variety of activities (i.e. earthworks, clearing and grubbing activities). All construction vehicles associated with the development will travel via the haulage routes as identified in Appendix 3 of the Infrastructure Approval or as otherwise approved. The establishment of access points would include establishing vehicle access and egress points to ensure safe vehicle movements. Existing access points may also be used. The definition of construction within the Infrastructure Approval does not include road upgrades (which includes access points). Road upgrade works are, however, incorporated within the Traffic and Transport Management Plan as required by condition C35 b).
Construction access tracks	Access to each tower would be required during construction. Access tracks would be required to be traversable by a range of vehicles. Access tracks would fall into two broad groups: • un-improved access tracks - using existing roads or tracks, or driving on existing soil or ground surface with minimal or no prior preparation; • improved access track – using existing roads or tracks where minor modification (such as grading or widening of the existing track) is required; and • constructed access tracks – around six metres wide and would generally follow the natural contour of the land as far as practicable to minimise the amount of cut and fill and soil disturbance. Access tracks would also include drainage control features such as table drains or cross banks to minimise erosion. Constructed access tracks would be required in areas where there are no existing roads or tracks, or where terrain conditions prevent continuous access along the line easement between road crossings. Local waterway spans and causeways may be required, where alternative access routes are impractical, along the length of the proposal.
Temporary works	The project will require a significant quantity of temporary works during construction. The temporary works will include, but not be limited to, the following: • earthworks, including trenches, excavations, temporary slopes, stockpiles, and embankments; • laydown and parking areas for the towers; • structures, such as formwork, shoring, edge protection, temporary bridges, solid fencing/guardrails/barriers and signage, temporary scaffold; and • equipment/plant foundations, such as work platforms, crane, and piling platforms.
Optical repeater sites	Three optical repeater site communication huts would need to be constructed at Balranald, Boorooban and Lockhart. The optical repeater sites are communication huts to ensure the stability of the communications system over great distances during the operation phase. The key activities for the construction of the optical repeater sites would consist of the following: • site establishment, including vegetation removal and establishment of temporary construction site office, if required; • earthworks and preparation of the site for concrete foundations; • construction of a new communication hut building at each site; • installation of new pole-mounted transformers; • installation of electrical cables and terminations (either through the installed conduits or stringing of the aboveground poles); • installation of site wiring and electrical control equipment within each building; • trenching for underground conduit between the Balranald optical repeater hut and transmission line; • installation of new above ground poles between the transmission line and the respective Booroorban and Lockhart optical repeater sites; • provision of power connections between the transmission line and associated optical repeater site; and

Key activity		Description of key activity
		• removal of waste and remediation of site areas.
Transmission line construction	Earthworks and transmission tower footing construction	Excavation works and establishment of construction pads at each tower site would be required for the installation of foundations, levelling around the individual tower foundations, drainage and grading or preparation for construction at the tower site. Excavations would typically be up to five metres in depth. Construction of footings and foundation works for the new transmission line towers includes: • piling. Typical transmission line tower piling depth would be generally up to 6-15 metres below ground level and would depend on ground conditions (e.g. greater piling depths would be required where soft soil types are present).The foundation type would also vary (subject to detailed design) but would consist of either: - bored pile (reinforced concrete); - driven or screw pile (concrete or steel); and - helical screw anchor, or cast in-situ reinforced concrete. • excavation to create bench sites (stepped ground excavation) where required to provide a level platform for equipment setup, the erection of the tower and other construction activities. Benching would be constructed by use of earthing equipment such as graders and excavators; • steel fabrication works; and • concrete pours.
	Assembly and erection of transmission line towers	The transmission line towers would typically be erected by assembling in sections on the ground and hoisting or lifting successive sections into place using cranes. Alternatively, towers may be erected in place on the footings by installing individual members. These towers would include infrastructure such as step bolts, climbing attachment plates, ladders, platforms, climbing barriers, identification plates, warning plates, other fixtures and fittings for the attachment of earthwires and insulators.
	Stringing of transmission lines including conductors and overhead earth wires and optical ground wires	Following erection and securing of the tower, the transmission line would be strung by either a ground pulled draw wire (with brake/winch sites) or a line stringing drone. The area required for the construction of each tower would require access for tower assembly and stringing works. Where a transmission tower is proposed to allow for a direction change of the transmission line, a larger area would be required (to allow for brake and winching sites). At a typical site, this would include a temporary area of up around 60 metres by 80 metres at each transmission line tower location. The transmission line would require spanning a series of major watercourses. The general construction methodology is to assemble and erect a transmission line structure on either side of each major river crossing. A drone would then be used to take a lead wire over the river to allow cables to then be pulled and strung tower to tower. Similar methodology will be undertaken when stringing transmission line across major road networks and railway lines.
	Installation of earthing conductors and connection to substations	The following key activities will be undertaken: • installation of earthing conductors at each of the transmission tower arms; • installation of earthing or isolation sections of fences and gates where the transmission line crosses or closely runs parallels to a metallic fence; and • connection of incoming transmission lines at the Dinawan and Wagga Wagga substations.
Pre-commissioning phases		Pre-commissioning activities would form part of the final construction and installation works and would incorporate all tests and checks to confirm that construction quality assurance documentation, inspection and test plans, checklists and associated activities have been completed for each individual component of plant. This would be to ensure that it has been supplied and installed in accordance with the design and statutory standards and is safe to proceed to commissioning. The key pre-commissioning activities which would be undertaken would include: • testing and commissioning of the new substation equipment; • point to point testing of the new transmission lines and substation connections; • earthing testing; • high voltage testing; • high voltage equipment operational checks;

Key activity	Description of key activity
	• testing of the installed protection, metering, control, and communication systems; and • cut over (energisation) of electricity between the existing and new transmission lines (where required).
Utility adjustments and protection	General utility protection and adjustment works, where required, to allow for the Wagga Wagga substation expansion and upgrades works to occur, the optical repeater sites, the establishment and operation of the construction compounds and accommodation camps, and elsewhere as required.
Progressive site rehabilitation and landscaping	Site rehabilitation would be carried out progressively along completed sections of the transmission line as well as the substation sites. This phase would occur following the completion of construction and involve the removal of materials not required during the operation of the substation and/or transmission lines. This phase would include the removal/remediation of the construction compounds and camp sites, removal of temporary facilities and site buildings and temporary environmental controls. Works may also be undertaken to restore: • water infrastructure facilities to pre-existing conditions before arrival on site in consultation with landowners; • natural drainage in areas where temporary facilities were provided; and • fences, gates, etc., which may have been damaged during construction. Installation of the permanent Transgrid property boundary fence surrounding the new and expanded substation sites would also likely occur during this phase.
Demobilisation	SecureEnergy will start to downsize the construction team with gradual demobilisation as particular key construction activities are completed.

Some activities nominated in this stage will have already commenced as part of the pre-construction minor works permitted in accordance with the Infrastructure Approval. Following approval of the CEMP for Stage 2, these works will remain excluded from the definition of 'construction' and therefore which are not subject to the CEMP. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. Activities that were approved to be carried out under the Stage 1 CEMP will continue under this CEMP.

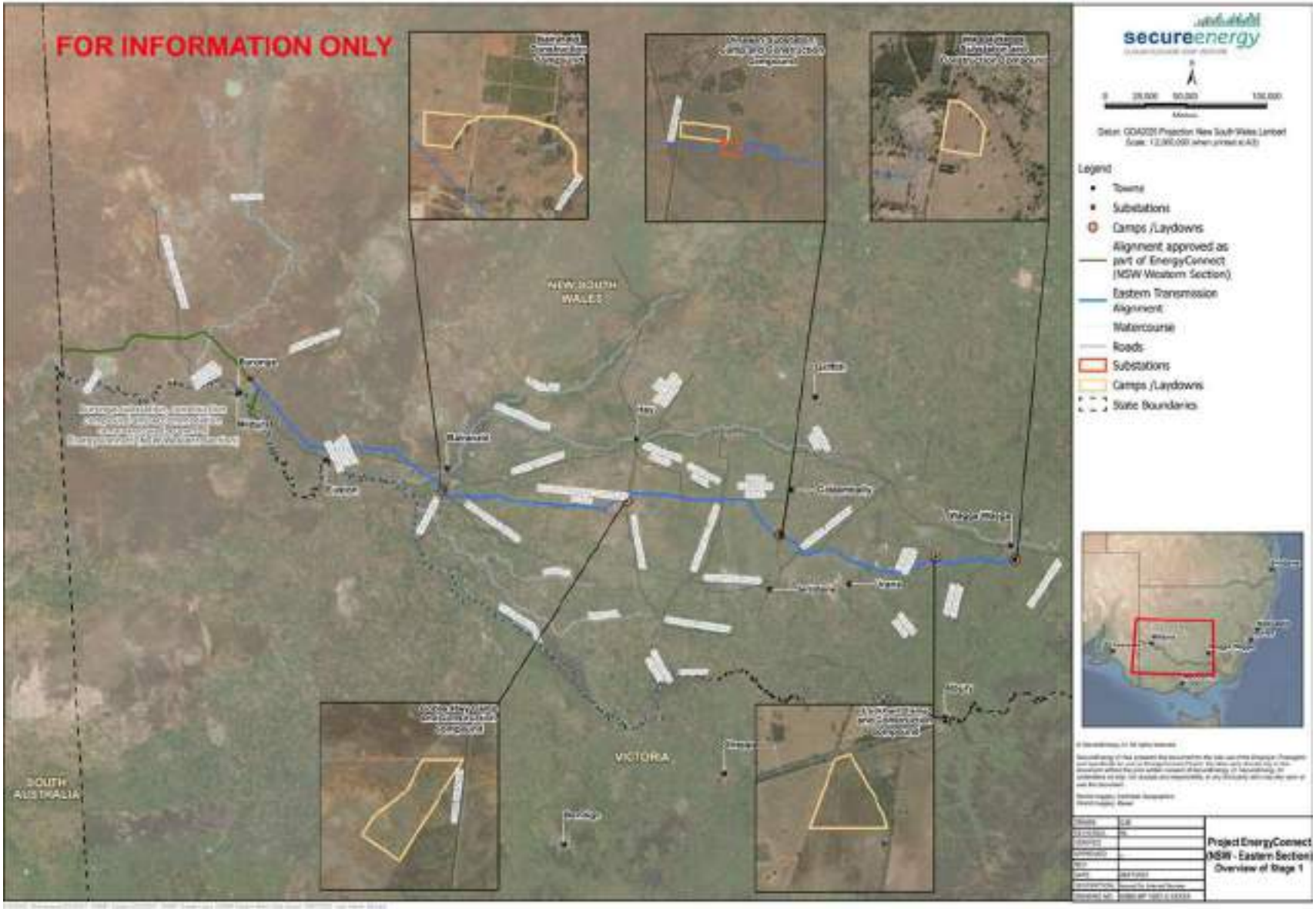


Figure 2.2 - Key features of EnergyConnect (NSW - Eastern Section)

3 Planning

3.1 Legal and other requirements

A summary of legal requirements is provided within Appendix A1. This register will be maintained by SecureEnergy throughout the project and updated as required.

Legal and other requirements are managed in accordance with the *Global Control of Legal and Other Requirement Procedure* which describes the minimum requirements for the identification and management of Health, Safety, Security and Environmental (HSSE) legislation and other requirements applicable to project activities.

Any legislative updates will be notified to relevant SecureEnergy personnel through the use of LawStream. Changes made to the legal requirements register will be communicated to the wider team where necessary through toolbox talks, specific training or other methods detailed in Section 6.

SecureEnergy will obtain licences, permits and approvals as required for the works and maintain them as required throughout delivery of the project, which may include but not be limited to Environment Protection Licence (EPL) for scheduled activities under the *Protection of the Environment Operations Act 1997* (POEO Act) and road occupancy licences (ROLs). Copies of licences, approvals and permits shall be held digitally within the site office with files available for audit and inspection purposes.

Some licences or permits may be held by subcontractors or external parties engaged to SecureEnergy and have not been specifically listed within the summary. Examples include:

- licences for transporting certain waste types;
- an asbestos removal licence (Class A or Class B licence);
- drivers of dangerous goods vehicles to hold a dangerous goods licence; or
- licensed ecologists for threatened species handling.

3.2 Conditions of approval

The conditions of the Infrastructure Approval relevant to the preparation of this CEMP are included within Table 3.1. The conditions of the Infrastructure Approval relevant to each management sub-plan are dealt with within each of those plans.

There are several conditions of the Infrastructure Approval that are unassigned to a specific environmental management sub-plan or other project management plans. The management measures that will be implemented for the project in relation to these conditions are provided in Appendix A5 of this CEMP.

Table 3.1 - Conditions relevant to this CEMP

Condition no.	Requirement	Where addressed
B1	Prior to commencing construction, an Environmental Management Plan (EMP) comprising the Sub-plans listed in Table 1 must be prepared by suitably qualified and experienced persons, to the satisfaction of the Planning Secretary. Following the Planning Secretary's approval, the Proponent must implement the Environmental Management Plan.	This Construction Environmental Management Plan has been prepared to address the requirements of an EMP. Construction will not commence until this CEMP and the CEMP sub-plans are approved. This is detailed in Section 1.7. Consultation of the CEMP sub-plans is addressed in Section 1.6.

<table>
<tr><th>Condition no.</th><th>Requirement</th><th>Where addressed</th></tr>
<tr><td></td><td>Table 1: EMP Sub-plans
<table>
<tr><th></th><th>Required EMP Sub-plan</th><th>Relevant government agencies and stakeholders to be consulted for each EMP Sub-plan</th></tr>
<tr><td>(a)</td><td>Noise and Vibration</td><td>N/A</td></tr>
<tr><td>(b)</td><td>Soil and Water</td><td>DPE Water
Relevant Council</td></tr>
<tr><td>(c)</td><td>Biodiversity</td><td>BCS</td></tr>
<tr><td>(d)</td><td>Heritage</td><td>Heritage NSW
Heritage Council
Aboriginal stakeholders
NPWS</td></tr>
<tr><td>(e)</td><td>Traffic and Transport</td><td>TfNSW
Relevant Council</td></tr>
</table></td><td></td></tr>
<tr><td rowspan="8">B2</td><td colspan="2">The EMP Sub-plans must be prepared in accordance with relevant guidelines and in consultation with the relevant government agencies identified for each Sub-plan in Table 1, and include:</td><td>Section 1.5 addresses the preparation of this CEMP and CEMP sub-plans.</td></tr>
<tr><td colspan="2">a) a summary of relevant background or baseline data;</td><td>The relevant background/baseline data is provided within Section 3 of each of the CEMP sub-plans.</td></tr>
<tr><td colspan="2">b) details of:
(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</td><td>The relevant statutory requirements are addressed in Section 3 and Appendix A1 of this CEMP, and Section 2 of the CEMP sub-plans.</td></tr>
<tr><td colspan="2">(ii) any relevant limits or performance measures and criteria;
(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; and</td><td>Section 4.2 of this CEMP addresses the performance measures, criteria and performance indicators.</td></tr>
<tr><td colspan="2">(iv) any relevant commitments or recommendations identified in the EIS;</td><td>The relevant commitments or recommendations identified in the EIS are included within Section 3.3 of this CEMP and Section 2.3 of the relevant CEMP sub-plans.</td></tr>
<tr><td colspan="2">c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</td><td>The environmental measures that will be implemented are addressed within Section 5 or Section 6 of the relevant CEMP sub-plan.</td></tr>
<tr><td colspan="2">d) a program to monitor and report on the:
(i) impacts and environmental performance of the development (including a table summarising all the monitoring and reporting obligations under the conditions of this approval); and
(ii) effectiveness of the management measures set out pursuant to paragraph (c);</td><td>Tables summarising the monitoring and reporting requirements are provided in Section 9.2 and 10 of this CEMP.
Environmental inspections will be used to monitor the effectiveness of management measures. This is addressed in Section 9.1.</td></tr>
<tr><td colspan="2">e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</td><td>Unpredicted impacts are addressed in Section 12.
Unexpected finds procedures are also provided in the relevant CEMP sub-plans to address and manage unpredicted impacts.</td></tr>
</table>

Condition no.	Requirement	Where addressed
	f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Continuous improvement is addressed within Section 1.9 of this CEMP.
	g) a protocol for managing and reporting any: (i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion; (ii) complaint; or (iii) failure to comply with other statutory requirements;	Managing and reporting incidents is addressed in Section 8 of this CEMP. Non-compliances are addressed in Section 10.1 and 11 of this CEMP. Exceedance of any impact assessment criterion is addressed in Section 9.2. Exceedance of any performance criterion is addressed in Section 4.2. Managing and reporting complaints is addressed in Section 7.2 of this CEMP. Managing and reporting other statutory requirements is addressed in Section 10.1.3 of this CEMP.
	h) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	All public sources of information are available on the project's website (https://www.transgrid.com.au/projects-innovation/energyconnect) and detailed in Section 7.1.2.
	i) a protocol for periodic review of the EMP and EMP Sub-plans.	Periodic review of the CEMP and CEMP sub-plans is addressed in Section 1.10 of this CEMP.
	The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	Noted
D1	The Proponent must prepare an Environmental Management Strategy for the development to the satisfaction of the Planning Secretary. This strategy must:	The preparation of an Environmental Management Strategy has been addressed by the development of this Construction Environmental Management Plan. The requirements of condition D1 have been addressed in this plan, in the locations detailed below.
	a) provide the strategic framework for environmental management of the development;	The environmental management framework for the development is provided in Section 4. Figure 4.1 shows the environmental management system.
	b) identify the statutory approvals that apply to the development;	The statutory approvals and requirements are addressed in Section 3 and Appendix A1 of this CEMP and Section 2 of each of the CEMP sub-plans.
	c) set out the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development;	The roles, responsibilities, authorities and accountabilities of key personnel are detailed within Section 4.9 of this CEMP.
	d) set out the procedures that would be implemented to: (i) keep the local community and relevant agencies informed about the construction, operation and environmental performance of the development;	Communication with the local community and relevant agencies is addressed in Section 7 of this CEMP.

Condition no.	Requirement	Where addressed
	(ii) receive record, handle and respond to complaints; (iii) resolve any disputes that may arise during the course of the development;	Managing and reporting complaints and disputes is addressed in Section 7.2 of this CEMP.
	(iv) respond to any non-compliance and any incident;	The response to non-compliances is outlined in Section 10.1 and 11. The response to any incidents including managing and reporting is outlined in Section 8.
	(v) respond to emergencies; and	How emergencies will be responded to is provided within Section 8.1 of this CEMP.
	e) include: (i) references to any strategies, plans and programs approved under the conditions of this consent; and	Section 1.1 references the strategies, plans and programs approved under the Infrastructure Approval.
	(ii) a clear plan depicting all the monitoring to be carried out under the conditions of this consent.	All monitoring to be carried out is outlined in Section 9 of this CEMP and Section 6.3 of each CEMP sub-plan.
	The Proponent must not commence construction until the Environmental Management Strategy is approved by the Planning Secretary. The Proponent must implement the Environmental Management Strategy as approved by the Planning Secretary.	Construction will not commence until this CEMP and the CEMP sub-plans are approved. This is detailed in Section 1.7. Section 1.7 also commits to the implementation of this CEMP.

3.3 Revised mitigation measures

Environmental safeguards and mitigation measures are included in Section 23.1.4 of the EIS. During the preparation of the Submissions Report, the RMMs were amended and included in Appendix B.

There were no specific RMMs relevant to the preparation of this CEMP identified in the Submissions Report. RMMs relevant to a specific environmental aspect along with the proposed management measures are dealt with in the relevant CEMP sub-plan as described in Section 4.3.1.

There are several RMMs that are unassigned to a specific environmental management sub-plan or other project management plans. However these RMMs are applicable during the construction phase of the project and therefore are required to be included under the environmental management system. These RMMs are provided in Table 3.2 below. The management measures that will be implemented for the project in relation to these RMMs are provided in Appendix A5 of this CEMP.

Table 3.2 - RMMs that are unassigned to a specific environmental management sub-plan

Reference	Revised mitigation measure	Applicable locations (from RMMs)	Where addressed	How addressed
RMM LP1	Access tracks (temporary and permanent) would be confirmed in consultation with landholders to minimise impacts on agricultural activities to the greatest extent possible. Where permanent tracks are required, access tracks would be designed to serve both temporary and permanent purposes, where possible.	All locations	Appendix A5 of this CEMP	Impacts to agricultural activities due to access tracks would be minimised through consultation and design, where possible.
RMM LP3	To minimise disruption to agricultural activities:	All locations	Appendix A5 of this CEMP	Impacts to agricultural activities would be minimised through

Reference	Revised mitigation measure	Applicable locations (from RMMs)	Where addressed	How addressed
	• landholders would 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 would be necessary. Appropriate arrangements would be negotiated with the affected parties and documented in a Property Management Plan (or equivalent). Measures would be put in place prior to any such disruption. • property infrastructure (such as gates) would be managed in accordance with landholder requirements, (provided access is not limited or restricted) • any damage to property infrastructure caused by construction would be repaired promptly • use of existing roads, tracks and other existing disturbed areas would be prioritised. • where access is required across open spaces, care would 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.			consultation and managing property infrastructure (such as gates) in accordance with landholder requirements (providing access is not limited or restricted).
RMM LP4	Consultation would be undertaken with relevant landowners who utilise aerial farming operations to identify appropriate mitigation arrangements (where feasible) such as the installation of aerial warning markers on the transmission lines.	Transmission line	Appendix A5 of this CEMP	Consultation would be undertaken with relevant landowners who utilise aerial farming operations.
RMM LV3	Lighting at construction compounds and accommodation camps would be designed and operated in accordance with AS4282-2019 Control of the obtrusive effects of outdoor lighting.	Construction compound and accommodation camps	Appendix A5 of this CEMP	Lighting at the construction compounds and accommodation camps will be designed generally in accordance with AS482-2019.
RMM LV5	For residences where the project is predicted to have a high or very high visual impact, opportunities for screening vegetation would be investigated. Appropriate visual screening or other options would be confirmed in consultation with the affected landholder and implemented during construction. Vegetative	Transmission line	Appendix A5 of this CEMP	Opportunities for screening vegetation for affected private property landholders will be investigated.

Reference	Revised mitigation measure	Applicable locations (from RMMs)	Where addressed	How addressed
	screening would be maintained by the landholder.			
RMM HR1	The proposal would 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). The design would 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*.	All locations	Appendix A5 of this CEMP	The design requirements in relation to electric and magnetic field is outlined in MM3 of Appendix A5 of this CEMP and through design reports.

3.4 Standards and guidelines

The following standards relating to environmental management that apply to the project include:

- *ISO 14001 Environmental Management Systems – Requirements with Guidance for Use*; and
- NSW Department of Planning, Industry and Environment, 2020, *Independent Audit Post Approval Requirements*.

Compliance standards, policies and guidelines relevant to specific environmental values are detailed in the respective sub-plans. The requirements of these standards have been taken into account in the preparation of the CEMP and sub-plans and will be considered by SecureEnergy during the preparation of the Work Packs and Work Method Statements.

Any guideline, protocol, Australian Standard or policy reference in the Infrastructure Approval will be taken in the form/version they were in as at the date of the Infrastructure Approval. Updated or revised version of the relevant guideline, protocol, Standard or policy, or a replacement of the document will be considered when the Planning Secretary issues the direction to do so.

4 Environmental management system

The SecureEnergy Management System includes the Environmental Management System. It has been designed to comply with the requirements of *ISO 14001 Environmental Management Systems*.

The Health, Safety, Security and Environment Management Manual (HSSE Manual) describes the Environmental Management System for SecureEnergy. Table 4.1 summarises the Environmental Management System components.

Table 4.1 - Environmental Management System components

Management System Component	Description
HSSE Policy & HSSE Management Expectations	The policy sets the overall guidelines and direction to HSSE and represents the commitment of management to the achievement of its aims. The *HSSE Management Expectation* clearly defines minimum expectations to ensure that all SecureEnergy personnel and subcontractors understand their obligations and accountabilities to contribute to SecureEnergy HSSE culture.
HSSE Operating Standards	The HSSE Operating Standards set out the minimum mandatory performance requirements. Environmental minimum mandatory performance requirements are set out in the following HSSE related Operating Standards: • Environment Management Operating Standard; and • Major Accident Event Hazard Management Operating Standard.
HSSE Management Manual	Provides a framework for the HSSE component of the BMS, an overview of the key elements and reference documents.
HSSE Procedures, documents and registers (tools)	Procedures or work practices which provide the detailed steps to be taken to identify risks, work safely, protect the environment, investigate incidents and implement continuous improvement.
HSSE Management Plans – this CEMP and relevant sub-plans	Project specific plans prepared to identify and manage project HSSE risks and achieve the Operating Standards performance requirements.
Project/Site Specific Procedures, Work Instructions	Project and activity specific procedures, risk assessments and work methods to mitigate HSSE hazards. These are prepared by project personnel.

The structure of the environmental management system for the project is shown in Figure 4.1.

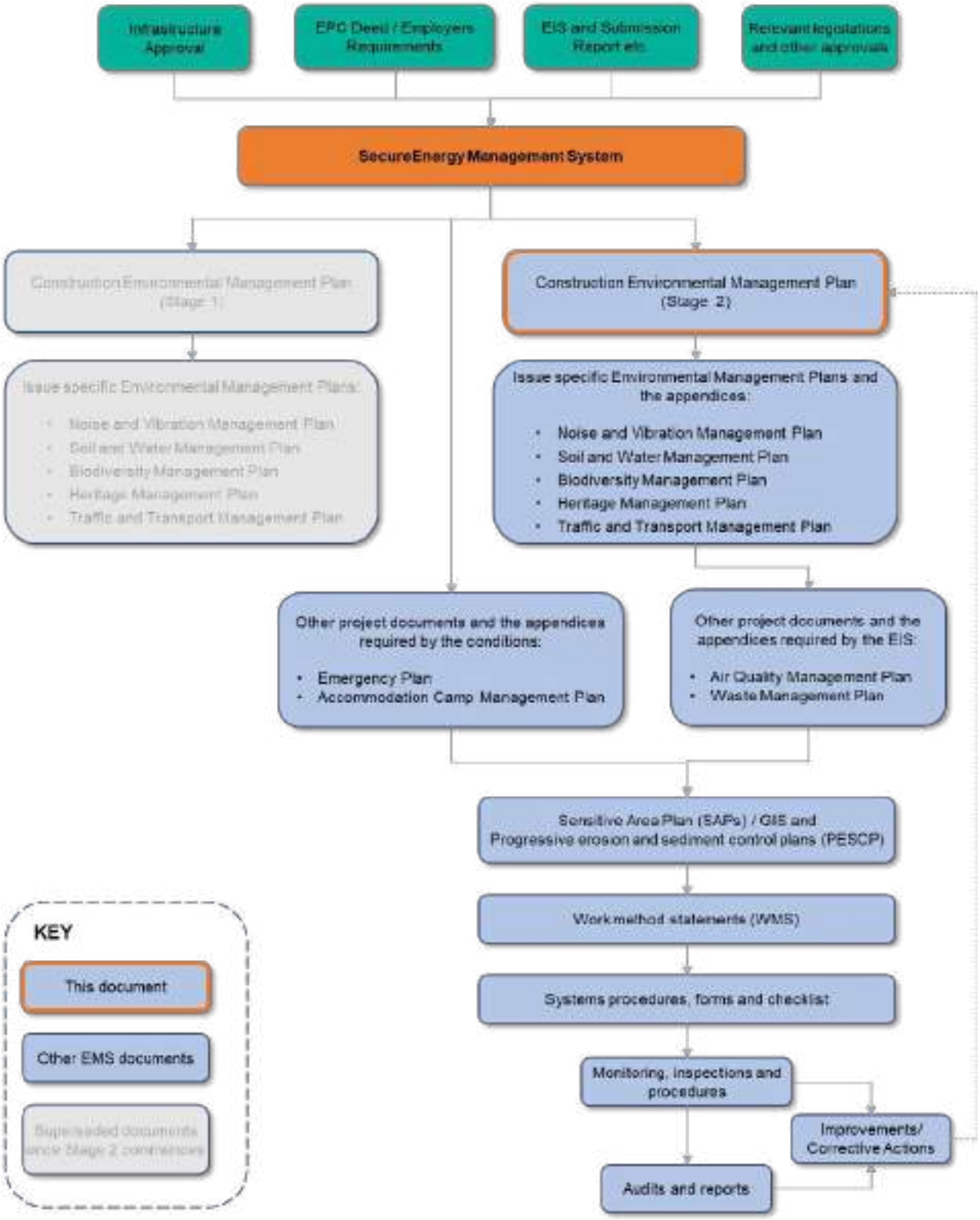


Figure 4.1 - Environmental Management System

4.1 Environment policy

SecureEnergy believes that respect for the project location, its surroundings and the communities in which it operates is essential for project success, as well as compliance with all environmental requirements.

SecureEnergy will adopt and use the existing Clough Management Systems. As a result, SecureEnergy will adopt Clough Policies that inform these systems as amended from time to time. SecureEnergy's Policy Model is provided in Appendix A2 along with Clough's Policy for Environment, Sustainability and Community which will be implemented on EnergyConnect.

Policies will be clearly displayed at SecureEnergy main site office facilities and regularly communicated to staff, employees and subcontractors during inductions and toolbox talks.

4.2 Objectives and targets

As a means of assessing environmental performance, environmental objectives (performance measures), targets (criteria) and performance indicators have been established for the project and are provided in Table 4.2. These objectives and targets have been developed in consideration of requirements in the statutory approvals, contractual requirements, legislative requirements, HSSE performance requirements and significant environmental aspects and impacts.

Exceedances of the proposed targets will be investigated and reported based on the issue. Any exceedances which result in a non-compliance with the Infrastructure Approval will be reported in accordance with Section 10.1.

Table 4.2 - Environmental objectives, targets and performance indicators

Aspects	Objectives (performance measures)	Targets (criteria)	Performance indicators
Compliance	Compliance with Statutory Approvals and Infrastructure Approval	• Full compliance with statutory approvals. • No regulatory infringements (PINs or prosecutions). • No formal regulatory warning.	Number of regulatory infringements (PINs or prosecutions), formal regulatory warning, audits.
	Implement and comply with the CEMP and associated management plans	• Zero non-compliances identified during each compliance audit of CEMP and sub-plans.	Number of non-compliances arising from each audit.
	Address all corrective and preventative actions arising from audits	• All corrective and preventative actions arising from audits closed out within specific timeframes.	Action close-out timing statistics in corrective and preventative action close-out reports.
Incident management and response	Ensure timely communication of incidents Minimise the risk of an incident by identifying risks and developing actions to minimise those risks	• All incidents reported in accordance with this management plan. • Risks reviewed in accordance with the SecureEnergy management system.	Follow up action of incidents as recorded in incident reports.
Engage with stakeholders and the broader community, minimise complaints and respond to any complaints within a suitable timeframe	Disseminate regular project updates and other information to keep the community informed of the project, particularly out of hours works. Record and respond to complaints, including noise and vibration complaints, within a timely manner.	• All project updates provided within the timeframes specific within the *Community Communication Strategy*. • All complaints are review within the timeframes specific within the *Community Communication Strategy*.	Timeliness of project updates per project website; and timeliness of complaints response as recorded on complaints register.
Training and improvement	Provide adequate training to ensure construction activities are undertaken safely and with minimal risk to the environment. Continuously improve environmental performance	• Regular environmental training that focuses on the specific project activities and associated environmental risks. • Regular pre-start meetings and toolbox talks in accordance with Section 6.	Records of induction, toolbox talks with environmental focus, daily pre-start meetings.

Aspects	Objectives (performance measures)	Targets (criteria)	Performance indicators
Inspections and audits	Completion of weekly inspections and audits	• 100% completion of scheduled audits and weekly inspections.	Environmental inspections, audits.
Traffic	Provide a safe environment for road users	• No death or injury to workers and the public as a result of traffic incidents	• Number of incidents recorded relating to traffic
Traffic	Minimise complaints due to traffic, transport and access from community	• Implementation of the management measures in this plan • Respond to traffic related complaints in a timely manner, as outlined in the Community Communication Strategy	• Follow up action of incidents as recorded in incident reports • Follow up action of complaints as recorded in Consultation Manager
Biodiversity	Minimise and manage the impacts of the project on biodiversity.	• No exceedance to clearing values of known biodiversity including flora and fauna species as specified in condition C23 a). • Minimise the risk of injury and mortality of fauna. • Clearing and management of Plains-wanderer habitat to occur in accordance with the Plains-wanderer Protocol. • Bespoke construction methodology to be applied within the special biodiversity protection zones. • Installation of nest boxes in a timely manner.	• Clearing limits to be within those set in Appendix 2 of the Infrastructure Approval and Section 5.3.1 of this BMP. • Zero fauna injured as a result of procedures not being adhered to. • Compliance with the requirements of the Plains-wanderer Protocol in Appendix F of the BMP. • Compliance with the requirements of the Pre-clearing and Clearing Procedure in Appendix G of the BMP, for the special biodiversity protection zones. • Where possible nest box installation will commence prior to clearing in a particular location.
Biodiversity	Rehabilitate and restore disturbance areas to its pre-existing condition at tower pads, laydowns and brake and winch sites	• All temporary infrastructure is removed. • Topsoil reinstated. • Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration. • All rubbish and waste materials are removed.	• Temporary infrastructure removed. • Topsoil has been reinstated on the previously disturbed areas. • Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm). • No visible rubbish or waste.
Biodiversity	Rehabilitate and restore disturbance areas to its pre-existing condition at access tracks and access points	• Operational requirements for access, and consultation with landowner, confirms final land use. • Where access track/point is restored, all infrastructure	• Transgrid and/or landowner confirmation of final land use of the access track/point. • Where access track/point is restored,

Aspects	Objectives (performance measures)	Targets (criteria)	Performance indicators
		required to be removed has been removed. • Where access track/point is restored, topsoil is reinstated.	infrastructure is removed. • Where access track/point is restored, topsoil has been reinstated.
Biodiversity	Rehabilitate the ancillary facilities, accommodation camps and the earthworks material site in accordance with the following objectives: • Ancillary facilities: - safe, stable and non-polluting; - progressively rehabilitate the site as soon as possible following disturbance; - to be decommissioned and removed, unless the Planning Secretary agrees otherwise; • Land use: - restore land capability to pre-existing use; • Community: - ensure public safety at all times.	• Progressive erosion and sediment control plan prepared and implemented • Controls that relate to rehabilitation are implemented in accordance with the Progressive Erosion and Sediment Control Plans (PESCPs). • Topsoil reinstated. • Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration. • No significant erosion is present that would compromise the establishment of vegetation. • Commence decommissioning and/or rehabilitation within 1-2 months of completion of use of the site, unless the Planning Secretary agrees otherwise. • Redundant services including power are disconnected. • All temporary infrastructure is removed including accommodation facilities and temporary buildings. • Temporary construction fencing removed. • Final land use agreed with landowner. • Implementation of the Health and Safety Plan during all decommissioning and rehabilitation works.	• Erosion controls have been implemented. No further sediment controls are required as appropriate cover has been achieved. • Topsoil has been reinstated on the previously disturbed areas. • Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm). • Controls that relate to rehabilitation are implemented in accordance with the Progressive Erosion and Sediment Control Plans (PESCPs). • Services are no longer connected. • Temporary infrastructure removed. • Agreement is to be obtained from the Planning Secretary if removal is not proposed. • Temporary construction fencing removed. • Landowner confirmation of final land use of the access track/point. • Public access to the site is not provided until it is considered safe to do so.
Heritage	Minimise and manage the impacts of the project on Aboriginal objects and non-Aboriginal heritage items within the approved project corridor.	• No unlawful harm to known Aboriginal and known non-Aboriginal heritage.	• Number of incidents involving harm to known Aboriginal heritage objects or known non-Aboriginal heritage items.
Soil and Water	Minimise erosion and sedimentation	• Implementation of controls in accordance with the PESCPs.	Environmental inspections, audits.
	Ensure that the project does not cause water pollution as defined in section 120 of the POEO Act	• 100% completion of scheduled inspections. • 100% compliance with the Dewatering Procedure.	Environmental inspections, audits.

4.3 Construction Environmental Management Plan

This CEMP, as shown in Figure 4.1 is the overarching management tool in relation to environmental performance during project delivery. This CEMP describes the construction environmental management framework for the project and the system for minimising and managing environmental risks.

Once approved by the Planning Secretary, this CEMP and the relevant Stage 2 sub-plans will supersede the existing Stage 1 CEMP and sub-plans.

The CEMP details the management plans which have been, or will be, prepared to address specific environmental aspects of the project, and outlines the environmental management practices that are to be followed during construction. It provides the overall framework for the system to ensure environmental impacts are minimised and legislative and other requirements are fulfilled.

4.3.1 Environmental management sub-plans

A number of specific environmental management sub-plans (CEMP sub-plans) have been prepared to support the CEMP, as outlined in Figure 4.2. Table 4.3 lists the CEMP sub-plans that are required under condition B1 of the Infrastructure Approval. The sub-plans document the environmental aspects, impacts and management measures for each key environmental value. The CEMP sub-plans are provided in Appendix B.

Following approval of the relevant Stage 2 CEMP and sub-plans, the Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP sub-plans.

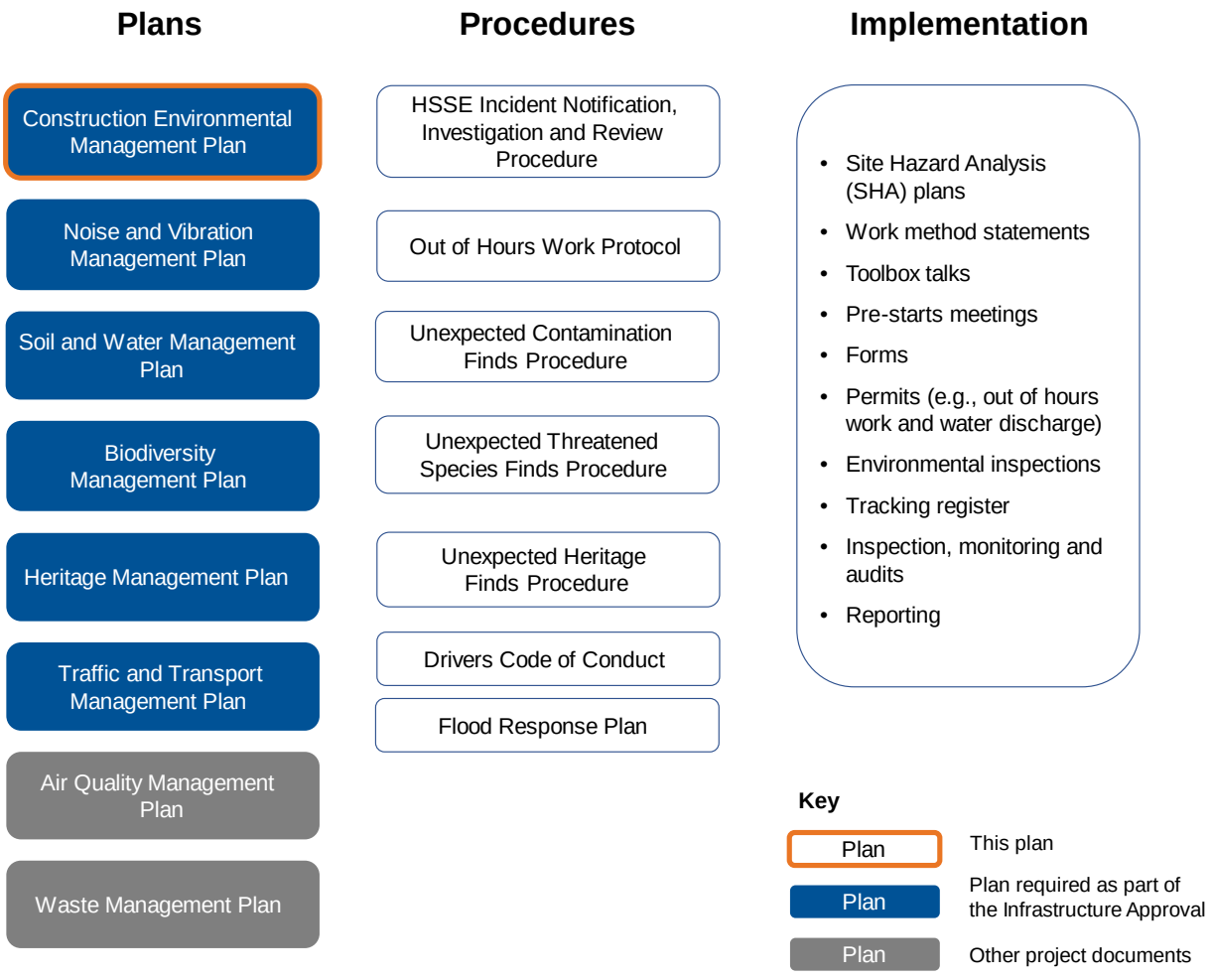


Figure 4.2 - CEMP framework

Table 4.3 - Environmental management plans

Document name	Condition	Stage 1	Stage 2	Stage 2 document number	Location
Construction Environmental Management Plan	B1 and D1	Superseded by Stage 2 document	Yes	45860-HSE-PL-D-0114	This plan
Heritage Management Plan (HMP)	C30	Superseded by Stage 2 document	Yes	45860-HSE-PL-D-0119	Appendix B5 HMP
Biodiversity Management Plan (BMP)	C26	Superseded by Stage 2 document	Yes	45860-HSE-PL-D-0117	Appendix B3 BMP
Traffic and Transport Management Plan (TTMP)	C35	Superseded by Stage 2 document	Yes	45860-HSE-PL-D-0115	Appendix B1 TTMP
Noise and Vibration Management Plan (NVMP)	C10	Superseded by Stage 2 document	Yes	45860-HSE-PL-D-0116	Appendix B2 NVMP
Soil and Water Management Plan (SWMP)	C22	Superseded by Stage 2 document	Yes	45860-HSE-PL-D-0118	Appendix B4 SWMP

4.3.2 Other approval documents

Other documents that are required by the Infrastructure Approval are provided in Table 4.4.

Table 4.4 - Other documents

Document name	Condition	Document Number
Community Communication Strategy	A22	45860-HSE-DOC-D-0024
Out-of-Hours Work Protocol	C10	45860-HSE-PR-D-0011
Emergency Plan	C45	45860-HSE-PL-D-0129
Accommodation Camp Management Plan - Lockhart	C50	45860-HSE-PL-D-0124
Accommodation Camp Management Plan - Dinawan	C50	45860-HSE-PL-D-0125
Accommodation Camp Management Plan - Cobbs Hwy	C50	45860-HSE-PL-D-0126
Accommodation Camp Management Plan - Buronga	C50	45860-HSE-PL-G-1027
Local Business and Employment Strategy	C51	45860-CM-PL-G-1004

4.4 Work Packs and Work Method Statements

Work Packs describe construction implementation in detail. The preparation of Work Packs involves a comprehensive review of the requirements of many aspects of project delivery, including design, construction, environment and health and safety. Work Packs provide specific instruction on how to construct and undertake certain elements of the project. As required, Work Packs will incorporate procedures relevant to site-specific activities, to reduce risk and ensure ongoing environmental compliance. These measures are based on relevant measures in the CEMP and sub-plans.

Work Method Statements (WMSs) are developed as part of the preparation of every Work Pack. WMSs set out the construction methodology for a particular activity or set of activities, specific to the project and incorporate work-specific environmental hazard assessments. WMSs are the document tools to transform the relevant management measures in the CEMP and sub-plans into actions to be implemented during the undertaking of project activities. The WMSs will ensure that location and activity-specific environmental features and risks (e.g. potential disturbance to threatened species habitat during clearing) are managed.

WMSs are typically prepared and reviewed by the construction team in consultation with the environmental team. The relevant environmental controls and management measures are incorporated into the WMS. The following are examples of high risk activities where a WMS will be prepared:

- works in or near environmentally sensitive areas;
- clearing and grubbing;
- sediment basin construction and management; and
- dewatering activities.

The site personnel and sub-contractors involved in the relevant activities will be briefed on the requirements in the WMS, with a toolbox talk or specific WMS briefing held prior to the commencement of the works (refer to Section 6 for further details). All construction personnel and sub-contractors undertaking tasks governed by the Work Packs and WMSs must acknowledge that they have read and understood their obligations prior to commencing work.

4.5 Sensitive area plans

Sensitive area plans (SAPs) will be prepared to support the identification and appropriate management of key environmental features associated with the project. An initial risk assessment for the site will be undertaken by the Environmental Team. Where the risk is identified as being moderate or above (i.e. locations where sensitive areas are located adjacent to the work area), a SAP will be developed and reviewed by the environmental team. The SAPs will identify areas/features of environmental and heritage sensitivity and 'no-go' zones, to help identify key risk areas, and promote ongoing communication to construction personnel.

Sensitive area plans include information pertaining, but not limited to:

- flora features, including threatened species and endangered ecological communities;
- Aboriginal and non-Aboriginal heritage sites;
- watercourses;
- known fauna habitat to be protected (i.e. hollow bearing trees);
- areas of vegetation to be retained;
- clearing limit boundary; and
- any designated no-go zones.

4.6 Progressive erosion and sediment control plans

Progressive erosion and sediment control plans (PESCPs) will be developed in accordance with the principles outlined in the erosion and sediment control strategy provided in the *Soil and Water Management Plan* (45860-HSE-PL-D-0021). The PESCPs will show the site layout and approximate location of erosion and sediment control structures on site. PESCPs will be updated as required a sites and associated erosion and sediment control requirements change.

A Certified Professional in Erosion and Sediment Control will prepare an initial Erosion and Sediment Control Plan for the project. Environmental staff will then typically develop the PESCPs in consultation with Project Engineers, Superintendents and Supervisors. This will ensure that erosion and sediment control management is incorporated into the planning stage of construction activities and is coordinated in its approach.

The Environmental Manager will approve PESCPs in the first instance. Minor changes thereafter will be approved by environment staff in consultation with the Environmental Manager, as required.

PESCPs are designed for use as a practical guide and may be produced in conjunction with the SAP and/or Work Packs/WMSs. For further details regarding soil and water management refer to the *Soil and Water Management Plan* (45860-HSE-PL-D-0021).

4.7 Procedures, forms and other documents

Other documents such as project-specific procedures and strategies have been developed. These are provided in Table 4.5 below.

Table 4.5 - Procedures, forms and other documents

Document name	Document Number	Location
Unexpected Heritage Finds Procedure	45860-HSE-PR-D-0013	Appendix A of the HMP
Pre-clearing and Clearing Procedure (Stage 2)	45860-HSE-PR-D-0027	Appendix A of the BMP
Unexpected Threatened Species Finds Procedure	45860-HSE-PR-D-0012	Appendix B of the BMP
Fauna Handling Procedure	45860-HSE-PR-D-0020	Appendix C of the BMP
Biosecurity Management Plan	45860-HSE-PL-D-0127	Appendix D of the BMP
Plains-wanderer Protocol	45860-HSE-PL-D-0135	Appendix F of the BMP
Connectivity Strategy	45860-HSE-DOC-D-0022	Appendix G of the BMP
Supplementary Hollow and Nest Strategy	45860-HSE-DOC-D-0021	Appendix H of the BMP
Erosion and Sediment Control Strategy	45860-HSE-PR-D-0016	Appendix A of the SWMP
Unexpected Contamination Finds Procedure	45860-HSE-PR-D-0014	Appendix B of the SWQMP
Spill Response Procedure	45860-HSE-PR-D-0017	Appendix C of the SWMP
Dewatering Procedure	45860-HSE-PR-D-0018	Appendix D of the SWMP
Out-Of-Hours-Work Protocol	45860-HSE-PR-D-0011	Appendix A of the NVMP
Drivers Code of Conduct	45860-HSE-PR-D-0019	Appendix A of the TTMP
Flood Response Plan (Stage 2)	45860-HSE-PL-D-0123	Appendix B of the TTMP
Air Quality Management Plan	45860-HSE-PL-D-0120	Part of EMS
Waste Management Plan	45860-HSE-PL-D-0121	Part of EMS

4.8 Document control and records

All project documents are to be numbered, approved, revised, transmitted, and stored in accordance with the *Project Document Control Plan* (45860-IM-PL-G-0003).

Records will be developed and maintained by SecureEnergy including:

- training records;
- incident reports;
- audit and inspection forms;
- monitoring results; and
- waste register including all waste tracking, volume of waste to landfill, waste recycled, waste disposed of offsite and licensed receiver dockets.

4.9 Roles and responsibilities

4.9.1 Organisational structure

For illustrative purposes, Figure 4.3 is provided as a simplified figure to represent SecureEnergy's organisation structure.

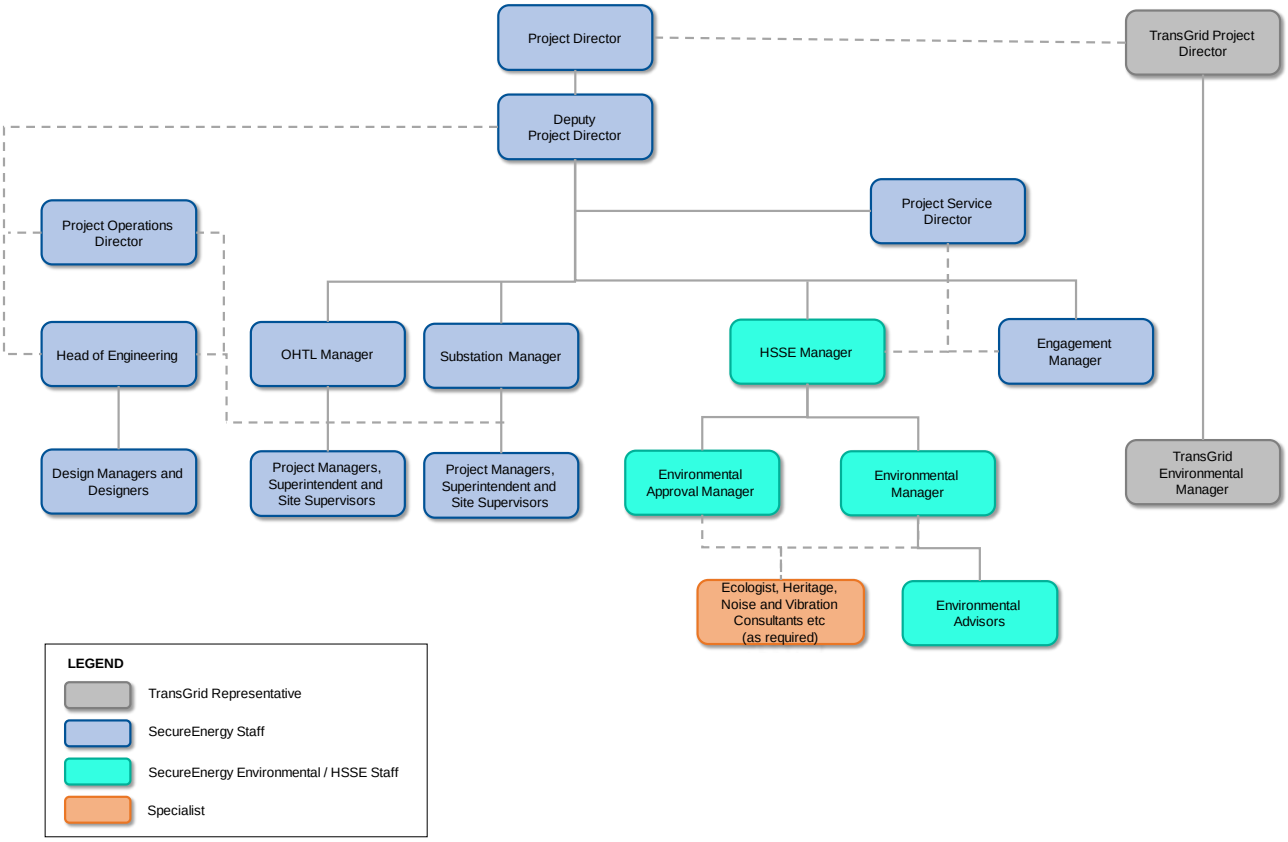


Figure 4.3 - Key roles within the organisation structure

SecureEnergy's Project Director, in consultation with functional managers, will ensure that appropriate resources are available to effectively manage the implementation of the CEMP during delivery of the project.

All SecureEnergy staff, subcontractors and visitors are required to operate in accordance with this CEMP and related environmental management plans during construction.

The project environmental management structure incorporates the following site personnel:

- Environmental Manager responsible for overall management of the CEMP and environmental management plans; and
- Environmental Advisors to assist in implementing and monitoring measures in the CEMP and environmental management plans.

4.9.2 Roles and responsibilities

Further detail regarding the roles and responsibilities is provided within Table 4.6.

Table 4.6 - Environmental roles and responsibilities

Role	Responsibilities
Appointed Roles	
Environmental Representative	**Authority** • Appointed by the Planning Secretary in accordance with condition A9 of the Infrastructure Approval, no later than one week before commencing the development in accordance with condition A10.

Role	Responsibilities
	Responsibility
	The responsibilities of the Environmental Representative (ER) include: • review the documents identified in Infrastructure Approval and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements under the Infrastructure Approval; • assist the Department in the resolution of community complaints as requested by the Planning Secretary; • consider and approve any minor amendments made to the plans that involve updating or are of an administrative nature and do not increase impacts to nearby sensitive receivers, and ensure they are consistent with the terms of this approval and other documents approved by the Planning Secretary; and • receive all documentation requested by the ER in accordance with condition A13, as well as the complaints register for any complaints received (on the day they are received). Note the ER will be a suitably qualified and experienced person, approved by the Planning Secretary no later than one week before project commencement. The ER must not have been not involved in the preparation of the EIS documents, and is independent from the design and construction of the development.
	Accountability
	• Meet the requirements set out in conditions A11 and A12 of the Infrastructure Approval.
Transgrid	
Transgrid Project Director	**Authority**
	• Appointed by Transgrid. • Directly manages the Transgrid Project Management Team.
	Responsibility
	The environmental responsibilities of the Transgrid Project Director include: • monitor the environmental performance of the project in relation to Transgrid requirements; • liaise with relevant stakeholders; and • attend project meetings.
	Accountability
	• Delivering the project relevant to the requirements of Transgrid.
Transgrid Environmental Manager	**Authority**
	• Management and direction of the Transgrid Environment Team.
	Responsibility
	The responsibilities of the Transgrid Environmental Manager include: • liaise between SecureEnergy and stakeholders (including government agencies) as required; • undertake periodic inspections of the project sites to identify environmental non-compliances; • review changes to the project that are consistent with the project environmental assessment and approval documentation; • provide guidance and where appropriate, monitor compliance with the Department post approval document submission requirements; • review environmental management plans and related documents prepared for the project; and • monitor the environmental performance of the project in relation to Transgrid requirements and Department post-approval document submission requirements.
	Accountability
	• Delivery of the environmental requirements of the project relevant to Transgrid.

Role	Responsibilities
SecureEnergy	
Project Director	**Authority**
	• Appointed by SecureEnergy. • Directly manages the Deputy Project Director.
	Responsibility
	The environmental responsibilities of the Project Director include: • overall delivery of the project program; • manage all key aspects of project performance, including environmental performance; • ensure project practices and on-site activities are conducted in accordance with project policies and procedures; • direct activities to ensure resource needs are accurately forecasted and linked to the project, including the identification of skill and behaviour requirements; • ensure personnel delegated responsibility for environmental management are adequately trained and competent to implement the requirements of the CEMP; • ensure resources are available to enable execution of project environmental management activities and project emergency response systems; • drive the creation of systems, practices and behaviours that promote the identification and appropriate management of potential risks and opportunities; • approve all management plans prior to their implementation; and • attend and participate in environmental meetings as appropriate.
	Accountability
	• Delivering the project relevant to the requirements of SecureEnergy.
Deputy Project Director	**Authority**
	• Appointed by SecureEnergy. • Directly manages key personnel in the Project Management Team.
	Responsibility
	The environmental responsibilities of the Deputy Project Director include: • support the overall delivery of the project program; • manage key aspects of project performance, including environmental performance; • ensure project practices and on-site activities are conducted in accordance with project policies and procedures; • ensure personnel delegated responsibility for environmental management are adequately trained and competent to implement the requirements of the CEMP; • direct activities to ensure resource needs are accurately forecasted and linked to the project, including the identification of skill and behaviour requirements; • ensure resources are available to enable execution of project environmental management activities and project emergency response systems; • ensure resources are available to eliminate or minimise environmental hazards; • participate in incident investigations and review all incident reports as appropriate; • ensure all management plans are fully developed and implemented; and • attend and participate in environmental meetings as appropriate.
	Accountability
	• Delivering the project relevant to the requirements of SecureEnergy.
Project Operations Director	**Authority**
	• Management and direction of the construction team, including Supervisors.
	Responsibility
	The environmental responsibilities of the Construction Manager include: • delivery of the construction aspects of the project; • ensure resources are available to eliminate or minimise environmental hazards;

Role	Responsibilities
	• ensure subcontractors understands their environmental responsibilities as required in the Contract; • participate in incident investigations and review all incident reports; • arrange and participate in HAZID workshops; • participate in workplace inspections and audits; • attend and participate in environmental meetings as appropriate; • review work planning requirements; • provide construction and field management and supervisors with environmental information current to their requirements; • interface with client environmental personnel during their site visits (as required); and • provide project line management with feedback on environmental performance.
	Accountability
	• Delivery of the construction aspects of the project.
Health, Safety, Sustainability & Environment Manager	**Authority**
	• Management and direction of the Health Safety, Sustainability and Environment Team.
	Responsibility
	The responsibilities of the Health, Safety, Sustainability and Environment Manager include: • deliver the HSSE aspects of the project in accordance with contract and legislative requirements; • communicate the HSSE requirements to the project Management and HSSE Teams; • review HSSE standards and plans developed for each project to ensure that legislative requirements are met; • review overall HSSE performance and report to the project Management and Corporate HSSE Manager; • interface with major subcontractors and Transgrid management, and with HSSE personnel as required regarding HSSE matters; • coordinate third party certification audits; • specify resources to enable execution of HSSE activities on-site; • arrange for and participate in HAZID workshops; • provide HSSE Advisors, project line management and subcontractor with feedback on HSSE performance; • participate in the Target Zero commitment workshop; • implement and coordinate Target Zero activities and strategies; • receive and circulate relevant HSSE information; • participate in scheduled HSSE audits and reviews; • statistical analysis and incident trend reviews; • attend and participate in HSSE meetings as required; • coordinate and participate in workplace inspections; and • record, monitor and follow up close out of action items in InControl.
	Accountability
	• Delivering the HSSE aspects of the project relevant to the requirements of SecureEnergy. • Communication of HSSE requirements to the project management and HSSE Teams.
Environmental Approvals Manager	**Authority**
	• Management and direction of the Environment Approvals Team.
	Responsibility
	The responsibilities of the Environmental Approvals Manager include: • assist in communicating the environmental approval requirements to project personnel; • communicate and liaise with Transgrid in relation to approval documents and matters; • develop and review the CEMP and SecureEnergy management plans; • review, and where required, revise environmental management documents;

Role	Responsibilities
	• review proposed project changes and where required, prepare consistency assessments. Where consistency assessments are required Transgrid's Environmental Manager will be informed; • develop training and induction content, where required; • organise and participate in meetings as required; and • specify the resources required to develop environmental approval documents. The role of the Environmental Approvals Manager will be phased out depending on SecureEnergy's requirements and the stage of the project.
	Accountability
	• Implementation and delivery of the environmental approval requirements of the project • Communication of environmental approval requirements to the project management and Environmental Teams.
Environmental Manager	**Authority**
	• Management and direction of the Environment Team.
	Responsibility
	The responsibilities of the Environmental Manager include: • implement and deliver the environmental requirements of the project; • communicate the environmental requirements to project personnel; • communicate and liaise with Transgrid in relation environmental performance and compliance matters; • implement the CEMP and SecureEnergy management plans; • monitor and report compliance of the works in relation to the approved documents; • review, and where required, revise environmental management documents; • review proposed changes to design and construction methodologies and where required, communicate them to the Environmental Approvals Manager to determine if consistency assessments are required; • specify the resources required to enable execution of environmental activities on site; • arrange for and participate in HAZID workshops; • provide environmental coordinators, project line management, and SecureEnergy with feedback on environmental performance; • participate in the Target Zero commitment workshop; • coordinate and participate in scheduled environmental audits and reviews; • undertake statistical analysis and environmental incident trend reviews; • develop training and induction content; • promote environmental management improvements initiatives; • organise and participate in environmental meetings as required; • coordinate and participate in workplace inspections; • record, monitor and follow up close out of action items in InControl; • provide leadership in the implementation of all environmental initiatives; and • specify the resources required to enable execution of environmental activities.
	Accountability
	• Implementation and delivery of the environmental requirements of the project. • Communication of environmental requirements to the project management and Environmental Team.
Environmental Advisors	**Authority**
	• Advise of environmental assignments or actions which are required to occur.
	Responsibility
	The responsibilities of the Environmental Advisor include: • communicate the environmental requirements to project personnel including Superintendents and Supervisors;

Role	Responsibilities
	• being accountable for ongoing development and implementation of project environmental activities and practices; • record, monitor and follow up close out of action items; • develop and update environmental management documents; • ensure corrective actions are implemented; • participate in Target Zero workshops; • comply with statutory requirements; • liaise with supervisors on relevant environmental issues; • organise and participate in environmental meetings; • report and investigate all environment incidents in the area of control; • review and close out environmental incident reports; • deliver the environmental component of training and induction such as site induction, toolbox talks and pre-start meetings; • provide support and direction to all supervisors through positive discussions on environmental initiatives; • conduct weekly workplace inspections; • monitor high environmental risk activities and the commencement of activities in new areas or areas with significant environmental sensitivities; • report all incidents and hazards to management; and • monitor the use and maintenance of spill kits at all work sites.
	Accountability
	• Communication of environmental requirements to project personnel including Superintendents and Supervisors. • Being accountable for ongoing development and implementation of project environmental activities and practices.
Supervisors	**Authority**
	• Direct works undertaken by project personnel.
	Responsibility
	The environmental responsibilities of the Supervisors include: • plan for and incorporating environmental management into all work plans and activities; • ensure that instructions are issued and adequate information provided to field-based employees which relate to environmental risks on-site; • participate in HAZID workshops and audits; • motivate employees to report all environmental incidents; • participate in Target Zero workshops; • conduct inspections of their work area per the Audit and Inspection Schedule; • plan and incorporate environmental management into all work plans and activities; • open and maintain external communication during emergencies; • report all incidents and hazards to management; • comply with statutory requirements; • participate in any relevant environmental training; • deliver the environmental component of training and induction such as toolbox talks and pre-start meetings; • provide suggestions to improve environmental management on the project; and • participate in site environmental meetings as required.
	Accountability
	• Direct works undertaken by project personnel.
All personnel, including subcontractors	**Authority**
	• Undertaking works in accordance with the CEMP and management plans.

Role	Responsibilities
	Responsibility
	The environmental responsibilities of all personnel include: • undertake works in accordance with the Clough's Management System and management plans; • follow directions from senior staff and project environmental personnel in relation to environmental matters; • follow the instructions in the WMS in relation to environmental matters; • participate in any relevant environmental training; • report any near miss or environmental incidents to their Supervisors; and • provide suggestions to improve environmental management on the project.
	Accountability
	• Works undertaken at the direction of their relevant supervisor.

4.9.3 Other environmental resources

Specialist consultants and subcontractors will be engaged for environmental support roles, as required, such as:

- ecologists for pre-clearing survey and assessment including tree hollows, identification of exclusion zones for retained threatened flora populations. Ecologist or fauna spotter/handler for on-site fauna rescue and translocation during clearing activities;
- noise and vibration specialists for noise modelling, and ongoing advice throughout construction;
- heritage consultants for review of the Heritage Management Plans and archaeological assessment, survey, test excavations, salvage and reporting where required; and
- other resources as required during the course of the project.

4.9.4 Subcontractors and suppliers

All subcontractors will work in accordance with this CEMP, sub-plans and relevant procedures. Subcontractors are required to carry out their work in accordance with contract instructions and in an environmentally sound manner.

Subcontractors will not normally be required to prepare and implement a separate Environmental Management Plan in addition to this CEMP, except where the risk of environmental harm from the subcontractor's activities is assessed as significant or the subcontractor has control of a specific project area. SecureEnergy will ensure that any separate Environmental Management Plans are consistent with this CEMP, the relevant conditions of approval and legislative requirements.

All subcontractor personnel are required to attend a project induction, which includes an environment and sustainability component and task-specific training (if relevant) before they commence any work on site. The Environmental Manager, or delegate, will confirm and implement requirements for effective subcontractor control based on known project risks and demonstrated subcontractor performance.

All suppliers will be required to comply with any relevant requirements of this CEMP and associated sub-plans, including sustainability requirements.

The Environmental Manager will confirm and implement actions to ensure suppliers and subcontractors are aware of the requirements within the CEMP that are relevant. This will occur during the procurement phase including final subcontractor and supplier assessment and selection and then carried through into the construction phase.

5 Environmental risk management

5.1 Risk and hazard management

Hazard and risk management approach will be used to determine the potential severity and likelihood of an activity's impact on the environment and to prioritise its significance.

Risk identification, assessment and management is part of the Clough Management System and will be undertaken in accordance with procedure *CORP-HSE-PR-G-0072 HSSE, Risk Management Procedure*. The procedure is consistent with *AS/NZS ISO 31000:2009 Australian Standard Risk Management*.

Over the life of the project, risks will be identified, assessed and controlled through the use of a number of different risk management tools, primarily risk assessments.

The objectives of undertaking risk assessments are to:

- identify activities, events or outcomes that have the potential to adversely affect the local environment and/or human health/property;
- assess hazards and risks and prioritised them using a consistent process aligned to Clough risk management principles;
- determine appropriate control measures;
- assess whether risk issues can be managed by the implementation of environmental management measures; and
- qualitatively evaluate residual risk with implementation of the protection measures.

Following identification and assessment the resultant control measures will be communicated, implemented and monitored to confirm their effectiveness. WMSs and Work Packs will be updated to provide specific instructions on how to conduct components of the construction. These will include the relevant environmental controls to be implemented which are identified through the risk assessment process.

Sensitive area plans will be used in conjunction with WMSs or Work Packs to help identify key risk areas and to promote ongoing communication to construction personnel during the project.

A summary of the Clough risk management processes, their purpose, the methodologies used and the stage in the project lifecycle to which they apply is provided in Table 5.1 and diagrammatically in Figure 5.1.

Table 5.1 - Project HSSE Risk Assessment Processes

Risk Assessment Process	Description	Methodology	Application						Reference Procedures	
			Corporate	Business Division	New Opportunity	Project Planning	Project Execution	Project Close-out		
Technical HSSE Assessments										
Design risks	Identify, assess and document inherent design risks	HAZID, HAZOP, FMEA			✓	✓		✓	Safety in Design Procedure	CORP-ENG-PR-G-0016
Design reviews - construction, operation, maintenance	Identify, assess and mitigation of HSSE hazards introduced by the design when facility being	HAZID, HAZOP			✓	✓			Safety in Design Procedure	CORP-ENG-PR-G-0016

Risk Assessment Process	Description	Methodology	Application						Reference Procedures	
			Corporate	Business Division	New Opportunity	Project Planning	Project Execution	Project Close-out		
	constructed, operated or maintained									
Fire & Explosion analysis	Identify, assess and control potential sources of fire & explosion, and consequence mitigation through design	Fire and Explosion Study			✓	✓			Safety in Design Procedure	CORP-ENG-PR-G-0016
Threat Specific HSSE Hazard Assessment (where applicable to project)										
Environmental/ Social Impact Assessment	Identify, assess and mitigate environment and community impacts	EIA, HAZID, Social Impact Study	✓	✓		✓			HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Natural Disasters Assessment (Emergency Events)	Identify, assess and mitigate potential natural disaster events which may affect the site (e.g. cyclone, wild fire, tsunami)	HAZID	✓	✓		✓			HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Task Based HSSE Hazard Assessment										
Project HSSE Assessment	Identify, assess and control potential HSSE impacts specific to the project & Site	HAZID				✓		✓	HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Construction Package HSSE Assessment	Identify, assess and control potential HSSE impacts specific to the Construction package	HAZID				✓	✓	✓	HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Subcontractor HSSE Assessment	Assess the HSSE capability of subcontractors to inform management strategy Identify, assess and control potential HSSE impacts of contract scope	PRE-QUAL/HAZID				✓	✓	✓	HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Work Team Task Assessment	Work teams identify, assess and control HSSE hazards of planned work	JHA					✓	✓	HSSE Risk Management Procedure	CORP-HSE-PR-G-0072
Personal Task Assessment	Individuals identify, assess and control HSSE hazards of planned task	TAKE 5					✓	✓	HSSE Risk Management Procedure	CORP-HSE-PR-G-0072

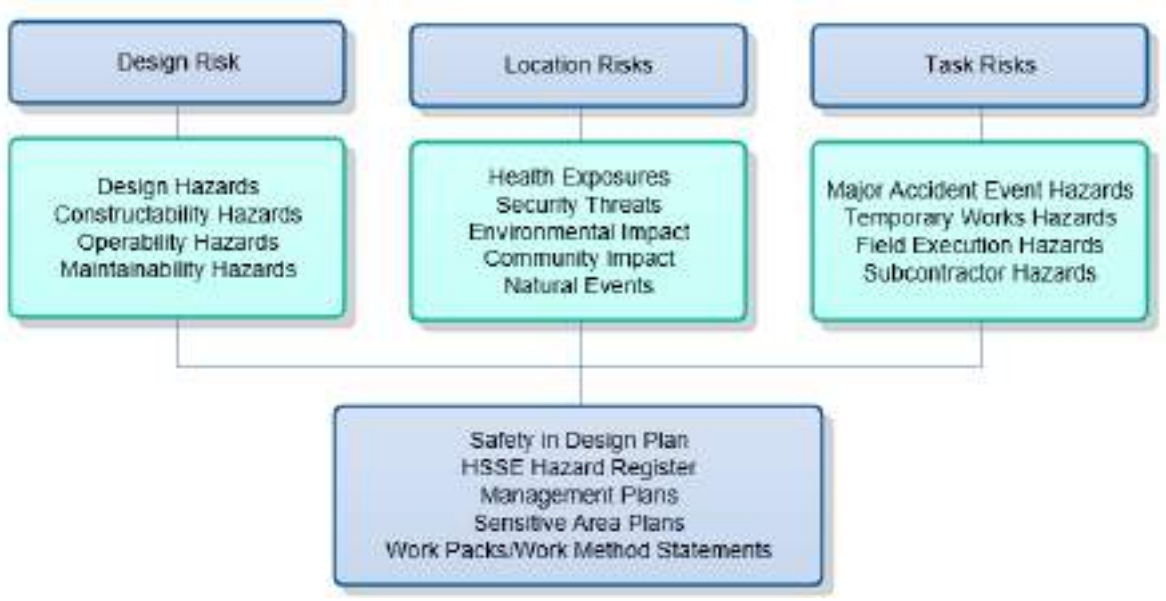


Figure 5.1 - HSSE Risk Management Framework

5.2 Environmental aspect and impact register

The environmental aspects of key construction activities and associated potential impacts will be continually identified, assessed and controlled throughout the project and included within the environmental risk register. The environmental aspect and impact register, provided in Appendix A3, will form a part of the consolidated risk register managed and reported in accordance with the *Risk Management Plan* (45860-QM-PL-G-1002).

The ongoing determination of environmental aspects and impacts will be achieved through the risk management processes outlined above, which results in the maintenance of a list of environmental risks (aspects and impacts), corresponding risk mitigation strategy and risk ranking for each risk. Each environmental risk is categorised, based on the following:

- the environmental aspect;
- type of potential impact (or consequence); and
- likelihood of occurrence.

Risk management measures are identified to reduce the environmental impacts of each activity. These management measures are included in the Environmental Aspect and Impact Register. Risk management measures have been included in the relevant CEMP sub-plans, and will be addressed in relevant WMSs and communicated to the workforce as described in Section 4.4.

SecureEnergy will maintain the project risk register throughout the construction phase of the project. Risks will be required to be reviewed on a quarterly basis and will also be reviewed in response to incidents, changes in legal requirements, change in project scope, findings of inspections and audits and management reviews.

6 Training and awareness

Environmental training is an important means to raise environmental awareness and positively influence the attitude of workers engaged in the project whilst ensuring they are aware of their obligation and the requirements of this CEMP. Internal and on-the-job training will be provided by SecureEnergy on a regular basis for all employees and subcontractors.

Training will be delivered in accordance with the *HSSE Training Management Plan* (45860-HSE-PL-G-1011) with training and awareness delivered through:

- Target Zero leadership and behaviour programs;
- site inductions;
- toolbox talks;
- daily pre-start meetings; and
- WMS briefings and/or targeted environmental briefing e.g. erosion and sediment control, heritage and spill response.

Where required, the Environmental Manager (or delegate) will prepare and deliver the environmental components of the training material to highlight specific environmental and heritage sensitivities, risks and requirements related to the project or upcoming construction activities. Refer to the sections below for further detail.

6.1 Site induction

All personnel (including sub-contractors) will be required to attend a compulsory site induction that includes an environmental component prior to commencement on-site. This is done to ensure all personnel involved in the project are aware of the requirements of the CEMP and to ensure the implementation of environmental management measures. The Environmental Manager (or delegate) will prepare and deliver the environmental component of the site induction.

The environmental component will include an overview of the following elements:

- relevant details of the CEMP;
- relevant conditions of the Infrastructure Approval, environmental licences, permits and approvals;
- the location of key features of environmental and heritage sensitivity (i.e. heritage sites, threatened species and ecological communities) and where this information can be found;
- relevant environmental management requirements and responsibilities;
- notification and response requirements in the event of unexpected finds (i.e. for heritage, contaminated land or threatened species);
- regulatory penalties and consequences of non-compliance;
- incident response and reporting; and
- emergency response and evacuation.

6.2 Toolbox talks

Toolbox talks will be delivered by various SecureEnergy personnel such as the Construction Managers, Supervisors, Safety personnel and Environmental Manager (or delegate), depending on the primary focus and content of the toolbox talk. Toolbox talks are necessary to raise the workforce's level of project and environmental awareness. Toolbox talks will generally occur monthly.

Toolbox talks will be tailored to specific environmental issues relevant to upcoming works and current environmental performance matters and will include general and specific discussion of the key

environmental aspects of the project. Examples of relevant environmental topics to be discuss during toolbox talks include:

- Aboriginal and non-Aboriginal heritage;
- biodiversity including biodiversity exclusion zones and clearing requirements;
- emergency and spill response;
- erosion and sedimentation control; and
- working hours and the out-of-hours work process.

6.3 Daily pre-start meetings

Daily pre-start meetings will be conducted by the Supervisors prior to the start of work each day to inform workers of key safety, environmental and heritage sensitivity, activity coordination considerations and other information that may be relevant in the performance of the day's work.

6.4 WMS briefing and/or targeted environmental briefing

As outlined in Section 4.4, WMSs are developed as part of the preparation of every Work Pack. WMSs set out the construction methodology for a particular activity or set of activities, specific to the project and incorporate work-specific environmental risk assessments. WMS briefing will be delivered by the Construction Managers, Supervisors, the Safety Manager or the Environmental Manager (or their delegates) to communicate key requirements, actions, processes and controls to construction personnel.

Targeted environmental briefings will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. The targeted environmental briefings will communicate the potential environmental risks/impacts of the activity and the mitigation measures to reduce the environmental risk. Targeted environmental briefings where appropriate will also include any environmental requirements as outlined in the relevant WMS. Targeted environmental briefing will be delivered by Construction Managers, Supervisors, the Safety Manager or the Environmental Manager (or their delegates).

7 Communication and complaints management

7.1 Communication

SecureEnergy and Transgrid are committed to ensuring effective communication is undertaken on a regular basis at all levels of the project. A high level of communication is an important factor in the successful and correct delivery of environmental outcomes on the project and it will ensure environmental performance is continually communicated, understood and improved.

7.1.1 Internal communication

The methods of internal (on-site) communication will include:

- inductions;
- toolbox talks;
- pre-start meetings;
- alerts, bulletins and / or initiatives; and
- Work Packs.

SecureEnergy will discuss environmental issues as a regular component of their toolbox and site meeting agenda.

SecureEnergy will present environmental communications to its workforce on a minimum weekly basis. This will include information on the management of environmental risks or key site environmental issues as required. Records of the topics, attendance and presenter's name will be maintained.

7.1.2 External communication

A *Community Communication Strategy* (CCS) (45860-HSE-DOC-D-0024) has been prepared for the project. The CCS provides a framework in the management of community and stakeholder communication and engagement. The CCS identifies the community engagement objectives, the people and organisations that will be consulted with, the delivery framework and potential issues the project needs to manage during project delivery.

The CCS also provides information on the communication tools and protocols which will support implementation, and descriptions of how community stakeholders will be kept informed of, and consulted about, the project throughout the delivery phase.

In particular, the CCS details the following elements:

- identification of community and key external stakeholders;
- procedures and mechanisms for providing information to the community and key stakeholders;
- opportunities and provision for the community to attend the construction site for visits, taking into consideration health and safety requirements;
- the formation of issue or location-based community forums;
- procedures and mechanisms for how the project will receive and respond to community feedback, enquiries and complaints; and
- procedures that explain how disputes will be resolved.

The community and stakeholders will be kept informed through the below framework:

- inform – to provide balanced and objective information to assist in understanding a problem/ options;
- consult – to obtain feedback on options and /or decisions;

- involve – work with stakeholders to ensure concerns and aspirations are understood and considered; and
- collaborate – form a partnership with stakeholders in each aspect of the decision.

The communication approach to local communities and agencies is predominately aligned within the Inform and Consult stages with the focus on early consultation and providing up-to-date project information. There will however be opportunities in the Involve and Collaborate stage particularly through local employment, local supply chains and Aboriginal participation programs.

Communication tools which will be used by the project to inform stakeholders and the community will include:

- notifications of construction activities;
- notification of out of hours works (as required);
- written correspondence (letters/emails);
- advertisements (as required);
- newsletters;
- meetings;
- the project website which is located at https://www.transgrid.com.au/projects-innovation/energyconnect; and
- enquiries and complaints line (24 hour) on 1800 490 666.

Project information made available on the project website in accordance with condition D12, includes:

- the EIS;
- current statutory approvals for the development;
- approved strategies, plans, programs or reports required under the conditions of the Infrastructure Approval;
- the proposed staging plans for the development if the construction, decommissioning and/or operation of the development is to be staged;
- a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of the Infrastructure Approval;
- a record of complaints, which is to be updated on a monthly basis;
- any independent environmental audit, and the Proponent's response to the recommendations in any audit; and
- any other matter required by the Planning Secretary.

7.2 Complaints management

The protocol for managing and reporting any complaints is described in the *Enquiries, Complaint and Dispute Resolution Management Procedure* (45860-CON-PR-G-1001) provided in the CCS. The procedure includes a complaints management process which outlines how SecureEnergy will respond to complaints related to the project.

The complaints management process will use the Consultation Manager database to record information on all complaints received about the project during construction.

The key principles of the complaint management process is provided in Table 7.1 below. Refer to the CCS for further details.

Table 7.1 - Key principles for effective complaint and dispute resolution

Action	Description
Acknowledge	SecureEnergy staff should respect the communities' right to voice their concerns. All complaints received should be acknowledged to the complainant either by telephone or in writing.
Resolve	SecureEnergy staff should aim at first contact resolution for all community concerns. SecureEnergy staff should investigate community concerns in detail before negotiating a resolution. All SecureEnergy staff should use their relevant discretions to achieve a mutually acceptable resolution to complaints.
Escalate	All SecureEnergy staff should aim to escalate the complaint if the community member remains dissatisfied with the investigation and/or resolution offered by their first point of contact at SecureEnergy. All complaints where community request to speak to a higher-level representative, should also be escalated.
Record	SecureEnergy staff should aim through the Engagement Team at recording all relevant information, on the community account in Consultation Manager System, regarding customer concerns along with details of all discussions had with the community member in the process of investigating and/resolving the complaint. Detailed information on the resolutions offered to address community concerns should also be clearly recorded.
Communicate	SecureEnergy staff should remain in constant touch with the community member while their concerns are being investigated. The community member should be informed of all steps of the investigation and the resulting outcome at appropriate times.
Report	SecureEnergy should report on all complaints received to the SecureEnergy Management Team and Transgrid. The reporting should include information on the number as well as type of complaints being received, the status of these complaints from time to time and the resulting outcomes or resolutions offered to close them.
Feedback	The SecureEnergy Engagement Team should aim at regular and intensive reviews to identify possible trends in the complaints being received. These reviews should be aimed at highlighting improvements required to avoid complaints being repeated.
Action	SecureEnergy should aim at effective implementation of improvements suggested directly by the community or highlighted by complaint trends.

The complaints management system will include a process to manage complaints including receiving, recording, tracking and responding to complaints within a defined timeframe. If a complaint cannot be responded to immediately, a follow up phone call or verbal response will be made to the complainant in accordance with the timeframes detailed below.

The key processes involved in recording complaints and enquiries are as follows:

- all enquiries / complaints will be recorded in a complaint register;
- complaints received for the duration of the project will be acknowledged verbally within 2 hours from the time of complaint unless the complainant agrees otherwise. Any complaints received out of hours will be responded to on the next working day;
- complaints received via email will be acknowledged within 24 hours; and
- complaints received via letters will be acknowledged within 5 business days of receipt. Where a phone number or email address is supplied, a response will be provided within 24 hours.

The project will aim to resolve complaints within an agreed timeframe (agreed to between the complainant and community engagement staff). The target would be for resolution to occur within 5 business days, however it is recognised that some complaints can be complex and further time may be required.

The community and stakeholder engagement staff will attend to enquiries and complaints received through the enquiries and complaints 1800 information line, project email address, from letters mailed to the project team, during community meetings or through construction / site staff.

The project enquiries and complaints 1800 number (1800 490 666) will be included on project communications, including notifications, advertisements, and on the SecureEnergy website.

All complaints will be investigated and dealt with impartially. All correspondence, agreements, resolutions and other relevant information will be recorded in Consultation Manager. If a complainant is not satisfied with the resolution provided, the complaint can be escalated, and alternative offers of resolution can be discussed. All complaints will be provided to the ER and a summary of complaints received, such as a complaints register, will be updated monthly on the project website.

7.2.1 Dispute resolution

Wherever possible, complaints will be resolved directly between SecureEnergy and the stakeholder.

If a complaints management process has been followed and the issue cannot be resolved, the *Enquiries, Complaint and Dispute Resolution Management Procedure* (45860-CON-PR-G-1001) provides a flowchart that outlines the process to manage and escalate complaints. As part of this procedure, a Community Complaints Mediator will be engaged to address any complaint where a member of the public is not satisfied by SecureEnergy's response. The escalated review process will include an assessment of the details of the complaint received, any findings of the investigation undertaken in response to the complaint, and any further matters raised by the complainant.

If a complaint requires referral to senior management and Transgrid, the complainant will be informed of this and the outcome of the review process. DPE may request the Environmental Representative (ER) to assist in dispute resolution of community complaints.

8 Incidents and emergencies

8.1 Emergency preparedness and emergency response

Emergency management and planning including environmental emergencies will be undertaken in accordance with the Clough management system and relevant procedures. In line with the Clough management system, a three-tiered approach will be adopted for major incidents:

- Level 1 – on site emergencies will be in accordance with the project specific *Emergency Preparedness and Response Plan* (45860-HSE-PL-G-1015);
- Level 2 – emergency situations where response exceeds the capacity of site resources incidents will be coordinated by the Incident Coordination Team in accordance with *Major Incident Coordination Plan* (CORP-HSE-PL-G-0002); and
- Level 3 – an emergency situation where the incident has the potential to, or has impacted, the business in terms of, reputation, and commercial liability. Incidents will be supported by the Major Incident Management Team in accordance with *Major Incident Management Plan* (CORP-HSE-PL-G-0001).

An *Emergency Plan* (45860-HSE-PL-D-0129) has been prepared for the project in accordance with condition C45 of the Infrastructure Approval. The plan focuses on bushfire emergency management and planning which includes identifying fire risk and hazards as well as management measures that will be implemented to prevent, mitigate or respond to risk of bushfires. The Emergency Plan will include a procedure that would be implemented if there is a fire on-site or in the vicinity of the site.

8.2 Environmental incidents

In the event of an environmental incident, the Incident, Notification and Investigation Procedure Flowchart provided in Appendix A4 will be implemented. The flowchart applies to:

- incidents causing harm to the environment (in excess of predicted impacts described and assessed in the EIS, Submissions Report and Amendment Report);
- incidents resulting in non-compliance with approvals, licences, permits, consents and other legislative requirements; and
- near misses including high potential incidents and/or hazards.

Environmental incidents may include the following events caused by the works:

- chemical spills and leaks (including hydrocarbons);
- accidental spills or other incidents associated with the wastewater treatment plants;
- unauthorised discharge of contaminated waters to the environment;
- unauthorised/unapproved impact to heritage items, artefacts or sites;
- clearing or damage to vegetation that exceeds clearing limits from the Approval;
- unauthorised/unapproved damage or interference to threatened species, endangered ecological communities or critical habitat;
- unauthorised death or injury of native fauna;
- any non-compliance with legislation; and
- inappropriate waste disposal.

All efforts will be undertaken to avoid and reduce impacts of incidents. All site personnel are authorised to suspend a work activity that is likely to cause or actually causing or contributing to an incident A supervisor/manager may request additional staff be deployed to the site to provide additional capacity or capability to manage the incident.

8.3 Incident notification and reporting

All environmental incidents that occur on the project, regardless of how minor, must be reported to a supervisor by personnel involved or witnesses to the incident immediately after the incident occurs. The Environmental Manager will be notified immediately of any environmental incident. The Environmental Manager will confirm whether the incident has caused or threatens material environmental harm under the POEO Act.

Transgrid will be notified of incidents and near misses immediately. Formal, documented reporting of incidents will be completed using InControl, and will be submitted to Transgrid in accordance with requirements under the Contract. The Environmental Representative will be included on all incident notifications.

If required, all external communication and reporting to the community and stakeholders will be in accordance with the CCS.

8.3.1 Incident reporting in accordance with the Infrastructure Approval

An incident is defined in the Infrastructure Approval as '*An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance*'. In addition, material harm is defined in the Infrastructure Approval as the following:

> *[Material harm] is harm that:*
>
> *a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or*
>
> *b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).*
>
> *This definition excludes "harm" that is authorised under either this approval or any other statutory approval.*

The protocol for managing and reporting incidents will be in accordance with condition D6 and Appendix 5 of the Infrastructure Approval. As such, Transgrid will notify the Department via the Major Projects website immediately after becoming aware that an incident has occurred. A written notification will then be provided to the Department via the Major Projects website within seven days after becoming aware of the incident. SecureEnergy will provide the appropriate details to assist Transgrid. The written notification will include the following details:

- identify the development and application number;
- provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
- identify how the incident was detected;
- identify when the Proponent became aware of the incident;
- identify any actual or potential non-compliance with conditions of consent;
- describe what immediate steps were taken in relation to the incident;
- identify further action(s) that will be taken in relation to the incident; and
- identify a development contact for further communication regarding the incident.

Within 30 days of the date on which the incident occurred, or as otherwise agreed by the Planning Secretary, Transgrid will provide the Department and any relevant public authorities with a detailed report on the incident addressing the following requirements, and any further reports that may be requested.

- a summary of the incident;

- outcomes of an incident investigation, including identification of the cause of the incident;
- details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
- details of any communication with other stakeholders regarding the incident.

Corrective and preventative actions will be identified from the incident reports and if required, this CEMP and CEMP-sub-plans will be updated in accordance with Section 1.10.

8.3.2 Incident reporting in accordance with the EPBC Act

SecureEnergy will notify Transgrid of any event that impacts or has the potential to impact upon protected matters, as defined under the Commonwealth Approval, immediately on becoming aware of the occurrence. Appropriate details will be provided to assist Transgrid in notifying the Department of Climate Change, Energy, the Environment and Water (DCCEEW) in accordance with the requirement of the Commonwealth Approval.

8.3.3 Incident reporting in accordance with the POEO Act

SecureEnergy will notify Transgrid immediately after becoming aware of pollution incidents that causes or threatens material environmental harm to the environment.

Following initial verbal notification to Transgrid, SecureEnergy will notify the following

- appropriate regulatory authority;
- the EPA (if they are not the appropriate regulatory authority);
- the local authority (if the EPA is the appropriate regulatory authority);
- Ministry of Health;
- SafeWork NSW; and
- Fire and Rescue NSW.

The circumstances where this will take place include:

- if the actual or potential harm to the health or safety of human beings or ecosystems is not trivial; and
- if actual or potential loss or property damage (including clean-up costs) associated with an environmental incident exceeds $10,000.

Any incidents that present an immediate threat to human health or property are to be reported immediately to 000.

8.3.4 InControl Data Entry

All incident notifications and investigations shall be entered into the incident management system (InControl). This system shall also act as the Incident Register and allows the project to monitor and analyse incident trends. http://inx.australia.corp.clough.com/InControl/Default.aspx

9 Inspections, monitoring and auditing

9.1 Environmental inspections

Implementation of a regular program of inspections is an essential part of the success of work activities. The current proposed inspection schedule is provided in Table 9.1.

The implementation and effectiveness of environmental protection measures described in this CEMP and sub-plans will be inspected and assessed on a weekly basis. A weekly checklist for environmental inspections will be developed, with the purpose of the checklist to:

- provide a surveillance tool to ensure that safeguards are being implemented;
- assess and document the effectiveness of implemented environmental management measures;
- identify where problems might be occurring;
- identify where sound environmental practices are not being implemented; and
- facilitate the identification and early resolution of problems.

Deficiencies and required actions will be analysed and prioritised at the completion of the inspection and timeframes for implementation of corrective actions agreed. Any non-conformances identified through the checklist process will be highlighted and an environmental inspection report (minor issues) or an environmental incident report completed.

SecureEnergy environmental staff and Transgrid environment staff might jointly undertake regular inspections of works sites, and in particular critical activities throughout construction of the project. The frequency of these inspections would vary depending on the complexity and anticipated risks associated with the stage of construction.

Table 9.1 - Inspection schedule

Activity	Frequency	Location	Responsibility	Record
Daily work site inspections	Daily	Immediate work area and equipment in work area	Supervisors	Site diary entry Pre-start sign on
Environmental site inspection	Weekly	Site wide	SecureEnergy Environmental Manager or nominated representative	Site inspection checklist
Joint environmental site inspection	As required	Site wide	Transgrid, SecureEnergy Environmental Manager or nominated representative	Transgrid inspection report

9.2 Monitoring

Monitoring will be undertaken to validate the impacts predicted for the project, to measure the effectiveness of environmental controls, and to address any relevant approval requirements.

The activity, description, timing, frequency of proposed monitoring and the relevant CEMP sub-plans in which specific details will be included is summarised in Table 9.2. The monitoring programs range from those involving formal sample collection, analysis and measurement, to those involving a more qualitative assessment. Refer to the relevant CEMP sub-plans for details on the respective monitoring and inspection requirements.

Table 9.2 - Environmental monitoring summary

Condition / RMM	Activity	Management Plan	Description	Frequency and timing
RMM B9	Pre-clearing inspections	Biodiversity Management Plan	Inspecting work areas before clearing in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).	Approximately 24 hours prior to clearing as required by Section 5.2 of the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).
Commonwealth Approval Condition 3	Pre-clearance surveys	Biodiversity Management Plan	Pre-clearance surveys will be prepared in accordance with the requirements of the Commonwealth Approval.	Prior to clearing or ground disturbance activities in that area (other than pre-construction minor activities per Commonwealth correspondence).
Condition C26 RMM B15	During clearing supervision	Biodiversity Management Plan	Ecological supervision of clearing operations and removal of habitat trees during two-stage clearing approach in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).	During second stage of two-stage clearing
Condition C23 RMM B15	Monitoring vegetation clearing	Biodiversity Management Plan	Clearing of native vegetation will be monitored to confirm actual impacts to biodiversity values to inform any final biodiversity offset requirements within the biodiversity offset package which will allow comparison of Table 12-11 of the Final BDAR.	Prior to and during clearing
Condition C26	Monitoring areas subject to partial clearance	Biodiversity Management Plan	Areas that are subject to partial clearance (Disturbance Area B4 and Disturbance Area B10) will be monitored within three months from commencement of Stage 2 construction. A verification report will be produced to confirm whether any changes are required to the *Pre-clearing and Clearing Procedure.*	Monitoring within three months of the commencement of Stage 2 construction and provision of a verification report. If partial clearing has not commenced within three months of the commencement of Stage 2 construction*, the project will monitor areas of partial clearance within three months of the commencement of partial clearing.*
RMM B22	Monitoring special biodiversity protection zones	Biodiversity Management Plan	The special biodiversity protection zones will be monitored in accordance with Table 5.1 of Appendix A of the *Pre-clearing and Clearing Procedure.*	The timing is dependent on the special biodiversity protection zone and is detailed within Table 5.1 of Appendix A of the *Pre-clearing and Clearing Procedure.*
Condition C26	Fauna handling and rescue	Biodiversity Management Plan	Handling and rescue of fauna in accordance with the *Fauna Handling Procedure* (45860-HSE-PR-D-0020).	As discovered

Condition / RMM	Activity	Management Plan	Description	Frequency and timing
Condition C26	Monitoring in accordance with the detailed monitoring program	Biodiversity Management Plan	Monitoring in accordance with the Table 6.3 of the BMP to monitor the biodiversity and rehabilitation objectives/ targets of the project	As detailed within Table 6.3 of the BMP
Condition C10	Noise monitoring – commencement of OOHW activities	Noise and Vibration Management Plan	At the commencement of a new OOHW activities or location where exceedances of the noise management levels are predicted to occur at the most affected receiver. This will be at select locations/occasions which are determined based on risk.	Commencement of OOHW activities predicted to exceed noise management levels. This will be on select occasions which are determined based on risk.
Condition C10	Complaint-based monitoring	Noise and Vibration Management Plan	Where complaints are received, noise monitoring may be undertaken at sensitive receivers to determine if the actual construction noise generated exceeds the predicted 'worst case' construction noise levels identified in this plan.	As required
Condition C10	Vibration monitoring	Noise and Vibration Management Plan	Commencement of new activity near structures/ receivers within minimum vibration working distances. Attended vibration measurements would be undertaken at the start of the works to determine actual vibration levels at the structure.	Commencement of works for receivers/ structures within minimum working distances
RMM TA15	Road and surface condition	Traffic and Transport Management Plan	Visual monitoring of road and surface conditions and the traffic controls implemented.	During construction
RMM AQ6	Air quality	Air Quality Management Plan	Visual monitoring of effectiveness of implemented controls to reduce dust generation and odour emission.	During construction
Condition C22	Water quality discharge	Soil and Water Management Plan	Water that requires discharge (other than wastewater) will be tested (as required) prior to reuse/discharge and managed in accordance with the *Dewatering Procedure* (45860-HSE-PR-D-0018).	Prior to water discharge
RMM HF4	Water quality monitoring program	Soil and Water Management Plan	Monitor water quality conditions in the Murrumbidgee River and Colombo Creek.	Pre- construction and during construction

Condition / RMM	Activity	Management Plan	Description	Frequency and timing
RMM LP7	Biosecurity	Biodiversity Management Plan	Visual inspection of the work site and implemented management measures to minimise the risk of off-site transportation of weeds.	During construction

Irrespective of the type of monitoring conducted, the results will be used to identify potential or actual problems arising from construction processes. Where monitoring results are outside of the expected range, the following process will be implemented. Refer to the specific CEMP sub-plan for further details:

- the results will be analysed by the SecureEnergy Environmental Manager or Environmental Advisor with the view of determining possible causes for the exceedance including a review of the potential construction activities impacting that site of the exceedance;
- a site inspection will be undertaken (where appropriate to assess potential cause);
- where the exceedance relates to construction impacts, the mitigation measures will be reviewed; and
- where required, the appropriate corrective and preventative action will be identified and implemented.

9.3 Auditing

The purpose of auditing is to assess compliance with the CEMP, the Infrastructure Approval and any relevant legal and other requirements (e.g. licences, permits, regulations, contract documentation) and to form a part of continuous improvement described in Section 1.9.

In accordance with condition D11 of the Infrastructure Approval, independent audits will be undertaken in accordance with the *Independent Audit Post Approval Requirements* (2020) unless otherwise agreed or directed by the Planning Secretary. An independent audit will be undertaken within 12 weeks from the commencement of construction, followed by six-monthly intervals for each subsequent audit until the completion of the construction phase of the project.

The independent audits will be undertaken in accordance with the requirements set out in Section 3 of the *Independent Audit Post Approval Requirements* (2020). At the end of each audit, the auditor is to prepare an independent audit report. The report includes details such as the audit methodology, audit findings and recommendations and opportunities for improvement. SecureEnergy will review the draft report and provide a response of the audit findings. If the audit findings identify any non-compliances, the nominated action and completion timing of the action will be provided as part of the response to each non-compliance.

The independent audit report and SecureEnergy's response to the audit findings will be submitted to the Department no later than two months from the date of the independent audit site inspection.

Corrective and preventative actions will be identified from the audit findings, and the implementation of those actions managed and monitored as per the process outlined in Section 11.

Compliance with the CEMP and CEMP Subplans will be assessed through the independent audits. Compliance will also be assessed through audits undertaken by SecureEnergy (or a third party) during project delivery.

10 Reporting

10.1 Reporting non-compliances

10.1.1 Reporting non-compliances in accordance with the Infrastructure Approval

Non-compliance is defined in Infrastructure Approval as '*an occurrence, set of circumstances or development that is a breach of this approval*'. The procedure to respond to any non-compliance will be in accordance with conditions D7 and D8 of the Infrastructure Approval.

In summary, condition D7 and D8 requires the Planning Secretary to be notified in writing via the Major Projects website within seven days after Transgrid becomes aware of any non-compliance. SecureEnergy will provide the appropriate details to assist Transgrid. The written notification will include details such as:

- the non-compliance;
- the reasons for the non-compliance (if known); and
- what actions have been taken, or will be taken, to address the non-compliance.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance, in line with condition D9.

10.1.2 Reporting non-compliances in accordance with the EPBC Act

As required by condition 27 to condition 29 of the Commonwealth Approval, SecureEnergy will notify Transgrid of any event that results in a potential non-compliance and/or actual non-compliance with the conditions or commitments made in a plan in relation to protected matters. The timing of notification and reporting will be in accordance with the requirements of the Commonwealth Approval. Appropriate details will be provided to assist Transgrid in notifying DCCEEW. Transgrid will notify DCCEEW in writing of any non-compliance with the conditions or commitments made in plans as defined under the Commonwealth Approval.

10.1.3 Other reporting and notification requirements

SecureEnergy is required to prepare and submit various reports to Transgrid and/or the Department and to undertake reporting required under the Infrastructure Approval. A summary of these reports is provided in Table 10.1.

Table 10.1 - Other reporting requirements

Report	Requirement	Timing	Responsibility	Recipient
Monthly environmental report	For incorporation in project Monthly Reports.	Monthly	SecureEnergy Environmental Manager	Transgrid
Incident Report	Provide written notification within seven days of becoming aware of the incident. Provide a report on the incident within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary.	Incident notification within seven days of becoming aware of the incident. Incident report within 30 days after the incident has occurred	SecureEnergy/ Transgrid	The Department
Non-compliance notification	Planning Secretary must be notified within 7 days after identifying the non-compliance.	As required	SecureEnergy/ Transgrid	The Department
Independent audit report	As per the reporting requirements in the *Independent Audit Post Approval Requirements* (2020).	Within 12 weeks of the commencement of construction and at	SecureEnergy/ Transgrid	The Department

Report	Requirement	Timing	Responsibility	Recipient
		six-monthly intervals for subsequent reports. Audit reports to be provided within 2 months of the audit date.		
Pre-construction dilapidation report	As per condition C34 of the Infrastructure Approval.	Prior to the commencement of construction	SecureEnergy	Relevant roads authority
Post-construction dilapidation report	As per condition C34 of the Infrastructure Approval.	Within one month of completion of construction or on an annual basis	SecureEnergy	Relevant roads authority

11 Non-conformance, corrective and preventative action

A non-compliance is the failure to comply with the requirements of this CEMP, sub-plans and associated documents such as Infrastructure Approval and relevant legislation.

A non-conformance is the failure to meet the procedural requirements and processes developed for the project such as work packs and WMS, or internal permits that forms part of the environmental management system.

Where a non-conformance and/or non-compliance has been identified, corrective actions will be developed as required and implemented to address the non-conformance that occurred. While preventative actions will be developed as required and implemented to minimise the potential for recurrence. In the event of a non-conformance the following will occur:

- the nature of the event will be investigated by the Environmental Manager;
- the effectiveness or need for new/additional controls will be reviewed;
- appropriate preventative and corrective actions will be developed and implemented; and
- the relevant environmental management practices and procedures implemented for the construction will be reviewed and revised.

Corrective and preventative actions may be generated from a number of sources, including but not limited to incidents, audits and management reviews. The actions will be systematically managed in accordance with the Clough management system to ensure that the required actions are tracked and closed out in a timely manner.

The completion of the required actions will be recorded. The action records will include details on the source of the action (e.g. audit, inspection or other), the action required, target close out date, actual close out date and the person responsible for the action item.

If the actions require changes to the CEMP and sub-plans, the update will occur as described in Section 1.10.

12 Contingency plan

Although the project has been assessed through the environmental impact assessment process and potential impacts identified, unpredicted impacts may occur as the project progresses. In the event that unexpected impacts are identified, the action or cause will be categorised and as required will be managed as:

- an emergency or environmental incident in accordance with Section 8; and/or
- a non-compliance or non-conformance in accordance with Section 11.

Reporting of the unpredicted impacts would be in line with the processes as described in Section 10.

Through the identification of corrective and/or preventative actions through the processes as described in Section 11, the following steps will be considered as relevant:

a) determine the relevant impact assessment criterion/criteria, below which the impact should be reduced, consistent with the requirements of this CEMP and CEMP sub-plans;

b) identify options to reduce the unexpected impacts to below the relevant criterion/criteria and appropriate timeframe for implementation;

c) implement the selected measure(s) to reduce the unexpected impacts; and

d) identify and implement an appropriate monitoring program to determine the effectiveness of the selected measure(s) to reduce the unexpected impact.

If the above monitoring program identifies that the unexpected impacts have not been reduced to below the nominated criterion/criteria, items b) to d) of the contingency process will be repeated.

This section does not apply to unexpected heritage, biodiversity or contamination finds. These will be managed in accordance with their respective Unexpected Finds Procedure.

13 Documentation

13.1 Records

The Environmental Manager is responsible for maintaining all environmental management documents. Further to Section 4.8, the following records are those that will be generated through delivery of the project:

- monitoring and inspection records;
- correspondence with public authorities;
- induction and training records;
- site specific records such as those prepared for dewatering and water management, out of hours works, clearing records, unexpected finds etc;
- waste classification records, waste disposal and recycling records for transporting and disposing of waste;
- plans, strategies and reports, and revisions thereof, to ensure compliance with the Infrastructure Approval;
- reports on environmental incidents, environmental non-conformances, and corrective actions;
- monthly reports; and
- audit reports.

All environmental management documents are subject to ongoing review and continual improvement.

13.2 Document and data control

The Environmental Manager will coordinate the preparation, review and distribution, as appropriate, of the environmental documents listed above. During construction, environmental documents will be stored at the main site office and can be accessed on request to the SecureEnergy Environmental Manager.

The *Project Document Control Plan* (45860-IM-PL-G-0003) will be used to control the flow of documents and data within the SecureEnergy teams and between SecureEnergy and Transgrid, stakeholders and sub-contractors.

Documents and data that are to be issued and liable to change will be controlled to ensure that they are approved before issue and that the current issue or revision is known to and available to those requiring them. Controlled documents and data will be uniquely identified and will bear a defined revision number recorded on each page of the document.

After a number of changes have been made to a document it will be withdrawn and reissued as a new revision. Data will be issued on a revision basis only. Obsolete documents and data may be kept for contractual or other reasons but will be clearly marked ‘superseded’.

Appendix A1 – Legal and other requirements

Legislation

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
Commonwealth Legislation					
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Proposed action	Section 28	A person must not take an action that has, will have or is likely to have a significant impact on any of the matters of national environmental significance without approval.	Yes, the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) aims to protect matters of national environmental significance (MNES) including national heritage places. Following referral of the project to Department of Environment, Agriculture and Water (now known as Department of Climate Change, Energy, the Environment and Water), the project was determined on 25 June 2020 to be a controlled action under section 75 of the EPBC Act, and therefore required further assessment and approval under the *Environment Protection and Biodiversity Conservation Act 1999*. The referral number is EPBC 2020/8673. The EPBC Act controlling provisions for the proposed actions are: • listed threatened species and communities (section 18 and 18A). It should be noted that no MNES were identified in the EIS or Amendment Report for the project.	Transgrid
	Bilateral Agreement	Chapter 3 Clause 45	A bilateral agreement is a written agreement between the Commonwealth and a State with the intention of protecting the environment, promoting the conservation and ecologically sustainable use of natural resources, ensuring an efficient, timely and effective process for environmental assessment and approval of actions and to minimising duplication in the environmental assessment and approval process.	EnergyConnect (NSW - Eastern Section) will be assessed using the bilateral assessment process in accordance Amending Agreement No. 1.	Transgrid
Aboriginal and Torres Strait Islander Heritage	Protection of areas and objects	Section 10	Comply with any declarations relating to the project area	No declarations have been made relating to the project area. In the event that declarations are made, the Heritage Management Plan will be updated if required.	Transgrid SecureEnergy

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
Protection Act 1984		Section 20	Report any discovery of Aboriginal remains to the Federal Minister for the Environment and Heritage.	Yes, notification requirements are detailed in the Heritage Management Plan.	SecureEnergy
		Section 22	Comply with the provisions of any declaration in relation to a significant Aboriginal area or object.	Yes, a Heritage Management Plan has been prepared and will be implemented for the project to outline the compliance requirements for the declared Aboriginal areas or objects within the project footprint.	Transgrid SecureEnergy
Native Title Act 1993	Native Title Land	All	Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act.	The project area intersects with various native title area associated with various Traditional Owners and Aboriginal groups. The various Traditional Owners and Aboriginal groups will be included in consultation.	Transgrid SecureEnergy
New South Wales Legislation					
State Environmental Planning Policy (State and Regional Development) 2011	All	Part 3 Clause 13	Declaration of critical State Significant Infrastructure	On 29 August 2019 the NSW Minister for Planning and Public Spaces declared EnergyConnect critical State significant infrastructure (CSSI) under the *State Environmental Planning Policy (State and Regional Development) 2011* on the basis that it is critical to the State for environmental, economic or social reasons. The project may be carried out without development consent under Part 4 of the EP&A Act, however application for approval of the CSSI is required.	Transgrid
Environmental Planning and Assessment Act 1979 (EP&A Act)	All	Section 5.5	A determining authority has the duty to fully consider the environmental impact (including Aboriginal or non-Aboriginal heritage) of an activity and is required to 'take into account the fullest extent possible all matters affecting, or likely to affect the environment arising from the proposal.	The *Environmental Impact Statement EnergyConnect (NSW - Eastern Section)* was submitted to Department of Planning and Environment in January 2022 and publicly exhibited between 19 January 2022 and 15 February 2022. In May 2022, the response to submissions was finalised in the *Submissions Report EnergyConnect (NSW – Eastern Section)*. A separate *Amendment Report EnergyConnect (NSW – Eastern Section)*, to document design changes and additional environmental	Transgrid

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
				assessment undertaken, was also finalised in May 2022.	
		Section 5.19	Approval of the Minister required to carry out critical State significant infrastructure (CSSI). Comply with the conditions of the Infrastructure Approval and the revised management measures from the Submissions Report.	The project requires approval from the NSW Minister for Planning under Division 5.2, Part 5 of the EP&A Act. The project was assessed as above. Approval for EnergyConnect (NSW – Eastern Section) was granted by the Minister for Planning.	Transgrid
Roads Act 1993	Road usage	Section 138	Road occupancy licences (ROLs) required for any activity likely to impact on traffic flow. ROL may be required from TfNSW or Wentworth Shire Council based on road owner.	A Road Occupancy Licence (ROL) will be obtained for all activity likely to impact the operational efficiency of the road network, as required by the relevant road authority. The licence applies to the occupation of the road corridor only and does not grant approval for the works being undertaken.	SecureEnergy
Biodiversity Conservation Act 2016 (BC Act)	Flora and Fauna	All	Legislation responsible for the conservation of biodiversity in NSW through the protection of threatened flora and fauna species, populations and Endangered Ecological Communities (EECs). The *Biodiversity Conservation Act 2016,* together with the Biodiversity Conservation Regulation 2017, established the Biodiversity Offsets Scheme which is outlined below.	The biodiversity impacts of the project have been assessed in accordance with the BC Act, which includes the Biodiversity Assessment Method (BAM) and documented in a Biodiversity Development Assessment Report (BDAR). A Biodiversity Management Plan has been prepared and will be implemented for the project to manage the conservation and protection of threatened flora and fauna.	Transgrid
		Part 6 Division 1 Clause 6.2	This Act, and the Biodiversity Conservation Regulation 2017, outlines the framework for addressing impacts on biodiversity from development and clearing. Biodiversity Offsets Scheme is a framework to avoid, minimise and offset impacts on biodiversity from development and clearing, and to ensure land that is used to offset impacts is secured in-perpetuity.	As part of the assessment under the BC Act, the biodiversity offset credits has been estimated for the project and are outlined in the BDAR. Biodiversity Offset Credits is applicable for clearing on the project. Transgrid as the proponent will retire the full biodiversity offset credit liability of the development.	Transgrid

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
Fisheries Management Act 1994	Taking or possessing fish or marine vegetation	Section 37	Permit to take and possess fish or marine vegetation	A section 37 permit is required for any activity that involves taking or possessing fish or marine vegetation that would otherwise be unlawful under the *Fisheries Management Act 1994* including any collecting activities. There is currently no intention to take and possess fish or marine vegetation, however in the event that this is required, a permit would be developed.	Transgrid SecureEnergy
	Mangroves, seagrasses and marine vegetation	Section 205	Do not harm any mangroves, seagrasses or other marine vegetation on public water land protected by the regulations without a permit.	As the project has been declared as Critical State significant infrastructure, in accordance with s.5.23 of EP&A Act, section 205 of the *Fisheries Management Act 1994* does not apply.	Not applicable
	Fish passage	Section 219	Do not block fish passage without a permit	As the project has been declared as critical State significant infrastructure, in accordance with s.5.23 of EP&A Act, section 219 of the *Fisheries Management Act 1994* does not apply.	Not applicable
Biosecurity Act 2015	Weeds and Pest Management	Section 22	Under Part 3 of the *Biosecurity Act 2015*, landowners or land managers have a general biosecurity duty to prevent, eliminate or minimise the biosecurity risk posed or likely to be posed by priority weeds. A biosecurity risk exists where priority weeds have the potential to negatively impact on agriculture, industry, the liveability of our city, human health or the environment. Invasive weeds are known as 'Biosecurity Matter' or 'Priority Weeds'.	Biosecurity matters will be discussed with the affected landholders and addressed in project management plans for each property	Transgrid
Local Land Services Act 2013	Clearing of native vegetation in regulated rural areas	Part 5A Division 3 Clause 60N and Clause 60O	Clause 60N details the offence to clears native vegetation in a regulated rural area. Clause 60O details the planning approval and authorisation for clearing native vegetation in a regulated rural area.	Yes, as detailed 60O (b) of the Act, approval and authorisation for clearing native vegetation in a regulated rural area is subject to approval of the project under Part 5 of the EP&A Act. Infrastructure Approval will satisfy this compliance requirement.	Transgrid
National Parks and Wildlife Act 1974 (NP&W Act)	Aboriginal places and objects	Part 6 Division 2 Clause 90	This Act provides protection for Aboriginal cultural heritage in NSW, including Aboriginal objects and declared Aboriginal places. Section 86 creates the offence and section 90 creates the requirement to obtain a permit to impact an Aboriginal object, place, land, activity or person.	As the project has been declared as critical State significant infrastructure, in accordance with s.5.23 of EP&A Act, section 90 of the *National Parks and Wildlife Act 1974*, which	Not applicable

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
				outlines the requirements for Aboriginal heritage impact permits, does not apply.	
		Part 6 Division 1 Clause 89A	Notify the NPWS within reasonable time of becoming aware of the location or discovery of certain Aboriginal objects.	Yes, notification requirements are detailed in the Heritage Management Plan.	SecureEnergy
Native Title Act 1994	Native Title Land	All	Native Title claims, registers and Indigenous Land Use Agreements are administered under the Act.	The project area intersects with various native title area associated with various Traditional Owners and Aboriginal groups. The various Traditional Owners and Aboriginal groups will be included in consultation.	Transgrid SecureEnergy
Rural Fires Act 1997	Bushfire prone land	Section 100B	Bush fire safety authorities	As the project has been declared as critical State significant infrastructure, in accordance with s.5.23 of EP&A Act, approval under Section100B of *Rural Fires Act 1997* does not apply.	Not applicable
Heritage Act 1977	Heritage	Section 57	Do not undertake an activity that will affect a place, building, work, relic, moveable object or precinct which is subject to an Interim Heritage Order or is listed on the State Heritage Register without approval from the Heritage Council.	As the project has been declared as critical State significant infrastructure, in accordance with s.5.23 of EP&A Act, approval under Section 57 (1) of *Heritage Act 1977* does not apply.	Not applicable
		Section 139	An excavation permit is required under certain circumstances. A person must not disturb or excavate land with knowledge or reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed; or a person must not disturb or excavate land on where a relic has been discovered or exposed.	As the project has been declared as critical State significant infrastructure, in accordance with s.5.23 of EP&A Act, approval under Section 139 of *Heritage Act 1977* does not apply.	Not applicable
		Section 146	A person who is aware or believes that he or she has discovered or located a relic must within a reasonable time notify the Heritage Council of the location of the relic, unless he or she believes on reasonable grounds that the Heritage Council is aware of the location of the relic, and within the period required by the Heritage Council, furnish the Heritage Council with such information concerning the relic as the Heritage Council may reasonably require.	Yes, notification requirements are detailed in the Heritage Management Plan.	SecureEnergy

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
Water Management Act 2000 (WM Act)	Water access licence	Section 60A	Do not take water from a water source (a lake, river or estuary or place where water occurs naturally on or below the surface of the ground and includes coastal waters) without an access licence.	Yes, the WM Act applies to areas of New South Wales that have a water sharing plan. The project area is subject to the following water sharing plans: Section 60A of the WM Act requires that a water access licence (WAL) be obtained to extract water from a water source. Section 21 and Schedule 4 of the *Water Management (General) Regulation 2018* does however provide exemptions for the requirement to obtain water access licences. Relevant exemptions from Part 1 of Schedule 4 are detailed below: • clause 7 provides an exemption for water taken in the course of certain aquifer interference activities carried out in connection with an authorised project - in relation to taking up to 3 ML of groundwater from a groundwater source; and • clause 17A provides exemption for the taking of groundwater for excavation works where they are a holder of a water supply work authority in relation to taking of more than 3 ML of groundwater. Any other water required for construction purposes would however require a water access licence. This includes extraction for: • interception activities (i.e. intercepted groundwater during piling); • potable uses for human consumption associated with the accommodation camp.	SecureEnergy
	Impacts to water supply work and water use Activity approvals	Section 89 Section 90 Section 91	Under Section 89, a water use approval confers a right on its holder to use water for a particular purpose at a particular location. Under Section 90, approval is required for the authorisation to construct and use a specified water supply work such as pumps, bores, spear points or wells at a specified location, drainage work or flood work.	Section 5.23 of the EP&A Act provides that water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the Water Management Act do not apply to state significant infrastructure.	SecureEnergy

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
			Under Section 91, there are two kinds of activity approvals, controlled activity approvals and aquifer interference approvals. A controlled activity approval is required for carrying out a specified controlled activity at a specified location in, on or under waterfront land. An aquifer interference approval is required for carrying out one or more specified aquifer interference activities at a specified location, or in a specified area.	An activity approval is therefore not required, however an aquifer interference licence is required when an activity involves any of the following: a) the penetration of an aquifer, b) the interference with water in an aquifer, c) the obstruction of the flow of water in an aquifer, d) the taking of water from an aquifer in the course of carrying out mining, or any other activity prescribed by the regulations, e) the disposal of water taken from an aquifer as referred to in paragraph (d). However, an aquifer interference licence is not required if an activity ensures that no more than minimal harm will be done. Stated under Section 3.3 of the *NSW Aquifer Interference Policy*, there are a number of activities that are considered as having a minimal impact on water dependent assets which includes monitoring bores and wells that are required by a development consent under Part 4 or an approval under Part 5.1, of the EP&A Act, or required or undertaken as a result of an environmental assessment under Part 5 of EP&A Act. Since the environmental assessment for the project requires the confirmation of groundwater level. An aquifer interference licence is not required	
Protection of the Environment Operations Act 1997 (POEO Act)	Scheduled activity	Section 47 Section 48	Do not carry out or allow an activity listed in Schedule 1, or carry out work to enable such an activity, unless the premises are licensed by the EPA.	An Environment Protection Licence (EPL) is required for the carrying out of scheduled activities as listed under Schedule 1 of the Act. An EPL is likely to be required for the following scheduled activities: 16 Crushing, grinding or separating An EPL is required if there is a capacity to process more than 150 tonnes of material per day or 30,000 tonnes per year. The need for a	SecureEnergy

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
				crushing or screening plant will not be known until further geotechnical investigation works have occurred. Should a crushing or screening plant be required and the capacity needed is more than 150 tonnes per day or 30,000 tonnes per year, then an EPL will be obtained.	
	Harming the environment	Section 115 Section 116 Section 117	Do not risk harming the environment by wilfully or negligently: • disposing of waste unlawfully. • causing any substance to leak, spill or otherwise escape (whether or not from a container); or • causing any controlled substance to be emitted into the atmosphere.	Yes, the relevant management measures are included within the Soil and Water Management Plan, Waste Management Plan and Air Quality Management Plan.	SecureEnergy
	Water pollution	Section 120 Section 122	Do not cause water pollution (other than to a sewer), except in accordance with the conditions of any EPA licence.	Yes, the relevant management measures have been incorporated within the Soil and Water Management Plan.	SecureEnergy
	Land pollution	Section 142	Do not cause or permit land pollution other than under authority of a licence or regulation (however it is not a land pollution offence to place virgin excavated natural material or lawful pesticides and fertilisers on land, or by placing matter on land that has been notified to the EPA as an unlicensed landfill and which is operated in accordance with the regulations	Yes, the relevant management measures have been incorporated within the Soil and Water Management Plan.	SecureEnergy
	Notification of pollution incidents	Section 148	Notify the EPA immediately of pollution incidents where material harm to the environment is caused or threatened.	Yes, notification requirements are detailed in Section 8 of this CEMP.	SecureEnergy
	Prepare PIRMP if EPL required	Section 153A-F	Requires the holder of an EPL to prepare a pollution incident response management plan (PIRMP)	A PIRMP will be prepared as part of the EPL, if an EPL is required.	SecureEnergy
	Plant maintenance and operation	Section 139	Do not operate plant if it emits noise caused by failure to maintain or operate the plan in a proper and efficient manner.	Yes, the relevant management measures have been incorporated within the Noise and Vibration Management Plan	SecureEnergy
	Control equipment	Section 167	Properly and efficiently maintain and operate any installed pollution control equipment (including monitoring devices).	Yes, the relevant management measures have been incorporated within the Soil and Water Management Plan.	SecureEnergy

Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
	Littering	Part 5.6A	Do not litter in a public place or an open private place. Do not litter from a vehicle. Only deposit advertising material in receptacles provided for mail or newspapers or under the door of the premises. Do not deposit advertising material on or in vehicles.	Yes, the relevant management measures have been incorporated within the Waste Management Plan	SecureEnergy
	Waste and transportation	Section 143	Only transport waste to a facility that can lawfully accept the waste.	Section 143 Notices are to be obtained for waste that is sent to a facility/premise in accordance with the Waste Management Plan.	SecureEnergy
Contaminated Land Management Act 1997	Reporting contamination	Section 60	Duty to report contamination.	Yes, if project activities have caused land contamination, or a landowner becomes aware of land that is contaminated, there is a legal duty under section 60 of the *Contaminated Land Management Act 1997* to notify the EPA.	SecureEnergy
Work, Health and Safety Act 2011 Work Health and Safety and Regulation 2011	Health and safety of workers and workplaces	All	This Act provides work health and safety regulations for the management of contaminated waste such as asbestos as well as consideration of health and safety hazards to on-site workers associated with normal construction operations.	Yes, management of contaminated waste including hazardous waste such as asbestos are detailed in the Waste Management Plan. The health and safety of on-site workers' wellbeing are detailed in the Health and Safety Management Plan.	SecureEnergy
Protection of the Environment Operations (Waste) Regulation 2005	Waste and transportation	Part 4	Comply with record keeping requirements in relation to the transport of certain types of waste.	Yes, the relevant management measures have been incorporated within the Waste Management Plan.	SecureEnergy
Dangerous Goods (Road and Rail Transport) Act 2008	Hazards and risks	Section 9	Ensure that dangerous goods are transported in a safe manner.	Dangerous goods are required to be transported in a safe manner. Vehicles that transport dangerous goods are required to be licensed. Drivers transporting dangerous goods are required to be licensed. Licences to transport dangerous goods will be obtained if required.	SecureEnergy and SecureEnergy's Subcontractors

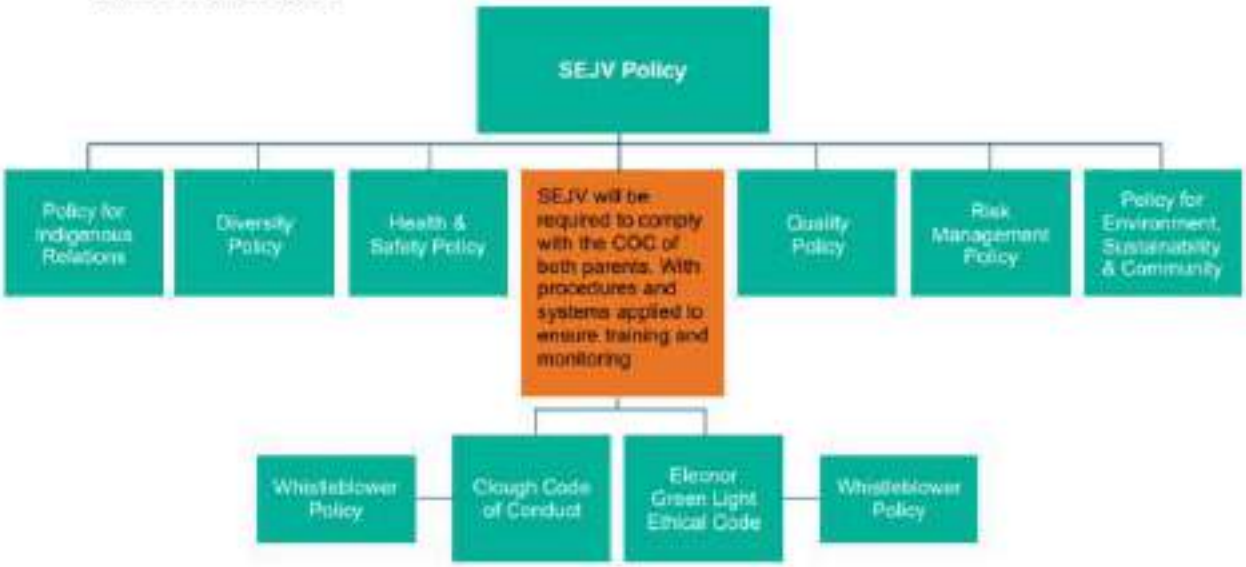
Legislation/ Regulations	Aspect	Reference	Requirement	Applicability	Responsibility
Road Transport Act 2013	Provisions concerning road users, road transport and the improvement of road safety	All	To consolidate most of the existing statutory provisions concerning road users, road transport and the improvement of road safety in this jurisdiction To provide the Agreed Reforms within the meaning of the Inter-Governmental Agreement for Regulatory and Operational Reform in Road, Rail and Intermodal Transport entered into by the Commonwealth, the States and the Territories. To facilitate recovery of expenses incurred in the administration of this Act and the collection of fees and charges payable. To provide for additional matters concerning the regulation of road users and road transport and the improvement of road safety in this jurisdiction.	All drivers are required to have a valid driver's licence. All vehicles must be registered with the applicable vehicle registration system.	SecureEnergy and SecureEnergy's Subcontractors
NSW Road Rules 2014	Safe and efficient movement of traffic	All	To consolidate in a single instrument the road rules that are applicable in New South Wales. To provide for road rules that are based on the Australian Road Rules so as to ensure that the road rules applicable in this State are substantially uniform with road rules applicable elsewhere in Australia, To provide for other road rules to be observed in this State in relation to matters that are not otherwise dealt with in the Australian Road Rules	Support the objectives of the legislation by ensuring mitigation recommendations are aligned with the Road Rules.	SecureEnergy

Appendix A2 – Policy for Environment, Sustainability and Community

SecureEnergy Policy Model

SecureEnergy JV (ABN 56 282 382 697), is a joint Venture between Clough Projects Australia Pty Ltd (ABN 26 109 444 215) and Green Light Contractors Pty Ltd (ACN 168 435 658) commonly referred to as "SEJV". SEJV has been initially formed to deliver the Project Energy Connect (PEC) with a view that SEJV will become a viable delivery vehicle that will service substation and transmission network sector projects over the coming years.

It is agreed within the Joint Venture Deed that SEJV will adopt and use Clough's Management Systems (CMS). As a result, SEJV will adopt the Clough Policies that inform these systems as amended from time to time. The exception to this is Clough's Code of Conduct policy. In this instance it is proposed that both Clough's Code of Conduct and Elecnor's Ethical Code will be applied.



John Galvin
SteerCo Member - Clough
SecureEnergy JV
Date 10/02/2021

Carlos Fernandino
SteerCo Member - Elecnor
SecureEnergy JV
Date Feb 25, 2021

Paul Farris
SteerCo Member - Clough
SecureEnergy JV
Date Feb 15, 2021

Samuel Basanta
SteerCo Member - Elecnor
SecureEnergy JV
Date Feb 16, 2021

All personal information obtained by SecureEnergy Joint Venture during the implementation of this policy will be controlled in accordance with the Clough Policy for Privacy and the Privacy Amendment (Private Sector) Act 2000.

Document No.

Rev No.

secureenergy
CLOUGH ELECNOR JOINT VENTURE

Policy for Environment, Sustainability & Community

Clough strives to deliver environmentally sustainable outcomes for energy, materials and water, during all stages of its operations. Clough values sustainable development and believes respect for the environment and the community in which it operates is fundamental to business success.

Clough ensures human, financial and technological resources are provided for the active management and maintenance of the Clough Management System, aligned with the requirements of AS/NZS ISO 14001to drive continual improvement.

At Clough employees and contractors show their commitment to minimising environment and social impacts and promoting sustainable development by:

- Sharing a belief in a culture of zero harm where harm to people or the environment is unacceptable;
- Stopping work where an activity could harm the environment or community;
- Planning and performing activities to achieve zero harm outcomes; and
- Understanding their roles, responsibilities and behaviours expected of them.

Clough engages with clients, partners, stakeholders and communities to understand key environmental aspects, potential impacts and support the development of sustainable solutions.

PRINCIPLES:

Wherever Clough operates the following principles apply to promote sustainable development, in all its operating environments:

- Making it personal – Individuals take personal responsibility to comply with relevant laws and regulations and apply responsible standards as detailed in the Clough Management System where laws do not exist.
- Make a positive impact – we enrich the lives of those in the communities in which we work and live by respecting the traditional rights of indigenous peoples and cultural heritage values.
- Accountability – Clough holds all levels in our organisation accountable for compliance with regular monitoring, reviewing and reporting on our progress against our targets that promote efficient use of resources.
- Risk Management – Clough identifies, assesses and manages risks to the environment and our host communities.
- Learning Culture – Clough maintains regular, transparent and effective communication and consultation with all employees, stakeholders and communities affected by its activities and improves the livelihoods of the communities in which we operate through local employment and training opportunities.
- We work sustainably - Design and construct to efficiently use energy and raw materials, minimise waste, reduce and prevent pollution.

The Chief Executive Officer of Clough Limited is accountable to the Board of Directors for ensuring that this Policy is implemented throughout Clough's operation

Clough undertakes to communicate this policy to all persons working for or on its behalf and to the public as required. The policy will be reviewed every three years to maintain relevance to Clough business activities.



Peter Bennett
Chief Executive Officer & Managing Director
Clough Limited
November 2021

All personal information obtained by Clough during the implementation of this policy will be controlled in accordance with the Clough Policy for Privacy and the Privacy Amendment (Private Sector) Act 2000.

CORP-GOV-POL-G-0014 Rev No. 9

CLOUGH

Appendix A3 – Environmental Aspect and Impact Register

No.	Activity	Environmental category	Aspect/Cause	Impact/Risk	Possible Outcome	Consequence	Likelihood	Initial Risk Rating	Risk Management Measures (DRAFT)	Consequence	Likelihood	Residual Risk Rating	Risk Owner
1	Earthworks Vegetation clearing	Heritage	Clearing outside the project footprint, plant operation and excavation outside project footprint, vibrations from plant operation and transport impacts exceed those assessed and cause structural damage to sensitive items.	Damage to heritage items, including culturally significant sites, artefacts and heritage values	• Unapproved impacts to heritage items • Loss of items of cultural significance • Impacts to relationships with traditional owners • Potential regulatory action from agencies • Project delays • Financial penalties • Reputational impacts	Major	Almost certain	23 - Very High	• Sensitive Area Plans (SAPs) to include heritage items • Noise and Vibration Management Plan • Unexpected heritage find procedure • Physical demarcation of identified heritage locations • Identification of additional heritage risk areas • Additional heritage survey and heritage salvage activities.	Moderate	Possible	13 – Moderate	SecureEnergy
2	Vegetation clearing	Biodiversity	Removal of occupied habitat, including hollow bearing trees, shrubs, nests, ground cover, rocks.	Injury/mortality of fauna	• Impacts to fauna • Reputational impacts • Potential regulatory action from agencies	Moderate	Likely	17 - High	• Biodiversity Management Plan • Pre-clearing procedure • Unexpected biodiversity find procedure • Fauna handling procedure • Use of fauna spotters/handlers	Moderate	Possible	13 – Moderate	Transgrid and SecureEnergy
3	Vegetation clearing	Bushfire	Sparks from machinery ignites combustible vegetation and fire gets out of control.	Ignition of bushfire	• Significant impact to local environment through bushfire • Potential destruction of project infrastructure and equipment • Potential for fatality/injury to personnel and members of the public • Damage to public property and adjacent properties • Loss of biodiversity • Project delays • Significant reputational impact • Potential regulatory actions from agencies • Financial penalties	Catastrophic	Likely	24 – Very High	• Emergency Plan • FRACM • Hot works permits	Catastrophic	Rare	15 – Moderate	SecureEnergy
4	Earthworks Vegetation clearing	Biosecurity	Vehicular movements from disturbed and contaminated areas into undisturbed areas within the project area.	Introduction and spread of weeds, pests and pathogens causing native/threatened species population declines.	• Impact to biodiversity in exceedance of the approved project • Spread of weeds/impacts to native vegetation • Long term maintenance requirements	Major	Possible	19 – High	• Biodiversity Management Plan • Weed and seed inspections • Hygiene inspections of vehicle prior to accessing site • Washdown bays	Moderate	Possible	13 – Moderate	Transgrid and SecureEnergy
5	Earthworks Vegetation clearing	Biodiversity	Vegetation clearing outside of project boundary, over clearing of vegetation, clearing of species unapproved for clearing.	Removal of vegetation/habitat not permitted to be impacted by the project approval	• Unapproved impact to flora • Potential regulatory actions from agencies • Project delays • Financial penalties • Reputational impacts	Major	Almost certain	23 - Very High	• Biodiversity Management Plan • Set-up exclusion zones and defined clearing limits and no-go zones • Sensitive area plans (SAPs) • Unexpected biodiversity find procedure • Clearing and land disturbance permits • Clearing register	Moderate	Possible	13 – Moderate	Transgrid and SecureEnergy
6	Earthworks Vegetation clearing	Surface water	Newly exposed sediment and top soil carried into catchments and watercourses during rainfall events.	Contamination of surface water. Reduction in water quality. Dispersion of contaminants	• Water pollution • Loss of topsoil • Impacts to aquatic habitat and fauna • Potential regulatory action from agencies • Financial penalties • Reputational impacts	Major	Possible	19 – High	• Soil and Water Management Plan • Erosion and Sediment Control Strategy and PESCPs • Clean water diversions • Process and intercepted water management • Discharge permit • Sediment basins and water treatment	Major	Unlikely	14 – Moderate	SecureEnergy

No.	Activity	Environmental category	Aspect/Cause	Impact/Risk	Possible Outcome	Consequence	Likelihood	Initial Risk Rating	Risk Management Measures (DRAFT)	Consequence	Likelihood	Residual Risk Rating	Risk Owner
7	Earthworks Vegetation clearing	Biodiversity	Construction activities in fauna habitats causes fauna to relocate away from area.	Fauna disturbance/ relocation	• Reduction in localised population of fauna including threatened species • Adverse fauna monitoring impacts	Minor	Likely	11 - Moderate	• Biodiversity Management Plan • Sensitive area plans (SAPs) to included fauna habitats of significance • Unexpected biodiversity find procedure	Minor	Possible	10 - Moderate	Transgrid and SecureEnergy
8	Earthworks Vegetation clearing	Noise and vibration	Noise and vibration levels from construction activities and transport of materials, equipment and personnel exceeds the levels assessed in the project approval. The project site is remote from sensitive receivers, noise and vibration impacts are more likely an issue along the access route through local towns.	Increased noise and vibration levels at sensitive receivers	• Sleep disturbance at sensitive receiver locations • Potential regulatory action from agencies • Loss of support from local community • Reputational impacts	Moderate	Almost certain	18 – High	• Noise and Vibration Management Plan • Traffic and Transport Management Plan • Out of Hours Work Procedure • Out of Hours Work Permit • Noise monitoring record • Vibration monitoring record	Moderate	Possible	13 – Moderate	SecureEnergy
9	Earthworks Vegetation clearing	Air Quality	Exposed sediment and stockpiled of fine material become airborne in strong winds and carried to other areas. Generation of dust during construction activities	Visible dust plumes and deposition of dust on surfaces, impacts to amenity, dust generation from exposing of topsoil and sub soil through vegetation removal.	• Excessive dust emission/deposition in surrounding environment • Air quality impacts exceed the approved project levels	Moderate	Almost certain	18 – High	• Air Quality Management Plan • Implement dust-suppression through use of water cart • Rehabilitation/stabilisation of cleared areas where possible	Moderate	Possible	13 – Moderate	SecureEnergy
10	Earthworks Vegetation clearing	Air quality / greenhouse gas emissions	Unnecessary operation/idling of vehicles, machinery and plant.	Excess use of natural resources and energy leading to production of greenhouse gases.	• Excessive consumption of diesel and other resources • Unnecessary production of greenhouse gases	Minor	Possible	10 - Moderate	• Training/instruction to on-site staff, machinery and plant operators to shut down vehicles and equipment when not in use	Minor	Rare	5 – Low	SecureEnergy
11	Vegetation clearing	Waste	Mismanagement of waste vegetation	Vegetation disposed of unlawfully	• Potential regulatory action from agencies	Moderate	Possible	13 - Moderate	• Waste Management Plan	Minor	Unlikely	6 – Low	SecureEnergy
12	Earthworks	Biodiversity	Improper stockpiling of excavated material and engineered fill.	Impacts on vegetation/habitat beyond the project boundary.	• Unapproved impacts beyond project boundary • Potential regulatory action from agencies • Project delays • Financial penalties • Reputational impacts	Major	Possible	19 – High	• Biodiversity Management Plan • Utilisation of allocated stockpile areas • Training for all contractors	Moderate	Rare	7 - Low	Transgrid and SecureEnergy

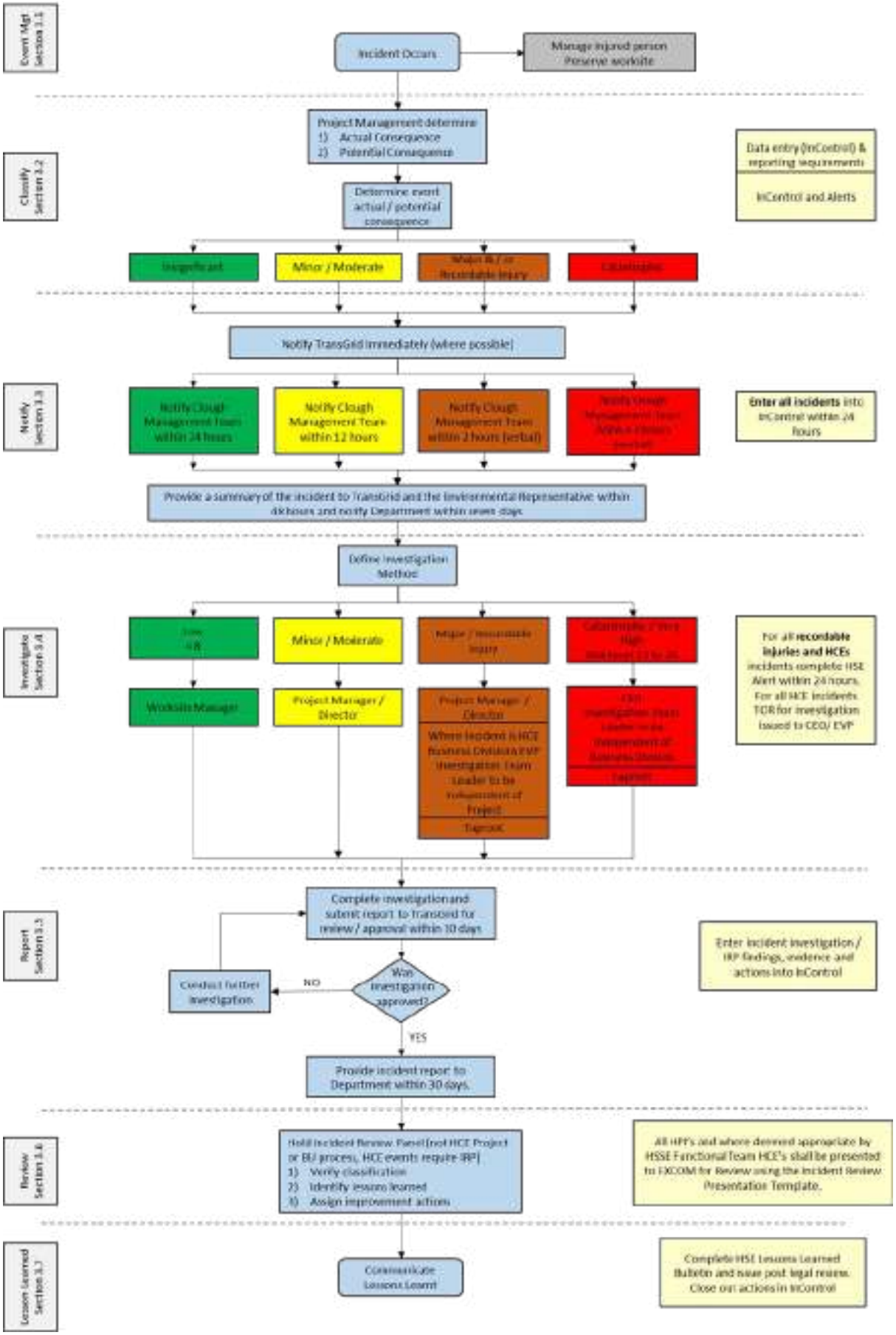
No.	Activity	Environmental category	Aspect/Cause	Impact/Risk	Possible Outcome	Consequence	Likelihood	Initial Risk Rating	Risk Management Measures (DRAFT)	Consequence	Likelihood	Residual Risk Rating	Risk Owner
13	Earthworks	Landform	Exposed sediment carried into catchments and watercourses during rainfall events due to lack of controls or inadequately installed controls.	Loss and/or degradation of topsoils and subsoils.	• Adverse water quality impacts • Loss of amenity • Potential regulatory action from agencies • Reputational impacts	Moderate	Likely	17 – High	• Soil and Water Management Plan • Erosion and Sediment Control Strategy and PESCPs • Clean water diversions • Process and intercepted water management • Sediment basins and water treatment (as required)	Moderate	Possible	13 – Moderate	SecureEnergy
14	Transport of materials, equipment and personnel	Biodiversity	Driving vehicles on access roads during times of high fauna activity. Excessive speed on access roads. Inattention of drivers on potential for fauna impacts.	Frequent injury/mortality of protected fauna	• Trigger EPBC Act thresholds for impacts on commonwealth listed species, • Potential regulatory action from agencies • Financial penalties • Reputational impacts • Personal injury due to collision with larger fauna including kangaroos and horses.	Major	Possible	19 – High	• Biodiversity Management Plan • Traffic and Transport Management Plan	Moderate	Possible	13 – Moderate	Transgrid and SecureEnergy
15	Transport of materials, equipment and personnel	Biosecurity	Vehicular movements from disturbed and contaminated areas into undisturbed areas within the project area.	Introduction and spread of weeds, pests and pathogens causing native/threatened species population declines.	• Impact to biodiversity in exceedance of the approved project • Spread of weeds/impacts to native vegetation • Long term maintenance requirements • Potential regulatory action from agencies	Major	Possible	19 – High	• Biodiversity Management Plan • Site inductions • Weed and seed inspections • Hygiene inspections of vehicle prior to accessing site	Major	Unlikely	14 – Moderate	Transgrid and SecureEnergy
16	Transport of materials, equipment and personnel	Surface water	Vehicular spills along access road or within Project compounds.	Contamination of surface water. Reduction in water quality. Dispersion of contaminants.	• Hydrocarbon pollution • Potential regulatory action from agencies • Financial penalties • Reputational impacts	Major	Possible	19 – High	• Soil and Water Management Plan • Spill Response Procedure	Moderate	Unlikely	12 – Moderate	SecureEnergy
17	Transport of materials, equipment and personnel	Air Quality	Transportation vehicles movements cause dust particle to become airborne and carried in wind to other areas.	Visible dust plumes and deposition of dust on surfaces.	• Excessive dust emission/deposition in surrounding environment • Air quality impacts exceed the approved project levels • Adverse biodiversity impacts • Reputational impacts	Moderate	Possible	13 - Moderate	• Air Quality Management Plan • Implement dust-suppression through use of water cart • Cover all loads during transportation	Moderate	Unlikely	12 – Moderate	SecureEnergy
18	Transport of materials, equipment and personnel	Waste	Materials shipped from distant locations, excessive personal vehicle usage, repeated movements back and forth from site.	Excess use of natural resources and energy.	• Unnecessary production of greenhouse gases • Impacts of the project exceed those assessed in the EIS	Moderate	Likely	17 – High	• Traffic and Transport Management Plan	Moderate	Unlikely	12 – Moderate	SecureEnergy
19	Transport of materials, equipment and personnel	Traffic and Transport	Increased traffic volumes and congestion, increased road noise, degradation of roadways, traffic delays. Heavy and light vehicles moving in convoys through local towns to the project site.	Roadworks on local roads blocking or excessively delaying traffic movements and thoroughfare.	• Traffic delays on local and regional roads • Increased road safety hazard • Adverse reputational impacts • Increased noise and air quality impacts	Moderate	Likely	17 – High	• Traffic and Transport Management Plan • Traffic Control Plans • Engagement with community to manage expectations • Community Communication Strategy • Manage timing of oversize/overmass (OSOM) movements in accordance with TfNSW requirements	Minor	Unlikely	6 – Low	SecureEnergy

No.	Activity	Environmental category	Aspect/Cause	Impact/Risk	Possible Outcome	Consequence	Likelihood	Initial Risk Rating	Risk Management Measures (DRAFT)	Consequence	Likelihood	Residual Risk Rating	Risk Owner
20	Stockpile/ spoil emplacement	Biodiversity	Disturbance of natural areas and storage of spoil provides opportunity for weeds to establish and spread beyond the project area.	Introduction and spread of weeds, pests and pathogens causing native/threatened species population declines.	• Impact to biodiversity in exceedance of the approved project • Spread of weeds/impacts to native vegetation • Long term maintenance requirements	Major	Possible	19 – High	• Biodiversity Management Plan • Training for all contractors	Major	Unlikely	14 – Moderate	Transgrid and SecureEnergy
21	Stockpile/ spoil emplacement	Surface Water	Runoff from spoil stockpiles causes contaminated/polluted stormwater discharge into watercourses due to lack of controls or inadequately installed controls.	Erosion and sedimentation. Contamination of surface water. Reduction in water quality. Dispersion of contaminants.	• Adverse water quality impacts • Loss of amenity • Potential regulatory action from agencies • Reputational impacts	Major	Possible	19 – High	• Soil and Water Management Plan • Erosion and Sediment Control Strategy and PESCPs	Major	Unlikely	14 – Moderate	SecureEnergy
22	Storage of hazardous materials	Surface water	Spill of stored hazardous material escaping containment into waterways.	Contamination of surface water. Reduction in water quality. Dispersion of contaminants.	• Hydrocarbon pollution • Potential regulatory action from agencies • Financial penalties • Reputational impacts	Major	Possible	19 – High	• Soil and Water Management Plan • Bunded areas for storage of fuels and oils	Major	Unlikely	14 – Moderate	SecureEnergy
23	Storage of hazardous materials	Groundwater	Spill or leaks of stored hazardous material dispersing into ground water.	Contamination of groundwater.	• Potential for irreparable damage to groundwater quality • Long term impacts to groundwater dependent species or ecosystems	Major	Unlikely	14 – Moderate	• Soil and Water Management Plan • Bunded areas for storage of fuels and oils	Moderate	Rare	7 - Low	SecureEnergy
24	Rock crushing/ screening	Noise and vibration	Rock crushing and screening activities situated too close to sensitive receivers.	Increased noise and vibration levels at sensitive receivers.	• Sleep disturbance at sensitive receiver locations • Loss of support from local community	Moderate	Unlikely	12 – Moderate	• Noise and Vibration Management Plan • Management of operational hours and intensity level	Moderate	Rare	7 - Low	SecureEnergy
25	Rock crushing/ screening	Air Quality	Rock crushing and screening activities not implementing adequate dust suppression mitigation.	Increased dust emissions.	• Excessive dust emission/deposition in surrounding environment air quality impacts exceed the approved project levels adverse biodiversity impacts	Major	Possible	19 – High	• Air Quality Management Plan • Weather monitoring prior to operation • Use of covers and water spray	Minor	Unlikely	6 – Low	SecureEnergy
26	Construction of transmission line tower/poles	Noise and vibration	Increase use of heavy plant and equipment	Increased noise and vibration levels at sensitive receivers.	• Potential regulatory actions from agencies • Reputational impacts • Loss of support from local community	Moderate	Likely	17 - High	• Noise and Vibration Management Plan • Management of operational hours and intensity level • Community Communication Strategy • Engagement with community to manage expectations • Complaints Management System	Moderate	Possible	13 – Moderate	SecureEnergy
27	Construction of transmission line tower/poles foundation	Water	Unapproved extraction of water quantity, water use or from unapproved water supply points	Impacts to the existing groundwater quantity for nearby local and downstream users, impacts to nearby groundwater dependent ecosystems.	• Unlawful extraction of water • Potential regulatory actions from agencies • Reputational impacts • Loss of support from local community	Moderate	Likely	17 – High	• Soil and Water Management Plans • Water extraction logs • Water meter	Moderate	Possible	13 – Moderate	SecureEnergy
28	Assembly of transmission line towers/poles	Noise and vibration	Increase use of heavy plant and equipment	Increased noise and vibration levels at sensitive receivers.	• Reputational impacts • Loss of support from local community	Moderate	Likely	17 – High	• Noise and Vibration Management Plan • Engagement with community to manage expectations	Moderate	Possible	13 – Moderate	SecureEnergy

No.	Activity	Environmental category	Aspect/Cause	Impact/Risk	Possible Outcome	Consequence	Likelihood	Initial Risk Rating	Risk Management Measures (DRAFT)	Consequence	Likelihood	Residual Risk Rating	Risk Owner
29	Assembly of transmission line towers/poles	Socio economic	Visual deterioration of the skyline reducing its aesthetic appeal	Disturbance in the landscape	• Reputational impacts • Loss of support from local community	Moderate	Likely	17 – High	• Community Communication Strategy • Engagement with community to manage expectations • Complaints management system	Moderate	Possible	13 – Moderate	SecureEnergy
30	Decommissioning of existing transmission line tower/poles	Noise and vibration	Increase use of heavy plant and equipment	Increased noise and vibration levels at sensitive receivers.	• Potential regulatory actions from agencies • Reputational impacts • Loss of support from local community	Moderate	Likely	17 – High	• Noise and Vibration Management Plan • Management of operational hours and intensity level • Community Communication Strategy • Engagement with community to manage expectations • Complaints Management System	Moderate	Possible	13 – Moderate	SecureEnergy
31	Decommissioning of existing transmission line tower/poles	Contamination	Decommissioning of existing transmission tower with asbestos containing paint	Human health risk and reduction of local air quality	• Potential for fatality/injury to personnel and members of the public • Potential regulatory actions from agencies • Environmental contamination	Major	Likely	19 – High	• Safe Work Method Statement • Use of hygienist where require	Moderate	Unlikely	12 - Moderate	SecureEnergy
32	Storage/ disposal of hazardous materials	Waste	Inadequate storage of hazardous materials, inadequate spill management practices, improper disposal practices.	Contamination of soil and water, unlawful disposal of waste.	• Contamination of soil and water in sensitive environment • Potential regulatory action from agencies • Financial penalties • Loss of community support • Reputational impacts	Major	Possible	19 – High	• Waste Management Plan • Use of licensed disposal contractors • Appropriate bunded storage of hazardous materials	Major	Unlikely	14 – Moderate	SecureEnergy
33	Operation of construction compound	Water and electricity	Inefficient use of resources within the accommodation camp.	Excess use of natural resources and energy.	• Excessive use of resources such as water and electricity	Minor	Likely	11 - Moderate	• Energy efficient design of site facilities	Minor	Unlikely	6 – Low	SecureEnergy
34	Operation of construction compound	Waste	Inadequate management of camp waste including sewerage and mixed waste.	Odour impacts, contamination of soil and water in sensitive environment, excess waste sent to landfill.	• Unlawful disposal of waste excess waste generation • Contamination of waste streams • Contamination of soil and water • Potential regulatory action from agencies	Moderate	Possible	13 - Moderate	• Waste Management Plan • Use of licensed waste disposal contractors • Waste tracking and register of waste disposal	Major	Unlikely	14 – Moderate	SecureEnergy
35	Operation of construction compound	Surface water	Leak from the wastewater treatment plant into the receiving environment	Contamination of surface water. Reduction in water quality. Dispersion of contaminants.	• Environmental contamination • Potential regulatory action from agencies • Financial penalties • Reputational impacts	Moderate	Likely	17 – High	• Soil and Water Management Plan • Wastewater treatment plant to be self-bunded	Minor	Unlikely	6 – Low	SecureEnergy
36	Use of treated wastewater	Contamination	Use of treated wastewater that does not meet the applicable water quality requirements.	Contamination of soil and water. Human and environmental health risk	• Environmental contamination • Potential regulatory action from agencies • Financial penalties • Reputational impacts	Major	Likely	19 – High	• Accommodation Camp Management Plan • Wastewater treatment plant maintenance manual • Verification monitoring program	Moderate	Possible	13 – Moderate	SecureEnergy

No.	Activity	Environmental category	Aspect/Cause	Impact/Risk	Possible Outcome	Consequence	Likelihood	Initial Risk Rating	Risk Management Measures (DRAFT)	Consequence	Likelihood	Residual Risk Rating	Risk Owner
37	Hot works and plant operations	Bushfire	Sparks from machinery or hot work activities ignites combustible vegetation and fire gets out of control.	Ignition of bushfire.	• Significant impact to local environment through bushfire • Potential destruction of project infrastructure and equipment • Potential for fatality/injury to personnel and members of the public • Damage to public property and adjacent properties • Loss of biodiversity • Project delays • Significant reputational impact • Potential regulatory actions from agencies • Financial penalties	Catastrophic	Likely	24 – Very High	• Emergency Plan • FRACM • Hot works permits	Catastrophic	Rare	15 – Moderate	SecureEnergy
38	Inflow of workforce to local area	Socio economic	Workforce size relocating to local area.	Business impacts, increased housing demand.	• Housing rental/purchase prices increase due to increased demand • Local services struggle to meet demands • Loss of community support for the project	Minor	Possible	10 - Moderate	• Establishment of construction camps to provide accommodation for workforce • Encourage personnel to purchase local produce and use local business to stimulate positive economic growth in the locality	Minor	Unlikely	6 – Low	SecureEnergy
39	Working in bushfire prone areas	Bushfire	Siting of temporary infrastructure and personnel in bushfire prone areas without appropriate bushfire mitigation in place.	Ignition of bushfire.	• Damage to construction site, works and accommodation camps • Project delays • Safety impacts	Moderate	Possible	13 - Moderate	• Preposition firefighting equipment • Safety and emergency systems and procedures • Implement preparatory actions of Emergency plan	Minor	Unlikely	6 – Low	SecureEnergy
40	Working in UXO prone areas	Socio economic	Unidentified/buried unexploded ordnance	Working in unexploded ordnance prone area	• Project delays • Safety impacts	Catastrophic	Likely	24 – Very High	• UXO specialist engaged • Risk assessment of UXO areas, including field verification and implementation of recommended mitigation measures. • Unexpected Contamination Find Procedure	Catastrophic	Rare	15 – Moderate	SecureEnergy

Appendix A4 – Incident, Notification and Investigation Procedure Flowchart


Event Mgt Section 3.1
Incident Occurs
Manage injured person
Preserve worksite
Project Management determine
1) Actual Consequence
2) Potential Consequence
Classify Section 3.2
Determine event actual / potential consequence
Data entry (InControl) & reporting requirements
InControl and Alerts
Insignificant
Minor / Moderate
Major RI / or Recordable Injury
Catastrophic
Notify TransGrid immediately (where possible)
Notify Section 3.3
Notify Clough Management Team within 24 hours
Notify Clough Management Team within 12 hours
Notify Clough Management Team within 2 hours (verbal)
Enter all incidents into InControl within 24 hours
Provide a summary of the incident to TransGrid and the Environmental Representative within 48 hours and notify Department within seven days
Define Investigation Method
Investigate Section 3.4
Minor / Moderate
Worksite Manager
Project Manager / Director
Project Manager / Director
Where incident is HCE Business Division's EVP Investigation Team Leader to be
Project
For all recordable injuries and HCEs incidents complete HSE Alert within 24 hours. For all HCE incidents TOR for investigation issued to CEO/ EVP
Report Section 3.5
Complete investigation and submit report to TransGrid for review / approval within 10 days
Conduct further investigation
NO
Was investigation approved?
YES
Enter incident investigation / IRP findings, evidence and actions into InControl
Provide incident report to Department within 30 days
Review Section 3.6
Hold Incident Review Panel (not HCE Project or BU process, HCE events require IRP)
1) Verify classification
2) Identify lessons learned
3) Assign improvement actions
All HPI's and where deemed appropriate by HSSE Functional Team HCE's shall be presented to EXCOM for Review using the Incident Review Presentation Template.
Lesson Learned Section 3.7
Communicate Lessons Learnt
Complete HSE Lessons Learned Bulletin and issue post legal review. Close out actions in InControl

Appendix A5 – Management measures for unassigned conditions of the Infrastructure Approval and RMMs

ID	Management measures	When to implement	Responsibility	Reference
Miscellaneous				
MM1	Lighting at construction compounds and accommodation camps will be designed: • to minimise off-site lighting impacts to sensitive receivers; • include the use of low intensity lighting where practicable, except where required for safety or emergency purposes; • so that it generally does not emit light above the horizon, except where required for safety or emergency purposes; and • to be generally in accordance with *AS4282-2019 Control of the obtrusive effects of outdoor lighting*.	Detailed design	Supervisor	RMM LV3 Condition C39
MM2	Opportunities for screening vegetation for high or very high affected private property landholders will be investigated to determine the extent of the impact and appropriateness of the screening vegetation to reduce the visual impact from the residence. This will be undertaken in negotiation with the affected resident. Where required, screening vegetation will be implemented prior to completion of construction and will be maintained by the landholder.	Construction	Design Manager and Transgrid	RMM LV5
MM3	The project will be designed in accordance with *Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz – 100 kHz) (International Commission on Non-Ionizing Radiation Protection* and the EMF guidelines of set out in Table 19-2 of the EIS where practicable and feasible, otherwise in line with Transgrid's Transmission Line Design Manual – Major New Build.	Detailed design	Design Manager	RMM HR1 Condition C42
MM4	The storage, handling, and transport of dangerous goods will be undertaken in accordance with the relevant Australian Standards and guidelines, particularly: • *AS1940 The storage and handling of flammable and combustible liquids*; • *AS/NZS 1596:2014 The storage and handling of LP Gas, the Dangerous Goods Code*; and • the EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manua*l.	Construction	Supervisor, Environmental Manager, HSSE	Condition C41
MM5	Works to public infrastructure will be undertaken, in consultation with the applicable public authority or service provider, in the following events: • where any public infrastructure that is damaged by the project; and • where any public infrastructure needs to be relocated as a result of the project. Public infrastructure works does not include any damage to roads caused from general road usage.	Construction	Supervisor	Condition A15
MM6	The Proponent must ensure that all demolition work on site is carried out in accordance with *AS 2601-2001: The Demolition of Structures* (Standards Australia, 2001).	Construction	Supervisor	Condition A16
MM7	The Proponent will ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA; and where the BCA is not applicable, to the relevant Australian Standard.	Construction	Supervisor	Condition A17

ID	Management measures	When to implement	Responsibility	Reference
MM8	Advertisement signs, logos and other off-site visual materials related to the project will be avoided or minimised to reduce visual impacts, where reasonable and practicable, except where required for site identification, or traffic and haulage purposes, or safety purposes.	Construction	Supervisor, Environmental Manager	Condition C38
MM9	If the development results in the disruption to any radio communications services (including point-to-point microwave links) in the area, then any disruptions to these services must be made good as soon as possible following the disruption, but no later than 1 month following the disruption of the service unless the relevant service provider or user or Planning Secretary agrees otherwise.	Pre-construction Construction	Design Manager, Supervisor	Condition C40
MM10	Prior to any works traversing the high-pressure gas main (Bowmen – Culcairn Pipeline) easement, including above ground electricity transmission lines, an induced electrical current risk assessment will be undertaken identifying potential risks to the pipeline, including any physical mitigation measures and ongoing management requirements.	Prior to traversing the high-pressure gas main	Design Manager Supervisor	Condition C43
MM11	Prior to commencing construction, detailed plans of the final layout of the development will be submitted to the Department via the Major Projects website, including: a) details on siting of transmission towers, ancillary infrastructure and / or ancillary facilities; and b) showing comparison to the approved layout and approved vegetation clearing. The Proponent must ensure that the development is constructed in accordance with the Final Layout Plans.	Pre-construction	Design Manager Supervisor	Condition D4
MM12	Impacts to agricultural activities due to access tracks would be minimised through: • consultation with landholders; and • where permanent tracks are required, designing tracks to serve both temporary and permanent purposes, where possible.	Pre-construction Construction	Design Manager, Engagement Manager	RMM LP1
MM13	Measures such as the following will be implemented in order to minimise disruption to agricultural activities: • consulting landholders regarding any required property adjustments; • property infrastructure (such as gates) would be managed in accordance with landholder requirements where possible, (provided access is not limited or restricted); • any damage to property infrastructure caused by construction will be repaired in a timely manner; • use of existing roads, tracks and other existing disturbed areas will be prioritised; and • outside of the easement care would be exercised when accessing open spaces to ensure that damage is minimised where possible.	Pre-construction Construction	Engagement Manager, Supervisor	RMM LP3
MM14	Consultation would be undertaken with relevant landowners who utilise aerial farming operations to identify appropriate mitigation arrangements (where feasible) such as the installation of aerial warning markers on the transmission lines.	Pre-construction Construction	Engagement Manager	RMM LP4

Appendix B – Environmental Management Sub-Plans

PUBLIC

Biodiversity Management Plan
EnergyConnect (NSW – Eastern Section)
Stage 1 and Stage 2

45860-HSE-PL-D-0117

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	5/09/2022	Internal review	K.Baxter	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
B	30/09/2022	Issued for Transgrid review	K.Baxter	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
C	18/11/2022	Issued for agency review	K.Baxter	R.Walker-Edwards	G.Crighton	B.Calligeros	S.Basanta
0	1/02/2023	Issued in response to agency consultation and ER comments	R.Walker-Edwards	C.Curlewis	G.Crighton	B.Calligeros	S.Basanta
1	16/03/2023	Issued in response to agency consultation	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta
2	4/05/2023	Revised in response to DPE comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta
3	19/06/2023	Revised in response to DPE comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta
4	5/07/2023	Revised in response to DPE comments	R.Walker-Edwards	CATHERINE CURLEWIS (Jul 5, 2023 17:47 GMT+10) C.Curlewis	G.Crighton	-	Samuel Basanta Lopez S.Basanta

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued to Transgrid review
C	Issued for agency review
0	Issued in response to agency and ER comments
1	Issued in response to agency comments
2	Revised in response to DPE comments
3	Revised in response to DPE comments
4	Revised in response to DPE comments

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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Glossary and Abbreviations

Acronym	Definition
Affected species	A species that is likely to be affected by direct and/or indirect impacts as a result of the proposal.
Amendment Report	*Amendment Report EnergyConnect (NSW – Eastern Section)*
BAM	*Biodiversity Assessment Method 2020*
BC Act	*Biodiversity Conservation Act 2016*
BCD	Biodiversity and Conservation Division
BCS	Biodiversity, Conservation and Science Directorate, now known as the Biodiversity and Conservation Division
Biodiversity exclusion zone	Biodiversity exclusion zones are referenced within revised mitigation measure B11 of the BDAR. As a result, they are also included within this management plan. Biodiversity exclusion zones will consider identified Plains-wanderer habitat, identified threatened flora populations, and PCTs in disturbance area B that are not of a growth form height that would ever require management. They are a type of 'No-go zone'.
BMP	Biodiversity Management Plan
Biodiversity study area	The biodiversity study area is defined within the Final BDAR as '*a 200-metre-wide corridor (being 100 metre either side of the proposed transmission easement centreline) where field surveys in accordance with the Biodiversity Assessment Method (BAM) have been applied. The area also includes the proposed Dinawan substation site, the existing Wagga Wagga substation site and each of the main construction compounds and accommodation camps at Balranald, the Cobb Highway, Dinawan (Kidman Way), Lockhart and Wagga Wagga. Throughout this report this is also referred to as proposal study area*'. The biodiversity study area is defined within the Commonwealth Approval as '*the area represented in Attachment A by the zone enclosed by the white line designated 'Biodiversity study area.*'
BOS	Biodiversity Offset Strategy
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CSSI	Critical State significant infrastructure
Cth	Commonwealth
Commonwealth Approval	The Notification of Approval issued by the Department of Climate Change, Energy, the Environment and Water for EnergyConnect – Eastern Section (EPBC 2020/8766) on 5 December 2022.
DAWE	Department of Agriculture, Water and Environment, now known as Department of Climate Change, Energy, the Environment and Water
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DPE or Department	NSW Department of Planning and Environment
DPIE	NSW Department of Planning, Industry and Environment now known as NSW Department of Planning and Environment
EEC	Endangered Ecological Communities
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
EMF	Electromagnetic field
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
ER	Environmental Representative
ESCS	Erosion and Sediment Control Strategy

Acronym	Definition
Final BDAR	*Revised Biodiversity Development Assessment Report* (August, 2022)
FM Act	*Fisheries Management Act 1994*
GDE	Groundwater Dependent Ecosystem
GIS	Geographical Information System
IBRA	Interim Biogeographic Regionalisation for Australia
LGA	Local government area
LLS	Local Land Services
MNES	Matters of national environmental significance under the EPBC Act
No go zone	A no go zone is an area where construction activities which result in unauthorised disturbance and / or impacts are not permitted. The term no go zone is used to describe a broad range of areas where activities may be excluded, including heritage sites, potential archaeological deposits, threatened ecological communities and / or threatened flora individuals.
NRAR	Natural Resources Access Regulator
NSW	New South Wales
PCT	Plant community type
PESCP	Progressive Erosion and Sediment Control Plan
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
project, the	EnergyConnect (NSW – Eastern Section)
Project study area	The proposal study area comprises a generally one-kilometre-wide corridor between the Buronga substation and the Wagga Wagga substation. It traverses around 540 kilometres in total.
PVP	Property Vegetation Plan
Response to DPE Request for Information	EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information (30 August 2022)
RMM	Revised mitigation measure
SA	South Australia
SAP	Sensitive area plan
SecureEnergy	Elecnor and Clough Projects Australia Pty Ltd have formed the SecureEnergy Joint Venture (SecureEnergy). SecureEnergy is the contractor who will be carrying out the project on behalf of TransGrid.
Special biodiversity protection zone	Special biodiversity protection zones have been identified by revised mitigation measures B22, B23, B24 and B26 at the following locations and for the following species, Threatened Ecological Communities (TECs) and/or Property Vegetation Plans (PVPs): • between towers 161-162* (Austral Pillwort); • between towers 660-663* (Thyme Rice-flower); • between towers 241-242* (Natural Grasslands of the Murray Valley Plains TEC); and • between towers 243-249* (PVP H114). * Tower numbering is reflective of tower numbering from the Final BDAR. Construction activities within special biodiversity protection zones will be managed in accordance with Section 5.4 of the *Pre-clearing and Clearing Procedure*.
Stage 1	Stage 1 of construction of the project. This includes establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation and water supply points.
Stage 2	All construction activities associated with EnergyConnect (NSW – Eastern Section). Once approved the Stage 2 CEMP and the relevant Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP and Stage 1 CEMP sub-plans.

Acronym	Definition
	The Stage 2 CEMP and Stage 2 CEMP sub-plans do not address the operational phase of the project.
Submissions Report	*Submissions Report EnergyConnect (NSW – Eastern Section)*
TEC	Threatened ecological community
TSR	Travelling Stock Route
WMS	Work method statement
WONS	Weeds of National Significance

1 Introduction

1.1 Context

This Biodiversity Management Plan (BMP or this plan) forms part of the Construction Environment Management Plan (CEMP) for Stage 1 and Stage 2 of EnergyConnect (NSW – Eastern Section).

This plan has been prepared for construction activities undertaken during Stage 2 of the project. Once approved, this plan will supersede the existing Stage 1 Biodiversity Management Plan. It does not address the operational phase of the project.

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

1.2 Background

On 29 August 2019, the NSW Minister for Planning declared EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

TransGrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – South Australia (SA) / New South Wales (NSW) border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with 17 from government agencies, five from special interest groups, nine from local councils and 44 from the public.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared an Amendment Report to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report describes the updated project for which approval has been sought and was also finalised in May 2022.

On 2 June 2022, the Department requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response TransGrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to address the various requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI-9172452). Approval for the project under the EPBC Act (Commonwealth Approval) was granted by the Australian Minister for the Environment.

TransGrid have engaged SecureEnergy, a joint venture between Elecnor and Clough Projects Australia Pty Ltd to design and construct their portion of the EnergyConnect project.

1.3 Staging

Condition A8 allows preparation of plans on a staged basis, with the approval of the Planning Secretary. On 20 January 2023, the Planning Secretary approved a request under condition A8 to stage the development and prepare the required and associated strategies, plans, programs and reports on a staged basis. The staging approach included three (3) stages, with Stages 1 and 2 covering construction activities and Stage 3 covering all activities associated with the post-construction period, including operating and maintaining the infrastructure, any future upgrading and decommissioning.

Where a plan is staged, the scope of works can be carried out without addressing requirements of the Infrastructure Approval that are not applicable to that stage. This BMP is staged in accordance with condition A8. The two stages that relate to construction are as follows:

- Stage 1 – establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation, water supply points; and
- Stage 2 – Stage 1 and all other construction activities (i.e. all construction activities associated with EnergyConnect (NSW – Eastern Section).

The plans for Stage 2 incorporate and supersede the Stage 1 plans and cover the entire construction phase of the project. As per the approved staging approach, Transgrid will prepare a separate Biodiversity EMP Sub-plan for Stage 3 in accordance with conditions B1, B2 and C26 that addresses the operational phase of the project.

This BMP has been prepared specifically for EnergyConnect (NSW – Eastern Section) Stage 2 and will be implemented for the duration of Stage 2 of construction. The key project components of Stage 2 of construction include, but are not limited to, the activities provided in Table 1.1. The location of the key project components are presented in Figure 1.1.

Table 1.1 - Key project components of construction (Stage 2)

Key activity	Description of key activity
Pre-construction minor works permitted in accordance with the Infrastructure Approval.	The definition of 'construction' within the Infrastructure Approval excludes the following 'pre-construction minor works' activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. Key activities include: • environmental investigations, including biodiversity and heritage protection, salvage and recordings; • Aboriginal heritage assessment, mitigation (e.g. exclusion zones) and salvage activities including subsurface testing/test excavation, additional survey, and consultation with RAPs; • other survey work, such as road dilapidation surveys, and surveys of the general alignment and existing utilities; • installation of environmental management measures (including erosion and sediment controls), fencing, signage and security measures, enabling works; and • connections and pre-commissioning of utilities (wastewater treatment plant, electrical power, lighting, etc.) for the construction facilities.
Continuation of any outstanding Stage 1 construction activities	Construction activities undertaken during Stage 1 of the project will continue where required. This includes, but is not limited to continuation of the following activities: • any outstanding construction activities at Dinawan and Wagga Wagga substations; • operation of laydown areas including the crushing and screening plant, where required; • operation of the construction compounds including offices and laydown area; and

Key activity	Description of key activity
	• use of traffic access routes and access and egress points.
Establishment of ancillary facilities along the transmission line corridor	A number of minor staging, storage and laydown ancillary areas would be required within the project corridor for temporary storage of materials, plant and equipment required to construct the various elements of the proposal (in particular transmission line structures). Some temporary mobile batching plant locations may also need to be established to enable easy access to concrete. These sites would be in place for shorter periods at locations suitable to support the construction works as they move along the alignment.
Property adjustment work, including adjustments to property fencing	Installation or adjustment of gates and fences would be required at some locations along the alignment to enable access from the nearest roadway to construction areas. These would be constructed in consultation with the relevant council and/or affected landholder.
Water supply points – establishment and/or use	A number of water supply points have been along the length of the project to support construction water needs for the project. The proposed water supply points which are to be established and / or used include: • Euston Coop*, Balranald Shire Council; • Lake Benanee*, Balranald Shire Council; • Sturt Highway/Meilman Road*, Balranald Shire Council; • Mylatchie Track*, Balranald Shire Council; • 159 Church Street, Balranald Shire Council; • Ravensworth, Hay Shire Council [Ravensworth in Amendment Report]; • Moulamein Rd 1*, Edward River Council; • Moulamein Rd 2, Edward River Council [Moulamein Road, Moulamein in Amendment Report]; • Burraburoon*, Edward River Council; • X5 Mabins Well*, Edward River Council; • Gala Vale*, Murrumbidgee Council; • Kidman Way*, Murrumbidgee Council; • Crosby Road*, Murrumbidgee Council; • Newell Highway, Morundah*, Federation Council; • Urana-Lockhart Road, Brookong*, Lockhart Shire Council; • Brookdale*, Lockhart Shire Council; • Federation Way/Coonong Road*, Federation Council; • Newell Highway/Arrawidgee Road*, Federation Council; • Federation Way*, Federation Council; • Corner Federation Way and Stephen Street, Urana, Federation Council; • Coonong Road*, Federation Council; • Red Hill Road, Wagga Wagga, Wagga Wagga City Council [Glenfield in Amendment Report]; • 1254 Four Corners Road, Coleambally, Murrumbidgee Council [1254 Four Corners Road in Amendment Report]; • Cooinbil Water Bore, Coleambally, Murrumbidgee Council [Cooinbil, Four Corners Road, Coleambally in Amendment Report]; • Carrathool Road, Four Corners, Edward River Council [shown in Figure 6-9 of the Amendment Report, however, unclear of name in Table 6-5]; • Wonga Station, Four Corners Road, Edward River Council [Wonga in Amendment Report]; • Four Corners Road Mabins Well; Edward River Council [Four Corners Road, Mabins Well in Amendment Report]; • North Bundy Station, North Bundy Road, Booroorban, Edward River Council [North Bundy, Booroorban-Tchelery Road, Booroorban in Amendment Report]; • Booroorban-Tchelery Road*, Booroorban, Edward River Council; • Strongs Lane*, Lockhart, Lockhart Shire Council;

Key activity	Description of key activity
	• Strongs Lane/Ben Hoffmanns Lane*, Lockhart Shire Council; • Urana-Lockhart Road 2*, Brookong, Lockhart Shire Council; • Slys Lane*, Lockhart Shire Council; • The Rock - Collinguillie Road*, The Rock, Lockhart Shire Council; • Bullenbung-the-Rock Road*, Lockhart Shire Council; • Tuttys Lane*, Tootool, Lockhart Shire Council; • French Park-Bullenbung Road*, Lockhart Shire Council; • Napier Road*, Lockhart Shire Council; • Albury Road*, Lockhart, Lockhart Shire Council; • 3 Bencubbin Avenue, Coleambally, Murrumbidgee Council [3 Bencubbin Avenue in Amendment Report]; • Kerri Kerri Rd, Moulamein, Murray River Council [Keri Keri in Amendment Report]; • Urana (between Osborne Street and Stephen Street), Federation Council [Urana in Amendment Report]; • Federation Way* (near corner Federation Way and Stephen Street), Federation Council; • Cadell Road, Coleambally, Murrumbidgee Council [Cadell Road Coleambally in Amendment Report]; • Mclennons Bore Road, Coleambally, Murrumbidgee Council [Mclennons Bore Road in Amendment Report]; • 8955 Newell Highway Bundure, Murrumbidgee Council [Newell Highway, Bundure in Amendment Report]; • Commera Wilson Lane Urana*, Lockhart Shire Council; • Commera Wilson Lane/Urana-Lockhart Road*, Lockhart Shire Council; • Paraway at Four Corners Road*, Murrumbidgee Council; • Paraway at Cobb Highway*, Hay Shire Council; • North Boundary Road*; Murrumbidgee Council; • Tooleybuc*, Murray River Council; • Off Sturt Highway* Wentworth Shire Council; • 16 Mile Gums*, Hay Shire Council; • Cadell Street, Hay, Hay Shire Council; • Jerilderie Road*, Hay Shire Council; • Court Street/Sturt Highway*, Balranald Council; • Boiling Down Road*, Wagga Wagga City Council; and • continued use of the Stage 1 water supply points. The water supply points may require works to the existing infrastructure to enable connection and use by the water supply vehicles. The definition of 'construction' within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. * The water supply points denoted above with an asterisk are additional to the water supply points identified in the EIS. Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would: • confirm that the water supply point could be accessed using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary's agreement in accordance with condition C32; • reach agreement with the water supplier regarding the use of the water supply point for the project; and

Key activity	Description of key activity
	• carry out any additional assessments which may be required (ie heritage or biodiversity).
Traffic access routes and access points	Construction vehicle movements will be required for a variety of activities (i.e. earthworks, clearing and grubbing activities). All construction vehicles associated with the development will travel via the haulage routes as identified in Appendix 3 of the Infrastructure Approval or as otherwise approved. The establishment of access points would include establishing vehicle access and egress points to ensure safe vehicle movements. Existing access points may also be used. The definition of construction within the Infrastructure Approval does not include road upgrades (which includes access points). Road upgrade works are, however, incorporated within the Traffic and Transport Management Plan as required by condition C35 b).
Construction access tracks	Access to each tower would be required during construction. Access tracks would be required to be traversable by a range of vehicles. Access tracks would fall into two broad groups: • un-improved access tracks - using existing roads or tracks, or driving on existing soil or ground surface with minimal or no prior preparation; • improved access track – using existing roads or tracks where minor modification (such as grading or widening of the existing track) is required; and • constructed access tracks – around six metres wide and would generally follow the natural contour of the land as far as practicable to minimise the amount of cut and fill and soil disturbance. Access tracks would also include drainage control features such as table drains or cross banks to minimise erosion. Constructed access tracks would be required in areas where there are no existing roads or tracks, or where terrain conditions prevent continuous access along the line easement between road crossings. Local waterway spans and causeways may be required, where alternative access routes are impractical, along the length of the proposal.
Temporary works	The project will require a significant quantity of temporary works during construction. The temporary works will include, but not be limited to, the following: • earthworks, including trenches, excavations, temporary slopes, stockpiles, and embankments; • laydown and parking areas for the towers; • structures, such as formwork, shoring, edge protection, temporary bridges, solid fencing/guardrails/barriers and signage, temporary scaffold; and • equipment/plant foundations, such as work platforms, crane, and piling platforms.
Optical repeater sites	Three optical repeater site communication huts would need to be constructed at Balranald, Boorooban and Lockhart. The optical repeater sites are communication huts to ensure the stability of the communications system over great distances during the operation phase. The key activities for the construction of the optical repeater sites would consist of the following: • site establishment, including vegetation removal and establishment of temporary construction site office, if required; • earthworks and preparation of the site for concrete foundations; • construction of a new communication hut building at each site; • installation of new pole-mounted transformers; • installation of electrical cables and terminations (either through the installed conduits or stringing of the aboveground poles); • installation of site wiring and electrical control equipment within each building; • trenching for underground conduit between the Balranald optical repeater hut and transmission line; • installation of new above ground poles between the transmission line and the respective Booroorban and Lockhart optical repeater sites; • provision of power connections between the transmission line and associated optical repeater site; and

Key activity		Description of key activity
		• removal of waste and remediation of site areas.
Transmission line construction	Earthworks and transmission tower footing construction	Excavation works and establishment of construction pads at each tower site would be required for the installation of foundations, levelling around the individual tower foundations, drainage and grading or preparation for construction at the tower site. Excavations would typically be up to five metres in depth. Construction of footings and foundation works for the new transmission line towers includes: • piling. Typical transmission line tower piling depth would be generally up to 6-15 metres below ground level and would depend on ground conditions (e.g. greater piling depths would be required where soft soil types are present). The foundation type would also vary (subject to detailed design) but would consist of either: - bored pile (reinforced concrete); - driven or screw pile (concrete or steel); and - helical screw anchor, or cast in-situ reinforced concrete; • excavation to create bench sites (stepped ground excavation) where required to provide a level platform for equipment setup, the erection of the tower and other construction activities. Benching would be constructed by use of earthing equipment such as graders and excavators; • steel fabrication works; and • concrete pours.
	Assembly and erection of transmission line towers	The transmission line towers would typically be erected by assembling in sections on the ground and hoisting or lifting successive sections into place using cranes. Alternatively, towers may be erected in place on the footings by installing individual members. These towers would include infrastructure such as step bolts, climbing attachment plates, ladders, platforms, climbing barriers, identification plates, warning plates, other fixtures and fittings for the attachment of earthwires and insulators.
	Stringing of transmission lines including conductors and overhead earth wires and optical ground wires	Following erection and securing of the tower, the transmission line would be strung by either a ground pulled draw wire (with brake/winch sites) or a line stringing drone. The area required for the construction of each tower would require access for tower assembly and stringing works. Where a transmission tower is proposed to allow for a direction change of the transmission line, a larger area would be required (to allow for brake and winching sites). At a typical site, this would include a temporary area of up around 60 metres by 80 metres at each transmission line tower location. The transmission line would require spanning a series of major watercourses. The general construction methodology is to assemble and erect a transmission line structure on either side of each major river crossing. A drone would then be used to take a lead wire over the river to allow cables to then be pulled and strung tower to tower. Similar methodology will be undertaken when stringing transmission line across major road networks and railway lines.
	Installation of earthing conductors and connection to substations	The following key activities will be undertaken: • installation of earthing conductors at each of the transmission tower arms; • installation of earthing or isolation sections of fences and gates where the transmission line crosses or closely runs parallels to a metallic fence; and • connection of incoming transmission lines at the Dinawan and Wagga Wagga substations.
Pre-commissioning phases		Pre-commissioning activities would form part of the final construction and installation works and would incorporate all tests and checks to confirm that construction quality assurance documentation, inspection and test plans, checklists and associated activities have been completed for each individual component of plant. This would be to ensure that it has been supplied and installed in accordance with the design and statutory standards and is safe to proceed to commissioning. The key pre-commissioning activities which would be undertaken would include: • testing and commissioning of the new substation equipment; • point to point testing of the new transmission lines and substation connections; • earthing testing;

Key activity	Description of key activity
	• high voltage testing; • high voltage equipment operational checks; • testing of the installed protection, metering, control, and communication systems; and • cut over (energisation) of electricity between the existing and new transmission lines (where required).
Utility adjustments and protection	General utility protection and adjustment works, where required, to allow for the Wagga Wagga substation expansion and upgrades works to occur, the optical repeater sites, the establishment and operation of the construction compounds and accommodation camps, and elsewhere as required.
Progressive site rehabilitation and landscaping	Site rehabilitation would be carried out progressively along completed sections of the transmission line as well as the substation sites. This phase would occur following the completion of construction and involve the removal of materials not required during the operation of the substation and/or transmission lines. This phase would include the removal/remediation of the construction compounds and camp sites, removal of temporary facilities and site buildings and temporary environmental controls. Works may also be undertaken to restore: • water infrastructure facilities to pre-existing conditions before arrival on site in consultation with landowners; • natural drainage in areas where temporary facilities were provided; and • fences, gates, etc., which may have been damaged during construction. Installation of the permanent Transgrid property boundary fence surrounding the new and expanded substation sites would also likely occur during this phase.
Demobilisation	SecureEnergy will start to downsize the construction team with gradual demobilisation as particular key construction activities are completed.

Some activities nominated in this stage will have already commenced as part of Stage 1 and/or the pre-construction minor works permitted in accordance with the Infrastructure Approval. These pre-construction minor works will remain excluded from the definition of ‘construction’ and will therefore not be subject to the Stage 1 or 2 CEMP and this BMP. Activities that were approved to be carried out under the Stage 1 BMP will continue under this BMP.

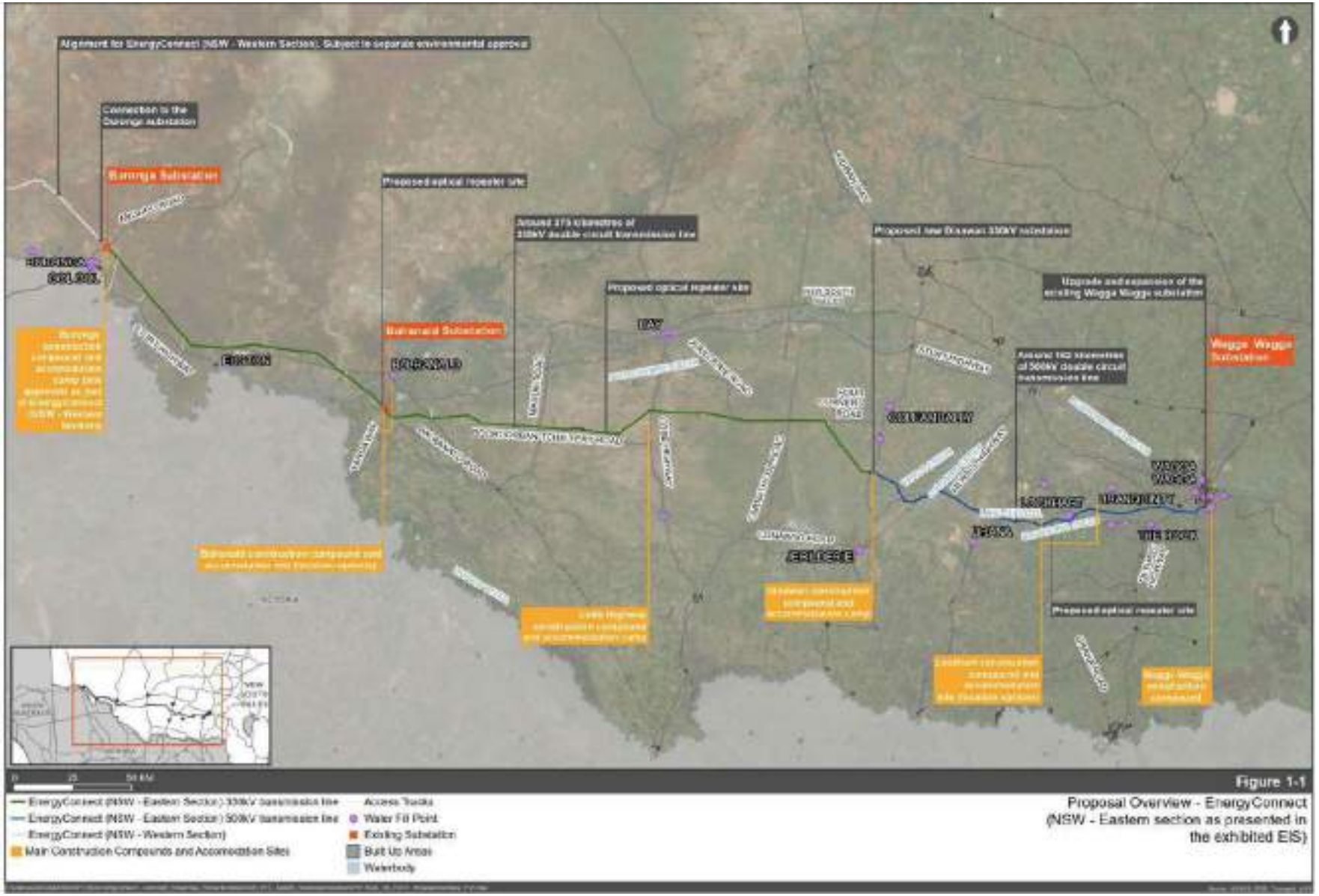


Figure 1.1 - Key features of EnergyConnect (NSW – Eastern Section)

1.4 Environmental management system

The overall environmental management system for the project is described in Section 4 of the CEMP.

This BMP is a Sub-plan that forms part of the CEMP and is also part of the environmental management framework for the project, as described in the CEMP. Figure 1.2 shows the CEMP framework for the project.

Management measures identified in this BMP will be incorporated into relevant site-based documents including, but not limited to, site or activity specific relevant work pack or work method statements (WMSs), the geographical information system (GIS) / sensitive area plans (SAPs), or training and awareness material.

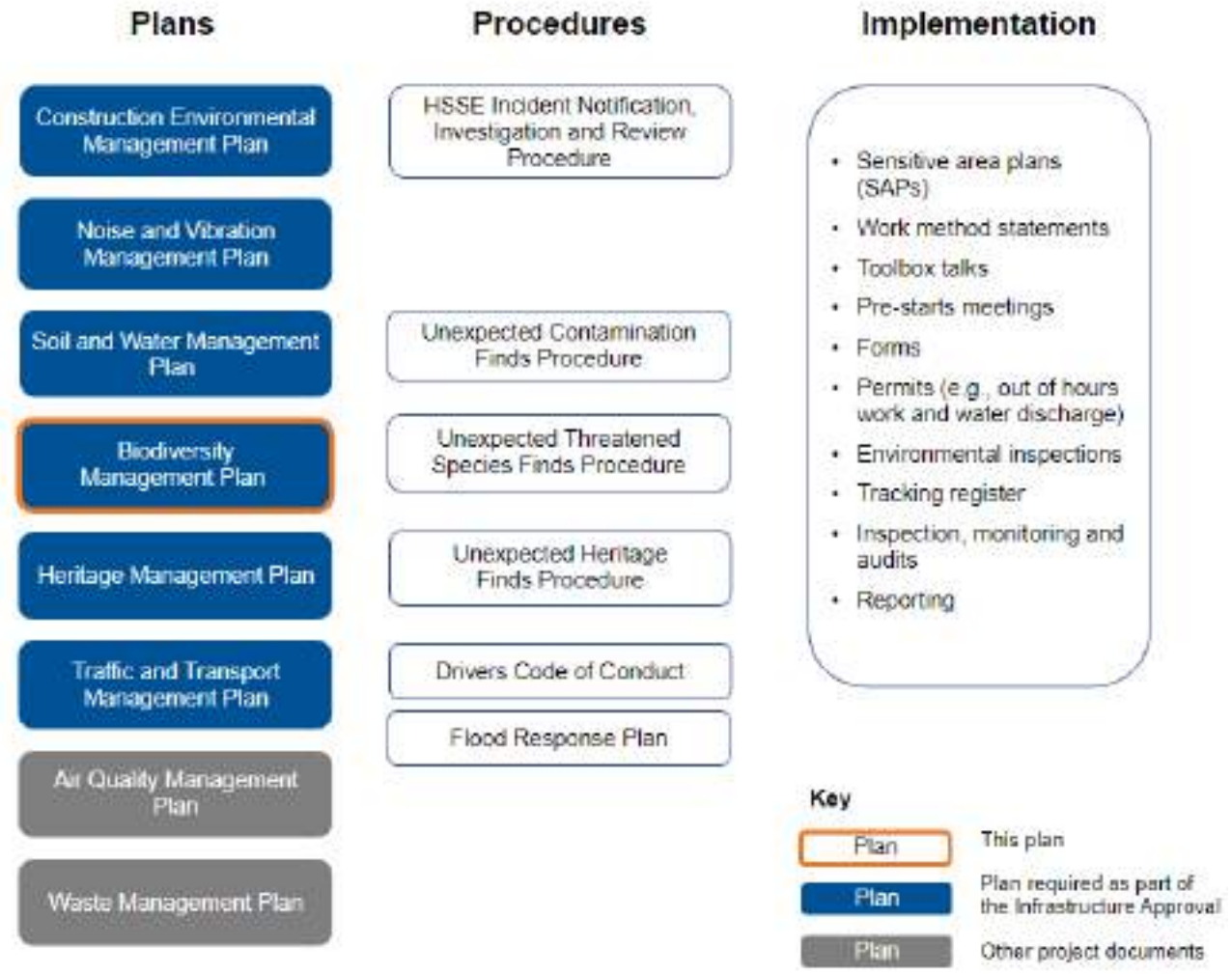


Figure 1.2 - CEMP framework

1.5 Purpose and objectives

The purpose of this BMP is to describe the approach that will be adopted during construction of Stage 2 of the project to manage biodiversity impacts.

The key objective of this BMP is to detail management measures and inform site procedures for implementation so that biodiversity impacts are minimised. To achieve this, the following will be undertaken:

- implement appropriate measures to address the requirements outlined in the Infrastructure Approval, EIS, Submissions Report, Amendment Report and Final BDAR;

- implement appropriate measures during construction to minimise biodiversity impacts; and
- implement appropriate measures to comply with all relevant legislative requirements as described in Section 2.1 of this BMP.

As a means of assessing environmental performance, environmental objectives (performance measures), targets (criteria) and performance indicators have been established for the project and are provided within Table 4.2 of the CEMP. The performance measures and indicators relevant to biodiversity management are detailed within Table 1.2.

Table 1.2 - Environmental objectives, targets and performance indicators relevant to biodiversity

Aspects	Objectives (performance measures)	Targets (criteria)	Performance indicators
Biodiversity	Minimise and manage the impacts of the project on biodiversity.	• No exceedance to clearing values of known biodiversity including flora and fauna species as specified in condition C23 a). • Minimise the risk of injury and mortality of fauna. • Clearing and management of Plains-wanderer habitat to occur in accordance with the Plains-wanderer Protocol. • Bespoke construction methodology to be applied within the special biodiversity protection zones. • Nest box installation for squirrel gliders to commence prior to clearing in a particular location. • Nest box installation for other species to commence prior to clearing in a particular location.	• Clearing limits to be within those set in Appendix 2 of the Infrastructure Approval and Section 5.3.1 of this BMP. • Zero fauna injured as a result of procedures not being adhered to. • Compliance with the requirements of the Plains-wanderer Protocol in Appendix F of the BMP. • Compliance with the requirements of the Pre-clearing and Clearing Procedure in Appendix G of the BMP, for the special biodiversity protection zones. • Nest box installation for squirrel gliders will commence prior to clearing in a particular location. • 30% of nest boxes for other species will be installed prior to clearing in a particular location. • All remaining nest boxes (100%) to be installed within three months of clearing in a particular location.
Biodiversity	Rehabilitate and restore disturbance areas to its pre-existing condition at tower pads, laydowns and brake and winch sites	• All temporary infrastructure is removed. • Topsoil reinstated. • Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration. • All rubbish and waste materials are removed.	• Temporary infrastructure removed. • Topsoil has been reinstated on the previously disturbed areas. • Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm). • No visible rubbish or waste.
Biodiversity	Rehabilitate and restore disturbance areas to its pre-existing condition at access tracks and access points	• Operational requirements for access, and consultation with landowner, confirms final land use. • Where access track/point is restored, all infrastructure required to be removed has been removed. • Where access track/point is restored, topsoil is reinstated.	• Transgrid and/or landowner confirmation of final land use of the access track/point. • Where access track/point is restored, infrastructure is removed. • Where access track/point is restored, topsoil has been reinstated.

Aspects	Objectives (performance measures)	Targets (criteria)	Performance indicators
Biodiversity	Rehabilitate the ancillary facilities, accommodation camps and the earthworks material site in accordance with the following objectives: • Ancillary facilities: - safe, stable and non-polluting; - progressively rehabilitate the site as soon as possible following disturbance; - to be decommissioned and removed, unless the Planning Secretary agrees otherwise; • Land use: - restore land capability to pre-existing use; • Community: - ensure public safety at all times.	• Progressive erosion and sediment control plan prepared and implemented • Controls that relate to rehabilitation are implemented in accordance with the Progressive Erosion and Sediment Control Plans (PESCPs). • Topsoil reinstated. • Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration. • No significant erosion is present that would compromise the establishment of vegetation. • Commence decommissioning and/or rehabilitation within 1-2 months of completion of use of the site, unless the Planning Secretary agrees otherwise. • Redundant services including power are disconnected. • All temporary infrastructure is removed including accommodation facilities and temporary buildings. • Temporary construction fencing removed. • Final land use agreed with landowner. • Implementation of the Health and Safety Plan during all decommissioning and rehabilitation works.	• Erosion controls have been implemented. No further sediment controls are required as appropriate cover has been achieved. • Topsoil has been reinstated on the previously disturbed areas. • Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm). • Controls that relate to rehabilitation are implemented in accordance with the Progressive Erosion and Sediment Control Plans (PESCPs). • Services are no longer connected. • Temporary infrastructure removed. • Agreement is to be obtained from the Planning Secretary if removal is not proposed. • Temporary construction fencing removed. • Landowner confirmation of final land use of the access track/point. • Public access to the site is not provided until it is considered safe to do so.

1.6 Preparation of this plan

In accordance with condition B6 of the Infrastructure Approval, this plan has been prepared by a suitably qualified and experienced person. This plan was prepared by:

- Rebecca Walker-Edwards; and
- Katie Baxter.

The plan has been reviewed by representatives from the project's ecological team (NGH Consulting).

1.7 Consultation

1.7.1 Development of this plan

In accordance with condition B1 of the Infrastructure Approval, this plan has been prepared in consultation with Biodiversity and Conservation Division (BCD).

This plan was issued to BCD for review and comment. Comments from the consultation process have been incorporated into this plan where appropriate. Details of all consultation with BCD will be submitted to DPE along with the submission of this plan.

1.7.2 Ongoing communication and consultation

SecureEnergy will use a range of tools in accordance with the *Community Communication Strategy* (CCS) (45860-HSE-DOC-D-0024) to facilitate ongoing consultation and communication with the community and stakeholders regarding the project. Communication tools include, but are not limited to, stakeholder briefings, project website, community drop-in sessions via the project's mobile van, door knocks and project factsheets. Notifications will be issued for, but not limited to following, commencement of construction, significant milestones and changes to the scope of work. Refer to the CCS for further information.

In accordance with condition D12 a) of the Infrastructure Approval, project documents including the EIS, approved strategies, plans or programs required under the conditions of approval and independent reports will be publicly available on the project website. The project website is https://www.transgrid.com.au/projects-innovation/energyconnect. A 24-hour toll-free telephone number (1800 490 666) is also available for any project enquiries. In accordance with condition D12 b) the information will be kept up to date.

Project information made available on the project website in accordance with condition D12, includes:

- the EIS;
- current statutory approvals for the development;
- approved strategies, plans, programs or reports required under the conditions of the Infrastructure Approval;
- the proposed staging plans for the development if the construction, decommissioning and/or operation of the development is to be staged;
- a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of the Infrastructure Approval;
- a record of complaints, which is to be updated on a monthly basis;
- any independent environmental audit, and the Proponent's response to the recommendations in any audit; and
- any other matter required by the Planning Secretary.

1.7.3 Complaints

Complaints will be managed by the Community and Stakeholder Engagement Team with the use of Consultation Manager database. Complaints will be received via phone calls, emails and letters. Any complaint received is regarded as a high priority and will be recorded, tracked and responded to in accordance with the CCS. Complaints will be investigated and dealt with impartially. The key principles of the complaint management process include:

- acknowledge - SecureEnergy staff should respect the communities' right to voice their concerns. All complaints received should be acknowledged to the complainant either by telephone or in writing;
- resolve - SecureEnergy staff should aim at first contact, resolution for all community concerns. SecureEnergy staff should investigate community concerns in detail before negotiating a resolution. All SecureEnergy staff should use their relevant discretions to achieve a mutually acceptable resolution to complaints;
- escalate - all SecureEnergy staff should aim to escalate the complaint if the community member remains dissatisfied with the investigation and/or resolution offered by their first point of contact at SecureEnergy. All complaints where community request to speak to a higher-level representative, should also be escalated;

- record - SecureEnergy staff should aim through the Engagement Team at recording all relevant information, on the community account in Consultation Manager System, regarding customer concerns along with details of all discussions had with the community member in the process of investigating and/resolving the complaint. Detailed information on the resolutions offered to address community concerns should also be clearly recorded;
- communicate - SecureEnergy staff should remain in constant touch with the community member while their concerns are being investigated. The community member should be informed of all steps of the investigation and the resulting outcome at appropriate times;
- report - SecureEnergy should report on all complaints received to the SecureEnergy Management Team and Transgrid. The reporting should include information on the number as well as type of complaints being received, the status of these complaints from time to time and the resulting outcomes or resolutions offered to close them;
- feedback - the SecureEnergy Engagement Team should aim at regular and intensive reviews to identify possible trends in the complaints being received. These reviews should be aimed at highlighting improvements required to avoid complaints being repeated;
- action - SecureEnergy should aim at effective implementation of improvements suggested directly by the community or highlighted by complaint trends.

Wherever possible, complaints will be resolved directly between SecureEnergy and the stakeholder. If a complaints management process has been followed and the issue cannot be resolved, dispute resolution will be undertaken in accordance with the CCS. DPE may request the Environmental Representative (ER) to assist in dispute resolution of community complaints.

All complaints will be provided to the ER and a summary of complaints received, such as a complaints register, will be updated monthly on the project website.

1.8 Submission and approval

Prior to submission to DPE, this BMP will be reviewed by the ER to ensure that the plan is consistent with the requirements of the Infrastructure Approval. A written statement to this effect will be prepared and submitted to DPE. This review will be undertaken in accordance with condition A12 of the Infrastructure Approval.

This BMP will be submitted to DPE for review and approval by the Secretary prior to the commencement of Stage 2 of construction.

Stage 2 of construction will not commence until the CEMP and all sub-plans required under condition B1, or where the plans required for that stage (where staging is proposed), have been approved by the Secretary.

The approved BMP will then be implemented for the duration of the Stage 2 construction activities. In doing so, the project will be carried out:

- in compliance with the conditions of this approval;
- in accordance with all written directions of the Planning Secretary;
- generally in accordance with the EIS; and
- generally in accordance with the Layouts in Appendix 1 of the Infrastructure Approval.

1.9 Periodic review

This BMP will be reviewed at least annually and updated, if required, in accordance with Section 1.10 of the CEMP – Updating the CEMP. This includes the review and, if necessary, revision of this BMP in accordance with condition D2, within three months of the following:

- submission of an incident report under condition D6 of the Infrastructure Approval;
- submission of an audit report under condition D11 of the Infrastructure Approval; or

- any modifications of the Infrastructure Approval.

Any updates to the BMP will be approved as described in Section 1.10 of the CEMP.

2 Environmental requirements

2.1 Legislation

Legislation relevant to the management of biodiversity includes:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- *Biodiversity Conservation Act 2016* (BC Act);
- *Biosecurity Act 2015*;
- *Fisheries Management Act 1994*; and
- *Local Land Services Act 2013*.

Relevant provisions of the above legislation are detailed within the register of legal and other requirements included in Appendix A1 of the CEMP.

2.2 Conditions of Approval

The conditions of the Infrastructure Approval relevant to biodiversity for Stage 2 are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

Table 2.1 - Conditions of Approval relevant to biodiversity

Condition no.	Requirement	Where addressed	How addressed
Terms of Approval			
A2	The development must be carried out: a) in compliance with the conditions of this approval; b) in accordance with all written directions of the Planning Secretary; c) generally in accordance with the EIS; and d) generally in accordance with the Layouts in Appendix 1.	Section 1.8 Section 5.5.3	Section 1.8 and Section 5.5.3 state that the project will be carried out in compliance with the requirements of the Infrastructure Approval, and generally in accordance with the EIS and Layouts in Appendix 1.
Evidence of consultation			
A7	Where conditions of this approval require consultation with an identified party, the Proponent must: a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and b) provide details of the consultation undertaken including: (i) the outcome of that consultation, matters resolved and unresolved; and (ii) details of any disagreement remaining between the party consulted and the Proponent and how the Proponent has addressed the matters not resolved.	Section 1.7 Agency Consultation Report	In accordance with condition B1 of the Infrastructure Approval, this plan has been prepared in consultation with BCD. This plan was issued to BCD for review and comment. Comments from the consultation process have been incorporated into this plan where appropriate. Details of all consultation with BCD have been submitted to DPE along with the submission of this plan in an Agency Consultation Report. The Agency Consultation Report identifies the outcome of that consultation, including any matters which are not resolved.

Condition no.	Requirement	Where addressed	How addressed
Environmental Representative			
A12	From commencing the development, until commencing operation, or as agreed with the Planning Secretary, the approved ER must: a) review the documents identified in conditions A22, B1, B2, C10, C45, C50 and C51, and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this approval and if so: (i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Department for information or are not required to be submitted to the Department); b) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints; and c) consider any minor amendments to be made to the plans / strategies in conditions A22, C50, C51, D3, D4, D5, D6 and D7 that involve updating or are of an administrative nature and do not increase impacts to nearby sensitive receivers, and ensure they are consistent with the terms of this approval and, if satisfied such amendment is necessary, approve the amendment. This does not include any modifications to the terms of this approval.	Section 1.7.3 Section 1.8 Section 4.9.2 of the CEMP – Roles and responsibilities Section 7.2.1 of the CEMP – Dispute resolution	Section 1.7.3 details that DPE may request that the ER assist in dispute resolution of community complaints. All complaints will be provided to the ER. Section 1.8 states that this BMP will be provided to the ER, for the ER to ensure that this plan is consistent with the requirements of the Infrastructure Approval prior to submission to DPE. Revision 0 of this plan was endorsed by the ER on 17 March 2023.
Compliance			
A18	The Proponent must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this approval relevant to activities they carry out in respect of the development.	Section 6.1	Section 6.1 outlines the training that will be provided to site personnel. All site personnel will be required to undergo induction training which will provide awareness of the requirement to comply with the conditions of this approval.

<table>
<tr><th>Condition no.</th><th>Requirement</th><th>Where addressed</th><th>How addressed</th></tr>
<tr><td colspan="4">Environmental Management Plan</td></tr>
<tr><td>B1</td><td>Prior to commencing construction, an Environmental Management Plan (EMP) comprising the Sub-plans listed in Table 1 must be prepared by a suitably qualified and experienced persons, to the satisfaction of the Planning Secretary.
Following the Planning Secretary's approval, the Proponent must implement the Environmental Management Plan.
Table 1: EMP Sub-plans
<table>
<tr><th></th><th>Required EMP Sub-plan</th><th>Relevant government agencies and stakeholders to be consulted for each EMP Sub-plan</th></tr>
<tr><td>(c)</td><td>Biodiversity</td><td>BCS</td></tr>
</table></td><td>Section 1.6
Section 1.7
The CEMP</td><td>The CEMP (in lieu of an EMP) has been prepared by suitably qualified and experienced persons prior to the commencement of construction.
This BMP was provided to BCD (previously known as the Biodiversity and Conservation Scientific Division or BCS) for consultation. The outcomes of consultation have been incorporated throughout the BMP.</td></tr>
<tr><td>B2</td><td>The EMP Sub-plans must be prepared in accordance with relevant guidelines and in consultation with the relevant government agencies identified for each Sub-plan in Table 1, and include:</td><td>Section 1.7
Section 2.5</td><td>The BMP has been prepared in accordance with the relevant guidelines and in consultation with BCD.</td></tr>
<tr><td></td><td>a) a summary of relevant background or baseline data;</td><td>Section 3</td><td>The biodiversity values of the project are outlined in Section 3.</td></tr>
<tr><td></td><td>b) details of:
(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</td><td>Section 2</td><td>The relevant legislation, conditions, RMMs and guidelines applicable to biodiversity are outlined in Section 2. Appendix A1 of the CEMP provides further detail on the relevant legislation applicable to biodiversity.</td></tr>
<tr><td></td><td>(ii) any relevant limits or performance measures and criteria;</td><td>Section 1.5
Section 4.2 of the CEMP – Objectives and targets</td><td>The objectives (performance measures) and targets (criteria) relevant to biodiversity management are outlined in Section 1.5.
The CEMP also provides project-wide environmental objectives (performance measures) and targets (criteria).</td></tr>
<tr><td></td><td>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; and</td><td>Section 1.5
Section 4.2 of the CEMP – Objectives and targets</td><td>The performance indicators relevant to biodiversity management are outlined in Section 1.5 of this BMP.
The CEMP also provides project-wide performance indicators.</td></tr>
<tr><td></td><td>(iv) any relevant commitments or recommendations identified in the EIS;</td><td>Section 2.3</td><td>Relevant biodiversity commitments and recommendations identified in the EIS, known as revised mitigation measures (RMMs), have been outlined in Section 2.3.</td></tr>
<tr><td></td><td>c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</td><td>Section 5
Appendix A – Pre-clearing and Clearing Procedure</td><td>Specific biodiversity related safeguards and management measures to address potential impacts associated with Stage 2 of construction and comply with the relevant statutory requirements,</td></tr>
</table>

Condition no.	Requirement	Where addressed	How addressed
		Appendix D – *Biosecurity Management Plan* Appendix F – *Plains-wanderer Protocol* Appendix G – *Connectivity Strategy* Appendix H – *Supplementary Hollow and Nest Strategy*	limits and performance measures are outlined in Section 5, and Appendix A to Appendix H.
	d) a program to monitor and report on the: (i) impacts and environmental performance of the development (including a table summarising all the monitoring and reporting obligations under the conditions of this approval); and	Section 6, including: Section 6.3 Section 6.4 Section 6.5 Section 6.6	Monitoring, inspections, auditing and reporting is outlined in Section 6.3 to 6.6 of this BMP.
	(ii) effectiveness of the management measures set out pursuant to paragraph (c);	Section 6	Monitoring of the effectiveness of the management measures is outlined in Section 6 through compliance management.
	e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible	Section 6.8 Appendix B – *Unexpected Threatened Species Finds Procedure* Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP - Reporting Section 11 of the CEMP – Non-conformances, corrective and preventative action	Section 6.8 outlines a contingency plan in the event that unpredicted impacts are identified. In the event of the discovery of any unexpected threatened species find, the *Unexpected Threatened Species Finds Procedure* (Appendix B) will be followed. The CEMP also provides additional detail regarding incidents and emergencies, reporting, non-compliance, non-conformance, corrective and preventative actions.
	f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 6 Section 1.9 Section 1.10 of the CEMP – Updating the CEMP Section 1.9 of the CEMP – Continuous improvement	Section 6 of this BMP outlines procedures for compliance management, including details for monitoring, inspections, auditing and reporting. This BMP will be reviewed at least annually as described in Section 1.9 of this BMP and Section 1.10 of the CEMP. The Plan-Do-Check-Act model will be applied to the continuous improvement process, also outlined in Section 1.9 of the CEMP.

Condition no.	Requirement	Where addressed	How addressed
	g) a protocol for managing and reporting any: (i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion);	Section 6.7 Section 6.8 Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action	Section 6.7 and 6.8 describe the procedures for emergencies, incidents and non-compliances, including those related to biodiversity. Additional detail for managing incidents and emergencies, non-compliances and non-conformances is included in the CEMP. The protocol for reporting of any incidents, non-compliances or non-conformances is included in Section 10 of the CEMP.
	(ii) complaint; or	Section 1.7.3 Community Communication Strategy	A summary of the complaints management procedure and reporting of complaints is included in Section 1.7.3 of this BMP. The procedure for managing and reporting any complaints is described in the *Enquiries, Complaint and Dispute Resolution Management Procedure* provided in the CCS. The procedure includes a complaints management process which outlines how SecureEnergy will respond to complaints related to the project.
	(iii) failure to comply with other statutory requirements;	Section 6.7 Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action	In the event of failure to comply with statutory requirements, the procedures summarised in Section 6.7 of this BMP and described in more detail in the CEMP would be followed.
	h) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 1.7.2	The BMP contains publicly available data sources to assist with understanding the environmental impacts of the development. The local community and relevant agencies will be kept informed of construction progress and environmental performance through communication tools such as notifications and the project website

Condition no.	Requirement	Where addressed	How addressed
			as summarised in Section 1 of this BMP.
	i) a protocol for periodic review of the EMP and EMP Sub-plans.	Section 1.9 Section 9.3 of the CEMP	The BMP will be reviewed periodically in accordance with the CEMP and Section 1.9.
	The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	-	Noted
Riparian Areas			
C18	The Proponent must ensure: a) all activities on waterfront land are constructed in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (2012), W*hy do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003) and the *Policy and Guidelines for Fish Habitat and Conservation and Management* (NSW Fisheries, 2013), unless DPE Water agrees otherwise; and b) the geomorphic condition of the major rivers and distributary channels crossed by the development is not impacted.	Table 5.5	The mitigation measures identified in Section 5 will be implemented to ensure that all activities on waterfront land are constructed in accordance with the guidelines specified in condition C18 and to ensure that Stage 2 does not impact on the geomorphic conditions of any major rivers and distributary channels crossed.
Restrictions on Clearing and Habitat			
C23	Unless otherwise agreed with the Planning Secretary, the Proponent must:	-	-
	a) ensure that clearing does not exceed the limits identified in Appendix 2; and	Table 5.5 Section 5.3 Section 6.3 Appendix A - *Pre-clearing and Clearing Procedure* Appendix E – *Biodiversity mapping*	Clearing will be managed in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A). Progressive monitoring of the clearing quantities will occur to ensure that harm will not exceed the limits prescribed in condition C23 a).
	b) minimise: (i) the impacts of the development on hollow-bearing trees; (ii) the impacts of the development on threatened flora and fauna populations; and (iii) the clearing of native vegetation and key habitat.	Section 5 Table 5.5 Section 6	The mitigation measures identified within Section 5 will be implemented to ensure that clearing for the development minimises impacts to hollow-bearing trees, threatened flora and fauna populations, the clearing of native vegetation and key habitat. Monitoring, inspections and auditing described in Section 6 of this BMP will check the implementation and effectiveness of the management measures identified in Section 5.

Condition no.	Requirement	Where addressed	How addressed
Biodiversity Offset Package			
C24	Prior to carrying out any development that would impact on biodiversity values, the Proponent must prepare a Biodiversity Offset Package (Package) that is consistent with the EIS, in consultation with BCS and to the satisfaction of the Secretary in writing. The Package must include, but not necessarily be limited to:	Section 5.4 Biodiversity Offset Package	Transgrid has prepared a Biodiversity Offset Package in consultation with BCD and to the satisfaction of the Planning Secretary. Information relating to the offset package is provided in Section 5.4.
	a) details of the specific biodiversity offset measures to be implemented and delivered in accordance with the EIS;	Section 5.4 Biodiversity Offset Package	The Biodiversity Offset Package will include specific offset measures which are to be implemented.
	b) the cost for each specific biodiversity offset measure, which would be required to be paid into the Biodiversity Conservation Fund if the relevant measure is not implemented and delivered (as calculated in accordance with Division 6 of the *Biodiversity Conservation Act 2016* (NSW) and the offsets payment calculator that was established as at 18 August 2022);	Section 5.4 Biodiversity Offset Package	The Biodiversity Offset Package will include the cost for each specific measure which will be required to be paid if the measure is not implemented.
	c) the timing and responsibilities for the implementation and delivery of the measures required in the Package; and	Section 5.4 Biodiversity Offset Package	The timing and responsibilities for implementation of the measures will be included in the Package.
	d) confirmation that the biodiversity offset measures will have been implemented and delivered no later than 1 September 2024.	Section 5.4 Biodiversity Offset Package	The Package will confirm the measures that have been implemented and those that will be delivered no later than 1 September 2024.
	Following approval, the Proponent must implement and deliver the Biodiversity Offset Package.	Section 5.4 Biodiversity Offset Package	The Package will be implemented.
C25	Prior to carrying out any development that could impact the biodiversity values requiring offset, the Proponent must lodge bank guarantee(s) with a total value of $313,417,479.03, in accordance with the Deed of Agreement with the Planning Secretary executed on 1 September 2022. The Proponent must comply with the terms of the Deed.	Section 5.4	Bank guarantees have been provided for the full amount to meet the requirements of this condition.
Biodiversity EMP Sub-Plan			
C26	The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include: a) a description of the measures that would be implemented for: (i) meeting the biodiversity mitigation requirements in condition C23;	Table 5.5 Appendix A - *Pre-clearing and Clearing Procedure*	The BMP includes measures that would be implemented within Section 5, Section 6 and the Appendices. Clearing will be managed in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A). Progressive monitoring of the clearing quantities will occur to ensure that harm will not exceed the limits prescribed in condition C23 a).
	(ii) minimising the amount of native vegetation clearing within the approved development footprint;	Table 5.5 Appendix A - *Pre-clearing and*	Vegetation clearing will be minimised through ongoing review of detailed design, construction methodologies and construction

Condition no.	Requirement	Where addressed	How addressed
		Clearing Procedure	impacts to determine opportunities to minimise clearing.
	(iii) minimising the loss of key fauna habitat, including tree hollows;	Section 5.2 Table 5.5 Appendix A - *Pre-clearing and Clearing Procedure*	Impacts to key fauna habitat and tree hollows will be minimised where possible through review of detailed design and temporary design (i.e. access tracks and laydown locations).
	(iv) minimising the impacts on fauna on site, including undertaking pre-clearance surveys;	Section 5.1 Table 5.5 Appendix A - *Pre-clearing and Clearing Procedure* Appendix C – *Fauna Handling Procedure*	Pre-clearing surveys will include inspections for fauna prior to clearing. Identified fauna will be relocated into adjacent suitable habitat. This process is identified within the *Pre-clearing and Clearing Procedure* (Appendix A) and the *Fauna Handling Procedure* (Appendix C).
	(v) minimising the potential indirect impacts on threatened flora and fauna species, migratory species and 'at risk' species;	Table 5.5	Indirect impacts to threatened fauna and flora species, migratory species and 'at risk' species may include for example, soil and water runoff impacting the adjoining threatened ecological communities. Measures have been incorporated within Table 5.5 in relation to erosion and sedimentation management.
	(vi) rehabilitating and restoring disturbance areas to its pre-existing condition;	Section 5.9 Soil and Water Management Plan	Rehabilitation of the ancillary facilities, accommodation camps and earthwork material sites would be carried out in accordance with progressive erosion and sediment control plans (to provide safe, stable and non-polluting areas).
	(vii) avoiding and minimising impacts on Serious and Irreversible Impact (SAII);	Table 5.5 Appendix A - *Pre-clearing and Clearing Procedure*	Serious and irreversible impacts will be avoided through the mitigation measures outlined in the BMP.
	(viii) construction clearing and operation vegetation management protocols;	Table 5.5 Appendix A - *Pre-clearing and Clearing Procedure*	The BMP does not relate to the operation of the project. Construction clearing will be undertaken in accordance with Appendix A – *Pre-clearing and Clearing Procedure.* The operation vegetation management protocols relate to the operational phase of the project (i.e. Stage 3), not the construction phase (Stages 1 and 2). As per the approved staging approach, Transgrid will prepare a separate Biodiversity EMP Sub-plan for Stage 3 in accordance with conditions B1, B2 and C26 that addresses the operational phase of the project.

Condition no.	Requirement	Where addressed	How addressed
	(ix) monitoring of the areas of partial clearance within three months of the commencement of construction and provision of a verification report to confirm if any changes are required to the construction vegetation clearing protocols;	Table 5.5 Table 6.1 Table 6.2 Appendix A - *Pre-clearing and Clearing Procedure*	Areas subject to partial clearance will be monitored within three months from commencement of construction. A verification report will be produced to confirm whether any changes are required to the Appendix A – *Pre-clearing and Clearing Procedure.* Construction clearing will be undertaken in accordance with Appendix A – *Pre-clearing and Clearing Procedure.*
	(x) protecting native vegetation and key fauna habitat outside the approved disturbance area;	Appendix D – *Biosecurity Management Plan*	The *Biosecurity Management Plan* (Appendix D) includes measures to control the spread of weeds.
	(xi) maximising the salvage of resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and restoration of the site;	Section 5.9 Appendix A - *Pre-clearing and Clearing Procedure* Soil and Water Management Plan	The salvage of resources is included within Section 5.9.
	(xii) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy;	Section 5.2 Section 5.7 Appendix G – *Connectivity Strategy* Appendix H – *Supplementary Hollow and Nest Strategy*	Connectivity corridors will be provided adjacent to towers at select locations along the easement. A Connectivity Strategy is described in Section 5.7 and included within Appendix G. Section 5.2 of the BMP outlines considerations for a Supplementary Hollow and Nest Strategy, with the strategy itself included within Appendix H.
	(xiii) controlling weeds;	Appendix D – *Biosecurity Management Plan*	The *Biosecurity Management Plan* (Appendix D) includes measures to control the spread of weeds.
	(xiv) controlling erosion; and	Table 5.5 Soil and Water Management Plan	Table 5.5 includes measures for controlling erosion. The *Soil and Water Management Plan* has also been prepared for Stage 2 to minimise erosion and sedimentation impacts.
	(xv) bushfire management; and	Table 5.5 Emergency Plan	Table 5.5 includes measures for bushfire management. The *Emergency Plan* has also been prepared to prevent and mitigate the potential for fires, including bushfire.
	e) a detailed program to monitor and report on the effectiveness of these measures.	Section 6.3 Section 6.4 Section 6.5 Section 6.6 Section 6.8	Monitoring and reporting on the effectiveness of these measures will be undertaken in accordance with Section 6.3 to Section 6.6, and Section 6.8. This will include pre-clearing inspections, clearing inspections, weekly inspections, auditing and reporting.

<table>
<tr><th>Condition no.</th><th>Requirement</th><th>Where addressed</th><th>How addressed</th></tr>
<tr><td></td><td></td><td></td><td>Inspections will assess the effectiveness of the measures being implemented to meet the requirements of the BMP. Monitoring and reporting will focus on clearing monitoring and reporting to track the spatial extent of clearing and inform any final biodiversity offset requirements.</td></tr>
<tr><td colspan="4">Rehabilitation</td></tr>
<tr><td>C52</td><td>Within 6 months of the completion of construction, upgrading or decommissioning, unless the Planning Secretary agrees otherwise, the Proponent must rehabilitate the areas where ancillary facilities, accommodation camps and earthwork material sites are located. This rehabilitation must comply with the objectives in Table 3.
Table 3: Rehabilitation Objectives
<table>
<tr><th>Feature</th><th>Objective</th></tr>
<tr><td>Ancillary facilities</td><td>• Safe, stable and non-polluting
• Progressively rehabilitate the site as soon as possible following disturbance
• To be decommissioned and removed, unless the Planning Secretary agrees otherwise</td></tr>
<tr><td>Land use</td><td>• Restore land capability to pre-existing use</td></tr>
<tr><td>Community</td><td>• Ensure public safety at all times</td></tr>
</table></td><td>Section 5.9</td><td>Rehabilitation of the project will be carried out in accordance with Section 5.9.</td></tr>
<tr><td colspan="4">Independent Environmental Audit</td></tr>
<tr><td>D11</td><td>Independent Audits of the development must be conducted and carried out at the frequency described and in accordance with the Independent Audit Post Approval Requirements (2020), unless otherwise agreed or directed by the Planning Secretary.</td><td>Section 6.5</td><td>Section 6.5 details that independent audits will be carried out in accordance with the Independent Audit Post Approval Requirements (2020), unless otherwise agreed or directed by the Planning Secretary.</td></tr>
<tr><td colspan="4">Access to information</td></tr>
<tr><td>D12</td><td>The Proponent must:
a) make the following information publicly available on its website as relevant to the stage of the development:
(i) the EIS;
(ii) current statutory approvals for the development;
(iii) approved strategies, plans, programs or reports required under the conditions of this approval;
(iv) the proposed staging plans for the development if the construction,</td><td>Section 1.7.2</td><td>Section 1.7.2 states that the information required by condition D12 will be made publicly available on the project website.</td></tr>
</table>

Condition no.	Requirement	Where addressed	How addressed
	decommissioning and/or operation of the development is to be staged; (v) a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this approval; (vi) a record of complaints, which is to be updated on a monthly basis; (vii) any independent environmental audit, and the Proponent's response to the recommendations in any audit; and (viii) any other matter required by the Planning Secretary; and b) keep this information up to date.		

2.3 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in the Amendment Report. The RMMs relevant to biodiversity management are detailed in Table 2.2 below.

A cross reference is also included to indicate where the measure is addressed within this BMP or other project management documents. The management measures that will be implemented for Stage 1 of the project are provided in Section 5 of this BMP.

Table 2.2 - Revised mitigation measures relevant to biodiversity

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
B1	Impacts to matters of biodiversity conservation significance would be avoided to the greatest extent practicable during finalisation of the design and construction methodology for the proposal. Micro-siting of the transmission line infrastructure and associated construction working areas and other areas of disturbance would occur to avoid impacts wherever practicable. Site features with the highest biodiversity conservation significance, in particular, threatened species recorded and their habitat would be given the highest priority. Spatial data (species polygons for species credit species) and buffered threatened species locations would be provided to the design and construction teams and considered in detailed construction planning. Associated mapping would be included on sensitive area plans and provided to the construction workforce.	All locations	Table 5.5 Appendix A - *Pre-clearing and Clearing Procedure* Appendix C – *Fauna Handling Procedure* Appendix E – Biodiversity mapping Section 4.5 of the CEMP – Sensitive area plans	During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur. Mapping of spatial data and buffered threatened species locations would be included in the geographical information system (GIS).

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
B2	If refinements to the proposal design and construction methodology or additional field surveys result in changed[1] impacts to biodiversity which are not included in this BDAR, these would be assessed in accordance with the requirements of the BAM by an accredited assessor.	All locations	Section 5.1.1 Table 5.5	Should changes to the project's design or construction methodology or additional field surveys result in changed impacts to biodiversity which have not been included in the Final BDAR, these would be assessed in accordance with the requirements of the BAM by an accredited assessor. Detail in relation to changed impacts that would be assessed in accordance with the requirements of the BAM are provided in Section 5.1.1.
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*) would be prioritised during finalisation of the design and construction methodology.	All locations	Table 5.5 Section 5.3	During detailed design and review of temporary design, opportunities to site items such as compounds and ancillary facilities in areas of limited biodiversity value with vegetation integrity scores of less than 17 (in accordance with the *NSW Government Biodiversity Assessment Method Operational Manual*), will occur.
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, including cut and fill, as a priority.	Transmission line corridor	Table 5.5	Existing tracks are proposed for use where possible to minimise impacts along the transmission line corridor.
B5	Transmission line towers would be located and constructed to minimise impact to vegetated riparian corridors.	Transmission line within the riparian corridor as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012) of Murrumbidgee River	Table 5.5	Transmission line towers have been located and will be constructed to minimise impacts to vegetated riparian corridors, as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012) of Murrumbidgee River.
B6	Conductor line-marking techniques would be implemented during design refinement to minimise bird strike. Use of bird diverters, most likely consisting of the "flapper" variety, would be implemented. Positioning and exact diverter model would be finalised during	Transmission line – within one kilometre of wetland/ riverine habitats (refer to Key	Appendix G - *Connectivity Strategy*	Location, positioning and diverter model for conductor line-marking has been developed as part of the *Connectivity Strategy* (Appendix G) to minimise bird strike.

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	design refinement and would be developed as part of a Connectivity Strategy. At minimum these would 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.	Waterbodies list in Section 3.1.3 of the Final BDAR)		
B7	A series of 20-metre-wide connectivity corridors would be established near tower locations that occur in woodland vegetation. These would occur at strategic locations that would be developed as part of a Connectivity Strategy, targeting the following locations (wherever practicable): • key riparian crossings • areas of the alignment joining proposed biodiversity • stewardship sites and or conservation reserve estate; and • areas of existing dense mallee/belah. These connectivity corridors would involve native vegetation retention up to the 10 metre or 20 metre (for 330kV and 500kV lines, respectively) wide temporary construction centreline clearing zone to better facilitate woodland connectivity. Vegetation heights to be retained would be determined in accordance with vegetation clearing requirements at each location. Any biodiversity credit liabilities to related to retained vegetation such as the connectivity corridors would be considered in final BAM calculations (refer to mitigation measure B2 and Section 12.4 of the Biodiversity offset strategy). In addition to these measures, installation of under transmission glider poles in five locations (refer to Figure 9.6 of the Revised BDAR) will be implemented to assist Squirrel Glider movement at important locations for this species.	All locations and for Squirrel Glider at (at locations as identified in the Final BDAR)	Appendix G - *Connectivity Strategy*	The *Connectivity Strategy* (Appendix G) identifies a series of connectivity corridors that would be established near tower locations that occur in woodland vegetation. The Connectivity Strategy also addresses the requirement for under transmission glider poles in the locations identified in the Final BDAR (Figure 9.6).
B8	Nest boxes would be provided to provide alternative roosting and/or nesting habitat for threatened fauna displaced during clearing in accordance with a *Supplementary Hollow and Nest Strategy*. The strategy would include the following requirements: • survey of tree hollows and nests within the proposed clearing extents • identify the size, type, number and location of nest boxes required based on the results of the ecological surveys and active hollow resources in adjacent areas	All locations where hollow bearing trees are being removed	Table 5.5 Section 5.2 Appendix H – *Supplementary Hollow and Nest Strategy*	The presence of tree hollow habitat within the disturbance area will be confirmed during pre-clearing surveys (Section 5.1 and Appendix A). Detail relating to the *Supplementary Hollow and Nest Strategy* is included in Appendix H. Any nest boxes required will be installed within the vicinity of hollow bearing trees no more than two

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	• appropriately sized nest boxes would be installed within the vicinity of hollow–bearing trees (subject to landowner agreement and suitable existing trees being present) no more than two weeks prior to clearing of the tree • nest boxes would also include the re–use of existing hollows salvaged prior to or during clearing where practicable; and • measures to address and manage nests (such as raptor nests) prior to clearing.			weeks prior to clearing of the tree.
B9	Pre-clearing surveys will be completed prior to clearing at each location 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; and • survey and confirm the presence of raptor nests within and adjacent to the clearing extents.	All locations	Section 5.1 Table 5.5 Appendix A - *Pre-clearing and Clearing Procedure*	Pre-clearing surveys will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A) and the requirements listed within Section 5.1. Pre-clearing surveys will be undertaken by the project ecologist in accordance with the requirement of RMM B9. These requirements are listed within Appendix A.
B10	The results of the pre-clearing surveys would be used to update and confirm the accuracy of sensitive area maps.	All locations	Section 5.1 Table 5.5 Appendix A – *Pre-clearing and Clearing Procedure* Section 4.5 of the CEMP – Sensitive area plans	The *Pre-clearing and Clearing Procedure* (Appendix A) includes the requirement to update the Geographical Information System (GIS) or sensitive area plans (SAPs) (as required, based on findings).
B11	Biodiversity exclusion zones for retained vegetation, including identified threatened flora populations will be clearly identified by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone. Biodiversity exclusion zones will be physically marked and	All locations	Section 5.1 Section 5.1.1 Table 5.5 Appendix A - *Pre-clearing and Clearing Procedure*	The *Pre-clearing and Clearing Procedure* (Appendix A) includes the requirement for the ecologist to identify biodiversity exclusion zones. This would also apply to Plains-wanderer habitat.

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	demarcated, and included on sensitive area maps, prior to clearing. 'No disturbance zones' would consider: • identified Plains-wanderer habitat • identified threatened flora populations; and • PCTs in disturbance area B that are not of a growth form height that would ever require management. Biodiversity exclusion zones would be physically marked and demarcated, and included on sensitive area maps, prior to clearing.			The ecologists' tasks and responsibilities are identified within Table 5.5.
B12	In circumstances where a tree that would exceed the vegetation clearing requirements is identified within one of the biodiversity conservation zones relating to the Plains-wanderer habitat areas then this tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place) using methods that minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist.	All areas of key Plains Wanderer primary habitat	Table 5.5 Appendix F – *Plains-wanderer Protocol*	The project has been designed to minimise impacts to Plains-wanderer habitat as much as feasible. Should a tree require removal that would exceed the clearing limits, the tree would be removed to ground level under the supervision of an ecologist, using methods that minimise impacts to key habitat.
B13	A Plains-wanderer specific protocol would be developed to ensure that all project staff are aware of the sensitivities around this critically endangered species and to ensure that all specific requirements in relation to protection, avoidance, management and observation of individual Plains-wanderers are considered, in association with BCD staff. This protocol will be implemented during all proposal activities in Plains-wanderer habitat.	All locations	Appendix F – *Plains-wanderer Protocol*	A *Plains-wanderer Protocol* has been developed and is included in Appendix F.
B14	All relevant project personnel, including relevant sub–contractors would be trained on biodiversity management protocols and the requirements for the project, through inductions, toolbox talks and targeted training, and provided with sensitive area maps (showing clearing boundaries and exclusion zones) and updates as required.	All locations	Table 5.5 Section 6.1 Section 4.5 of the CEMP Appendix A - *Pre-clearing and Clearing Procedure*	Training will be carried out by the site inductions, toolbox trainings and targeted training. Table 5.5 and Section 6.1 provides information in relation to the training and awareness that will be provided to all site personnel. Sensitive areas (i.e. spatial locations that contain any protected biodiversity matters identified in the Final BDAR) for the relevant works locations will be covered in the training, with GIS or sensitive area plans provided to relevant personnel within

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
				the construction workforce (Section 5.1).
B15	The predicted clearing of native vegetation by the proposal would be monitored against the recorded clearing. A revised BAM–C calculation on the project's final project disturbance post construction would be completed and any additional credit liability identified would be met as part of the biodiversity offset requirements within the biodiversity offset package.	All locations	Table 5.5 Section 4 Section 6.6	Monitoring of native vegetation which is cleared will occur in accordance with the requirements detailed within Section 5 and the reporting requirements included within Section 6. This will include the reporting of information relating to the type of clearing (e.g. Disturbance Area A) and the spatial extent of each PCT, TEC and threatened flora.
B16	Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of Water Management Act 2000) of 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.	Transmission line within the riparian corridor as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012)	Table 5.5	Shrub or ground stratum native vegetation within vegetated riparian zones as defined by RMM B16 would be protected to the greatest extent practicable. Vegetation clearing will be limited to the tree stratum only where possible, with trunk bases also being retained in-situ where feasible.
B17	Activities within vegetated riparian zones would be managed to minimise impacts to aquatic environments. Riparian areas subject to disturbance would be progressively stabilised and rehabilitated.	Transmission line within the riparian corridor as defined by "Guidelines for riparian corridors on waterfront land"	Table 5.5	Mitigation measures in Section 5 will be implemented to ensure that activities within vegetated riparian zones are undertaken in a way so to minimise impacts to aquatic environments.
B18	A species unexpected finds protocol would be implemented if threatened ecological communities, flora and fauna species, not identified in the biodiversity assessment, are identified in the disturbance area.	All locations	Appendix B – *Unexpected Threatened Species Finds Procedure* Table 5.5	If an unexpected threatened species is discovered, the *Unexpected Threatened Species Finds Procedure* will be followed (Appendix B).
B19	Clearing of any hollow bearing trees within the mapped PCT 8 and PCT 11 vegetation at the crossing point of the Murrumbidgee River would be undertaken outside of the period between September and December to avoid key breeding periods of the Regent Parrot.	Murrumbidgee River	Table 5.5	Where clearing would be undertaken within the mapped PCT 8 and PCT 11 vegetation at the crossing point of the Murrumbidgee River, this would be undertaken outside of the key breeding periods of the Regent Parrot (September-December).

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
B22	***Special biodiversity protection zone – Pimelea serpyllifolia subsp. serpyllifolia (Thyme Rice–flower).*** Between towers 660-663 a bespoke construction methodology would be employed which would avoid impacts to known individuals of *Pimelea serpyllifolia* subsp*. serpyllifolia* (Thyme Rice-flower) and minimise impact as far as practicable to the species' habitat. This methodology would include at a minimum: • pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all *Pimelea serpyllifolia* subsp. *serpyllifolia* (Thyme Rice-flower) individuals • pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone • access being prioritised from existing tracks • clearing restricted to the identified tower 660–663 worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 660–663 worksite locations • alternative line installation techniques which do not require clearing of disturbance area A (centreline). The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1.	Between towers 660-663	Section 5.3.4 Table 5.5 Appendix A – *Pre-clearing and Clearing Procedure*	A bespoke construction methodology will be adopted between these towers, to avoid impacts to known individuals of Thyme Rice-flower. The methodology will include the aspects identified in RMM B22 and will also include the use of A-Frame Fence Hurdles when stringing transmission lines within the special biodiversity protection zones and / or walking the rope and draw wire through on foot when traversing through habitat, with an ecologist walking ahead acting as a spotter. The methodology will also ensure that during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1.
B23	***Special biodiversity protection zone – Pilularia novaehollandiae (Austral Pillwort).*** Between towers 161–162 a bespoke construction methodology would be employed which would avoid impacts to known individuals of *Pilularia novaehollandiae* (Austral Pillwort) individuals and minimise impact as far as practicable to the species habitat. This methodology would include at a minimum: • pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all *Pilularia novae-hollandiae* (Austral Pillwort) individuals	Between towers 161-162	Section 5.3.4 Table 5.5 Appendix A – *Pre-clearing and Clearing Procedure*	A bespoke construction methodology will be adopted between these towers, to avoid impacts to known individuals of Austral Pillwort. The methodology will include the aspects identified in RMM B23 and will also include the use of A-Frame Fence Hurdles when stringing transmission lines within the special biodiversity protection zones and / or walking the rope and draw wire through on foot when traversing through

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone • access being prioritised from existing tracks • clearing restricted to the identified tower 161 and 162 worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 161 and 162 worksite locations • alternative line installation techniques which do not require clearing of disturbance area A (centreline). The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1.			habitat, with an ecologist walking ahead acting as a spotter. The methodology will also ensure that during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1.
B24	***Special biodiversity protection zone – Natural Grasslands of the Murray Valley Plains.*** Between towers 241–242 a bespoke construction methodology would be employed which would minimise impacts as far as practical to the mapped Natural Grasslands of the Murray Valley Plains – Critically Endangered TEC located between the tower 241 and 242 location worksites. This methodology would include at a minimum: • pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone • access being prioritised from existing tracks • clearing being restricted to the identified tower 241 and 242 worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 241 and 242 worksite locations • alternative line installation techniques which do not require	Between towers 241-242	Section 5.3.4 Table 5.5 Appendix A – *Pre-clearing and Clearing Procedure*	A bespoke construction methodology will be adopted between these towers, to avoid impacts to mapped Natural Grasslands of the Murray Valley Plains. The methodology will include the aspects identified in RMM B24 and will also include the use of A-Frame Fence Hurdles when stringing transmission lines within the special biodiversity protection zones and / or walking the rope and draw wire through on foot when traversing through the TEC, with an ecologist walking ahead acting as a spotter. The methodology will also ensure that during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1.

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	clearing of disturbance area A (centreline). The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1.			
B25	The opportunity to stockpile and supply felled trees for Key Fish Habitat rehabilitation or improvement works would be discussed with DPI Fisheries.	Strahler stream orders 4 and above as identified in Section 3.1.2	Table 5.5	Opportunities to stockpile and supply felled trees for Key Fish Habitat rehabilitation or improvement works would be discussed with DPI Fisheries during construction.
B26	***Special biodiversity protection zone – Property Vegetation Plan (PVP) on holding identified by Transgrid as H114 (location of towers 243–249).*** Between towers 243–249 a bespoke construction methodology would be employed which would minimise impacts as far as practical to the mapped PVP located between the tower 243 and 249 location worksites. This methodology would include at a minimum: • pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone • access being prioritised from existing tracks • clearing being restricted to the identified tower 243–249 worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 243–249 locations • alternative line installation techniques which do not require clearing of disturbance area A (centreline). The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1.	Between towers 243-249	Section 5.3.4 Table 5.5 Appendix A – *Pre-clearing and Clearing Procedure*	A bespoke construction methodology will be adopted between these towers, to avoid impacts to mapped Property Vegetation Plan (PVP) on holding identified by TransGrid as H114 (towers 243-249). The methodology will include the aspects identified in RMM B26 and will also include the use of A-Frame Fence Hurdles when stringing transmission lines within the special biodiversity protection zones and / or walking the rope or draw wire through on foot if traversing through the PVP is required. The methodology will also ensure that during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1.
Land use and property				
LP2	Transmission line towers structures (and associated permanent structures or construction compounds) would be located where possible to avoid or minimise impacts, or as agreed with the affected landholder, on: • cropping and irrigated horticultural land	All locations	Table 5.5	Transmission line towers structures (and associated permanent structures or construction compounds) have been located where possible to avoid or minimise impacts on locations of high biosecurity risk.

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	• areas used for set up and pack up of agricultural equipment, entry points and turning areas • drainage catchments for farm dams • locations of high biosecurity risk.			
LP5	Disturbed areas will be stabilised and appropriately rehabilitated (i.e. as close as possible to Pre-impacted conditions) as soon as feasible and reasonable following the completion of construction at each location. This would be carried out in consultation with the relevant landholder.	All locations	Section 5.9 Table 5.5	Disturbed areas will be stabilised in consultation with landholders. RMM LP5 is included within Table 5.5, with further detail included in Section 5.9.
LP7	Biosecurity controls would be implemented during construction to minimise the risk of off-site transport or spread of disease, pests or weeds. Controls would 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 would be identified in consultation with the affected landholder. The effectiveness of these controls will be monitored in a manner and time interval consistent with the level of risk on each property.	All locations	Table 5.5 Appendix D - *Biosecurity Management Plan*	Appendix D provides a *Biosecurity Management Plan* which will be implemented to minimise the risk of off-site transport or spread of disease, pests or weeds. The *Biosecurity Management Plan* (Appendix D) includes an inspection checklist for vehicles and equipment. Information from Property Management Plans and consultation with landowners will be used to identify specific controls applicable to a property.
LP8	Where present in locations that would accessed for construction activities, weeds would be managed in consultation with the relevant landholder. Consultation would also occur with the relevant authority (Local Land Services, the relevant local council, or NSW DPI) in relation to notifiable weeds	All locations	Table 5.5 Appendix D - *Biosecurity Management Plan*	Consultation with Local Land Services, the relevant local council or Department of Primary Industries will occur where weeds are present.
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*.	All locations	Table 5.5 Appendix D - *Biosecurity Management Plan*	Notification processes are included within the *Biosecurity Management Plan* (Appendix A).
Landscape and visual amenity				
LV1	Opportunities for the retention and protection of existing trees within the disturbance area would be identified during detailed construction planning. Identified trees of high conservation	All locations	Table 5.5	Opportunities for retention of vegetation will occur through detailed design and construction planning.

Reference	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	significance would be retained and protected where practicable.			
LV2	Temporary and permanent access would be designed to minimise vegetation removal, changes to landform, and visual impacts where practicable.	All locations	Table 5.5	Existing access tracks will be used where possible to minimise vegetation clearing required.
LV4	Works within the Tree Protection Zones of retained trees within or immediately adjacent to the disturbance area would be planned with consideration of the tree protection measures outlined in AS4970–2009 Protection of Trees on Development Sites. Practicable and appropriate measures would be implemented to minimise the impact of the works on the long–term health of these trees.	All locations	Table 5.5	Where tree protection zones can be protected on the boundary of Disturbance Area A, they will be.

[1] Revised mitigation measure B2 in Table C-2 Summary of proposed mitigation measures in Appendix C to the Amendment Report included the word 'increased'. This has been amended to 'changed' to reflect the project's commitment to reduce potential impacts to biodiversity to the greatest extent practicable when finalising the detailed design and construction methodology, per the requirements of condition A1 and the commitment in revised mitigation measure B1. This commitment relates to minor project changes that might arise during design and construction methodology finalisation, to ensure that they are adequately considered in accordance with the Biodiversity Assessment Method.

2.4 Permits and licences

Due to the potential for impacts on Matters of National Environmental Significance (MNES), a referral (EPBC 2020/8673) was prepared and lodged with the Commonwealth Department of Climate Change, Energy, the Environment and Water under the EPBC Act. The Commonwealth Minister's delegate determined on 25 June 2020 that the proposed action is a "controlled action" under the EPBC Act. Approval for the project under the EPBC Act (Commonwealth Approval) was granted by the Australian Minister for the Environment on 5 December 2022.

A Scientific Licence under Part 2 of the BC Act (including Animal Ethics Approval under the *Animal Research Act 1985*) is required for fauna handling/rescue and survey work. Where rescued fauna requires rehabilitation and care, only wildlife rehabilitation organisations authorised under Part 2 of the BC Act may be used.

As this project has been designated CSSI and assessed under Part 5 of the EP&A Act, permits relating to fish passage are not required.

An Environment Protection Licence (EPL) may be required for some activities under Stage 2.

2.5 Guidelines

The main guidelines, specifications, and policy documents relevant to this BMP include:

- NSW *Biodiversity Assessment Method 2020* (BAM) (Department of Planning, Industry and Environment);
- Natural Resources Access Regulator (NRAR) *Guideline for controlled activities on waterfront land* (2018); and
- *Restoration of degraded grazing country in the semi-arid areas of NSW* (2006) (NSW Department of Primary Industries).

Transgrid has assessed the project's potential impacts to biodiversity values in accordance with the Biodiversity Assessment Method. The final biodiversity credit liability will be confirmed in accordance with the Biodiversity Assessment Method.

The documents identified above are considered by the project as described and referenced throughout this BMP.

3 Existing environment

This section summarises the existing biodiversity within and adjacent to the project. The key reference documents include:

- Section 9.3 of the EIS; and
- the Final BDAR.

3.1 Vegetation communities

Native vegetation recorded within the indicative disturbance area was assigned to nine vegetation formations that occur within five Interim Biogeographic Regionalisation of Australia (IBRA) subregions. The IBRA regions and subregions and vegetation formations are outlined in Table 3.1.

Table 3.1 - IBRA regions and subregions

IBRA region	IBRA subregion	Vegetation formations
Murray Darling Depression	South Olary Plain	Arid Shrublands (Acacia sub-formation) Arid Shrublands (Chenopod sub-formation) Dry Sclerophyll Forests (Shrubby sub-formation) Forested Wetlands Freshwater Wetlands Grasslands Grassy Woodlands Semi-arid Woodlands (Grassy sub-formation) Semi-arid Woodlands (Shrubby sub-formation)
Riverina	Lachlan Murrumbidgee	
NSW South Western Slopes	Lower slopes Inland slopes	

The nine recorded native vegetation formations have been assigned to 38 plant community types (PCTs). An overview of the plant community types relevant to the general construction area is provided within Table 3.2 and Figure 3.1 to Figure 3.4.

Table 3.2 - Overview of plant community types

Plant Community Type	IBRA subregions				
	South Olary Plain	Lachlan	Murrumbidgee	Lower slopes	Inland slopes
PCT143 – Narrow-leaved Hopbush –Scrub Turpentine – Senna shrubland on semi-arid and arid sandplains and dunes	X		X		
PCT157 – Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion			X		
PCT 163 – Dillion Bush (Nitre Bush) shrubland of the semi-arid and arid zones	X	X	X		
PCT 164 – Cotton Bush open shrubland of the semi-arid (warm) zone			X		
PCT 216 – Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion			X		
PCT 110 – Western Grey Box – Cypress Pine shrubby woodland on stony footslopes in the NSW South Western Slopes Bioregion and Riverina Bioregion					X
PCT 17 – Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion			X		

Plant Community Type	IBRA subregions				
	South Olary Plain	Lachlan	Murrumbidgee	Lower slopes	Inland slopes
PCT 24 – Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains		X	X		
PCT 47 – Swamp grassland wetland of the Riverine Plain			X		
PCT 53 – Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains			X		
PCT 160 – Nitre Goosefoot shrubland wetland on clays of the inland floodplains			X		
PCT 182 – Cumbungi rushland wetland of shallow semi-permanent water bodies and inland watercourses			X		
PCT 5 – River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion				X	X
PCT 7 – River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion			X		
PCT 8 – River Red Gum – Warrego Grass – Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion)			X		
PCT 11 – River Red Gum – Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)			X		
PCT 249 – River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW				X	
PCT 44 – Forb-rich Speargrass – Windmill Grass – White Top grassland of the Riverina Bioregion			X		
PCT 45 – Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion			X	X	
PCT 46 – Curly Windmill Grass – speargrass – wallaby grass grassland on alluvial clay and loam on the Hay plain, Riverina Bioregion			X		
PCT 74 – Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion				X	X
PCT 76 – Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions				X	
PCT80 – Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion				X	X

Plant Community Type	IBRA subregions				
	South Olary Plain	Lachlan	Murrumbidgee	Lower slopes	Inland slopes
PCT 267 – White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion					X
PCT 277 – Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion				X	X
PCT 13 – Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)			X		
PCT 15 – Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	X	X	X		
PCT 26 – Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion			X		
PCT 22 – Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW	X				
PCT 23 – Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones	X	X	X		
PCT 28 – White Cypress Pine open woodland of sandplains, prior streams and dunes mainly of the semi-arid (warm) climate zone			X		
PCT 58 – Black Oak – Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion	X	X	X		
PCT 75 – Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion			X	X	X
PCT 170 – Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	X	X	X		
PCT 171 – Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion	X				
PCT 172 – Deep sand mallee of irregular dunefields of the semi-arid (warm) zone	X				
PCT 199 - Hooked Needlewood – Needlewood – Mulga - Turpentine Bush open shrubland of the semi-arid and arid plains	X				
PCT 319 – Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion					X

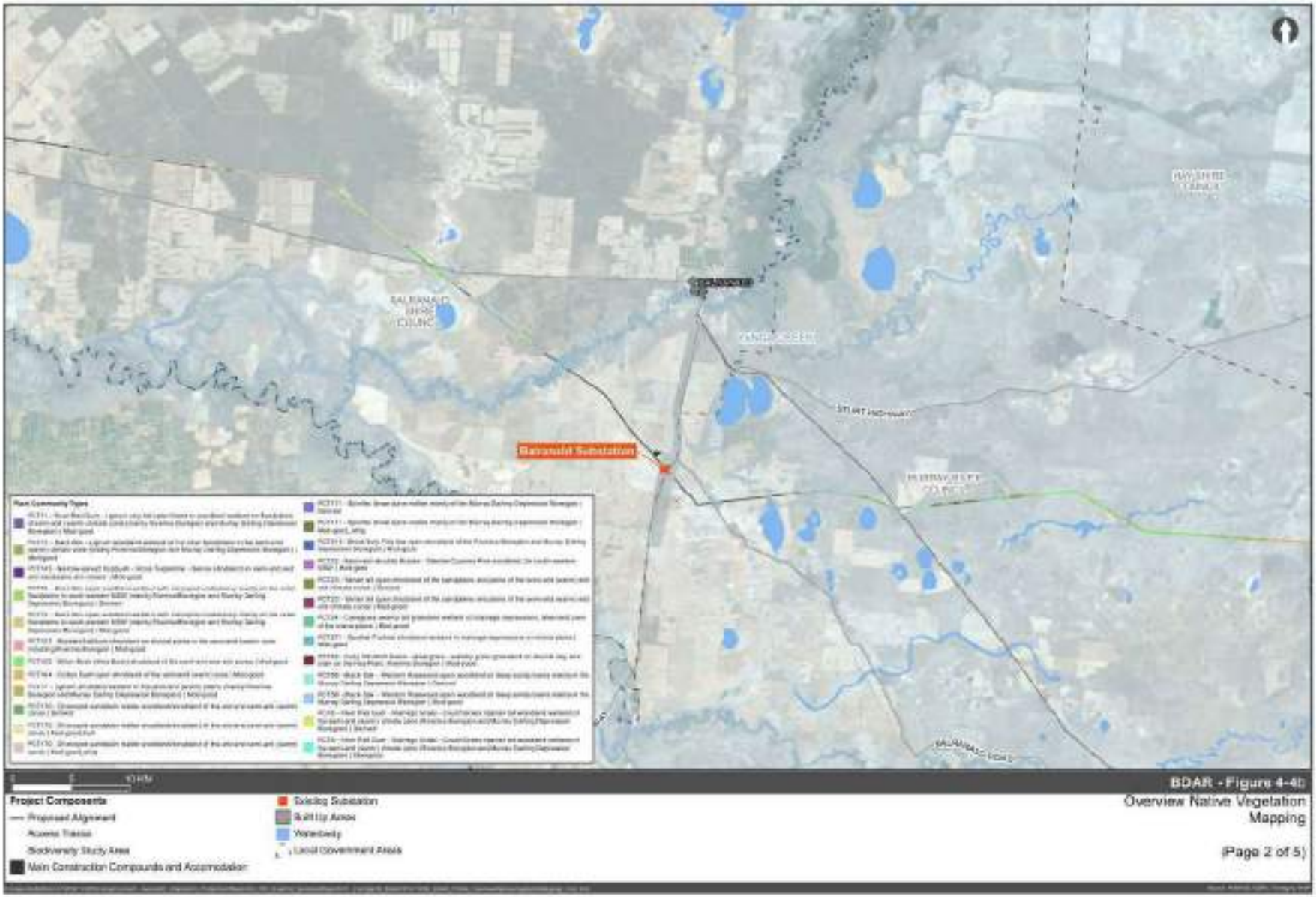


Figure 3.1 - Overview of vegetation types within the project study area (map 1 of 4)

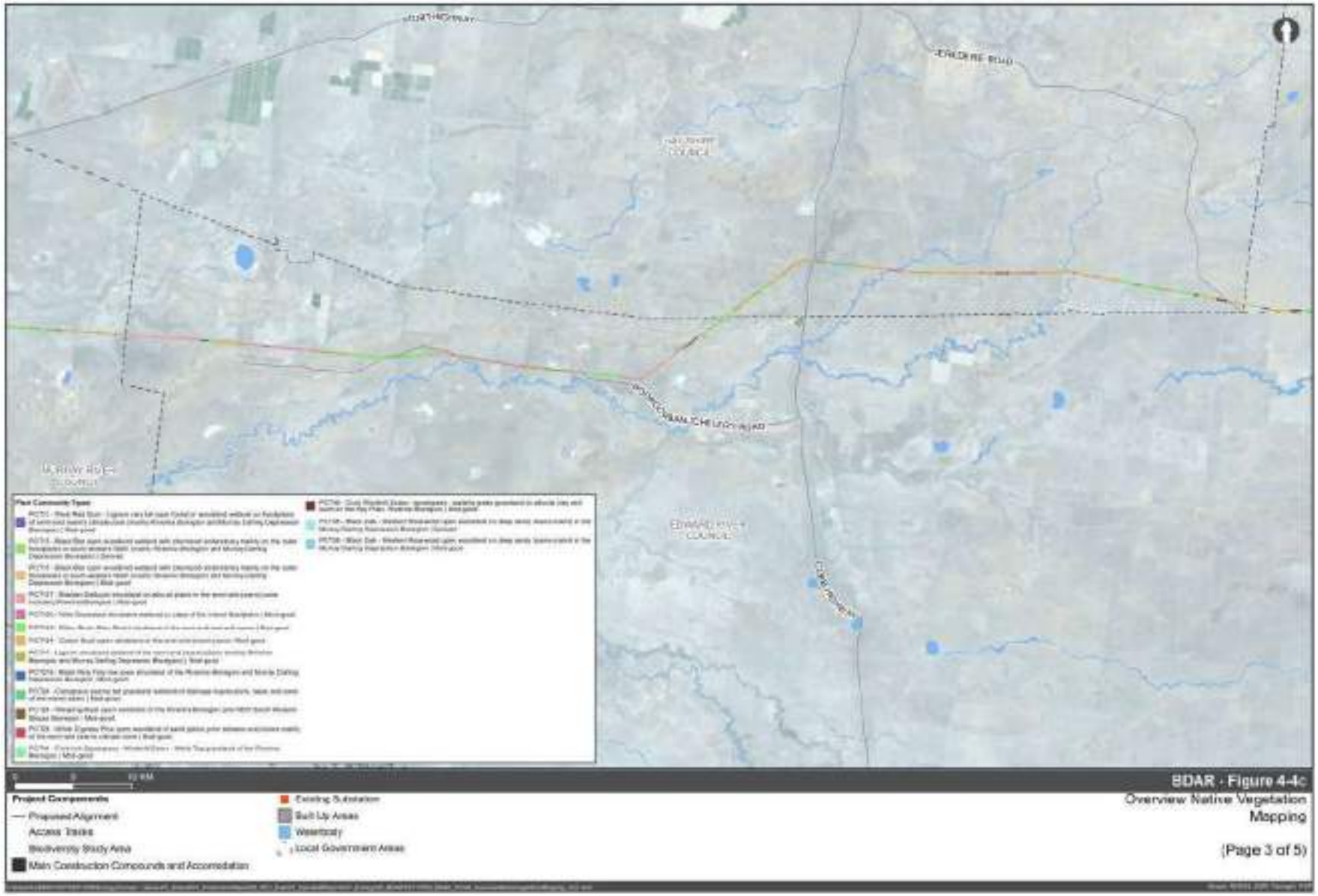


Figure 3.2 - Overview of vegetation types within the project study area (map 2 of 4)

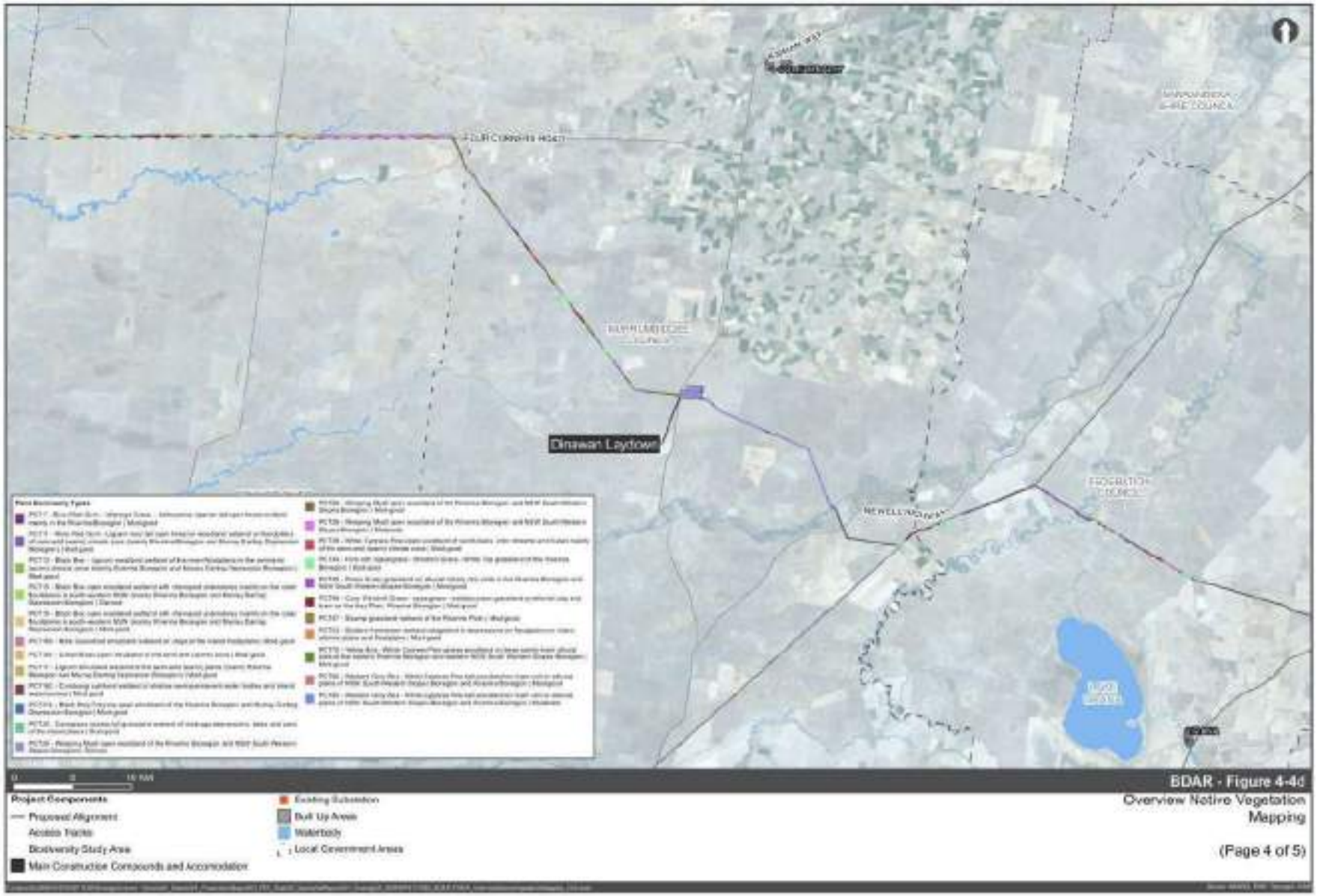


Figure 3.3 - Overview of vegetation types within the project study area (map 3 of 4)

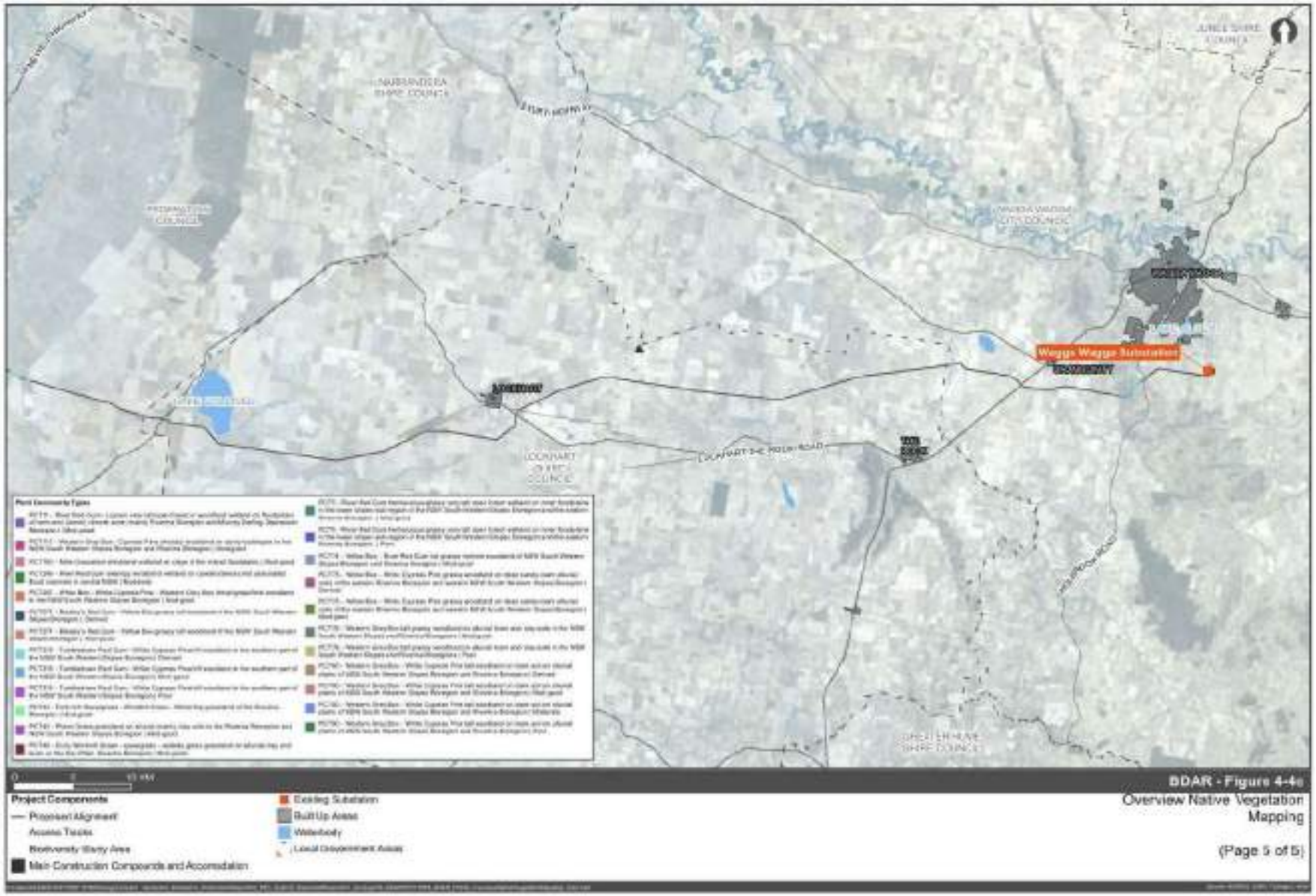


Figure 3.4 - Overview of vegetation types within the project study area (map 4 of 4)

3.2 Threatened ecological communities

A total of six threatened ecological communities (TECs) listed under the BC Act were recorded in the disturbance area. These were:

- *Acacia melvillei* Shrubland in the Riverina and Murray-Darling Depression bioregions – Endangered;
- *Allocasuarina luehmannii* Woodland in the Riverina and Murray-Darling Depression bioregions – Endangered;
- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions – Endangered;
- Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions – Endangered;
- Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions – Endangered; and
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland – Critically endangered.

A total of eight candidate threatened ecological communities (TECs) listed under the EPBC Act were recorded within the disturbance area. These were:

- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions – Endangered;
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia – Endangered;
- Mallee Bird Community of the Murray Darling Depression Bioregion – Endangered;
- Natural Grasslands of the Murray Valley Plains – Critically Endangered;
- Plains mallee box woodland of the Murray Darling Depression, Riverina and Naracoorte Coastal Plains bioregions – Critically Endangered;
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains – Critically Endangered;
- Weeping Myall Woodlands – Endangered; and
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered.

3.3 Threatened flora species

A total of 20 threatened flora species – both recorded and assumed – are considered affected by the project. These include impacts to:

- *Acacia acanthoclada* (Harrow Wattle);
- *Austrostipia metatoris* (A *spear grass);*
- *Austrostipa wakoolica* (A spear grass);
- *Brachyscome papillosa* (Mossgiel Daisy);
- *Caladenia arenaria* (Sand-hill Spider Orchid);
- *Calotis moorei* (A burr-daisy);
- *Convolvulus tedmooeri* (Bindweed);
- *Cullen parvum* (Small Scurf-pea);

- *Lasiopetalum behrii* (Pink Velvet Bush);
- *Lepidium monoplocoides* (Winged Peppercress);
- *Leptorhynchos orientalis* (Lanky Buttons);
- *Leptorhynchos waitzia* (Button Immortelle);
- *Maireana cheelii* (Chariot Wheels);
- *Pilularia novae-hollandiae* (Austral Pillwort) – Endangered (SAII);
- *Pimelea serpyllifolia subsp. serpyllifolia* (Thyme Rice-Flower) – Endangered (SAII);
- *Pterostylis cobarensis* (A Greenhood Orchid);
- *Swainsonia colutoides* (Bladder Senna);
- *Swainsona murrayana* (Slender Darling Pea);
- *Swainsonia pyrophila* (Yellow Swainson Pea); and
- *Swainsona sericea* (Silky Swainson Pea).

Impacts to *Santalum murrayanum* (Bitter Quandong) have been avoided and the species is not anticipated to be impacted by the disturbance area of the project. The species is therefore not considered further in this plan.

Table 3.3 reflects the species listed under the EPBC Act and the BC Act that are anticipated to be impacted by the project and contains images of the threatened flora species. Refer to Appendix E for the location of the threatened flora species.

Table 3.3 - Threatened flora species affected by the project

Species name	Common name	BC Act[1]	EPBC Act[2]	Images	Associated PCT	Recorded within study area?
Acacia acanthoclada	Harrow Wattle	E	-	 (Source: William Archer, Esperance Wild Flowers)	170, 171, 172	No
Austrostipa metatoris	A spear grass	V	V	-	8, 28, 170	No
Austrostipa wakoolica	A spear grass	E	E	 (Source: Geoff Carr)	17, 26, 28, 74, 76, 80	No

Species name	Common name	BC Act[1]	EPBC Act[2]	Images	Associated PCT	Recorded within study area?
Brachyscome papillosa	Mossgiel Daisy	V	V	 (Source: WSP)	13, 15, 17, 24, 44, 45, 46, 76, 80, 157, 160, 163, 164, 216	Yes
Caladenia arenaria	Sand-hill Spider Orchid	E	E	 (Source: Geoff Carr)	28, 75, 76, 80	No
Calotis moorei	A burr-daisy	E	E	 (Source: Geoff Carr)	23, 143, 157, 170, 199	No
Convolvulus tedmooeri	Bindweed	E	-	-	17, 24, 26, 44, 45, 46, 157, 160, 163, 216	No
Cullen parvum	Small Scurf-pea	E	-	 (Source: www.dpi.vic.gov.au (John Eichler))	5, 7, 44, 74, 277	No
Lasiopetalum behrii	Pink Velvet Bush	CE	-	 (Source: Murray Fagg, Australian National Botanic Gardens)	170, 171, 172	No

Species name	Common name	BC Act[1]	EPBC Act[2]	Images	Associated PCT	Recorded within study area?
Lepidium monoplocoides	Winged Peppercress	E	E	 (Source: WSP)	13, 15, 24, 26, 45, 46, 47, 74, 80, 160, 163, 170, 216	Yes
Leptorhynchos orientalis	Lanky Buttons	E	-	 (Source: WSP)	24, 26, 44, 45, 46, 47	Yes
Leptorhynchos waitzia	Button Immortelle	E	-	 (Source: K. Nicolson, Atlas of Living Australia)	170	No
Maireana cheelii	Chariot Wheels	V	V	 (Source: WSP)	26, 44, 46, 157, 163, 164	Yes
Pterostylis cobarensis	A Greenhood Orchid	V	-	 (Source: Lachlan Copeland)	170, 171	No

Species name	Common name	BC Act[1]	EPBC Act[2]	Images	Associated PCT	Recorded within study area?
Swainsona colutoides	Bladder Senna	E	-	 (Source Tony Cathcart, Australian Wildlife Conservancy)	170, 171, 172	No
Swainsona murrayana	Slender Darling Pea	V	V	 (Source: WSP)	15, 23, 26, 28, 44, 45, 46, 76, 80, 157, 163, 164, 216	Yes
Swainsona pyrophila	Yellow Swainson Pea	V	V	 (Source: VicFlora)	170, 171, 172	No
Swainsona sericea	Silky Swainson Pea	V	-	 (Source: John Briggs)	23, 26, 28, 44, 45, 46, 74, 76, 80	No
Pilularia novaehollandiae	Austral Pillwort	E	-	 (Source: WSP)	9, 12, 13, 15, 44, 45, 46, 74	Yes
Pimelea serpyllifolia subsp. serpyllifolia	Thyme Rice-Flower	E	-	 (Source: WSP)	170, 171, 172	Yes

(1) V = vulnerable, E = endangered, CE = critically endangered under the BC Act

(2) V = vulnerable under the EPBC Act

3.4 Threatened fauna species

A total of 20 threatened fauna species listed under the BC Act were recorded within the project study area. Following consultation with BCD during development of the BDAR, it was agreed that an additional three threatened fauna species are assumed present based on species habitat and limitations in surveys.

Of the 23 recorded and assumed fauna species identified for the project study area, nine are considered to be directly impacted by the project. Habitat for one species (Plains-wanderer) listed under the BC Act and EPBC Act was recorded within the project site boundary. An additional eight threatened fauna species were determined to have assumed presence. The species that are anticipated to be directly impacted are listed within Appendix 2 of the Infrastructure Approval and are detailed within Table 3.4.

A total of three Plains-wanderer birds were recorded at Bundure Siding Travelling Stock Route (TSR) within the Final BDAR.

Table 3.4 - Threatened fauna species (considered to be directly impacted)

Species name	Common name	BC Act[1]	EPBC Act[2]	Images	Recorded within study area?
Burhinus grallarius	Bush Stone-curlew	V	-	 Source: Ross Bennett	No – assumed presence
Hieraaetus morphnoides	Little Eagle	V	-	 Source: WSP	No – assumed presence
Lophochroa leadbeateri	Major Mitchell's Cockatoo	V	-	 Source: WSP	Yes
Myotis macropus	Southern Myotis	V	-	 Source: WSP	Yes

Species name	Common name	BC Act[1]	EPBC Act[2]	Images	Recorded within study area?
Ninox connivens	Barking Owl	V	-	 Source: National Geographic	No – assumed presence
Pedionomus torquatus	Plains-wanderer	E	CE	 Source: WSP	Yes
Petaurus norfolcensis	Squirrel Glider	V	-	 Source: WSP	Yes
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	E	V	 Source: Australian Museum (David Cook)	Yes
Polytelis swainsonii	Superb Parrot	V	V	 Source: WSP	Yes

(1) V = vulnerable, E = endangered, CE= critically endangered under the BC Act

(2) V = vulnerable, E = endangered under the EPBC Act, CE= critically endangered under the EPBC Act

3.5 Threatened aquatic species

The Final BDAR identified that areas of mapped key fish habitat have been considered to provide moderate likelihood of occurrence for four threatened species listed under the *Fisheries Management Act 1994*. The species relevant to Stage 2 are:

- Murray Hardyhead (*Craterocephalus fluviatilis*) listed as critically endangered under the *Fisheries Management Act 1994*;
- Silver Perch (*Bidyanus bidyanus*) listed as vulnerable under the *Fisheries Management Act 1994*;
- Flathead Galaxias (*Galaxias rostratus*) listed as critically endangered under the *Fisheries Management Act 1994*; and
- Macquarie Perch (*Macquaria australasica*) listed as endangered under the *Fisheries Management Act 1994*.

3.6 Threatened aquatic ecological communities

One endangered ecological community listed under the *Fisheries Management Act 1994* was considered to have the potential to occur within the project study area:

- Aquatic ecological community in the natural drainage system of the lowland catchment of the Murray River Lowland.

This endangered ecological community is considered to be affected by the project based on the clearing of riparian vegetation.

3.7 Matters of National Environmental Significance

Matters of National Environmental Significance (MNES) are those matters protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and include:

- world heritage properties;
- national heritage places;
- wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed);
- nationally threatened species and ecological communities;
- migratory species;
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park;
- nuclear actions (including uranium mining); and
- a water resource, in relation to coal seam gas development and large coal mining development.

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020 due to the Project's potential significant impact on nationally threatened species and ecological communities.

The then Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act. Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Matters of national environmental significance, including threatened species and ecological communities, relevant to the project are listed in Section 7 of the Final BDAR.

The Commonwealth Approval contains clearing limits for threatened flora species and ecological communities. These clearing limits, compared to the Infrastructure Approval limits, are provided in Section 4.2.2, Section 4.2.3 and Section 5.3 in order to provide clarity on the difference, if any, between the clearing limits.

It is noted that the Commonwealth Approval does not provide clearing limits for threatened fauna species.

3.8 Groundwater dependent ecosystems

There are no high potential groundwater dependent ecosystems (GDE) located within the Stage 2 project construction footprint.

GDE information obtained through the National Groundwater Information System (BOM, 2020) identified 17 GDEs with high potential for groundwater interaction within the Stage 2 project study area (Table 3.5).

Table 3.5 - GDE with high potential for groundwater interaction

GDE Type	Name	Associated PCT
Aquatic	Coloboralli Creek – near Wagga	N/A
Aquatic	Stringybark Creek	N/A
Aquatic	Boiling down Creek – near Wagga	N/A
Aquatic	Crooked Creek – near Wagga	N/A
Aquatic	Sandy Creek	N/A
Aquatic	Lake Cullival – near Wagga	N/A
Aquatic	Wetlands	47, 53
Terrestrial	River Red Gum	5, 7, 8, 11
Terrestrial	Red River Gum and Warrego Grass	7, 8
Terrestrial	Red River Gum and Wallaby Grass	5
Terrestrial	Red River Gum and Lignum	11
Terrestrial	Red River Gum and Black Box	10 (not recorded)
Terrestrial	Lignum shrubland	17
Terrestrial	Black box	13 and 15
Terrestrial	Canegrass Swamp	24
Terrestrial	Dillon bush (Nitre bush)	163
Terrestrial	Nitre Goosefoot shrubland	160

3.9 Migratory species

The Final BDAR identified that 19 EPBC Act listed migratory species are moderately likely to occur within or adjacent to the project study area. An additional 17 EPBC Act listed marine bird species may occur on occasion.

It is anticipated that the project will impact on the following 12 species:

- *Actitis hypoleucos* (Common Sandpiper) – Migratory under the EPBC Act;
- *Apus pacificus* (Fork-tailed Swift) – Migratory under the EPBC Act;
- *Calidris acuminata* (Sharp-tailed Sandpiper) – Migratory under the EPBC Act;
- *Calidris ferruginea* (Curlew Sandpiper) – Critically Endangered and Migratory under the EPBC Act;
- *Gallinago harwickii* (Latham's Snipe) – Migratory under the EPBC Act;
- *Grantiella picta* (Painted Honeyeater) – Vulnerable and Migratory under the EPBC Act;
- *Hirundapus caudacutus* (White-throated Needletail) – Vulnerable and Migratory under the EPBC Act;
- *Leipoa ocellata* (Malleefowl) – Vulnerable and Migratory under the EPBC Act;
- *Limosa lapponica* (Bar-tailed Godwit) – Migratory under the EPBC Act;
- *Limosa lapponica baueri* (Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit) – Vulnerable and Migratory under the EPBC Act;
- *Limosa limosa* (Black-tailed Godwit) - Migratory under the EPBC Act; and
- *Tringa nebularia* (Common Greenshank) – Migratory under the EPBC Act.

The Final BDAR noted that none of these species were recorded and considered that it was unlikely that the project would have a significant impact on these species.

3.10 Wetlands of national and international importance

Seven nationally important wetlands are located within 25km of the project study area, however none of these nationally important wetlands occur within NSW. However, there are two nationally important wetlands nearby (but outside the project study area):

- Tala Lake and Yanga Lake, near Balranald (five kilometres from the project); and
- Black Swamp and Coopers Swamp near Wanganella.

Four RAMSAR wetlands or Wetlands of International importance were identified:

- Banrock station wetland complex;
- Hattah-kulkyne lakes;
- Riverland; and
- The Coorong, and Lakes Alexandrina and Albert wetland.

No RAMSAR wetlands or Wetlands of International importance were identified within 10km of the project study area. Therefore, no RAMSAR wetlands or Wetlands of International Importance are considered to be affected by the project.

3.11 Weeds

The weeds identified across the project area and legislation or document under which they were identified are included within the *Biosecurity Management Plan* (45860-HSE-PL-D-0127) (Appendix D).

Three exotic flora species recorded within the project study area are listed under the NSW *Biosecurity Act 2015* as priority weeds for the Western region and/or Riverina region (Department of Primary Industries, 2021). These three species are also listed as Weeds of National Significance (WONS) (Australian Weeds Committee, 2021).

There are several species of weeds identified in the Final BDAR that are likely to be located in the vicinity of the project study area including:

- two priority weeds and weeds of national significance recorded within the Western Local Land services region (*Lycium ferocissimum (*African boxthorn), *Opuntia* species including *Opuntia elata* and *Opuntia robusta* (Wheel Cactus));
- one priority weed and weed of national significance recorded within the Riverina Local Land services region (*Lycium ferocissimum* (African boxthorn)); and
- 18 high threat weeds recorded within the project study area during field surveys.

4 Environmental aspects and impacts

4.1 Construction activities

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental Management Systems). The relationship of aspects and impacts is one of cause and effect.

Key construction activities and the associated environmental aspects that could result in adverse impacts to biodiversity include:

- removal of vegetation as a result of clearing activities reducing available habitat and local biodiversity;
- stripping of topsoils as part of the initial earthwork's activities removing or harming any existing seed bank present and limiting natural regeneration potential;
- dust generation due to earthworks and vehicle movements affecting adjacent habitat;
- construction activities generally affecting the amenity and breeding cycles of any nearby fauna;
- introduction or spread of weeds and pathogens due to vehicle and machinery movements;
- surface grading and earthworks affecting root stock and soil structure, limiting natural regeneration potential;
- compaction of soils due to earthworks and vehicle movements increasing runoff and soil erosion risk and reducing future revegetation potential; and
- construction plant and equipment and site activities resulting in ignition of vegetation.

4.2 Impacts

The potential for impacts on biodiversity will depend on a number of factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Potential impacts attributable to construction are discussed in the sections below. The environmental management measures described in Section 5 have been developed to minimise and mitigate the impacts to biodiversity.

4.2.1 Impacts on native vegetation

Direct impacts

Avoidance and minimisation of native vegetation have been considered during transmission line corridor placement, including the strategic options assessment and identification and refinement of the project process, however, complete avoidance of removal of native vegetation is not practicable.

It should be noted that detailed design for the project has not been completed and as a result the disturbance area is indicative only.

The Final BDAR reported that direct impacts of the project as a whole (Stage 1 and Stage 2) on native vegetation, based on the assumed disturbance model, would include direct impacts up to 1,615.20 hectares of native vegetation. Total direct impact on native vegetation for each IBRA region is outlined in Table 4.1.

Table 4.1 - Total direct impact on native vegetation

Native vegetation	IBRA subregions (Ha)					Direct impact (Ha)
	South Olary Plain	Lachlan	Murrumbidgee	Lower slopes	Inland slopes	
Total direct impact on native vegetation for each IBRA subregion	484.6	17.17	991.63	79.58	42.22	
Total direct impact on native vegetation						**1,615.20**

Table 12-11 of the Final BDAR provided a summary of the impacts to native vegetation, related to the ecosystem credit offset requirements, based on the plant community types and disturbance areas. Table 12-11 of the Final BDAR is repeated within Table 4.2 below.

In accordance with condition A2, the project will be caried out in compliance with the conditions of the Infrastructure Approval, and generally in accordance with the EIS (which includes the Final BDAR). Note that the final impact extents will be subject to finalisation of the design and construction methodology and commitments in the EIS concerning impact minimisation.

Table 4.2 - Summary of native vegetation impacts (Table 12-11 of Final BDAR)

Vegetation community	Condition	Conservation status		SAII	Disturbance area (ha)				Total impact area (ha)	Ecosystem credit lability
		BC Act	EPBC Act		A	B4	B10	HZ		
Arid Shrublands (Acacia sub-formation)										
PCT 143 – Narrow-leaved Hopbush – Scrub Turpentine – Senna shrubland on semi-arid and arid sandplains and dunes	143_Mod-good	No	No	No	2.43	0	0	0	2.43	83
PCT 199 – Hooked Needlewood – Needlewood – Mulga – Turpentine Bush open shrubland of the semi-arid and arid plains	199_Mod-good	No	No	No	1.31	0	0	0	1.31	24
Arid Shrublands (Chenopod sub-formation)										
PCT 157 – Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion	157_Mod-good	No	No	No	73.76	0	0	0	73.76	2642
PCT 163 – Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones	163_Mod-good	No	No	No	145.80	0	0	0	145.80	5313
PCT 164 – Cotton Bush open shrubland of the semi-arid (warm) zone	164_Mod-good	No	No	No	116.29	0	0	0	116.29	4268
PCT 216 – Black Roly Poly low open shrubland of the Riverina	216_Mod-good	No	No	No	20.28	0	0	0	20.28	618
Dry Sclerophyll Forests (Shrubby sub-formation)										
PCT 110 – Western Grey Box – Cypress Pine shrubby woodland on stony footslopes in the NSW South Western Slopes Bioregion and Riverina Bioregion	110_Mod-good	Yes	Yes	No	0.70	1.27	0.70	0.72	3.39	58
Freshwater Wetlands										
PCT 17 – Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	17_Mod-good	No	No	No	18.08	0	0	0	18.08	773
PCT 24 – Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains	24_Mod-good	No	No	No	13.52	0	0	0	13.52	447
PCT 47 – Swamp grassland wetland of the Riverine Plain	47_Mod-good	No	Yes	No	2.63	0	0	0	2.63	98
PCT 53 – Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains	53_Mod-good	No	No	No	1.73	0	0	0	1.73	76

Vegetation community	Condition	Conservation status		SAII	Disturbance area (ha)				Total impact area (ha)	Ecosystem credit lability
		BC Act	EPBC Act		A	B4	B10	HZ		
PCT 160 – Nitre Goosefoot shrubland wetland on clays of the inland floodplains	160_Mod-good	No	No	No	29.03	0	0	0	29.03	1064
PCT 182 – Cumbungi rushland wetland of shallow semipermanent water bodies and inland watercourses	182_Mod-good	No	No	No	0.05	0	0	0	0.05	2
Forested Wetlands										
PCT 5 – River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes subregion of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion	5_Mod-good	No	No	No	1.04	2.03	0.66	0.62	3.35	64
	5_Poor	No	No	No	0.29	0.44	0.15	0	0.88	9
PCT 7 – River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion	7_Mod-good	No	No	No	1.36	2.27	1.32	1.32	6.27	104
PCT 8 – River Red Gum – Warrego Grass – Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion)	8_Mod-good	No	No	No	1.70	1.73	1.34	0	4.77	95
PCT 11 – River Red Gum – Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	11_Mod-good	No	No	No	4.90	4.92	3.45	1.27	14.54	295
PCT 249 – River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW	249_Moderate	No	No	No	0.02	0.01	0.01	0.01	0.05	1
Grasslands										
PCT 44 – Forb-rich Speargrass – Windmill Grass – White Top grassland of the Riverina Bioregion	44_Mod-good	No	Yes	No	43.11	0	0	0	43.11	1853
PCT 45 – Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion	45_Mod-good	No	Yes	No	28.13	0	0	0	28.13	1102
PCT 46 – Curly Windmill Grass – speargrass – wallaby grass grassland on alluvial clay and loam on the Hay plain, Riverina Bioregion	46_Mod-good	No	Yes	No	49.72	0	0	0	49.72	1612

Vegetation community	Condition	Conservation status		SAII	Disturbance area (ha)				Total impact area (ha)	Ecosystem credit lability
		BC Act	EPBC Act		A	B4	B10	HZ		
Grassy Woodlands										
PCT 74 – Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion	74_Mod-good	Yes	Yes	Yes	0.84	0.78	0.49	0.38	2.49	67
PCT 76 – Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	76_Mod-good	Yes	Yes	No	0.51	0.45	0.19	0.26	1.41	33
PCT 80 – Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion	80_Mod-good	Yes	Yes	No	5.45	4.38	2.81	2.91	15.55	456
	80_Moderate	Yes	Yes	No	3.87	3.64	1.99	2.38	11.88	209
	80_Poor	Yes	Yes	No	0.79	0.70	0.14	0	1.63	21
	80_Derived	No	No	No	0.98	0	0	0	0.98	14
PCT 267 – White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion	267_Mod-good	Yes	Yes	Yes	0.09	0.13	0.04	0.06	0.32	9
PCT 277 – Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	277_Mod-good	Yes	Yes	Yes	4.53	1.10	0.45	0.40	6.48	289
	277_Derived	Yes	No	Yes	0.68	0	0	0	0.68	0
	277_Native plantings	Yes	No	Yes	2.25	1.71	1.36		5.32	121
Semi-arid Woodlands (Grassy sub-formation)										
PCT 13 – Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	13_Mod-good	No	No	No	5.75	2.33	1.67	0	9.75	323
PCT 15 – Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	15_Mod-good	No	No	No	7.37	7.38	5.51	0	20.26	440
	15_Derived	No	No	No	2.87	0	0	0	2.87	33
PCT 26 – Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion	26_Mod-good	Yes	Yes	No	32.99	30.91	0	0	63.90	2044
	26_Moderate	Yes	Yes	No	19.90	18.03	0	0	37.93	950

Vegetation community	Condition	Conservation status		SAII	Disturbance area (ha)				Total impact area (ha)	Ecosystem credit lability
		BC Act	EPBC Act		A	B4	B10	HZ		
	26_Derived	No	No	No	233.11	0	0	0	233.11	4687
PCT 319 – Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion	319_Mod-good	No	No	No	5.31	5.05	2.29	2.78	15.43	276
	319_Poor	No	No	No	0.18	0.15	0.09	0	0.42	5
	319_Derived	No	No	No	6.35	0	0	0	6.35	103
Semi-arid Woodlands (Shrubby sub-formation)										
PCT 22 – Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW	22_Mod-good	Yes	Yes	Yes	1.20	1.04	0.69	0	2.93	89
PCT 23 – Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones	23_Mod-good	Yes	No	No	4.91	5.91	0	0	10.82	290
	23_Derived	No	No	No	7.71	0	0	0	7.71	163
PCT 28 – White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zones	28_Mod-good	Yes	No	No	8.06	8.38	5.81	0	22.25	
PCT 58 – Black Oak – Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion	58_Mod-good	No	No	No	35.59	44.11	32.43	0	112.13	2710
	58_Derived	No	No	No	4.81	0	0	0	4.81	0
PCT 75 – Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion	75_Mod-good	Yes	Yes	Yes	15.58	10.18	6.00	7.09	38.85	1260
	75_Derived	Yes	No	Yes	6.33	0	0	0	6.33	0
PCT 170 – Chenopod sandplain mallee woodland/ shrubland of the arid and semi-arid (warm) zones	170_Mod-good_bull	No	Yes – part	No	28.07	35.69	0	0	63.76	1202
	170_Mod-good_whip	No	Yes	No	106.01	123.87	0	0	229.88	4266
	170_Derived	No	No	No	5.44	0	0	0	5.44	0
PCT 171 – Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion	171_Mod-good_whip	No	No	No	22.49	22.14	0	0	44.63	1064
	171_Derived	No	No	No	0.56	0	0	0	0.56	9
PCT 172 – Deep sand mallee of irregular dunefields of the semi-arid (warm) zone	172_Mod-good_whip	No	No	No	22.68	26.54	0	0	49.22	994
Total native vegetation ecosystem credit liability					1159.14	366.27	69.59	20.20	1615.20	43134

Indirect impacts

Indirect impacts to native vegetation would likely be limited to:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- negligible risk of reduced viability of adjacent habitat due to edge effects;
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill;
- negligible risk of transport of weeds and pathogens from the site to adjacent vegetation; and
- low risk of increased risk of fire.

4.2.2 Impacts on threatened ecological communities

Direct impacts

Direct loss or impacts to both EPBC Act and BC Act listed threatened ecological communities is included within Table 4.3.

It is noted that in the instance of White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland, the clearing limit designated by the Infrastructure Approval (60.48) is higher than the clearing limit designated by the Commonwealth Approval (34.89), as the TEC comprises both BC Act and EPBC Act (Matters of National Environmental Significance (MNES)) matters.

Condition C23 and Appendix 2 of the Infrastructure Approval establish these extents as clearing limits (subject to agreement from the Planning Secretary). Condition 1 of the Commonwealth Approval also stipulates clearing limits for EPBC protected matters. Final impact extents will be subject to finalisation of the design and construction methodology and commitments in the EIS concerning impact minimisation.

Table 4.3 - Direct impact on threatened ecological communities

Threatened ecological community	Vegetation type (PCT)	IBRA subregion	Vegetation zone name	BC Act[1]	EPBC Act[2]	Direct impact (ha)	Clearing limits (Appendix 2 of the Approval) (ha)	Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval)	Total clearing limits (ha)
Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions	PCT 23	South Olary Plain	VZ #3 23_Mod-good	E	-	10.81	10.81	-	10.81
		Lachlan	VZ #2 23_Mod-good						
		Murrumbidgee	VZ #9 23_Mod-good						
Allocasuarina luehmanii woodland in the Riverina and Murray-Darling Depression bioregions	PCT 22	South Olary Plain	VZ #13 22_Mod-good	E	E	2.93	2.93	-	2.93
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions	PCT 76	Lower Slopes	VZ #2 76_Mod-good	E	-	33.86 17.56ha of this is the EPBC Act listed 'Grey Box (*Eucalyptus acrocarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia', which is listed below.	33.86	-	33.86
	PCT 80	Lower Slopes	VZ #4 80_Mod-good						
			VZ #3 80_Moderate						
		Inland Slopes	VZ #2 80_Poor						
	PCT 110	Inland Slopes	VZ #3 110_Mod-good						
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions This TEC is referred to as 'Weeping Myall Woodland' within the Commonwealth Approval.	PCT 26	Murrumbidgee	VZ #11 26_Mod-good	E	E	101.83	101.83	101.83	101.83
			VZ #12 26_Moderate						
Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions	PCT 28	Murrumbidgee	VZ #14 28_Mod-good	E	-	22.25	22.25	-	22.25

Threatened ecological community	Vegetation type (PCT)	IBRA subregion	Vegetation zone name	BC Act[1]	EPBC Act[2]	Direct impact (ha)	Clearing limits (Appendix 2 of the Approval) (ha)	Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval)	Total clearing limits (ha)
White Box - Yellow Box - Blakely's Red Gum grassy woodland and derived native grassland	PCT 74	Lower Slopes	VZ #7 74_Mod-good 1.06ha BC Act 1.06ha EPBC Act	CE	CE	60.48	60.48	34.89 The impact area indicated in orange text is for the EPBC Act listed TEC (refer Table 7-21 of Final BDAR).	60.48
		Inland Slopes	VZ #1 74_Mod-good 1.44ha BC Act 1.43ha EPBC Act						
	PCT 75	Murrumbidgee	VZ #30 75_Mod-good 0.25ha BC Act 0.25ha EPBC Act						
		Lower Slopes	VZ #10 75_Mod-good 38.60ha BC Act 31.28ha EPBC Act						
			VZ #11 75_Derived 6.33ha BC Act 0ha EPBC Act						
	PCT 267	Inland Slopes	VZ #6 267_Mod-good 0.32ha BC Act 0.32ha EPBC Act						
	PCT 277	Lower Slopes	VZ #9 277_Derived 0.11ha BC Act 0ha EPBC Act						
		Inland Slopes	VZ #4 277_Mod-good 6.48ha BC Act 0.55ha EPBC Act						
			VZ #7 277_Derived 0.57ha BC Act 0ha EPBC Act						
			VZ #11 277_Native plantings						

Threatened ecological community	Vegetation type (PCT)	IBRA subregion	Vegetation zone name	BC Act[1]	EPBC Act[2]	Direct impact (ha)	Clearing limits (Appendix 2 of the Approval) (ha)	Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval)	Total clearing limits (ha)
			5.32ha BC Act 0ha EPBC Act						
Natural Grasslands of the Murray Valley Plains	PCT 44	Murrumbidgee	VZ #15 44_Mod-good	-	CE	62.47	62.47	62.47	62.47
	PCT 45	Murrumbidgee	VZ #16 45_Mod-good						
		Lower Slopes	VZ #10 45_Mod-good						
	PCT 46	Murrumbidgee	VZ #17 36_Mod-good						
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia This community forms part of 'Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions'.	PCT 76	Lower Slopes	VZ #2 76_Mod-good	-	E	17.56	-	17.56	17.56
	PCT 80	Lower Slopes	VZ #4 80_Mod-good						
			VZ #3 80_Moderate						
	PCT 110	Inland Slopes	VZ #3 110_Mod-good						
Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plains Bioregions	PCT 170	South Olary Plains	VZ #7 170_Mod-good_whip	-	CE	5.98	5.98	-	5.98
			VZ #8 170_Mod-good_Bull						
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	PCT 47	Murrumbidgee	VZ #18 47_Mod-good	-	CE	2.63	2.63	-	2.63
Mallee Bird Community of the Murray Darling Depression Bioregion – Endangered				-	E	380.93	380.93	-	380.93

(1) E = endangered, CE = critically endangered under the BC Act
(2) E = endangered, CE = critically endangered under the EPBC Act

Indirect impacts

Indirect impacts to threatened ecological communities would likely be limited to:

- low inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill; and
- negligible risk of transport of weeds and pathogens from the site to adjacent vegetation.

4.2.3 Impacts on threatened flora species

Direct impacts

A total of forty-two candidate threatened flora species listed under the BC Act were identified as having the potential to occur on the project and were therefore the subject of targeted surveys. Of these, seven threatened flora species were identified within the disturbance area. In addition to this, an additional 13 threatened flora species were determined to have assumed presence, five of which are also listed under the EPBC Act.

The extent of the direct impacts on threatened flora, as well as their conservation significance, are detailed in Table 4.4. A reference to the total clearing limits for the project (Stage 1 and Stage 2) is also included in Table 4.4.

Condition C23 and Appendix 2 of the Infrastructure Approval establish these extents as clearing limits (subject to agreement from the Planning Secretary). Further to this, the final impact extents will be subject to finalisation of the design and construction methodology and commitments in the EIS concerning impact minimisation.

It is noted that the unit of measurement used by the Biodiversity Assessment Calculator for the affected threatened flora species is area, so potential impacts are considered in terms of species polygons, as described in the Final BDAR.

The biodiversity offset package for the project has been developed on the assumption that any assumed species presence noted in the Final BDAR are indeed present at those locations. Transgrid proposes to carry out additional ecological surveys in spring and prior to any vegetation disturbance within the site to confirm the presence or absence of these threatened flora species, to confirm potential biodiversity impacts and associated biodiversity offset requirements.

Table 4.4 - Direct impact on threatened flora

Species		Conservation significance		Direct impact (ha) (Table 9-10 of Final BDAR)	Clearing limits (Appendix 2 of the Approval) (ha)	Clearing limits for MNES (Condition 1 of the Commonwealth Approval) (ha)	Total clearing limits (ha)
		BC Act[1]	EPBC Act[2]				
Acacia acanthoclada	Harrow Wattle	E	-	4.62	4.62	-	4.62
Austrostipa metatoris	A spear-grass	V	V	1.82	1.82	-	1.82
Austrostipa wakoolica	A spear-grass	E	E	41.15	41.15	-	41.15
Brachyscome papillosa	Mossgiel Daisy	V	V	132.18	132.18	132.18	132.18
Caladenia arenaria	Sand-hill Spider Orchid	E	E	1.07	1.07	-	1.07
Calotis moorei	A burr-daisy	E	E	20.24	20.25	-	20.25
Convolvulus tedmooeri	Bindweed	E	-	24.62	23.44	-	23.44
Cullen parvum	Small Scurf-pea	E	-	29.34	29.34	-	29.34
Lasiopetalum behrii	Pink Velvet Bush	CE	-	4.64	4.63	-	4.63
Lepidium monoplocoides	Winged Peppercress	E	E	17.55	17.55	-	17.55
Leptorhynchos orientalis	Lanky Buttons	E	-	44.46	44.46	-	44.46
Leptorhynchos waitzia	Button Immortelle	E	-	1.82	1.83	-	1.83
Maireana cheelii	Chariot Wheels	V	V	144.71	144.71	144.71	144.71
Pilularia novaehollandiae	Austral Pillwort	E	-	4.41	4.41	-	4.41
Pimelea serpyllifolia subsp. serpyllifolia	Thyme Rice-Flower	E	-	6.32	6.32	-	6.32
Pterostylis cobarensis	Greenhood Orchid	V	-	2.99	2.99	-	2.99
Swainsona colutoides	Bladder Senna	E	-	4.64	4.63	-	4.63
Swainsona murrayana	Slender Darling Pea	V	V	241.99	241.99	241.99	241.99
Swainsona pyrophila	Yellow Swainson-pea	V	V	4.64	4.63	-	4.63
Swainsona sericea	Silky Swainson-pea	V	-	44.74	44.8	-	44.8

(1) V = vulnerable, E = endangered under the BC Act
(2) V = vulnerable, E = endangered under the EPBC Act

Indirect impacts

Indirect impacts to threatened flora species would likely be limited to:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill;
- negligible risk of transport of weeds and pathogens from the site to adjacent vegetation;
- low risk of trampling of threatened flora species; and
- low risk of increased risk of fire.

4.2.4 Impacts on threatened fauna species

Direct impacts

A total of forty-one candidate threatened fauna species were considered to have potential habitat within the disturbance area and were the subject of targeted surveys. Of these, habitat for one species (Plains-wanderer) listed under the BC Act and EPBC Act was recorded within the project site boundary. In addition to this, an additional eight threatened fauna species were determined to have assumed presence, two of which are also listed under the EPBC Act.

Condition C23 and Appendix 2 of the Infrastructure Approval establish these extents as clearing limits (subject to agreement from the Planning Secretary).

Table 4.5 summarises the anticipated direct impacts to these species' habitat. A reference to the total clearing limits for the project (Stage 1 and Stage 2) is also included in Table 4.5.

Table 4.5 - Anticipated extent of direct impacts on threatened fauna species habitat

Species		Conservation significance		Direct impact (ha) (Table 9-10 of Final BDAR)	Clearing limits (ha) (Appendix 2 of the Approval)
		BC Act[1]	EPBC Act[2]		
Burhinus grallarius	Bush Stone-curlew	V	-	188.39	188.39
Hieraaetus morphnoides	Little Eagle	V	-	21.23	21.23
Lophochroa leadbeateri	Major Mitchell's Cockatoo	V	-	50.8	50.8
Myotis macropus	Southern Myotis	V	-	28.86	28.86
Ninox connivens	Barking Owl	V	-	74.4	74.4
Pedionomus torquatus	Plains-wanderer	E	CE	0.37	0.37
Petaurus norfolcensis	Squirrel Glider	V	-	31.47	31.47
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	E	V	29.09	29.09
Polytelis swainsonii	Superb Parrot	V	V	114.33	114.33

(1) E = endangered, CE = critically endangered under the BC Act
(2) E = endangered, CE = critically endangered under the EPBC Act

Indirect impacts

The key indirect impact, which is anticipated to be moderate in nature, is the loss of breeding habitats during construction within all PCTs. The loss of breeding habitat such as hollow-bearing trees, old growth bull mallee lignotubers, *Triodia* grass clumps and fallen timber has the potential to affect native animals such as:

- hollow-dependent bats;
- hollow-nesting and canopy-nesting birds;

- arboreal mammals; and
- reptiles.

The Final BDAR anticipated that a loss of breeding habitats is unlikely to extend beyond the disturbance area.

Other indirect impacts to threatened fauna species would likely be limited to:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill;
- negligible risk of increased risk of starvation, exposure and loss of shade or shelter; and
- low risk of increased risk of fire.

4.2.5 Impacts on scattered trees

Direct impacts

The direct impacts on scattered trees due to the project for each IBRA subregion is summarised in Table 4.6.

No individual threatened candidate fauna species were observed using or are considered to have a high likelihood of occurrence of using any recorded scattered trees.

Several recorded scattered trees derive from PCTs that form part of the SAII threatened ecological community listed as White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. The occurrence of these trees does not form part of a functional ecosystem or meet the final determination requirements of the threatened ecological community.

Table 4.6 - Summary of total direct impacts on scattered trees

Native vegetation	IBRA Subregions					Number of trees
	South Olary Plain	Lachlan	Murrumbidgee	Lower slopes	Inland slopes	
Total direct impact on scattered trees for each IBRA subregion	10	0	19	61	31	121
Total direct impact on scattered trees						121

4.2.6 Impacts on threatened aquatic species and ecological communities

4.2.6.1 Impacts on threatened aquatic species

Direct impacts

The Final BDAR identified that areas of mapped key fish habitat have been considered to provide moderate likelihood of occurrence for four threatened species listed under the *Fisheries Management Act 1994.* Refer to Section 3.5.

Direct impacts on mapped key fish habitats (Strahler 4/5th order streams) were considered to be negligible.

Transmission line structures will be located around 50 to 100 metres from the waterways to minimise impact to riparian areas.

The only likely direct impact to occur in an area of key fish habitat would be the removal or trimming of tree canopy on the riverbanks 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 riverbanks. All potential indirect impacts associated with erosion and sedimentation impacts would be managed and monitored to ensure that these do not impact the riparian areas. At

most, any impact to water quality would be temporary and negligible. Each riparian area would continue to function as it currently functions.

Indirect impacts

Indirect impacts to threatened aquatic species would likely be limited to:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality); and
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill.

4.2.6.2 Impacts on threatened aquatic ecological communities

The project will span tributaries of Murray River and would not lead to direct impacts on the assemblage of native fish and aquatic invertebrates that have been listed to form part of this ecological community. The disturbance area would lead to modification of native vegetation associated with the riparian zone influence of this community.

Disturbance within the riparian zone would be limited to upper stratum tree removal with all shrub and ground stratum vegetation below four and 10 metres of growth height would be retained in-situ. Transmission line structures would be located around 50 to 100 metres from the waterways to limit impact to riparian areas. Stage 2 of the project is unlikely to lead to a significant direct or indirect impact, due to the predicted negligible aquatic impact.

4.2.7 Impacts on groundwater dependent ecosystems

Should blasting be undertaken as part of Stage 2, a desktop assessment would be carried out to identify any high potential GDE's and registered bores in the vicinity that might be affected, in accordance with RMM SCG4. Where the assessment identifies potentially significant impacts to high potential GDEs and bores due to blasting that cannot be mitigated, alternative lesser impact construction methodologies or engineering solutions would be investigated and implemented.

Groundwater supply for construction is to be sourced from existing infrastructure and licensing allocations and approvals. Therefore, the potential impact to the groundwater environment relating to groundwater supply is considered low.

Eleven registered bores were identified within construction impact area and therefore contain an increased risk of being accidently damaged during construction activities.

4.2.8 Impacts on migratory species

Stage 2 of the project will have an impact on 12 migratory species listed under the EPBC Act. Impacts would comprise those discussed in Table 4.7. Significant impacts to the species are not anticipated to occur as a result of Stage 2.

Table 4.7 - Anticipated construction impacts to listed EPBC Act migratory species

Common name	EPBC Act	Predicted construction impact	Significant impact?
Common Sandpiper	M	Suitable habitats in the form of freshwater wetlands have been identified within the project study area.	No - the project is considered unlikely to have a significant impact on the species.
Fork-tailed Swift	M	N/A	No - the project is considered unlikely to have a significant impact on the species.
Sharp-tailed Sandpiper	M	Suitable habitat in the form of Lake Cullivel recorded within the project area.	No - the project is considered unlikely to have a significant impact on the species.
Curlew Sandpiper	CE, M	Suitable habitat in the form of Lake Cullivel recorded with the project study area.	No - the project is considered unlikely to have a significant impact on the species.

Common name	EPBC Act	Predicted construction impact	Significant impact?
Latham's Snipe	M	Suitable habitat in the form of intermittent wetlands recorded across the project study area.	No - the project is considered unlikely to have a significant impact on the species.
Painted Honeyeater	V, M	Records within the locality and suitable habitat found within the project study area.	No - the project is considered unlikely to have a significant impact on the species.
White-throated Needletail	V, M	Potential foraging habitat occurs over the project study area.	No - the project is considered unlikely to have a significant impact on the species.
Malleefowl	V, M	Abundance of records scattered throughout the locality. Suitable habitat identified within the project study area.	No - the project is considered unlikely to have a significant impact on the species.
Bar-tailed Godwit	M	N/A	No - the project is considered unlikely to have a significant impact on the species.
Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit	V, M	N/A	No - the project is considered unlikely to have a significant impact on the species.
Black-tailed Godwit	M	N/A	No - the project is considered unlikely to have a significant impact on the species.
Common Greenshank	M	N/A	No - the project is considered unlikely to have a significant impact on the species.

4.2.9 Impacts on wetlands of national and international importance

The closest RAMSAR listed wetland is Hattah-kulkyne lakes which occurs 10–20 km upstream from the far western end of the project and is in Victoria. The Riverland RAMSAR site and Banrock Station wetland complex are located about 150 km to the west of the far western end of the project, near Renmark, SA. The Coorong, and Lakes Alexandrina and Albert wetland occurs 200–300 kms away in South Australia. These wetlands will not be directly or indirectly impacted by the project.

Management measures will ensure that water quality impacts do not occur downstream to these areas.

4.2.10 World and national heritage

No World Heritage Properties or National Heritage Places are located within or nearby the project.

4.2.11 Impacts on biosecurity

Indirect impacts

Section 3.11 identifies the three exotic species recorded within the study area that are listed under the BA Act as priority weeds for the Western region and/or Riverina region (Department of Primary Industries, 2012).

The Final BDAR identified that there would likely be a negligible risk of transport of weeds and pathogens from the site to adjacent vegetation. The Final BDAR also stated that management measures would be developed during construction to maintain the integrity of native vegetation in adjoining habitats. These are provided in Section 5.

Potential carriers of weed seeds, plant material and diseases include vehicles (especially tyres), machinery and personnel (clothing and footwear). Biosecurity matters could also be spread by soil and water movements associated with construction. The biosecurity risks are generally highest

during the construction phase due to earthworks, and the frequency of vehicle and personnel movements.

Potential impacts of a biosecurity incident on agricultural businesses include increased costs associated with monitoring pests, weeds or diseases, and reduced income caused by reduced livestock, crop or pasture production.

Appendix D (Biosecurity Management Plan) of this plan identifies how biosecurity impacts will be managed during construction of the project.

5 Mitigation measures

A range of environmental requirements and mitigation measures are identified in the EIS, the Amendment Report, the Submissions Report, and the Final BDAR.

Specific safeguards and management measures to address impacts to biodiversity are identified within Section 5.1 to Section 5.9 and in Table 5.5.

5.1 Pre-clearing surveys

Pre-clearing survey will be undertaken by the project ecologist. Pre-clearing surveys of the clearing extent will be undertaken prior to clearing and will include:

- confirmation of the location and extents of any biodiversity exclusion zones;
- identification and demarcation of all hollow bearing trees. Identification and demarcation may also occur during earlier surveys. If this is the case, the ecologist will confirm that hollow bearing trees are prominently marked / tagged;
- identification of fauna that require relocation;
- the identification of nearby habitats for suitable release of fauna; and
- identification of suitable resources for salvage and beneficial reuse within the approved disturbance area. This may include, for example, logs or tree hollows.

The pre-clearing survey and delineation of clearing extents will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027) included within Appendix A.

The results of the pre-clearing surveys will be used to update and confirm the accuracy of the GIS or sensitive area plans, and these will be communicated and distributed to the construction team.

Sensitive area plans (SAPs) will be prepared to support the identification and appropriate management of key environmental features associated with the project. An initial risk assessment for the site will be undertaken by the Environmental Team. Where the risk is identified as being moderate or above (i.e. locations where sensitive areas are located adjacent to the work area), a SAP will be developed and reviewed by the environmental team. The SAPs will identify areas/features of environmental and heritage sensitivity and ‘no go’ zones, to help identify key risk areas, and promote ongoing communication to construction personnel.

Sensitive area plans include information pertaining, but not limited to:

- flora features, including threatened species and endangered ecological communities;
- Aboriginal and non-Aboriginal heritage sites;
- waterbodies/waterways and riparian zones;
- known fauna habitat to be protected (i.e. hollow bearing trees);
- areas of vegetation to be retained;
- clearing limit boundary; and
- any designated no-go zones (a no-go zone defines the minimum distance away from which construction personnel, plant and equipment needs to work from a particular item, for example, an area of retained threatened flora).

5.1.1 Changed impacts and BAM assessments

Changed impacts may affect areas either inside or outside of the biodiversity study area.

Project changes within the biodiversity study area can be considered against the known biodiversity values that were confirmed in accordance with the BAM, as documented in the Final BDAR. Most commonly, these types of changes include altered tower locations to minimise environmental

disturbance and improve constructability, changes to construction site layouts, and the provision of alternative access. This can result in slightly different impacts compared to the Final BDAR.

If a proposed change could affect a location outside of the biodiversity study area, an additional BAM assessment would be carried out by an accredited assessor to confirm the biodiversity values present, and to allow potential impacts to identified and considered.

Typical situations that can require additional BAM assessment outside of the biodiversity study area may include the following:

- areas adjacent to assessed access tracks to allow for spatial inaccuracies in the georeferenced aerial imagery used for impact assessment purposes and alterations based on actual site conditions;
- areas where alternative access arrangements might be required based on landholder preferences, ground conditions or topography not understood during the EIS phase;
- areas where alternative access is required to avoid access through, and impacts within, locations with sensitive heritage and biodiversity values (for example, avoiding access through Plains-wanderer habitat);
- parts of road corridors in the vicinity of approved access points and internal property access roads to account for all potential ground disturbance during access point installation, including signage within the road reserve on approach to the access points, track installation, upgrades and maintenance; and
- areas around water supply points to account for any disturbance to vegetation required during access upgrades or that might occur due to project-related vehicle movements.

When finalising the design and construction methodology, the project will reduce impacts to the greatest extent practicable in accordance with the commitment in Revised mitigation measure B1 and the requirements of condition A1.

The project will assess any of these proposed changes to confirm that:

- the works can be carried out in compliance with the conditions of the Infrastructure Approval;
- the works can be carried out generally in accordance with the EIS (including the Final BDAR);
- the works can be carried out generally in accordance with the Layout included in Appendix 1.

Clearing that would result in an exceedance of the limits included within Appendix 2 of the Approval will not occur.

5.1.2 Management of nests

Should any nests be identified during pre-clearing or clearing surveys, the following will occur:

- check nest to identify if active;
- stop work in the surrounding area (i.e. 20m minimum buffer);
- where the nest is active retrieve the nest along with any eggs/hatchlings;
- fauna spotter catcher/ecologist to oversee process and advise if feasible to attempt relocation within the local area; and
- if not feasible to relocate, fauna spotter catcher/ecologist to secure within a dark, cool area until eggs/fledglings can be transported to a licensed wildlife carer.

5.2 Supplementary Hollow and Nest Strategy

During pre-clearing surveys, the project ecologists will survey and document tree hollows and nests within the proposed clearing extent as outlined in the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0015). If the surveys identify tree hollow habitat within the disturbance area, a

Supplementary Hollow and Nest Strategy will be prepared to inform the types of nest boxes that would be required.

The *Supplementary Hollow and Nest Strategy* (45860-HSE-DOC-D-0021) is provided in Appendix H of this plan.

5.2.1 Nest box monitoring and maintenance

Monitoring and maintenance of nest boxes will be detailed within the *Supplementary Hollow and Nest Strategy.*

Monitoring during construction will determine the use of nest boxes during the construction phase and will occur on an annual basis. Any requirement to maintain or replace nest boxes due to deterioration or invasion by pest species, will also be assessed based on the viability of the nest box to continue to be used by the target species. Where longer term use is considered unviable, consideration and assessment will be made to determine if nest box replacement is required.

Any longer-term maintenance and monitoring (post-construction) would be detailed within the Operational Environmental Management Plan.

5.3 Vegetation clearing

5.3.1 Vegetation clearing limits

All vegetation clearing will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A).

Clearing limits for threatened fauna species, in accordance with Appendix 2 (Biodiversity) of the Infrastructure Approval are provided in Table 5.1. Clearing limits for threatened flora species are provided in Table 5.2. Clearing limits for threatened ecological communities is provided in Table 5.3.

These clearing limits apply to the project as a whole (Stage 1 and Stage 2) and take into consideration limits stipulated in both the Infrastructure Approval and the Commonwealth Approval, where applicable.

The project is committed to ensuring that the clearing limits stipulated in the Infrastructure Approval and Commonwealth Approval are not exceeded and will ensure that the total predicted clearing value is tracked against the limits to identify potential exceedances. In the unlikely event that an exceedance is predicted, the project will discuss the matter with the Department and will seek the Planning Secretary's agreement, as required by condition C23. If the Planning Secretary indicates that formal project modification is required, the project would seek the required modification.

Table 5.1 - Clearing limits for threatened fauna species

Species		Conservation significance		Direct impact (ha)	Clearing limits (ha) (Appendix 2 of the Approval)
		BC Act	EPBC Act		
Burhinus grallarius	Bush Stone-curlew	V	-	188.39	188.39
Hieraaetus morphnoides	Little Eagle	V	-	21.23	21.23
Lophochroa leadbeateri	Major Mitchell's Cockatoo	V	-	50.8	50.8
Myotis macropus	Southern Myotis	V	-	28.86	28.86
Ninox connivens	Barking Owl	V	-	74.4	74.4
Pedionomus torquatus	Plains-wanderer	E	CE	0.37	0.37
Petaurus norfolcensis	Squirrel Glider	V	-	31.47	31.47
Polytelis anthopeplus monarchoides	Regent Parrot (eastern subspecies)	E	V	29.09	29.09
Polytelis swainsonii	Superb Parrot	V	V	114.33	114.33

Table 5.2 - Clearing limits for threatened flora species

Species		Conservation significance		Direct impact (ha) (Table 9-10 of Final BDAR)	Clearing limits (ha) (Appendix 2 of the Approval)	Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval)	Total clearing limits (ha)
		BC Act	EPBC Act				
Acacia acanthoclada	Harrow Wattle	E	-	4.62	4.62	-	4.62
Austrostipa metatoris	A spear-grass	V	V	1.82	1.82	-	1.82
Austrostipa wakoolica	A spear-grass	E	E	41.15	41.15	-	41.15
Brachyscome papillosa	Mossgiel Daisy	V	V	132.18	132.18	132.18	132.18
Caladenia arenaria	Sand-hill Spider Orchid	E	E	1.07	1.07	-	1.07
Calotis moorei	A burr-daisy	E	E	20.24	20.25	-	20.25
Convolvulus tedmooeri	Bindweed	E	-	24.62	23.44	-	23.44
Cullen parvum	Small Scurf-pea	E	-	29.34	29.34	-	29.34
Lasiopetalum behrii	Pink Velvet Bush	CE	-	4.64	4.63	-	4.63
Lepidium monoplocoides	Winged Peppercress	E	E	17.55	17.55	-	17.55
Leptorhynchos orientalis	Lanky buttons	E	-	44.46	44.46	-	44.46
Leptorhynchos waitzia	Button Immortelle	E	-	1.82	1.83	-	1.83
Maireana cheelii	Chariot Wheels	V	V	144.71	144.71	144.71	144.71
Pterostylis cobarensis	Greenhood Orchid	V	-	2.99	2.99	-	2.99
Pilularia novaehollandiae	Austral Pillwort	E	-	4.41	4.41	-	4.41
Pimelea serpyllifolia subsp. serpyllifolia	Thyme Rice-Flower	E	-	6.32	6.32	-	6.32
Swainsona colutoides	Bladder Senna	E	-	4.63	4.63	-	4.63
Swainsona murrayana	Slender Darling Pea	V	V	217.76	241.99	241.99	241.99
Swainsona pyrophila	Yellow Swainson pea	V	V	4.64	4.63	-	4.63
Swainsona sericea	Silky Swainson pea	V	-	44.74	44.8	-	44.8

Table 5.3 - Clearing limits for threatened ecological communities

Threatened ecological community	BC Act[1]	EPBC Act[2]	Direct impact (Ha)	Clearing limits (Appendix 2 of the Approval) (ha)	Clearing limits for MNES (Condition 1 of the Commonwealth Approval) (ha)	Total clearing limits (ha)
Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioegions	E	-	10.81	10.81	-	10.81
Allocasuarina luehmanii woodland in the Riverina and Murray-Darling Depression bioregions	E	E	2.93	2.93	-	2.93
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions 17.56ha of this is the EPBC Act listed 'Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia' which is listed below.	E	E	33.86	33.86	-	33.86
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions This TEC is referred to as 'Weeping Myall Woodland' within the Commonwealth Approval.	E	E	101.83	101.83	101.83	101.83
Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions	E	-	22.25	22.25	-	22.25
White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland	CE	CE	57.69	60.48	34.89	60.48
Natural Grasslands of the Murray Valley Plains	-	CE	62.47	62.47	62.47	62.47
Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	-	E	17.56	-	17.56	17.56
Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plains Bioregions	-	CE	5.98	5.98	-	5.98
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	-	CE	2.63	2.63	-	2.63
Mallee Bird Community of the Murray Darling Depression Bioregion – Endangered	-	E	380.84	380.93	-	380.93

5.3.2 Staged or non-staged clearing

All areas that need to be cleared will be subject to staged or non-staged clearing. Staged clearing occurs in locations where the ecologist identifies habitat and is typically referred to as 'two-stage clearing'. Habitat vegetation will be identified with flagging (typically yellow) and unique identifier numbers indicated by identification tags. GPS coordinates for each hollow-bearing tree will be recorded and uploaded into the GIS mapping.

Areas where two-stage clearing is required will clear non-habitat vegetation first, with habitat vegetation removed approximately 24 hours following this. Habitat vegetation will be removed following an inspection by the ecologists / fauna handlers. Relocation of fauna will occur.

Areas where no staging is required may be removed in one step. No habitat has been identified in these locations.

Both two-staged and non-staged areas are also subject to the requirements of the disturbance areas.

5.3.3 Disturbance areas

The method of clearing required changes based on the disturbance area. The key disturbance areas are as follows:

1. Disturbance Area A;
2. Disturbance Area A - centreline clearing;
3. Disturbance Area B; and
4. other areas (hazard/high risk trees and fauna corridors).

Figure 5.1 and Figure 5.2 illustrate these disturbance areas. As detailed within condition A2 of the Infrastructure Approval, clearing in these areas will be carried out in compliance with the conditions of the Infrastructure Approval, generally in accordance with the EIS (which includes the Final BDAR) and generally in accordance with the Layouts in Appendix 1 of the Infrastructure Approval.

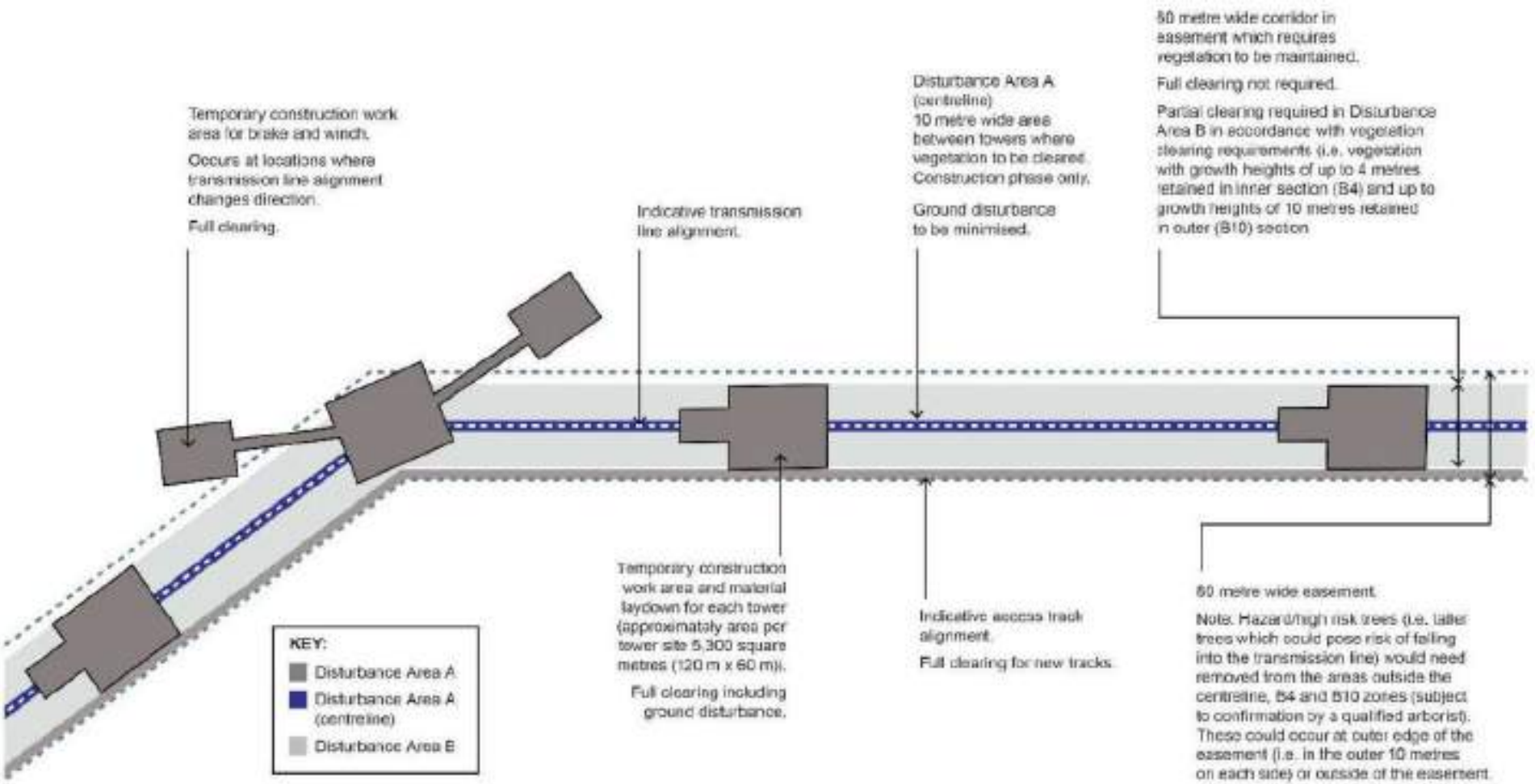


Figure 5.1 - Indicative disturbance area (330kV transmission line)

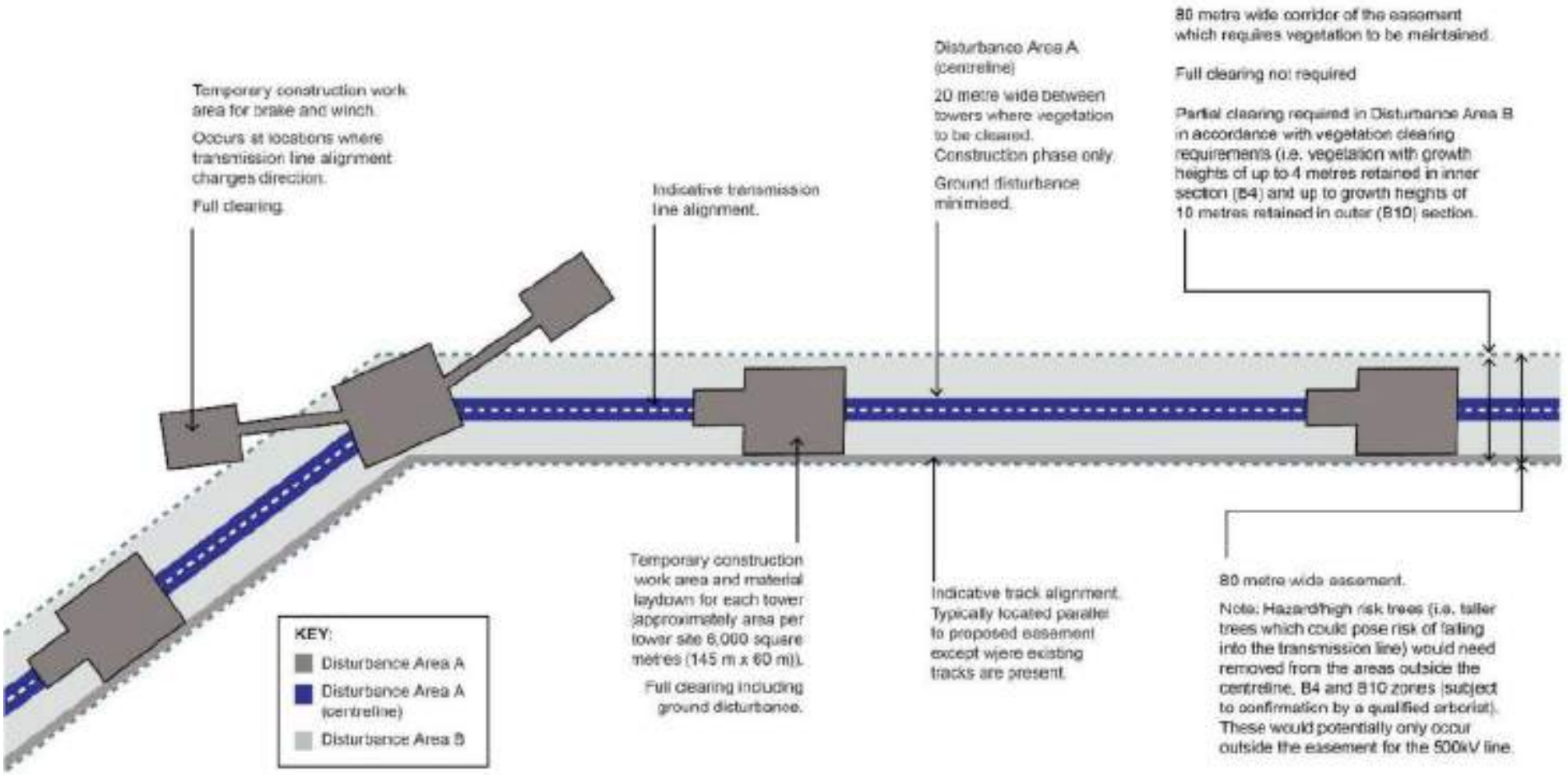


Figure 5.2 - Indicative disturbance area (500kV transmission line)

Further detail in relation to the various disturbance areas and the clearing approach which will be undertaken within these locations is provided within the *Pre-Clearing and Clearing Procedure* (Appendix A). Any clearing will be subject to the management measures within Table 5.5 and the *Pre-Clearing and Clearing Procedure*.

Disturbance Area A

Disturbance Area A includes the tower pads, access tracks, laydowns, parking areas, accommodation camps, construction compounds, asset protection zones and the substations.

Vegetation is permitted to be removed to ground within Disturbance Area A. Where possible opportunities to retain vegetation will occur through review of temporary design and construction methodologies.

Disturbance Area A – centreline

Disturbance Area A centreline clearing is the area required for line stringing activities. Disturbance Area A centreline clearing is 10 metres in width for a typical 330 kV transmission line section and 20 metres in width for a typical 500 kV transmission line section.

For the Plains-wanderer habitat (Section 5.1.4 of the *Pre-clearing and Clearing Procedure*) and the special biodiversity protection zones (Section 5.1.5 of the *Pre-clearing and Clearing Procedure*), Disturbance Area A – centreline will not be cleared, other than for the removal of a tree that exceeds the vegetation clearance requirements. In this circumstance the tree would be subject to removal to ground level (i.e. tree height cut back but the rootball will be retained in place).

For other locations within the transmission line easement, vegetation in this area will be removed, however topsoil and ground material would be retained (where possible). Tree stumps will be removed.

Disturbance Area B

Disturbance Area B is the area within the easement between the transmission towers. Disturbance Area B consists of:

- Disturbance Area B4; and
- Disturbance Area B10.

330kV transmission line

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 20 metres distance from the centreline (i.e. a 40 metre wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 20 metres to 30 metres from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees have a potential growth height of 30m or more occur within a 10m zone adjacent to the 330kV transmission line easement.

500kV transmission line

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 30 metres distance from the centreline (i.e. a 60 metre wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 30 metres to 40 metres from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees with a potential growth height of 20m or more occur within a 10m zone adjacent to the 500kV transmission line easement.

5.3.4 Special biodiversity protection zones

Special biodiversity protection zones have been identified by revised mitigation measures B22, B23, B24 and B26 at the following locations and for the following species, Threatened Ecological Communities (TECs) and/or Property Vegetation Plans (PVPs):

- between towers 161-162* (Austral Pillwort);
- between towers 660-663* (Thyme Rice-flower);
- between towers 241-242* (Natural Grasslands of the Murray Valley Plains TEC); and
- between towers 243-249* (PVP H114).

* Tower numbering is reflective of tower numbering from the Final BDAR.

Construction activities, including clearing, within special biodiversity protection zones will be managed in accordance with Section 5.4 of the *Pre-clearing and Clearing Procedure*.

5.3.5 Use of the Geographical Information System

The Geographical Information System (GIS) will be used during construction to ensure that the locations of relevant biodiversity features, such as exclusion zones and special biodiversity protection zones, are known to all relevant construction personnel, including the vegetation clearing sub-contractors. The GIS is considered to be the most appropriate method of communicating these areas as it contains up-to-date information in relation to areas of biodiversity value or the location of construction features, such as tower footprints.

This GIS-based and location-specific data will often be accessed directly from handheld devices in the field, which is a more useful data access method than hardcopy mapping as they will communicate the user's position in relation the features of significance.

The relevant biodiversity layers within SecureEnergy's GIS include:

- Biodiversity Study Area L2 L5;
- Biodiversity Vegetation L2 L5 (this includes threatened ecological communities);
- Biodiversity Fauna Threatened Species L2 L5;
- Biodiversity Fauna Threatened Species Polygons L2 L5;
- Biodiversity Flora Threatened Species L2 L5
- Biodiversity Flora Threatened Species Polygons L2 L5;
- Biodiversity Matters of National Significance L2 L5;
- Plains-wanderer L2 L5; and
- Biodiversity Special Flora Protection Zone L2 L5.

An example of the GIS mapping available from these layers is provided within Figure 5.3.

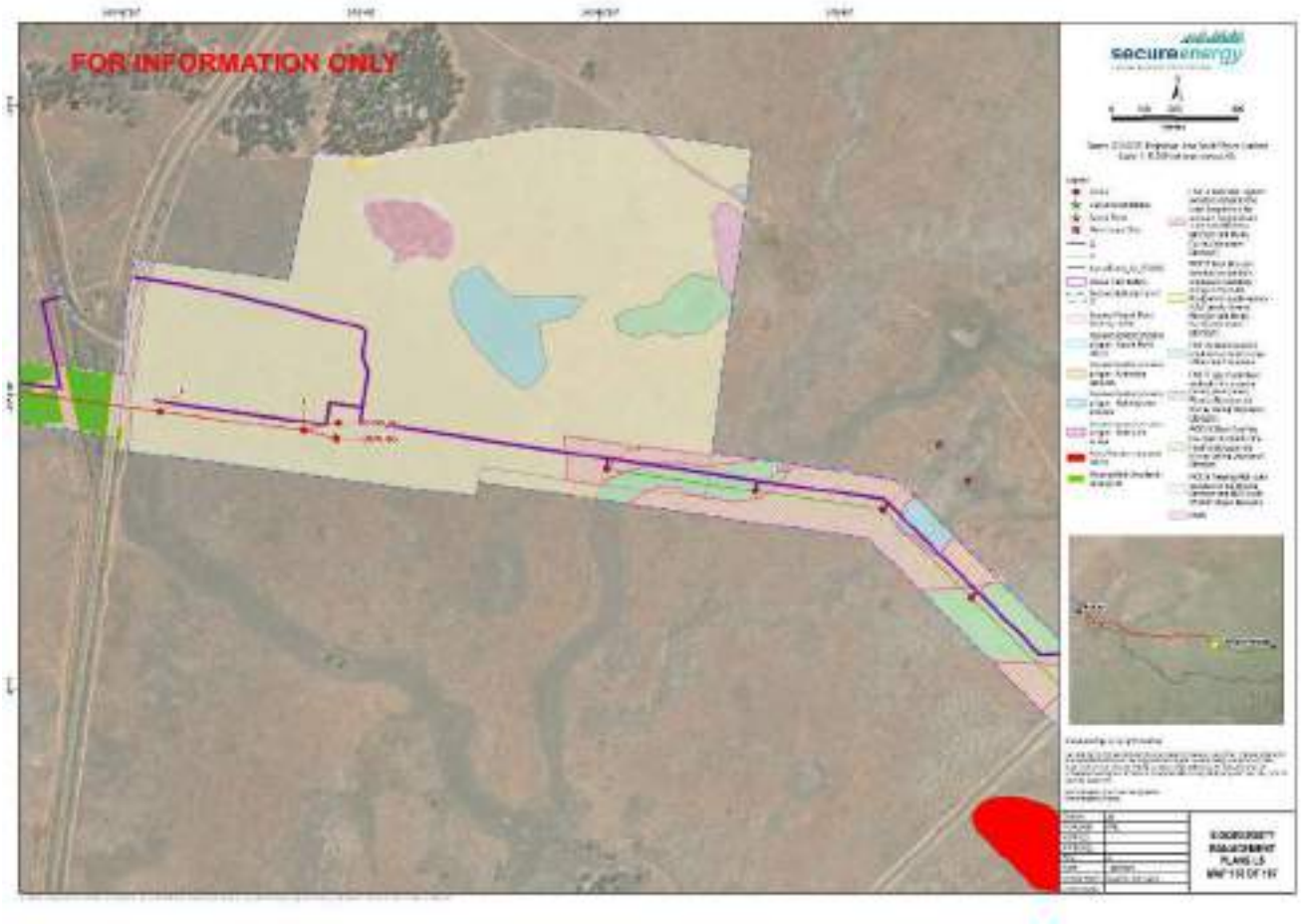


Figure 5.3 - Example of GIS mapping

The GIS database will be updated following the Spring and Summer biodiversity surveys, with this information provided to relevant subcontractors including the clearing subcontractor and the ecologist.

It must be noted that GIS is used in combination with the other measures stipulated within this plan, including pre-clearing inspections by ecologists and physical demarcation of biodiversity exclusion zones to ensure that these areas are known and appropriately identified.

5.4 Biodiversity Offset Package

Bank guarantees have been provided for the full amount to meet the requirements of condition C25.

The extent of clearing of native vegetation will be recorded to confirm actual impacts to biodiversity values to inform any final biodiversity offset requirements within the biodiversity offset package. Actual clearing extents will be provided to Transgrid, who will calculate the final biodiversity offset requirements in accordance with the requirements of the BC Act, the RMMs and applicable conditions of approval and compare actual clearing to the predicted clearing extents outlined in Table 12-11 of the Final BDAR. The following information will be recorded and provided to Transgrid in GIS format:

- the clearing extent; and
- the type of clearing at each clearing location as per the clearing approach identified and assessed in the EIS and BDAR (i.e. Disturbance Area A, Disturbance Area B4, Disturbance Area B10 etc.).

5.5 Fauna handling

A *Fauna Handling Procedure* (45860-HSE-PR-D-0020) has been developed for the project and is included within Appendix C.

5.6 Unexpected threatened species finds

If any threatened species or threatened ecological community are unexpectedly encountered, the *Unexpected Threatened Species Finds Procedure* (Appendix B) will be implemented.

5.7 Connectivity Strategy

A wildlife corridor or connectivity corridor is an area of habitat connecting wildlife populations separated by human activities or structures (such as roads or easements). Wildlife corridors are a link of wildlife habitat, generally native vegetation, that connect two or more larger areas of similar habitat. Wildlife corridors can range in size from small, local corridors, to large corridors that stretch across various landscapes.

Connectivity of habitat is essential for the long-term survival of many species because it facilitates fauna movement on a local scale, for foraging and sheltering, as well as on a regional scale as a wildlife corridor for dispersal and migration.

The Final BDAR states that key impacts on terrestrial connectivity as a result of the project would be associated with Disturbance Area A (area around the transmission line towers, areas for brake and winch sites and for new/upgraded access tracks). A gradual reduction in vegetation removal heights within discreate management zone was specifically designed to minimise impacts on biodiversity, including indirect impacts on terrestrial connectivity. It is also anticipated that the retention of understorey vegetation, ground timber within these zones is likely to maintain existing shelter and cover requirements for movement across the corridor.

The project will also establish a series of 20-metre-wide connectivity corridors near tower locations that occur in woodland vegetation. These connectivity corridors will involve native vegetation retention up to the 10 metre (330 kV line) or 20 metre (500 kV line) wide temporary construction centreline clearing zone to better facilitate woodland connectivity.

The inclusion of these corridors would also assist in further reducing clearing volumes during detailed design. Connectivity corridors would occur as a minimum at:

- key riparian crossings (Murrumbidgee River, Yanco Creek, Colombo Creek);
- areas of the alignment joining proposed biodiversity stewardship sites and or conservation reserve estate; and
- areas of existing dense mallee/belah.

The implementation of an outer Disturbance Area B10 zone will maintain all Mallee (PCT 170-172) and similar canopy vegetation in a 10 metre wide strip or stepping stone on the edge of the project boundary with the adjoining transmission line (refer to Figure 5.4). This effectively results in no increase in the current minimum gap crossing distances associated with the existing transmission line corridor for the majority of significant regional corridors in the western portion of the alignment.

The approach to vegetation clearing in the connectivity corridors is discussed in the *Pre-clearing and Clearing Procedure* (Appendix A).

The *Connectivity Strategy* (45860-HSE-DOC-D-0022) is provided in Appendix G of this plan.

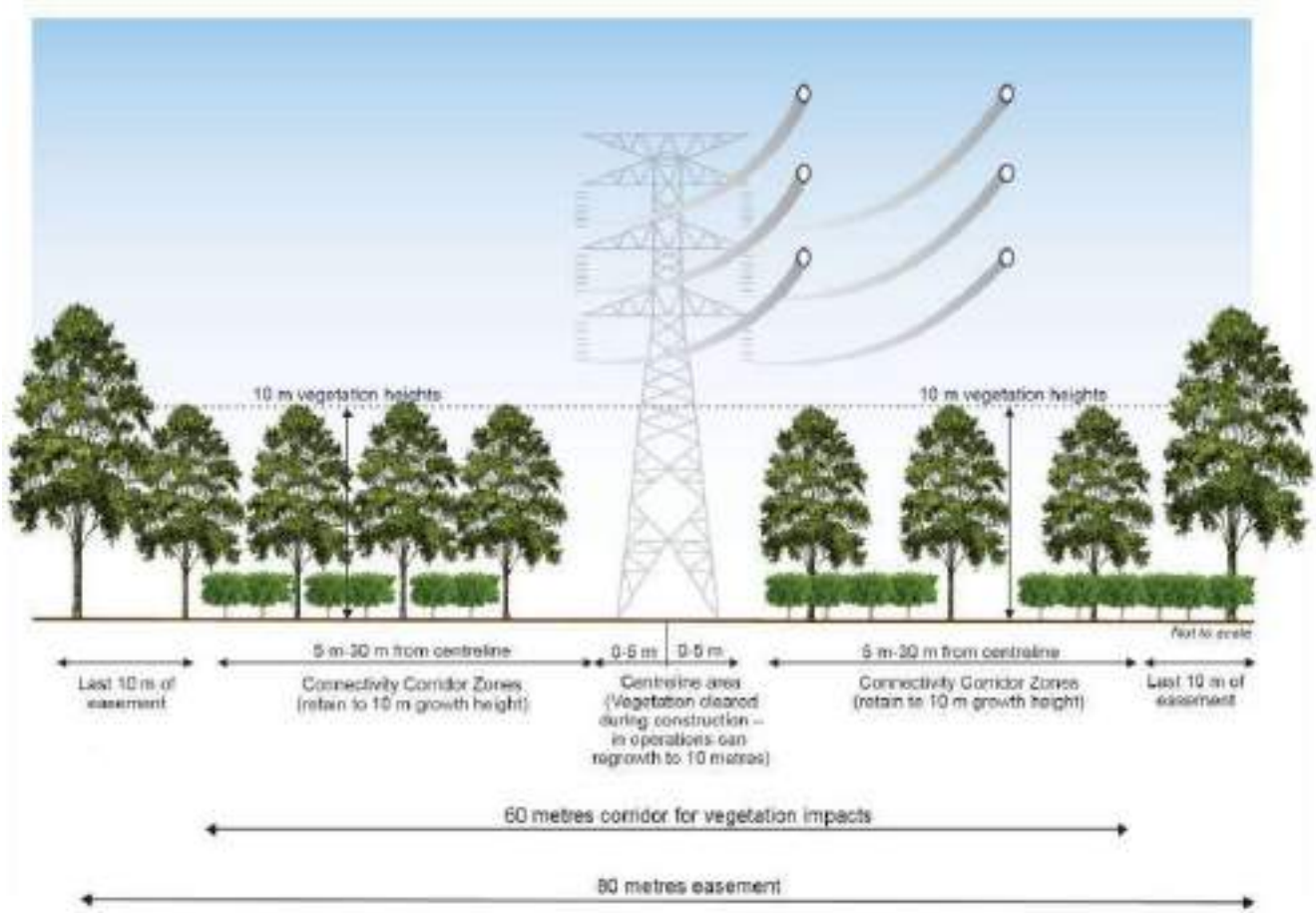


Figure 5.4 - Fauna connectivity corridor (330 kV transmission line)

5.8 Aquatic species, habitats and riparian zones

Activities within vegetated riparian zones would be managed to minimise impacts to aquatic environments. Riparian areas subject to disturbance would be progressively stabilised and rehabilitated.

All vegetation clearing of riparian zones will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A).

Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of *Water Management Act 2000*) of the Murrumbidgee River, the Coleambally irrigation channels, Yanco Creek, Columbo Creek and Lake Cullivel (and other defined riparian areas) will be protected to the greatest extent practicable.

Vegetation clearing will be limited to the tree stratum only, with trunk bases retained in-situ (vegetation to remain at four metres and 10 metres based on the disturbance area). Should the riparian zone be subject to a connectivity corridor, then vegetation within this connectivity corridor will be cleared at 10 metres in height, as detailed within the *Pre-clearing and Clearing Procedure* (Appendix A).

5.9 Rehabilitation

The rehabilitation objectives for the project are detailed within condition C52 of the Infrastructure Approval. Condition C52 states that within 6 months of the completion of construction, upgrading or decommissioning (unless the Planning Secretary agrees otherwise), the ancillary facilities, accommodation camps, and the earthworks material sites are to be rehabilitated. Rehabilitation works are to be undertaken in accordance with the objectives listed within condition C52 which are as follows:

- safe, stable and non-polluting;
- progressively rehabilitate the site as soon as possible following disturbance;
- to be decommissioned and removed, unless the Planning Secretary agrees otherwise;
- restore land capability to pre-existing use; and
- ensure public safety at all times.

The rehabilitation objectives as presented in the Infrastructure Approval are provided within Table 5.4.

Resources which may be available within the approved disturbance area will be identified for salvage where possible. This includes vegetative and soil resources which may be reused beneficially during the rehabilitation and restoration of the site.

Table 5.4 - Rehabilitation objectives

Feature	Objective
Ancillary facilities	• Safe, stable and non-polluting • Progressively rehabilitate the site as soon as possible following disturbance • To be decommissioned and removed, unless the Planning Secretary agrees otherwise.
Land use	• Restore land capability to pre-existing use
Community	• Ensure public safety at all times.

The framework for addressing the objectives at the ancillary facilities, accommodation camps and the earthworks material site, are provided within Section 5.9.1 to Section 5.9.5. Reference is also made to the NSW DPI guideline *Restoration of degraded grazing country in the semi-arid areas of NSW* (2006) (NSW DPI guideline).

5.9.1 Safe, stable and non-polluting

An *Erosion and Sediment Control Strategy* (ESCS) (45860-HSE-PR-D-0016) has been prepared and is included within Appendix A of the *Soil and Water Management Plan* (45860-HSE-PL-D-0118). The ESCS has been developed in line with the principles and requirements in:

- *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004), commonly referred to as the 'Blue Book';
- *Managing Urban Stormwater – Soils and Construction, Volumes 2A and 2C* (NSW Department of Environment, Climate Change and Water 2008);
- *Best Practice Erosion and Sediment Control* (IESCA – 2008);
- *Transgrid's HSE Guideline*; and
- *Guidelines for Controlled Activities on Waterfront Land* (NRA 2018).

The ESCS will be implemented to guide the development of the Progressive Erosion and Sediment Control Plan (PESCPs).

The Progressive Erosion and Sediment Control Plans (PESCPs) will be prepared and implemented for locations where soil disturbance will occur. The PESCPs will outline controls to be implemented to manage and minimise soil erosion, and movement of sediment and other pollutants to land and/or waters.

The PESCPs will be progressively updated throughout the project to reflect the current construction activities occurring on site and to allow the removal of any measures that are ineffective or no longer needed.

As construction finalises, areas will become progressively available for stabilisation. Unless otherwise requested by the landowner, areas will be stabilised through the application of retained topsoil and natural regeneration. Application of cover crop (seed) may also occur; however, consideration will need to be made of the available water supply and effectiveness of such an approach. The PESCPs will provide detail in relation to the measures which will be applied specific to each site. As required, advice will also be sought from the soil conservationist in relation to these measures.

5.9.2 Progressively rehabilitate

Many of the ancillary facilities will be used during construction of the project, with rehabilitation of these sites occurring following decommissioning and removal of the temporary infrastructure.

As recommended by the NSW DPI guideline, harnessing natural processes or natural regeneration should be considered as a first option for re-establishing native vegetation. Natural regeneration involves the germination of seedlings from seedfall or existing nearby vegetation and is an effective method of establishing a large number of plants, particularly where establishment is required at a large scale. Natural regeneration is also a form of rehabilitation.

Natural regeneration provides the following advantages:

- genetics are appropriate and relevant to the location of the site;
- it ensures that indigenous species are established rather than non-indigenous species;
- it ensures that regeneration is reflective of the vegetation present within the adjacent plant community types;
- heavy machinery or vehicles won't necessarily be required to traverse the existing site following placement of topsoil. This is of particular benefit given the number of Aboriginal heritage sites on the project;
- it establishes vegetation with random spacing, reflective of natural processes which would occur with the surrounding plant community types; and
- it provides a greater chance of long-term success.

Seed production areas or seed banks will supply seed, which is dispersed by a combination of wind, water and animals is the preferred rehabilitation method. The seed source for natural regeneration can be from parent trees, residual native plant seed within the soil, wind-blown seed and fauna that transfer and deposit seeds in an area. Water and nutrients are captured in fertile patches of natural vegetation, where plants can germinate and grow. To create a fertile patch, branches can be laid across a slope or the soil can be physically manipulated using mechanical intervention to create divets or depressions where water and nutrients can be retained.

The DPI guideline reports that on degraded country much of the water, seed and nutrients are lost through the action of wind and water. The placement of vegetation, or use of divets and depressions, can assist in enabling seed, fine sediment and organic matter to accumulate.

Where remnant vegetation remains, it will be the starting point to encourage natural regeneration. Remnant vegetation will remain in various locations adjoining areas of temporary clearing including, for example, vegetation adjoining the access tracks and vegetation adjacent to the laydown areas (temporary disturbance areas). In undertaking rehabilitation, the following will occur:

- material resources from the area will be salvaged and stockpiled for beneficial reuse in future where possible. This could include soil and vegetative resources such as hollows and mulch;
- topsoil will be removed and stockpiled for future reuse;
- decommissioning or rehabilitation of the accommodation camp and construction compound will be carried out in accordance with information detailed within the progressive erosion and sediment control plan and/or in consultation with the landowners, where relevant;

- stabilisation of any areas available within the earthworks material site will occur in accordance with the progressive erosion and sediment control plans. Stabilisation would occur progressively, as any of the sections of the earthworks material site are no longer required and/or in consultation with the landowners, where relevant;
- on completion of the work in the temporary construction areas, topsoil shall be re-spread over the disturbed surface in order to promote natural revegetation from the seed and nutrient contained within the topsoil; and
- mulch and woody debris will be a by-product of vegetation clearing activities. Where practicable, this material will be reused in the progressive rehabilitation works following placement of topsoil.

During the construction period, monitoring of the rehabilitation of these areas will occur in accordance with the monitoring detailed within Table 6.3.

5.9.3 Decommission and remove

At the end of the construction phase of the project, temporary infrastructure will be decommissioned and removed, unless the Planning Secretary agrees otherwise. In general, decommissioning activities will involve the following:

- disconnecting redundant services including power;
- removal of accommodation facilities;
- removal of other temporary buildings; and
- removal of temporary construction fencing.

Construction access tracks and access points will be retained for operational access, where required and practicable, in consultation with the relevant landowner. Temporary access points within the road reserve that are not required for operational reasons would be removed and restored in consultation with the relevant roads authority following the completion of construction.

5.9.4 Restore land capability to pre-existing use

The pre-existing use of the ancillary facilities, accommodation camps, and the earthworks material site is agricultural land. Consultation with the landholders will occur in stabilising the disturbed areas as required by RMM LP5.

5.9.5 Ensure public safety

Project works, including any decommissioning activities required as part of the rehabilitation works will be undertaken in accordance SecureEnergy's Health and Safety Plan. The Health and Safety Plan details the safety management system and processes which will be implemented during delivery of the project.

5.10 Summary of management measures

Table 5.5 summarises the biodiversity management measures required to manage impacts to biodiversity as a result of the construction of the project.

Table 5.5 - Biodiversity management measures

ID	Measurement / Requirement	When to implement	Responsibility	Source document
General				
BD1	Training will be provided to all project personnel, including relevant sub-contractors on biodiversity management practices and the requirements from this plan through inductions, toolbox talks and activity specific training.	Pre-construction	HSSE Manager	RMM B14
BD2	Any site offices or crib sheds which may be required will be located in an area 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).	Detailed design	Design Manager Construction Manager Environmental Manager	RMM B3
BD3	Where vegetation disturbance activities are required in areas that have not previously been subject to biodiversity survey, additional survey will be carried out prior to works occurring to inform detailed design and construction methodology. These surveys will be carried out by a suitably qualified ecologist.	Pre-construction and construction	Environmental Manager	RMM B2
BD4	Should changes to the project's design or construction methodology or additional field surveys result in changed impacts to biodiversity which have not been included in the Final BDAR, these would be assessed in accordance with the requirements of the BAM by an accredited assessor.	Construction	Environmental Manager	RMM B2
BD5	Clearing of native vegetation and key habitat will be minimised where possible. This will include minimising impacts on the clearing of hollow-bearing trees, threatened species as well as native vegetation and key habitat. Opportunities to minimise clearing will occur through review of temporary design and construction methodologies for the Stage 2 disturbance area.	Pre-construction and construction	Environmental Manager Construction Manager Design Manager Supervisor Engineer	Condition C23 Condition C26
BD6	Unless otherwise agreed with the Planning Secretary, clearing is not to exceed the limits identified in Section 5.3, Table 5.1, Table 5.2 and Table 5.3 of this BMP. Spatial data and threatened species locations will be provided to the detailed design team in detailed construction planning.	Pre-construction and construction	Design Manager Construction Manager Environmental Manager Supervisor	Condition C23 Condition C26
BD7	Detailed design and construction methodologies will avoid impact to matters of biodiversity conservation significance to the greatest extent practicable. Micro-siting of the transmission line infrastructure and associated construction working areas and other areas of disturbance will occur to avoid impacts wherever practicable. Threatened species recorded and their habitat, will be given the highest priority in terms of impact minimisation.	Detailed design and construction	Design Manager Environmental Advisor Environmental Manager Construction Manager	RMM B1 RMM B10 RMM LV1

ID	Measurement / Requirement	When to implement	Responsibility	Source document
	Threatened species and their habitats, as well as endangered threatened ecological communities, will be identified through the GIS or sensitive area plans (SAPs) (per Section 4.5 of the CEMP). The results of pre-clearing surveys will be used to update and confirm the accuracy of SAPs.			
BD8	To avoid the construction of new tracks, existing tracks and clearings will be utilised where possible during construction. Detailed design will ensure that where this is not possible, that impacts to native vegetation is minimised.	Detailed design and construction	Design Manager Construction Manager Environmental Manager	RMM B4 RMM LV2 Condition C23 Condition C26
BD9	Transmission line towers have been located and will be constructed to minimise impacts to vegetated riparian corridors, as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012) of Murrumbidgee River.	Detailed design and construction	Design Manager Environmental Manager	RMM B5
BD10	Works within the Tree Protection Zones of retained trees within or immediately adjacent to the disturbance area would be planned with consideration of the tree protection measures outlined in managed in accordance with *AS4970–2009 Protection of Trees on Development Sites* where practicable and appropriate measures would be implemented to minimise the impact of the works on the long–term health of these trees.	Pre-construction	Environmental Advisor Environmental Manager Construction Manager Supervisors	RMM LV4
Pre-clearing and clearing				
BD11	Pre-clearing surveys will be completed prior to construction by a suitably qualified ecologist in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A). This includes the requirement to undertake pre-clearance surveys as required by the Commonwealth Approval.	Pre-construction	Environmental Advisor Environmental Manager Ecologist	RMM B9 Condition C26 Commonwealth Approval condition 3 Commonwealth Approval condition 5
BD12	Biodiversity exclusion zones for retained vegetation would be confirmed by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone. Biodiversity exclusion zones would consider: • identified Plains–wanderer habitat; • identified threatened flora populations; and • PCTs in disturbance area B that are not of a growth form height that would ever require management. Biodiversity exclusion zones would be physically marked and demarcated, and included on sensitive area maps, prior to clearing.	Pre-construction	Environmental Advisor Environmental Manager Ecologist	RMM B11

ID	Measurement / Requirement	When to implement	Responsibility	Source document
BD13	In circumstances where a tree that would exceed the vegetation clearing requirements is identified within one of the biodiversity conservation zones relating to the Plains-wanderer habitat areas then this tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place) using methods that minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist.	Construction	Environmental Advisor Environmental Manager Ecologist Construction Manager	RMM B12
BD14	Any additional requirements relating to pre-clearing or clearing activities in areas of Plains-wanderer habitat would be undertaken in accordance with the *Plains-wanderer Protocol* in Appendix F.	Construction	Environmental Advisor Environmental Manager Construction Manager	RMM B13
BD15	Activities within vegetated riparian zones will be undertaken in a way so to minimise impacts to aquatic environments. Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of *Water Management Act 2000* and *Guidelines for riparian corridors on waterfront land* (DPI – Office of Water, 2012)) of 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.	Construction	Environmental Advisor Environmental Manager Ecologist Construction Manager	RMM B16 RMM B17
BD16	Clearing of any hollow bearing trees at the crossing point of the Murrumbidgee River within PCT 8 and PCT 11 will be undertaken outside of the period between September and December.	Construction	Environmental Advisor Environmental Manager Construction Manager	RMM B19
BD17	Between towers 660-663* a bespoke construction methodology would be employed which would avoid impacts to known individuals of Thyme Rice-flower and minimise impact as far as practicable to the species' habitat. This would include at a minimum: • during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1; • pre-clearing surveys for areas which would be cleared or impacted to identify and clearly mark all Thyme Rice-flower individuals; • the ecologists undertaking the pre-clearing survey are to install four (4) 1.5 metre high wooden/metal stakes on all sides of the *Pimelea* individuals (give 1 metre distance off main stem to lower risk of root damage); • attach flagging tape at top of stake to notify clearing machinery where to avoid (where possible); • areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers; • provide a map of all *Pimelea* individuals to all contractors to notify significance;	Detailed design and construction	Design Manager Environmental Advisor Environmental Manager Construction Manager Supervisors	RMM B22

ID	Measurement / Requirement	When to implement	Responsibility	Source document
	• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone and the location of *Pimelea* individuals which are to be avoided; • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone; • A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through habitat is required, with an ecologist walking ahead acting as a spotter; • access being prioritised from existing tracks clearing restricted to the identified tower 660–663* worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 660–663* worksite locations; and • alternative line installation techniques which do not require clearing of Disturbance Area A - centreline; • clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements. Refer to Section 5.4 of the *Pre-clearing and Clearing Procedure* for detail of the measures which are to be implemented within this special biodiversity protection zone.			
BD18	Between towers 161–162* a bespoke construction methodology would be employed which would avoid impacts to known individuals of Austral Pillwort individuals and minimise impact as far as practicable to the species habitat. This methodology would include at a minimum: • during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1; • pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all Austral Pillwort individuals; • temporary fencing around suitable habitat/acknowledged species polygons within the Final BDAR (along with a 10m buffer – to decrease any potential impacts to geomorphology) prior to construction. Installation of clear signage saying “No Go Zone”; • areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers; • pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone and the importance of Austral Pillwort. The importance of maintaining geomorphology where possible should also be raised; • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone;	Detailed design and construction	Design Manager Environmental Advisor Environmental Manager Construction Manager Supervisors	RMM B23

ID	Measurement / Requirement	When to implement	Responsibility	Source document
	• A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through habitat is required, with an ecologist walking ahead acting as a spotter; • access being prioritised from existing tracks; • clearing restricted to the identified tower 161 and 162* worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 161 and 162* worksite locations; and • alternative line installation techniques which do not require clearing of Disturbance Area A - centreline; • clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements. Refer to Section 5.4 of the *Pre-clearing and Clearing Procedure* for detail of the measures which are to be implemented within this special biodiversity protection zone.			
BD19	Between towers 241–242* a bespoke construction methodology would be employed which would minimise impacts as far as practical to the mapped Natural Grasslands of the Murray Valley Plains – Critically Endangered TEC located between the tower 241 and 242 location worksites. This methodology would include at a minimum: • during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1; • pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone; • areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers; • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone; • access being prioritised from existing tracks; • clearing being restricted to the identified tower 241 and 242* worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 241 and 242* worksite locations; and • alternative line installation techniques which do not require clearing of Disturbance Area A - centreline; • clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements. Refer to Section 5.4 of the *Pre-clearing and Clearing Procedure* for detail of the measures which are to be implemented within this special biodiversity protection zone.	Detailed design and construction	Design Manager Environmental Advisor Environmental Manager Construction Manager Supervisors	RMM B24

ID	Measurement / Requirement	When to implement	Responsibility	Source document
BD20	Between towers 243–249* a bespoke construction methodology would be employed which would minimise impacts as far as practical to the mapped PVP located between the tower 243 and 249 location worksites. This methodology would include at a minimum: • during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1; • pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone; • areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers; • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone; • A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through the PVP, if required; • access being prioritised from existing tracks; • clearing being restricted to the identified tower 243–249* worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 243–249* locations; and • alternative line installation techniques which do not require clearing of Disturbance Area A - centreline; • clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements. Refer to Section 5.4 of the *Pre-clearing and Clearing Procedure* for detail of the measures which are to be implemented within this special biodiversity protection zone.	Detailed design and construction	Design Manager Environmental Advisor Environmental Manager Construction Manager Supervisors	RMM B26
BD21	Areas subject to partial clearance will be monitored within three months from commencement of Stage 2 construction. If partial clearing has not commenced within three months of the commencement of Stage 2 construction, the project will monitor areas of partial clearance within three months of the commencement of partial clearing. A verification report will be produced to confirm whether any changes are required to Appendix A – *Pre-clearing and Clearing Procedure*.	Construction	Environmental Advisor Environmental Manager	Condition C26

ID	Measurement / Requirement	When to implement	Responsibility	Source document
Threatened species management				
BD22	Detailed design will incorporate conductor line-marking techniques to minimise bird strike within one kilometre of wetland/riverine habitats. Use of bird diverters, most likely of the "flapper" variety, will be implemented. Positioning and 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 and construction	Design Manager Environmental Manager	RMM B6
BD23	The *Unexpected Threatened Species Finds Procedure* (Appendix B) will be implemented if threatened ecological communities and threatened flora and fauna species, not assessed in the biodiversity assessment, are identified in the disturbance area.	Pre-construction and construction	All personnel	RMM B18
BD24	Threatened species and their habitats will be identified through the GIS or sensitive area plans (SAPs), which would be updated/confirmed from the results of pre-clearing surveys. Mapping from SAPs would be provided to the construction workforce. Impacts to threatened species will be avoided as far as practicable during detailed design and when determining construction methodologies. In the event that unexpected threatened species are identified, the *Unexpected Threatened Species Finds Procedure* will be implemented.	Detailed design and construction	Design Manager Environmental Advisor Environmental Manager Construction Manager Supervisors	RMM B1 RMM B10 RMM B18
BD25	Where clearing of any hollow bearing trees within PCT 8 and PCT 11 at the crossing of the Murrumbidgee River is required, this will be undertaken outside of the Regent Parrot's breeding season (September to December).	Construction	Environmental Advisor Environmental Manager	RMM B19
Habitat retention and rehabilitation				
BD26	Nest boxes will be provided to offset the loss of tree hollow fauna habitat in accordance with a Supplementary Hollow and Nest Strategy. The strategy will include: • a survey of tree hollows and nests within the proposed clearing extents; • the size, type, number and location of nest boxes 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; • nest boxes will include consideration of natural tree hollow re-use and new tree hollow creation; and • measures to address and manage nests (such as raptor nests) pre-clearing will be included.	Pre-construction and construction	Environmental Manager	RMM B8
BD27	The project will establish a series of 20-metre-wide connectivity corridors near tower locations that occur in woodland vegetation in accordance with the *Connectivity Strategy* (Appendix G). The	Detailed design and construction	Environmental Manager	RMM B7

ID	Measurement / Requirement	When to implement	Responsibility	Source document
	connectivity corridors will involve native vegetation retention up to the 10-metre-wide temporary construction centreline clearing zone to better facilitate woodland connectivity. In addition to the connectivity corridors, under transmission glider poles will be installed in accordance with the *Connectivity Strategy* to assist Squirrel Glider movement.		Construction Manager	
BD28	The opportunity to stockpile and supply felled trees for Key Fish Habitat rehabilitation or improvement works would be discussed with DPI Fisheries.	Construction	Environmental Manager	RMM B25
Biosecurity				
BD29	The biosecurity controls outlined in the *Biosecurity Management Plan* (Appendix D) 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; and • minimising movements across adjoining farmland including trip numbers and locations where possible. Additional measures where localised areas of high biosecurity risks have been identified will be implemented. The effectiveness of these controls will be regularly monitored.	Construction	Environmental Manager Environmental Advisor Construction Manager Supervisor	RMM LP2 RMM LP7 RMM LP8 RMM LP9
BD30	Where present in locations that would be accessed for construction activities, weeds would be managed in consultation with the relevant landholder. Consultation would also occur with the relevant authority (LLS Local Land Services, the relevant local council, or NSW DPI) in relation to notifiable weeds.	Construction	Environmental Manager Environmental Advisor Construction Manager Supervisor	RMM LP8
BD31	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	Environmental Manager	RMM LP9
Soil and water quality				
BD32	Soil and water quality management measures will be implemented in accordance with the *Soil and Water Management Plan* (45860-HSE-PL-D-0112) to minimise erosion during clearing.	Pre-construction and construction	Environmental Manager Construction Manager Supervisor Engineer	Condition C26
BD33	An *Erosion and Sediment Control Strategy* (ESCS) (45860-HSE-PR-D-0016) has been provided in Appendix A of the *Soil and Water Management Plan*. It has been prepared in line with the principles and requirements in: • *Managing Urban Stormwater – Soils and Construction*, Volume 1 (Landcom 2004), commonly referred to as the 'Blue Book';	Construction	Environmental Manager Construction Manager	Condition C26 RMM HF6 RMM SCG7

ID	Measurement / Requirement	When to implement	Responsibility	Source document
	• *Managing Urban Stormwater – Soils and Construction*, Volumes 2A and 2C (NSW Department of Environment, Climate Change and Water 2008); • *Best Practice Erosion and Sediment Control* (IESCA – 2008); • Transgrid's Environmental Guidance Notes; and • *Guidelines for Controlled Activities on Waterfront Land* (NRAR 2018). The ESCS will be implemented to guide the development of the Progressive Erosion and Sediment Control Plan (PESCPs) for the project.			
BD34	Transmission line towers will be located and constructed to minimise impact to vegetated riparian corridors, wherever practicable.	Detailed design and construction	Design Manager Environmental Manager	RMM B5
BD35	The project will ensure that: • all activities on waterfront land are constructed in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (2012), *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003) and the *Policy and Guidelines for Fish Habitat and Conservation and Management* (NSW Fisheries, 2013), unless DPE Water agrees otherwise; and • the geomorphic condition of the major rivers and distributary channels crossed by the project is not impacted.	Construction	Environmental Manager Environmental Advisor Construction Manager Supervisor	Condition C18
Bushfire management				
BD36	Construction activities will be managed in accordance with the *Emergency Plan* (45860-HSE-PL-D-0129). The Emergency Plan includes measures to minimise the potential for bushfire risk and will be prepared in consultation with Rural Fire Service. It will be made publicly available upon approval.	Construction	Environmental Advisor Environmental Manager	Condition C26
BD37	A minimum 50–metre–wide managed APZ would 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. Any APZ would be regularly maintained to provide a maximum grass height of up to or less than 100 millimetres at substations, compounds and accommodation camps during the prescribed Bushfire Danger Period and when the grassland fuel reaches 70 per cent cured. Vegetation inside the main construction compounds and accommodation camp sites would be regularly maintained to a maximum height of 75 millimetres.	Construction	Design Manager Construction Manager	RMM HR2
BD38	Controls to minimise potential ignition of vegetation would be implemented and a water supply (suitable extinguisher) and trained operator on hand during all outdoor hot works/grinding activities, and during vegetation slashing within and adjacent to the construction compounds and accommodation camps.	Construction	Construction Manager Supervisor	RMM HR9

ID	Measurement / Requirement	When to implement	Responsibility	Source document
	No outdoor hot works would 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.			
Monitoring				
BD39	Monitoring will occur in accordance with Section 6.3 of this plan.	As per the frequency in Section 6.3	Environmental Manager	Condition C26
BD40	Clearing of native vegetation will be monitored to confirm actual impacts to biodiversity values to inform any final biodiversity offset requirements and allow for comparison of actual clearing with the predicted clearing extents outlined in Table 12-11 of the Final BDAR.	Pre-construction and construction	Environmental Manager Transgrid (offsets)	RMM B15
BD41	Areas subject to partial clearance will be monitored within three months from commencement of construction. A verification report will be produced to confirm whether any changes are required to the Appendix A – *Pre-clearing and Clearing Procedure.*	Construction	Environmental Manager	Condition C26

* Tower numbering is reflective of tower numbering from the Final BDAR.

6 Compliance management

6.1 Training and awareness

All site personnel will undergo the SecureEnergy site induction. The induction training addresses elements related to biodiversity management including, but not limited to:

- relevant legislation;
- the environmental management system, including the CEMP;
- biodiversity values;
- land disturbance and clearing;
- biosecurity and weeds; and
- GIS / SAPs.

Targeted training in the form of toolbox talks or specific training will also be delivered to personnel with a key role in biodiversity management. Examples of training topics include:

- clearing procedures;
- no-go zones;
- threatened species within the project area;
- special biodiversity protection zones;
- unexpected finds procedure for threatened species; and
- biosecurity procedures.

Further details regarding the staff induction and training are in Section 6 of the CEMP.

6.2 Roles and responsibilities

SecureEnergy's organisational structure and overall roles and responsibilities are outlined in Section 4 of the CEMP. Specific responsibilities for the implementation of mitigation measures are detailed in Section 5 of this BMP.

6.3 Monitoring

The proposed monitoring program relevant to biodiversity is provided within Table 6.1. The monitoring program detailed within this plan will commence upon the commencement of Stage 2 construction. Monitoring will continue during construction and at the timing or frequency detailed within Table 6.1 for each of the monitoring items.

Table 6.1 - Monitoring program

Item		Scope	Frequency	Responsibility	Records / reporting
1	Weekly inspections	Inspection of the exclusion zones when works are being undertaken in the Stage 2 areas.	Weekly	Environmental Advisor Supervisors	Weekly Environmental Inspection Checklist
2	Pre-clearing inspection	Inspecting work areas before clearing in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).	Approximately 24 hours prior to clearing as required by Section 5.2 of the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).	Ecologist Environmental Advisor	Clearing and Land Disturbance Permit

Item		Scope	Frequency	Responsibility	Records / reporting
3	Pre-clearance surveys	Pre-clearance surveys will be prepared in accordance with the requirements of the Commonwealth Approval.	Prior to clearing or ground disturbance activities in that area (other than pre-construction minor activities per Commonwealth correspondence).	Environmental Manager Environmental Advisor	Pre-clearance survey report
4	During clearing supervision	Ecological supervision of clearing operations and removal of habitat trees during two-stage clearing approach in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).	During second stage of two-stage clearing	Ecologist / Fauna handler Environmental Advisor	Clearing report
5	Monitoring vegetation clearing	Clearing of native vegetation will be monitored to confirm actual impacts to biodiversity values to inform any final biodiversity offset requirements within the biodiversity offset package which will allow comparison of Table 12-11 of the Final BDAR.	Prior to and during clearing	Environmental Manager Transgrid (offsets) Ecologist	Clearing Register
6	Monitoring areas subject to partial clearance	Areas that are subject to partial clearance (Disturbance Area B4 and Disturbance Area B10) will be monitored within three months from commencement of Stage 2 construction. A verification report will be produced to confirm whether any changes are required to the *Pre-clearing and Clearing Procedure.*	Monitoring within three months of the commencement of Stage 2 construction and provision of a verification report. If partial clearing has not commenced within three months of the commencement of Stage 2 construction, the project will monitor areas of partial clearance within three months of the commencement of partial clearing.	Supervisor Environmental Manager	Verification Report
7	Monitoring special biodiversity protection zones	The special biodiversity protection zones will be monitored in accordance with Table 5.1 of Appendix A of the *Pre-clearing and Clearing Procedure.*	The timing is dependent on the special biodiversity protection zone and is detailed within Table 5.1 of Appendix A of the *Pre-clearing and Clearing Procedure.*	Environmental Manager Ecologist	
8	Fauna handling and rescue	Handling and rescue of fauna in accordance with the *Fauna Handling Procedure* (45860-HSE-PR-D-0020).	As discovered	Supervisor Environmental Advisor	Fauna Handling Record Sheet
9	Nest box monitoring	Determine the use of nest boxes during the construction phase in accordance with the *Supplementary Hollow and Nest Strategy* (45860-HSE-PR-D-0021).	Annual	Environmental Manager Ecologist	

Detail of the monitoring which will be undertaken during construction for each of the measures within condition C26 are provided within Table 6.2.

Table 6.2 - Monitoring against the measures of condition C26

Condition		Method of monitoring	Method of reporting
C26	The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include: a) a description of the measures that would be implemented for: (i) meeting the biodiversity mitigation requirements in condition C23;	1. Weekly inspections 2. Pre-clearing inspection 3. Pre-clearance surveys 5. Monitoring vegetation clearing 7. Monitoring special biodiversity protection zones	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008) Clearing and Land Disturbance Permit Pre-clearance survey report Clearing register
	(ii) minimising the amount of native vegetation clearing within the approved development footprint;	1. Weekly inspections	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008)
	(iii) minimising the loss of key fauna habitat, including tree hollows;	2. Pre-clearing inspection 3. Pre-clearance surveys	Clearing and Land Disturbance Permit Pre-clearance survey report
	(iv) minimising the impacts on fauna on site, including undertaking pre-clearance surveys;	2. Pre-clearing inspection 3. Pre-clearance surveys	Clearing and Land Disturbance Permit Pre-clearance survey report
	(v) minimising the potential indirect impacts on threatened flora and fauna species, migratory species and 'at risk' species;	1. Weekly inspections	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008)
	(vi) rehabilitating and restoring disturbance areas to its pre-existing condition;	Monitoring to occur in accordance with Table 6.3	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008)
	(vii) avoiding and minimising impacts on Serious and Irreversible Impact (SAII);	1. Weekly inspections 2. Pre-clearing inspection 3. Pre-clearance surveys	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008) Clearing and Land Disturbance Permit Pre-clearance survey report
	(viii) construction clearing and operation vegetation management protocols;	1. Weekly inspections 2. Pre-clearing inspection 3. Pre-clearance surveys 4. During clearing supervision 5. Monitoring vegetation clearing 6. Monitoring areas subject to partial clearance 7. Monitoring special biodiversity protection zones	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008) Clearing and Land Disturbance Permit Pre-clearance survey report Clearing register Verification Report

Condition		Method of monitoring	Method of reporting
	(ix) monitoring of the areas of partial clearance within three months of the commencement of construction and provision of a verification report to confirm if any changes are required to the construction vegetation clearing protocols;	6. Monitoring areas subject to partial clearance	Verification Report
	(x) protecting native vegetation and key fauna habitat outside the approved disturbance area;	1. Weekly inspections 2. Pre-clearing inspection 4. During clearing supervision	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008) Clearing and Land Disturbance Permit
	(xi) maximising the salvage of resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and restoration of the site;	1. Weekly inspections	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008)
	(xii) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy;	1. Weekly inspections 2. Pre-clearing inspection (field site validation of the connectivity corridors to in accordance with Section 6.3 of the Connectivity Strategy) 2. Pre-clearing inspection (reporting on tree hollows in accordance with Section 6 of the Supplementary Hollow and Nest Strategy) 5. Monitoring vegetation clearing 9. Nest box monitoring	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008) Clearing register Nest Box Installation Report
	(xiii) controlling weeds;	1. Weekly inspections 2. Pre-clearing inspection 3. Pre-clearance surveys Vehicle and plant hygiene inspections	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008) Clearing and Land Disturbance Permit Pre-clearance survey report Vehicle inspection reports
	(xiv) controlling erosion; and	Pre rainfall inspection (as required by the *Stage 2 Soil and Water Management Plan* (SWMP)) Post rainfall inspection (as required by the SWMP) Water quality monitoring (as required by the SWMP) 1. Weekly inspections	*Pre rainfall inspection checklist* (45860-HSE-CHK-G-1009) *Post rainfall inspection checklist* (45860-HSE-CHK-G-1010) Water quality record *Environmental Inspection Checklist* (45860-HSE-CHK-G-1008)

Condition		Method of monitoring	Method of reporting
	(xv) bushfire management; and	Weather and fire danger ratings forecasts (as required by the Emergency Plan) Vegetation level in APZs (as required by the Emergency Plan) Hot works (as required by the Emergency Plan) Fire watch (as required by the Emergency Plan) Bushfire preparedness inspections (as required by the Emergency Plan) 1. Weekly inspections	BOM website, NSW RFS website and Pre-starts Reporting within Daily Diary Plant and vehicle inspection logs *Environmental Inspection Checklist* (45860-HSE-CHK-G-1008)

Further to the monitoring identified within Table 6.1, a detailed monitoring program is provided within Table 6.3 which monitors performance of the project against the objectives and targets provided within Table 1.2 of the plan.

Table 6.3 provides the objectives, completion criteria, performance indicators, method of monitoring and frequency of monitoring for the biodiversity and rehabilitation objectives.

A Trigger Action Response Plan (TARP) is included within Table 6.3, with triggers and actions identified against each of the objectives and completion criteria. The TARPs identify trigger levels which require action to occur to ensure that the biodiversity-related objectives of the project are met.

Table 6.3 - Detailed biodiversity monitoring program and TARP

Project location/work area	Feature	Objective	Baseline	Targets / Completion criteria	Performance indicators	Method of monitoring (how the performance indicator will be validated)	Frequency / timing	Trigger	Action / Response
Biodiversity									
All	All	Minimise and manage the impacts of the project on biodiversity	Baseline conditions vary across the project based on land use and vegetation type Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping	• No exceedance to clearing values of known biodiversity including flora and fauna species as specified in condition C23 a).	• Clearing limits to be within those set in Appendix 2 of the Infrastructure Approval and Section 5.3.1 of this BMP	• Total clearing area as recorded on clearing register.	• Monthly	• Forecast clearing may exceed the clearing limits	• Design or construction methodology to be reviewed to determine an approach which will minimise impacts to this vegetation type • Measures to be implemented • Weekly environmental inspections to review and assess performance • If an exceedance of the clearing limits within Appendix 2 of the Infrastructure Approval and Section 5.3.1 of the BMP is recorded, a non-compliance will be reported to the Department.
				• Minimise the risk of injury and mortality of fauna.	• Zero fauna injured as a result of procedures not being adhered to	• Fauna strike register	• Updated as required (based on fauna strike)	• Fauna injured as a result of procedure not being adhered to	• Investigate the event • Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114) • Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented
				• Clearing and management of the Plains-wanderer habitat to occur in accordance with the *Plains-wanderer Protocol*	• Compliance with the requirements of the *Plains-wanderer Protocol* in Appendix F of the BMP	• Inspections	• Weekly (as part of the Weekly Environmental Inspections)	• Clearing or management of the Plains-wanderer habitat is not in accordance with the *Plains-wanderer Protocol*	• Stop work immediately if a breach of the *Plains-wanderer Protocol* occurs • Investigate the event • Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114) • Measures to be implemented • Weekly environmental inspections to review and assess performance • Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented
				• Bespoke construction methodology to be applied within the special biodiversity protection zones	• Compliance with the requirements of the *Pre-clearing and Clearing Procedure* in Appendix G of the BMP, for the special biodiversity protection zones	• Inspections	• Weekly (as part of the Weekly Environmental Inspections)	• Clearing or management of the special biodiversity protection zones is not in accordance with the *Pre-clearing and Clearing Procedure*	• Stop work immediately if a breach of the *Pre-clearing and Clearing Procedure* occurs for the special biodiversity protection zones • Investigate the event • Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114) • Measures to be implemented • Weekly environmental inspections to review and assess performance • Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented
				• Nest box installation for squirrel gliders to commence prior to clearing in a particular location	• Nest box installation for squirrel gliders will commence prior to clearing in a particular location.	• Progress updates from the ecologists via meetings and Nest Box Installation Checklist	• Fortnightly	• Nest box installation for squirrel gliders does not occur in a particular location prior to clearing	• Determine why nest boxes cannot be installed and address barriers to installation where possible. • Reinspect to confirm this has occurred

Project location/work area	Feature	Objective	Baseline	Targets / Completion criteria	Performance indicators	Method of monitoring (how the performance indicator will be validated)	Frequency / timing	Trigger	Action / Response
				• Nest box installation for other species to commence prior to clearing in a particular location	30% of nest boxes for other species will be installed prior to clearing in a particular location. All remaining nest boxes (100%) to be installed within three months of clearing in a particular location.	• Progress updates from the ecologists via meetings and Nest Box Installation Checklist	• Fortnightly	Nest box installation for other species does not occur as follows: • 30% of nest boxes to be installed prior to clearing in a particular location; • all remaining nest boxes (100%) will be installed within three months of clearing within a particular location.	• Determine why nest boxes cannot be installed and address barriers to installation. • Reinspect to confirm this has occurred.
Rehabilitation									
Easement	Tower pads, laydowns and brake and winch sites	Rehabilitate and restore disturbance areas to its pre-existing condition	Baseline conditions vary across the project based on land use and vegetation type Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping	• All temporary infrastructure is removed	• Temporary infrastructure removed	• Inspection	• Once following completion of construction and demobilisation from the area	• Temporary infrastructure remains on site	• Determine why infrastructure cannot be removed and address barriers to removal. Reinspect until removed • If infrastructure must stay, then ensure that any relevant approvals which may be required are obtained and landowner agreement is in place
				• Topsoil reinstated	• Topsoil has been reinstated on the previously disturbed areas	• Inspection	• Once following completion of construction and demobilisation from the area	• Topsoil not reinstated	• Topsoil to be reinstated • Reinspect to confirm this has occurred
				• Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration	• Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm)	• Progressive photos of select areas • Assessment to determine if area is stable and non-polluting (may be undertaken by CPESC)	• Monthly until confirmation is received that the area is stable and non-polluting	• Area confirmed to be unstable and requires further measures	• Seek advice from the Soil Conservationist • Implement additional measures (as may be deemed necessary based on location and site aspects) • Reinspect until location is deemed to be stable
				• All rubbish and waste materials are removed	• No visible rubbish or waste	• Inspection	• Once following completion of construction and demobilisation from the area	• Waste remains on site	• Waste to be removed • Reinspect to confirm this has occurred
	Access tracks and access points	Rehabilitate and restore disturbance areas to its pre-existing condition	Baseline conditions vary across the project based on land use and vegetation type Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping	• Operational requirements for access, and consultation with landowner, confirms final land use	• Transgrid and/or landowner confirmation of final land use of the access track/point	• Written confirmation or record of conversation confirming consultation with landowner on final land use	• Prior to commencement of decommissioning or rehabilitation works	• Final land use of the access track/point is not in accordance with landowner consultation outcomes	• Determine why this has occurred • Liaise again with landowner • Determine if additional rectification works are required
				• Where access track/point is restored, all infrastructure required to be removed has been removed	• Where access track/point is restored, infrastructure is removed	• Inspection	• Once following completion of construction and demobilisation from the area	• Infrastructure remains on site for an access track/point that needs to be restored	• Determine why infrastructure cannot be removed and address barriers to removal. Reinspect until removed • If infrastructure must stay, then ensure that any relevant approvals which may be required are obtained and landowner agreement is in place
				• Where access track/point is restored, topsoil is reinstated	• Where access track/point is restored, topsoil has been reinstated	• Inspection	• Once following completion of construction and demobilisation from the area	• Topsoil not reinstated for an access track/point that needs to be restored	• Topsoil to be reinstated • Reinspect to confirm this has occurred

Project location/work area	Feature	Objective	Baseline	Targets / Completion criteria	Performance indicators	Method of monitoring (how the performance indicator will be validated)	Frequency / timing	Trigger	Action / Response
Ancillary facilities, accommodation camps and earthworks material site	Ancillary facilities	Safe, stable and non-polluting	Baseline conditions vary for the ancillary facilities, accommodation camps and earthworks material site based on land use and vegetation type Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping	• Progressive erosion and sediment control plan prepared and implemented	• Erosion controls have been implemented. No further sediment controls are required as appropriate cover has been achieved	• Inspection	• Weekly (as part of the Weekly Environmental Inspections when the area is inspected)	• Controls not installed in accordance with the PESCPs	• Controls to be installed • Site to be reinspected
				• Topsoil reinstated	• Topsoil has been reinstated on the previously disturbed areas	• Inspection	• Once following completion of construction and demobilisation from the area	• Topsoil not reinstated	• Topsoil to be reinstated • Reinspect to confirm this has occurred
				• Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration	• Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm)	• Progressive photos of select areas • Assessment to determine if area is stable and non-polluting (may be undertaken by CPESC)	• Monthly until confirmation is received that the area is stable and non-polluting	• Area confirmed to be unstable and requires further measures	• Seek advice from the Soil Conservationist • Implement additional measures (as may be deemed necessary based on location and site aspects) • Reinspect until location is deemed to be stable
				• No significant erosion is present that would compromise the establishment of vegetation	• Controls that relate to rehabilitation are implemented in accordance with the Progressive Erosion and Sediment Control Plans (PESCPs)	• Inspection	• Weekly (as part of the Weekly Environmental Inspections)	• Controls not installed in accordance with the PESCPs	• Controls to be installed • Site to be reinspected
		Progressively rehabilitate the site as soon as possible following disturbance	Baseline conditions vary for the ancillary facilities, accommodation camps and earthworks material site based on land use and vegetation type Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping	• Commence decommissioning and/or rehabilitation within 1-2 months of completion of use of the site, unless the Planning Secretary agrees otherwise.	• Controls that relate to rehabilitation are implemented in accordance with the PESCPs.	• Inspection	• Weekly (as part of the Weekly Environmental Inspections)	• Controls not installed in accordance with the PESCPs	• Controls to be installed • Site to be reinspected
				• Topsoil reinstated	• Topsoil has been reinstated on the previously disturbed areas	• Inspection	• Once following completion of construction and demobilisation from the area	• Topsoil not reinstated	• Topsoil to be reinstated • Reinspect to confirm this has occurred
				• Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration	• Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm)	• Progressive photos of select areas • Assessment to determine if area is stable and non-polluting (may be undertaken by CPESC)	• Monthly until confirmation is received that the area is stable and non-polluting	• Area confirmed to be unstable and requires further measures	• Seek advice from the Soil Conservationist • Implement additional measures (as may be deemed necessary based on location and site aspects) • Reinspect until location is deemed to be stable

Project location/work area	Feature	Objective	Baseline	Targets / Completion criteria	Performance indicators	Method of monitoring (how the performance indicator will be validated)	Frequency / timing	Trigger	Action / Response
		To be decommissioned and removed, unless the Planning Secretary agrees otherwise.	Baseline conditions vary for the ancillary facilities, accommodation camps and earthworks material site based on land use and vegetation type Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping	• Redundant services including power are disconnected	• Services are no longer connected	• Inspection	• Once following completion of construction and demobilisation from the area	• Redundant services remain connected	• Determine why service needs to be connected (if it does) • If connection is not required, ensure that disconnection occurs. • Reinspect to confirm disconnection.
				• All temporary infrastructure required to be removed is removed including accommodation facilities and temporary buildings	• Temporary infrastructure removed • Agreement is to be obtained from the Planning Secretary if removal is not proposed	• Inspection	• Once following completion of construction and demobilisation from the area	• Temporary infrastructure remains on site	• Determine why infrastructure cannot be removed and address barriers to removal. Reinspect until removed • If infrastructure must stay, then ensure that approval of the Planning Secretary is obtained and landowner agreement is in place
				• Temporary construction fencing removed	• Temporary construction fencing removed	• Inspection	• Once following completion of construction and demobilisation from the area	• Temporary construction fencing remains on site	• Determine why fencing cannot be removed and address barriers to removal. Reinspect until removed • If fencing must stay, then ensure that approval of the Planning Secretary is obtained as required and landowner agreement is in place
				• For access tracks/ points, operational requirements for access, and consultation with landowner, confirms final land use	• Transgrid and/or landowner confirmation of final land use of the access track/point	• Written confirmation or record of conversation confirming consultation with landowner on final land use	• Prior to commencement of decommissioning or rehabilitation works	• Final land use of the access track/point is not in accordance with landowner consultation outcomes	• Determine why this has occurred • Liaise again with landowner • Determine if additional rectification works are required
	Land use	Restore land capability to pre-existing use	Baseline conditions vary for the ancillary facilities, accommodation camps and earthworks material site based on land use and vegetation type Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping	• Final land use agreed with landowner	• Landowner confirmation of final land use of the access track/point	• Written confirmation or record of conversation confirming final land use	• Prior to commencement of decommissioning or rehabilitation works	• Final land use is not in accordance with landowner agreement	• Determine why this has occurred • Liaise again with landowner • Determine if additional rectification works are required
				• All temporary infrastructure required to be removed is removed	• Temporary infrastructure removed • Agreement is to be obtained from the Planning Secretary if removal is not proposed	• Inspection	• Once following completion of construction and demobilisation from the area	• Temporary infrastructure remains on site	• Determine why infrastructure cannot be removed and address barriers to removal. Reinspect until removed • If infrastructure must stay, then ensure that approval of the Planning Secretary is obtained as required and landowner agreement is in place
	Community	Ensure public safety at all times.		• Implementation of the Health and Safety Plan during all decommissioning and rehabilitation works	• Public access to the site is not provided until it is considered safe to do so	• Inspections by WHS staff	• Safety inspections to occur at the rate and timing required by the Health and Safety Plan	• Inspection deems that the site is not safe during decommissioning and rehabilitation works	• Controls to be implemented as identified by WHS staff • Reinspection to occur to determine controls have been implemented

6.3.1 Monitoring during Stage 3 (Operation)

During the operational phase of the project, Transgrid will monitor the vegetation within selected vegetation integrity plots from the Final BDAR that the project impacts during construction and are then subject to rehabilitation and restoration in a manner that aims to regenerate the pre-existing native vegetation (refer to section 5.9 of the Final BDAR). Transgrid will monitor the vegetation integrity scores within the selected affected plots and compare them to the baseline data collected during the preparation of the Final BDAR to monitor the progress of regeneration.

Noting the vegetation integrity plot surveys for the project occurred during an extended period of wet weather, it unlikely that vegetation integrity scores will return to pre-existing conditions in the short to medium term. Transgrid, therefore, proposes to monitor representative plots for up to three years/growing seasons following the commencement of operation or until the surveys indicate that vegetation integrity within a plot has returned to 70% of the pre-existing value. The objective of the monitoring is to obtain data that indicates how disturbed areas regenerate back to pre-existing conditions over time. The monitoring program will be designed and implemented in a manner consistent with the requirements of the BAM.

Transgrid will include details of the monitoring program in the Biodiversity EMP Sub-plan for Stage 3 (Operation), which will be prepared in consultation with BCD and approved by the Planning Secretary, as required by condition B1. The Stage 3 Biodiversity EMP Sub-plan will:

- confirm the vegetation integrity plot locations from the Final BDAR affected during construction;
- propose target representative vegetation integrity plot locations at which ongoing monitoring will occur. The plots will be within a range of plant community types and will, where possible, reflect different levels of construction impact; and
- confirm requirements, including timing, for surveys of the target vegetation integrity plot locations, consistent with relevant BAM requirements.

A monitoring report would be prepared and provided to BCD and the Planning Secretary for information and discussion. The report would compare vegetation integrity within the plots to baseline data from the Final BDAR.

6.4 Inspections

Weekly inspections will be performed by an Environmental Advisor and documented in the Weekly Environmental Checklist. The inspections will check the implementation and effectiveness of the management measures identified in Section 5 and the environmental performance of the project relevant to biodiversity. Visual monitoring of delineated/fenced disturbance boundaries will be undertaken.

6.5 Auditing

Audits will be undertaken to assess the effectiveness of the management measures and overall compliance with this plan, and other relevant approvals, licences and guidelines. Audit requirements are detailed in Section 9.3 of the CEMP.

In accordance with condition D11 of the Infrastructure Approval, independent audits will be undertaken in accordance with the *Independent Audit Post Approval Requirements* (2020) unless otherwise agreed or directed by the Planning Secretary. An independent audit will be undertaken within 12 weeks from the commencement of construction, followed by six-monthly intervals for each subsequent audit until the completion of the construction phase of the project.

The independent audits will be undertaken in accordance with the requirements set out in Section 3 of the *Independent Audit Post Approval Requirements* (2020). At the end of each audit, the auditor will prepare an independent audit report. The report includes details such as the audit methodology, audit findings and recommendations and opportunities for improvement. SecureEnergy will review the draft report and provide a response of the audit findings. If the audit findings identify any non-

compliances, the nominated action and completion timing of the action will be provided as part of the response to each non-compliance.

Corrective and preventative actions will be identified from the audit findings, and the implementation of those actions managed and monitored as per the process outlined in Section 11 of the CEMP.

6.6 Reporting

Reporting which will be undertaken in accordance with the BMP is summarised within Table 6.4.

Table 6.4 - Reporting program

Item	Scope	Frequency	Responsibility	Recipient
Pre-clearance survey report (Commonwealth Approval)	Preparation of a pre-clearance survey report which identifies the quantum of habitat (in hectares) of all protected matters and indicates the management measures to avoid or minimise impacts.	Prior to clearing or ground disturbance activities in that area (other than pre-construction minor activities per Commonwealth correspondence). The report must be published on the website prior to clearing in that area.	Environmental Manager Environmental Advisor	Transgrid Published on website
Clearing report	Following completion of clearing a clearing report will be prepared summarising clearing details. The clearing report will be provided within two months of completion of clearing.	Following clearing	Environmental Manager	Transgrid
Monitoring reporting	Reporting of biodiversity matters on the project website in accordance with condition D12.	As required	Environmental Manager	Transgrid
Verification report	A verification report will be produced to confirm whether any changes are required to Appendix A – *Pre-clearing and Clearing Procedure.*	Within three months of construction commencing	Supervisor Environmental Manager	Transgrid
Audit reports	Independent audits undertaken in accordance with the Infrastructure Approval will include audits of biodiversity measures (based on the Independent Auditor's program). Audit reports will be prepared. Further detail in relation to auditing is provided within Section 9.3 of the CEMP.	At intervals, no greater than 26 weeks from the date of the initial Independent Audit or as otherwise agreed by the Secretary.	Environmental Manager / Independent Auditor	Transgrid DPE

The clearing reports will include:

- information on clearing operations, dates, procedures and areas;
- the type of clearing (i.e. Disturbance Area A), as relevant;
- the spatial extent and type of clearing of each PCT;
- the spatial extent and type of clearing of threatened ecological communities and threatened flora;
- live animal sightings, captures, any releases or injured/shocked wildlife;
- fauna that may have died as a result of clearing; and
- photographs of any rescued fauna (where obtained).

The spatial extent of clearing will be recorded in GIS file format. The spatial data will include information concerning features of biodiversity conservation significance that remain (such as

threatened ecological communities). Clearing of native vegetation will be monitored and recorded to inform any final biodiversity offset requirements within the biodiversity offset package. This information will be tracked in the *Clearing and Land Disturbance Register* (45860-HSE-REG-1008).

6.7 Emergencies, incidents and non-compliances

6.7.1 Emergencies

Emergency management and planning including emergencies related to biodiversity matters will be undertaken in accordance with the Clough management system and relevant procedures.

Emergencies will be managed through a three-tiered management system approach. Depending on the severity of the emergency, emergencies will be managed in accordance with the following:

- **Level 1** – on-site emergencies will be in accordance with the *Project Specific Emergency Preparedness and Response Plan* (45860-HSE-PL-G-1015);
- **Level 2** – emergency situations where response exceeds the capacity of site resources incidents will be coordinated by the Incident Coordination Team; and
- **Level 3** – an emergency situation where the incident has the potential to, or has impacted, the business in terms of, reputation, and commercial liability. Incidents will be supported by the Major Incident Management Team.

Emergencies will be responded to in accordance with the level of the emergency (listed above). For each level of emergency, the situation will be assessed, the site support requirements will be established and notification will occur. A Level 1 emergency will result in activation of the *Project Specific Emergency Preparedness and Response Plan* (45860-HSE-PL-G-1015). A Level 2 emergency will result in activation of the Incident Coordination Team, and a Level 3 emergency will result in activation of the Incident Management Team.

Refer to Section 8.1 of the CEMP.

6.7.2 Environmental incidents

In the event of an environmental incident, the Incident, Notification and Investigation Procedure Flowchart provided Appendix A4 of the CEMP will be implemented. The flowchart applies to:

- incidents causing harm to the environment (in excess of predicted impacts described and assessed in the EIS, Submissions Report, Amendment Report);
- incidents resulting in non-compliance with approvals, licences, permits, consents and other legislative requirements; and
- near misses including high potential incidents and/or hazards.

Environmental incidents may include the following events caused by the works:

- chemical spills and leaks (including hydrocarbons);
- accidental spills or other incidents associated with the wastewater treatment plants;
- unauthorised discharge of contaminated waters to the environment;
- unauthorised/unapproved impact to heritage items, artefacts or sites;
- clearing or damage to vegetation that exceeds clearing limits from the Approval;
- unauthorised/unapproved damage or interference to threatened species, threatened ecological communities or special biodiversity protection zones;
- unauthorised death or injury of native fauna;
- any non-compliance with legislation; and
- inappropriate waste disposal.

Environmental incidents, including incidents related to biodiversity matters (i.e. unauthorised/unapproved damage or interference to threatened species, threatened ecological communities or special biodiversity protection zones) will be managed as described in Section 8.2 of the CEMP – Environmental incidents and the Incident, Notification and Investigation Procedure Flowchart provided in Appendix A4 of the CEMP. All site personnel are authorised to suspend a work activity that is likely to cause or actually causing or contributing to an incident. A supervisor/manager may request additional staff be deployed to the site to provide additional capacity or capability to manage the incident.

Incident reporting is described in Section 8.3 of the CEMP – Incident notification and reporting.

All environmental incidents that occur on the project, regardless of how minor, must be reported to a supervisor by personnel involved or witnesses to the incident immediately after the incident occurs. The Environmental Manager will be notified immediately of any environmental incident. Transgrid will be notified of incidents and near misses immediately. Formal, documented reporting of incidents will be completed, and will be submitted to Transgrid in accordance with requirements under the Contract.

An incident is defined within the Infrastructure Approval as an 'occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance'. In addition, material harm is defined in the Infrastructure Approval as the following:

> *[Material harm] is harm that:*
>
> *a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or*
>
> *b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).*
>
> *This definition excludes "harm" that is authorised under either this approval or any other statutory approval.*

Incidents which cause or threaten to cause material harm as defined by the Infrastructure Approval are reportable to DPE.

Notification will occur to DPE via the Major Projects website immediately after becoming aware that an incident has occurred. The notification must identify the development (including the development application number and the name of the development), and set out the location and nature of the incident.

A written notification will then be provided to DPE via the Major Projects website within seven days after becoming aware of the incident. The written notification will include the following details:

- identify the development and application number;
- provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
- identify how the incident was detected;
- identify when the Proponent became aware of the incident;
- identify any actual or potential non-compliance with conditions of approval;
- describe what immediate steps were taken in relation to the incident;
- identify further action(s) that will be taken in relation to the incident; and
- identify a development contact for further communication regarding the incident.

Within 30 days of the date on which the incident occurred, or as otherwise agreed by the Planning Secretary, Transgrid will provide the Department and any relevant public authorities with a detailed

report on the incident addressing the following requirements, and any further reports that may be requested.

- a summary of the incident;
- outcomes of an incident investigation, including identification of the cause of the incident;
- details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
- details of any communication with other stakeholders regarding the incident.

An exceedance is an event where the impacts of the project are greater than the biodiversity limits set by condition C23 and Appendix 2 of the Infrastructure Approval. Any exceedance of the biodiversity limits will be investigated and reported either as an incident (if the event caused or threatened to cause material harm) or as a non-compliance of the Infrastructure Approval. Reporting of an incident to DPE will occur in accordance with this section (Section 6.7.2), whilst reporting of non-compliances will occur in accordance Section 6.7.3.

6.7.3 Non-compliances

A non-compliance is defined in the Infrastructure Approval as '*an occurrence, set of circumstances or development that is a breach of this approval*'. The procedure to respond to any non-compliance will be in accordance with conditions D7 and D8 of the Infrastructure Approval.

Where a non-compliance with the Infrastructure Approval or Commonwealth Approval has been identified, including those relevant to biodiversity matters (e.g. not installing nest boxes within the required timeframe), corrective actions will be developed as required and implemented to address the non-compliance that occurred.

Reporting of non-compliances of the Infrastructure Approval will be undertaken as described in Section 10.1 of the CEMP. The Planning Secretary will be notified in writing via the Major Projects website within seven days after Transgrid becomes aware of any non-compliance. The written non-compliance notifications, in line with condition D7, will contain the requirements set out in Appendix 4 of the Infrastructure Approval and will include details such as:

- the non-compliance;
- the reasons for the non-compliance (if known); and
- what actions have been taken, or will be taken, to address the non-compliance.

Refer to Section 10.1.1 of the CEMP for further detail of the notification.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Failure to comply with other statutory requirements such as the Commonwealth Approval will be reported in accordance with Section 10.1.2 of the CEMP. Any other reporting will occur in accordance with Section 10.1.3 of the CEMP.

Where a non-compliance has been identified, the non-compliance will be reviewed by the Environmental Manager to determine the reason for the non-compliance, and what corrective actions have, or will be taken, to address the non-compliance. Preventative actions will be developed as required and implemented to minimise the potential for recurrence.

Section 11 of the CEMP describes the process for non-compliance management.

6.8 Contingency plan

Although the project has been assessed through the environmental impact assessment process and potential impacts identified, unpredicted impacts may occur as the project progresses. In the event that unexpected impacts are identified, the action or cause will be categorised and as required will be managed as:

- an emergency or environmental incident in accordance with Section 8 of the CEMP – Incidents and emergencies; and/or
- a non-compliance or non-conformance in accordance with Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action.

Reporting of the unpredicted impacts would be in line with the above processes and as described in Section 10 of the CEMP – Reporting.

Through the identification of corrective and/or preventative actions through the above processes, the following steps will be considered as relevant:

a) determine the relevant impact assessment criterion/criteria, below which the impact should be reduced, consistent with the requirements of this BMP;

b) identify options to reduce the unexpected impacts to below the relevant criterion/criteria and appropriate timeframe for implementation;

c) implement the selected measure(s) to reduce the unexpected impacts; and

d) identify and implement an appropriate monitoring program to determine the effectiveness of the selected measure(s) to reduce the unexpected impact.

If the above monitoring program identifies that the unexpected impacts have not been reduced to below the nominated criterion/criteria, items b) to d) of the contingency process will be repeated.

This section does not apply to unexpected threatened species finds. These will be managed in accordance with the *Unexpected Threatened Species Finds Procedure* included in Appendix B of this BMP.

6.9 Continuous improvement

The Plan-Do-Check-Act model will be applied to the continuous improvement process.

The Plan stage outlines the environmental objectives and the process to achieve the results. This is outlined through the Environmental Management System (EMS) described in Section 4 of this CEMP and supported by the Environmental Aspect and Impact Register provided within Appendix A3 of the CEMP.

The Do stage focuses on the implementation of the EMS. Tools such as Work Packs and Work Method Statements will be prepared to facilitate the implementation of the EMS. The Work Packs and Work Method Statements will be supported by drawings, forms and plans. The roles and responsibilities in carrying out the Do stage is provided in Section 4.9 of the CEMP, while Section 6 outlines the various communication methods.

The Check stage comprises ongoing monitoring of the environmental management performance against the environmental objectives, for the purpose of identifying opportunities for improvement. This will be undertaken through regular environmental inspections, monitoring and auditing as described in Section 9 of the CEMP and Section 6 of this plan.

The Act stage include undertaking the required actions in order to achieve the environmental objectives. In addition to this, for any issues or items within the documents that are either redundant or in need of updating, it is the responsibility of the Environmental Manager to coordinate the preparation of the revised documents.

Appendix A – Pre-clearing and Clearing Procedure

PUBLIC

Pre-clearing and Clearing Procedure EnergyConnect (NSW – Eastern Section) Stage 2

45860-HSE-PR-D-0027

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
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E	2/02/2023	Issued in response to agency consultation and ER comments	R.Walker-Edwards	C.Curlewis	G.Crighton	B.Calligeros	S.Basanta
F	15/03/2023	Issued in response to agency comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta
G	4/05/2023	Issued in response to DPE comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta
H	19/06/2023	Issued in response to DPE comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta
I	5/07/2023	Issued in response to DPE comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued for Squad Check review
C	Issued for Transgrid review
D	Issued to agencies
E	Issued in response to agency and ER comments
F	Issued in response to agency comments
G	Issued in response to DPE comments
H	Issued in response to DPE comments
I	Issued in response to DPE comments

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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1 Introduction

This Pre-clearing and Clearing Procedure is an appendix to the *Biodiversity Management Plan* (45860-HSE-PL-D-0117) and forms part of the overall environmental management framework for the project.

1.1 Purpose

The purpose of this Pre-clearing and Clearing Procedure is to describe how SecureEnergy proposes to manage clearing during construction of the Stage 2 works to minimise impacts on biodiversity.

2 Induction/training

Personnel taking part in construction activities shall be informed of this Pre-clearing and Clearing Procedure through the site-specific induction, daily prestart briefings or targeted training as required. Personnel involved in clearing activities will be subject to toolbox talks and daily prestart meetings which will discuss items such as:

- the proposed clearing for the day;
- the limits of clearing;
- processes to follow;
- known or potentially occurring threatened species; and
- sensitive areas.

3 Scope

This procedure is applicable for the pre-clearing and clearing activities conducted by site personnel (including sub-contractors) for Stage 2 of the project. This includes, but is not limited to, clearing and grubbing at the following locations:

- on access tracks;
- along the transmission line easement;
- at the tower pads (and associated ancillary sites such as laydown and parking areas); and
- any remaining Stage 1 clearing which may be required.

4 Pre-clearing

The following tasks are required to occur prior to clearing:

- a suitably qualified and experienced ecologist will be engaged for the project (the project ecologist);
- a clearing and grubbing work pack or Environmental Work Method Statement will be developed for construction teams;
- opportunities to retain and protect existing vegetation, including threatened species habitat, within the disturbance area will be identified during construction planning through review of temporary design and construction methodologies;
- the predicted extent of clearing of native vegetation will be monitored against the extent of clearing as permitted by condition C23 of the Infrastructure Approval. The predicted extent of clearing will also consider the type of clearing (i.e. Disturbance Area A);
- the project ecologist is to confirm the location and mark out the extent of the biodiversity exclusion zones, as well as any special biodiversity protection zones;
- the Supervisor will ensure the clearing limit is identified. The clearing limits will be identified using GIS mapping, placed pegs or identification markers in areas which are not adjacent to sensitive areas (such as threatened ecological communities); or highly visible barrier or star pickets with tape such as colour-coded UV-stabilised rope, bunting, nightline or other similarly robust and durable material in locations adjacent to sensitive areas or where pegs and identification markers will not be suitably visible (for example of obscured by existing vegetation). Three key exclusion zones are:
  - **heritage exclusion zones** - for heritage sites (including Potential Archaeological Deposits, scarred trees and artefact sites). These will be clearly identified in accordance with the *Heritage Management Plan* (45860-HSE-PL-D-0119) prior to the commencement of construction at each location;
  - **biodiversity exclusion zones** - these will be clearly identified by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone. They will consider identified Plains-wanderer habitat, identified threatened flora populations, and PCTs in Disturbance Area B that are not of a growth form height that would ever require management;
  - **special biodiversity protection zones** – areas within the special biodiversity protection zones which do not require clearing will be delineated. Clearing within the special biodiversity protection zones will be limited to that detailed within Section 5.4 of this procedure;
- the Environment team will ensure delineation is installed consistently to reduce the risk of error or misinterpretation of boundaries;
- prior to clearing commencing, the project ecologist will:
  - survey the clearing extent, including any special biodiversity protection zones;
  - identify and mark all individuals of Austral Pillwort between towers 161-162* and all individuals of Thyme Rice-flower between towers 660-663* (*Tower numbering is reflective of tower numbering from the Final BDAR);
  - identify and demarcate hollow bearing trees that are suspected to accommodate fauna;
  - record GPS coordinates for all identified hollow bearing trees during the pre-clearing survey;
  - record the total number of hollows which will be incorporated into the Supplementary Hollow and Nest Strategy;
  - survey and confirm the presence of raptor nests within and adjacent to the clearing extents;

  - confirm that either nest boxes are in place, or suitable locations for the installation of nest boxes have been identified;
  - check for the presence of threatened flora and fauna species by visual inspection of potential habitat features. If found, the *Unexpected Threatened Species Finds Procedure* (45860-HSE-PR-D-0012) will be followed;
  - the project ecologist will capture and/or remove fauna that have the potential to be disturbed as a result of clearing activities and relocate any captured fauna into nearby habitat (refer to Section 5);
- any relevant findings from the pre-clearing inspections will be used to update and confirm the accuracy of sensitive area mapping and/or geospatial information system (GIS);
- the construction workforce will be supplied with sensitive area mapping and/or GIS (showing clearing boundaries, exclusion zones and the location of threatened flora or vegetation which is to be retained) if working in the vicinity of sensitive areas through the relevant Work Packs or work method statements;
- all contractors working near special biodiversity protection zones will undertake a pre-clearing induction, which specifically discusses the special biodiversity protection zones;
- the Supervisor, clearing operators and Environment team to discuss any findings from the pre-clearing inspection during the daily pre-start meetings as required including changes to sequence of clearing, sensitive areas, avoidance areas, or habitat features;
- in accordance with the Commonwealth Approval, pre-clearance surveys will be undertaken prior to clearing or ground disturbance activities in a given area (other than pre-construction minor activities in line with the Commonwealth correspondence). The pre-clearance survey will be developed and supervised by a suitably qualified ecologist. A pre-clearance survey report will be prepared and published on the project website prior to clearing in that area; and
- the *Clearing and Land Disturbance Permit* (45860-HSE-FO-G-1004) will be approved by the Environment Manager or delegate prior to clearing activity commencing.

4.1 Changed impacts and BAM assessments

Changed impacts may affect areas either inside or outside of the biodiversity study area.

Project changes within the biodiversity study area can be considered against the known biodiversity values that were confirmed in accordance with the BAM, as documented in the Final BDAR. Most commonly, these types of changes include altered tower locations to minimise environmental disturbance and improve constructability, changes to construction site layouts, and the provision of alternative access. This can result in slight differences in impacts compared to the Final BDAR.

If a proposed change could affect a location outside of the biodiversity study area, an additional BAM assessment would be carried out by an accredited assessor to confirm the biodiversity values present, and to allow potential impacts to identified and considered.

Typical situations that can require additional BAM assessment outside of the biodiversity study area may include the following:

- areas adjacent to assessed access tracks to allow for spatial inaccuracies in the georeferenced aerial imagery used for impact assessment purposes and alterations based on actual site conditions;
- areas where alternative access arrangements might be required based on landholder preferences, ground conditions or topography not understood during the EIS phase;
- areas where alternative access is required to avoid access through, and impacts within, locations with sensitive heritage and biodiversity values (for example, avoiding access through Plains-wanderer habitat);

- parts of road corridors in the vicinity of approved access points and internal property access roads to account for all potential ground disturbance during access point installation, including signage within the road reserve on approach to the access points, track installation, upgrades and maintenance; and
- areas around water supply points to account for any disturbance to vegetation required during access upgrades or that might occur due to project-related vehicle movements.

When finalising the design and construction methodology, the project will reduce impacts to the greatest extent practicable in accordance with the commitment in Revised mitigation measure B1 and the requirements of condition A1.

The project will assess any of these proposed changes to confirm that:

- the works can be carried out in compliance with the conditions of the Infrastructure Approval;
- the works can be carried out generally in accordance with the EIS (including the Final BDAR);
- the works can be carried out generally in accordance with the Layouts included in Appendix 1.

Clearing that would result in an exceedance of the limits included within Appendix 2 of the Approval will not occur.

5 Vegetation clearing

5.1 Disturbance areas

As outlined in the Biodiversity Management Plan, the key disturbance areas are as follows:

1. Disturbance Area A;
2. Disturbance Area A - centreline;
3. Disturbance Area B;
4. Plains-wanderer key habitat;
5. special biodiversity protection zones; and
6. other areas (e.g. hazard/high risk trees, fauna connectivity corridors and watercourses).

Figure 5.1 and Figure 5.2 reflect Disturbance Area A, Disturbance Area A - centreline, Disturbance Area B, as well as hazard/high risk trees.

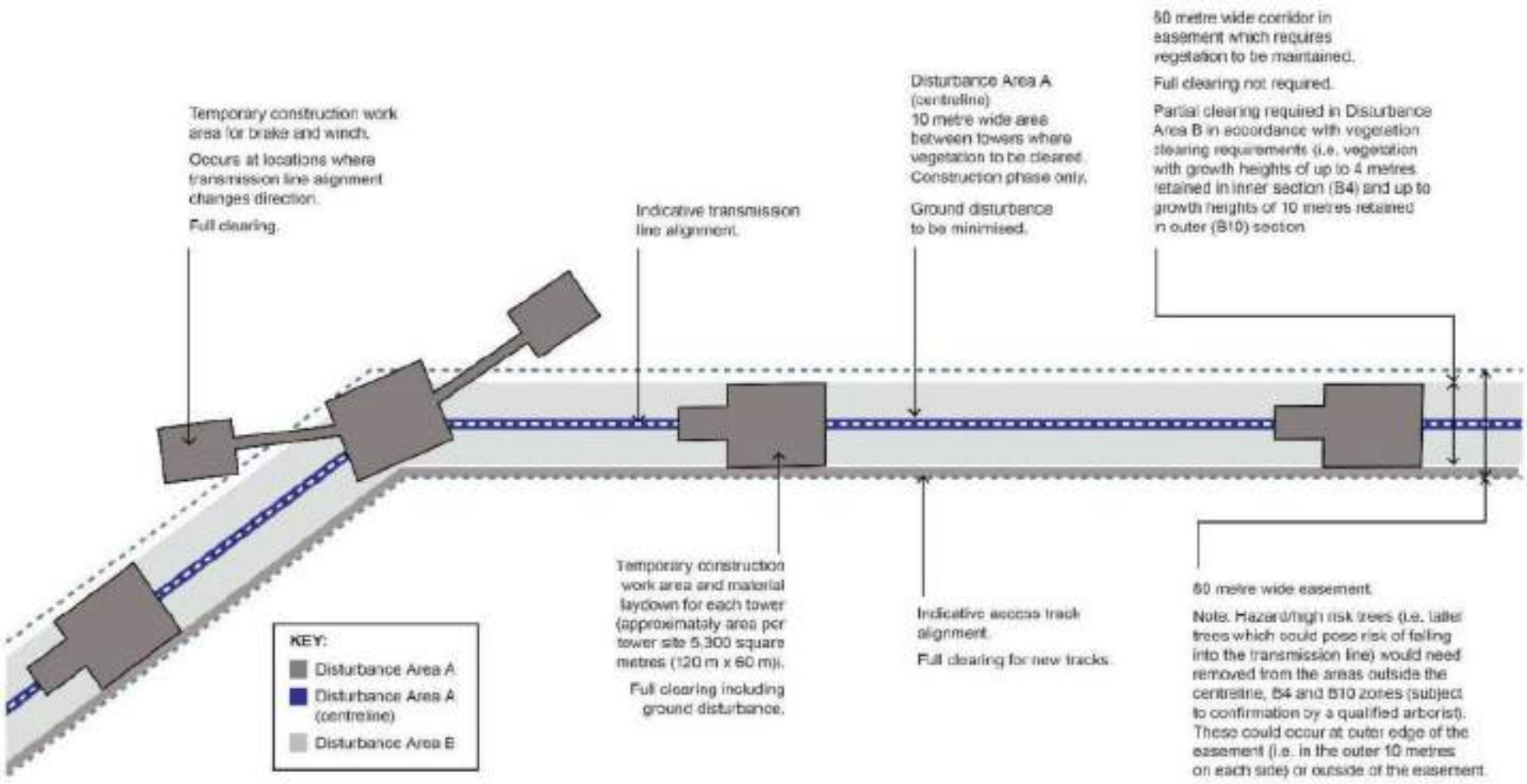


Figure 5.1 - Indicative disturbance area definition (330kV transmission line)

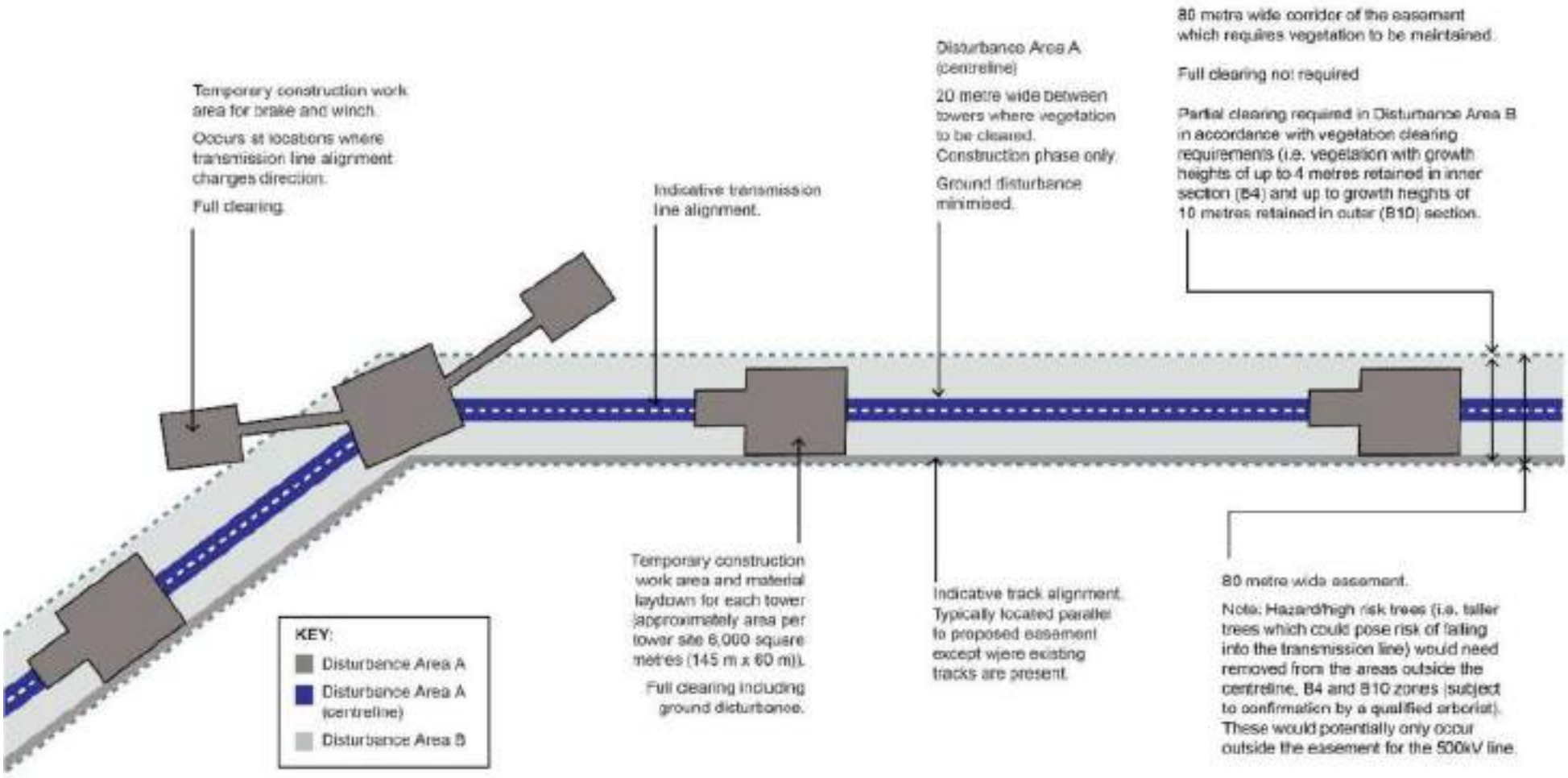


Figure 5.2 - Indicative disturbance area (500kV transmission line)

5.1.1 Disturbance Area A

Disturbance Area A includes the tower pads, access tracks, laydowns, parking areas, accommodation camps, construction compounds, asset protection zones and the substations.

Vegetation is permitted to be removed to ground within Disturbance Area A. Where possible opportunities to retain vegetation will occur through review of temporary design and construction methodologies.

5.1.2 Disturbance Area A – centreline

Disturbance Area A centreline clearing is the area required for line stringing activities. Disturbance Area A centreline clearing is 10 metres in width for a typical 330kV transmission line section and 20 metres in width for a typical 500kV transmission line section.

For the Plains-wanderer habitat (Section 5.1.4) and the special biodiversity protection zones (Section 5.1.5), Disturbance Area A – centreline will not be cleared, other than for the removal of a tree that exceeds the vegetation clearance requirements. In this circumstance the tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place).

For other locations within the transmission line easement, vegetation in this area will be removed, however topsoil and ground material would be retained (where possible). Tree stumps will be removed.

5.1.3 Disturbance Area B

Disturbance Area B is the area within the easement between the transmission towers. Disturbance Area B consists of:

- Disturbance Area B4; and
- Disturbance Area B10.

330kV transmission line

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 20 metres distance from the centreline (i.e. a 40 metre wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 20 metres to 30 metres from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

Areas that are subject to partial clearance (Disturbance Area B4 and Disturbance Area B10) will be monitored within three months from commencement of Stage 2 construction. If partial clearing has not commenced within three months of the commencement of Stage 2 construction, the project will monitor areas of partial clearance within three months of the commencement of partial clearing. A verification report will be produced to confirm whether any changes are required to the Pre-clearing and Clearing Procedure.

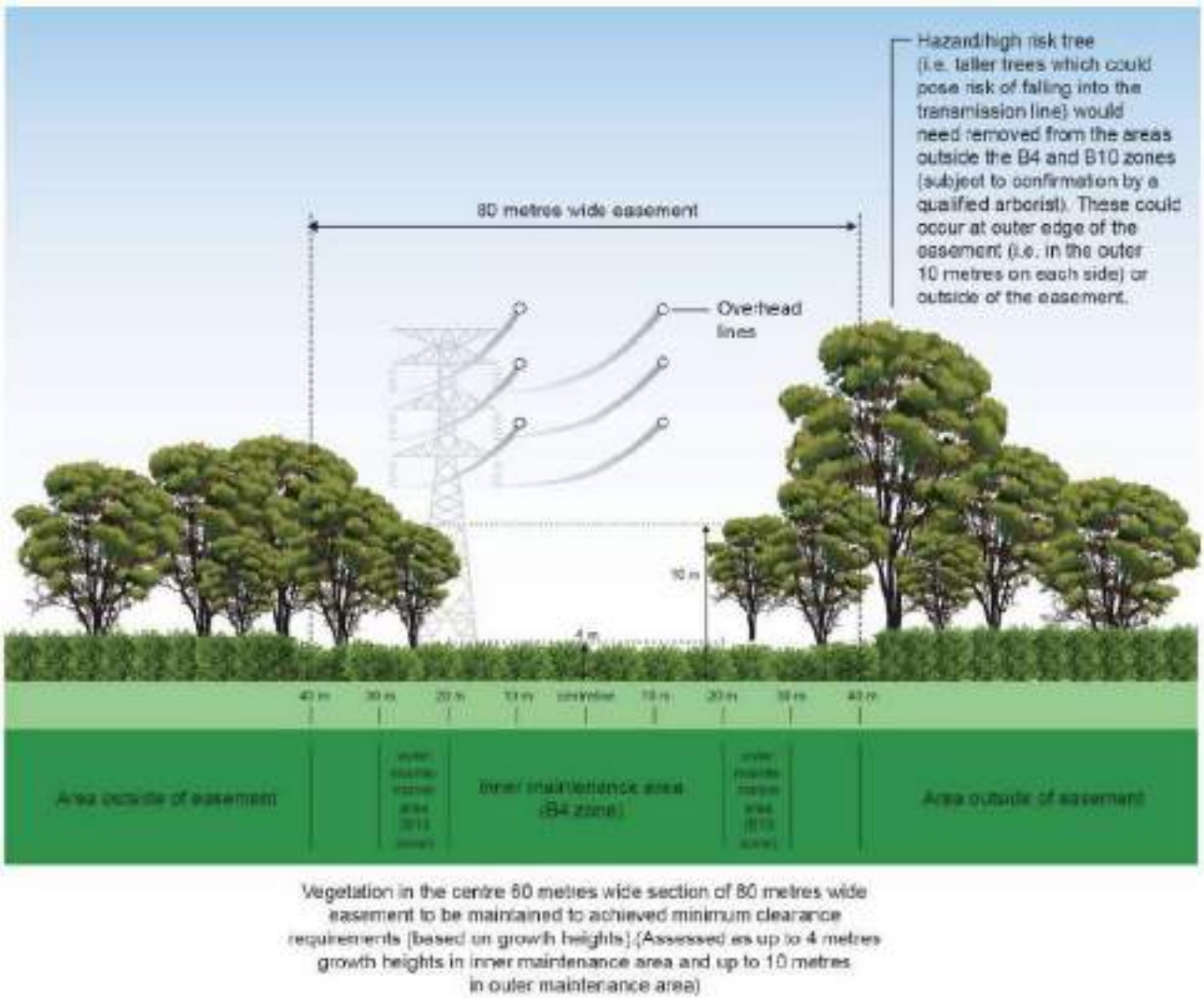


Figure 5.3 - Indicative disturbance area locations and widths applied for a typical 330kV transmission line section (centreline clearing not indicated)

500kV transmission line

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 30 metres distance from the centreline (i.e. a 60 metre wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 30 metres to 40 metres from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

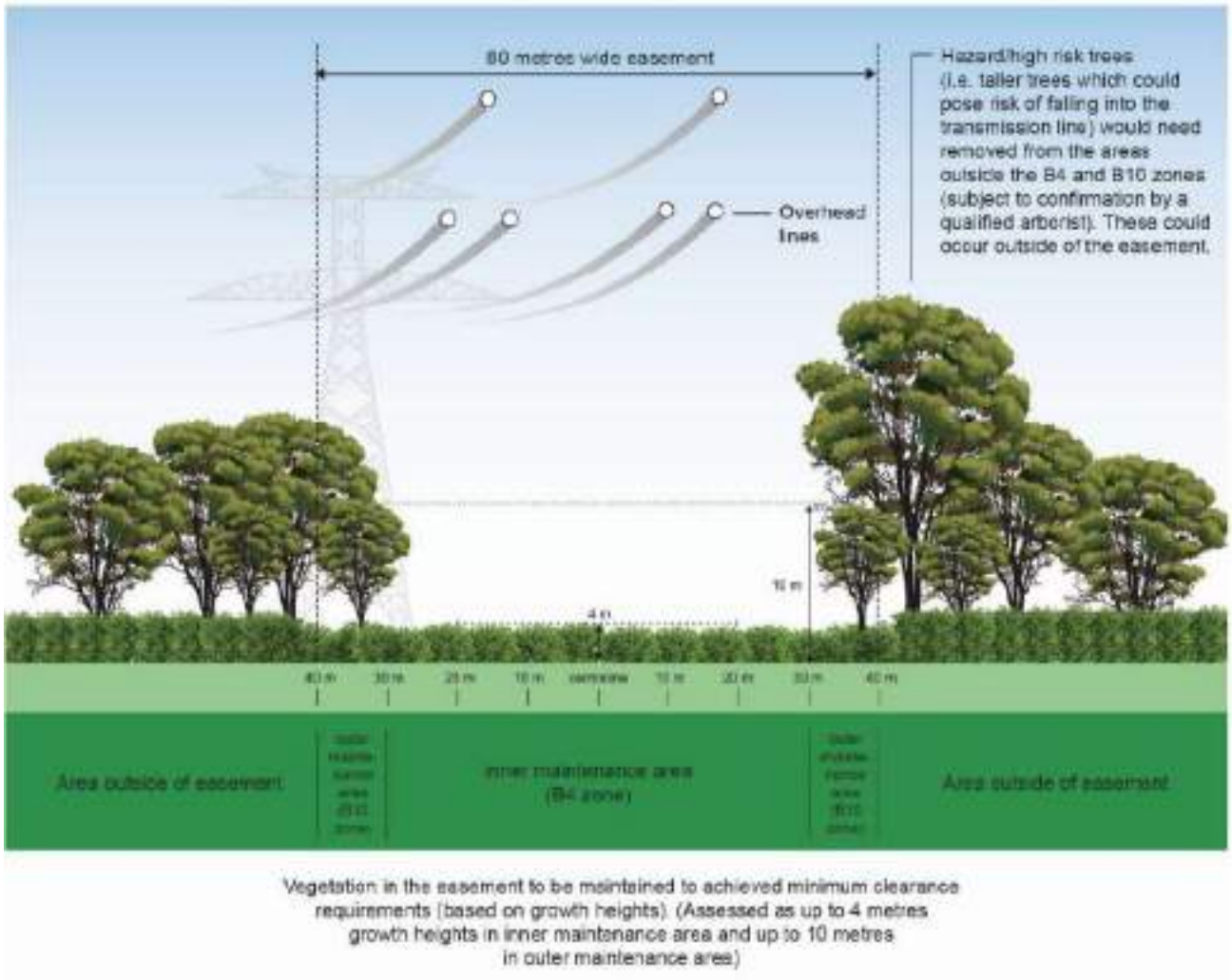


Figure 5.4 - Indicative disturbance area locations and widths applied for a typical 500kV transmission line section (centreline clearing not indicated)

5.1.4 Key Plains-wanderer habitat

The Plains-wanderer is listed as Endangered under the NSW *Biodiversity Conservation Act 2016* and listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The Plains-wanderer is a relatively small grassland bird that has highly specific habitat preferences for grassland structure, due to their inability to navigate through dense grassland habitats. Therefore, they prefer open grasslands with relatively high percentages of bare soil, where dense grass growth is suppressed, and the growth of herby native groundcover flora is promoted.

Although the Plains-wanderer is a diurnally (daytime) active species they are not easily observable during those times. Their strategy for survival in an open environment is reliant on their cryptic plumage, while remaining motionless, and they do not readily flush as other grassland birds do, unless an observer almost steps on them.

Key habitat for the Plains-wanderer relevant to the project is identified in the *Plains-wanderer Protocol* (45860-HSE-PL-D-0135).

5.1.5 Special biodiversity protection zones

Special biodiversity protection zones have been identified by revised mitigation measures B22, B23, B24 and B26 at the following locations and for the following species, threatened ecological communities (TECs) and/or Property Vegetation Plans (PVPs):

- between towers 161-162* (Austral Pillwort);
- between towers 660-663* (Thyme Rice-flower);
- between towers 241-242* (Natural Grasslands of the Murray Valley Plains TEC); and
- between towers 243-249* (PVP H114).

* Tower numbering is reflective of tower numbering from the Final BDAR.

Information regarding how special biodiversity protection zones will be managed during pre-clearing and clearing is included in Section 5.4.

5.1.6 Other areas

5.1.6.1 Hazard/high risk trees

Hazard/high risk trees (i.e. trees that are sufficiently tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist.

330kV transmission line

Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees have a potential growth height of 30m or more occur within a 10m zone adjacent to the 330kV transmission line easement.

500kV transmission line

Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees with a potential growth height of 20m or more occur within a 10m zone adjacent to the 500kV transmission line easement.

5.1.6.2 Fauna connectivity corridors

A wildlife corridor or connectivity corridor is an area of habitat connecting wildlife populations separated by human activities or structures (such as roads or easements). Wildlife corridors are a link of wildlife habitat, generally native vegetation, that connect two or more larger areas of similar habitat. Wildlife corridors can range in size from small, local corridors, to large corridors that stretch across various landscapes.

The following locations will be considered for connectivity corridors:

- key riparian crossings (Murrumbidgee River, Yanco Creek and Colombo Creek);
- areas of the alignment joining proposed biodiversity stewardship sites and/or conservation reserve estates; and
- areas of existing dense mallee/belah/buloke.

The connectivity corridors will be 20m wide and will typically be located adjacent to towers where the height of the transmission line is greater, and an increased vegetation height can be accommodated. These connectivity corridors will involve native vegetation retention up to the 10 metre (330kV line) or 20 metre (500kV line) wide temporary construction centreline clearing zone to better facilitate woodland connectivity (refer Figure 5.5 for an example of the connectivity corridor within the 330kV line).

Centreline clearing will occur in the connectivity corridor, however clearing on either side of the centreline will only occur to trees that are above 10m in height or have the potential to grow above 10m in height. The last 10m of the easement (the hazard tree location) will have no clearing at all. Where new or existing access tracks intersect with the connectivity corridor, these access tracks will be used during the construction period (to limit the need for additional clearing which would otherwise be required outside of, or around, the connectivity corridor).

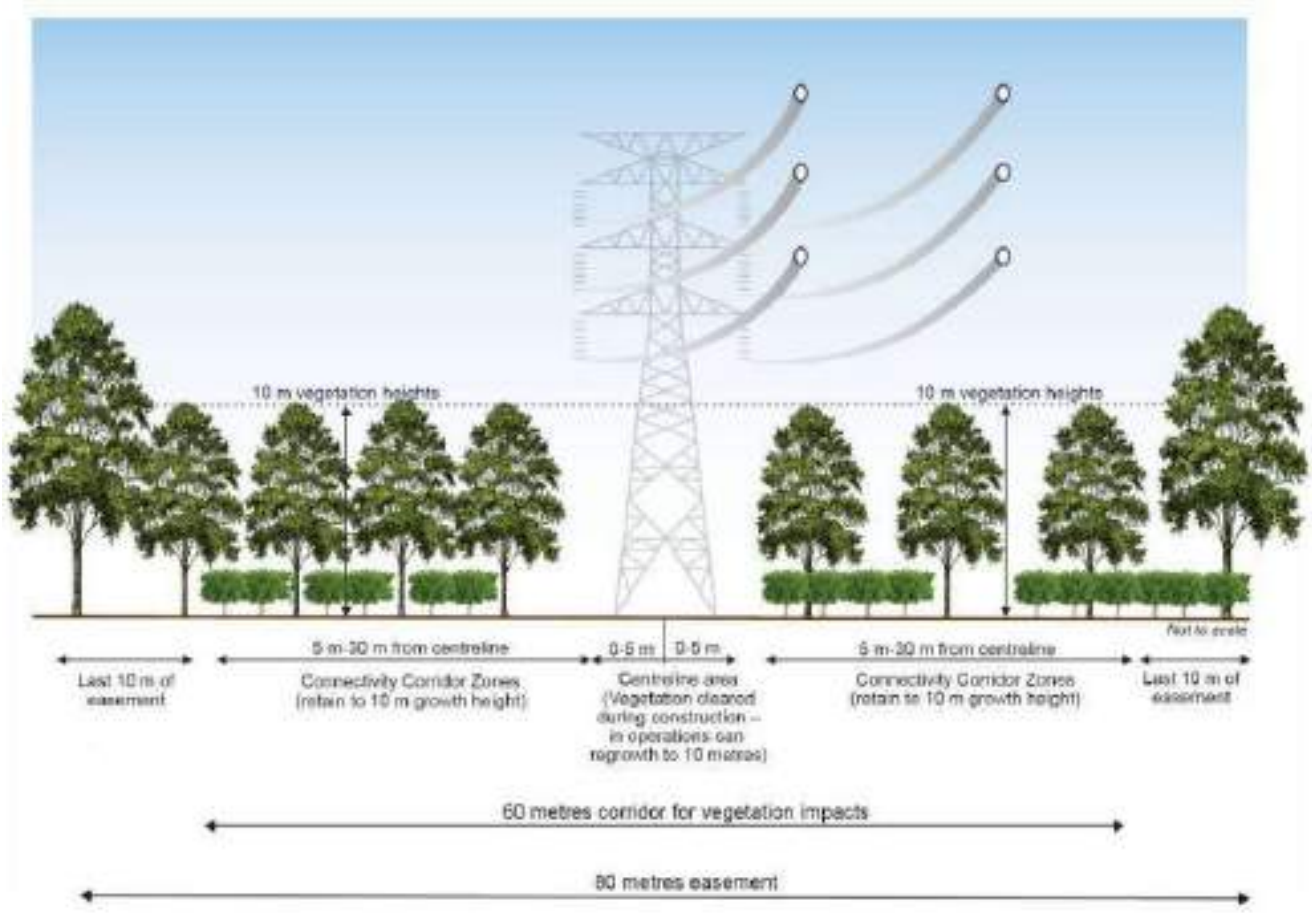


Figure 5.5 - Fauna connectivity corridors (330kV transmission line)

5.1.6.3 Watercourses

There are three key watercourses within the transmission line easement:

- the Darling River;
- the Greater Darling Anabranch; and
- the Murray River.

Activities within the riparian zones of these watercourses will be managed to minimise impacts to aquatic environments wherever practicable. The riparian zone is defined by the *Guidelines for riparian corridors on waterfront land* (DPI – Office of Water, July 2012).

Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of *Water Management Act 2000*) of the Murrumbidgee River, the Coleambally irrigation channels, Yanco Creek, Columbo Creek and Lake Cullivel (and other defined riparian areas) will be protected to the greatest extent practicable.

Vegetation clearing will be limited to the tree stratum only, with trunk bases retained in-situ (vegetation to remain at four metres and 10 metres based on the disturbance area). Should the riparian zone be subject to a connectivity corridor, then vegetation within this connectivity corridor will be cleared at 10 metres in height.

5.2 Staged or non-staged clearing

All areas that need to be cleared will be subject to staged or non-staged clearing. Staged clearing occurs in locations where the ecologist identifies habitat and is typically referred to as 'two-stage clearing'.

Areas where two-stage clearing is required will clear non-habitat vegetation first, with habitat vegetation removed approximately 24 hours following this. Habitat vegetation will be removed following an inspection by the ecologists / fauna handlers. Relocation of fauna will occur.

Areas where no staging is required may be removed in one step. No habitat has been identified in these locations.

Both two-staged and non-staged areas are also subject to the requirements of the disturbance areas.

Whether clearing is staged or non-staged, during clearing in a special biodiversity protection zone, the project ecologist will be on site at all times to monitor activities within the zone.

5.2.1 Clearing where there are no habitat features (One-stage clearing)

If no habitat features have been identified in the pre-clearing surveys, then a two-stage clearing process is not required and clearing can be undertaken in a single-step without the ecologist present. An example is crop land/agricultural pasture area.

All other demarcation and flagging is to occur as required by the *Clearing and Land Disturbance Permit* (45860-HSE-FO-G-1004).

5.2.2 Clearing where there are habitat features (Two-stage clearing)

Where habitat features have been identified during the pre-clearing surveys, two-stage clearing is required. Habitat vegetation will be identified with flagging (typically yellow) and unique identifier numbers indicated by identification tags. GPS coordinates for reach tree will be recorded and uploaded in the GIS mapping. For these locations, the clearing area will be surveyed by the project ecologist within 24 hours or immediately prior to clearing to:

- obtain updated information on fauna and flora habitat that is present, including:
  - inspection of identified habitat features for evidence of fauna habitation, including but not limited to Plains-wanderer species;
  - identify any fauna that will require relocation prior to clearing;
  - demarcate any newly identified habitat and confirm that hollow-bearing trees are prominently marked/tagged;
  - capture and relocate any identified non-mobile fauna;
  - confirm that nest boxes are in place (where required) or suitable locations for installation have been identified; and
- collect data on any newly identified threatened species in the area.

5.2.3 Initial clearing – removal of non-habitat vegetation

In this first stage, non-habitat vegetation will be removed. All marked habitat features will be retained until the final stage of clearing. This allows respite between the initial disturbance and the final removal of habitat. The changed environment and the disturbance from clearing should encourage residing fauna to relocate voluntarily without human handling.

A respite period of approximately 24 hours after removal of non-habitat vegetation is intended to allow resident fauna the opportunity to vacate remaining habitat before final clearing commences.

5.2.4 Final clearing

A suitably qualified and experienced fauna handler will be onsite to:

- thoroughly inspect all hollows that are accessible from the ground immediately prior to clearing;
- carefully supervise removal of habitat features and hollows when trees are dropped to the ground;

- ensure detected fauna will be encouraged to self-relocate or will be captured and released in the identified release areas;
- to capture and relocate any encountered fauna to pre-identified release sites;
- ensure that any injured wildlife is transported to veterinarian or wildlife carer; and
- where breeding fauna or dependent young are detected during the clearing works, consult with a licensed carer to determine whether the animal/s require ongoing care or can be safely relocated to adjacent habitat.

Locations of fauna release (including GPS coordinates) will be recorded in a post-clearing report.

Once all fauna habitat inspection and any required fauna removal is complete, the remaining vegetation clearing will commence.

5.3 Clearing in Plains-wanderer primary habitat

Where a tree that would exceed the vegetation clearing requirements is identified within one of the biodiversity conservation zones relating to Plains-wanderer habitat areas, then this tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place). A methodology will be selected that will minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist.

The *Plains-wanderer Protocol* (45860-HSE-PL-D-0135) should be implemented in all instances where works, including clearing, will occur in Plains-wanderer habitat.

5.4 Special biodiversity protection zones

The revised mitigation measures (RMMs) highlight several special biodiversity protection zones which require a tailored approach during pre-clearing and clearing. Details of these requirements and how they will be addressed during pre-clearing and clearing are included in Table 5.1.

Table 5.1 - Management and monitoring of special biodiversity protection zones (pre-clearing and clearing)

Location	Species	Management	Monitoring	Trigger Action Response Plan	Trigger Action Response Plan (management measures)
Between towers 660-663*	*Pimelea serpyllifolia subsp. serpyllifolia* (Thyme Rice–flower)  (Source: WSP)	• During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1. • Pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all *Pimelea serpyllifolia subsp*. *serpyllifolia* (Thyme Rice-flower) individuals. • The ecologists undertaking the pre-clearing survey are to install four (4) 1.5 metre high wooden/metal stakes on all sides of the *Pimelea* individuals (give 1 metre distance off main stem to lower risk of root damage). • Attach flagging tape at top of stake to notify clearing machinery where to avoid (where possible). • Areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers. • Provide a map of all *Pimelea* individuals to all contractors to notify significance. • Pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone and the location of *Pimelea* individuals which are to be avoided. • During clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone. • A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through habitat is required, with an ecologist walking ahead acting as a spotter. • Access being prioritised from existing tracks. • Clearing restricted to the identified tower 660–663* worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 660–663* worksite locations. • Alternative line installation techniques which do not require clearing of Disturbance Area A - centreline. • Clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements.	Monitoring for this species within the species polygon will be undertaken as follows: • before clearing – confirm number of individuals and recent health checks (use GPS to record location, health and height of each individual/cluster – health checks will confirm natural mortality and not proposal induced); • during clearing – rapid assessment if any have been accidentally impacted upon (in an area which was not to be impacted), or were needed to be removed due to location (ie the removal of some individuals during tower footprint clearance); and • post construction (between towers 660-663) – to assess the number remaining/overall impact of clearing with an updated map showing the locations of all individuals remaining and ones removed (if so).	• Stop work immediately if construction activities occur which result in unauthorised disturbance and/or impacts which are not permitted. • Ecologist to assess to determine if any *Pimelea* individuals have been impacted upon. • Investigate the event. • Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114). • Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented.	• Stop work immediately if a breach of the management measures detailed within this table for this special biodiversity protection zone occurs. • Investigate the event. • Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114) • Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented.

Location	Species	Management	Monitoring	Trigger Action Response Plan	Trigger Action Response Plan (management measures)
Between towers 161–162*	*Pilularia novaehollandiae* (Austral Pillwort)  (Source: WSP)	• During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1. • Pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all *Pilularia novae-hollandiae* (Austral Pillwort) individuals. • Temporary fencing around suitable habitat/acknowledged species polygons within the Final BDAR (along with a 10m buffer – to decrease any potential impacts to geomorphology) prior to construction. Installation of clear signage saying "No Go Zone". • Areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers. • Pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone and the importance of Austral Pillwort. The importance of maintaining geomorphology where possible should also be raised. • During clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone. • The ecologist will be present during clearing to review and ensure that impacts to geomorphology are minimised as much as possible (for example consideration is to be made of the direction of stormwater runoff due to construction activities or the location of stockpiles). • A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through habitat is required, with an ecologist walking ahead acting as a spotter. • Access being prioritised from existing tracks. • Clearing restricted to the identified tower 161 and 162* worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 161 and 162* worksite locations. • Alternative line installation techniques which do not require clearing of Disturbance Area A – centreline. • Clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements.	Monitoring for this species within this special biodiversity protection zone will be as follows: • Post-construction (in this location) – when rainfall and flooding conditions are present (to confirm if the species is still present).	• Stop work immediately if construction activities occur which result in unauthorised disturbance and/or impacts which are not permitted. • Investigate the event. • Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114). • Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented.	• Stop work immediately if a breach of the management measures detailed within this table for this special biodiversity protection zone occurs. • Investigate the event. • Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114) • Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented.

Location	Species	Management	Monitoring	Trigger Action Response Plan	Trigger Action Response Plan (management measures)
Between towers 241–242*	Natural Grasslands of the Murray Valley Plains	• During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1. • Pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone. • Areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers. • During clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone. • Access being prioritised from existing tracks. • A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through the TEC is required, with an ecologist walking ahead acting as a spotter. • Clearing being restricted to the identified tower 241 and 242* worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 241 and 242* worksite locations. • Alternative line installation techniques which do not require clearing of Disturbance Area A - centreline. • Clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements.	No specific monitoring for this special biodiversity protection zone. Monitoring to occur in accordance with Section 6.3 of the BMP.	-	• Stop work immediately if a breach of the management measures detailed within this table for this special biodiversity protection zone occurs. • Investigate the event. • Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114) • Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented.

Location	Species	Management	Monitoring	Trigger Action Response Plan	Trigger Action Response Plan (management measures)
Property Vegetation Plan on holding H114, between towers 243–249*	N/A	• During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1. • Pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone. • Areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers. • During clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone. • A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through the PVP, if required. • Access being prioritised from existing tracks. • Clearing being restricted to the identified tower 243–249* worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 243–249* locations. • Alternative line installation techniques which do not require clearing of Disturbance Area A - centreline. • Clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements.	No specific monitoring for this special biodiversity protection zone. Monitoring to occur in accordance with Section 6.3 of the BMP.	-	• Stop work immediately if a breach of the management measures detailed within this table for this special biodiversity protection zone occurs. • Investigate the event. • Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114) • Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented.

* Tower numbering is reflective of tower numbering from the Final BDAR

6 Unexpected Threatened Species Finds Procedure

If during construction activities the project ecologist (or other project personnel) identify a threatened species or threatened ecological community that has not been (or is suspected to have not been) assessed as a part of the project assessment, the *Unexpected Threatened Species Finds Procedure* (45860-HSE-PR-D-0012) will be followed.

7 Reporting

Post-clearing reports will be prepared by project ecologists and will include:

- information on clearing operations, dates, procedures and areas;
- the type of clearing (i.e. Disturbance Area A);
- a breakdown of the spatial extent and type of clearing of each Plant Community Type (PCT);
- a breakdown of the spatial extent and type of clearing of threatened ecological communities and threatened flora;
- live animal sightings, captures, any releases or injured/shocked wildlife;
- fauna that may have died as a result of clearing; and
- photographs of any rescued fauna.

The spatial extent and type of clearing will be recorded in GIS file format and provided to TransGrid to allow the final offset requirements to be calculated based on the recorded clearing in accordance with RMM B15.

Clearing of native vegetation will be monitored and recorded to inform any final biodiversity offset requirements within the biodiversity offset package. This information will be tracked in the *Clearing and Land Disturbance Register* (45860-HSE-REG-1008).

Appendix B – Unexpected Threatened Species Find Procedure

INTERNAL

Unexpected Threatened Species Finds Procedure EnergyConnect (NSW – Eastern Section)

45860-HSE-PR-D-0012

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	26/07/2022	Issued for internal review	C.Cahill	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
B	28/07/2022	Issued for Transgrid review	K. Baxter	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
C	18/10/2022	Revised to address BCD comments	K. Baxter	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued for Transgrid review
C	Issued for agency review

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

1 Introduction

This Unexpected Threatened Species Finds Procedure is part of the *Biodiversity Management Plan* (45860-HSE-PL-D-0111) prepared for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

1.1 Purpose

The purpose of this procedure is to detail the actions to be taken in the event that an unexpected actual or potential threatened species or endangered ecological communities is encountered during project works.

2 Induction/Training

All site personnel (including subcontractors) will undertake an induction which will include details relating to this procedure. Training may also occur through toolbox talks, pre-starts and targeted training as required.

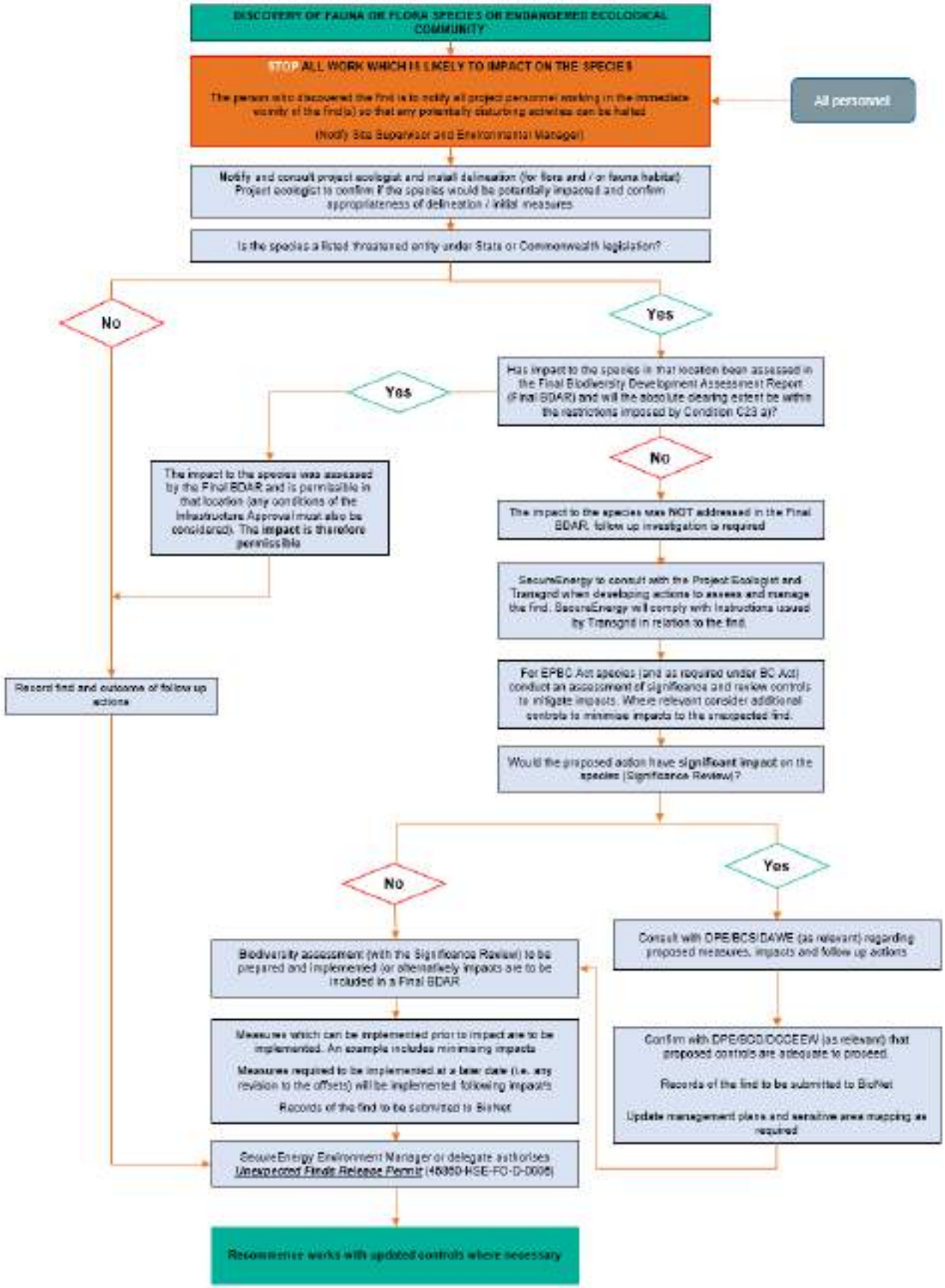
3 Scope

This procedure is applicable for the following:

- all activities conducted by site personnel (including sub-contractors) that have the potential to encounter unexpected threatened species finds (usually during pre-clearing inspections and construction);
- where the project does not have approval to impact the threatened species; and
- where mitigation measures for managing the disturbance (apart from this procedure) are not contained in the environmental impact assessment.

Biodiversity Management Procedure
Unexpected Threatened Species Finds Procedure

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Appendix C – Fauna Handling Procedure

INTERNAL

Fauna Handling Procedure
EnergyConnect (NSW – Eastern Section)
45860-HSE-PR-D-0020

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	26/05/2022	Issued for internal review	R.Walker-Edwards	M.Lee	A.Boyd	JL.Barrenechea	D.Whatmough
B	8/06/2022	Issued for Transgrid review	R.Walker-Edwards	M.Lee	A.Boyd	JL.Barrenechea	D.Whatmough
C	19/10/2022	Issued for Transgrid review	R.Walker-Edwards	M.Lee	A.Boyd	B.Calligeros	S.Basanta
D	16/11/2022	Issued for agency review	Katie Baxter K.Baxter	R.Walker-Edwards	A.Boyd	Vassily Calligeros B.Calligeros	S.Basanta

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Updated following internal review and issued for Transgrid review
C	Updated and reissued for Transgrid review
D	Issued for agency review

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

1 Introduction

This Fauna Handling Procedure is part of the *Biodiversity Management Plan* (BMP) (45860-HSE-PL-D-00111) for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

1.1 Purpose

This procedure is applicable to the handling of any fauna encountered during construction if required.

Handling of fauna may be necessary when they are encountered and need to be relocated or if injured, taken to a vet or wildlife carer. Fauna handling should be undertaken either by the project ecologist or a person skilled in handling the species of fauna encountered.

Should any threatened species be identified, the *Unexpected Threatened Species Find Procedure* (45860-HSE-PR-D-0012) would be implemented.

2 Induction/Training

All site personnel will undertake a site induction which will include details relating to this procedure. Training may also occur through toolbox talks, pre-starts meetings and targeted training as required.

3 Scope

This procedure is applicable for the following:

- all activities conducted by site personnel (including subcontractors) that have the potential to encounter fauna; and
- vegetation clearing and land disturbance.

4 General fauna handling requirements

Fauna may be encountered in a variety of situations during delivery of the project.

During staged clearing activities, any fauna handling will be carried out by the project ecologist or a trained fauna handler.

During other construction activities or non-staged clearing (when the project ecologist or fauna handler may not be present on site), fauna may require handling by other project personnel. Wherever possible, the project ecologist or trained fauna handler will be used. Due to the remoteness and large distances between work sites, there may however be times when the project ecologist or fauna handler will not always be present onsite and it is more important to move the fauna from danger or harm. In these circumstances, SecureEnergy personnel may be required to handle the fauna (i.e. where that movement removes the fauna from danger or harm).

The general fauna handling requirements during construction are as follows:

- any fauna removed from hollows will only be removed in accordance with the *Pre-clearing and Clearing Procedure*. Fauna will be removed by hand. Removal may require cutting the entrance of the hollow with a chainsaw, therefore extreme care is advised. If a chainsaw must be used to increase the entrance size, a suitable plug (for example, several scrunched-up cloth capture bags or towels) must be placed between the animal and the chainsaw wherever feasible. Care must be taken not to injure the animal during the extraction process. Where it is not possible to extract the animal from a hollow, the log can be carefully removed intact and located outside of the disturbance area so that the fauna can leave of their own accord. Ensure that egress from the hollow is not blocked when placing the log down;
- if nocturnal fauna is required to be kept during the day, they will be kept in either standard pet carrying cages, ventilated cardboard/plastic animal boxes or cloth capture bags. Captured fauna will be kept in accordance with recommendations from the project ecologist;

- if juvenile fauna is displaced and cannot be re-united with its parent(s), it will be taken to an authorised wildlife shelter within the region; and
- in the event that fauna is injured during construction, the animal should be assessed, and first aid rendered by the project ecologist (if available) and subsequently taken to a Veterinarian for further assessment and treatment. Euthanasia may be deemed necessary by the project ecologist and/or fauna handler and carried out according to this Procedure. Injured fauna will be kept in shaded conditions with water provided if necessary. Providing external heat (where available) may assist.

If fauna is handled or moved during clearing activities, this will be recorded in clearing reports.

Due to the linear nature of the project, there will be a range of different roads and access tracks in which project personnel or subcontractors may encounter fauna. The likelihood of encountering fauna during dawn and dusk is increased.

If fauna is struck by a vehicle this is recorded by the Environment team in the *Fauna Strike Register* (45860-HSE-REG-D-0001).

For any livestock interactions, refer to the *Livestock and Construction Conflict Management Procedure*.

5 Specific handling requirements

The general approach for handling fauna is provided within the sections below. There may be times when changes to the approach is required due to recommendations from the ecologist / fauna handler or, for example, different available resources.

5.1 Birds

General rescue approach for birds:

- where possible and safe to do so, gain access to nests. Capture and remove any nestlings;
- place nestlings in cotton capture bags and assess for injuries. Store bags containing nestlings in a pet carrying cage or ventilated cardboard box. The animal container will be covered to reduce stress on the bird. Deliver to specialist wildlife carer; and
- if adult birds are captured, they will be released away from construction activities.

5.2 Ground dwelling mammals: Echidna

General rescue approach for echidnas:

- if an echidna is within the construction zone, activities in the area which may impact the macropod may need to cease;
- echidnas should be calmly encouraged or left to leave the work area;
- if echidnas are found during habitat removal, they will need to be captured and relocated;
- dig echidna out by hand or carefully by shovel to the side of the echidna. The aim is to get a hand(s) beneath the echidna and to lift the echidna from the soil; and
- place in a container, such as a ventilated plastic box or garbage bin. Captive echidnas will be kept in a cool, well ventilated location, out of direct sun. Uninjured echidnas will be translocated and released as soon as possible.

5.3 Ground dwelling mammals: Native rodents

General rescue approach for native rodents:

- capture rodents using a hand net; and

- once captured, rodents will be placed into a cloth capture bag, assessed and if not injured, retained until dusk and then released into appropriate habitat.

5.4 Ground dwelling mammals: Kangaroos, wombats and wallabies

General rescue approach for kangaroos, wallabies and wombats:

- if a macropod is within the construction zone, activities in the area which may impact the macropod may need to cease;
- macropods should be calmly encouraged of left to leave the work area; and
- in the event that a juvenile macropod is displaced (thrown from a pouch) and cannot be re-united with it's parent, orphaned macropods will be taken to a vet or wildlife carer.

5.5 Reptiles: Snakes, lizards, turtles

General rescue approach for reptiles:

- reptiles will be captured by the project ecologist (when they are available) or with a person who is licensed under the *Biodiversity Conservation Act 2016* to catch and release reptiles;
- snakes will only be captured and relocated if they present a potential threat to construction personnel or are likely to be harmed by the works. In most cases, snakes will attempt to move away from a disturbed area; and
- lizards will be released as soon as possible after capture into suitable habitat outside of the construction zone.

5.6 Amphibians: Frogs

General rescue approach for frogs:

- the capture and relocation of frogs require specific attention to minimise disease transmission. The following hygiene protocol applies:
  - capture, handling and housing of wild frogs will be minimised or avoided where possible;
  - single-use latex, nitrile or vinyl gloves or single-use plastic bags will be used when handling/capturing frogs (where available);
  - hand washing with 70% ethanol (allowing hands to dry) between handling individual frogs is acceptable if no gloves are available (note, repeated use on human skin is not recommended). Alcohol is toxic to frogs so hands must be washed thoroughly in water after treatment with alcohol;
  - each frog is to be housed in plastic containers or zip lock bags (with air holes punched into the bag prior to frog capture). Frogs are to be kept in a cool, quiet location and released into suitable habitat at the earliest opportunity.

5.7 Arboreal mammals: Possums

General rescue approach for arboreal mammals:

- if possums are found during vegetation clearing, the project ecologist / fauna handler will determine if capture and relocation is warranted;
- possums will be captured either by hand or net and placed into a suitable cage;
- captured possums will be released at a location deemed suitable by the project ecologist; and
- in the event that juvenile possums/gliders are displaced and cannot be re-united their mother, they will be managed in accordance with the recommendations of the project ecologist or fauna handler. As required the juvenile will be taken to a vet or wildlife carer.

5.8 Other mammals: Microbats

General rescue approach for microbats:

- there is potential for microbats to carry the Australian Bat Lyssavirus (a rabies like virus), a disease potentially fatal to humans. To reduce the risk of infection, only experienced and vaccinated personnel be authorised to handle microbats;
- microbats will be captured by hand using protective gloves;
- as soon as possible, captured microbats will be placed into a cloth bag hung vertically in a quiet, cool, dark place until released;
- all captured microbats will be relocated into adjacent suitable habitat; and
- in the event that a juvenile microbat is displaced and cannot be re-united with its parent, orphaned microbats will be managed in accordance with the recommendations of the project ecologist or fauna handler. As required the juvenile will be taken to a vet or wildlife carer.

6 Euthanasia

6.1 When to euthanise

In some cases, rehabilitation and/or relocation of fauna will not be possible. In keeping with the NSW *Code of Practice for Injured, Sick and Orphaned Protected Fauna* (Office of Environment and Heritage, 2011), fauna must be euthanised without exception when:

- death is imminent or highly likely regardless of the treatment provided;
- the animal is suffering from chronic, un-relievable pain or distress;
- the animal is carrying (or suspected to be carrying) an incurable disease that may pose a health risk to wild animals; or
- its ability to consume food unaided is permanently impaired due to a missing of injured jaw, teeth or beak.

Fauna must be euthanised when one or more of the following circumstances apply:

- there is no suitable release location;
- its ability to reproduce is lost due to an injury, disease or procedure;
- its ability to locomote normally (i.e. run, climb, crawl, hop, fly or swim) is permanently impaired due to a missing or injured limb, wing, foot, back bone or tail;
- its ability to sense its environment (i.e. see, hear, smell, taste or feel) is permanently impaired due to a missing or injured organ (e.g. eye, ear or nose);
- its ability to catch or handle food is permanently impaired due to a missing or injured digits (e.g. missing rear toe in raptors);
- its advanced age renders it unable to survive in its natural habitat; and/or
- it is an amphibian (due to the risk of spreading chytrid fungus).

6.2 How to euthanise

A method appropriate for the species and circumstances should be utilised to ensure minimal pain and suffering. These methods could include:

- stunning followed by decapitation and/or destruction of the brain for reptiles and amphibians;
- stunning followed by cervical dislocation for small birds and mammals (less than 0.5 kg).

Any euthanasia methods utilised will be in accordance with those identified in the NSW C*ode of Practice for Injured, Sick and Orphaned Protected Fauna* (Office of Environment and Heritage, 2011).

Fauna that requires euthanasia should not be exposed to additional stressors such as large numbers of onlookers, people touching it, loud noises or extreme temperatures.

Death must be confirmed prior to disposal of the carcass. The absence of a heart beat and the loss of corneal reflexes indicate death has occurred.

The decision to euthanise an animal can only be made by the project ecologist and/or fauna handler.

7 Contact details

The contact details for available vets and WIRES are provided within Table 6.1.

Table 7.1 - Contact details

Role	Organisation	Location	State	Contact details
Project Ecologist	ngh	Wagga Wagga	NSW	The contact details for the Project Ecologist will be retained by the project staff and available to personnel upon request.
Wildlife Carers	WIRES	National service utilising local volunteers	NSW	1300 094 734
Veterinary Clinic	Riverbend Veterinary Service	148 Sturt Highway, Buronga	NSW	(03) 5022 0399
Veterinary Clinic	Mildura Veterinary Hospital	370 Deakin Ave, Mildura	VIC	(03) 5023 3838
Veterinary Clinic	Finley Veterinary Clinic	21 Pintuck Street, Finley NSW 2713	NSW	(03) 5890 8444
Veterinary Clinic	Hay Veterinary Clinic	379 Murray St, Hay 2711	NSW	(02) 6993 1861
Veterinary Clinic	Leeton Veterinary Clinic	41 Yantuck Avenue, Leeton NSW 2705	NSW	(03) 5890 8444
Veterinary Clinic	Wagga Wagga Veterinary Clinic	132 Urana St, Turvey Park NSW	NSW	(02) 6926 0900

Appendix D – Biosecurity Management Plan

PUBLIC

Biosecurity Management Plan
EnergyConnect (NSW – Eastern Section)
45860-HSE-PL-D-0127

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	29/07/2022	Issued for internal review	Katie Baxter	R. Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued for Transgrid review
C	Issued for agency consultation
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Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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Abbreviations / Definitions

Acronym	Definition
Amendment Report	*Amendment Report EnergyConnect (NSW – Eastern Section)*
BC Act	*Biodiversity Conservation Act 2016*
Biosecurity duty	Biosecurity duty is defined in Part 4, Division 3, Section 30 of the *Biosecurity Act 2015* (NSW) as: (1) A person who becomes aware of, or suspects, that a prohibited matter event has occurred, is occurring or is about to occur has a biosecurity duty to immediately notify the prohibited matter event in accordance with the requirements specified in the regulations. (2) A biosecurity duty arises under this Division only if the person— (a) is the owner, occupier or person in charge of, or has the care, custody or control of, premises, a carrier or other thing in relation to which the prohibited matter is present or suspected of being present, or (b) becomes aware of, or suspects, the occurrence of the prohibited matter event as a result of any consultation or other work carried out in relation to premises, a carrier or other thing in the person's professional capacity, or (c) is a person of a class prescribed by the regulations.
Biosecurity matter	Biosecurity matter is defined in Section 10 of the *Biosecurity Act 2015* (NSW) as: a) any living thing, other than human, or b) any part of an animal, plant or living thing, other than a human, or c) a product of a living thing, other than a human, or d) a disease, or e) a prion, or f) a contaminant, or g) a disease agent that can cause disease in a living thing (other than a human) or that can cause disease in a human via transmission from a non-human host to a human, or h) anything declared by the regulations to be biosecurity matter.
CEMP	Construction Environmental Management Plan
DECCW	Department of Environment, Climate Change and Water (now Department of Environment, Energy and Science)
DPE (the Department)	Department of Planning and Environment (formally the Department of Planning, Industry and Environment)
DPI	Department of Primary Industries
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Final BDAR	*Revised Biodiversity Development Assessment Report* (August 2022)
HSSE	Health, Safety, Security and Environment
HSSE Manual	Health, Safety, Security and Environment Management Manual
IMS	Integrated Management System
KTP	Key Threatening Process
LGA	Local Government Area
LLS	Local Land Services
NSW	New South Wales
OEH	Office of Environment and Heritage (now Department of Environment, Energy and Science)
OJD	Ovine Johne's Disease
Prohibited Matter Event	As per Section 31 of the *Biosecurity Act 2015 (NSW):*

Acronym	Definition
	A prohibited matter event means - (a) the presence of biosecurity matter in a part of the State in which it is prohibited matter, or (b) the introduction of biosecurity matter into a part of the State in which it is prohibited matter.
project, the	EnergyConnect (NSW – Eastern Section)
RMM	Revised mitigation measure
SecureEnergy	Elecnor and Clough Projects Australia Pty Ltd have formed SecureEnergy. SecureEnergy is the contractor who will be carrying out the project on behalf of Transgrid.
Submissions Report	*Submissions Report EnergyConnect (NSW – Eastern Section)*
WMS	Work Method Statement
WoNS	Weeds of National Significance

1 Introduction

1.1 Context

This Biosecurity Management Plan (or plan) is an Appendix to the Biodiversity Management Plan which forms part of the Construction Environmental Management Plan (CEMP) for EnergyConnect (NSW - Eastern Section).

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect* (NSW – Eastern Section) (EIS), the *Submissions Report EnergyConnect* (NSW – Eastern Section) (Submissions Report) and the *Amendment Report EnergyConnect* (NSW – Eastern Section) (Amendment Report).

This document does not remove the presence of any Unforeseeable Requirements as notified to Transgrid (the Employer) that exist or have the potential to arise in the future. SecureEnergy (the Contractor) reserves its rights under the Engineering, Procurement and Construction (EPC) Contract and at law in relation to this matter.

1.2 Purpose and objective

The key objective of the Biosecurity Management Plan (this plan) is to describe the management measures that will be implemented to ensure that biosecurity impacts are minimised and in accordance with the requirements of:

- the *Biosecurity Act 2015* (NSW); and
- the Infrastructure Approval, EIS, Amendment Report and *Revised Biodiversity Development Assessment Report* (August 2022) (Final BDAR).

To achieve this the plan describes:

- the existing and potential weeds, pest animals and animal diseases identified within the study area during the preparation of the Final BDAR;
- the implementation of appropriate processes to manage the spread of weeds, pests and diseases; and
- how the implementation of practical measures will be undertaken during construction to avoid the introduction of new weeds and to minimise the spread of existing weeds.

2 Environmental requirements

2.1 Conditions of Approval

The conditions of the Infrastructure Approval relevant to biosecurity management are detailed in Table 2.1 in bold, italicised text.

Table 2.1 - Conditions relevant to biosecurity management

Condition	Requirement	Where addressed
C26	The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include: a) a description of the measures that would be implemented for: (i) meeting the biodiversity mitigation requirements in condition C23; (ii) minimising the amount of native vegetation clearing within the development area; (iii) minimising the loss of key fauna habitat, including tree hollows; (iv) minimising the impacts on fauna on site, including undertaking pre-clearance surveys; (v) minimising the potential indirect impacts on threatened flora and fauna species, migratory species and 'at risk' species; (vi) rehabilitating and restoring disturbance areas to its pre-existing condition; (vii) avoiding and minimising impacts on Serious and Irreversible Impact (SAII); (viii) construction clearing and operation vegetation management protocols; (ix) monitoring of the areas of partial clearance within three months of the commencement of construction and provision of a verification report to confirm if any changes are required to the construction vegetation clearing protocols; (x) protecting native vegetation and key fauna habitat outside the approved disturbance area; (xi) maximising the salvage of resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and restoration of the site; (xii) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy; (xiii) ***controlling weeds;*** (xiv) controlling erosion; and (xv) bushfire management; b) a detailed program to monitor and report on the effectiveness of these measures.	This plan

2.2 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in Appendix C of the Amendment Report. The RMMs relevant to biosecurity for the project are presented in Table 2.2 and are emphasised in bold, italicised text where relevant. The management measures that will be implemented for the project are provided in Section 4 and Section 5 of this plan.

Table 2.2 - Revised mitigation measures relevant to biosecurity management

Reference	Revised mitigation measures	Where addressed
LP2	Transmission line towers (and associated permanent structures or construction compounds) would 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 • drainage catchments for farm dams • locations of high biosecurity risk.	Section 5 Table 5.1
LP7	Biosecurity controls would be implemented during construction to minimise the risk of off-site transport or spread of disease, pests or weeds. Controls would include (but not be limited to): • inspections and cleaning of vehicles, machinery, and personal 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 monitored in a manner and time interval consistent with the level of risk on each property.	Section 5 Table 5.1
LP8	Where present in locations that would be accessed for construction activities, weeds will be managed in consultation with the relevant landholder. Consultation would also occur with the relevant authority (Local Land Services, the relevant local council, or NSW DPI) in relation to notifiable weeds.	Section 5 Table 5.1
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*.	Section 5.5 Table 5.1

2.3 Guidelines

The guidelines within Table 2.3 were considered in the development and implementation of this plan.

Table 2.3 - Relevant guidelines

Guideline / Strategy	Application
National Weeds Strategy 2017-2027	The Strategy identifies introduced plants as Weeds of National Significance (WoNS). These weeds are regarded as a current priority and future weed threat to Australia because of their invasiveness, potential for spread, and economic and environmental impacts. Three WoNS were identified in the project area. Three priority weeds and weeds of national significance are likely to be located within the vicinity of the project study area.
NSW *Invasive Species Plan 2018-2021* (DPI, 2018a).	The plan adopts four goals for managing invasive species (including weeds): 1. Exclude – prevent the establishment of new invasive species. 2. Eradicate or contain – eliminate or prevent the spread of new invasive species. 3. Effectively manage – reduce the impacts of widespread invasive species. 4. Capacity building – ensure NSW has the ability and commitment to manage invasive species. This plan will aim to align with the relevant first three main goals of preventing the establishment of new invasive species and containing invasive species in areas directly impacted by construction as outlined in Sections 4 and 5 of this plan.
Western Local Land Services Region Priority Weed Identification Guide (May 2020)	The guide has been developed as an easy to use resource to assist land managers and members of the general community to identify high priority weeds. It is not intended to provide detailed information on each species and their control. Notification details are also provided within the guide for the identified priority weeds.

3 Existing environment

The following section summarises existing known weed, pest animal and pathogen species within and adjacent to the project based on the information contained in Technical Paper 4 (Agricultural land impact assessment) of the EIS, and the Revised BDAR.

3.1 Weeds

The project has the potential to effectively manage biosecurity risks due to its separation from major populations and intensive agricultural industries, and as its semi-arid climate, which is challenging for exotic animals and plants to survive. The EIS found that the project area has relatively few examples of widespread introduced species of weeds in the areas surveyed for the biodiversity assessment.

Three exotic flora species recorded within the project study area are listed under the *NSW Biosecurity Act 2015* (BA Act) as priority weeds for the Western region and/or Riverina region (Department of Primary Industries, 2021). These three species are also listed as Weeds of National Significance (WONS) (Australian Weeds Committee, 2021).

There are several species of weeds identified in the Revised BDAR that are likely to be located in the vicinity of the project study area including:

- two priority weeds and weeds of national significance recorded within the Western Local Land services region (*Lycium ferocissimum (*African boxthorn), *Opuntia* species including *Opuntia elata* and *Opuntia robusta* (Wheel Cactus));
- one priority weed and weed of national significance recorded within the Riverina Local Land services region (*Lycium ferocissimum* (African boxthorn)); and
- 18 high threat weeds recorded within the project study area during field surveys.

3.1.1 Weeds under the *Biosecurity Act 2015*

The EIS Technical Paper 4 (Agricultural land impact assessment) reported weeds recorded by authorised officers during property inspections under the *Biosecurity Act 2015* (DPI, 2020b). These weeds as well as where they were recorded are outlined below. Images of these recorded weeds are provided in Appendix B of this plan.

Table 3.1 - Weeds under the *Biosecurity Act 2015*

Species	
Between Buronga and Balranald	
Horehound	*Marrubium vulgare*
Burr ragweed	*Ambrosia confertiflora*
Prickly pears	*Opuntia and Cylindropuntia species*
Prairie ground cherry	*Physalis hederifolia*
Khaki weed	*Alternanthera pungens*
Blue heliotrope	*Heliotropium amplexicaule*
Noogoora burr	*Xanthium occidentale*
Arundinaria (reed) species	-
Cabomba	*Cabomba caroliniana*
Silverleaf nightshade	*Solanum elaeagnifolium*
Coolatai grass	*Hyparrhenia hirta*
Paterson's curse	*Echium plantagineum*

Species	
Star thistle	*Centaurea calcitrapa*
Blackberry	*Rubus fruticosus*
Giant Parramatta grass	*Sporobolus fertilis*
African boxthorn	*Lycium ferocissimum*
Between Balranald and Urana	
Horehound	*Marrubium vulgare*
Paterson's curse	*Echium plantagineum*
Spiny Burrgrass	*Cenchrus spinifex* and *Cenchrus longispinus*
Galvanised burr	*Sclerolaena birchii*
Bathurst burr	*Xanthium spinosum*
St. John's wort	*Hypericum perforatum*
Asparagus fern	*Asparagus virgatus*
Mesquite	*Prosopis* species
Willows	*Salix* species
Sagittaria	*Sagittaria platyphylla*
African boxthorn	*Lycium ferocissimum*
Silverleaf nightshade	*Solanum elaeagnifolium*
Khaki weed	*Alternanthera pungens*
Between Urana and Wagga Wagga	
Horehound	*Marrubium vulgare*
Blackberry	*Rubus fruticosus*
Prickly pears	*Opuntia* and *Cylindropuntia* species
Silverleaf nightshade	*Solanum elaeagnifolium*
Coolatai grass	*Hyparrhenia hirta*
African boxthorn	*Lycium ferocissimum*
Bathurst burr	*Xanthium spinosum*
St. John's wort	*Hypericum perforatum*
Willows	*Salix* species
Lippia	*Phyla canescens*
Privet	*Ligustrum lucidum*
Asparagus weeds	*Asparagus* species
Athel pine	*Tamarix aphylla*
Cape broom	*Genista monspessulana*
Sweet briar	*Rosa rubiginosa*
St. Barnaby's thistle	*Centaurea solstitialis*
Wild radish	*Raphanus raphanistrum*
Tree-of heaven	*Ailanthus altissima*
Green cestrum	*Cestrum parqui*
African olive	*Olea europaea* subspecies *cuspidate*
Black locust	*Robinia pseudoacacia*

3.1.2 Regional priority weeds

The respective regional strategic weed management plans (Murray LLS 2017, Riverina LLS 2017 and Western LLS 2017) identifies regional priority weeds, some of which are, or may be, present in the vicinity of the agricultural study area (DPI 2021a, DPI 2021b), as follows:

- African boxthorn (*Lycium ferocissimum*);
- Boxing glove/coral cactus (*Cylindropuntia fulgida*);
- Bridal creeper (*Asparagus asparagoides*);
- Burr ragweed (*Ambrosia confertiflora*);
- Cabomba (*Cabomba caroliniana*);
- Cane needlegrass (*Nassella hyaline*);
- Cape broom (*Genista monspessulana*);
- Clockweed (*Oenothera curtiflora*);
- Coolatai grass (*Hyparrhenia hirta*);
- Fireweed (*Senecio madagascariensis*);
- Giant reed (*Arundo donax*);
- Gorse (*Ulex europaeus*);
- Green cestrum (*estrum parqui*);
- Hardhead thistle (*Rhaponticum repens*);
- Honey locust (*Gleditsia triacanthos*);
- Mesquite (*Prosopis* species);
- Mother of millions (*Bryophyllum spp.*);
- Perennial ground cherry (*Physalis longifolia*);
- Prairie ground cherry (*Physalis hederifolia*);
- Prickly pears (*Opuntia* and *Cylindropuntia* species);
- Rope pear (*Cylindropuntia imbricata*);
- Sagittaria (*Sagittaria platyphylla*);
- Scotch broom (*Cytisus scoparius*);
- Silverleaf nightshade (*Solanum elaeagnifolium*);
- Spiny burr grass (*Cenchrus spp*.);
- Water hyacinth (*Eichhornia crassipes*); and
- Willow rhus (*Searsia lancea*).

3.1.3 State priority weeds

As outlined in EIS Technical Paper 4 (Agricultural land impact assessment), the only State priority weed which may be present in the part of the agricultural study area which is in the Western LLS is Bitou bush (*Chrysanthemoides monilifera* ssp*. rotundata*). However, state priority weeds which may occur in the Riverina or Murray LLS regions include:

- Boneseed (*Chrysanthemoides monilifera ssp. monilifera*);
- Tropical soda apple (*Solanum viarum*);
- Water hyacinth (*Eichhornia crassipes*);
- African boxthorn (*Lycium ferocissimum*);
- Asparagus weeds (*Asparagus* species);
- Athel pine (*Tamarix aphylla*);
- Blackberry (*Rubus fruticosus*);
- Cabomba (*Cabomba caroliniana*);
- Hymenachne (*Hymenachne amplexicaulus*);
- Lantana (*Lantana camara*);
- Prickly pears (*Opuntia* and *Cylindropuntia* species);
- Cane cactus (*Austrocylindropuntia cylindrica*);
- Silverleaf nightshade (*Solanum elaeagnifolium); and*
- Willows (*Salix* species).

3.1.4 Other weeds identified in the EIS

Other important weeds in the Western, Murray and Riverina LLS regions are listed in the respective regional strategic weed management plans. The description of these weeds vary between LLS but they are described in Murray LLS (2017) as species that are widespread in parts of the region and are of high community concern or priority to manage because of their extent and impact. These

weeds are a direct threat to agricultural production and the environment and control should be undertaken to contain locally.

In addition to priority weeds and Weeds of National Significance, the following environmental weeds were also recorded:

- *Asphodelus fistulosus* (Onion weed);
- *Carthamus lanatus* (Saffron thistle);
- *Centaurea solstitialis* (St. Barnaby's thistle);
- *Cirsium vulgare* (Spear thistle);
- *Echium plantagineum* (Paterson's curse);
- *Eragrostis curvula* (African lovegrass);
- *Heliotropium amplexicaule* (Blue heliotrope);
- *Hypericum perforatum* (St. John's wort);
- *Marrubium vulgare* (Horehound);
- *Onopordum acaulon* (Stemless Thistle);
- *Xanthium occidentale* (Noogoora Burr); and
- *Xanthium spinosum* (Bathurst Burr).

Other regional weeds are listed in Appendix A.

Other weeds in the vicinity of the agricultural study area include khaki weed (*Alternanthera pungens*), Noogoora burr (*Xanthium occidentale*) and Bathurst burr (*Xanthium* spp.). Khaki weed (*Alternanthera pungens*) is often found in irrigation and high traffic areas such as roadways. The burrs can also be a significant problem in irrigation fields and are an important wool contaminant.

Khaki weed (*Alternanthera pungens*), devil's claw (*Ibicella lutea*), spiny burr grass (*Cenchrus* spp.), African boxthorn (*Lycium ferocissimum*), galvanised burr (*Sclerolaena birchii*), Paterson's curse (*Echium plantagineum*), green cestrum (*Cestrum parqui*), St John's wort (*Hypericum perforatum*), caltrops (*Tribulus terrestris*), herbicide resistant ryegrass (*Lolium rigidum*), needle grasses and horehound (*Marrubium vulgare*) were mentioned by landowners and/or weeds officers during consultation as problematic weeds present in the district with the potential to become more widespread.

3.2 Pest animal species

The EIS Technical Paper 4 notes that foxes, feral pigs, wild rabbits and kangaroos are the most important vertebrate pests to agriculture across the Western, Murray and Riverina LLS regions. Unmanaged rangeland goats are relatively important in the Western LLS region, but less common and important elsewhere.

The EIS also notes that other vertebrate pests such as wild dogs and deer are present, but generally not in sufficient numbers to cause significant damage. Several other pest animals (feral camels, feral donkeys and wild horses) are considered to be emerging issues in agriculture, but none are presently found in close proximity to the agricultural study area (Murray LLS 2018, Riverina LLS 2018 and Western LLS 2018).

Finally, the EIS notes that plague locusts and mice can also cause problems in favourable seasons. Some species (such as goats and pigs) pose significant biosecurity, economic and social threats to the Western region as they can harbour and transmit both endemic and exotic diseases.

3.3 Potential animal diseases

The occurrence of sheep footrot in the vicinity of the agricultural study area has been low in recent years. According to EIS Technical Paper 4, the total number of flocks across the Murray and Riverina LLS regions was 4,831. Therefore, the infection rate was around 0.3 per cent.

Footrot is a contagious bacterial disease of sheep and goats, caused by the organism *Dichelobacter nodosus (D. nodosus)* in association with several other bacteria. The bacterium *D. nodosus* may persist for many years in the feet of infected sheep and may pass from infected sheep into the soil. Footrot is introduced into a clean flock by the inclusion of infected sheep in the flock, or by exposure to contaminated land under favourable conditions.

Little recent data is available on the prevalence of Ovine Johne's Disease (OJD) in NSW - an incurable infectious disease caused by the bacterium *Mycobacterium paratuberculosis*. However, the western part of the agricultural study area was in a 'low prevalence area' in 2011 with an estimated infected flock proportion of less than 0.8 per cent (DPI 2011). The agricultural study area from the Urana area to the Wagga Wagga substation was in a high prevalence area with more than 12.5 per cent of flocks estimated to be infected. The EIS notes that no known OJD infections were reported during landowner consultations.

The landowners consulted confirmed that OJD has not been a significant problem as it has been well managed in the past. There have been problems with footrot in recent years, but these cases are relatively rare. Although the prevalence of the major livestock diseases has been low in the past, stock movements associated with the recent drought and subsequent restocking may increase their incidence.

3.4 Biosecurity zones

The part of the agricultural study area from Buronga to approximately 40 kilometres east of Euston is adjacent to the Greater Sunraysia Pest Free Area. This is aimed at preventing te entry of the Queensland fruit fly by banning certain fruit and vegetables from entering the area.

Additionally, of relevance to the proposal, the following biosecurity zones have been established under the *Biosecurity Regulation 2017*:

- all of the agricultural study area is within the Grapevine Phylloxera Exclusion Zone - bans taking grapevines, cuttings or budwood into this zone;
- the Rice Biosecurity Zone also covers the agricultural study area from approximately Euston to near Lake Cullivel (comprising the Balranald, Edward River, Federation Hay, Murray River and Murrumbidgee LGAs), a distance of around 375 kilometres of the project alignment – prohibits the importation of rice plants, products and certain machinery/coverings or goods; and,
- the entire state of NSW is a Potato Biosecurity Zone – bans the movement of plants belonging to the *Solanaceae* family and associated matter into this zone.

4 Biosecurity risks and impacts

There are risks that animal diseases, plant diseases, feral pests and (especially) weeds could be introduced or spread during the construction of the proposal through vegetation clearing, ground disturbance and vehicle, machinery or construction personnel movements. Soil borne biosecurity hazards could also be spread by soil erosion and water runoff associated with construction works.

These risks are identified within the Environmental Aspect and Impact Register within Appendix A3 of the CEMP.

4.1 Risk of weed spread

The risk of weed spread is generally highest during the earthworks phase of construction, due to the high frequency of vehicle movements and disturbance of ground cover and soil, which could lead to weed growth. Some species of weeds are readily spread by vehicles, machinery and human activity, including spiny burrgrass, khaki weed, Noogoora burr and Bathurst burr.

Biosecurity incidents (as defined in Section 5) have the potential to impact surrounding agricultural enterprises due to the costs of monitoring pests, weeds or diseases and implementing control measures as well as the reduced income caused by loss of livestock, crop or pasture production and lower produce quality.

To minimise the risk of biosecurity incidents occurring due to construction, mitigation measures would be implemented to avoid the spread of weeds. In addition, the study area lies within the biosecurity zones for bitou bush and water hyacinth (as per the *Biosecurity Regulation 2017*), which means that the local control authority would need to be notified of a new infestation of the weeds as well as action undertaken by the contractor to destroy or suppress the weeds.

4.2 Risk of livestock disease / pathogens

There is the potential for livestock diseases to be spread during construction of the proposal including:

- ovine footrot, which is an important risk despite its low current prevalence due to the relative ease of its spread and economic consequences due to impacts to stock health, productivity and value, as well as disease control costs;
- Ovine Johne's Disease (OJD), which can result in significant economic losses due to sheep deaths, lost meat production, fewer lambs and less wool; and
- sheep lice, which can cause significant losses in sheep enterprises due to treatment costs, reduced wool growth and lower meat production.

Under the *Biosecurity Act 2015* Schedule 1, ovine footrot and OJD are notifiable diseases.

However, considering the low density livestock and low prevalence of disease in the area, the overall risk of spreading these livestock diseases during construction is low.

4.3 Risk of other pests

The most significant pest animals in the vicinity of the proposal study area are pigs, foxes and rabbits, which may result in economic impacts on livestock and crop enterprises due to lamb predation, fence damage or consumption of pasture and crops. However, construction activities are unlikely to significantly change the number or movement patterns of these pests.

5 Weed pest and pathogen management

The management of weeds is based on managing the risk of introducing new weeds to any project work areas during the construction phase due to project activities.

Safeguards and management measures will be implemented to avoid, minimise or manage impacts from the introduction and spread of weeds. These are summarised in Table 5.1.

5.1 Training and awareness

Construction personnel and subcontractors will be inducted in the importance of preventing weeds from entering the project and the measures which must be taken for vehicles, machinery and plant used on the project.

5.2 Management of weeds, pests and or pathogens

Washdown bays will be established at designated points along the project and at compounds. Washdown bays will contain apparatus to clean vehicles, plant, equipment and footwear. The location of washdown bays will be dependent on the biosecurity risks identified in that location and confirmed with the affected landholder in the Property Management Plans referred to in Section 5.3 below. Water from washdown bays will drain to a contained sump/low point and materials (sediments) from washdown bays will be contained and disposed of in accordance with the *Waste Management Plan* (45860-HSE-PL-D-0121).

5.3 Property Management Plans

All properties affected by the project area will have a Property Management Plan and where relevant will contain specific 'on-farm' biosecurity requirements.

Appropriate demarcation or signage (similar to below) will be installed in areas identified as having biosecurity risks or requirements as outlined in the in the Property Management plans. Figure 5.1 shows a sample Farm Biosecurity signage that is installed by property owners to indicate that a property has biosecurity requirements and/or an existing Biosecurity Management Plan. Please note that not all property owners may have this sign installed.



Figure 5.1 - Example signage advising that farm biosecurity measures exist

5.4 Incident notification

A biosecurity incident on the project means the detection of a terrestrial contaminant or terrestrial species on freight, people, plant, or equipment on the project which was not previously identified in the EIS. This would include a situation where there are weed species which were not previously

identified in the EIS and are suspected to be spread to new locations as a result of project activities. This would exclude weeds which might be detected on properties or previously known locations (adjacent to or in the study area), that are distant from project activities. In the event of a biosecurity incident which has occurred as a result of construction activities, the process outlined in Section 8.2 of the CEMP will be implemented. Incident management and response will be undertaken in accordance with the incident reporting procedures detailed within the Construction Environmental Management Plan.

There are several instances that require notification in accordance with the *Biosecurity Act 2015* and *Biosecurity Regulation 2017*. These include the requirement to notify a biosecurity event and the requirement to notify a certain pest or disease.

Notification requirements with respect to biosecurity matters are detailed below.

5.4.1 Notifiable biosecurity events and prohibited matter events

In accordance with Section 39 of the *Biosecurity Act 2015* (Act), a biosecurity event is something that has, is having, or could have, a significant biosecurity impact.

In terms of the Act, a biosecurity event does not involve prohibited matter. For example, a biosecurity event could be the sudden death of a flock of birds or a herd of cattle.

Prohibited matter is defined as any species listed in Schedule 2 of the *Biosecurity Act 2015.* Schedule 2 includes pests and diseases of plants and animals, diseases of aquatic animals, pest terrestrial invertebrates, terrestrial and freshwater weeds, and aquatic pests. Examples include the diseases African swine fever, foot and mouth disease, Hendra virus and the pest species Siam weed and rubber vine. If any of these are identified on the project site by project ecologists or informed by Property Owners, during construction delivery of the project, the SecureEnergy Environmental Manager would notify Transgrid and Department of Primary Industries. A person is required to immediately notify of a biosecurity event or prohibited matter event. The SecureEnergy Environmental Manager would notify Transgrid and the Department of Primary Industries (if SecureEnergy is the occupier of the project site at the time).

5.4.2 Notifiable pests or diseases

The *Biosecurity Regulation 2017* (Regulation) includes requirements for the notification of certain pests and diseases that are found in NSW and could have a severe effect on the economy, environment or community if not managed appropriately.

Pests and diseases that require notification are listed in:

- Schedule 2 of the Act; and
- Schedule 1 of the Regulation.

In terms of diseases identified as animal diseases of concern (under the *Biosecurity Act 2015* and Regulation), sheep footrot and OJD are notifiable diseases.

The list of notifiable pests and diseases in the *Biosecurity Act 2015* and Regulation is large and they typically require specialist knowledge to identify. The list is not, therefore, repeated within this plan. No notifiable pests or diseases were identified as occurring or likely to be occur in the project area. Presence of notifiable pests or diseases on the project would be identified in the Property Management Plans in consultation with landholders/property owners or as advised by the Department of Primary Industries.

5.4.3 Notifiable weeds

Biosecurity zones cover most of NSW, including the project area and require landowners and occupiers to notify the local control authority in accordance with section 30 and section 38 of the *Biosecurity Act 2015* of a new infestation of the weeds, and destroy or suppress the weeds. The local control authorities for this project are:

- Wagga Wagga City Council;
- Hay Shire Council;
- Murrumbidgee Council;
- Federation Council;
- Lockhart Shire Council;
- Edward River Council;
- Murray River Council;
- Balranald Shire Council; and
- Wentworth Shire Council.

The EIS Technical Paper 4 (Agricultural land impact assessment) advises that the project area lies within the biosecurity zones for bitou bush and water hyacinth (listed under Part 5 of the *Biosecurity Regulation 2017*). If these weeds are encountered during construction, the owner or occupier of the project site must:

(a) if the weed is part of a new infestation of the weed on the land, notify the local control authority for the land as soon as practicable in accordance with Part 6 of the *Biosecurity Regulation 2017*; and

(b) eradicate the weed or, if that is not practicable, destroy as much of the weed as is practicable and suppress the spread of any remaining weed.

5.4.4 Who is required to notify?

In the case of a pest or disease that is listed as prohibited matter in Schedule 2 of the *Biosecurity Act 2015* or a biosecurity event, the duty to notify applies only if the person has anything to do with the premise in which the pest and disease is identified or suspected. This could include the owner (Transgrid) or occupier of the premise (SecureEnergy).

Appendix B summarises the weeds identified during the EIS and provides the actions required under the *Biosecurity Act 2015.*

In the case of a pest or disease that is listed as notifiable in Schedule 1 of the Regulation, the duty to notify applies to any person who is aware of the presence or suspected presence of the pest or disease.

SecureEnergy will notify Transgrid and the NSW Department of Primary Industries (DPI). DPI indicates that there are several contact points based on what the issue is. As a first point of call it is recommended to contact DPI Biosecurity on 1800 680 244.

Where it is an animal pest, SecureEnergy will advise the relevant property owner (should the property owner wish to be informed).

5.5 Management measures

The management measures outlined in Table 5.1 will be implemented to minimise biosecurity impacts.

Table 5.1 - Biosecurity management measures

ID	Measurement/Requirement	When to implement	Responsibility	Source document
BS1	All construction personnel and subcontractors will attend the project induction which will include awareness of priority weeds, content regarding the importance of preventing weeds from entering the project site and the measures which must be taken for vehicles, machinery and plant used on the project.	Pre-construction Construction	HSSE Manager	Good practice
BS2	Prior to arriving on the project site, the supplier/owner of plant and equipment shall complete a Hygiene Inspection Form. If a Hygiene Inspection Form is not present or completed prior to arrival, one will be completed by the deliverer prior to inspection. All vehicles and mobile plant will be inspected on arrival at the construction compounds. A Hygiene Inspection Form with an assigned inspection number will be issued for vehicle / plant assets inspected as required. If plant or equipment arrives on the project site unclean it will either be washed down at the site compound or be removed from the project site by the supplier/owner and cleaned an appropriate facility.	Pre-construction Construction	Subcontractor/owner/suppliers Plant Department or delegate	Good practice
BS3	The specific controls applicable to a property will be identified in consultation with the affected landholder, documented in a Property Management Plan as appropriate and implemented during all relevant site activities. The effectiveness of these controls will be monitored at a time interval consistent with the level of risk.	Pre-construction Construction	Engagement Team Environmental Manager	RMM LP7
BS4	Where any of the weeds listed in the Biosecurity Plan are identified during construction, consultation (where relevant or required) will occur with landholders. Consultation will also occur with the relevant authority (Local Land Services (LLS), the relevant local council, and/or NSW Department of Primary Industries) in relation to notifiable weeds.	Construction	Environmental Manager	RMM LP8
BS5	Cleaning of vehicles and machinery will occur at designated washdown bays prior to movement onto the construction work areas or between properties (as required by the Property Management Plans).	Construction	All personnel	RMM LP7
BS6	Water from washdown bays will drain to a contained sump/low point and materials (sediments) from washdown bays will be contained and disposed of in accordance with the *Waste Management Plan.*	Construction	Supervisor Environmental Manager Environmental Advisor	Good practice
BS7	As required, site demarcation or signage will be installed in areas of significant biosecurity risk where access is required.	Construction	Environmental Manager Environmental Advisor	Good practice
BS8	The locations of 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 locations of high biosecurity risk.	Construction	Engagement Manager, Environmental Advisor	RMM LP2

ID	Measurement/Requirement	When to implement	Responsibility	Source document
BS9	Vehicle and equipment movements across adjoining farmland, including trip numbers and locations, will be minimised where possible where localised areas of high biosecurity risks have been identified.	Construction	Supervisor Environmental Manager Environmental Advisor	RMM LP7
BS10	If during construction, new infestations of notifiable weeds, pests or diseases are identified in project areas that are owned by Transgrid and/or occupied by SecureEnergy, the Environment Manager will notify Transgrid and will report the infestation to the relevant local control authority.	If required during construction only	Environmental Manager	*Biosecurity Act 2015* *Biosecurity Regulation 2017* RMM LP9
BS11	Weeds are to be identified as part of pre-clearing inspections by project ecologists.	Pre-Construction	Ecologist	Good practice
BS12	Weeds are to be managed appropriately in accordance with legislative (or local control authority) requirements and may use a range of options in proximity to the accommodation camps and construction compounds, including but not limited to: • slashing (timing/species dependent); • onsite burning; • onsite deep burial; or • stockpile spraying.	Construction	Supervisor Environmental Manager Environmental Advisor	Legislation

Annexure A - Other regional weeds

Common name	Scientific name	LLS		
		Western	Murray	Riverina
Box elder	*Acer negundo*		X	
Tree of heaven	*Ailanthus altissima*		X	X
Camel thorn	*Alhagi pseudalhagi*		X	
Khaki weed	*Alternanthera pungens*	X	X	X
Bridal creeper	*Asparagus asparagoides*		X	X
Onion weed	*Asphodelus fistulosus*	X		
Wild oat	*Avena spp.*	X		
Wild turnip	*Brassica tournefortii*	X		
Brome grass	*Bromus spp.*	X		
Ward's weed	*Carrichtera annua*	X		
Spiny burr grass	*Cenchrus incertus and C. longispinus*		X	X
Star thistle	*Centaurea calcitrapa*		X	X
St Barnaby's thistle	*Centaurea solstitialis*		X	
Green cestrum	*Cestrum parqui*			X
Windmill grass	*Chloris truncata*	X		
Flax-leaf fleabane	*Conyza bonariensis*	X		
Pampas grass	*Cortaderia spp.*		X	X
Golden dodder	*Cuscuta campestris*		X	X
Prickly pear	*Cylindropuntia spp.*		X	X
Lincoln weed	*Diplotaxis tenuifolia*	X		
Spiny emex	*Emex australis Steinh*		X	X
African lovegrass	*Eragrostis curvula complex*			X
Spanish heath	*Erica lusitanica*		X	X
Bear-skin fescue	*Festuca gautieri*		X	X
Galenia	*Galenia pubescens*		X	
Honey locust	*Gleditsia triacanthos*		X	X
Reed sweet-grass	*Glyceria maxima*		X	X
Harrisia cactus	*Harrisia martinii* and *H. tortuosa*		X	X
Blue heliotrope	*Heliotropium amplexicaule*		X	X
Common heliotrope	*Heliotropium europaem*	X		
Barley grass	*Hordeum spp*	X		
St John's wort	*Hypericum perforatum*		X	X
Tangled hypericum	*Hypericum triquetrifolium*		X	X
Devil's claw	*Ibicella lutea* or *Proboscidea louisianica*			X
Himalaya honeysuckle	*Leycesteria formosa*		X	X
Privet (broad-leaf)	*Ligustrum lucidum*			X
Privet (narrow-leaf)	*Ligustrum sinense*			X
Winged sea lavender	*Limonium lobatum*	X		
Statice	*Limonium sinuatum*	X		

Common name	Scientific name	LLS		
		Western	Murray	Riverina
Annual ryegrass	*Lolium rigidum*	X		
Indian fig	*Opuntia ficus-indica*	X		
Long leaf willow primrose	*Ludwigia longifolia*		X	X
African boxthorn	*Lycium ferocissimum*		X	X
Horehound	*Marrubium vulgare*		X	X
Cape tulips	*Moraea flaccida* and *M. miniata*		X	X
Scotch - Illyrian thistles	*Onopordum spp.*		X	X
Indian fig	*Opuntia ficus-indica*			X
Prickly pears	*Opuntia spp.*		X	X
Red rice	*Oryza rufipogon*		X	
Reed canary grass	*Phalaris arundinacea*		X	X
Lippia	*Phyla canescens*			X
Wild radish	*Raphanus raphanistrum*	X		
Castor oil plant	*Ricinus communis*	X		
Sweet briar	*Rosa rubiginosa*		X	X
Blackberry	*Rubus fruticosus (agg.)*		X	X
Galvanised burr	*Sclerolaena birchii*		X	X
Bitter stonecrop	*Sedum acre*		X	X
Pepper tree	*Schinus molle*	X		
Indian hedge mustard	*Sisymbrium oriental*	X		
Silverleaf nightshade	*Solanum elaeagnifolium*		X	X
Blackberry nightshade	*Solanum nigrum*	X		
Buffalo burr	*Solanum rostratum*		X	X
Common wow thistle	*Sonchus oleraceus*	X		
Johnson grass	*Sorghum halepense*		X	X
Silk forage sorghum	*Sorghum spp.* hybrid cv. *'silk'*		X	X
Columbus grass	*Sorghum x almum*		X	X
Athel pine	*Tamarix aphylla*		X	X
Tamarix	*Tamarix ramosissima*		X	
Poison ivy	*Toxicodendron radicans*	X		
Rhus tree	*Toxicodendron succedaneum*	X	X	X
Cat-head	*Tribulus terrestris*	X		X
Silver grass	*Vulpia bromoides*	X		
Bathurst burr	*Xanthium spp.*		X	X

Annexure B - Weed identification guide

No.	Common name	Species name	Images
001	**African boxthorn**	*Lycium ferocissimum*	 
002	**African lovegrass**	*Eragrostis curvula complex*	
003	**African olive**	*Olea europaea* subspecies *cuspidata*	
004	**Annual ryegrass**	*Lolium rigidum*	 
005	**Athel pine**	*Tamarix spp.*	 
006	**Arundinaria (reed) species**	-	
007	**Asparagus fern**	*Asparagus virgatus*	

No.	Common name	Species name	Images
008	**Barley grass**	*Hordeum spp*	
009	**Bathurst burr**	*Xanthium spinosa*	 
010	**Bear-skin fescue**	*Festuca gautieri*	
011	**Bitter stonecrop**	*Sedum acre*	
012	**Bitou bush**	*Chrysanthemoides monilifera* *State priority	  
013	**Blackberry**	*Rubus fruticosus*	 
014	**Blackberry nightshade**	*Solanum nigrum*	 

No.	Common name	Species name	Images
015	**Black locust**	*Robinia pseudoacacia*	 
016	**Boneseed**	*Chrysanthemoides monilifera ssp. monilifera*	 
017	**Box elder**	*Acer negundo*	 
018	**Boxing glove / coral cactus**	*Cylindropuntia fulgida*	 
019	**Bridal creeper**	*Asparagus asparagoides*	 
020	**Brome grass**	*Bromus spp.*	

No.	Common name	Species name	Images
021	**Buffalo burr**	*Solanum rostratum*	
022	**Burr ragweed**	*Ambrosia confertiflora*	
023	**Blue heliotrope**	*Heliotropium amplexicaule*	 
024	**Camel thorn**	*Alhagi maurorum*	 
025	**Cane cactus**	*Austrocylindropuntia cylindrica*	 
026	**Cane needlegrass**	*Nassella hyalina*	 
027	**Cape broom**	*Genista monspessulana*	 

No.	Common name	Species name	Images
028	**Cape tulips**	*Moraea flaccida* and *M. miniata*	
029	**Castor oil plant**	*Ricinus communis*	
030	**Caltrops or Cat-head**	*Tribulus terrestris*	  
031	**Cabomba**	*Cabomba caroliniana*	  
032	**Common heliotrope**	*Heliotropium europaeum*	
033	**Common wow thistle**	*Sonchus oleraceus*	

No.	Common name	Species name	Images
034	**Columbus grass**	*Sorghum x almum*	
035	**Cooltai grass**	*Hyparrhenia hirta*	 
036	**Clockweed**	*Oenothera curtiflora*	 
037	**Devil's claw**	*Ibicella lutea or Proboscidea louisianica*	
038	**Fireweed**	*Senecio madagascariensis*	 
039	**Flax-leaf fleabane**	*Conyza bonariensis*	

No.	Common name	Species name	Images
040	**Galenia**	*Galenia pubescens*	
041	**Galvanised burr**	*Sclerolaena birchii*	 
042	**Giant reed**	*Arundo donax*	
043	**Giant Parramatta grass**	*Sporobolus fertilis*	 
044	**Golden dodder**	*Cuscuta campestris*	
045	**Gorse**	*Ulex europaeus*	 

No.	Common name	Species name	Images
046	**Green cestrum**	*Cestrum parqui*	 
047	**Hardhead thistle / Creeping knapweed**	*Rhaponticum repens*	
048	**Harrisia cactus**	*Harrisia martinii* and *H. tortuosa*	
049	**Himalaya honeysuckle**	*Leycesteria formosa*	
050	**Honey locust**	*Gleditsia triacanthos*	 
051	**Horehound**	*Marrubium vulgare*	 

No.	Common name	Species name	Images
052	**Hymenachne**	*Hymenachne amplexicaulis*	
053	**Indian fig**	*Opuntia ficus-indica*	 
054	**Indian hedge mustard**	*Sisymbrium oriental*	
055	**Johnson grass**	*Sorghum halepense*	
056	**Khaki weed**	*Alternathera pungens*	
057	**Lantana**	*Lantana camara*	 

No.	Common name	Species name	Images
058	**Lincoln weed**	*Diplotaxis tenuifolia*	
059	**Lippia**	*Phyla canescens*	 
060	**Long leaf willow primrose**	*Ludwigia longifolia*	 
061	**Mesquite**	*Prosopis* spp.	 
062	**Mother of millions**	*Bryophyllum* spp.	 
063	**Noogoora burr**	*Xanthium occidentalis*	 
064	**Onion weed**	Asphodelus fistulosus	 

No.	Common name	Species name	Images
065	**Paterson's curse**	*Echium plantagineum*	
066	**Pampas grass**	*Cortaderia spp.*	
067	**Perennial ground cherry**	*Physalis longifolia*	
068	**Pepper tree**	*Schinus molle*	
069	**Poison ivy**	*Toxicodendron radicans*	
070	**Prairie ground cherry**	*Physalis hederifolia*	 

No.	Common name	Species name	Images
071	**Prickly pear**	*Opuntia spp.*	 
072	**Privet (broad-leaf)**	*Ligustrum lucidum*	 
073	**Privet (narrow-leaf)**	*Ligustrum sinense*	 
074	**Reed canary grass**	*Phalaris arundinacea*	
075	**Reed sweet-grass**	*Glyceria maxima*	
076	**Red rice**	*Oryza rufipogon*	 
077	**Rope pear**	*Cylindropuntia imbricata*	  

No.	Common name	Species name	Images
078	**Sagittaria**	*Sagittaria platyphylla*	 
079	**Scotch broom**	*Cytisus scoparius*	 
080	**Scotch - Illyrian thistles**	*Onopordum spp.*	  
081	**Silk forage sorghum**	*Sorghum spp. hybrid cv. 'silk'*	
082	**Silver grass**	*Vulpia bromoides*	
083	**Silverleaf nightshade**	*Solanum elaeagnifolium*	 

No.	Common name	Species name	Images
084	**Spanish heath**	*Erica lusitanica*	
085	**Spiny burrgrass**	*Cenchrus spp.*	  
086	**Spiny emex**	*Rumex hypogaeus*	
087	**Statice**	*Limonium sinuatum*	
088	**Star thistle**	*Centaurea calcitrapa*	 
089	**St. Barnaby's thistle**	*Centaurea solstitialis*	 
090	**St. John's wort**	*Hypericum perforatum*	 

No.	Common name	Species name	Images
091	**Sweet briar**	*Rosa rubiginosa*	 
092	**Tamarix**	*Tamarix ramosissima*	
093	**Tangled hypericum**	*Hypericum triquetrifolium*	 
094	**Tree-of heaven**	*Ailanthus altissima*	 
095	**Tropical soda apple**	*Solanum viarum*	 
096	**Ward's weed**	*Carrichtera annua*	
097	**Water hyacinth**	*Eichhornia crassipes*	

No.	Common name	Species name	Images
098	**Windmill grass**	*Chloris truncata*	
099	**Winged sea lavender**	*Limonium lobatum*	 
100	**Wild oat**	*Avena spp.*	
101	**Wild radish**	*Raphanus raphanistrum*	 
102	**Wild turnip**	*Brassica tournefortii*	
103	**Willow rhus**	*Searsia lancea*	
104	**Willows**	*Salix spp.*	 

Annexure C - Biosecurity recommendations

Biosecurity recommendations for managing identified weeds in the project area

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
001	African boxthorn	*Lycium ferocissimum*	Y	Y		Y	Y		Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale	**Western LLS** **Regional recommended measure*** (for Regional Priority - Asset Protection) Land managers mitigate the risk of the plant spreading from their land. Land managers reduce impact of plant on priority assets (riparian areas and floodplains).
002	African lovegrass	*Eragrostis curvula complex*			Y				Y		
003	African olive	*Olea europaea subspecies cuspidata*						Y	Y		
004	Annual ryegrass	*Lolium rigidum*				Y					
005	Athel pine	*Tamarix spp.*	Y							Must not be imported into the state, sold, bartered, exchanged or offered for sale	
006	Arundinaria (reed) species	-						Y	Y		
007	Asparagus fern	*Asparagus virgatus*	Y						Y		
008	Barley grass	*Hordeum spp*						Y			
009	Bathurst burr	*Xanthium spinosa*			Y	Y			Y		

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
010	Bear-skin fescue	*Festuca gautieri*						Y	Y		
011	Bitter stonecrop	*Sedum acre*						Y			
012	Bitou bush	*Chrysanthemoides monilifera spp.rotunda*	Y						Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale.	**All of NSW** The Bitou Bush Biosecurity Zone is established for all land within the State except land within 10 kilometres of the mean high water mark of the Pacific Ocean between Cape Byron in the north and Point Perpendicular in the south. **Murray and Riverina LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
013	Blackberry	*Rubus fruticosus*	Y						Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the *Rubus fruiticosus* species aggregate have this requirement, except for the varietals Black Satin, Chehalem, Chester Thornless, Dirksen Thornless, Loch Ness, Murrindindi, Silvan, Smooth Stem, and Thornfree	

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
014	Blackberry nightshade	*Solanum nigrum*						Y			
015	Black locust	*Robinia pseudoacacia*						Y	Y		
016	Boneseed	*Chrysanthemoides monilifera ssp. monilifera*					Y		Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale	**Control Order whole of NSW** Boneseed Control Zone (Whole of NSW): Owners and occupiers of land on which there is boneseed must notify the local control authority of new infestations. A person who deals with a carrier of boneseed must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant.
017	Box elder	*Acer negundo*						Y			
018	Boxing glove / coral cactus	*Cylindropuntia fulgida*		Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale	**Western LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
019	Bridal creeper	*Asparagus asparagoides*		Y					Y	Prohibition on certain dealings Must not be imported into the state, sold, bartered, exchanged or offered for sale. *this requirement also applies to the Western Cape form of bridal creeper	**Western LLS** **Regional recommended measure*** (for Regional Priority - Asset Protection) Land managers mitigate the risk of the plant spreading from their land. Land managers reduce impact of plant on priority assets (riparian areas and commercial horticultural areas).
020	Brome grass	*Bromus spp.*						Y			

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
021	Buffalo burr	*Solanum rostratum*						Y	Y		
022	Burr ragweed	*Ambrosia confertiflora*		Y					y		**Western LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found
023	Blue heliotrope	*Heliotropium amplexicaule*			Y				Y		
024	Camel thorn	*Alhagi maurorum*						Y	Y		
025	Cane cactus	*Austrocylindropuntia cylindrica*	Y						Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the Austrocylindropuntia genus have this requirement	
026	Cane needlegrass	*Nassella hyalina*		Y		Y			Y		Riverina **Eradication zone:** whole region except for the containment zone of Wagga Wagga City Council **Riverina LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Containment zone: Land managers should prevent spread from their land. Whole region: managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment.

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
027	Cape broom	*Genista monspessulana*		Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale.	**Riverina LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment.
028	Cape tulips	*Moraea flaccida and M. miniata*						Y			
029	Castor oil plant	*Ricinus communis*						Y	Y		
030	Caltrops or Cat-head	*Tribulus terrestris*				Y					
031	Cabomba	*Cabomba caroliniana*	Y	Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale.	
032	Common heliotrope	*Heliotropium europaeum*						Y			
033	Common wow thistle	*Sonchus oleraceus*						Y			
034	Columbus grass	*Sorghum x almum*						Y	Y		
035	Cooltai grass	*Hyparrhenia hirta*		Y					Y		**Western, Riverina and Murray LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
											released into the environment. Notify local control authority if found
036	Clockweed	*Oenothera curtiflora*		Y					Y		**Western LLS** **Regional Recommended Measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found
037	Devil's claw	*Ibicella lutea* or *Proboscidea louisianica*				Y			Y		
038	Fireweed	*Senecio madagascariensis*		Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale	**Murray LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found **Riverina LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of the plant being introduced to their land.
039	Flax-leaf fleabane	*Conyza bonariensis*						Y			
040	Galenia	*Galenia pubescens*						Y	Y		

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
041	Galvanised burr	*Sclerolaena birchii*				Y			Y		
042	Giant reed	*Arundo donax*		Y					Y		Western **LLS** Exclusion zone: whole region except for the core infestation area of Wentworth Shire Council **Regional recommended measure*** (for Regional Priority - Containment) Whole region: Land managers should mitigate the risk of the plant being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Core infestation area: Land managers should mitigate spread from their land. Land managers reduce the impact of the plant on priority assets (rivers and natural watercourses).
043	Giant Parramatta grass	*Sporobolus fertilis*						Y	Y		
044	Golden dodder	*Cuscuta campestris*						Y	Y		
045	Gorse	*Ulex europaeus*		Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale	**Murray LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. **Riverina LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of the plant being introduced to their land.

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
046	Green cestrum	*Cestrum parqui*		Y		Y			Y		**Murray LLS** **Regional recommended measure*** (for Regional Priority - Containment) Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found
047	Hardhead thistle / Creeping knapweed	*Rhaponticum repens*		Y					Y		**Murray LLS** **Regional recommended measure*** (for Regional Priority - Containment) Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found
048	Harrisia cactus	*Harrisia martinii and H. tortuosa*						Y	Y		**Western LLS** **Regional recommended measure*** (for Regional Priority - Asset Protection) Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. This Regional Recommended Measure applies to *Harrisia martinii.*
049	Himalaya honeysuckle	*Leycesteria formosa*						Y			
050	Honey locust	*Gleditsia triacanthos*		Y					Y		
051	Horehound	*Marrubium vulgare*			Y	Y			Y		
052	Hymenachne	*Hymenachne amplexicaulis*	Y						Y	Must not be imported into the state, sold, bartered,	

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
										exchanged or offered for sale	
053	Indian fig	*Opuntia ficus-indica*						Y	Y		
054	Indian hedge mustard	*Sisymbrium oriental*						Y			
055	Johnson grass	*Sorghum halepense*						Y	Y		
056	Khaki weed	*Alternathera pungens*				Y					
057	Lantana	*Lantana camara*	Y						Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale	
058	Lincoln weed	*Diplotaxis tenuifolia*						Y			
059	Lippia	*Phyla canescens*						Y	Y		
060	Long leaf willow primrose	*Ludwigia longifolia*						Y	Y		
061	Mesquite	*Prosopis spp.*		Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale All species in the genus Prosopis have this requirement	**Murray LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. **Riverina LLS**

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
											Regional recommended measure * (for Regional Priority - Eradication) Land managers should mitigate the risk of the plant being introduced to their land. **Western LLS** Exclusion zone: whole region except for the core infestation area of Evelyn, Yantara, Mootwingee, Yancowinna, Menindee, Tandora, Livingstone and Windeyer counties. **Regional recommended measure*** (for Regional Priority - Containment) Whole region: Land managers should mitigate the risk of the plant being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Core infestation area: Land managers should mitigate spread from their land.
062	Mother of millions	*Bryophyllum spp.*		Y					Y		**Riverina LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. **Western LLS** Exclusion zone: whole region except core infestation area of maintained gardens **Regional recommended measure*** (for Regional Priority - Containment) Whole region: Plant should not be bought, sold, grown, carried or released into the environment (except in maintained gardens). Exclusion Zone: Land managers should mitigate the risk of the plant being introduced to their land. Core

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
											infestation: Land managers should mitigate spread from their land. This regional recommended measure also applies to *Bryophyllum* hybrids.
063	Noogoora burr	*Xanthium occidentalis*			Y						
064	Onion weed	*Asphodelus fistulosus*			Y				Y		
065	Paterson's curse	*Echium plantagineum*				Y			Y		
066	Pampas grass	*Cortaderia spp.*						Y	Y		
067	Perennial ground cherry	*Physalis longifolia*		Y					Y		**Murray LLS** **Regional recommended measure*** (for Regional Priority - Containment) Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. **Riverina LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
068	Pepper tree	*Schinus molle*						Y			
069	Poison ivy	*Toxicodendron radicans*						Y			

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
070	Prairie ground cherry	*Physalis hederifolia*		Y				Y	Y		**Murray LLS** **Regional recommended measure*** (for Regional Priority - Containment) Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. **Riverina LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
071	Prickly pears	*Opuntia spp.*	Y	Y			Y		Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale.	**Western LLs** **Regional recommended measure*** (for Regional Priority - Asset Protection) Land managers mitigate the risk of the plant spreading from their land. Land managers mitigate the risk of the plant being introduced to their land.
072	Privet (broad-leaf)	*Ligustrum lucidum*			Y			Y	Y		
073	Privet (narrow-leaf)	*Ligustrum sinense*			Y			Y	Y		
074	Reed canary grass	*Phalaris arundinacea*						Y			
075	Reed sweet-grass	*Glyceria maxima*						Y			
076	Red rice	*Oryza rufipogon*						Y			

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
077	Rope pear	*Cylindropuntia imbricata*		Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale. **All species in the Cylindropuntia genus have this requirement**	**Western LLS** **Regional recommended measure*** (for Regional Priority - Asset Protection) Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment.
078	Sagittaria	*Sagittaria platyphylla*		Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale	**Murray LLS** **Regional recommended measure*** (for Regional Priority - Containment) Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. **Riverina LLS** **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of the plant being introduced to their land. **Western LLS** **Regional recommended measure*** (for Regional Priority - Prevention) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.
079	Scotch broom	*Cytisus scoparius*		Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale	Murray **LLS** Whole region excluding Snowy Valleys Council. **Regional recommended measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
											should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. **Riverina LLS** Whole region excluding Snowy Valleys Council **Regional Recommended Measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment.
080	Scotch - Illyrian thistles	*Onopordum spp.*						Y	Y		
081	Silk forage sorghum	*Sorghum spp. hybrid cv. 'silk'*						Y	Y		
082	Silver grass	*Vulpia bromoides*						Y			
083	Silverleaf nightshade	*Solanum elaeagnifolium*	Y	Y					Y	Must not be imported into the state, sold, bartered, exchanged or offered for sale	**Western LLS** **Regional Recommended Measure*** (for Regional Priority - Asset Protection) Land managers mitigate the risk of the plant spreading from their land.
084	Spanish heath	*Erica lusitanica*						Y	Y		
085	Spiny burrgrass	*Cenchrus spp.*		Y		Y			Y		**Western LLS** **Regional Recommended Measure*** (for Regional Priority - Asset Protection) Land managers mitigate the risk of the plant spreading from their land. The plant or parts of the plant are not traded, carried, grown or released into the environment.

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
086	Spiny emex	*Rumex hypogaeus*						Y	Y		
087	Statice	*Limonium sinuatum*						Y			
088	Star thistle	*Centaurea calcitrapa*						Y	Y		
089	St. Barnaby's thistle	*Centaurea solstitialis*			Y				Y		
090	St. John's wort	*Hypericum perforatum*				Y			Y		
091	Sweet briar	*Rosa rubiginosa*						Y	Y		
092	Tamarix	*Tamarix ramosissima*						Y			
093	Tangled hypericum	*Hypericum triquetrifolium*						Y			
094	Tree-of heaven	*Ailanthus altissima*						Y	Y		
095	Tropical soda apple	*Solanum viarum*	Y						Y	**All of NSW** Tropical Soda Apple Control Zone: Whole of NSW **Control Order** Tropical Soda Apple Control Zone (Whole of NSW): Owners and occupiers of land on which there is tropical soda apple must notify the local control authority of new	If you see this plant call your local council weeds officer or the NSW DPI Biosecurity Helpline 1800 680 244

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
										infestations; destroy the plants including the fruit; ensure subsequent generations are destroyed; and ensure the land is kept free of the plant. A person who deals with a carrier of tropical soda apple must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant on the land, or on or in a carrier	
096	Ward's weed	*Carrichtera annua*									
097	Water hyacinth	*Eichhornia crassipes*	Y	Y				Y		Must not be imported into the state, sold, bartered, exchanged or offered for sale	**Biosecurity Zone – All of NSW** The local control authority must be notified of any new infestations of this weed within the Biosecurity Zone **Murray LLS** **Regional Recommended Measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. **Riverina LLS** **Regional Recommended Measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant

No.	Common name	Species name	State Priority Weed	Reg. Priority Weed	Environmental Weeds	Agricultural	WONS	Other Regional Weeds	[1] General Biosecurity Duty	Biosecurity Duty Prohibition on Certain Dealings	Biosecurity Duty LLS Region
											should not be bought, sold, grown, carried or released into the environment. **Western LLS** **Regional Recommended Measure*** (for Regional Priority - Prevention) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found
098	Windmill grass	*Chloris truncata*						Y			
099	Winged sea lavender	*Limonium lobatum*						Y			
100	Wild oat	*Avena spp.*						Y			
101	Wild radish	*Raphanus raphanistrum*						Y	Y		
102	Wild turnip	*Brassica tournefortii*						Y			
103	Willow rhus	*Searsia lancea*		Y							
104	Willows	*Salix spp.*	Y						Y		Western LLS **Regional Recommended Measure*** (for Regional Priority - Eradication) Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.

1 All plants are regulated with a **general biosecurity duty** to prevent minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented or minimised, so far as is reasonably practicable.

* Refer to the recommended measures in the Regional Strategic Weeds Management Plans which contain demonstrated outcomes that fulfil the general biosecurity duty for this weed.

Appendix E – Biodiversity mapping

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CLOUGH ELECNOR JOINT VENTURE

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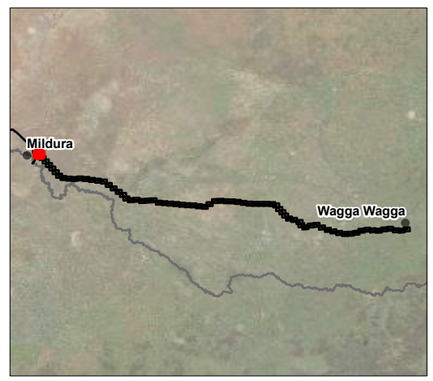
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- Towers
- L2

Assumed Flora Species

- Assumed species presence polygon - Calotis Moorei
- Assumed species presence polygon - Acacia Acanthoclada
- Assumed species presence polygon - Lasiopetalum behrii
- Assumed species presence polygon - Leptorhynchos waitzia
- Assumed species presence polygon - Pimelea serpyllifolia subsp.
- Assumed species presence polygon - Swainsona pyrophila
- Assumed species presence polygon - Austrostipa Metatoris
- Assumed species presence polygon - Pterostylis cobarensis

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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World Imagery: Maxar

DRAWN:	ZI
REVIEWED:	Katie Baxter
VERIFIED:	
APPROVED:	
REV:	A
DATE:	8/11/2022
DESCRIPTION:	Issued for Internal Review
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Biodiversity Mapping Eastern Alignment L2 Map 2 of 74

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

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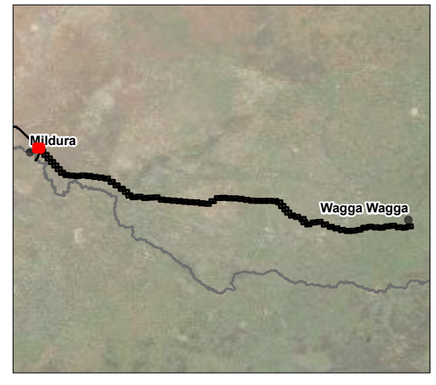
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Towers
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secureenergy
CLOUGH ELECNOR JOINT VENTURE

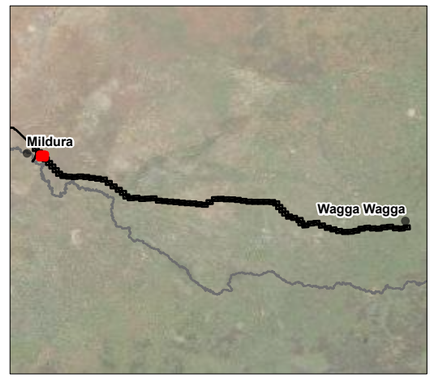
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Towers
L2

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Biodiversity Mapping Eastern Alignment L2 Map 3 of 74

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

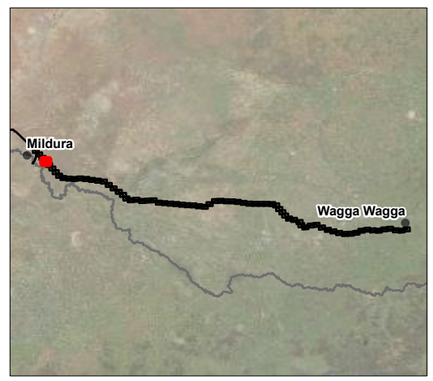
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Towers
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Biodiversity Mapping Eastern Alignment L2 Map 4 of 74

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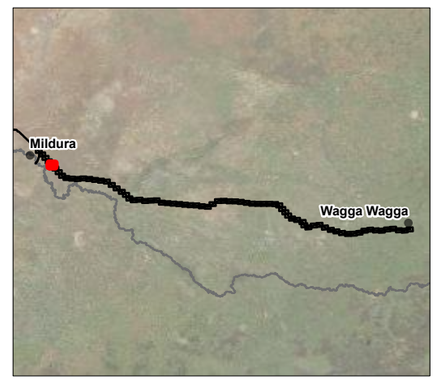
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Towers
L2

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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Biodiversity Mapping Eastern Alignment L2 Map 5 of 74

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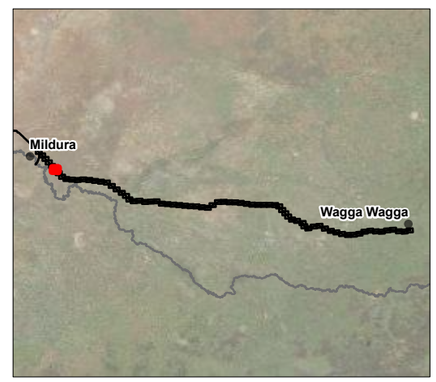
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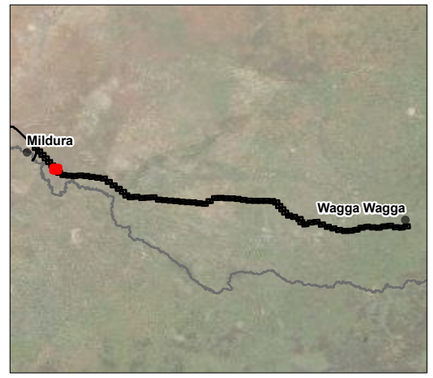
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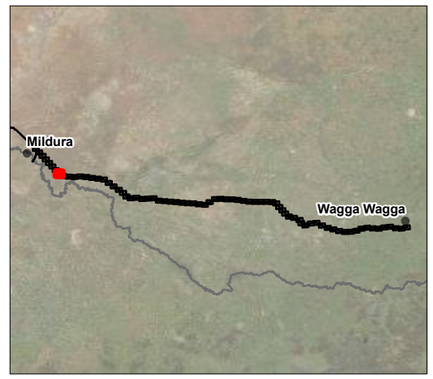
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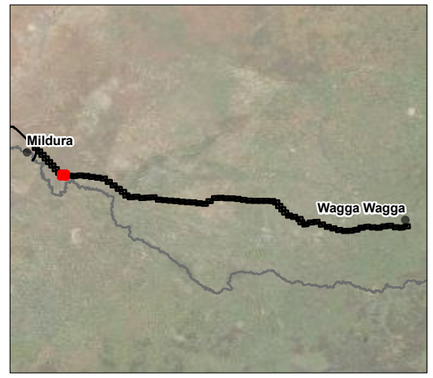
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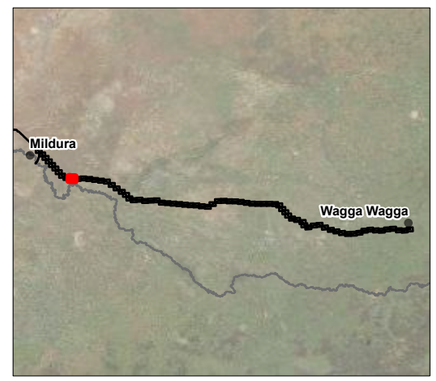
Towers

L2

Matters of National Significance

Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plains Bioregions - Critically Endangered

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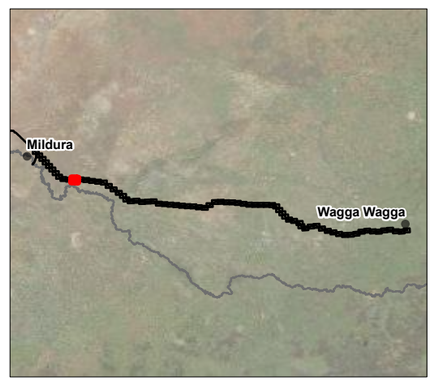
Towers

L2

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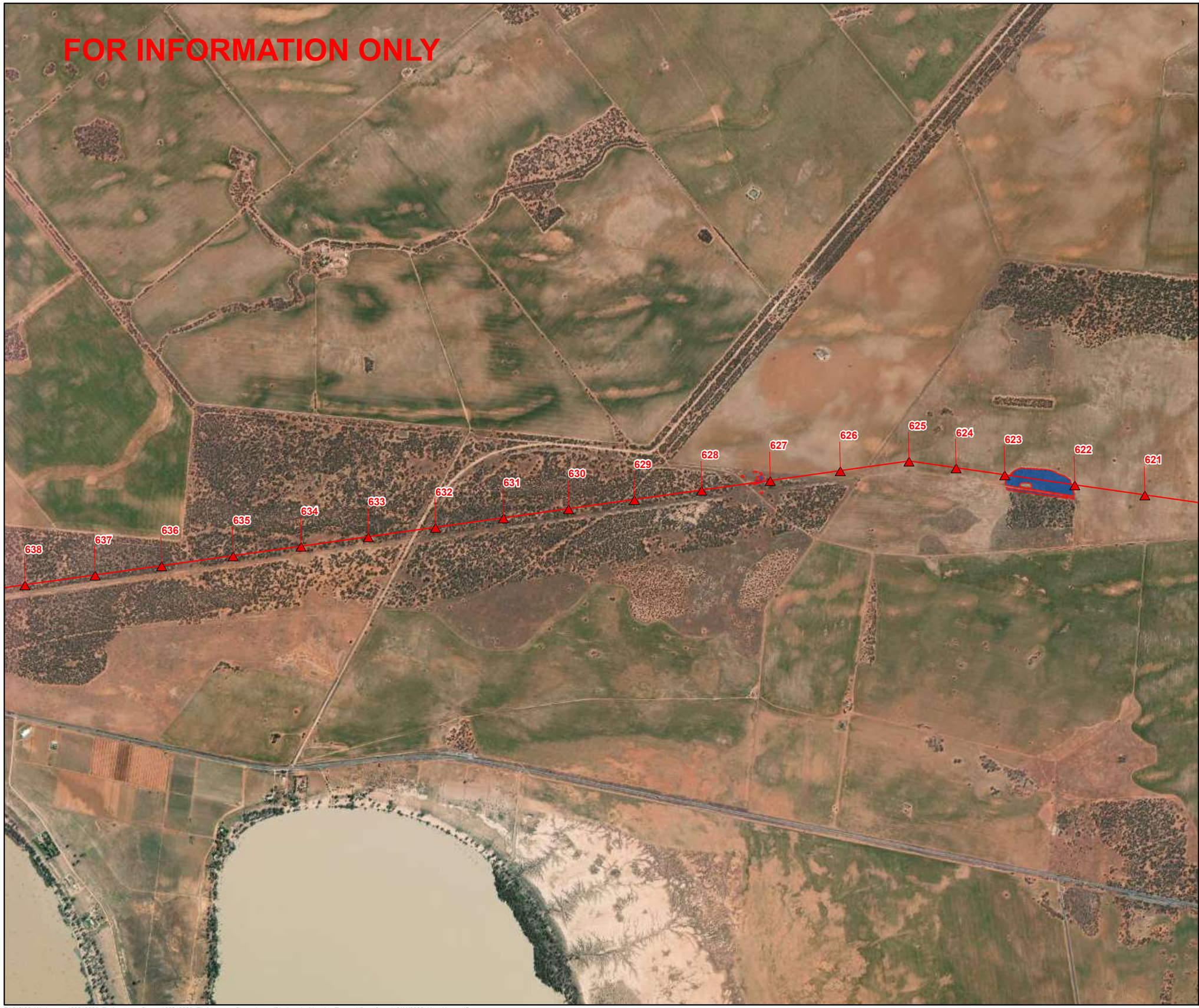
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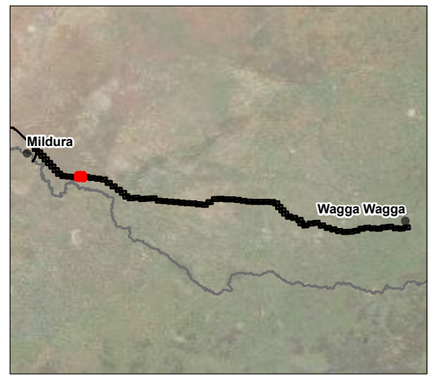
Towers

L2

Threatened Ecological Community

Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions

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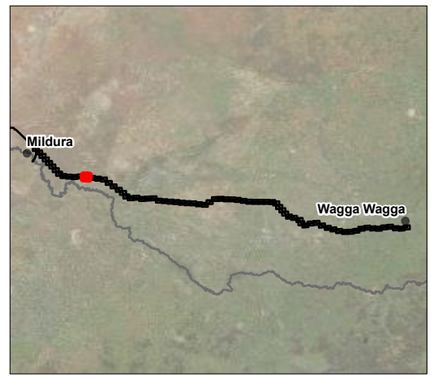
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Towers
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Threatened Ecological Community
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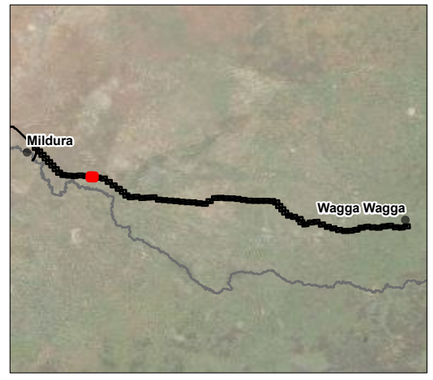
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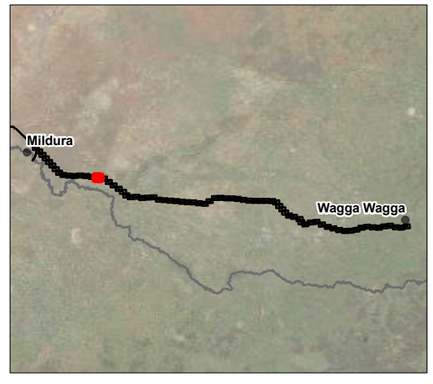
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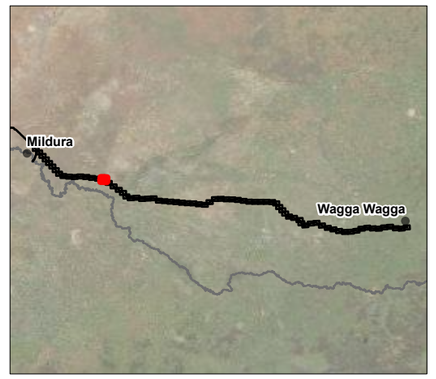
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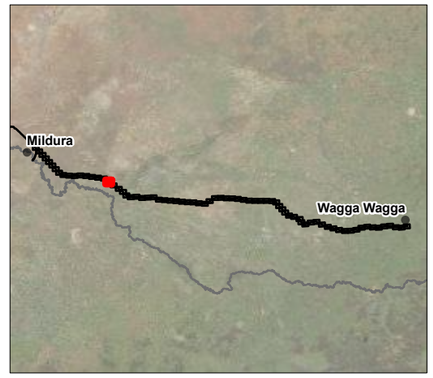
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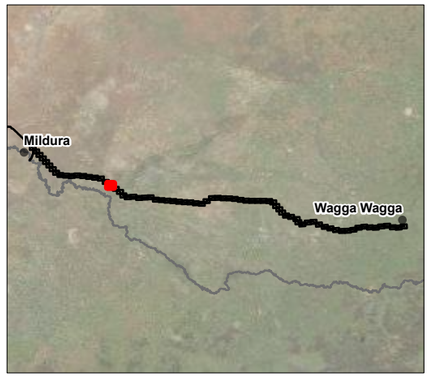
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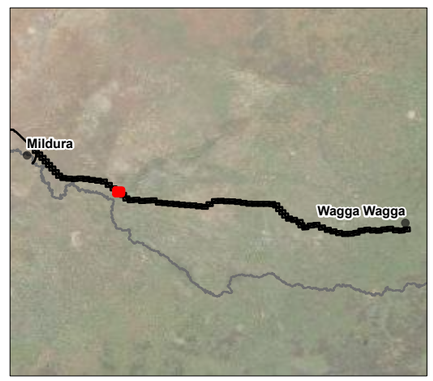
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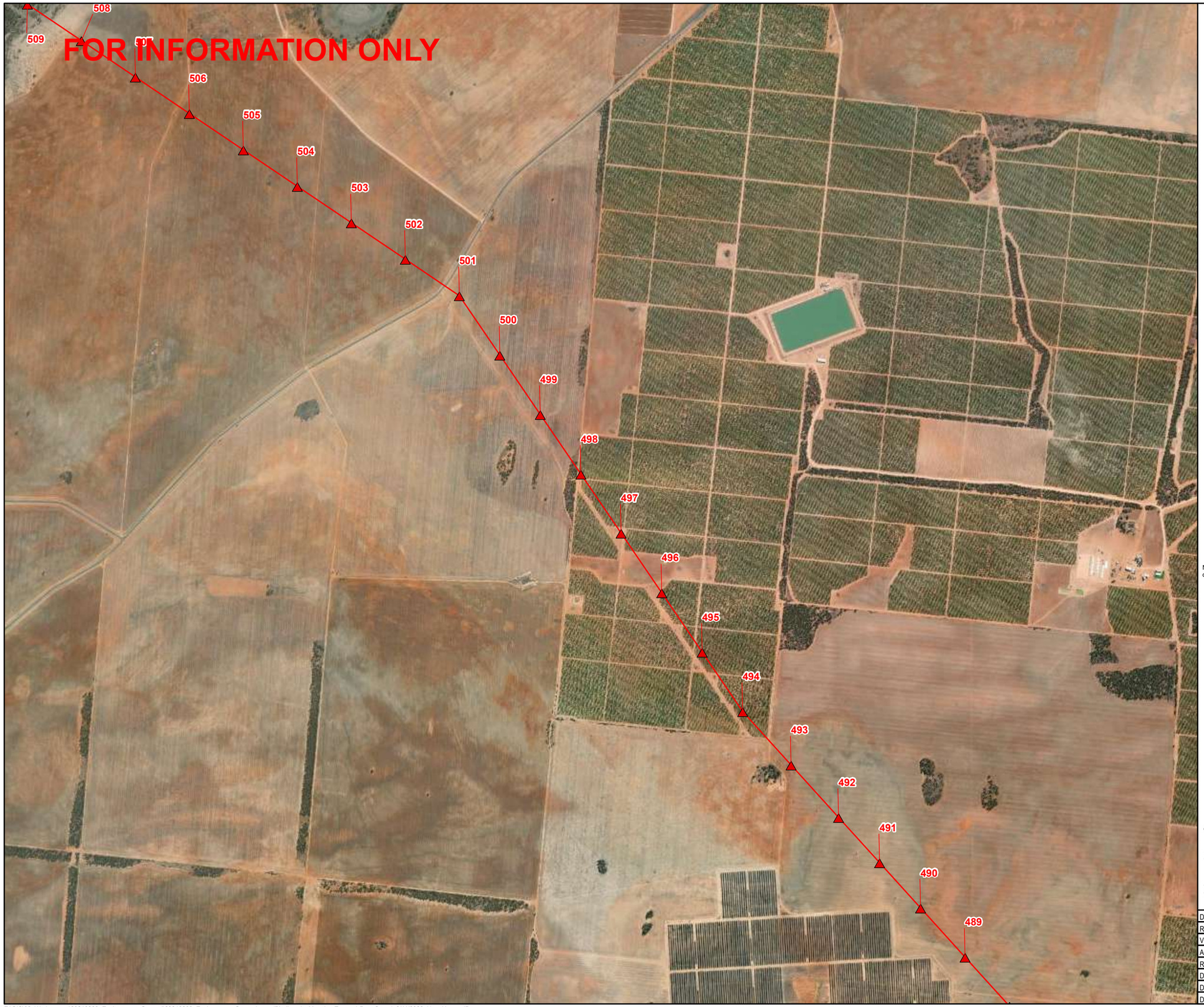
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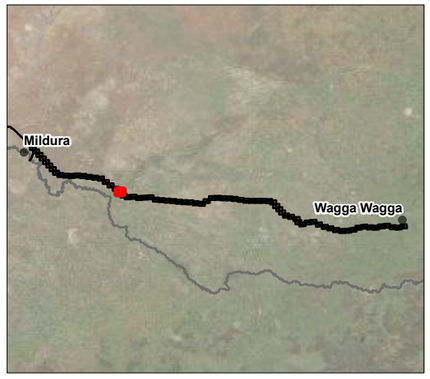
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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

Towers
L2

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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World Imagery: Maxar

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VERIFIED:	
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Biodiversity Mapping Eastern Alignment L2 Map 20 of 74

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CLOUGH ELECNOR JOINT VENTURE

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Towers
L2

Threatened Ecological Community

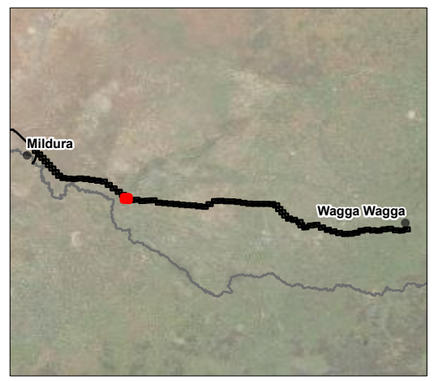
Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions

Allocasuarina luehmanii woodland in the Riverina and Murray-Darling Depression bioregions

Matters of National Significance

Buloke Woodlands of the Riverina and Murray Darling Depression bioregions - Endangered

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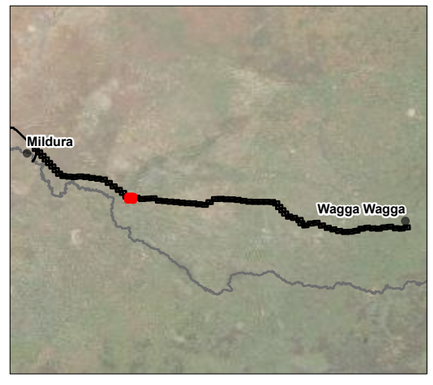
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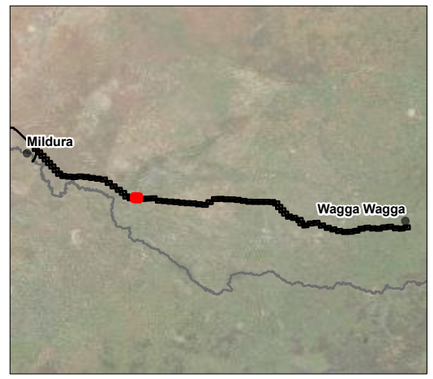
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Towers
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Threatened Ecological Community
Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions

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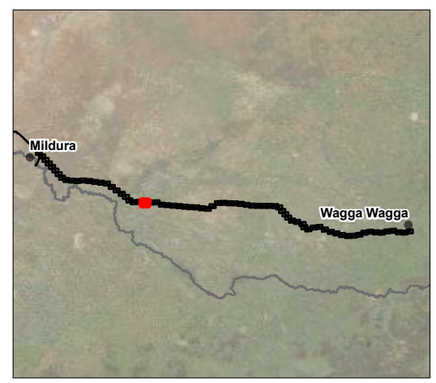
Towers

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Threatened Ecological Community

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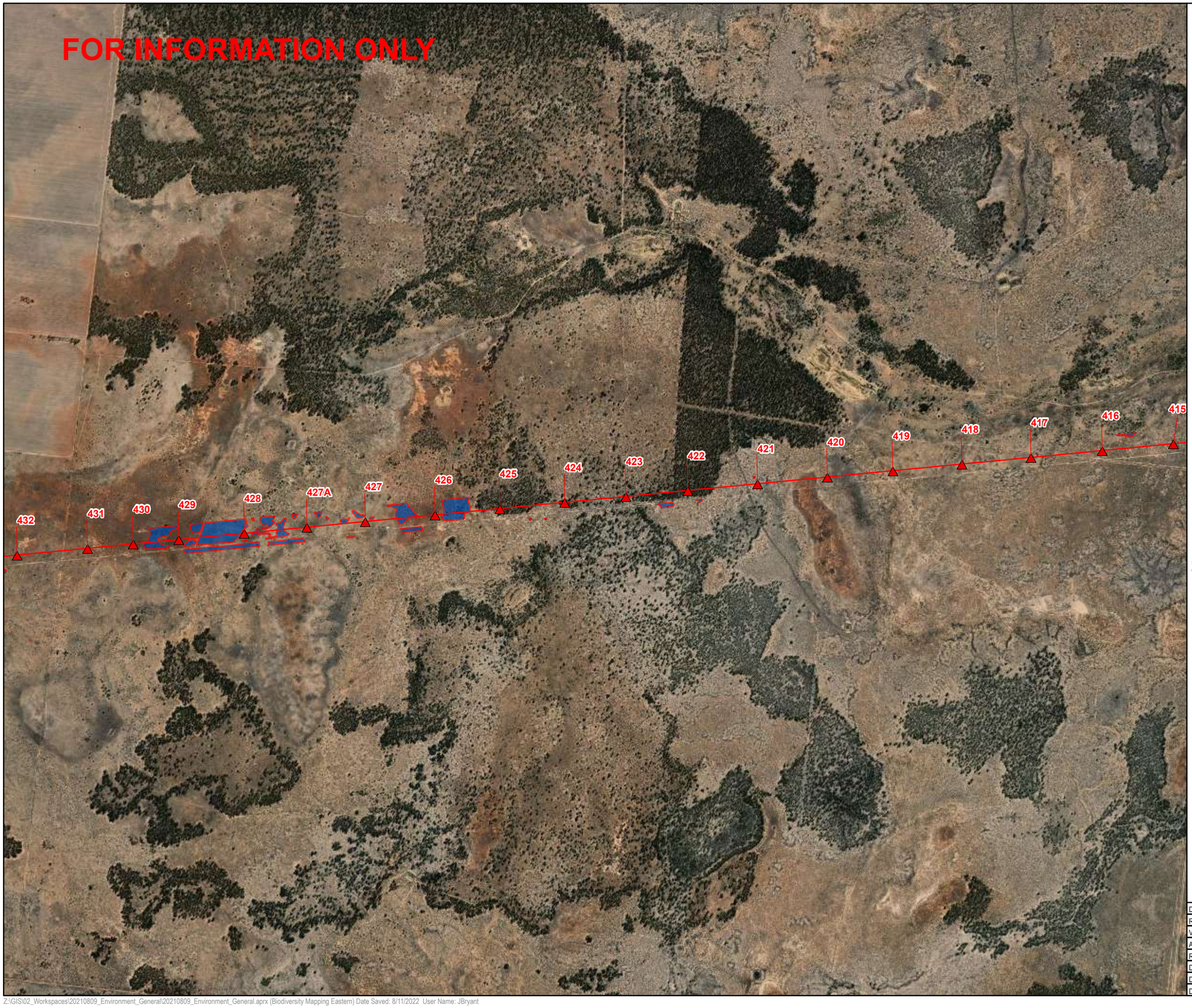
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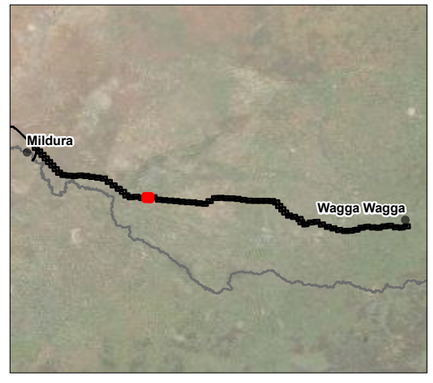
Towers

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Threatened Ecological Community

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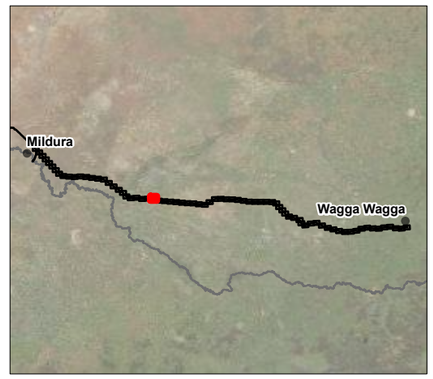
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Towers
L2

Threatened Ecological Community
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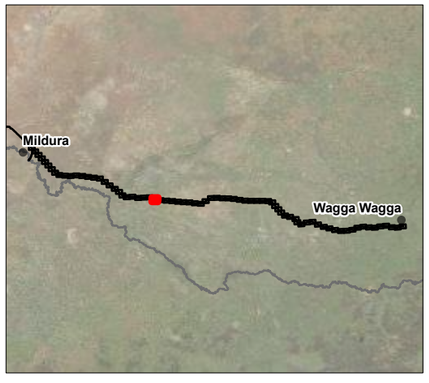
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Scale: 1:25,000 (when printed at A3)

Towers
L2

Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa
Assumed species presence polygon - Maireana cheelii
Assumed species presence polygon - Swainsona murrayana

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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CLOUGH ELECNOR JOINT VENTURE

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Meters

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Towers

L2

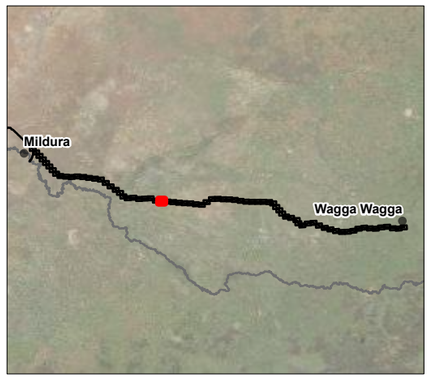
Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa

Assumed species presence polygon - Maireana cheelii

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Biodiversity Mapping Eastern Alignment L2 Map 28 of 74

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Towers

L2

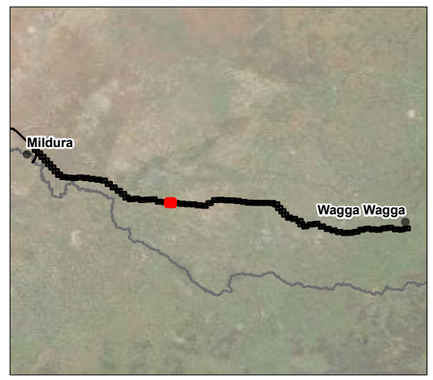
Assumed Flora Species

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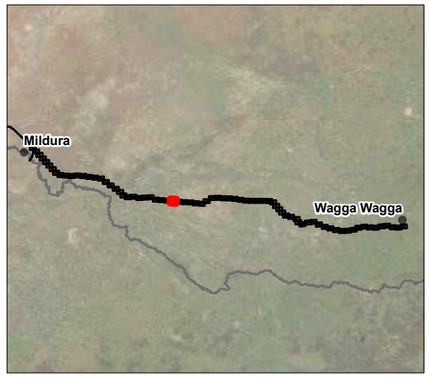
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Towers
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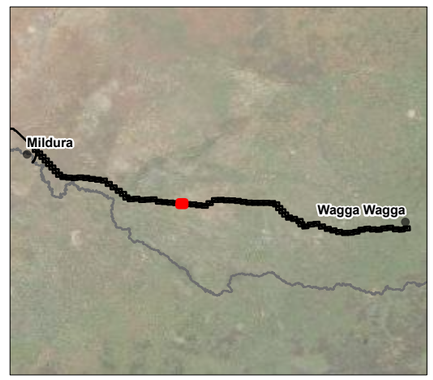
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Meters

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Towers
L2

Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa
Assumed species presence polygon - Maireana cheelii
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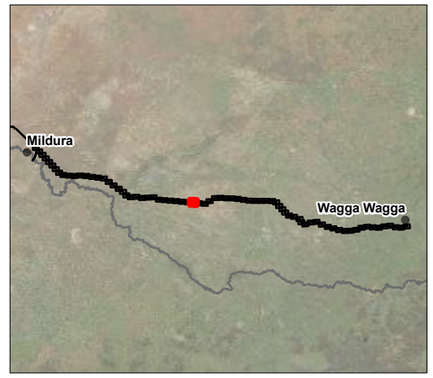
Towers

L2

Assumed Flora Species

- Assumed species presence polygon - Brachyscome papillosa
- Assumed species presence polygon - Maireana cheelii
- Assumed species presence polygon - Calotis Moorei
- Assumed species presence polygon - Swainsona murrayana
- Assumed species presence polygon - Convolvulus Tedmoorei
- Assumed species presence polygon - Austrostipa wakoolica

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Meters

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Towers

L2

Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa

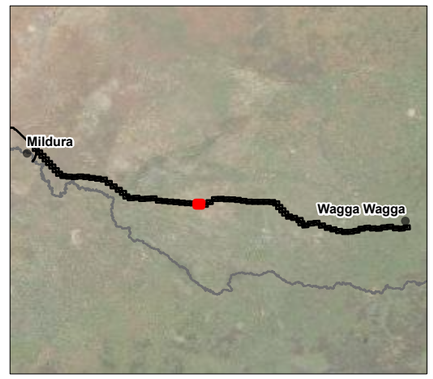
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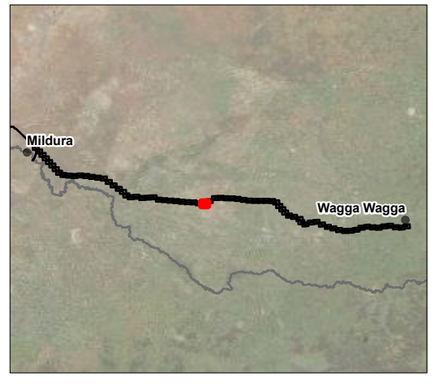
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Towers
L2

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CLOUGH ELECNOR JOINT VENTURE

N

0 375 750 1,500
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

Towers
L2

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

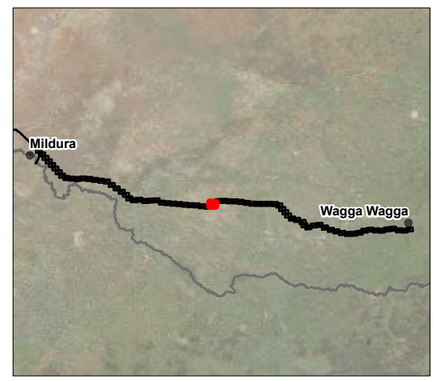
Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa
Assumed species presence polygon - Maireana cheelii
Assumed species presence polygon - Calotis Moorei
Assumed species presence polygon - Swainsona murrayana
Assumed species presence polygon - Convolvulus Tedmoorei
Assumed species presence polygon - Austrostipa wakoolica
Assumed species presence polygon - Caladenia Arenaria
Assumed species presence polygon - Swainsona sericea

Threatened Ecological Community

Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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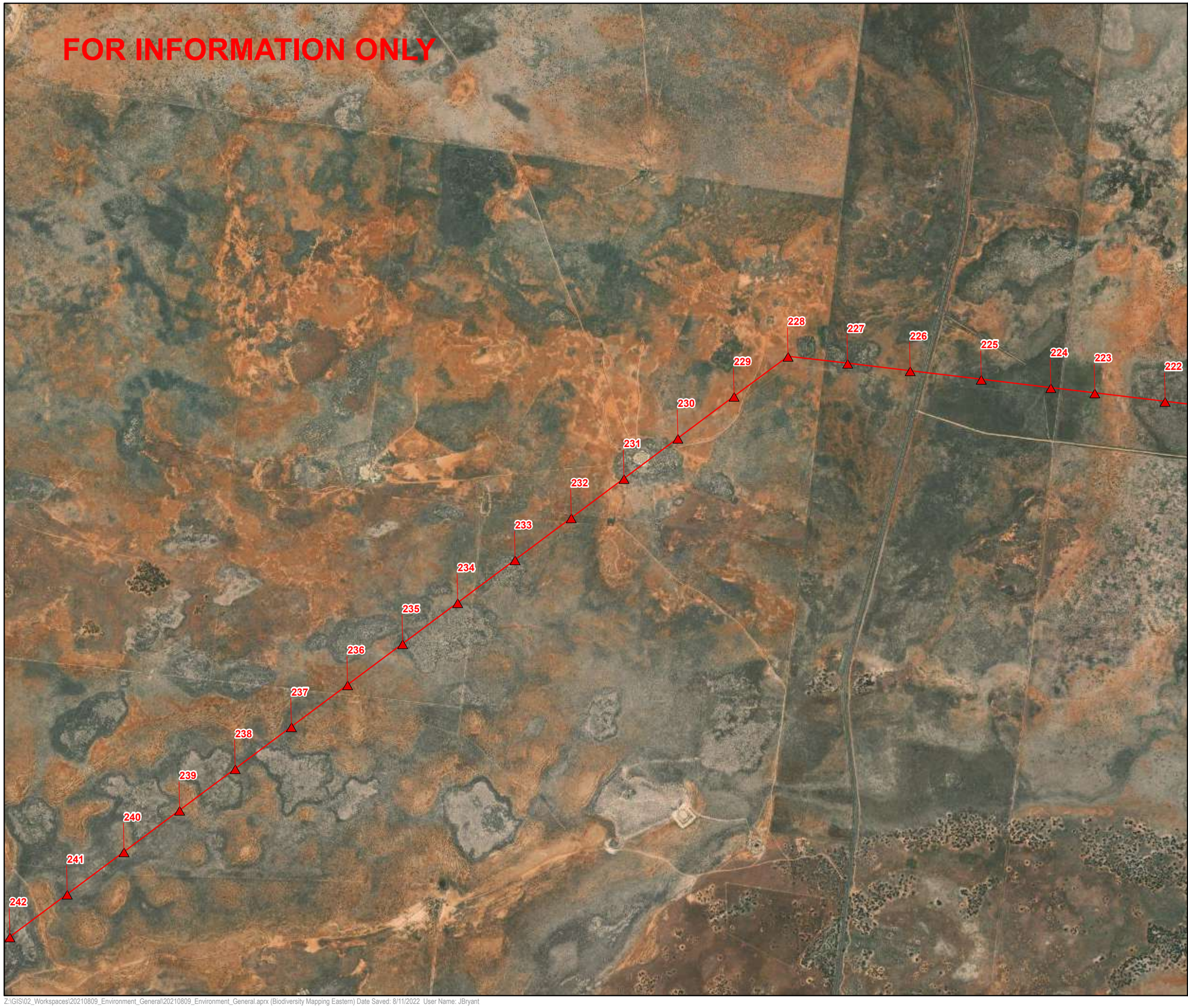
World Imagery: Earthstar Geographics
World Imagery: Maxar

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Biodiversity Mapping Eastern Alignment L2 Map 36 of 74

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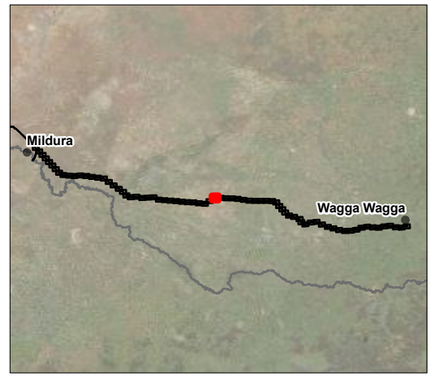
Meters

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Towers

L2

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Biodiversity Mapping Eastern Alignment L2 Map 37 of 74

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CLOUGH ELECNOR JOINT VENTURE

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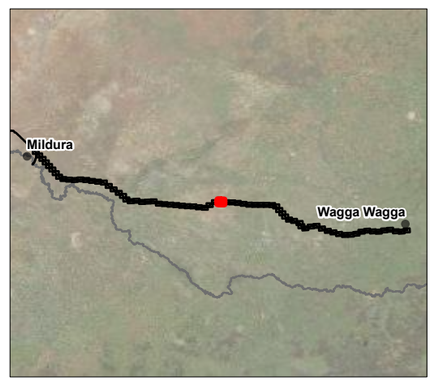
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Towers
L2

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

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Biodiversity Mapping Eastern Alignment L2 Map 38 of 74

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Towers
L2

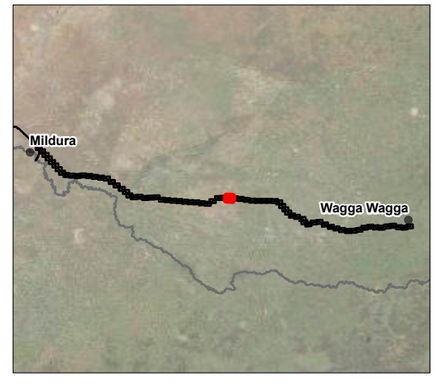
Fauna Threatened Species
Plains-wanderer

Plains Wanderer Important Habitat
Plains Wanderer Important Habitat

Assumed Flora Species
Assumed species presence polygon - Swainsona murrayana

Threatened Ecological Community
Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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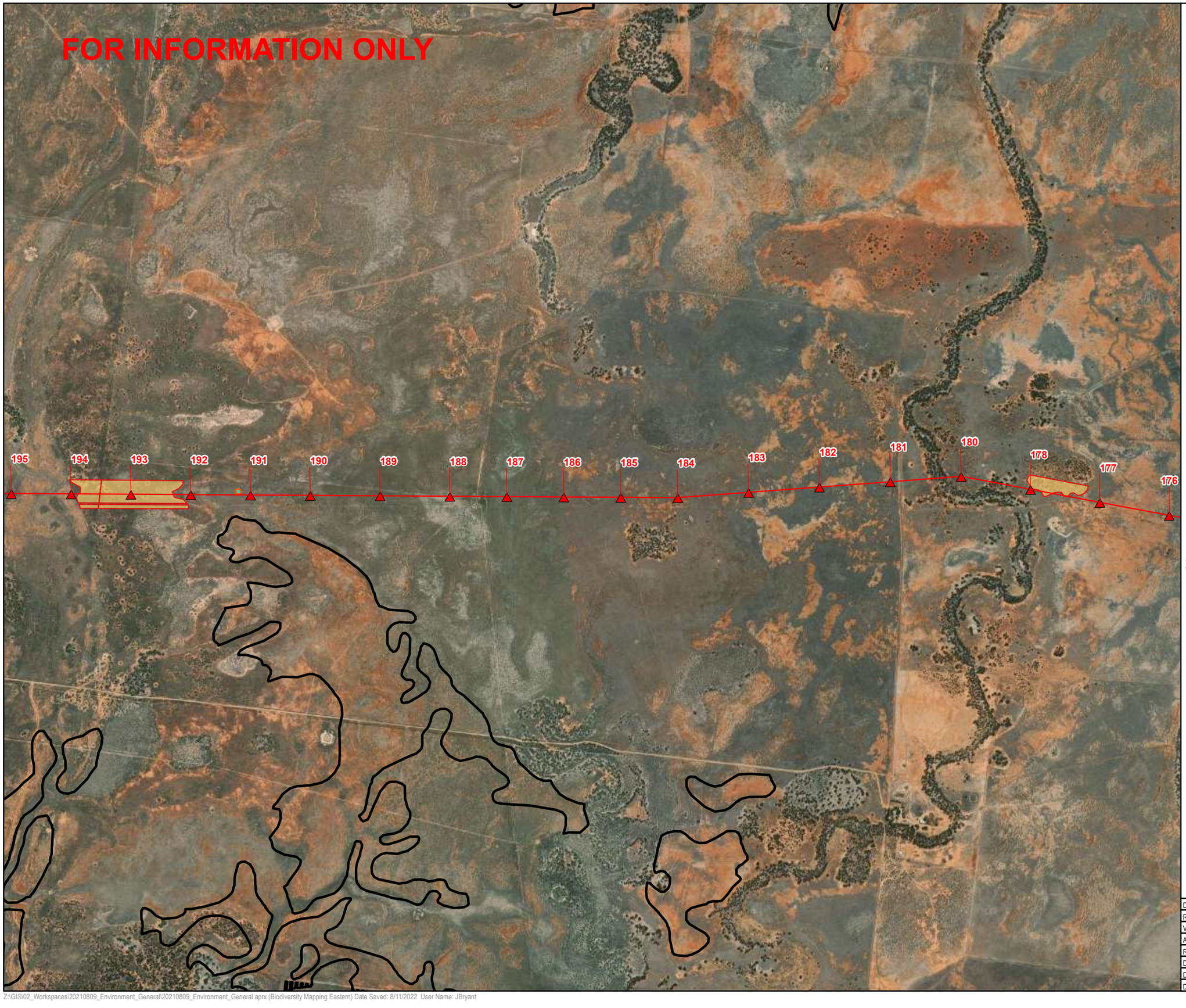
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Meters

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Towers

L2

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Threatened Ecological Community

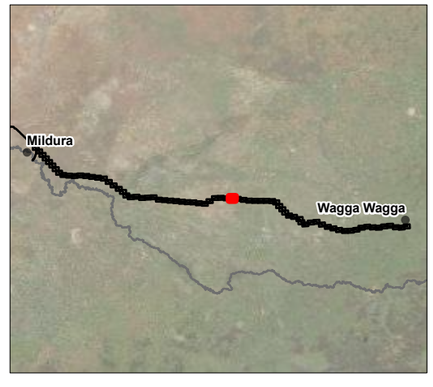
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions

Matters of National Significance

Weeping Myall Woodlands - Endangered

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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Biodiversity Mapping Eastern Alignment L2 Map 40 of 74

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

Towers

L2

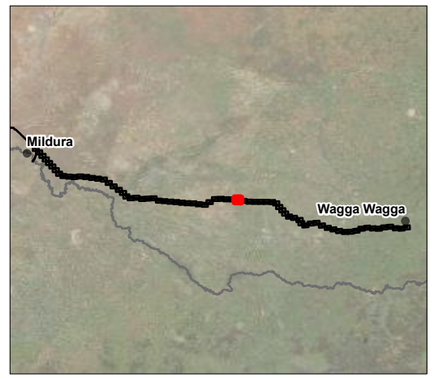
Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Threatened Ecological Community

Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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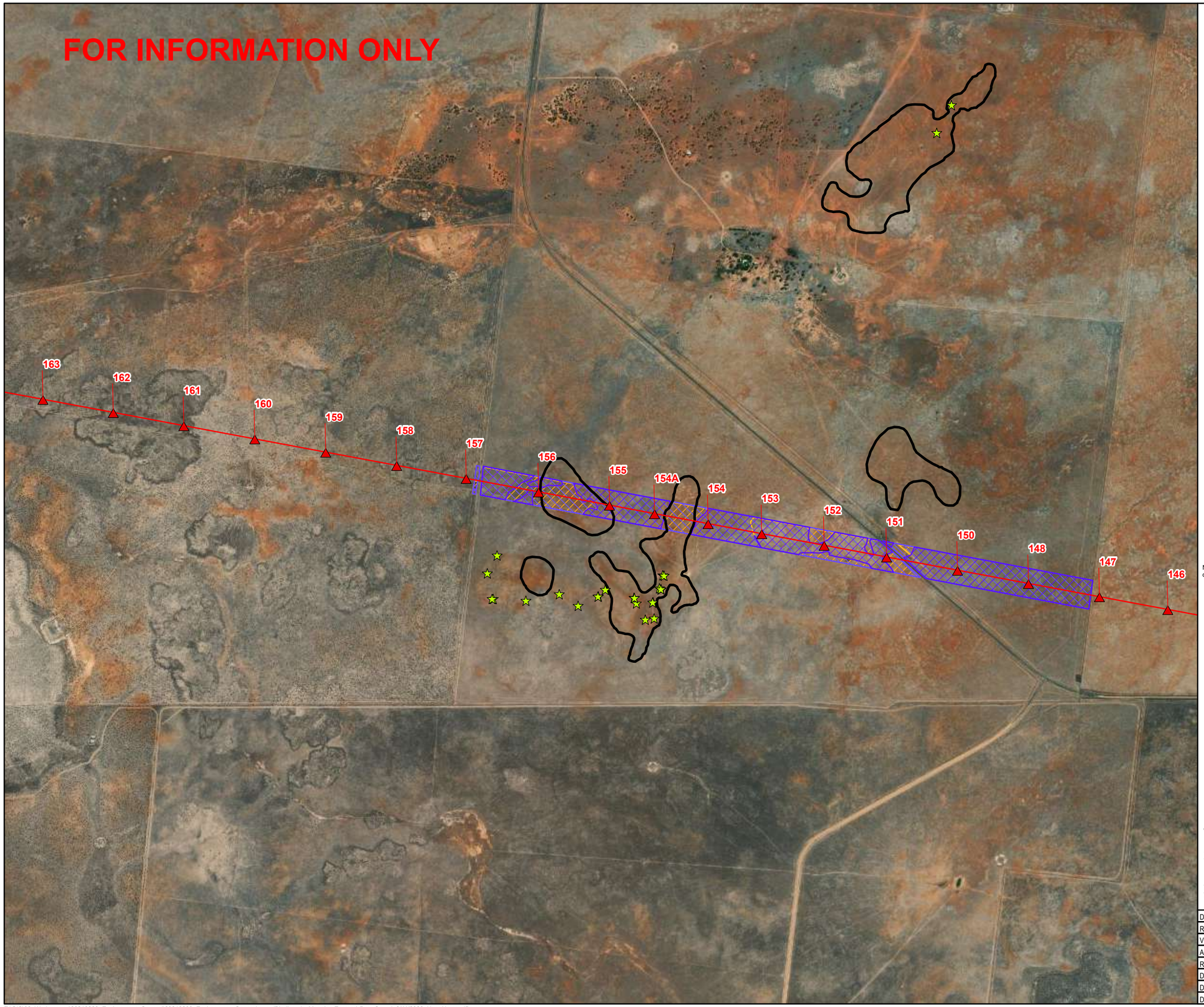
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Biodiversity Mapping Eastern Alignment L2 Map 41 of 74

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0 375 750 1,500
Meters

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Towers

L2

Fauna Threatened Species

Plains-wanderer

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa

Assumed species presence polygon - Maireana cheelii

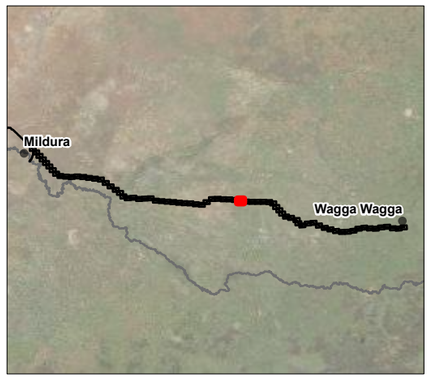
Assumed species presence polygon - Swainsona murrayana

Assumed species presence polygon - Leptorhynchos orientalis

Assumed species presence polygon - Lepidium monoplocoides

Assumed species presence polygon - Swainsona sericea

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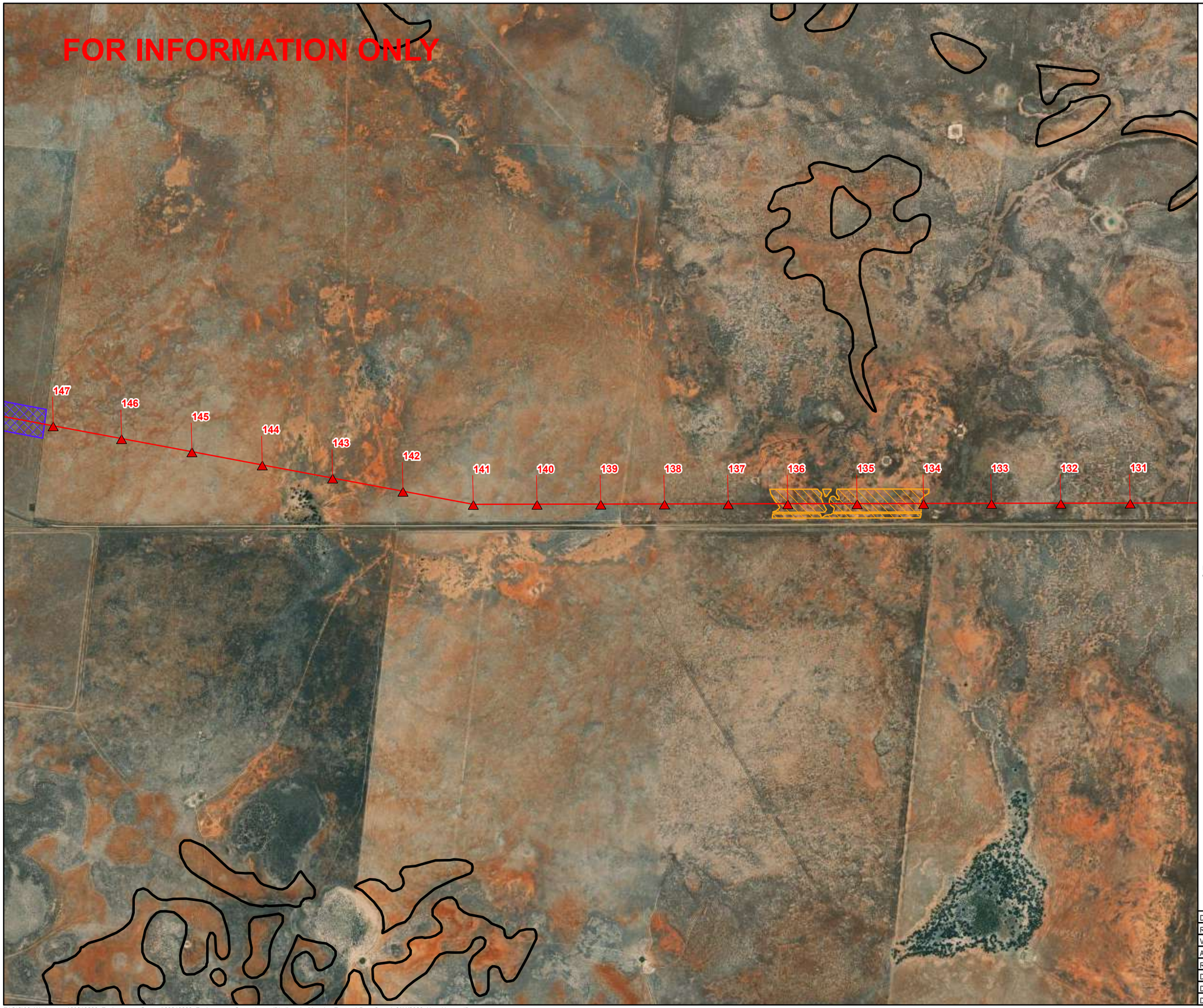
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World Imagery: Maxar

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Meters

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Towers

L2

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Assumed Flora Species

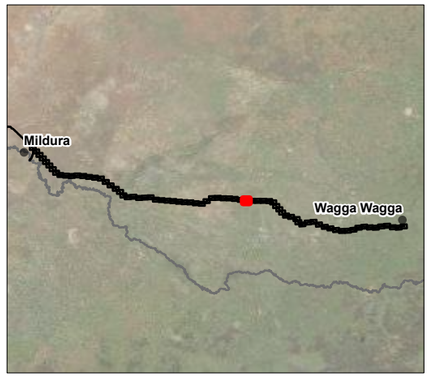
Assumed species presence polygon - Brachyscome papillosa

Assumed species presence polygon - Maireana cheelii

Assumed species presence polygon - Swainsona murrayana

Assumed species presence polygon - Lepidium monoplocoides

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Biodiversity Mapping Eastern Alignment L2 Map 43 of 74

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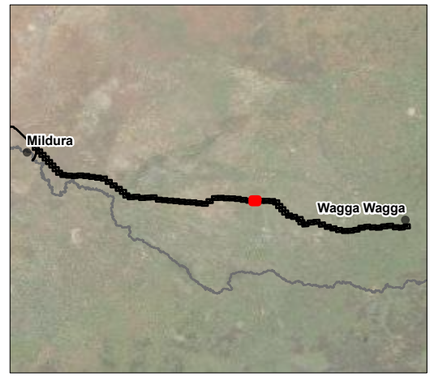
Towers
L2

Fauna Threatened Species
Plains-wanderer

Plains Wanderer Important Habitat
Plains Wanderer Important Habitat

Assumed Flora Species
Assumed species presence polygon - Brachyscome papillosa
Assumed species presence polygon - Maireana cheelii
Assumed species presence polygon - Swainsona murrayana
Assumed species presence polygon - Pilularia novae-hollandiae
Assumed species presence polygon - Lepidium monoplocoides

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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Meters

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Towers

L2

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa

Assumed species presence polygon - Maireana cheelii

Assumed species presence polygon - Swainsona murrayana

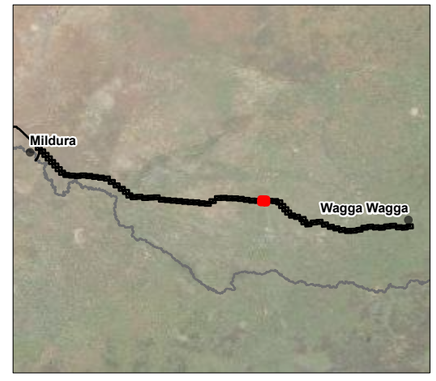
Assumed species presence polygon - Pilularia novae-hollandiae

Assumed species presence polygon - Lepidium monoplocoides

Threatened Ecological Community

Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

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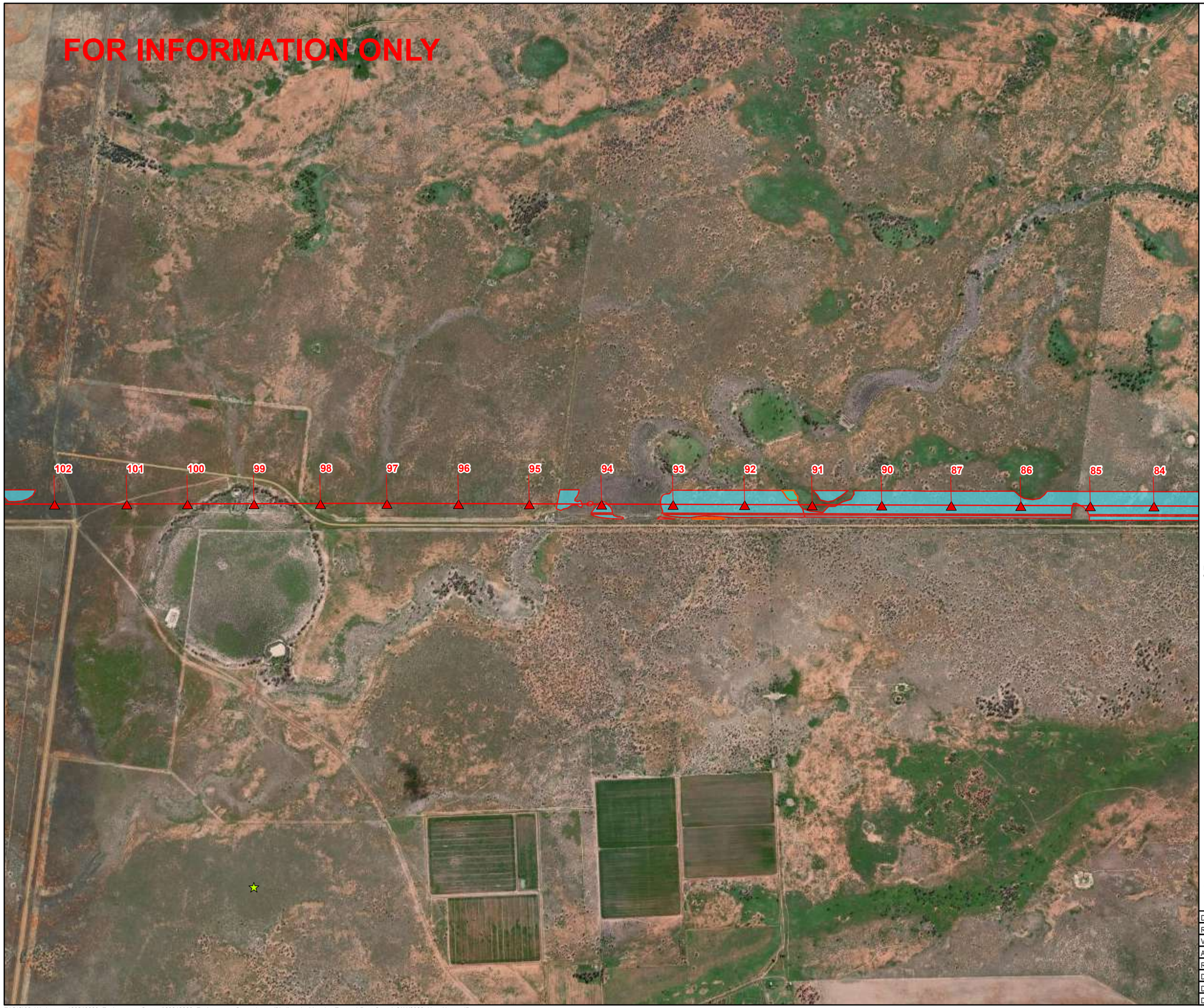
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0 375 750 1,500
Meters

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Towers

L2

Fauna Threatened Species

Plains-wanderer

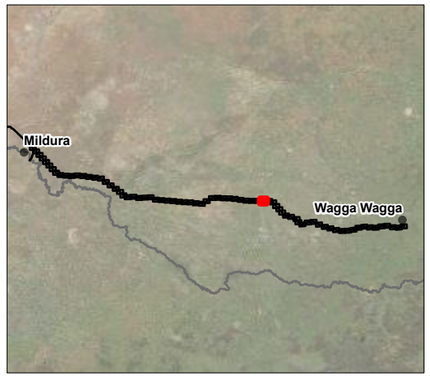
Threatened Ecological Community

Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Matters of National Significance

Weeping Myall Woodlands - Endangered

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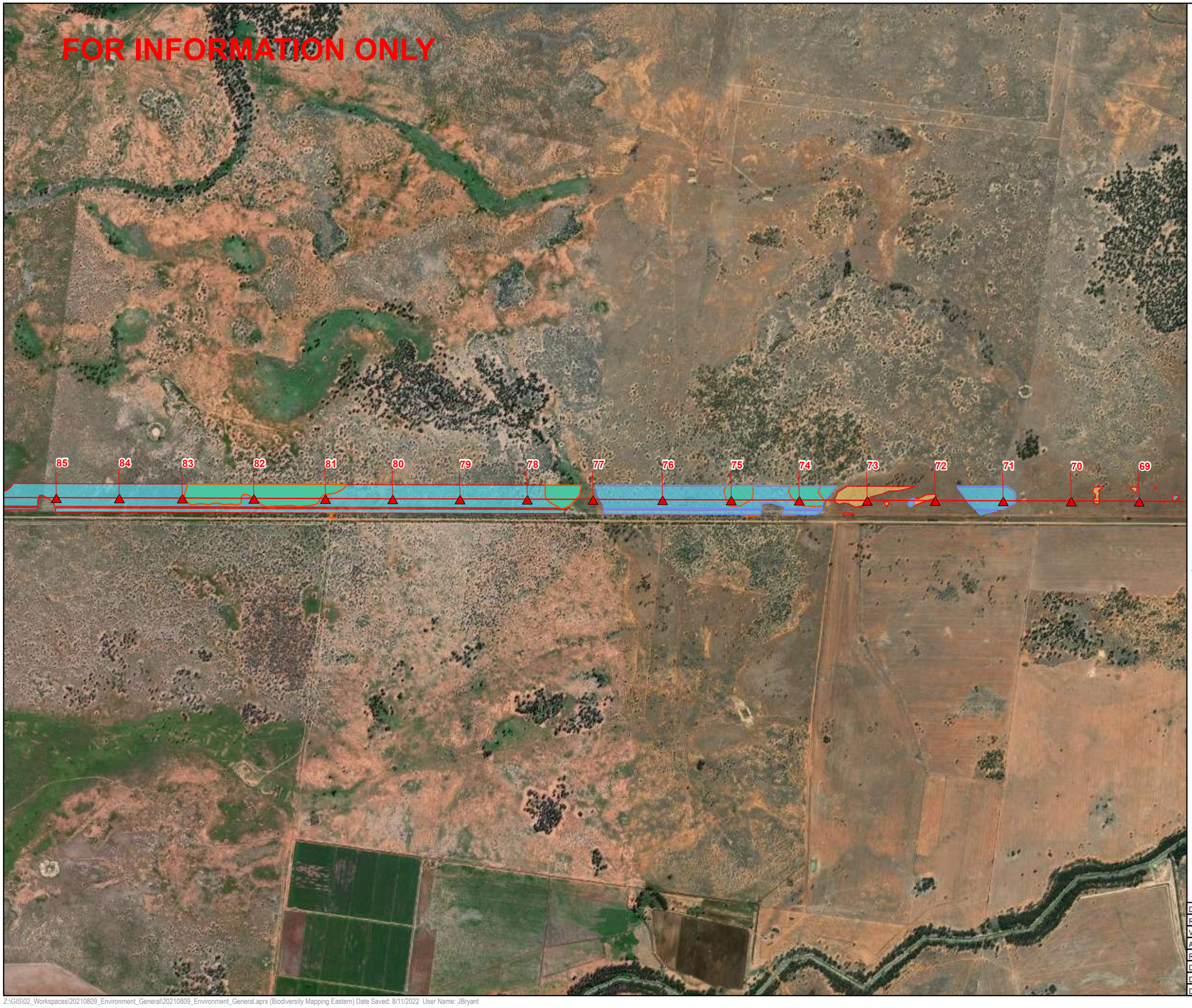
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Biodiversity Mapping Eastern Alignment L2 Map 46 of 74

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Meters

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Towers

L2

Assumed Flora Species

Assumed species presence polygon - Swainsona murrayana

Threatened Ecological Community

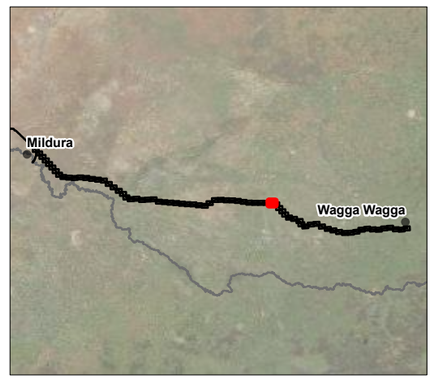
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions

Matters of National Significance

Weeping Myall Woodlands - Endangered

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

Towers

L2

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Assumed Flora Species

Assumed species presence polygon - Swainsona murrayana

Threatened Ecological Community

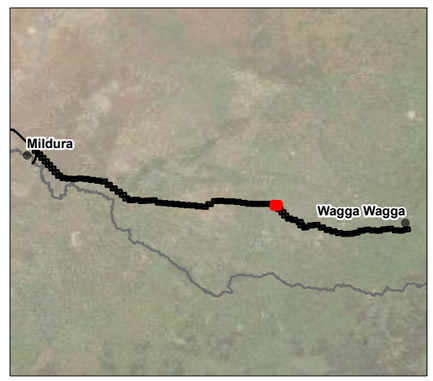
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Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions

Matters of National Significance

Weeping Myall Woodlands - Endangered

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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Biodiversity Mapping Eastern Alignment L2 Map 48 of 74

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CLOUGH ELECNOR JOINT VENTURE

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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

Towers
L2

Threatened Ecological Community

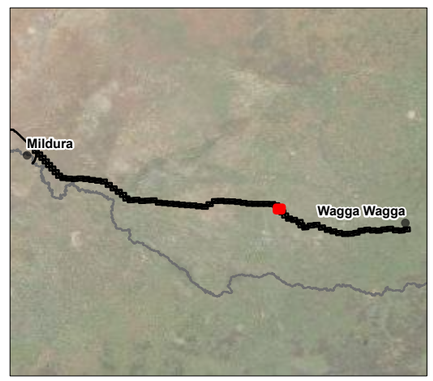
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions

Matters of National Significance

Weeping Myall Woodlands - Endangered

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Biodiversity Mapping Eastern Alignment L2 Map 49 of 74

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CLOUGH ELECNOR JOINT VENTURE

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Towers
L2

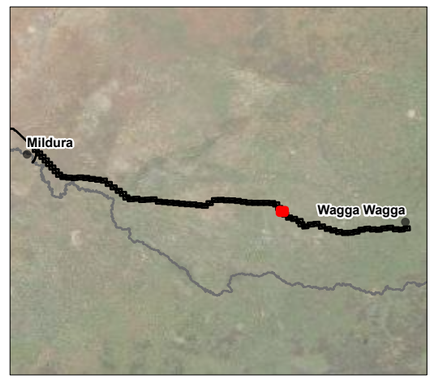
Plains Wanderer Important Habitat
Plains Wanderer Important Habitat

Assumed Flora Species
Assumed species presence polygon - Cullen parvum

Threatened Ecological Community
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions
Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions

Matters of National Significance
Weeping Myall Woodlands - Endangered

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Biodiversity Mapping Eastern Alignment L2 Map 50 of 74

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CLOUGH ELECNOR JOINT VENTURE

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Datum: GDA2020 Projection: New South Wales Lambert
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Towers
L2

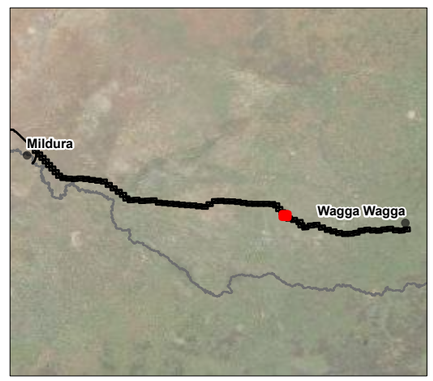
Plains Wanderer Important Habitat
Plains Wanderer Important Habitat

Assumed Flora Species
Assumed species presence polygon - Cullen parvum

Threatened Ecological Community
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Matters of National Significance
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains – Critically Endangered
Weeping Myall Woodlands - Endangered

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Biodiversity Mapping Eastern Alignment L2 Map 51 of 74

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Datum: GDA2020 Projection: New South Wales Lambert
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- Towers
- L2
- L5

Assumed Flora Species

- Assumed species presence polygon - Austrostipa wakoolica
- Assumed species presence polygon - Leptorhynchos orientalis
- Assumed species presence polygon - Cullen parvum
- Assumed species presence polygon - Swainsona sericea

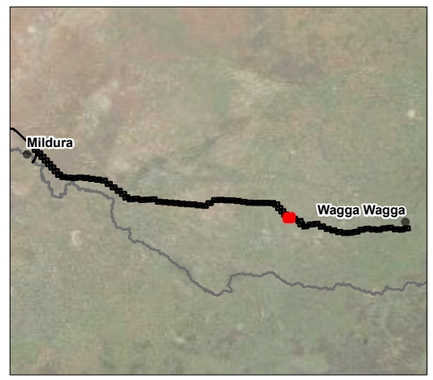
Threatened Ecological Community

- Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Matters of National Significance

- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains – Critically Endangered
- Weeping Myall Woodlands - Endangered

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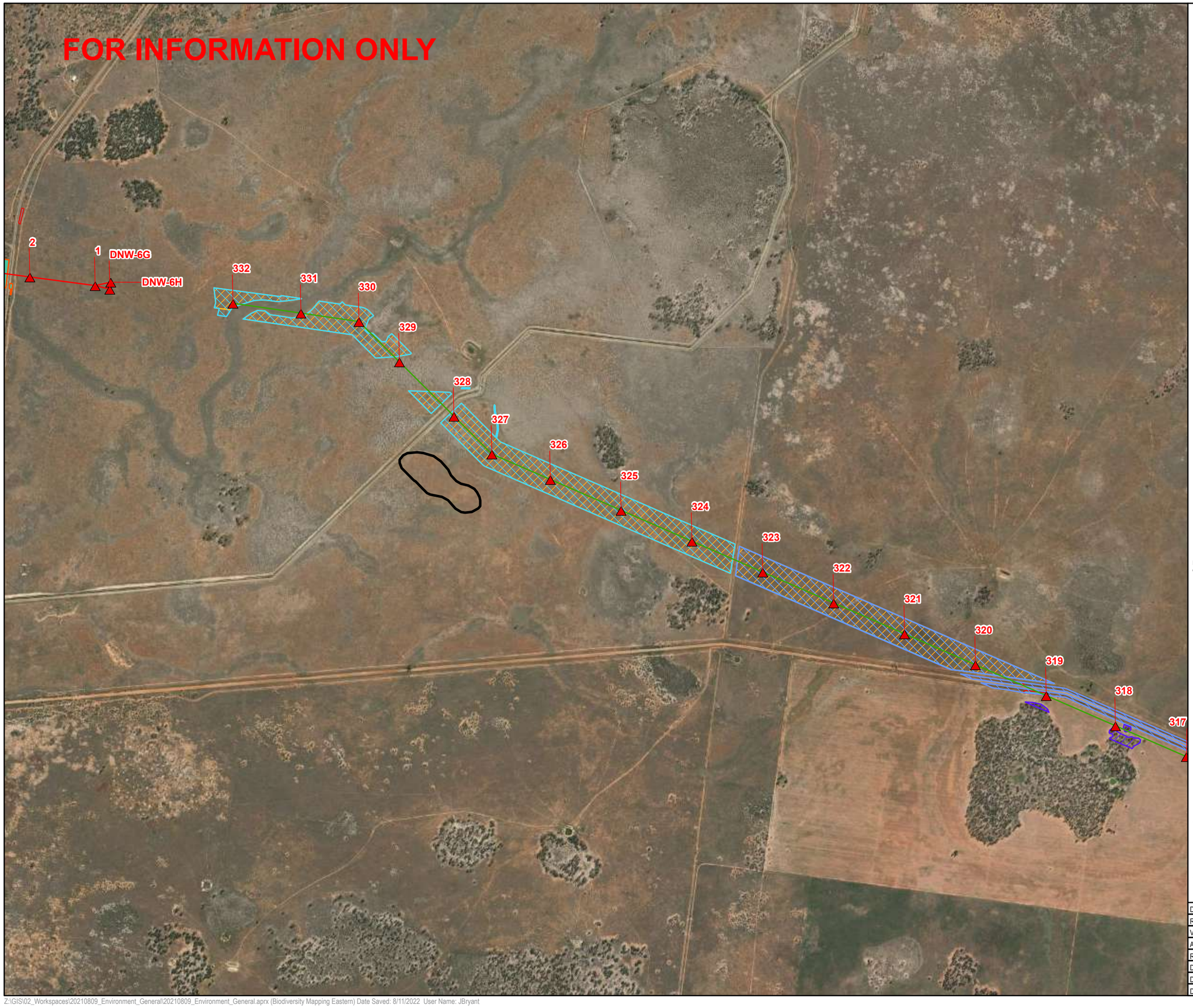
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Biodiversity Mapping Eastern Alignment L2 Map 52 of 74

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Meters

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- Towers
- L2
- L5

Plains Wanderer Important Habitat

- Plains Wanderer Important Habitat

Assumed Flora Species

- Assumed species presence polygon - Brachyscome papillosa
- Assumed species presence polygon - Swainsona murrayana
- Assumed species presence polygon - Austrostipa wakoolica
- Assumed species presence polygon - Leptorhynchos orientalis
- Assumed species presence polygon - Swainsona sericea

Threatened Ecological Community

- Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Matters of National Significance

- Weeping Myall Woodlands - Endangered

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Biodiversity Mapping Eastern Alignment L5 Map 53 of 74

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Towers

L5

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa

Assumed species presence polygon - Swainsona murrayana

Assumed species presence polygon - Austrostipa wakoolica

Assumed species presence polygon - Pilularia novae-hollandiae

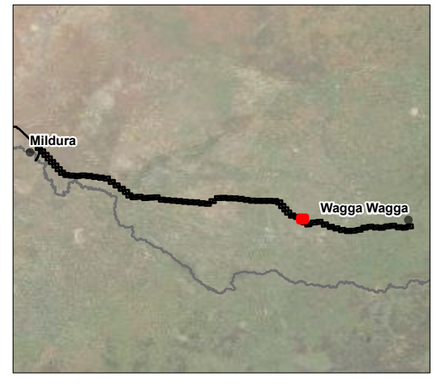
Assumed species presence polygon - Leptorhynchos orientalis

Assumed species presence polygon - Swainsona sericea

Threatened Ecological Community

Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

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Towers
L5

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

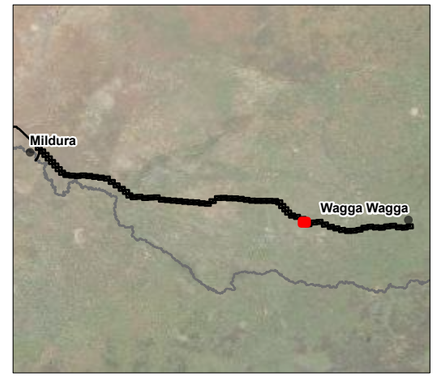
Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa
Assumed species presence polygon - Swainsona murrayana
Assumed species presence polygon - Austrostipa wakoolica
Assumed species presence polygon - Pilularia novae-hollandiae
Assumed species presence polygon - Leptorhynchos orientalis
Assumed species presence polygon - Cullen parvum
Assumed species presence polygon - Swainsona sericea

Threatened Ecological Community

Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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Towers

L5

Fauna Threatened Species

Plains-wanderer

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Assumed Flora Species

Assumed species presence polygon - Brachyscome papillosa

Assumed species presence polygon - Swainsona murrayana

Assumed species presence polygon - Cullen parvum

Threatened Ecological Community

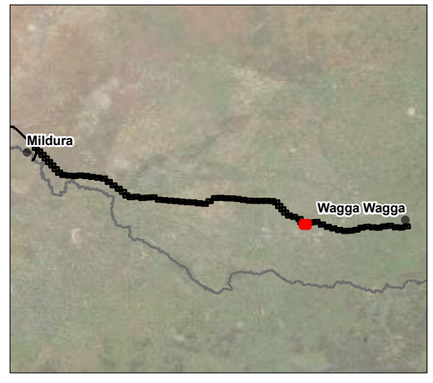
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Matters of National Significance

Natural Grasslands of the Murray Valley Plains – Critically Endangered

Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains – Critically Endangered

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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Datum: GDA2020 Projection: New South Wales Lambert
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Towers

L5

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Assumed Flora Species

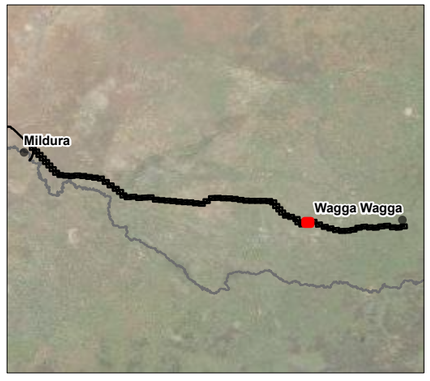
Assumed species presence polygon - Cullen parvum

Matters of National Significance

Natural Grasslands of the Murray Valley Plains – Critically Endangered

Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains – Critically Endangered

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Towers

L5

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Assumed Flora Species

Assumed species presence polygon - Cullen parvum

Threatened Ecological Community

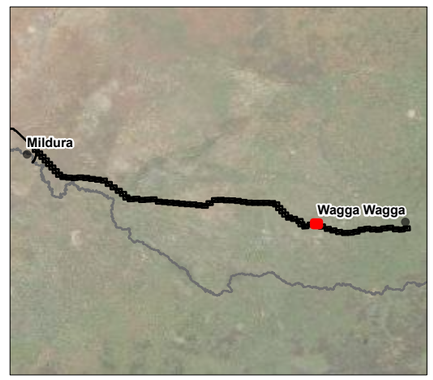
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions

Matters of National Significance

Natural Grasslands of the Murray Valley Plains – Critically Endangered

Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains – Critically Endangered

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Biodiversity Mapping Eastern Alignment L5 Map 58 of 74

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Towers

L5

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

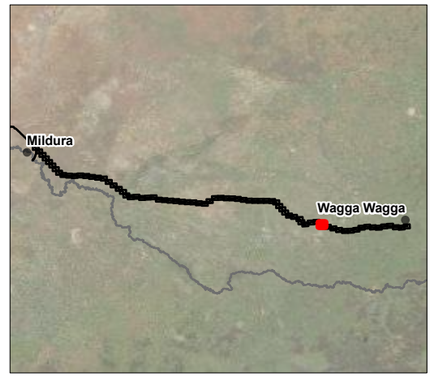
Assumed Flora Species

Assumed species presence polygon - Cullen parvum

Matters of National Significance

Natural Grasslands of the Murray Valley Plains – Critically Endangered

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Datum: GDA2020 Projection: New South Wales Lambert
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Towers

L5

Plains Wanderer Important Habitat

Plains Wanderer Important Habitat

Assumed Flora Species

Assumed species presence polygon - Cullen parvum

Threatened Ecological Community

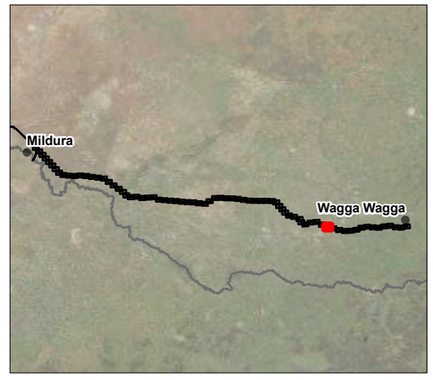
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Matters of National Significance

Natural Grasslands of the Murray Valley Plains – Critically Endangered

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered

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Meters

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Towers

L5

Threatened Ecological Community

Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions

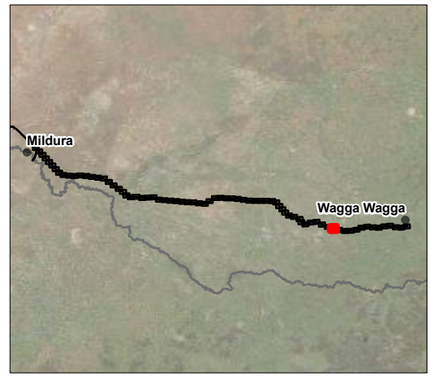
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Matters of National Significance

Grey Box (E. microcarpa) Grassy Woodlands and derived native grasslands of South-eastern Australia

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered

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Biodiversity Mapping Eastern Alignment L5 Map 61 of 74

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Datum: GDA2020 Projection: New South Wales Lambert
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Towers

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Threatened Ecological Community

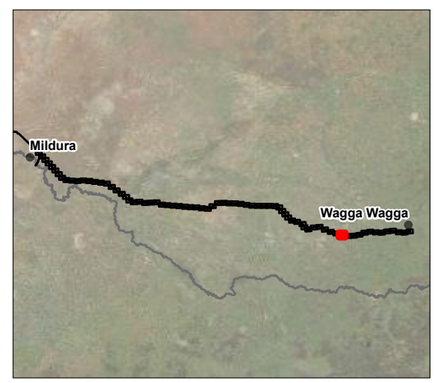
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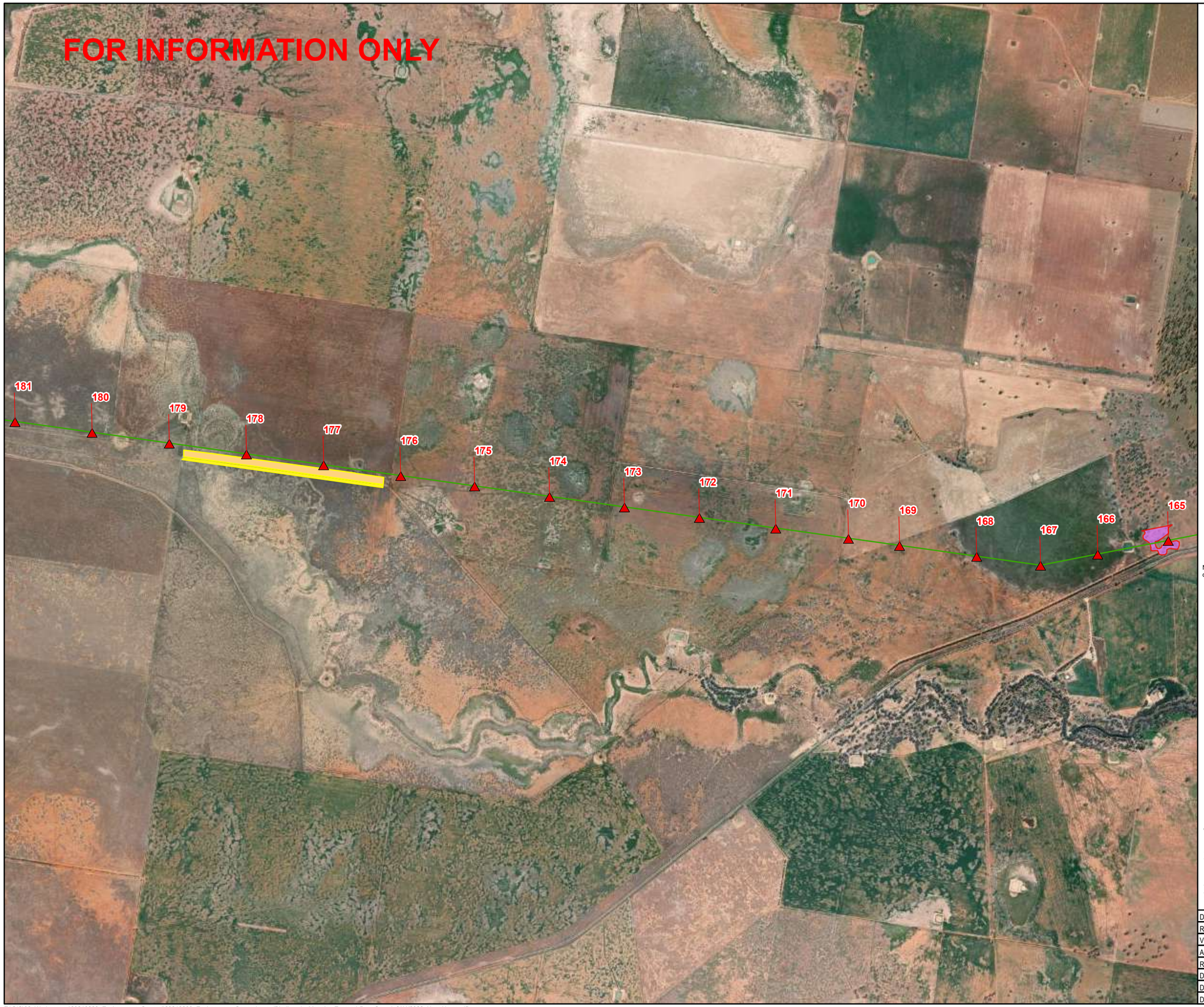
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Towers

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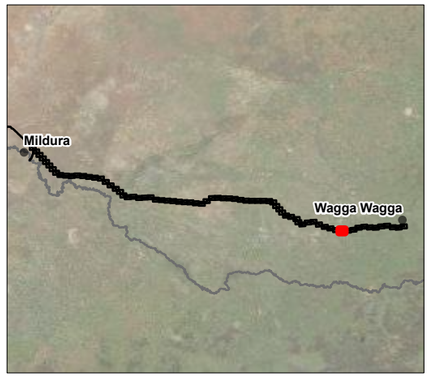
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Matters of National Significance

Natural Grasslands of the Murray Valley Plains – Critically Endangered

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Threatened Ecological Community

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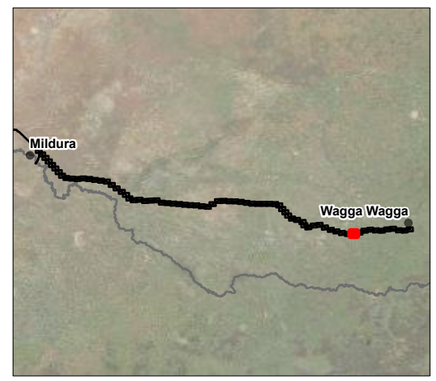
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Matters of National Significance

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Towers

L5

Assumed Flora Species

Assumed species presence polygon - Cullen parvum

Threatened Ecological Community

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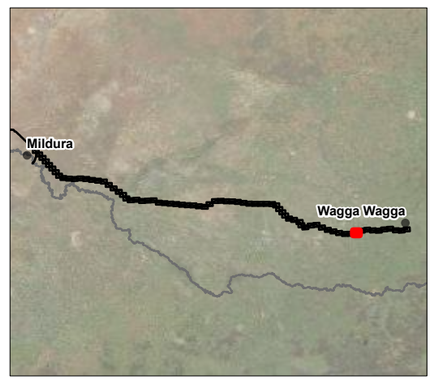
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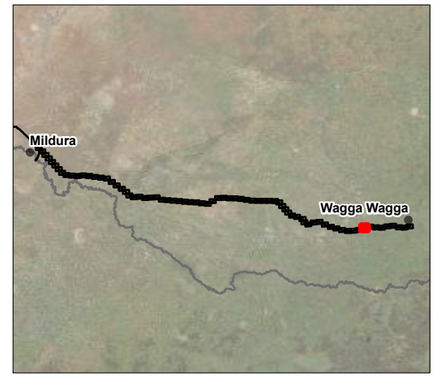
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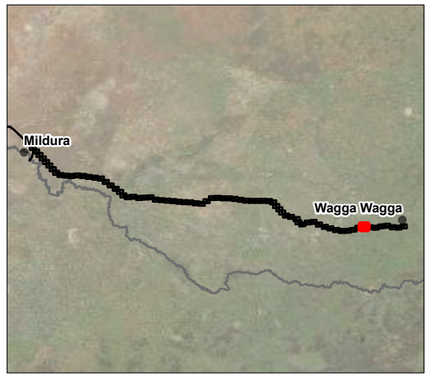
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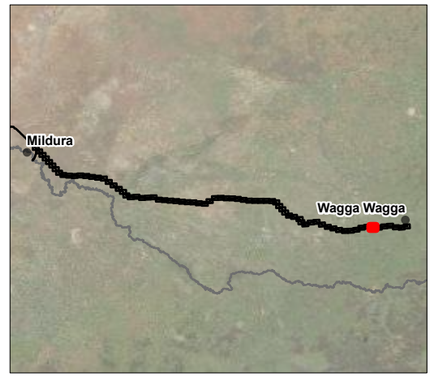
Threatened Ecological Community

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Matters of National Significance

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Meters

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Towers

L5

Assumed Flora Species

Assumed species presence polygon - Cullen parvum

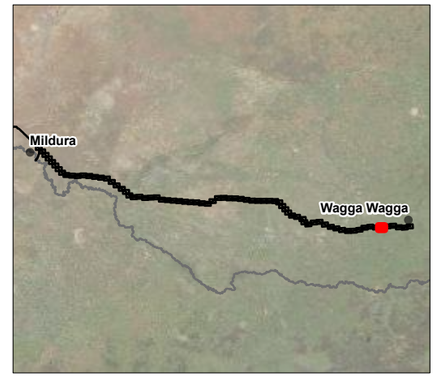
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Towers

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Assumed Flora Species

Assumed species presence polygon - Cullen parvum

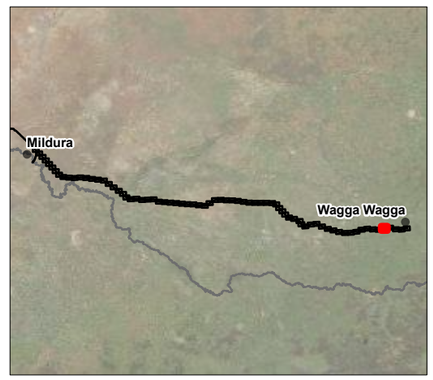
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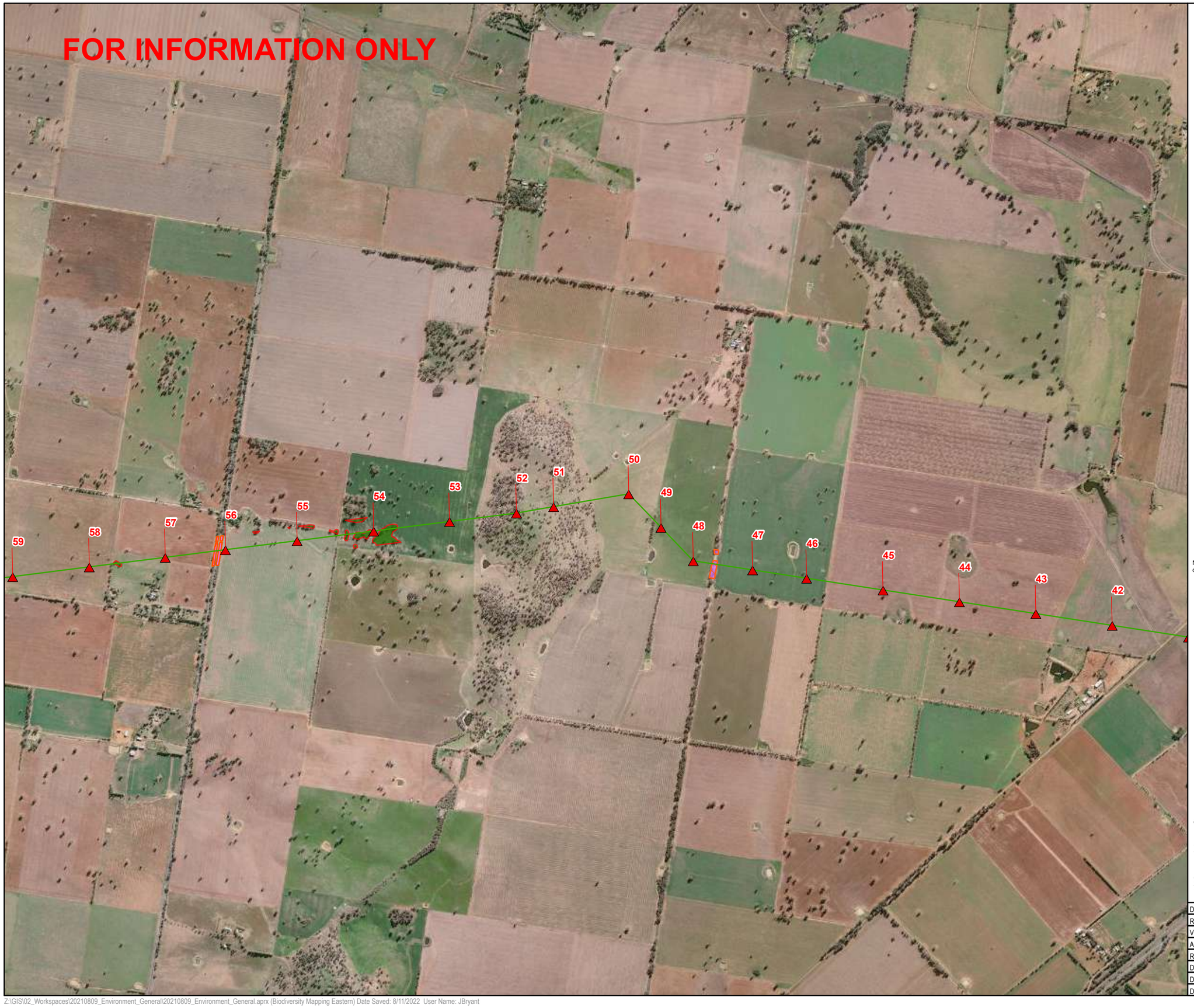
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Towers

L5

Assumed Flora Species

Assumed species presence polygon - Cullen parvum

Threatened Ecological Community

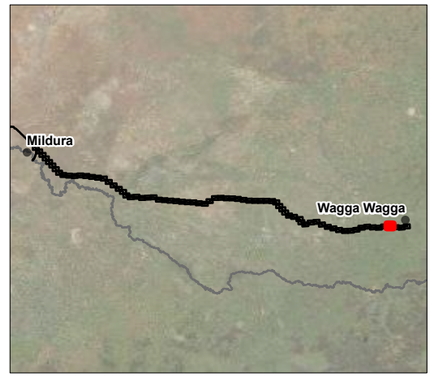
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Towers

L5

Assumed Flora Species

Assumed species presence polygon - Cullen parvum

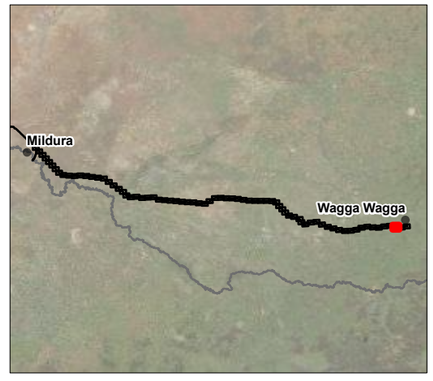
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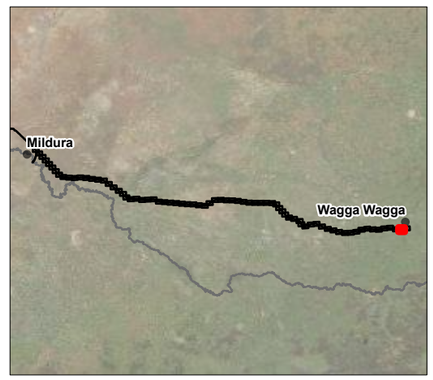
Towers
L5

Assumed Flora Species
Assumed species presence polygon - Cullen parvum

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

Towers

L5

Assumed Flora Species

Assumed species presence polygon - Cullen parvum

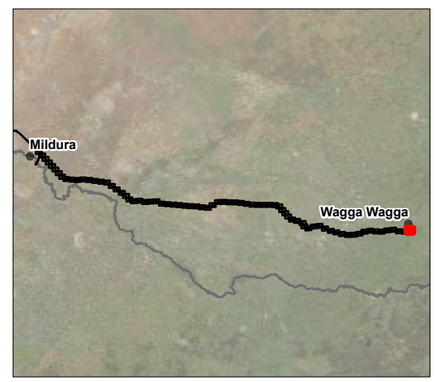
Threatened Ecological Community

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Matters of National Significance

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered

Note: Tower location and footprint are indicative and may be subject to change during the detail design stage.



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Biodiversity Mapping Eastern Alignment L5 Map 74 of 74

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Appendix F – Plains-wanderer Protocol

PUBLIC

Plains-wanderer Protocol
EnergyConnect (NSW – Eastern Section)
Stage 2

45860-HSE-PL-D-0135

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	07/10/2022	Issued for internal review	K.Baxter	A.Kriegel	A.Boyd	B.Calligeros	S.Basanta
B	28/10/2022	Issued for Transgrid review	K.Baxter	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
C	17/11/2022	Issued for agency review	K.Baxter	R.Walker-Edwards	G.Crighton	B.Calligeros	S.Basanta
D	3/02/2023	Issued for agency review	R.Walker-Edwards	C.Curlewis	G.Crighton	B.Calligeros	S.Basanta
E	14/03/2023	Issued for DPE review	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued for Transgrid review
C	Issued for agency review
D	Revised to address agency comments
E	Issued for DPE review

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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1 Introduction

This Plains-wanderer Protocol (Protocol) is an appendix to the *Biodiversity Management Plan* (45860-HSE-PL-D-0117) and forms part of the overall environmental management framework for the project.

1.1 Purpose

The purpose of this Protocol is to describe how SecureEnergy proposes to ensure that all project staff are aware of the sensitivities around the critically endangered Plains-wanderer species and to ensure that all specific requirements in relation to protection, avoidance, management and observation of individual Plains-wanderers are considered.

This Protocol will be implemented during all proposal activities in Plains-wanderer habitat (also known as Plains-wanderer important habitat) and is therefore only applicable to Stage 2 of the project.

1.2 Scope

This Protocol is applicable for any activities conducted by site personnel (including sub-contractors) within Plains-wanderer habitat.

1.3 Preparation of this plan

This Protocol has been prepared by a suitably qualified and experienced person. This Protocol was prepared by:

- Rebecca Walker-Edwards; and
- Katie Baxter.

This Protocol has been reviewed by a representative of the project's ecological team. Eamon O'Meara is an ecologist and a zoologist, with a focus on Plains-wanderer.

1.4 Consultation

In accordance with revised mitigation measure (RMM) B13, this Protocol has been prepared in association with Biodiversity and Conservation Division (BCD).

This Protocol was issued to BCD for review and comment. Comments from the consultation process have been incorporated into this Protocol where appropriate.

2 Environmental requirements

2.1 Conditions of Approval

The conditions of the Infrastructure Approval relevant to managing impacts to Plains-wanderer are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

Table 2.1 - Conditions of Approval relevant to the Plains-wanderer

Condition no.	Requirement	Where addressed	How addressed
C23	Unless otherwise agreed with the Planning Secretary, the Proponent must:	-	-
	a) ensure that clearing does not exceed the limits identified in Appendix 2; and	Section 4.3.1 Table 4.2 Appendix A of the BMP - *Pre-clearing and Clearing Procedure*	Clearing will be managed in accordance with the *Pre-clearing and Clearing Procedure.* Progressive monitoring of the clearing quantities will occur to ensure that impacts will not exceed the limits prescribed in condition C23 a).
	b) minimise: (i) the impacts of the development on hollow-bearing trees; (ii) the impacts of the development on threatened flora and fauna populations; and (iii) the clearing of native vegetation and key habitat.	Section 5 Table 4.2 Section 6	The mitigation measures identified within Section 4 will be implemented to ensure that clearing for the development minimises impacts to Plains-wanderer populations and key habitat. Impacts to hollow-bearing trees, threatened fauna (other than Plains-wanderer) populations, and the clearing of native vegetation and key habitat (other than Plains-wanderer) are addressed in the Biodiversity Management Plan. Monitoring, inspections and auditing described in Section 5 of this Protocol will check the implementation and effectiveness of the management measures identified in Section 4.

2.2 Revised mitigation measures

Revised mitigation measures (RMMs) are defined in the Amendment Report. The RMMs relevant to biodiversity, and in particular Plains-wanderer management, are detailed in Table 2.2. A cross reference is also included to indicate where the measure is addressed within this Protocol or other project management documents. The management measures relevant to managing impacts to Plains-wanderer are provided in Section 4.4 of this Protocol.

Table 2.2 - Revised mitigation measures relevant to biodiversity (Plains-wanderer)

Ref.	Revised mitigation measure	Application location(s)	Where addressed	How addressed
B1	Impacts to matters of biodiversity conservation significance would be avoided to the greatest extent practicable during finalisation of the design and construction methodology for the proposal.	All locations	Section 4.1 Table 4.2 Biodiversity Management Plan	During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity

Ref.	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	Micro-siting of the transmission line infrastructure and associated construction working areas and other areas of disturbance would occur to avoid impacts wherever practicable. Site features with the highest biodiversity conservation significance, in particular, threatened species recorded and their habitat would be given the highest priority. Spatial data (species polygons for species credit species) and buffered threatened species locations would be provided to the design and construction teams and considered in detailed construction planning. Associated mapping would be included on sensitive area plans and provided to the construction workforce.			conservation significance are reduced, will occur.
B9	Pre-clearing surveys will be completed prior to clearing at each location 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; and • survey and confirm the presence of raptor nests within and adjacent to the clearing extents.	All locations	Table 4.2 Appendix A of the BMP - *Pre-clearing and Clearing Procedure*	Pre-clearing surveys will be undertaken in accordance with the *Pre-clearing and Clearing Procedure.* Pre-clearing surveys will be undertaken by the project ecologist in accordance with the requirement of RMM B9.
B10	The results of the pre-clearing surveys would be used to update and confirm the accuracy of sensitive area maps.	All locations	Table 4.2 Appendix A of the BMP - *Pre-clearing and Clearing Procedure*	The *Pre-clearing and Clearing Procedure* includes the requirement to update the Geographical Information System (GIS) or sensitive area plans (SAPs) (as required, based on findings).
B11	Biodiversity exclusion zones for retained vegetation, including identified threatened flora populations will be clearly identified by a suitably qualified ecologist prior to the commencement of 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. 'No disturbance zones' would consider:	All locations	Table 4.2 Appendix A of the BMP - *Pre-clearing and Clearing Procedure*	The *Pre-clearing and Clearing Procedure* includes the requirement for the ecologist to identify biodiversity exclusion zones. This would also apply to Plains-wanderer habitat and is captured in Table 4.2.

Ref.	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	• identified Plains-wanderer habitat • identified threatened flora populations; and • PCTs in disturbance area B that are not of a growth form height that would ever require management. Biodiversity exclusion zones would be physically marked and demarcated, and included on sensitive area maps, prior to clearing.			
B12	In circumstances where a tree that would exceed the vegetation clearing requirements is identified within one of the biodiversity conservation zones relating to the Plains-wanderer habitat areas then this tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place) using methods that minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist.	All areas of key Plains Wanderer primary habitat	Table 4.2 Section 5 Annexure A	The project has been designed to minimise impacts to Plains-wanderer habitat as much as feasible. Should a tree require removal that would exceed the clearing limits, the tree would be removed to ground level under the supervision of an ecologist, using methods that minimise impacts to key habitat.
B13	A Plains-wanderer specific protocol would be developed to ensure that all project staff are aware of the sensitivities around this critically endangered species and to ensure that all specific requirements in relation to protection, avoidance, management and observation of individual Plains-wanderers are considered, in association with BCD staff. This protocol will be implemented during all proposal activities in Plains-wanderer habitat.	All locations	This Protocol Section 2 Section 5 Table 4.2 Annexure A	This Protocol details how project staff will be made aware of the Plains-wanderer, and how the project will protect, avoid, manage and observe the species.
B14	All relevant project personnel, including relevant subcontractors would be trained on biodiversity management protocols and the requirements for the project, through inductions, toolbox talks and targeted training, and provided with sensitive area maps (showing clearing boundaries and exclusion zones) and updates as required.	All locations	Section 5.1 Section 4.5 of the CEMP Appendix A of the BMP - *Pre-clearing and Clearing Procedure*	Training will be carried out by the site inductions, toolbox trainings and targeted training. Section 5.1 provides information in relation to the training and awareness that will be provided to all site personnel. Sensitive areas for the relevant works locations will be covered in the training, with GIS or sensitive area plans provided to relevant personnel within the construction workforce.
B18	A species unexpected finds protocol would be implemented if threatened ecological communities, flora and fauna species, not identified in the biodiversity assessment, are identified in the disturbance area.	All locations	Appendix B of the BMP – *Unexpected Threatened Species Find Procedure*	If a Plains-wanderer is identified during construction (other than for pre-clearing inspections or clearing activities), the *Unexpected Threatened Species Finds Procedure*

Ref.	Revised mitigation measure	Application location(s)	Where addressed	How addressed
				will be followed (Appendix B of the BMP).
TA16	Existing connections to the public road network would be considered for use when access to construction locations via private land is required. Existing site access points would be used for construction access where feasible and reasonable and in consultation with the relevant landholder. Consultation with the relevant roads	Access/egress points to access tracks	Table 4.2	Existing access tracks will be used where possible to avoid and minimise impacts to Plains-wanderer habitat.

3 Plains-wanderer

3.1 Description and status

Found only in the semi-arid and arid grasslands of south-eastern Australia, there are estimated to be between 250 and 1,000 Plains-wanderer (*Pedionomus torquatus*) left in the wild.

The Plains-wanderer is a relatively small, quail-like grassland bird that averages 15-19cm in length on average when fully grown. Females tend to be more brightly coloured than the males, and tend to be more yellow on the bill, iris, legs and feet, especially during the breeding season when the bill and legs can become orange yellow (Marchant & Higgins, 1993). Juveniles resemble adult males, but they can be distinguished until 14 weeks of age by heavy dark-brown spotting on their lower breast and flanks (Crome and Rushton, 1975). Refer to Figure 3.1 and Figure 3.2 below.

While not entirely flightless, Plains-wanderer tend to fly low and rather poorly, and when disturbed their first instinct is to run. The largely sedentary species relies on camouflage to remain hidden from predators such as foxes. Although the Plains-wanderer is a diurnally (daytime) active species they are not easily observable during those times. Their strategy for survival in an open environment is reliant on their cryptic plumage, while remaining motionless, and they do not readily flush as other grassland birds do, unless an observer almost steps on them. Therefore, surveys are conducted during nocturnal hours when the birds are roosting and more easily observed. Traditionally, Plains-wanderers are detected at night with the use of a spotlight or thermal imaging scopes or cameras while moving through potential habitat.

The Plains-wanderer is listed as Endangered under the NSW *Biodiversity Conservation Act 2016* (BC Act) and listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).



Figure 3.1 - Mature Plains-wanderer female (Source: WSP)



Figure 3.2 - Mature Plains-wanderer male (Source: WSP)

3.2 Habitat

Although it is superficially similar in habitat choice to quail, the Plains-wanderer is unable to negotiate dense grassland types like quail do and it is far less likely to flush when approached.

Surveys also indicate that Plains-wanderers appear to avoid being in close proximity to living or dead trees, with no records of any birds within 300 m of trees of 10 m or greater in height across their strongholds in New South Wales and Victoria (Baker-Gabb, 2014). Plains-wanderer avoidance of trees and tall shrubs appears to be a defence strategy to limit the potential for attack by predatory birds that often perch in these trees. The distance plains-wanderers maintain from trees appears to depend on the height of the tree (Baker-Gabb, 2014).

Their difficulty in negotiating dense grassland types and preference for high grassland plant diversity has limited the availability of preferred habitat types due to widespread pasture improvement and grazing pressures throughout its natural range.

Their habitat preference is for substrates denuded of the “A” horizon where grasses can only grow sparsely, leaving soil substrates open and providing opportunities for short native herbs and tufted native grasses to offer forage and cover. Their highly specific requirements for habitat quality and structure is further dependant on land use and grazing regimes; sheep often being employed as a means of reducing grass densities during periods of strong growth returning preferred habitat areas to structural condition preferred by the bird (WSP, 2022).

The Plains-wanderer is diurnal in its habits, but almost impossible to see during daylight hours. All surveys conducted for the species are therefore undertaken at night. Currently, the species is experiencing a low population ebb because of a prevailing dry period extending back twenty years and this weather pattern has contributed to a population reduction from an estimated 3,000 individuals down to approximately 700 birds during that period (David Parker pers. comm.).

There is strong evidence that they move in response to changes in habitat quality, with birds present in locations when habitat is of high quality and absent when habitat quality wanes (David Parker pers. comm.). This tendency to move in response to habitat quality, which is widely recorded in many other bird species, has important implications for results returned from Plains-wanderer survey works.

3.3 Species status

Although the Plains-wanderer's range extends through northern Victoria, South Australia, the lower Northern Territory and through western NSW to south-western Queensland, their stronghold is in the NSW Riverina district and the northern Victoria grasslands. The proposal traverses the most important area for the species in NSW which roughly extends from Griffith in the north, to Deniliquin in the south, and from west of the Cobb Highway to the Urana area in the east.

From comparisons of genetic material, between the Victorian and NSW Riverina populations, there is evidence that the two areas share individuals, although movements haven't been confirmed through banding (David Parker pers. comm.). There is at least some hard evidence that Plains-wanderers move relatively large distances, with a bird being recorded over 140 km from a banding location with significant barriers (river and woodland) between the two locations (David Parker pers comm.).

3.4 Key habitat and distribution

During the development of the *Revised Biodiversity Development Assessment Report* (Final BDAR), three birds were recorded at Bundure Travelling Stock Route (TSR). It is noted that these birds were not identified within the proposed construction area.

Suitable habitat was identified within the project study area within Plant Community Types (PCTs) 44 and 46. Preferred habitat was also identified within the biodiversity study area.

Key habitat for the Plains-wanderer relevant to the project is identified in Annexure A (Threatened fauna mapping).

3.5 Threats

Known key threats to Plains-wanderer species include but are not limited to the following:

- historical loss of habitat from clearing and pasture improvement;
- prolonged drought or overgrazing resulting in loss of habitat due to the reduction of suitable ground cover;
- fox predation and developments that lead to elevated numbers of foxes;
- feral cat predation;
- destruction of suitable habitat due to high intensity fire;
- pesticides, including those used in locust control, such as fipronil and fenitrothion, which can impact on Plains-wanderers either directly or via their food supply;
- damage to Plains-wanderer habitat caused by rabbits; and
- boxthorn which can provide perches for raptors that may prey upon Plains-wanderers, as well as shelter for pest species such as foxes and rabbits.

4 Impacts, mitigation and management

4.1 Minimisation and avoidance of impacts

During the development of the project's design, design refinement occurred to avoid where possible direct impacts to mapped Plains-wanderer habitat. The design refinement involved realignment of the transmission line near Bundure Siding and re-routing of maintenance tracks.

4.2 Description of impacts

Direct impacts

In line with the clearing extents stipulated in condition C23 of the Infrastructure Approval, the project will directly impact up to 0.37 hectares of Plains-wanderer habitat.

Indirect impacts

Indirect impacts would potentially include:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- potential for machinery/equipment to result in the introduction of weeds which may impact vegetation structure;
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill;
- negligible risk of increased risk of starvation, exposure and loss of shade or shelter; and
- low risk of increased risk of fire.

It not expected that the project would impact any adult Plains-wanderer individuals, due to the mitigation measures put in place to minimise impacts to important habitat areas.

4.3 Proposed management

4.3.1 Habitat clearing limits

All vegetation clearing will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).

Clearing limits for Plains-wanderer habitat, in accordance with Appendix 2 (Biodiversity) of the Infrastructure Approval are provided in Table 4.1. These clearing limits apply to the project as a whole (Stage 1 and Stage 2).

Table 4.1 - Clearing limits for Plains-wanderer

Species		Conservation significance		Direct impact (ha)
		BC Act	EPBC Act	
Pedionomus torquatus	Plains-wanderer	E	CE	0.37

4.3.2 Pre-clearing Plains-wanderer habitat

All areas that need to be cleared will be subject to staged or non-staged clearing. Staged clearing occurs in locations where the ecologist identifies habitat and is typically referred to as 'two-stage clearing'.

Two-stage clearing will be required for any biodiversity conservation zones relating to the Plains-wanderer habitat areas where habitat vegetation is identified by the ecologist during the pre-clearing inspection. In accordance with Section 5.2 of the *Pre-clearing and Clearing Procedur*e, habitat vegetation will be identified with flagging and GPS coordinates will be obtained.

Plains-wanderer habitat vegetation will be identified with unique identifier numbers, and as Plains-wanderers avoid trees, star pickets or similar will be placed with high-visibility flagging attached.

For these locations, the clearing area will be surveyed by the project ecologist either the night before or pre-dawn on the day of clearing to:

- obtain updated information on Plains-wanderer habitat that is present, including:
  - inspection of identified habitat features for evidence of fauna habitation, including but not limited to Plains-wanderer species;
  - identify any Plains-wanderer that will require relocation prior to clearing;
  - demarcate any newly identified habitat;
  - capture and relocate any identified non-mobile fauna.

A suitable methodology to spot Plains-wanderers will be used, such as thermal imaging.

4.3.2.1 Initial clearing

The ecologist will be present during all clearing in biodiversity conservation zones relating to the Plains-wanderer habitat areas.

Any non-habitat vegetation in proximity to Plains-wanderer habitat will be cleared first. Any trees that require removal will be subject to removal to ground level (i.e. tree height cut back but rootball to be retained).

There will be no clearing of Disturbance Area A – centreline other than for the removal of a tree that exceeds the vegetation clearance requirements. Likewise for all clearing in Plains-wanderer habitat, the tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place).

All marked habitat features will be retained until the final stage of clearing. This allows respite between the initial disturbance and the final removal of habitat. The changed environment and the disturbance from clearing should encourage residing fauna to relocate voluntarily without human handling.

A respite period of approximately 24 hours after removal of non-habitat vegetation is intended to allow resident fauna the opportunity to vacate remaining habitat before final clearing commences.

4.3.2.2 Final clearing

Final clearing involves clearing the habitat vegetation identified within the Plains-wanderer habitat areas. Again, during this stage there will be no clearing of Disturbance Area A – centreline other than for the removal of a tree that exceeds the vegetation clearing requirements (the rootball of this tree will remain).

A suitably qualified and experienced ecologist will be onsite to:

- thoroughly inspect Plains-wanderer habitat immediately prior to clearing;
- ensure detected Plains-wanderer are encouraged to self-relocate or will be captured and released in the identified release areas;
- to capture and relocate any encountered Plains-wanderer to pre-identified release sites;
- ensure that any injured Plains-wanderer is transported to veterinarian or wildlife carer. Contact should also be made with the conservation team at Taronga Western Plains Zoo (Dubbo) so that guidance of the management of the animal can be provided. Taronga Western Plains Zoo can be contacted on 02 6881 1400; and
- where breeding Plains-wanderer or dependent young are detected during the clearing works, do not disturb the species. Consult with DPE's Threatened Species Accountable Officer, David

Parker on 0428 620 104 to determine whether the animal/s require ongoing care or can be safely relocated to adjacent habitat.

DPE's Threatened Species Accountable Officer, David Parker on 0428 620 104 would be contacted in the event that breeding Plains-wanderer or dependent young are detected during clearing works.

The location of Plains-wanderer release (including GPS coordinates) will be recorded in a post-clearing report.

Once all Plains-wanderer habitat inspection and any required fauna removal is complete, the remaining vegetation clearing can commence.

4.4 Management measures

Table 4.2 summarises the Plains-wanderer management measures required to manage impacts to the species as a result of construction of the project.

Table 4.2 - Plains-wanderer management measures

No.	Management measure	When to implement	Responsibility	Source document
General				
PW1	Site inductions will contain relevant information on the Plains-wanderer, including but not limited to: • why the Plains-wanderer are of importance; • what the Plains-wanderer looks like and how it behaves; • what to do in the instance of an unexpected find within the construction area; • what methodology is to be used within Plains-wanderer habitat; and • which areas are exclusion zones.	Pre-construction and construction	HSSE Manager	RMM B13 RMM B14
PW2	Unless otherwise agreed with the Planning Secretary, clearing of Plains-wanderer habitat is not to exceed the limits identified in Section 4.3.1. Spatial data and locations of Plains-wanderer will be provided to the detailed design team in detailed construction planning.	Pre-construction and construction	Design Manager Construction Manager Environmental Manager Supervisor	Condition C23
PW3	Clearing of key habitat will be minimised or avoided where possible. This will include minimising impacts on the clearing of native vegetation and key habitat. Opportunities to minimise clearing will occur through review of temporary design and construction methodologies.	Pre-construction and construction	Environmental Manager Supervisor Engineer	Condition C23 RMM B13
PW4	The potential introduction of weeds to the Plains-wanderer habitat areas will be managed through the implementation of the *Biosecurity Management Plan* (Appendix D of the Biodiversity Management Plan).	Pre-construction and construction	Environmental Manager Supervisor	Condition C26
Pre-clearing and clearing				
PW5	An ecologist will be present onsite at any times when clearing is occurring in Plains-wanderer habitat.	Construction	Ecologist	Best practice
PW6	Pre-clearing surveys will be completed prior to construction by a suitably qualified ecologist in accordance with the Pre-clearing and Clearing Procedure.	Pre-construction	Environmental Advisor Environmental Manager Ecologist	RMM B9
PW7	Biodiversity exclusion zones for retained vegetation would be confirmed by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone. Biodiversity exclusion zones would consider identified Plains–wanderer habitat. Biodiversity exclusion zones would be physically marked and demarcated, and included on sensitive area maps, prior to clearing.	Pre-construction	Environmental Advisor Environmental Manager Ecologist	RMM B11

No.	Management measure	When to implement	Responsibility	Source document
PW8	The centreline clearing (Disturbance Area A – centreline) will not be cleared in areas of key Plains-wanderer primary habitat. For Disturbance Area A – centreline and Disturbance Area B, in circumstances where a tree that would exceed the vegetation clearing requirements is identified within one of the biodiversity conservation zones relating to the Plains-wanderer habitat areas, then this tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place) using methods that minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist.	Construction	Environmental Manager Environmental Advisor Ecologist	RMM B12
Management during other construction activities				
PW9	The construction area will be visually inspected for presence of Plains-wanderer prior to commencing works for that particular shift, ideally the night before or pre-dawn.	Pre-construction and construction	Supervisor	Best practice RMM B13
PW10	Existing access tracks will be used where possible to avoid and minimise impacts resulting from the establishment of new access tracks.	Pre-construction and construction	Environmental Manager	TA16
PW11	When stringing transmission lines within Plains-wanderer habitat, A-Frame Fence Hurdles will be utilised to minimise impacts to Plains-wanderer habitat in those locations and / or the transmission cable will be walked through on foot through Plains-wanderer habitat, with an ecologist walking ahead acting as a Plains-wanderer spotter.	Construction	Environmental Manager Ecologist Engineer Supervisor	Best practice
Threatened species management				
PW12	Should a Plains-wanderer be observed during works (other than during the pre-clearing inspections and clearing works) within the construction area, the *Unexpected Threatened Species Find Procedure* (45860-HSE-PR-D-0012) will be followed. During pre-clearing inspections and clearing works, the steps within Section 4.3.2 of this Protocol will be followed.	Pre-construction and construction	All personnel	RMM B18
PW13	Plains-wanderer and their habitats will be identified through the GIS or sensitive area plans (SAPs), which would be updated/confirmed from the results of pre-clearing surveys. Mapping from SAPs would be provided to the construction workforce. Impacts to Plains-wanderer will be avoided as far as practicable during detailed design and when determining construction methodologies.	Detailed design and construction	Design Manager Environmental Advisor Environmental Manager Supervisors	RMM B1 RMM B10

5 Compliance management

5.1 Training and awareness

Personnel taking part in construction activities shall be informed of this Protocol through the site-specific induction, daily prestart briefings or targeted training as required. Personnel involved in any activities occurring in or within 100m of Plains-wanderer habitat will be subject to toolbox talks and daily prestart meetings which will discuss items such as:

- why the Plains-wanderer are of importance;
- what the Plains-wanderer looks like and how it behaves;
- what to do in the instance of an unexpected Plains-wanderer within the construction area; and
- which areas are exclusion zones.

5.2 Roles and responsibilities

SecureEnergy's organisational structure and overall roles and responsibilities are outlined in Section 4 of the CEMP. Specific responsibilities for the implementation of mitigation measures are detailed in Section 5 of this Protocol.

5.3 Monitoring and inspections

Clearing of Plains-wanderer habitat will be monitored against the limits stipulated in condition C23 of the Infrastructure Approval and recorded to inform any final biodiversity offset requirements within the biodiversity offset package. This information will be tracked in the Clearing and Land Disturbance Register (45860-HSE-REG-1008).

Weekly inspections of works occurring in Plains-wanderer habitat will be performed by an Environmental Advisor and documented in the Weekly Environmental Checklist. The inspections will check the implementation and effectiveness of the management measures identified in Section 5 and the environmental performance of the project relevant to the Plains-wanderer. Visual monitoring of delineated/fenced disturbance boundaries will be undertaken.

5.4 Reporting

5.4.1 Post-clearing reports

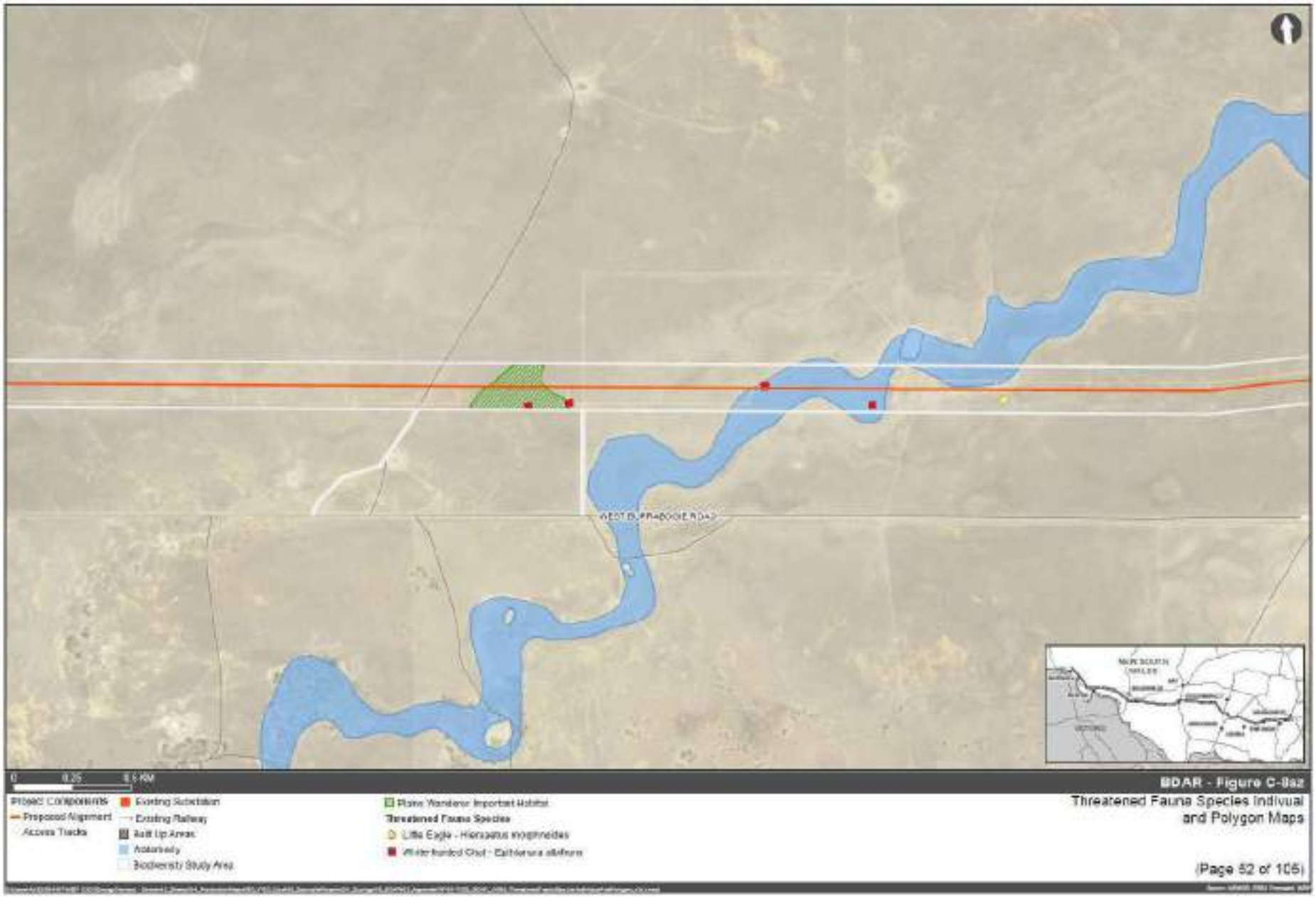
Post-clearing reports will be prepared by project ecologists and in addition to the requirements stipulated in the Pre-clearing and Clearing Procedure, they will include:

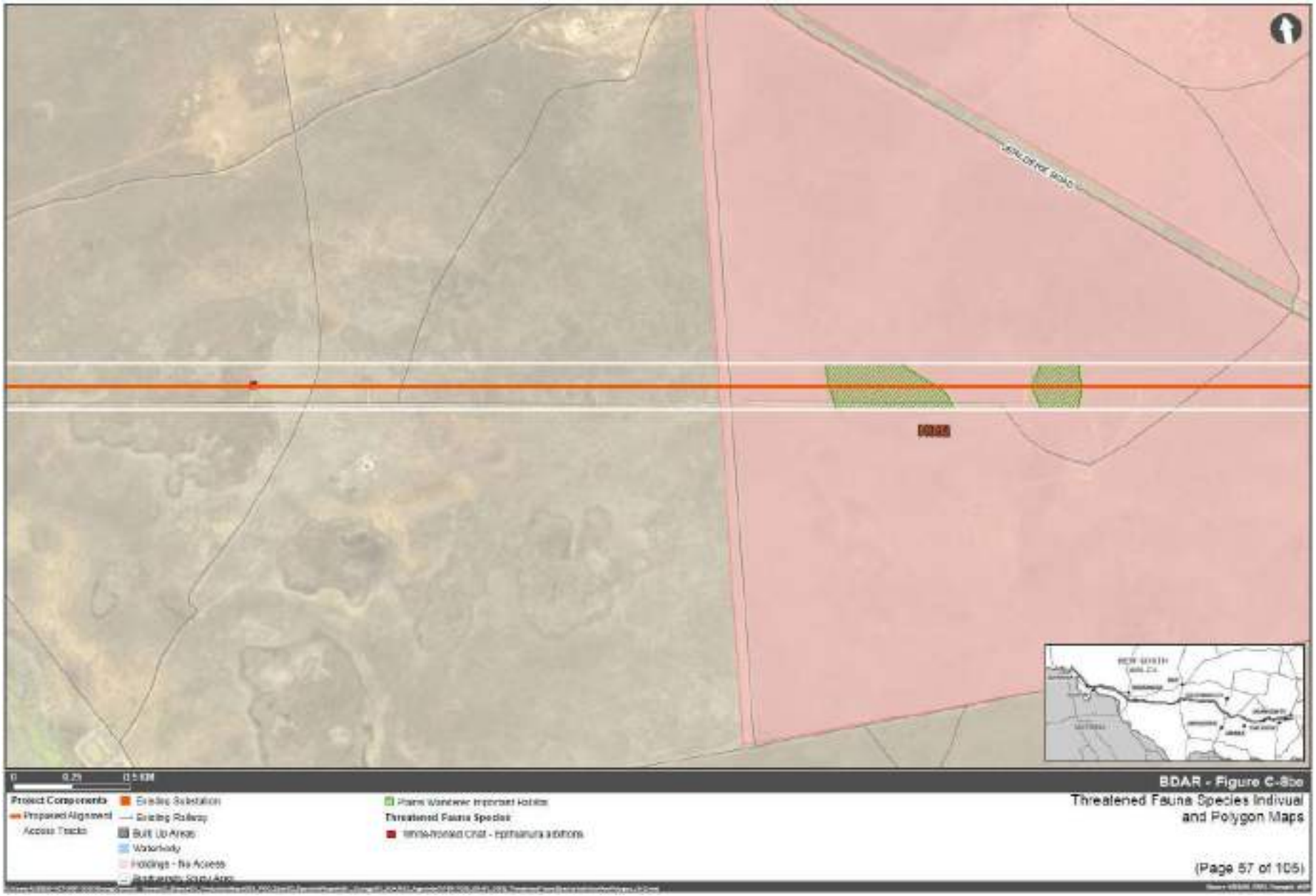
- information on clearing operations, dates, procedures and areas;
- live Plains-wanderer sightings, captures, any releases or injured/shocked/deceased species (including GPS coordinates); and
- photographs of any rescued Plains-wanderer.

The spatial extent and type of clearing will be recorded in GIS file format and provided to TransGrid to allow the final offset requirements to be calculated based on the recorded clearing in accordance with RMM B15.

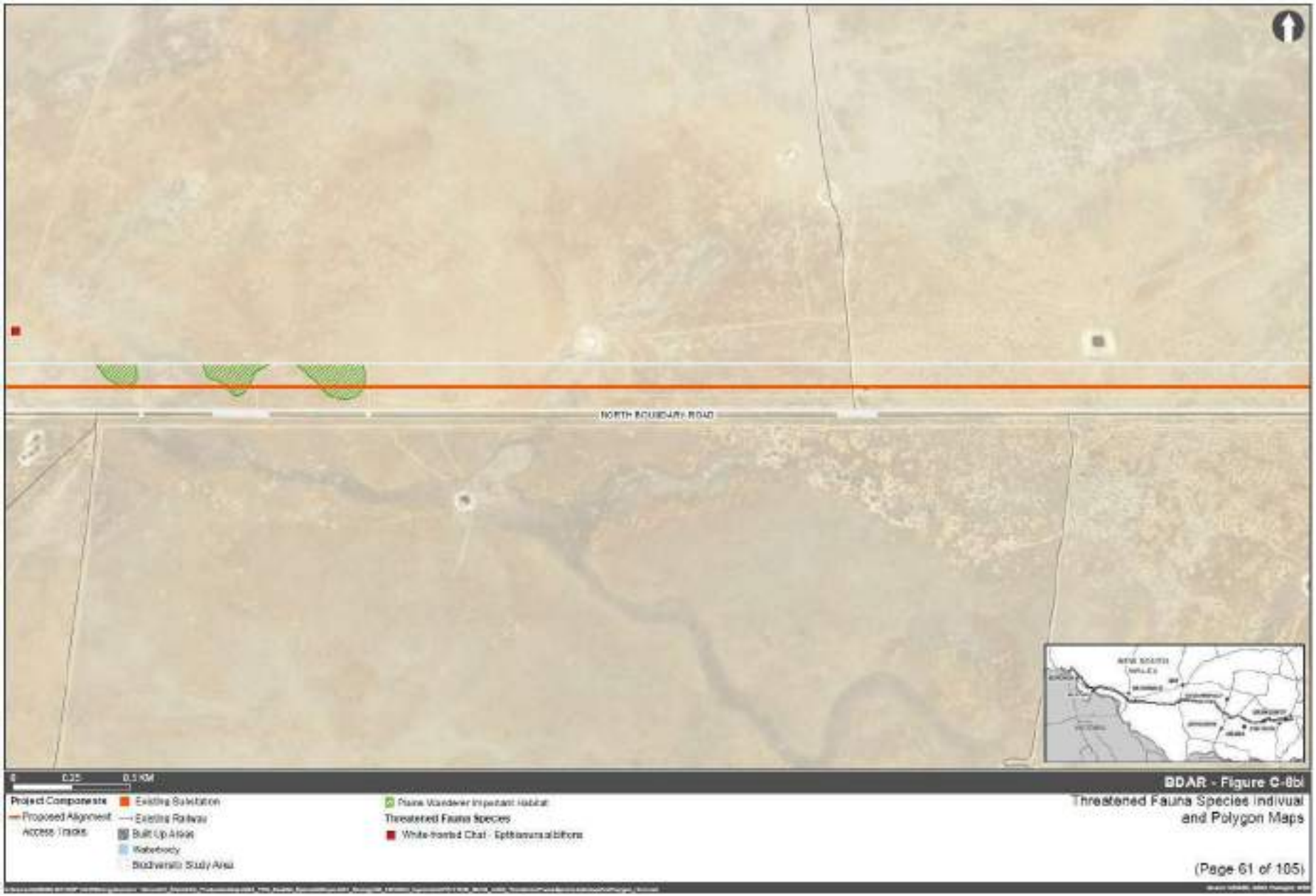
Clearing of Plains-wanderer habitat will be monitored and recorded to inform any final biodiversity offset requirements within the biodiversity offset package. This information will be tracked in the *Clearing and Land Disturbance Register* (45860-HSE-REG-1008).

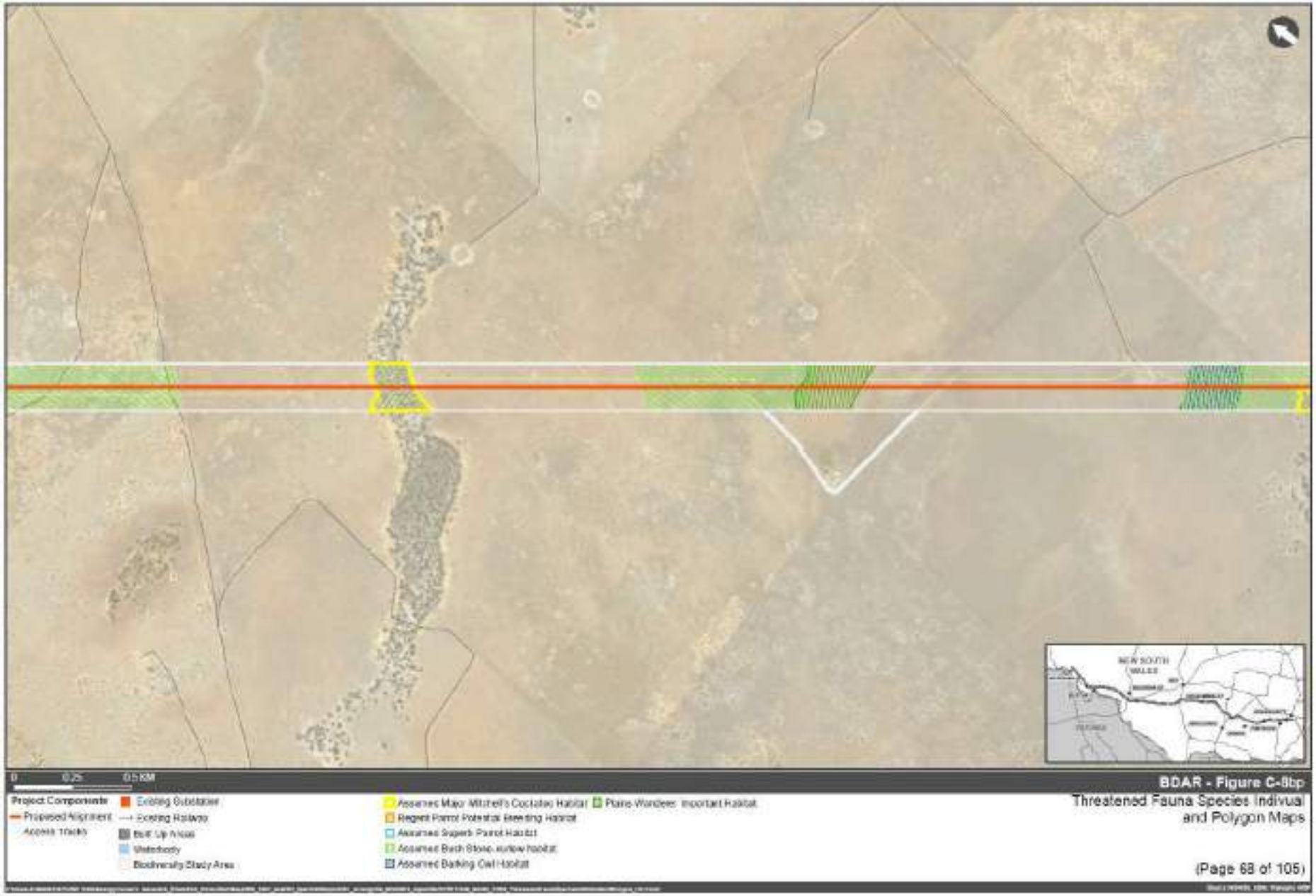
Annexure A – Plains-wanderer important habitat mapping

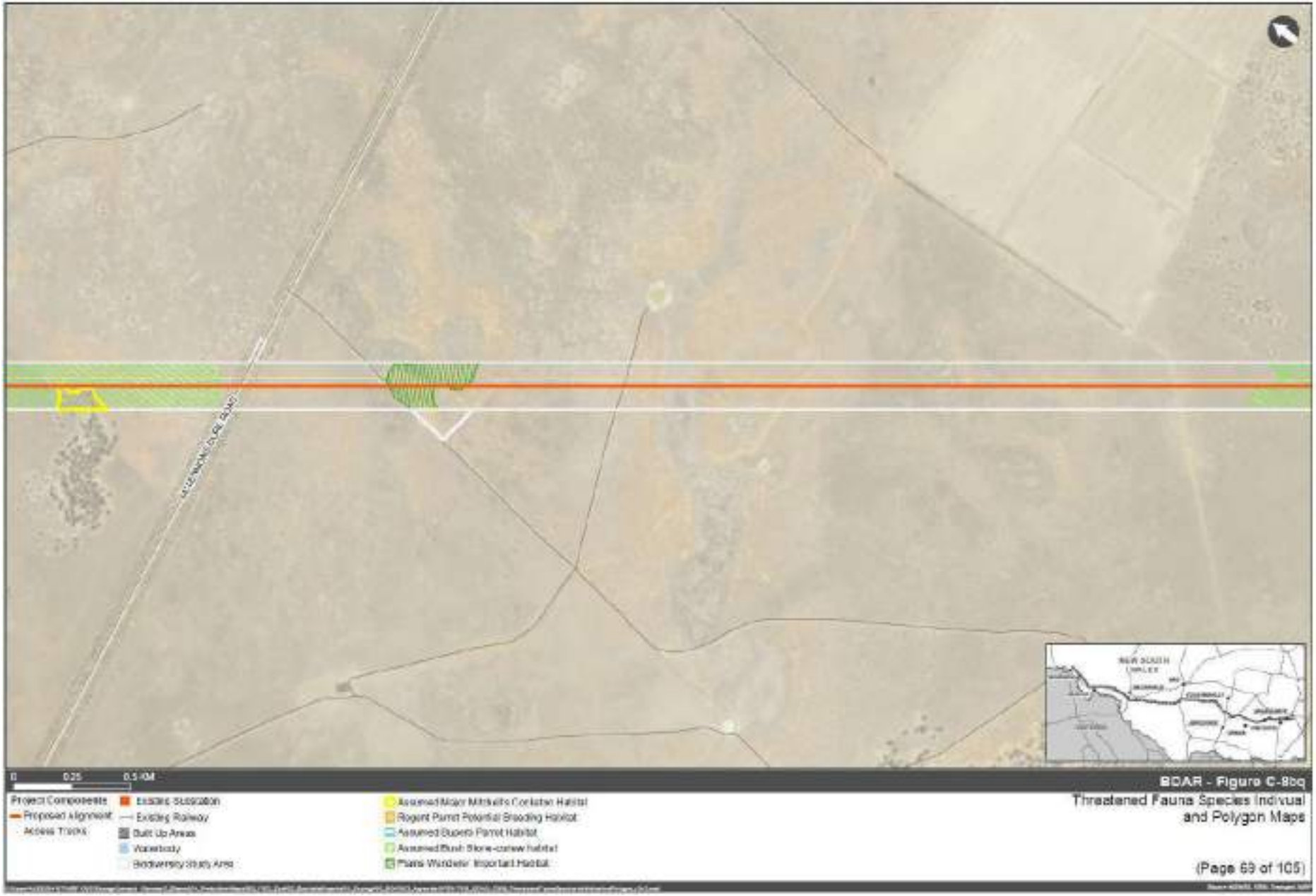

0 0.25 0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Plains Wanderer Important Habitat
Threatened Fauna Species
Little Eagle - Hieraaetus morphnoides
White-bellied Sea-Eagle - Haliaeetus leucogaster
BDAR - Figure C-8a2
Threatened Fauna Species Individual and Polygon Maps
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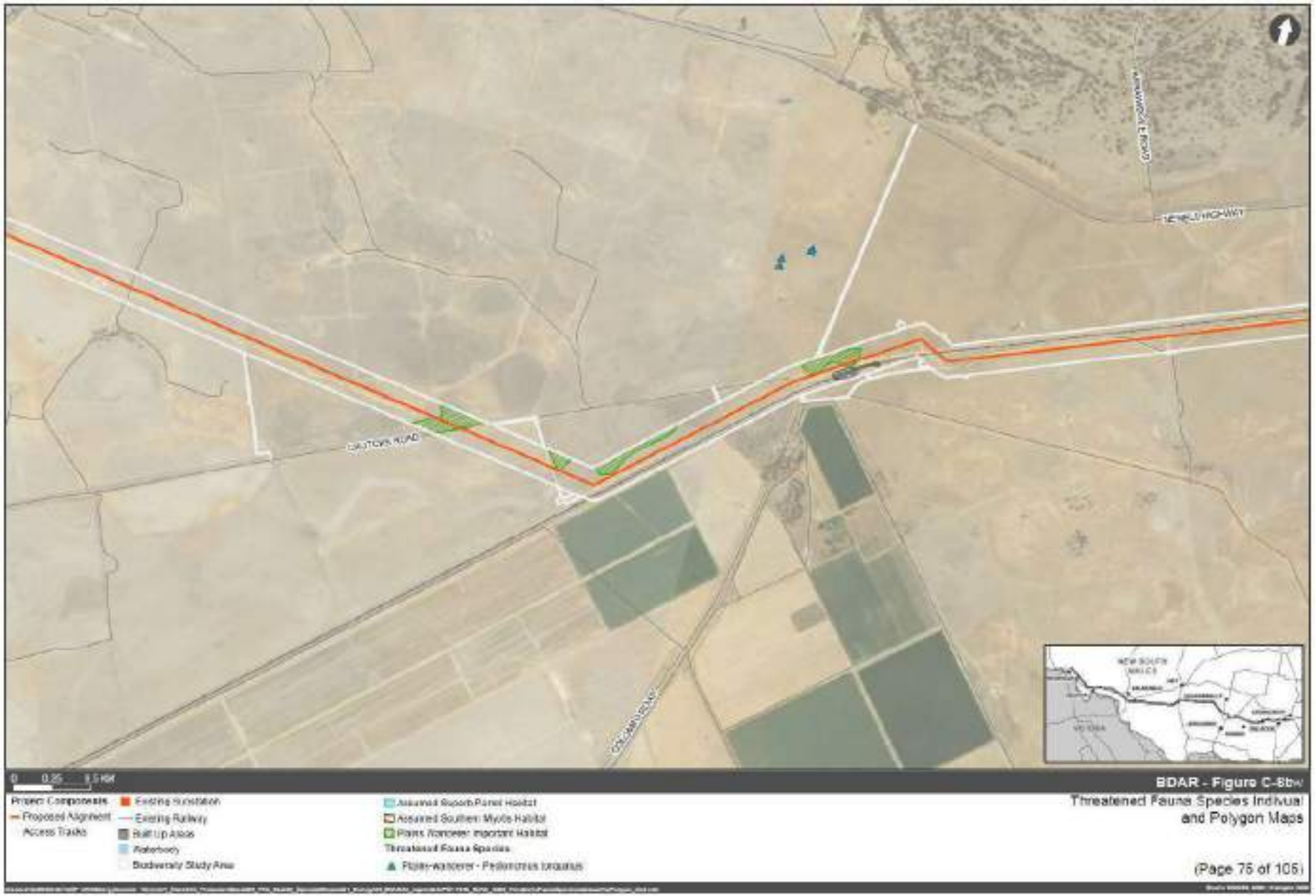

BDAR - Figure C-8bo
Threatened Fauna Species Indivual and Polygon Maps
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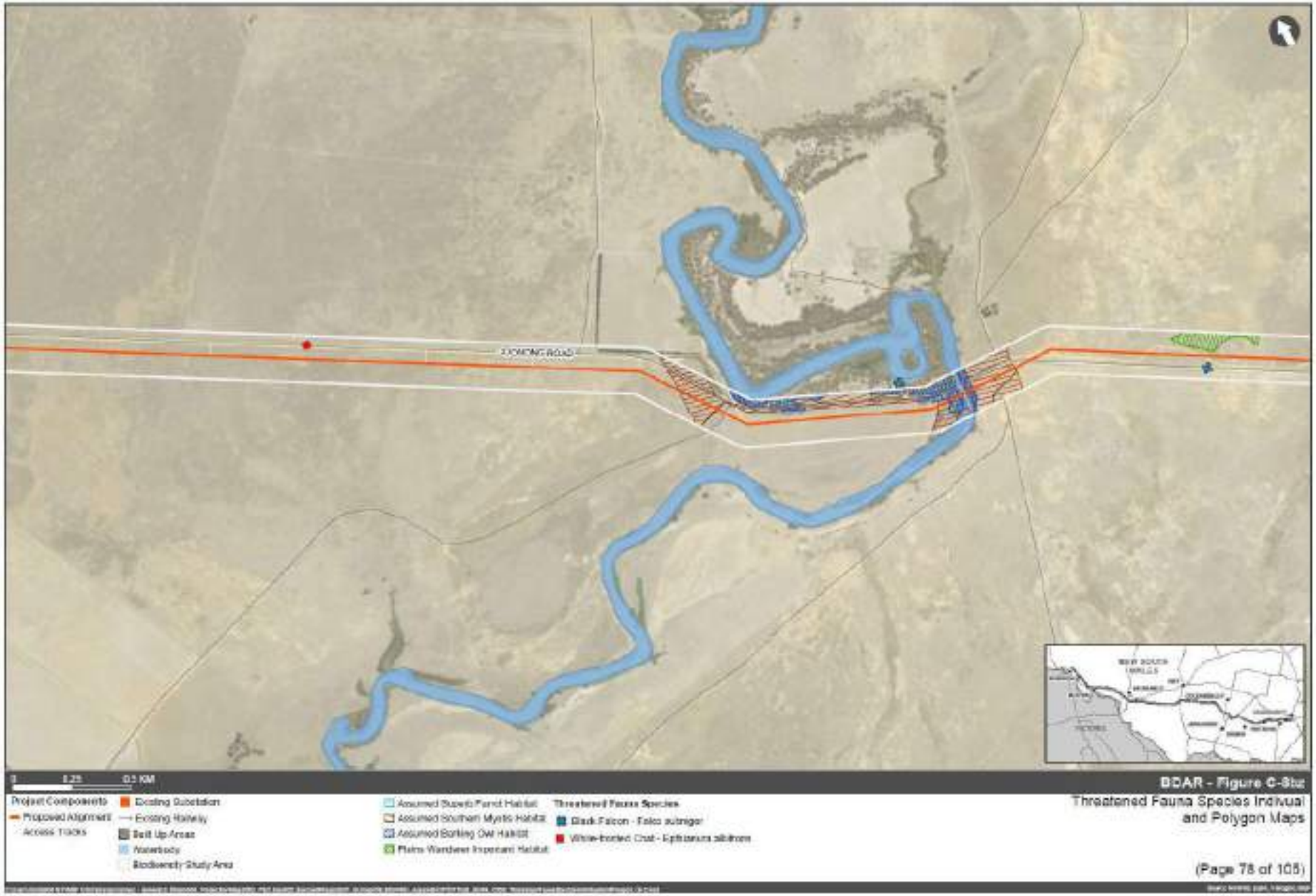

NORTH BOUNDARY ROAD
BULLIWANGO ROAD
0 8.25 16.5KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Regent Parrot Potential Breeding Habitat
Plains Wanderer Important Habitat
Threatened Fauna Species
White-fronted Chat - Epthianura albifrons
BDAR - Figure C-9bh
Threatened Fauna Species Individual and Polygon Maps
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NORTH BOUNDARY ROAD
0 0.25 0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Plains Wanderer Important Habitat
Threatened Fauna Species
White-fronted Chat - Epthianura albifrons
BDAR - Figure C-6bi
Threatened Fauna Species Indivual and Polygon Maps
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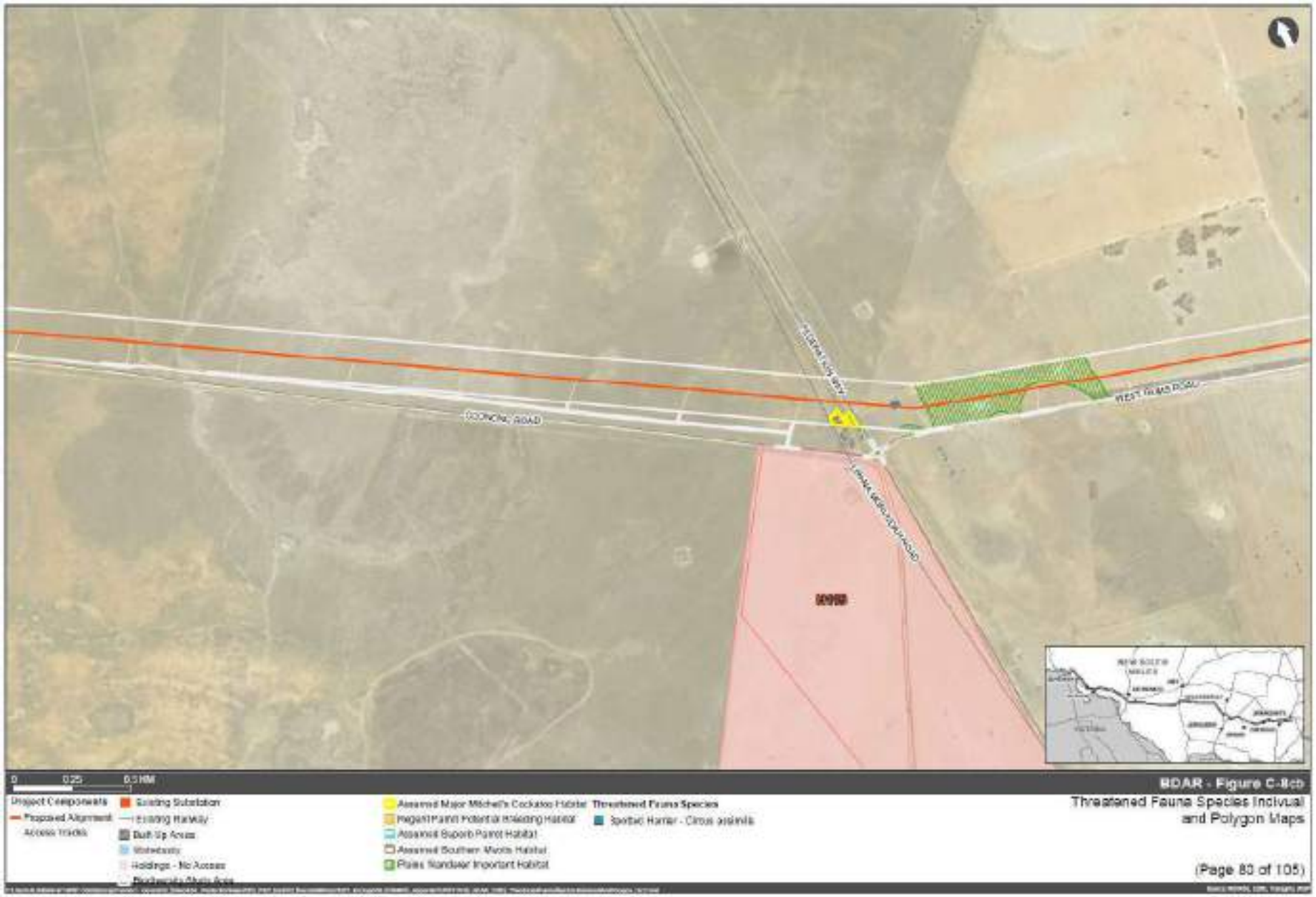

0 0.25 0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Assumed Major Mitchell's Cockatoo Habitat
Plains-Wanderer Important Habitat
Regent Parrot Potential Breeding Habitat
Assumed Superb Parrot Habitat
Assumed Bush Stone-curlew habitat
Assumed Barking Owl Habitat
BDAR - Figure C-8bp
Threatened Fauna Species Indivual and Polygon Maps
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0 0.25 0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Assumed Major Mitchell's Cockatoo Habitat
Regent Parrot Potential Breeding Habitat
Assumed Superb Parrot Habitat
Assumed Bush Stone-curlew habitat
Plains Wanderer Important Habitat
BDAR - Figure C-8bq
Threatened Fauna Species Indivual and Polygon Maps
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0 0.25 0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Assessed Superb Parrot Habitat
Assessed Southern Myotis Habitat
Plains Wanderer important Habitat
Threatened Fauna Species
Plains-wanderer - Pedionomus torquatus
BDAR - Figure C-8b
Threatened Fauna Species Individual and Polygon Maps
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0 0.25 0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Hatfield
Built Up Areas
Waterbody
Biodiversity Study Area
Assumed Superb Parrot Habitat
Assumed Southern Myotis Habitat
Assumed Barking Owl Habitat
Plains-Wanderer Important Habitat
Threatened Fauna Species
Black Falcon - Falco subniger
White-fronted Chat - Epthianura albifrons
BDAR - Figure C-31z
Threatened Fauna Species Indivual and Polygon Maps
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OCONOMO ROAD
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Plains Wanderer Important Habitat
BDAR - Figure C-8cs
Threatened Fauna Species Individual and Polygon Maps
(Page 79 of 105)


COONONG ROAD
WEST WAMOO ROAD
0
0.25
0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Holdings - No Access
Biodiversity Offsets Area
Assessed Major Mitchell's Cockatoo Habitat
Regent Parrot Potential Breeding Habitat
Assessed Superb Parrot Habitat
Assessed Southern Whiteface Habitat
Plains Wanderer Important Habitat
Threatened Fauna Species
Spotted Harrier - Circus assimilis
BDAR - Figure C-8cb
Threatened Fauna Species Individual and Polygon Maps
(Page 80 of 105)

Appendix G – Connectivity Strategy

PUBLIC

Connectivity Strategy
EnergyConnect (NSW – Eastern Section)
45860-HSE-DOC-D-0022

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	4/11/2022	Internal review	K.Baxter	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
B	9/11/2022	Issued for Transgrid review	K.Baxter L.Coetzee	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
C	16/11/2022	Issued for agency review	L.Coetzee	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
D	9/02/2023	Issued in response to agency comments	R.Walker-Edwards	C.Curlewis	A.Boyd	B.Calligeros	S.Basanta
E	15/03/2023	Issued in response to agency comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued for Transgrid review
C	Issued for agency review
D	Issued in response to agency comments
E	Issued in response to agency comments

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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Abbreviations

Acronym	Definition
ASL	Above sea level
BAM	Biodiversity Assessment Method
BC Act	*Biodiversity Conservation Act 2016* (NSW)
Biosecurity Act	*Biosecurity Act 2015* (NSW)
BMP	Biodiversity Management Plan
CEMP	Construction Environmental Management Plan
Cth	Commonwealth
DAWE	Department of Agriculture, Water, and the Environment, now known as Department of Climate Change, Energy, the Environment and Water
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DPE or Department	NSW Department of Planning and Environment (formerly Department of Planning, Industry and Environment)
EEC	Endangered ecological community – as defined under relevant law applying to the proposal
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
ESD	Ecologically Sustainable Development
Final BDAR	*Revised Biodiversity Development Assessment Report* (August 2022)
FM Act	*Fisheries Management Act 1994* (NSW)
ha	hectares
km	kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
m	metres
NES	Matters of National Environmental Significance under the EPBC Act
NPW Act	*National Parks and Wildlife Act 1974* (NSW)
NPWS	National Parks and Wildlife Service
NSW	New South Wales
PCT	Plant community type
project, the	EnergyConnect (NSW – Eastern Section)
Response to DPE Request for Information	EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information (30 August 2022)
RMMs	Revised mitigation measures
SA	South Australia
Submissions Report	*Submissions Report EnergyConnect (NSW – Eastern Section)*
SSI	State significant infrastructure
TEC	Threatened ecological community
VCR	Vegetation clearance requirements

1 Introduction

1.1 Context

This Connectivity Strategy (this strategy) forms part of the Biodiversity Management Plan (BMP) which is part of the Construction Environment Management Plan (CEMP) for Stage 2 of EnergyConnect (NSW – Eastern Section).

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section*) (EIS), the *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the A*mendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

1.2 Background

On 29 August 2019, the New South Wales (NSW) Minister for Planning and Public Spaces declared the NSW component of EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – South Australia (SA)/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with five from special interest groups, nine from local councils and 44 from the public. In addition, 17 government agencies also provided advice during this time.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared a separate Amendment Report to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report describes the updated project for which approval has been sought and was also finalised in May 2022.

On 2 June 2022, the Department requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response TransGrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to address the various requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI-9172452). Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Transgrid have engaged SecureEnergy, a joint venture between Elecnor and Clough Projects Australia Pty Ltd to design and construct their portion of the EnergyConnect project. An overview of the project is provided in Figure 1.1.

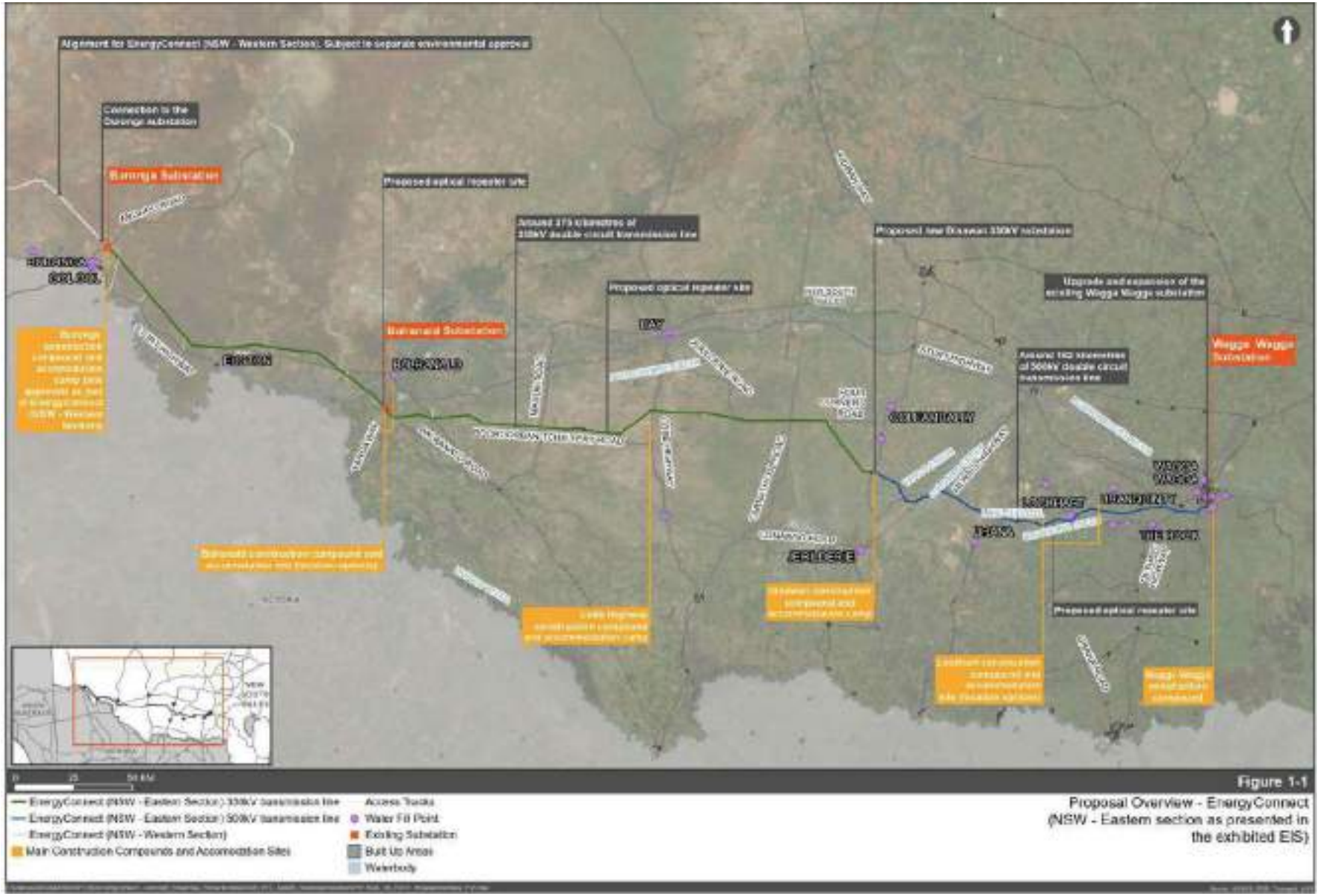


Figure 1.1 - Key features of EnergyConnect (NSW – Eastern Section)

1.3 Strategy objective and scope

This Connectivity Strategy has been developed to assist in maintaining connectivity across the landscape during construction of the project. This Connectivity Strategy relates to the NSW - Eastern Section, which will result in the construction of approximately 550 km of new transmission from Buronga to Wagga Wagga.

This Connectivity Strategy has been developed using desktop resources as well as field survey results from the ecological assessments associated with the *Revised Biodiversity Development Assessment Report (August 2022)* (Final BDAR). Specifically, this strategy addresses the requirement for a series of 20-metre-wide connectivity corridors to be established near tower locations that occur in woodland vegetation, with the purpose of better facilitating woodland connectivity. A 10m wide centreline section on the 330kV lines and 20m wide centreline section for the 500kV will still be cleared for stringing purposes and ongoing management.

Connectivity corridors are proposed to be located:

- within woodland plant community types that occur at key riparian crossings (Murrumbidgee River, Yanco Creek, and Colombo Creek);
- in areas of the alignment joining proposed biodiversity stewardship sites and/or conservation reserve estate (e.g. Yanga State Conservation Area); and
- areas of existing dense mallee and belah.

Their location has also considered how best to maintain structural vegetation connectivity linking the connectivity corridor with core habitat areas on either side of the project alignment.

Whilst the project will result in a level of fragmentation, functional connectivity between habitats is likely to be maintained, as a large proportion of vegetation within the alignment will not be completely cleared and/or left intact. Most of the plant community types present within the alignment have a relatively low growth form and will therefore remain largely intact where vegetation height is less than 10m.

1.4 Preparation of this strategy

In accordance with condition B1 of the Infrastructure Approval, this strategy has been prepared by a suitably qualified and experienced person. This strategy was prepared by:

- Katie Baxter; and
- Laurenne Coetzee.

The strategy has been reviewed by representatives from the project's ecological team (NGH Consulting).

2 Consultation

2.1 Development of this strategy

In accordance with condition B1 of the Infrastructure Approval, this strategy as part of the Biodiversity Management Plan (BMP), has been prepared in consultation with the Biodiversity and Conservation Division (BCD).

This strategy was issued to BCD for review and comment. Comments from the consultation process have been incorporated into this strategy where appropriate. Details of all consultation with BCD will be submitted to DPE along with the submission of this strategy.

2.2 Submission and approval

Prior to submission to DPE, this strategy will be reviewed by the Environmental Representative (ER) to ensure that it is consistent with the requirements of the Infrastructure Approval.

This strategy as part of the BMP will be submitted to DPE for review and approval by the Planning Secretary prior to the commencement of Stage 2 of construction.

3 Environmental requirements

3.1 Conditions of Approval

The conditions of the Infrastructure Approval relevant to the strategy are presented in Table 3.1. A cross reference is also included to indicate where the condition is addressed within this strategy or other project management documents.

Table 3.1 - Conditions of Approval relevant to the Connectivity Strategy

Condition no.	Requirement	Where addressed	How addressed in this Strategy
Biodiversity EMP Sub-Plan			
C26	The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include: a) a description of the measures that would be implemented for:	Biodiversity Management Plan	-
	(i) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy;	This strategy Supplementary Hollow and Nest Strategy	This strategy details the way in which the project will implement connectivity corridors in identified key areas. This includes detailing the selection criteria and process through which key features of connectivity have been chosen.

3.2 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in the Submissions Report and the Amendment Report. The RMMs relevant to this strategy are detailed in Table 3.2. A cross reference is also included to indicate where the measure is addressed within the strategy or other project management documents.

Table 3.2 - Revised mitigation measures relevant to the Connectivity Strategy

Ref.	Revised mitigation measure	How addressed in this Strategy
B6	Conductor line-marking techniques would be implemented during design refinement to minimise bird strike. Use of bird diverters, most likely consisting of the "flapper" variety, would be implemented. Positioning and exact diverter model would be finalised during design refinement and would be developed as part of a Connectivity Strategy. At minimum these would 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.	Refer to Section 9
B7	A series of 20-metre-wide connectivity corridors would be established near tower locations that occur in woodland vegetation. These would occur at strategic locations that would be developed as part of a Connectivity Strategy, targeting the following locations (wherever practicable): • key riparian crossings; • areas of the alignment joining proposed biodiversity stewardship sites and or conservation reserve estate; and • areas of existing dense mallee/belah. These connectivity corridors would involve native vegetation retention up to the 10 metre or 20 metre (for 330kV and 500kV lines, respectively) wide	This strategy

Ref.	Revised mitigation measure	How addressed in this Strategy
	temporary construction centreline clearing zone to better facilitate woodland connectivity. Vegetation heights to be retained would be determined in accordance with vegetation clearing requirements at each location. Any biodiversity credit liabilities to related to retained vegetation such as the connectivity corridors would be considered in final BAM calculations (refer to mitigation measure B2 and Section 12.4 of the Biodiversity offset strategy). In addition to these measures, installation of under-transmission glider poles in five locations (refer to Figure 9.6 of the Revised BDAR) will be implemented to assist Squirrel Glider movement at important locations for this species.	

4 The value of connectivity corridors

Habitat loss and fragmentation are recognised as key issues affecting biological diversity. The term 'fragmentation' refers to changes that occur when large blocks of vegetation or habitat are separated either through partial or complete clearing. This process results in habitat loss, reduced size of available habitat, and isolation of habitats within the landscape.

These altered patterns of habitat result in changes to ecological processes, having significant effects on flora and fauna. Fragmentation results in the loss of individual species and species diversity from an area, restrictions on population size (and biomass), decreased opportunity for movement of animals between habitats, changes to the physical environment and increased invasion and negative impacts by exotic species.

To ameliorate the effects of fragmentation, and to maintain and improve the conservation potential of disturbed environments, strategies to create and/or retain vegetation/habitat linkages (i.e., habitat 'corridors') may be implemented. The use of habitat corridors has been widely embraced as a practical measure to counter the impacts of habitat loss and fragmentation (Bennett 1999).

Given the linear nature of the project, the use of habitat corridors must be broadened to the issue of maintaining connectivity at the landscape scale, rather than on individual patches within the alignment. Landscape patterns that promote connectivity for species, communities and ecological processes are a key element in nature conservation in environments modified by human impacts.

The term 'connectivity' refers to how the spatial arrangement and the quality of elements in the landscape affect the movement of organisms among habitat patches. At the landscape scale, Saunders and Hobbs (1991) define connectivity as the degree to which the landscape enables or impedes movement among habitat patches. The need for connectivity is now recognised as a fundamental principle in land use planning and land management for biodiversity conservation in human-modified landscapes.

As animal species vary considerably in their level of habitat specialisation and their tolerance to disturbance and change, it is often appropriate to manage specific patterns of habitat such as corridors or 'stepping-stones.' Corridors may be especially important for species that regularly move between different resource patches, are relatively mobile and able to move substantial distances, and are tolerant of disturbed landscapes (Bennett 1999). Small remnant patches of vegetation or incomplete sections of remnant linear habitats can function as corridors, promoting connectivity.

Connectivity within the landscape is critical to gene flow and the long-term viability of species populations. Fauna species are often specifically adapted to, and reliant upon, the presence of preferred habitat and linkage between locations of varying carrying capacity. Loss of connectivity imposes a range of threatening processes reducing persistence, limiting population and species recruitment and potential for population decline.

Species use existing habitat in different ways. Behavioural adaptions may dictate the impact to changes to or loss of connectivity, and similarly how they may physically navigate available habitat. Small vulnerable species may be susceptible to increased predation when forced to navigate and cross fragmented and altered habitats. This may lead to avoidance by individuals and species resulting in isolation altering the location population structure.

The benefits of establishing connectivity corridors include, but are not limited to, the following:

- the provision of habitat for plants and animals;
- increased capacity for animals to move through disturbed landscapes;
- greater opportunities for dispersal to habitat isolates;
- maintaining population gene flow;
- maintaining migratory patterns; and

- continuation of ecological processes in altered or developed landscapes.

4.1 Importance of connectivity for the project

Mature stands of mallee and belah woodland, such as those identified in the disturbance area, have a mix of available successional habitat stages for species dependent on utilising the habitat for moving through, foraging, and/or breeding activities. The project will impact on these woodlands by fragmenting the continuity of canopy habitats.

4.1.1 Fauna species

Fragmentation of canopy cover in mallee and belah habitat reduces patch size and isolates small patches from extensive areas of high-quality vegetation. This can erode connectivity, increase edge effects, introduce weed opportunities, and increase micro-habitat exposure to wind and light. Patch fragmentation, size reduction and isolation affect fauna capacities to connect in the landscape and challenge the ability of populations of many small fauna species to persist.

The Final BDAR (WSP August 2022, Section 6.1) identifies that terrestrial movement (either on the ground and/or below the upper stratum of vegetation) is unlikely to be substantially altered as a result of the project. This is due to the fact that the majority of native vegetation under 4m will be retained, with vegetation up to 10m retained in connectivity corridors (Disturbance Area B4 and B10 respectively, see Section 4.1 below). Table 4.1 provides a brief summary of the expected connectivity impacts to fauna guilds as a result of the project, as summarised within Section 6.1 of the Final BDAR.

Connectivity corridor locations have been prioritised in areas mapped as containing habitat for threatened species, and/or habitat associated with species that are likely to occur.

Particular emphasis has been given to the Squirrel Glider (*Acrobates pygmaeus/frontalis*) during the connectivity corridor selection process. RMM B7, along with the relevant conditions of approval, prescribe the retention of Squirrel Glider habitat as an overarching priority for the project due to the species high ecological value and protected status. This includes the retention of “glider poles” in identified Squirrel Glider habitats (refer to Section 8).

Table 4.1 - Expected impacts to fauna guilds

Scientific name	Associated native vegetation and habitat constraints (PCTs)
Aerial connectivity	
Raptors	5, 7, 8, 11, 13, 15, 17, 22, 23, 24, 26, 28, 44, 45, 46, 47, 53, 58, 74, 75, 76, 80, 110, 143, 157, 160, 163, 164, 170, 171, 172, 182, 199, 216, 249, 267, 277, 319
Superb Parrot	5, 7, 8, 11, 13, 15, 26, 28, 45, 46, 74, 75, 76, 80, 110, 249, 267, 277, 319
Regent Parrot	8, 11, 13, 15, 22, 58, 170, 171, 172
Major Mitchell’s Cockatoo	7, 8, 11, 13, 15, 22, 23, 26, 28, 58, 74, 76, 80, 110, 143, 163, 170, 171, 172,199, 249
Brolga	7, 8, 11, 13, 15, 24, 26, 45, 47, 53, 160, 163, 182, 249
Waterbirds	5, 7, 8, 11, 13, 15, 17, 24, 45, 47, 53, 160, 163, 182, 249
Microbats	5, 7, 8, 11, 13, 15, 17, 23, 24, 26, 28, 45, 53, 58, 74, 75, 76, 80, 110, 143, 160, 170, 182, 249, 267, 277, 319
Terrestrial connectivity	
Squirrel Glider	5, 7, 8, 11, 13, 74, 75, 76, 80, 110, 249, 267, 277, 319
Plains-wanderer	44, 45, 46
Woodland Birds	5, 7, 8, 11, 13, 15, 17, 22, 23, 24, 26, 28, 44, 45, 47, 53, 58, 74, 75, 76, 80, 110, 143, 157, 160, 163, 164, 170, 171, 172, 182, 199, 216, 249, 267, 277, 319
Mallee Birds	170, 171, 172
Reptiles	58, 143, 163, 170, 171, 172, 199

Scientific name	Associated native vegetation and habitat constraints (PCTs)
Amphibians	5, 7, 8, 11, 13, 15, 17, 24, 47, 53, 58, 74, 76, 80, 163, 170, 171, 172, 249
Mammals	5, 7, 8, 11, 13, 15, 17, 22, 23, 24, 26, 28, 44, 45, 46, 47, 53, 58, 74, 75, 76, 80, 110, 143, 157, 160, 163, 170, 171, 172, 182, 199, 216, 249, 267, 277, 319
Koala	5, 7, 8, 11, 13, 15, 74, 75, 76, 80, 110, 249, 267, 277

4.1.2 Threatened ecological communities

Section 9.1.3 of the Final BDAR (WSP August 2022) identified six threatened ecological communities (TEC) that will be impacted by the project. Connectivity corridor locations have been prioritised in areas mapped as containing these TECs and are associated with the following PCTs:

- *Acacia melvillei* shrubland in the Riverina and Murray-Darling Depression bioregions (associated with PCT 23 in South Olary Plain, Lachlan and Murrumbidgee IBRA sub-regions);
- *Allocasuarina luehmanii* woodland in the Riverina and Murray-Darling Depression bioregions (associated with PCT 22 in South Olary Plain IBRA sub-regions);
- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (associated with PCT 76, PCT 80, and PCT 110 in the Lower Slopes and Inland Slopes IBRA sub-regions);
- Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions (associated with PCT 26 in the Murrumbidgee IBRA sub-region);
- Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Sloped bioregions (associated with PCT 28 in the Murrumbidgee IBRA sub-region); and
- White Box-Yellow Box-Blakeley's Red Gum Grassy Woodland and Derived Native Grassland (associated with PCT 74, PCT 75, PCT 267, and PCT 277 in the Lower Slopes, Inland Slopes and Murrumbidgee IBRA sub-regions).

No conditional threshold is described in the determination for any of these PCTs, therefore any vegetation in which characteristic native species dominate any structural layer present is considered to constitute the community.

With regards to PCT 80, derived forms of this community lack a native canopy layer and are therefore not considered to form part of the TEC. Consequently, the presence of PCT 80 (derived) has been excluded from the connectivity corridor selection process.

Many instances of where these PCTs occur have not been assigned connectivity corridors given the low density of the existing vegetation or lack of vegetation to connect with on the opposing side of the alignment. It was considered that any benefits associated with creating a connectivity corridor in these locations would be limited, due to the sparse vegetation growth and overall poor condition.

4.1.3 Significant landscape features

The project intersects a number of significant landscape features. These features serve as natural corridors connecting different areas of habitat, migratory flight paths to important habitat, or local movement pathways. The project will impact these natural corridors by fragmenting the landscape with a linear disturbance.

Murrumbidgee River, Yanco Creek, and Colombo Creek

The project intersects one section of the Murrumbidgee River, one section of Yanco Creek, and one section of Colombo Creek, each of which form part of the Murrumbidgee IBRA sub-region. This ecosystem is characterised by inland floodplain woodlands dominated by Black Box and River Red Gums alongside lignum understorey vegetation types. This stratification unit typically consists of an intact tree canopy with varying levels of modification in the understorey and groundcover, owing to the historical agricultural and grazing use for over 140 years.

The association with the permanent or semi-permanent rivers still lends this stratification unit regional importance as it is a habitat that provides water within an arid or semiarid landscape Also present are intermittent saline lakes and chenopod dominated claypans, fringed with riverine and semi-arid sandhill woodlands. This area represents an important natural corridor and refugia within a largely chenopod and acacia dominated shrubland.

Mallee Woodland

The western extent of the project intersects extensive intact and well-connected dense mallee woodlands. Mallee present in the project forms a continuous stretch from south of Buronga to Box Creek, north of Waldaira Lake. These areas cross private land that provides connectivity to conservation estates such as Mallee Cliffs National Park.

Mallee woodland present in the remainder of the project is typically sparse, however nonetheless important represent important habitat in terms of habitat for mallee dependent species and connectivity to Yanga State Conservation Area. These areas have been identified in the area west of where the project intersects the Murrumbidgee River and South of Yanga Lake.

It should be noted that no Mallee woodland has been identified within the project area between Yanga lake and Wagga Wagga City.

Belah Woodland

The project intersects intermittent areas of sparse, disconnected belah woodlands characterised by semi-arid and arid woodlands and shrublands. This fauna habitat stratification unit occurs in the arid and semi-arid interior parts of the proposal study area. They do not contain a dense or dominant tree canopy but are dominated by dense shrubs such as Dillon Bush, Cotton Bush and saltbush. Like many of the other fauna habitat stratification units, these have also generally been impacted by agriculture and grazing, with few extensive areas of dense shrublands suitable for a diverse community of native fauna species to persist throughout this unit. Nonetheless, belah woodland is associated with PCT 28 (*Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregion*) and is recognised as endangered under the BC Act, representing critical habitat for belah dependent species.

Yanga State Conservation Area (NPWS)

The project intersects with approximately 21km of Yanga State Conservation Area. The area of intersection is predominantly characterised by native arid woodland and shrublands broadly associated with arid interior areas including Mallee, Black Oak, Acacia and Hakea communities. These communities provide habitat for a number of bird species, including those that rely on Acacia specific mistletoes.

The Yanga State Conservation Area protects significant vegetation and landscape types within the largely cleared Riverina Bioregion, that are poorly represented in the reserve system at a national and state level. A range of threatened species are also present in the area.

5 Project approach to connectivity corridors

Whilst the project will result in a level of fragmentation, functional connectivity between habitats is likely to be largely maintained, as the alignment will not be completely cleared.

In particular, minimising clearing through only removing the vegetation that is within, or could grow into or fall into, the Transgrid's minimum Vegetation Clearance Requirements will result in reduced (selective) clearing in B4 and B10 zones, particularly in mallee and woodland areas. This will result in reduced fragmentation of habitats and increased connectivity.

The method of clearing requires changes based on the disturbance area. The key disturbance areas are as follows:

1. Disturbance Area A;
2. Disturbance Area A - centreline;
3. Disturbance Area B; and
4. Other areas (hazard/high risk trees and fauna corridors).

Disturbance Area A

Disturbance Area A includes the tower pads, access tracks, laydowns, parking areas, accommodation camps, construction compounds, asset protection zones and the substation.

Vegetation is permitted to be removed to ground within Disturbance Area A. Where possible opportunities to retain vegetation will occur through review of temporary design and construction methodologies.

Disturbance Area A – centreline

Disturbance Area A centreline clearing is the area required for line stringing activities. Disturbance Area A centreline clearing is 10m in width for a typical 300kV transmission line section and 20m in width for a typical 500kV transmission line section. Vegetation in this area will be removed, however topsoil and ground material would be retained (where possible).

Disturbance Area B

Disturbance Area B is the area within the easement between the transmission towers. Disturbance Area B consists of:

- Disturbance Area B4; and
- Disturbance Area B10.

330 kV transmission line

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 20m distance from the centreline (i.e. a 40m wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 20m to 30m from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

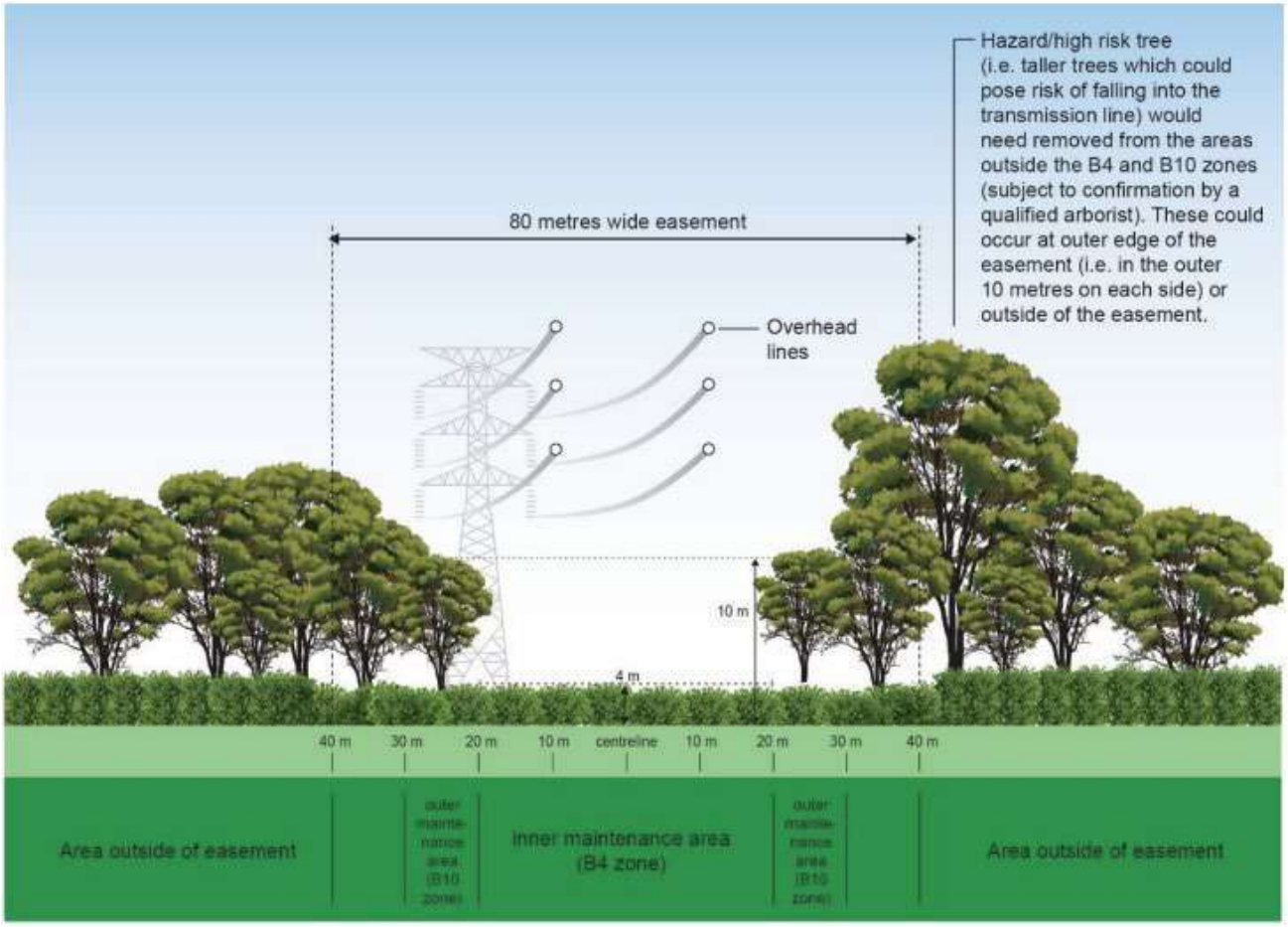
Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees have a potential growth height of 30m or more occur within a 10m zone adjacent to the 300kV transmission line easement.

500 kV transmission line

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 30m distance from the centreline (i.e. a 60m wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10m would be able to be retained in the easement section which is 30m to 40m from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees with a potential growth height of 20m or more occur within a 10m zone adjacent to the 500kV transmission line easement.



Vegetation in the centre 60 metres wide section of 80 metres wide easement to be maintained to achieved minimum clearance requirements (based on growth heights).(Assessed as up to 4 metres growth heights in inner maintenance area and up to 10 metres in outer maintenance area)

Figure 5.1 - Indicative disturbance area locations and widths applied for 330kV (source WSP August 2022, Figure 1-6, Section 1.7.1) (centreline not indicated)

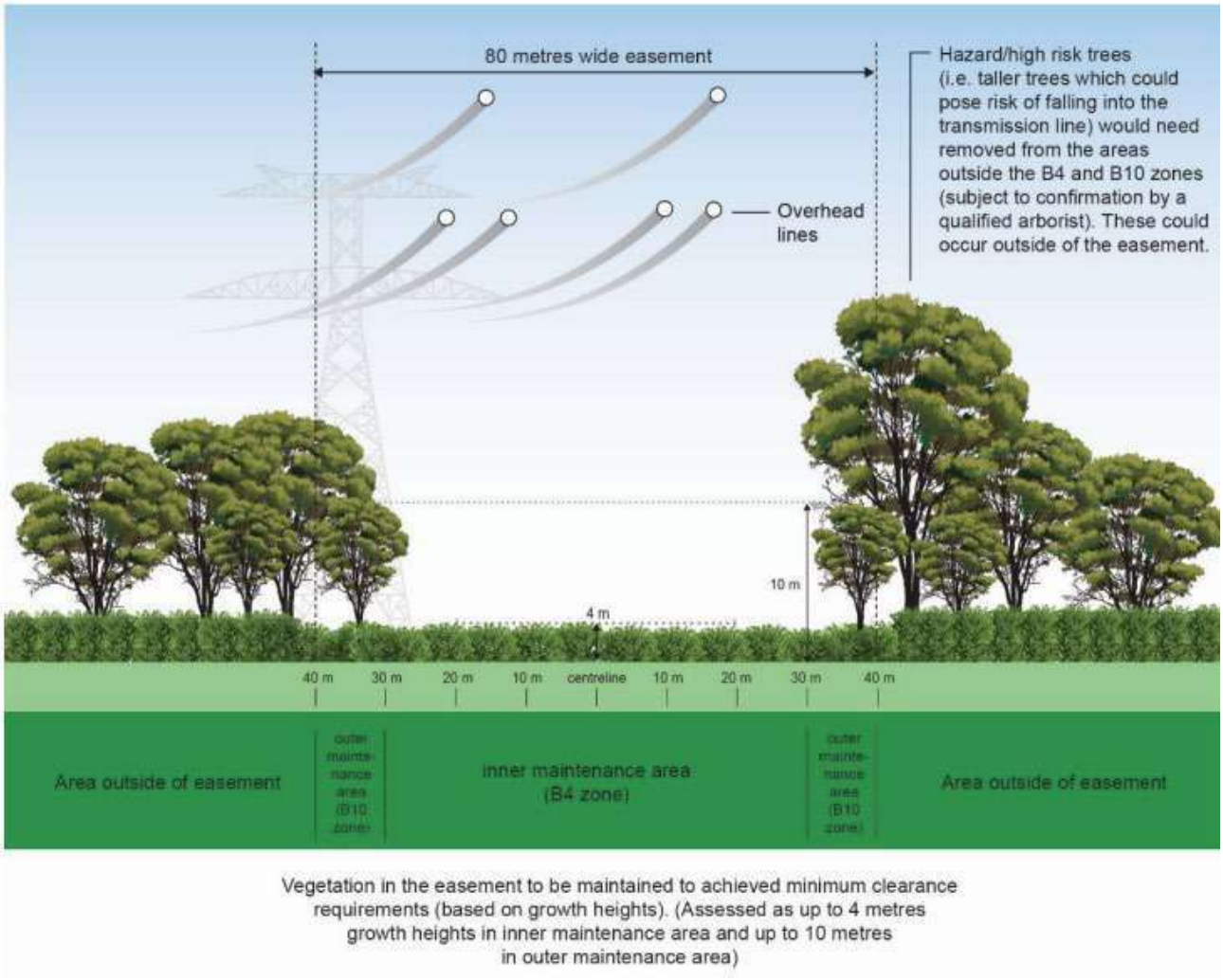


Figure 5.2 - Indicative disturbance area locations and widths applied for 550kV (source WSP August 2022, Figure 1-6, Section 1.7.1) (centreline not indicated)

Within Disturbance Area B10 the retained vegetation structure will minimise movement impacts on fauna species. In this area, ground cover and shrub layers will be retained, along with canopy in some cases (i.e., in mallee woodland where canopy species rarely exceed 10m in height and will therefore likely not encroach on the minimum VCRs). Given the nature of vegetation growth in semi-arid shrublands it is expected that disturbance to wildlife movement function will be minimal.

Connectivity corridors

The connectivity corridors will be 20m wide and will typically be located near towers where the height of the transmission line is greater, and an increased vegetation height can be accommodated. The locations of corridors must also consider the requirement to meet Transgrid's Vegetation Clearance Requirements at Maximum Operating Conditions.

These connectivity corridors will involve native vegetation retention up to the 10 metre (330 kV line) or 20 metre (500 kV line) wide temporary construction centreline clearing zone to better facilitate woodland connectivity.

Centreline clearing will occur in the connectivity corridor, however clearing on either side of the centreline will only occur to trees that are above 10m in height or have the potential to grow above 10m in height. The last 10m of the easement (the hazard tree location) will have no clearing at all. Where new or existing access tracks intersect with the connectivity corridor, these access tracks will be used during the construction period (to limit the need for additional clearing which would otherwise

be required outside of, or around, the connectivity corridor). Clearing of the connectivity corridor will therefore be required to install a new access track within the easement or maintain existing tracks.

Where a connectivity corridor is proposed and this intersects with an access track outside the easement, the existing tracks remain narrow enough not to present a significant barrier to connectivity corridors. Furthermore, the short-term duration of use of the temporary access tracks for construction, and the rare intermittent use during operation will not impact on the proposed effectiveness of the connectivity corridors.

The approach to vegetation clearing in the connectivity corridors is discussed in the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).

6 Methodology

The location of connectivity corridors will be undertaken as a two-step process, which can be summarised as:

- desktop-based GIS assessment to identify potential locations; and
- field-based ground truthing during pre-clearing surveys by the project ecologist to validate connectivity locations on site in addition to vegetation management approach to retention of native vegetation.

6.1 Desktop based assessment

The desktop GIS assessment will be undertaken to identify the potential location of connectivity corridors based on existing information within and adjacent to the disturbance zone.

Satellite imagery will be used to identify wooded areas with good connectivity. Shapefiles created through the Final BDAR were loaded to display the project footprint, and biodiversity values such as TECs, threatened species, watercourses, and conservation areas.

6.1.1 Selection principles

General connectivity principles:

- prioritise on a regional landscape scale connection of remnant vegetation across the alignment;
- retention of representative woodland vegetation if limited or poorly represented;
- major riparian crossings; and
- connectivity corridors are to be located where they provide benefit to the local landscape and should include structural vegetated connectivity linking the connectivity corridor with core habitat areas on either side of the project alignment.

6.1.2 Determining corridor locations

Applying the general selection principles above, potential corridor locations were selected based on their proximity (within or adjacent to) to:

- an abundance of threatened flora;
- threatened fauna;
- a mapped field verified TECs or in close proximity to field verified TECs;
- watercourses and riparian vegetation;
- as default preferred corridor location adjacent tower footprint in targeted woodland vegetation types and/or otherwise ‘timbered’ areas where transmission conductor height is high enough to maximise vegetation retention and comply with Transgrid’s VCRs at Maximum Operating Conditions; and
- proximity/connected to land adjacent to conservation areas and reserves and stewardship sites.

6.1.3 Detailed design change

As detailed design is progressed and finalised, tower locations, and therefore connectivity corridor locations, may change. To accommodate necessary changes, each connectivity corridor will be given a determination as to whether their location is flexible (and can therefore be realigned) or fixed (and will ideally remain in place). Heritage features may also influence the final connectivity corridor locations.

6.1.4 PCT selection

Of the 38 PCTs identified across five IBRA subregions with nine vegetation formations, a total of 28 target PCTs were identified as target woodland or 'timbered' vegetation types. Table 6.1 provides a description of these PCTs.

Table 6.1 - List of PCTs within the project site considered suitable woodland vegetation types for connectivity corridor locations

PCT no.	PCT description	Vegetation class	Vegetation formation	IBRA subregion
5	River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion	Inland Riverine Forests	Forested Wetlands	Lower Slopes Inland Slopes
7	River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion	Inland Riverine Forests	Forested Wetlands	Murrumbidgee
8	River Red Gum - Warrego Grass - Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion)	Inland Riverine Forests	Forested Wetlands	Murrumbidgee
11	River Red Gum – Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Inland Riverine Forests	Forested Wetlands	Murrumbidgee
13	Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Inland Floodplain Woodlands	Semi-arid Woodlands (Grassy sub-formation)	Murrumbidgee
15	Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Inland Floodplain Woodlands	Semi-arid Woodlands (Grassy sub-formation)	South Olary Plain Lachlan Murrumbidgee
22	Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW	Riverine Sandhill Woodlands	Semi-arid Woodlands (Shrubby sub-formation)	South Olary Plain
23	Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones	Riverine Sandhill Woodlands	Semi-arid Woodlands (Shrubby sub-formation)	South Olary Plain Lachlan Murrumbidgee
26	Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion	Riverine Plain Woodlands	Semi-arid Woodlands (Grassy sub-formation)	Murrumbidgee
28	White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zones	Riverine Sandhill Woodlands	Semi-arid Woodlands (Shrubby sub-formation)	Murrumbidgee
58	Black Oak – Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion	Semi-arid Sand Plain Woodlands	Semi-arid Woodlands (Shrubby sub-formation)	South Olary Plain Lachlan Murrumbidgee
74	Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion	Floodplain Transition Woodlands	Grassy Woodlands	Lower Slopes Inland Slopes

PCT no.	PCT description	Vegetation class	Vegetation formation	IBRA subregion
75	Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion	Riverine Sandhill Woodlands	Semi-arid Woodlands (Shrubby sub-formation)	Murrumbidgee Lower Slopes
76	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	Floodplain Transition Woodlands	Grassy woodlands	Lower Slopes
80	Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion	Floodplain Transition Woodlands	Grassy woodlands	Lower Slopes Inland Slopes
110	Western Grey Box – Cypress Pine shrubby woodland on stony footslopes in the NSW South Western Slopes Bioregion and Riverina Bioregion	Western Slopes Dry Sclerophyll Forests	Dry Sclerophyll Forests (Shrubby sub-formation)	Inland Slopes
170	Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	Sand Plain Mallee Woodlands	Semi-arid Woodlands (Shrubby sub-formation)	South Olary Plain Lachlan Murrumbidgee
171	Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion	Dune Mallee Woodlands	Semi-arid Woodlands (Shrubby sub-formation)	South Olary Plain
172	Deep sand mallee of irregular dunefields of the semi-arid (warm) zone	Dune Mallee Woodlands	Semi-arid Woodlands (Shrubby sub-formation)	South Olary Plain
249	River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW	Inland Riverine Forests	Forested Wetlands	Lower Slopes
267	White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion	Western Slopes Grassy Woodlands	Grassy Woodlands	Inland Slopes
277	Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Western Slopes Grassy Woodlands	Grassy Woodlands	Lower Slopes Inland Slopes
319	Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion	Inland Rocky Hill Woodlands	Semi-arid Woodlands (Shrubby sub-formation)	Inland Slopes

6.2 Field site validation

Connectivity corridor locations identified by the GIS desktop process will be validated through the pre-clearing survey to be undertaken by an ecologist. The pre-clearing survey will be undertaken to validate the corridor selection against the priority considerations.

Specifically, the following process will be undertaken:

- undertake site visit to connectivity corridor georeferenced locations;
- confirm site values against priority selection considerations; and
- validate selection or recommend necessary changes.

The pre-clearing survey will provide the rationale to any changes required that may include:

- the movement of locations as required as part of detailed design considerations to mitigate impacts;

- the movement or removal of connectivity corridors in response to change on ground conditions (e.g., vegetation has been recently cleared, quality significant reduced, etc.); and
- the movement or removal as a result of previously undetected barrier (e.g., new fence).

6.3 Assessment against Transgrid vegetation clearance requirements

The location and management of all connectivity corridors must be in accordance with on Transgrid's Vegetation Clearance Requirements at Maximum Operating Conditions. Specifically, corridor locations reviewed on a site-by-site basis will need to meet the Vegetation Clearance Requirements (VCR) as summarised below in Table 6.2.

Table 6.2 - Summary vegetation clearance requirements

Nominal system voltage	Vegetation clearance at maximum line operating conditions (min. safe working distance and regrowth rate)
330kV	3.0m + regrowth allowance
500kV	3.9m + regrowth allowance

7 Indicative corridor locations

A total of 13 regional and seven (7) local connectivity corridors have been identified within the project area.

The distance between connectivity corridors differs considerably in response to identified landscape features/factors, and where biodiversity assets are considered restricted or immovable in context to the ecological benefits sought with the establishment of a corridor. Indicative corridor locations are shown in Figure 7.1 with proposed locations of the connectivity corridors indicated within Annexure A.

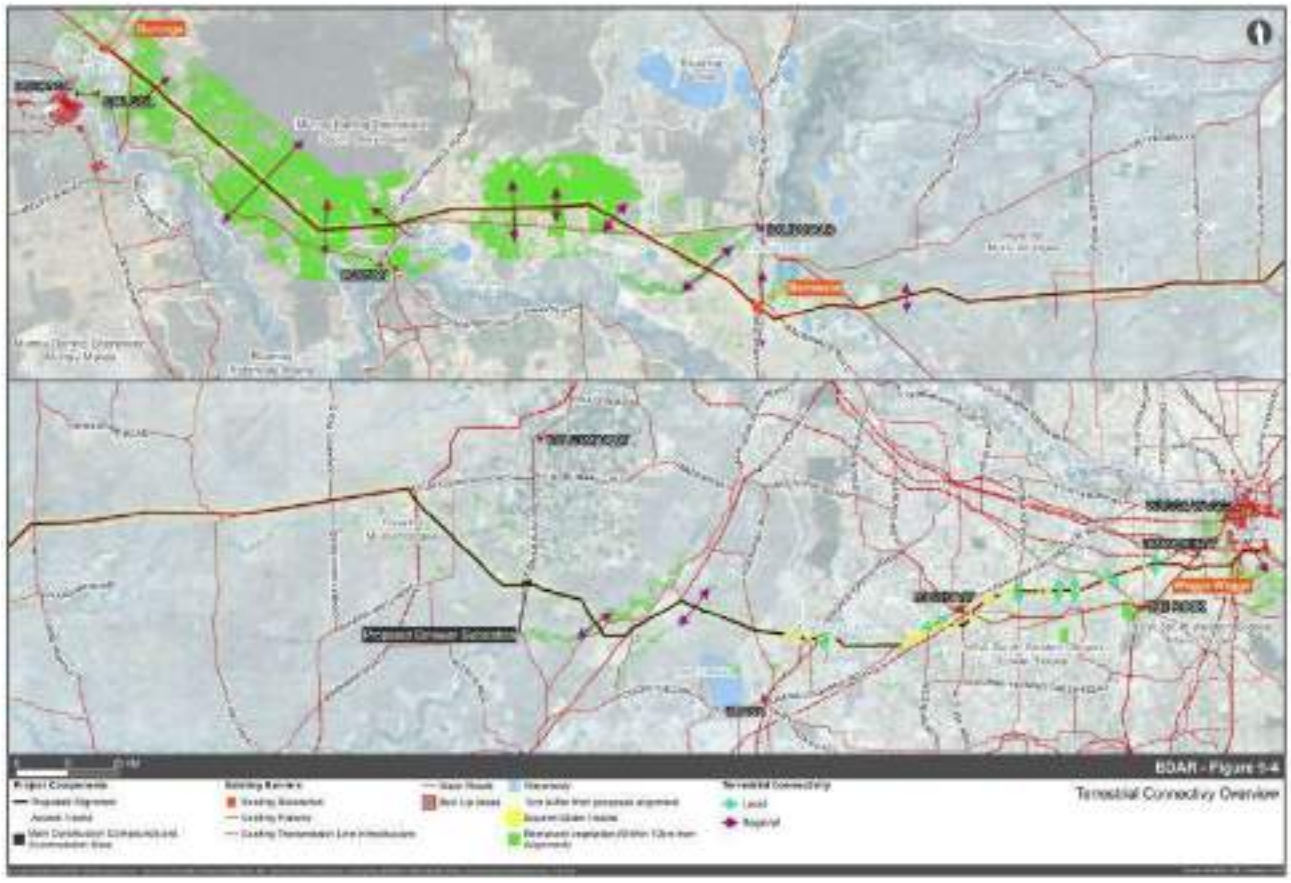


Figure 7.1 - Indicative fauna connectivity corridor locations (Figure 9.4 in the Final BDAR)

7.1 PCT representation

Woodland based PCT types have been considered a priority focus for locating connectivity locations, in accordance with RMM B7. Mallee and arid woodland and tall canopy riparian zones, floodplains and grassy woodland habitats dominate the woodland vegetation types which have been targeted for corridor locations. Table 7.1 lists those woodland PCTs where connectivity corridors have been located.

Table 7.1 - Proportion of connectivity corridors per woodland-based PCT

PCT	PCT description	Total no. corridors
5	River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and eastern Riverina Bioregion	2
7	River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion	1

PCT	PCT description	Total no. corridors
8	River Red Gum – Warrego Grass – Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion)	1 (could be two if count either side of Murrumbidgee River)
11	River Red Gum – Lignum very tall open forest / woodland wetland	1
13	Black Box – Lignum woodland wetland	0
15	Black Box open woodland wetland with chenopod understorey	1
22	Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW	1
23	Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones	0
26	Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion	2
28	White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zones	1
58	Black Oak – Western Rosewood open woodland	2
74	Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion	1
75	Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion	1
76	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions	1
80	Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion	2
110	Western Grey Box – Cypress Pine shrubby woodland on stony footslopes in the NSW South Western Slopes Bioregion and Riverina Bioregion	1
170	Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	5
171	Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion	2
172	Deep sand mallee of irregular dunefields of the semi-arid (warm) zone	1
249	River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW	0
267	White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion	1
277	Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	1
319	Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion.	1

7.2 Habitat for threatened species and TEC presence

The occurrence of threatened flora, fauna, and ecological communities has been considered a priority when selecting locations for connectivity corridors. The representation by priority location of corridors based on threatened flora, fauna, and TEC presence is shown in Table 7.2.

Table 7.2 - Number of connectivity corridor locations selected based on threatened species factors and proximity to a TEC

Connectivity corridor attribute	No. of key connectivity corridor locations	Associated PCTs
Within or in proximity to TEC	13	PCT 22, 23, 26, 28, 74, 75, 76, 80, 110, 267 and 277
Contains or in proximity to threatened flora and fauna records or significant habitat including dense woodland vegetation.	Threatened flora records mainly occurs in area non-woodland vegetation formations PCTs. Threatened fauna occur in 17 PCTs.	PCT 7, 8, 11, 13, 15, 26, 28, 58, 74, 75, 76, 80, 170, 171, 172, 267, 277
Squirrel Glider crossings	9	PCT 74

7.3 Presence of landscape features

Alignment with significant landscape features as per RMM B7, such key riparian crossings, Yanga Conservation Reserve, and the (Confidential BSA 2), was a priority for connectivity corridor identification. Table 7.3 provides the number of connectivity locations that were identified to meet these priority connectivity corridor locations.

Table 7.3 - Number of connectivity corridor locations selected based on significant landscape features presence

Connectivity corridor attribute	No. of connectivity corridor locations	Associated PCTs
Along or in proximity to a waterway	10	5, 7, 8, 15, 11, 13
Adjacent to offset area	-	None – offset area in Western Section

7.4 Other PCTs

Table 4.1 of this strategy lists the fauna guilds which may have impacts to either aerial or terrestrial connectivity and their associated PCTs. Connectivity locations have also been provided for these relevant PCTs as detailed within Table 7.4.

Table 7.4 - Number of corridor locations based on other PCTs

Connectivity type	No. of connectivity corridor locations	Associated PCTs (other than those already listed above)
Aerial and terrestrial connectivity	12	17, 24, 44, 45, 46, 47, 53, 143, 157, 160, 163, 164, 182, 199 and 216

8 Under-transmission line glider poles

RMM B7 identifies the requirement for the installation of under-transmission glider poles in nine locations (refer to Figure 8.3 to Figure 8.7), in order to assist Squirrel Gliders who do not typically run along the ground but glide from tree to tree.

This approach to mitigate impacts to connectivity for Squirrel Gliders could include the use of timber poles and/or retained tall tree stumps.

8.1 Process for identification of suitable mitigation

The project's arborist will assess the trees that require clearing within the locations identified in Figure 8.3 to Figure 8.6 in order to determine whether any trees may provide suitable tall tree stumps that meet the following criteria:

- the tree is located at a suitable distance away from the transmission lines and towers so that they cannot present as a hazard/high risk tree;
- the tree once cut would provide a stump wider than timber poles, to provide a large landing surface (ideally 10-20cm wide);
- the tree once cut would be relatively straight and vertical to reduce the risk of collapse and maximise standing longevity; and
- the tree once cut would be resistant to decay and the root system would remain intact.

Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees have a potential growth height of 30m or more occur within a 10m zone adjacent to the 300 kV transmission line easement. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees with a potential growth height of 20m or more occur within a 10m zone adjacent to the 500 kV transmission line easement.

Should trees be unable to provide the required connectivity for Squirrel Gliders, man-made glider poles will be investigated as an alternative. An example of what these man-made glider poles could look like is reflected in Figure 8.1.



Figure 8.1 - Example of man-made glider poles (Source: Fauna Crossings Australia)

As much canopy cover should be maintained as possible in order to provide connection to and from the under-transmission glider poles.

8.2 Calculating the height of under-transmission line glider poles

The Final BDAR stipulated that the glide ratio (glide distance divided by height dropped) of Squirrel Gliders has been calculated at 1.84 (equivalent to a glide angle of 29° (Goldingay & Taylor 2009)). With this ratio, the maximum distance between stumps that are 10m in height is 18.4m. The Final BDAR also noted that gliders should however land at least 2 to 3m above the ground and shorter glides are typically steeper in descent initially because of the effect of a steep launch and less distance to level off.

Therefore, stumps that are 10m in height should be a maximum of 10–15m apart.

Figure 8.2 reflects a potential arrangement for under-transmission line glider poles.

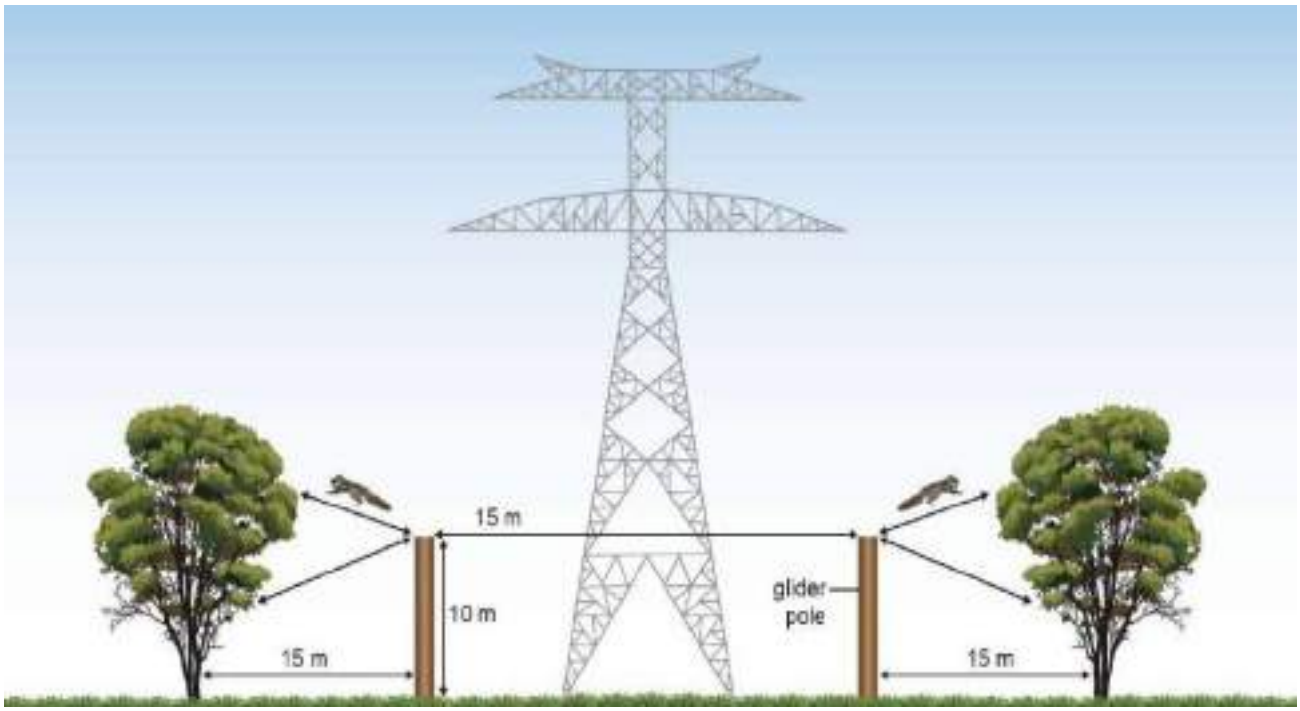


Figure 8.2 - Potential under-transmission line glider poles arrangement (Figure 9.8 in Final BDAR)

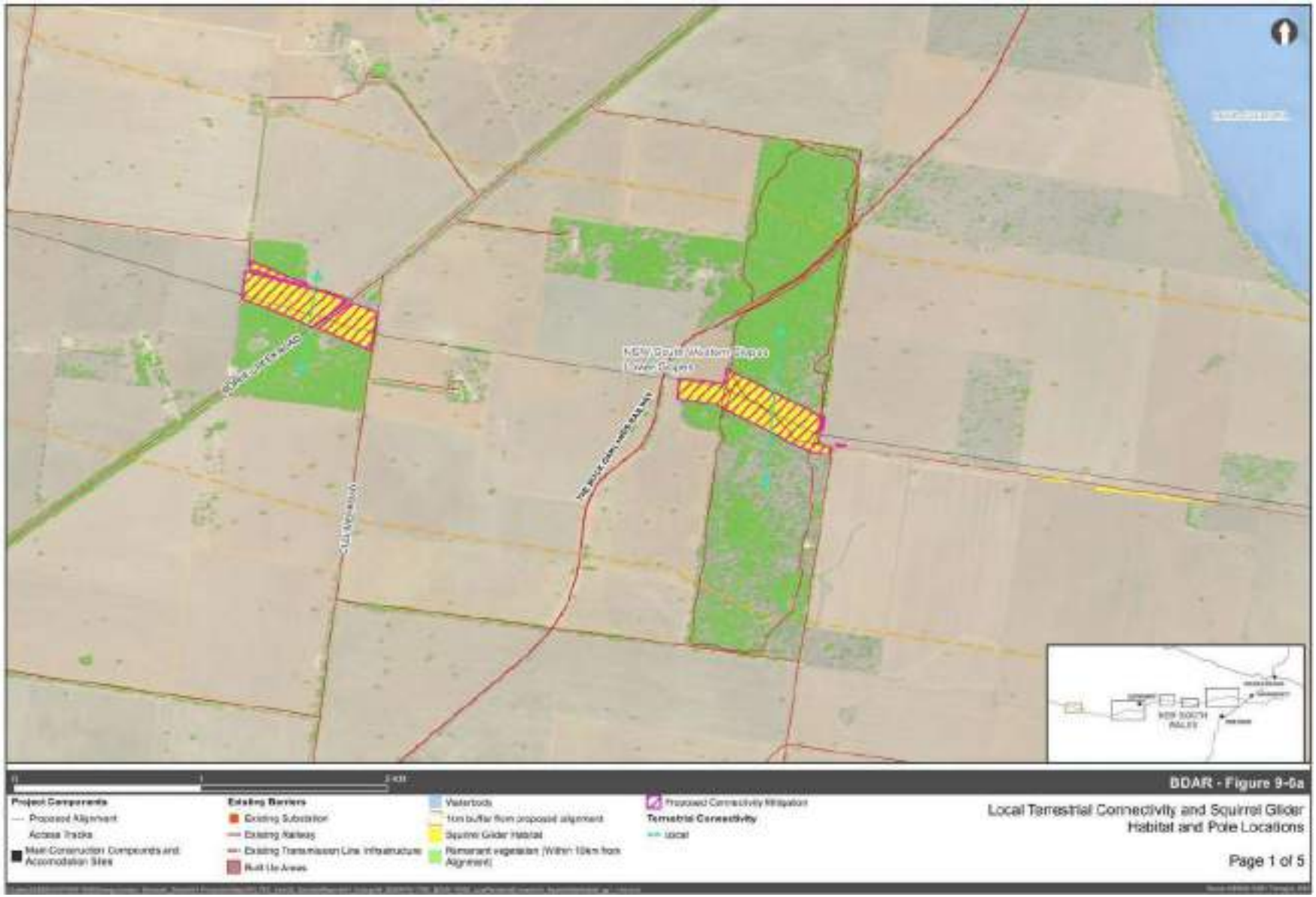


Figure 8.3 - Areas for proposed under-transmission glider poles (Figure 9-6a in the Final BDAR)

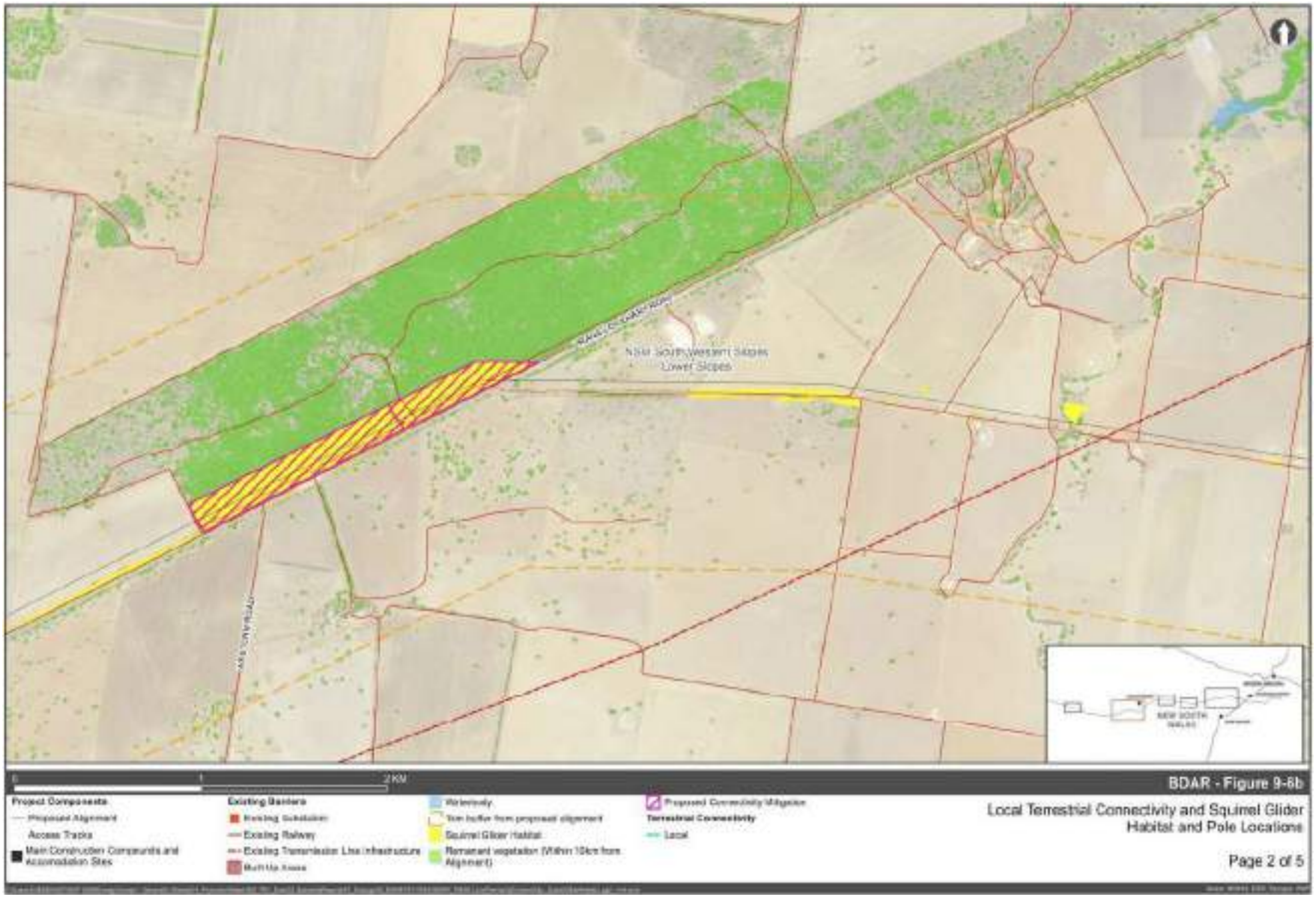


Figure 8.4 - Areas for proposed under-transmission glider poles (Figure 9-6b in the Final BDAR)

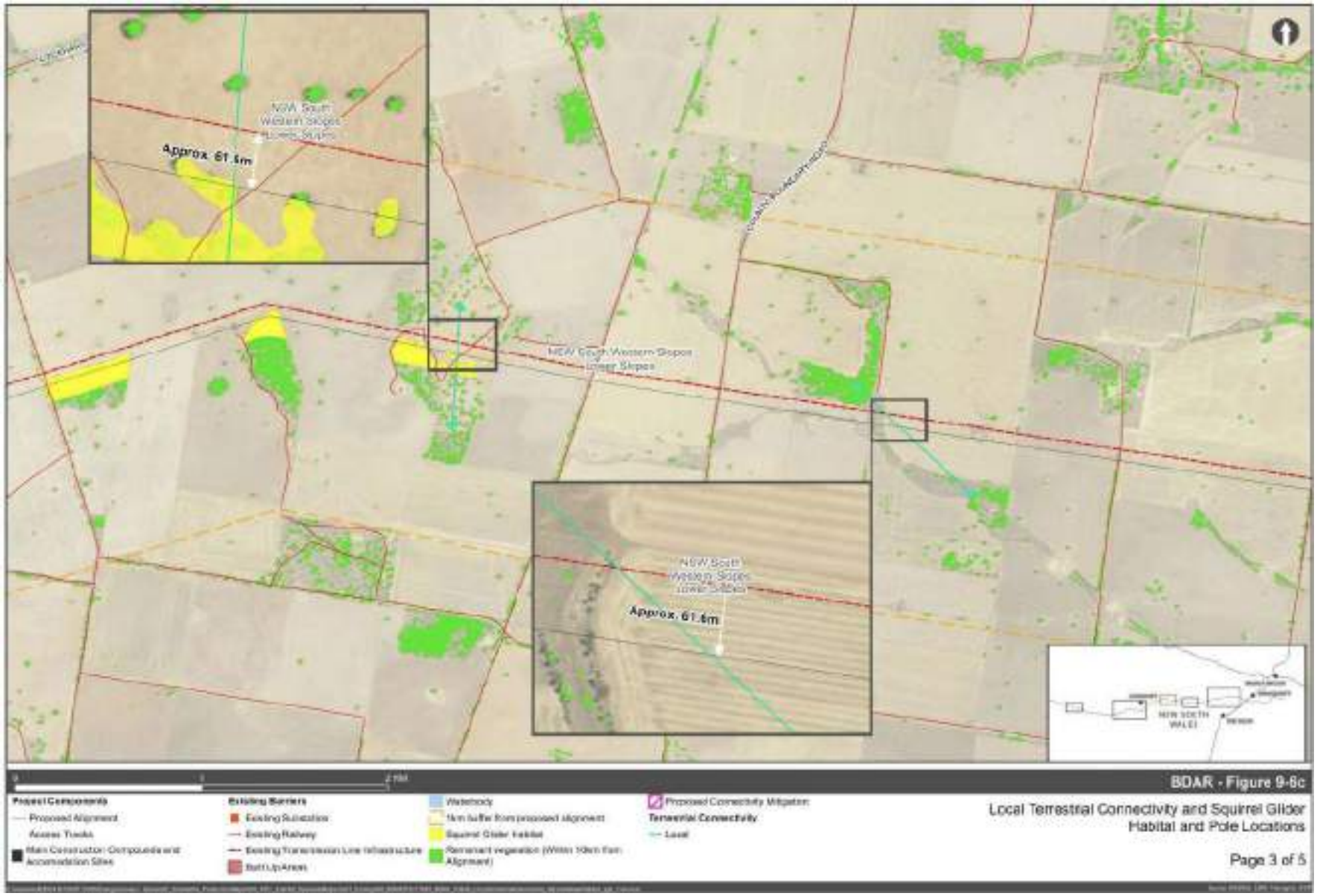


Figure 8.5 - Areas for proposed under-transmission glider poles (Figure 9-6c in the Final BDAR)

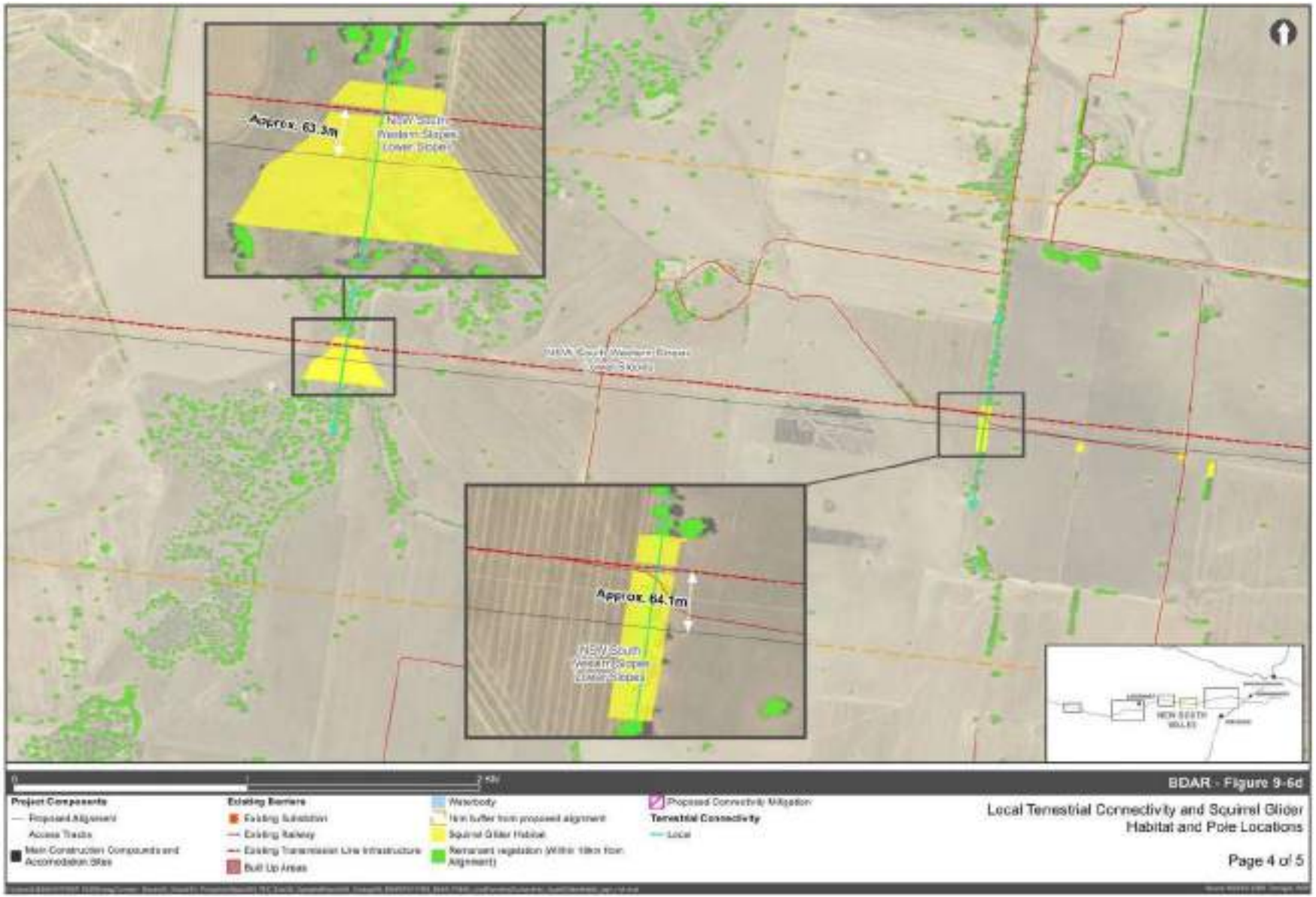


Figure 8.6 - Areas for proposed under-transmission glider poles (Figure 9-6d in the Final BDAR)

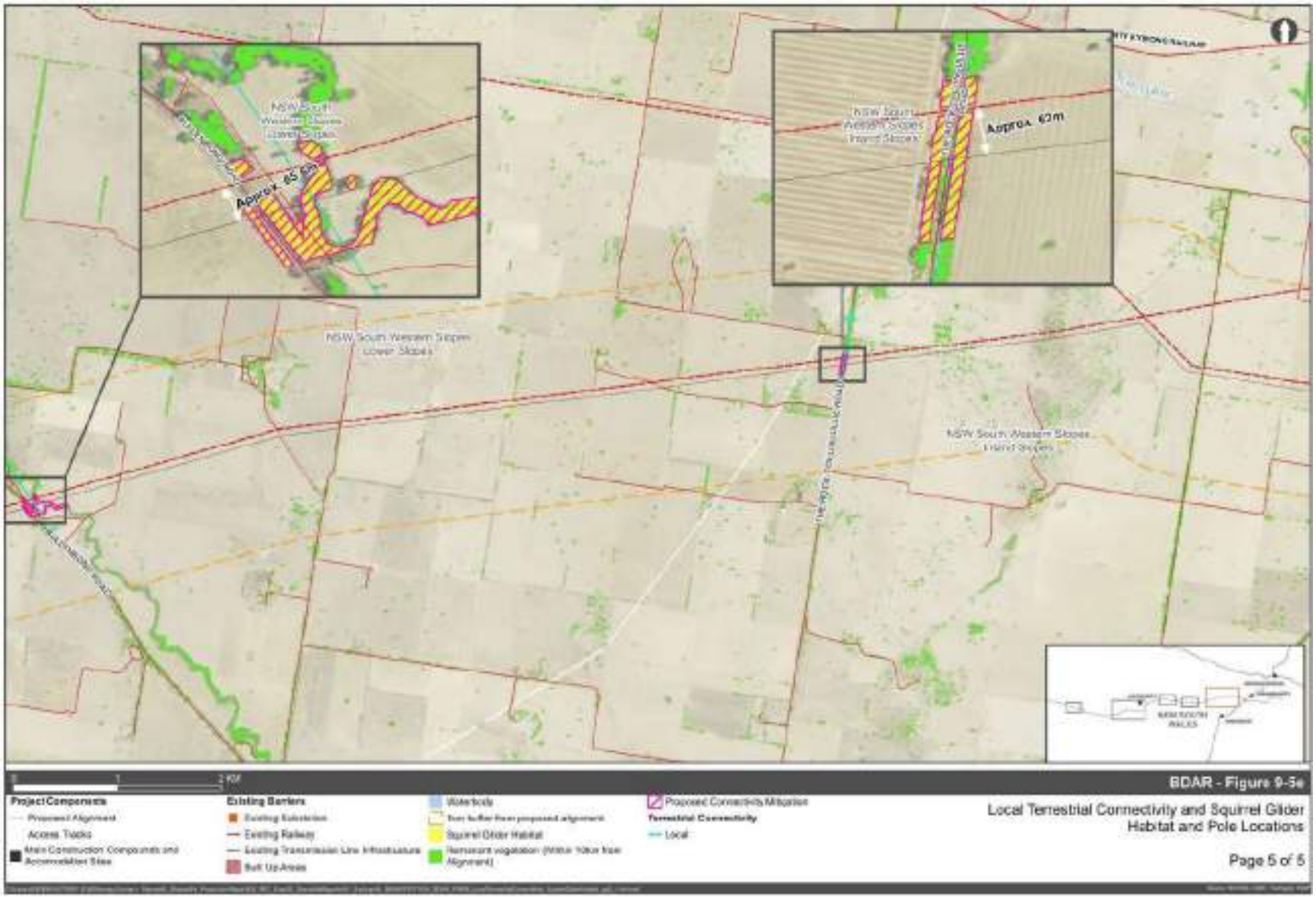


Figure 8.7 - Areas for proposed under-transmission glider poles (Figure 9-6e in the Final BDAR)

9 Conductor line marking and bird diverters

Revised mitigation measure B6 requires conductor line marking techniques to be implemented to minimise bird strike. Bird diverters of the 'flapper' variety have been selected and are discussed below.

9.1 Locations

As required by RMM B6, bird diverters are to be installed on the transmission lines within one kilometre of wetland/riverine habitats and key water bodies listed in Section 3.1.3 of the BDAR.

The likely key waterbody locations for waterbirds within one kilometre of the proposal (west to east) are:

- Dry Lake/Lake Benanee;
- Box Creek;
- Murrumbidgee River;
- Condoulpe Creek/Condoulpe Lake;
- Lintot Lake;
- Abercrombie Creek;
- the Forest Creek;
- Yanco Creek;
- Colombo Creek; and
- Lake Cullivel.

These are mapped in Figure 9.3 and Figure 9.4.

9.2 Design standards

The two potential types of bird diverters which are currently proposed are identified in Figure 9.1 and Figure 9.2 (though will be subject to the detailed design process) The spacings of the bird diverters installed on the lines will be in accordance with the manufacturer's specifications of approximately 250m spacing and local conditions. The diverters will be installed via drone (UAV) or by clamping (hot stick).

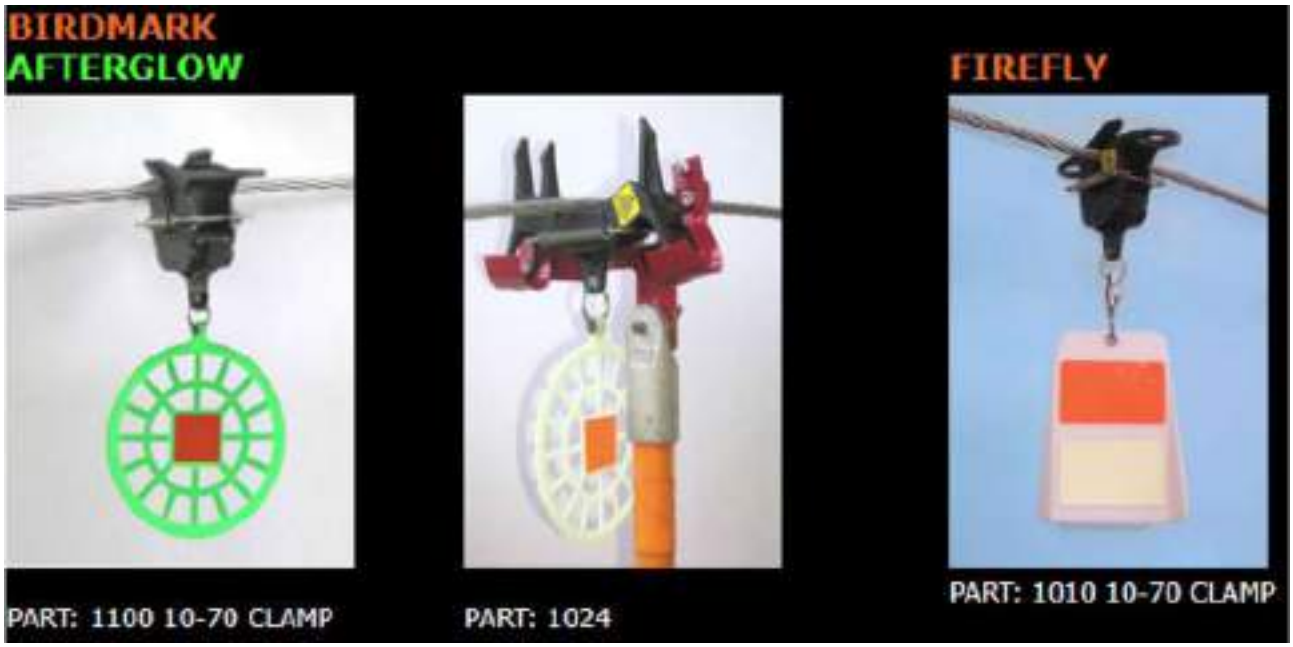


Figure 9.1 - Two types of bird diverters – AfterGlow and Firefly

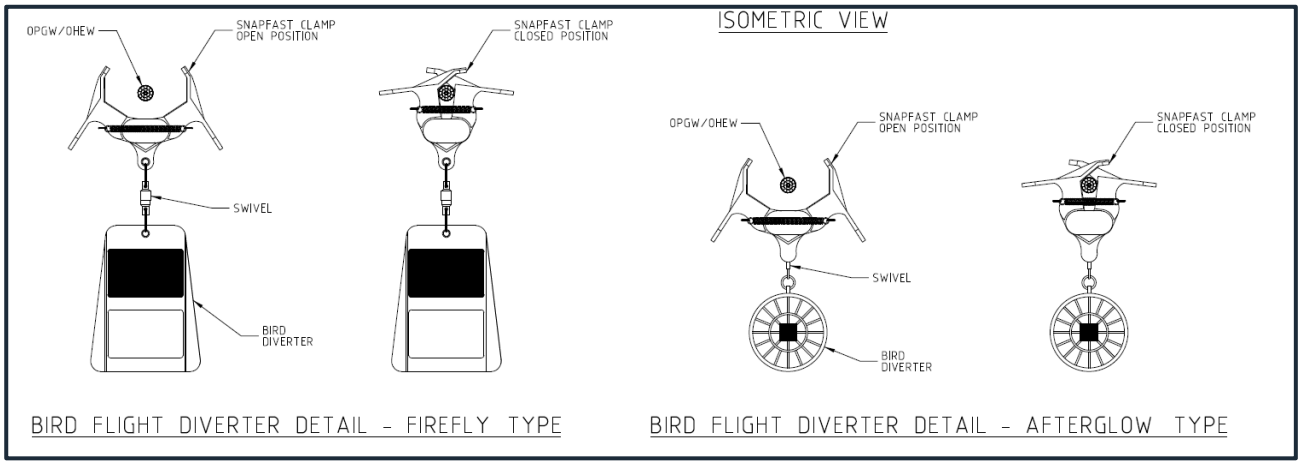


Figure 9.2 - Design detail of the bird diverters

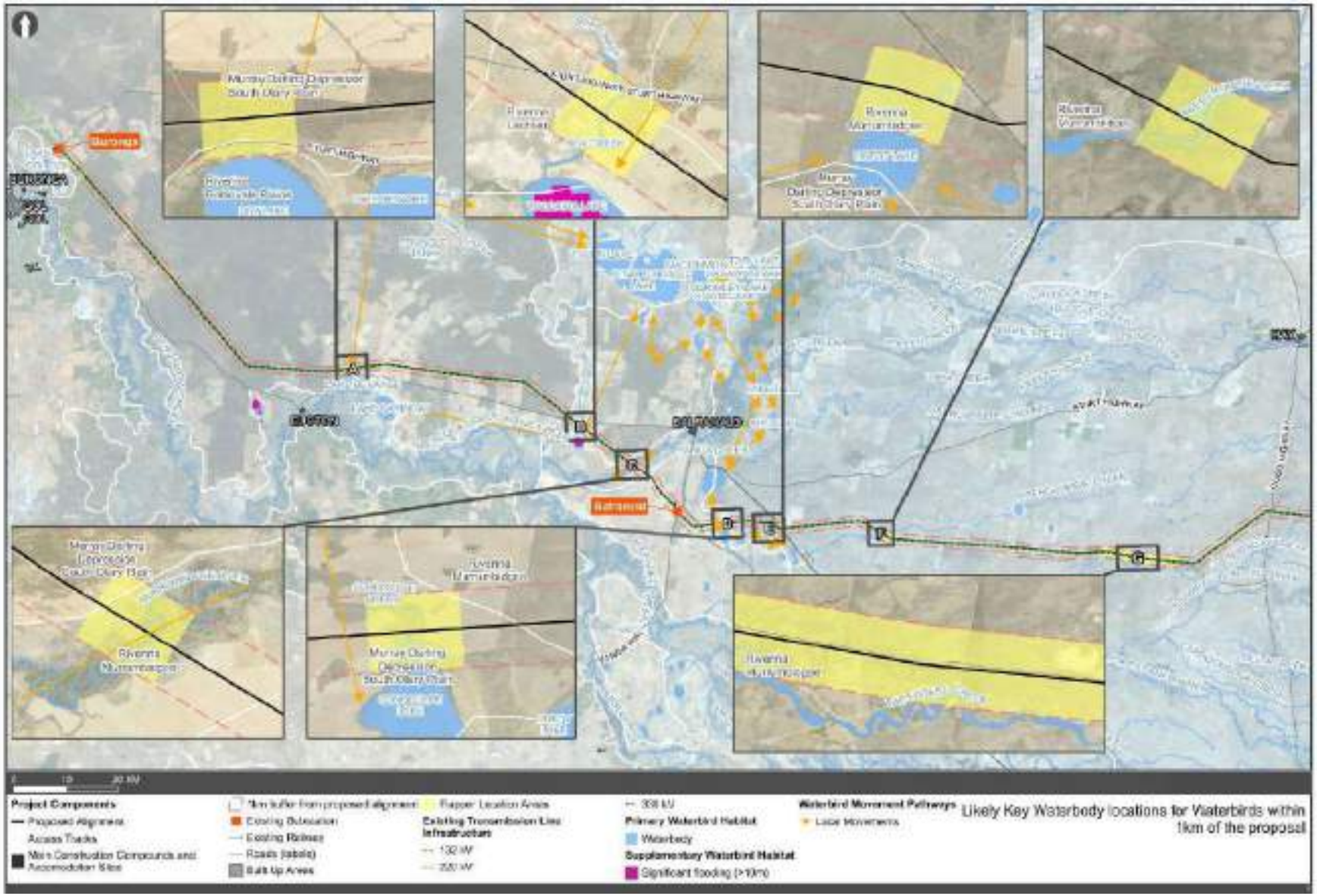


Figure 9.3 - Key waterbodies for bird diverter installation (Figure 3.5a in the Final BDAR)

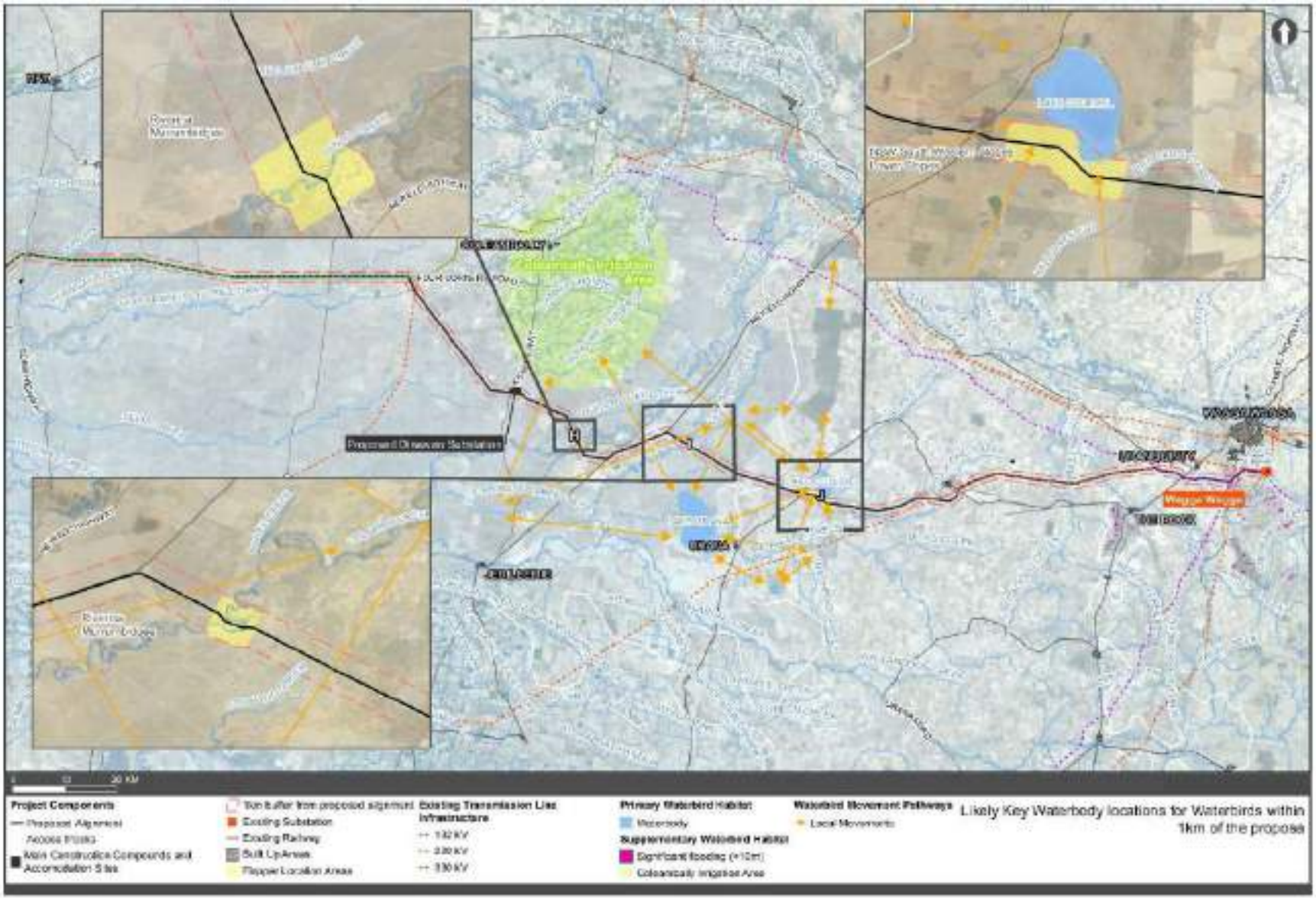
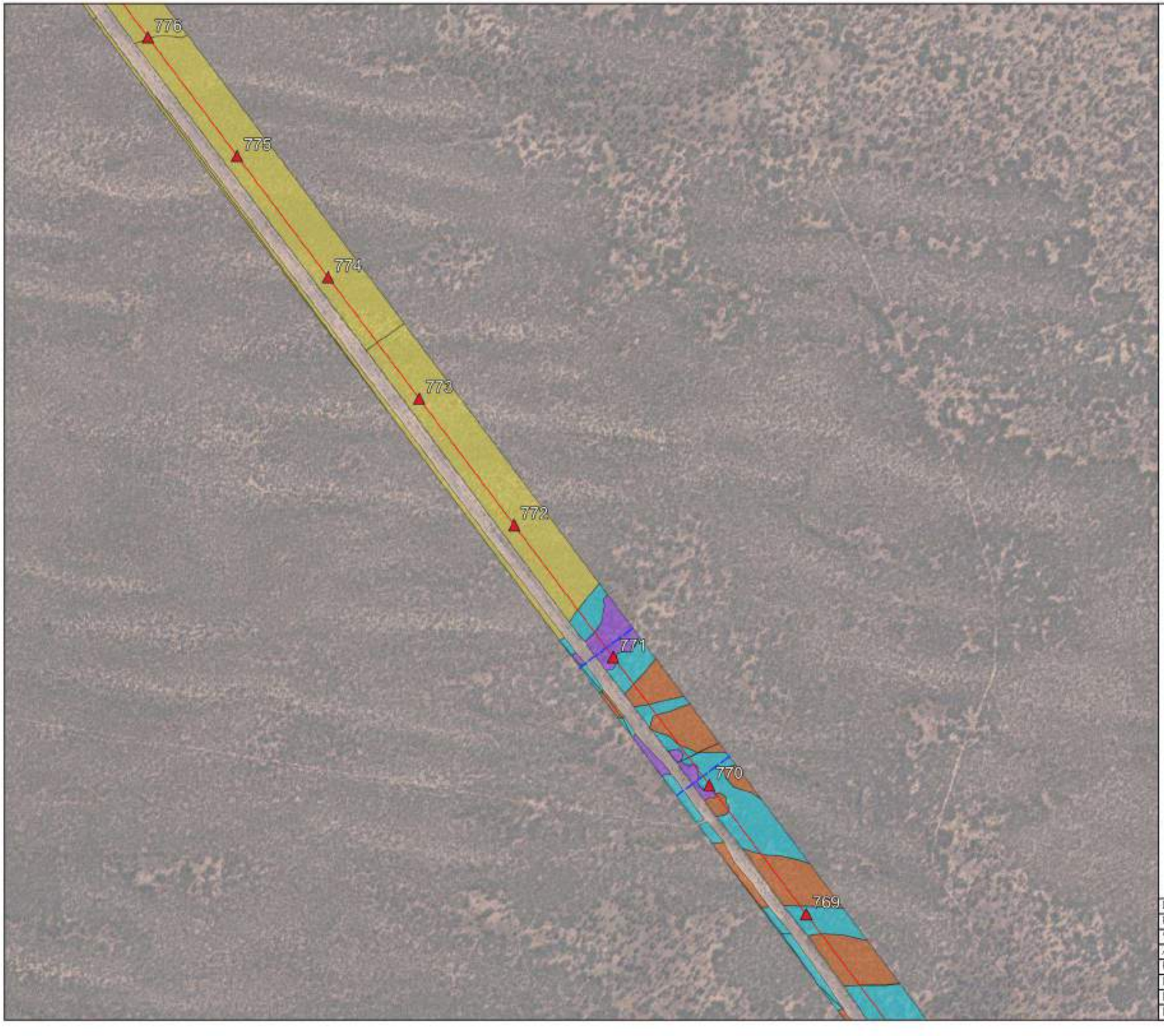


Figure 9.4 - Key waterbodies for bird diverter installation (Figure 3.5b in the Final BDAR)

Annexure A – Connectivity corridor mapping



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171
- PCT172
- PCT58

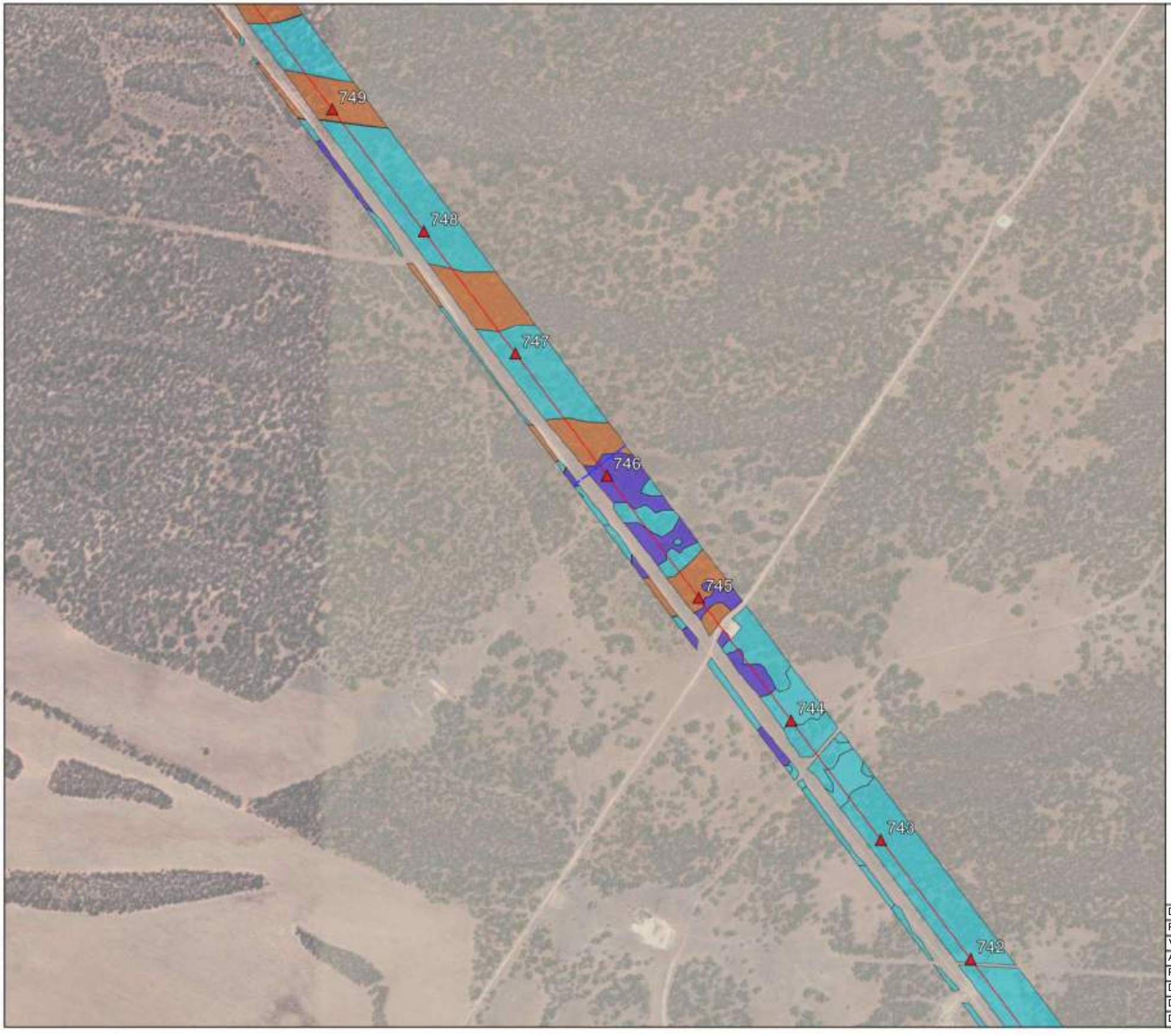
Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 1 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Fauna Guilds)

- 143

PCTs (Woodland)

- PCT170
- PCT171

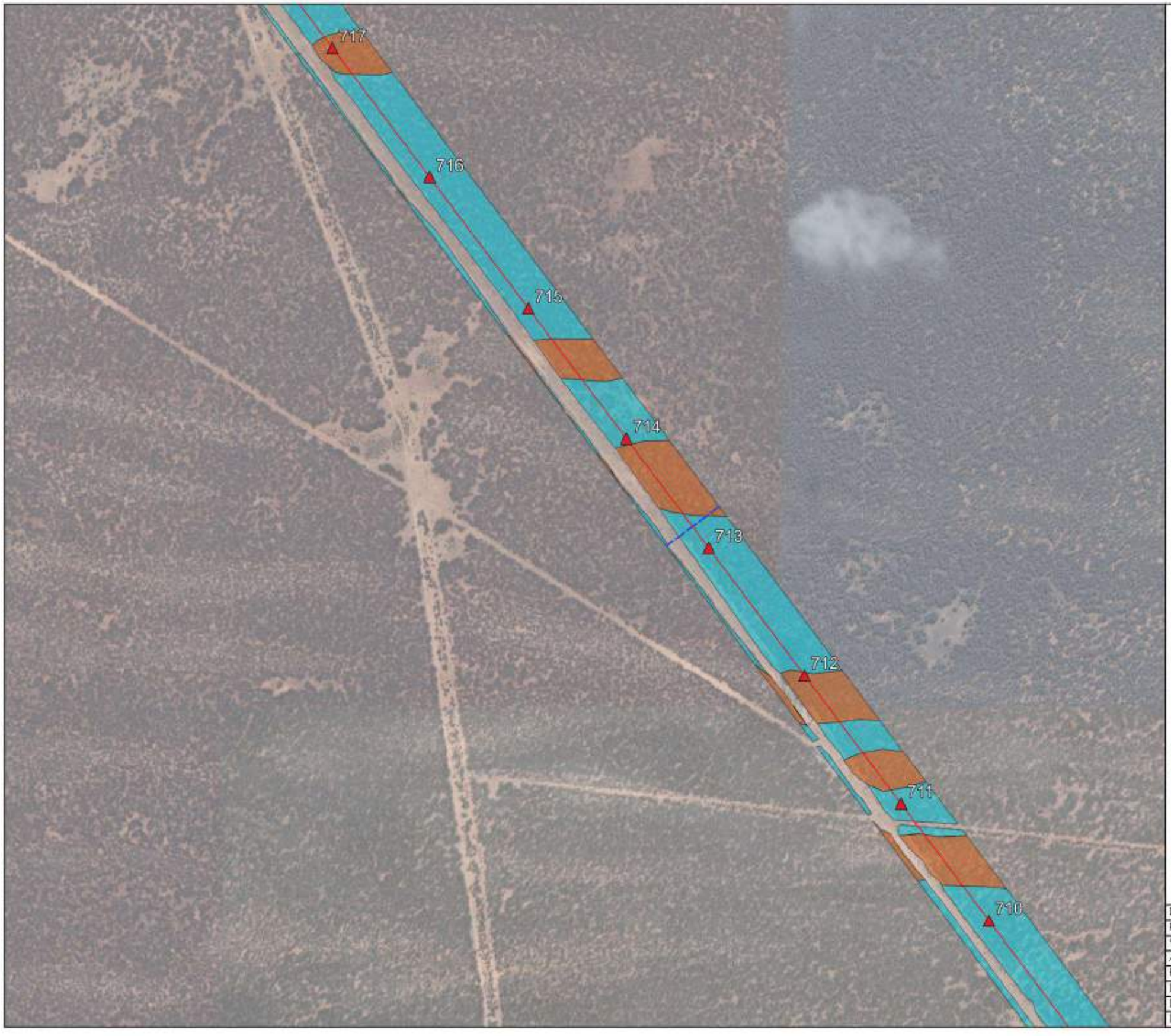
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Connectivity Corridors NSW-Eastern

Map 2 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171

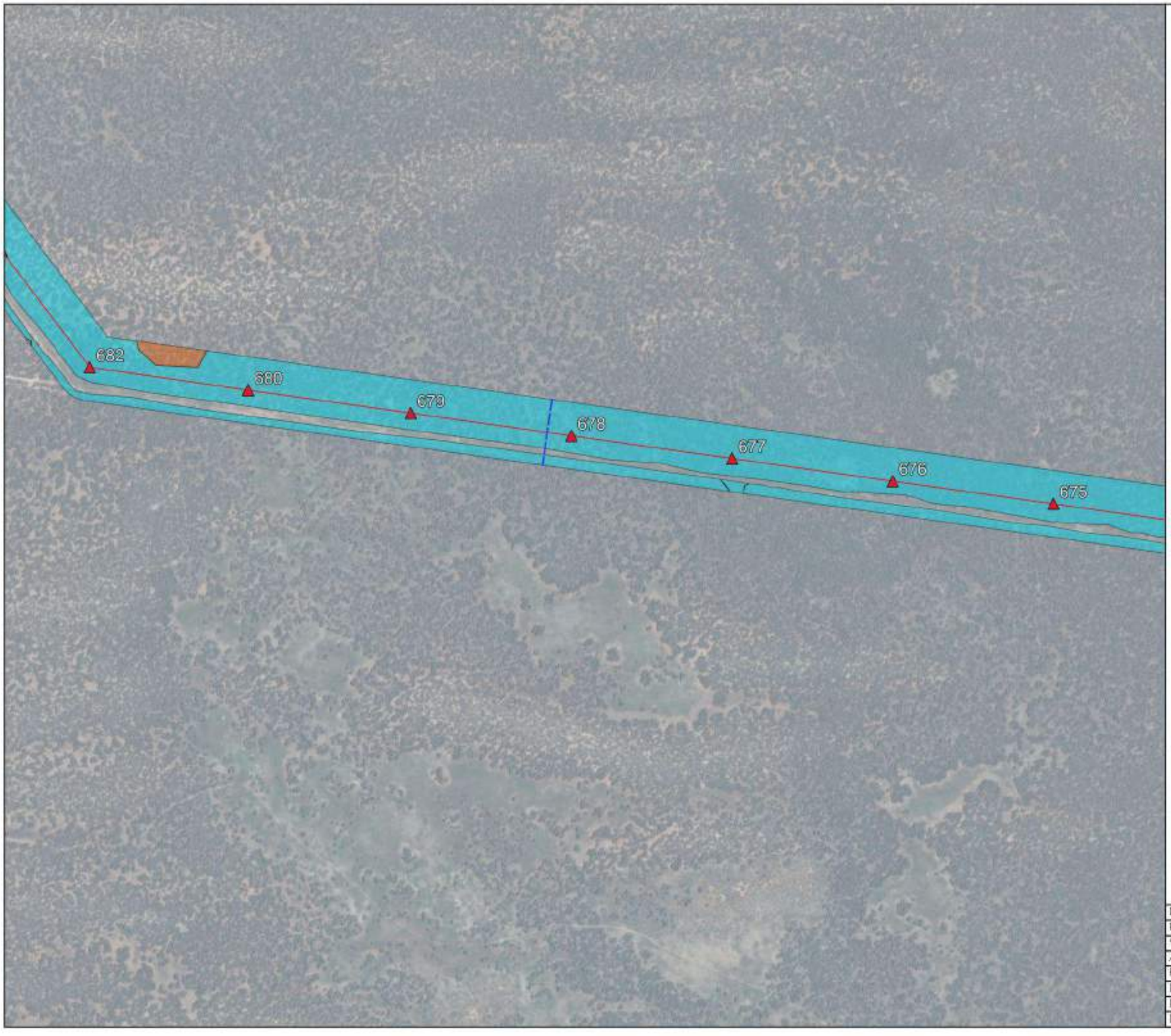
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Connectivity Corridors NSW-Eastern

Map 3 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171

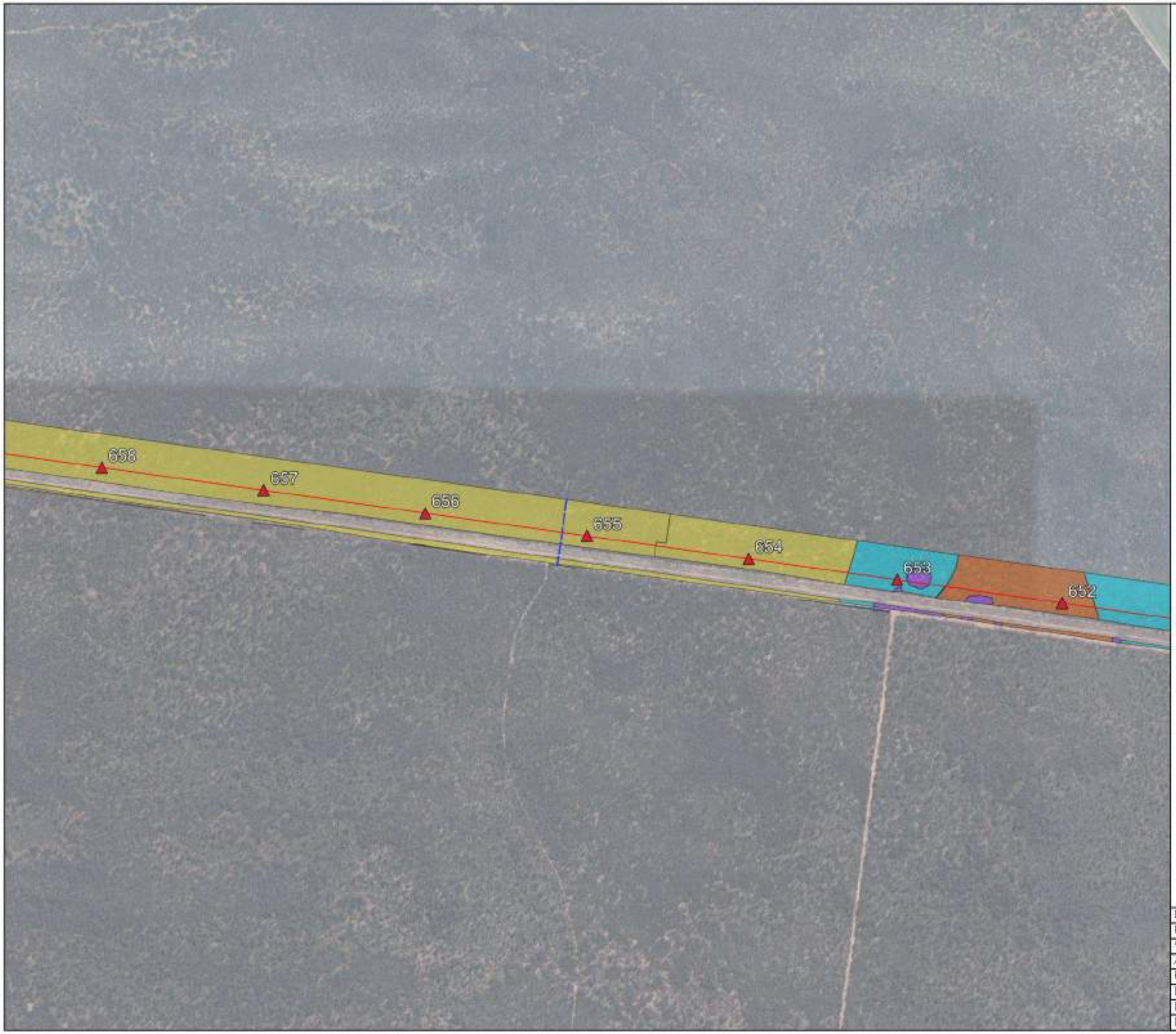
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Connectivity Corridors NSW-Eastern

Map 4 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171
- PCT172
- PCT58

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 5 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171

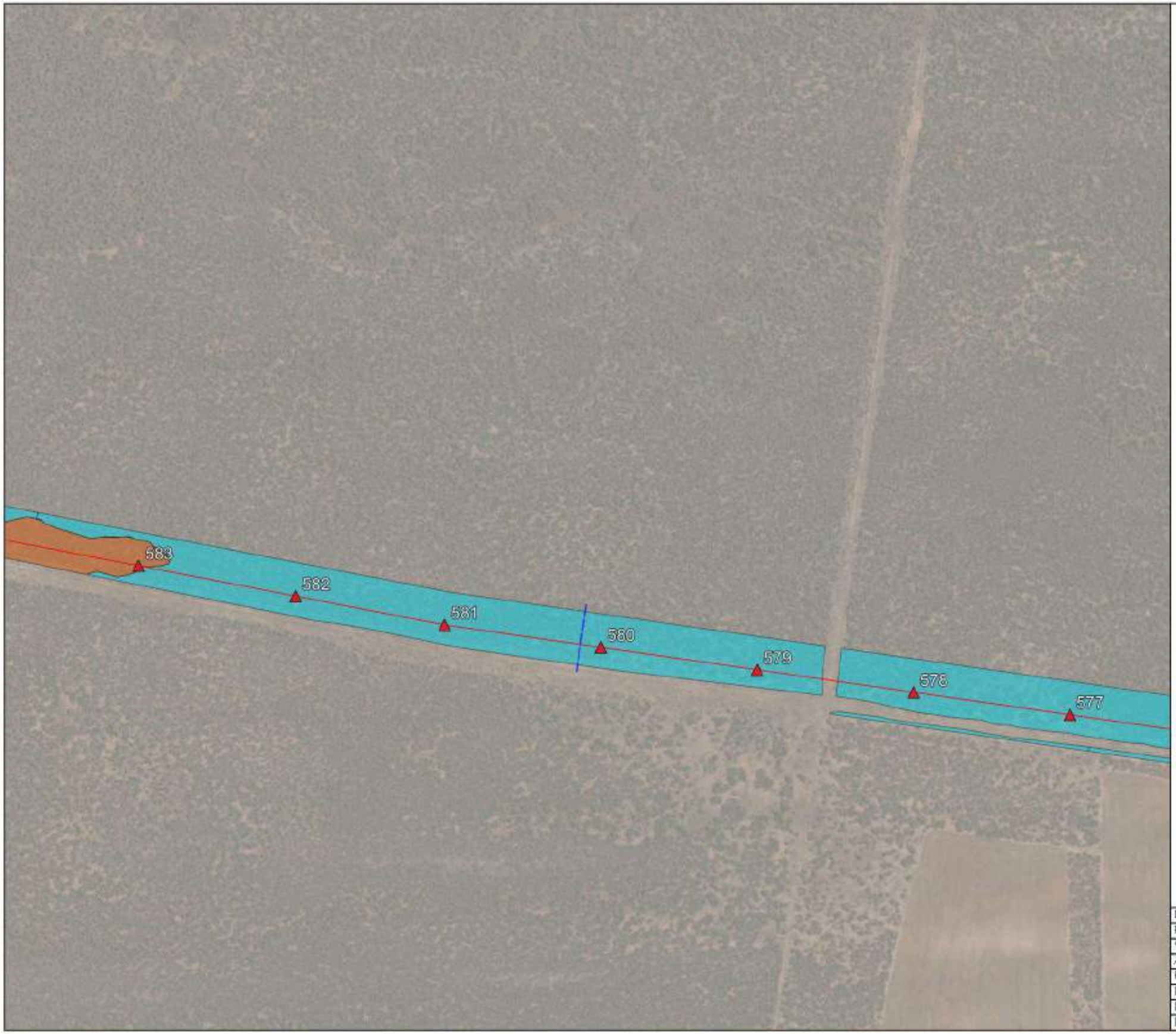
Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 6 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171

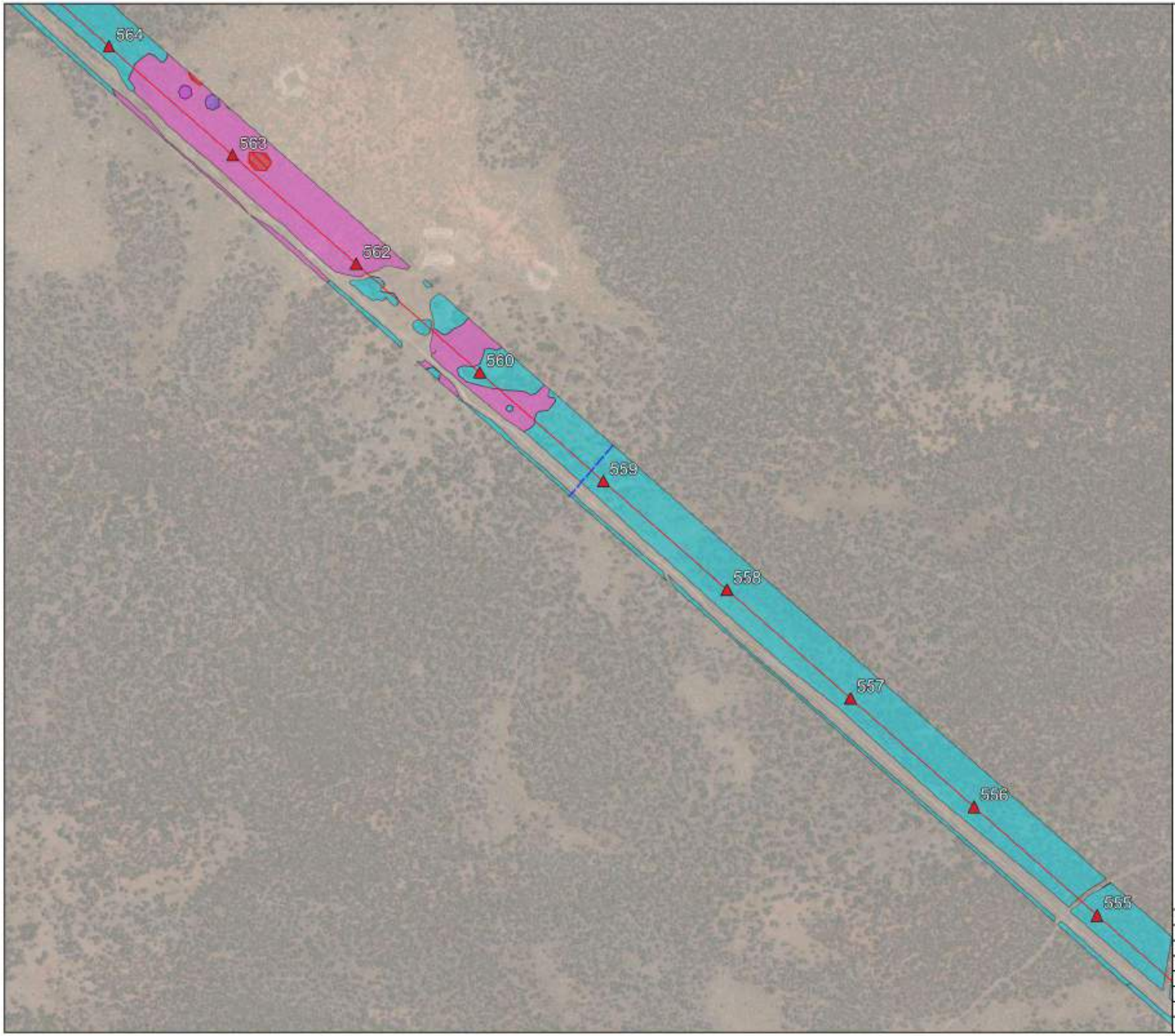
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Connectivity Corridors NSW-Eastern

Map 7 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

Threatened Ecological Communities

- Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions

PCTs (Fauna Guilds)

- 163

PCTs (Woodland)

- PCT170
- PCT23
- PCT58

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 8 of 36





0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

Threatened Ecological Communities

- Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions

PCTs (Woodland)

- PCT170
- PCT23
- PCT58

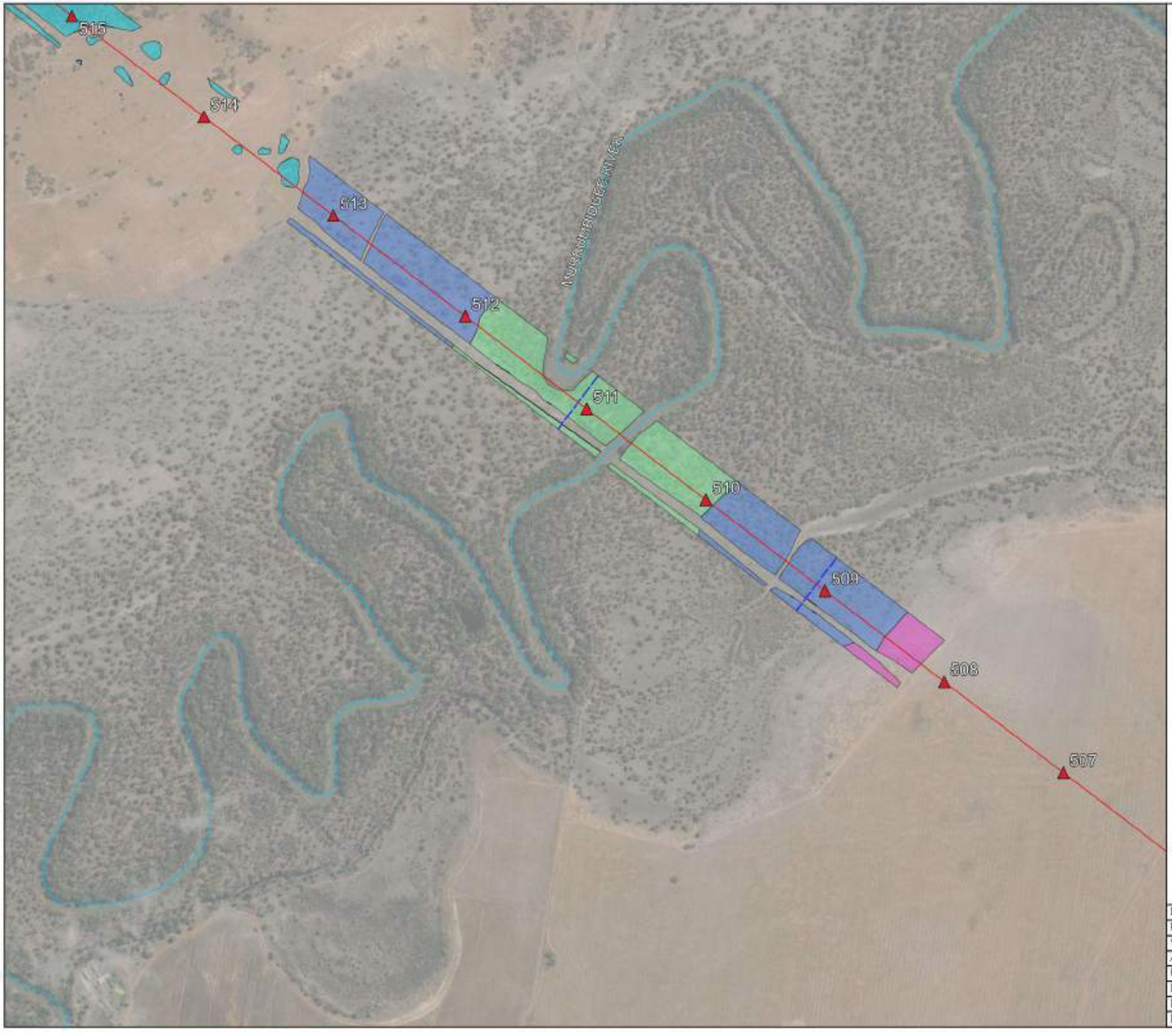
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Connectivity Corridors NSW-Eastern

Map 9 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse

PCTs (Fauna Guilds)

- 163

PCTs (Woodland)

- PCT11
- PCT170
- PCT58
- PCT8

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 10 of 36





1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

Threatened Ecological Communities

- Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions
- Allocasuarina luehmannii woodland in the Riverina and Murray-Darling Depression bioregions

PCTs (Fauna Guilds)

- 163

PCTs (Woodland)

- PCT15
- PCT170
- PCT22
- PCT23

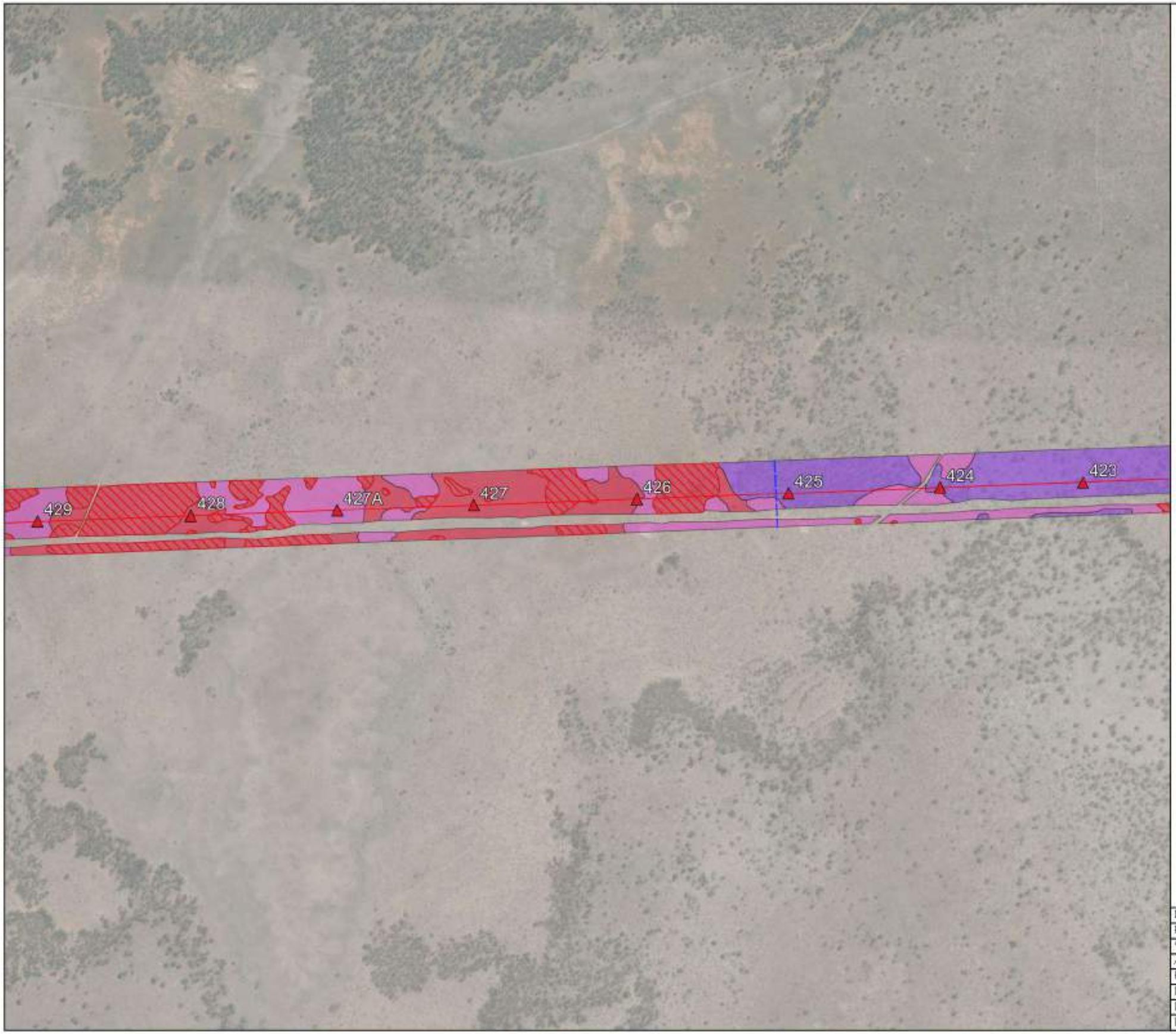
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Connectivity Corridors NSW-Eastern

Map 11 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

Threatened Ecological Communities

- Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions

PCTs (Fauna Guilds)

- 163

PCTs (Woodland)

- PCT23
- PCT58

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 12 of 36





1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Fauna Guilds)

- 17
- 163
- 164

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 13 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Fauna Guilds)

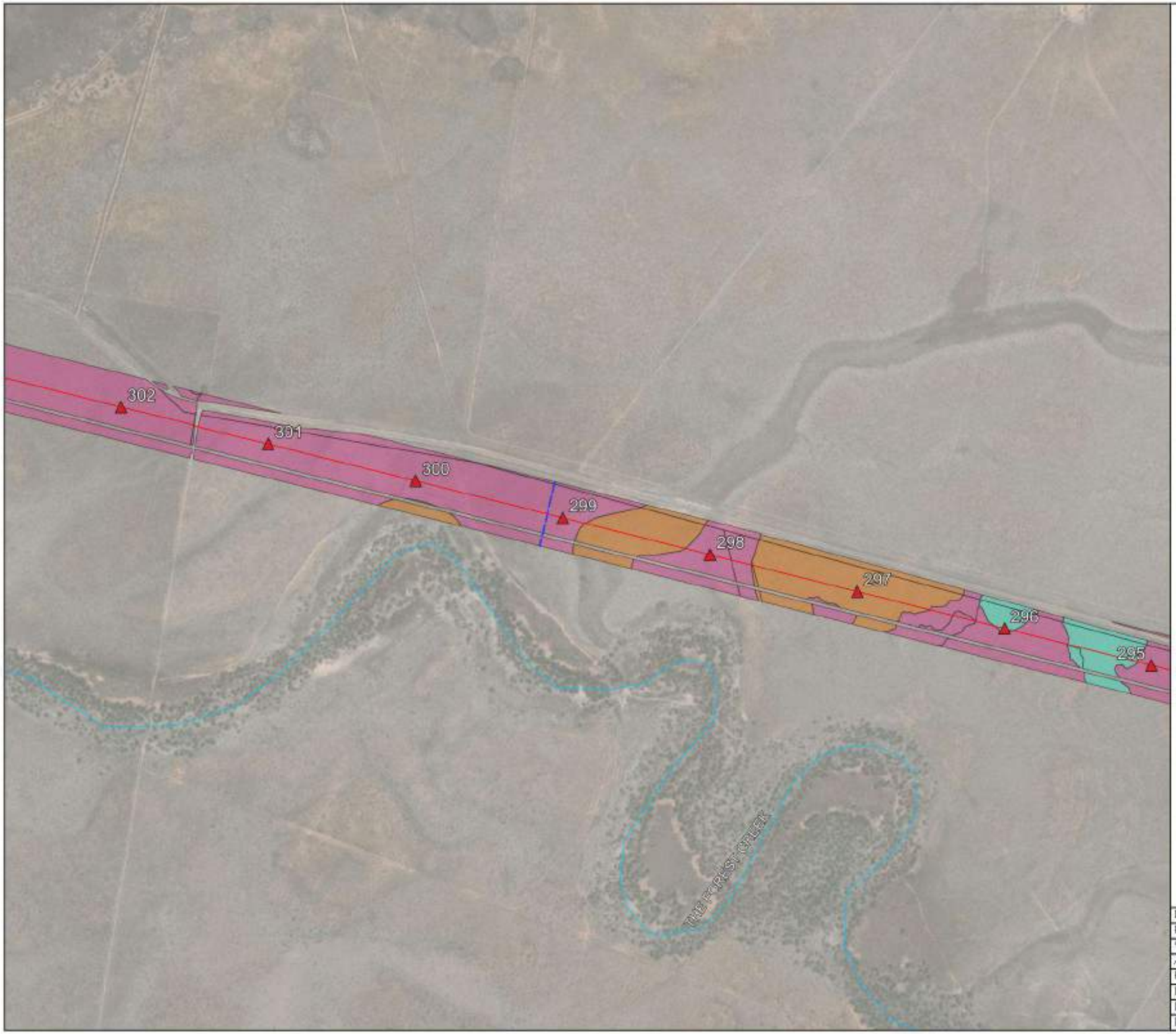
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- 157
- 163
- 164

Note: Tower locations are indicative and may be subject to change during detailed design.



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DRAWING NO:	45860-MP-10001-G-00997

Connectivity Corridors NSW-Eastern



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse

PCTs (Fauna Guilds)

- 17
- 157
- 164

Note: Tower locations are indicative and may be subject to change during detailed design.



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REV:	C
DATE:	9.02.2023
DESCRIPTION:	INTERNAL REVIEW
DRAWING NO:	45860-MP-10001-G-00997

Connectivity Corridors NSW-Eastern

Map 15 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Fauna Guilds)

- 24
- 157
- 163
- 164

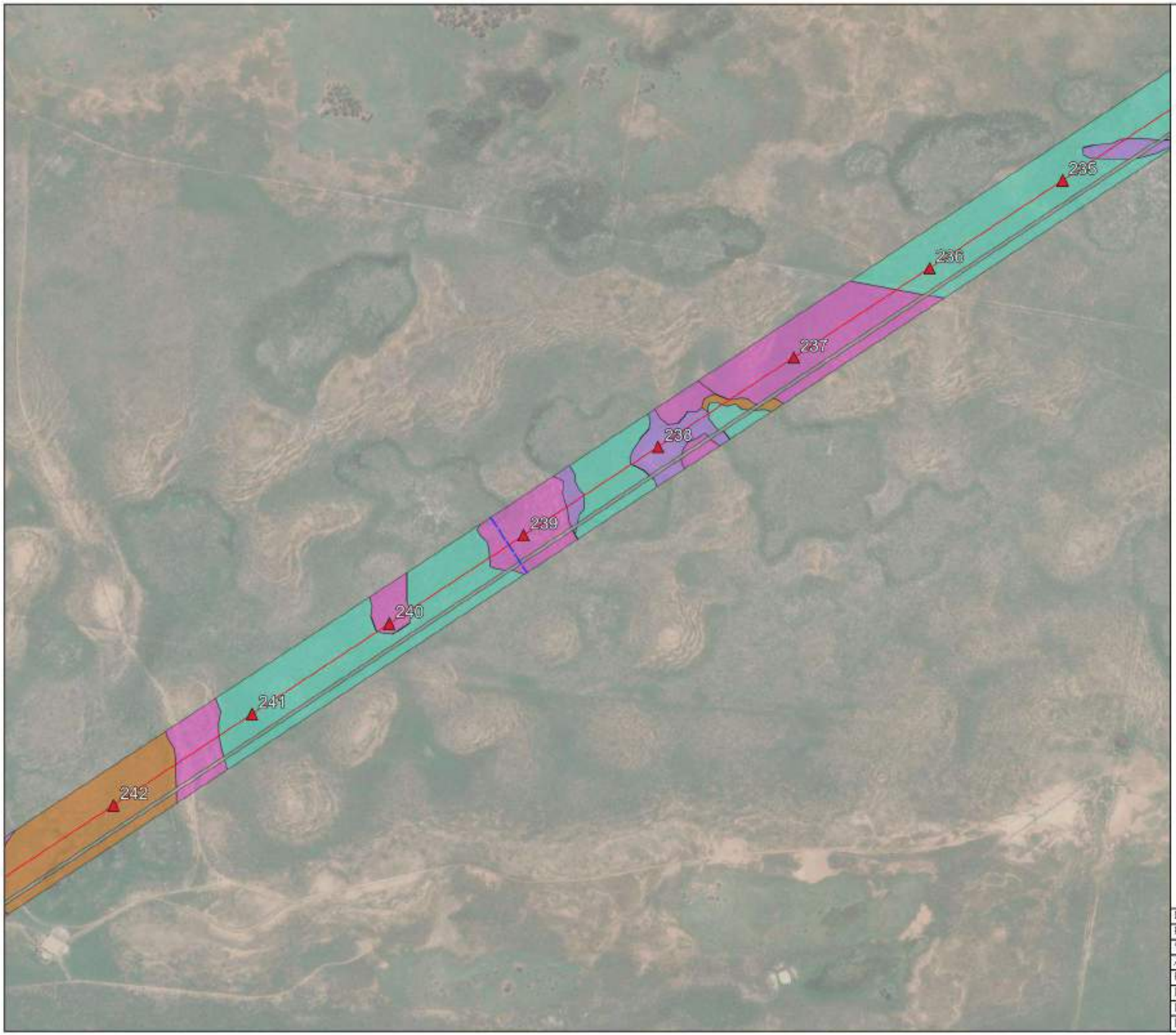
Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 16 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Fauna Guilds)

- 17
- 24
- 163
- 164

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 17 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 160
- 164

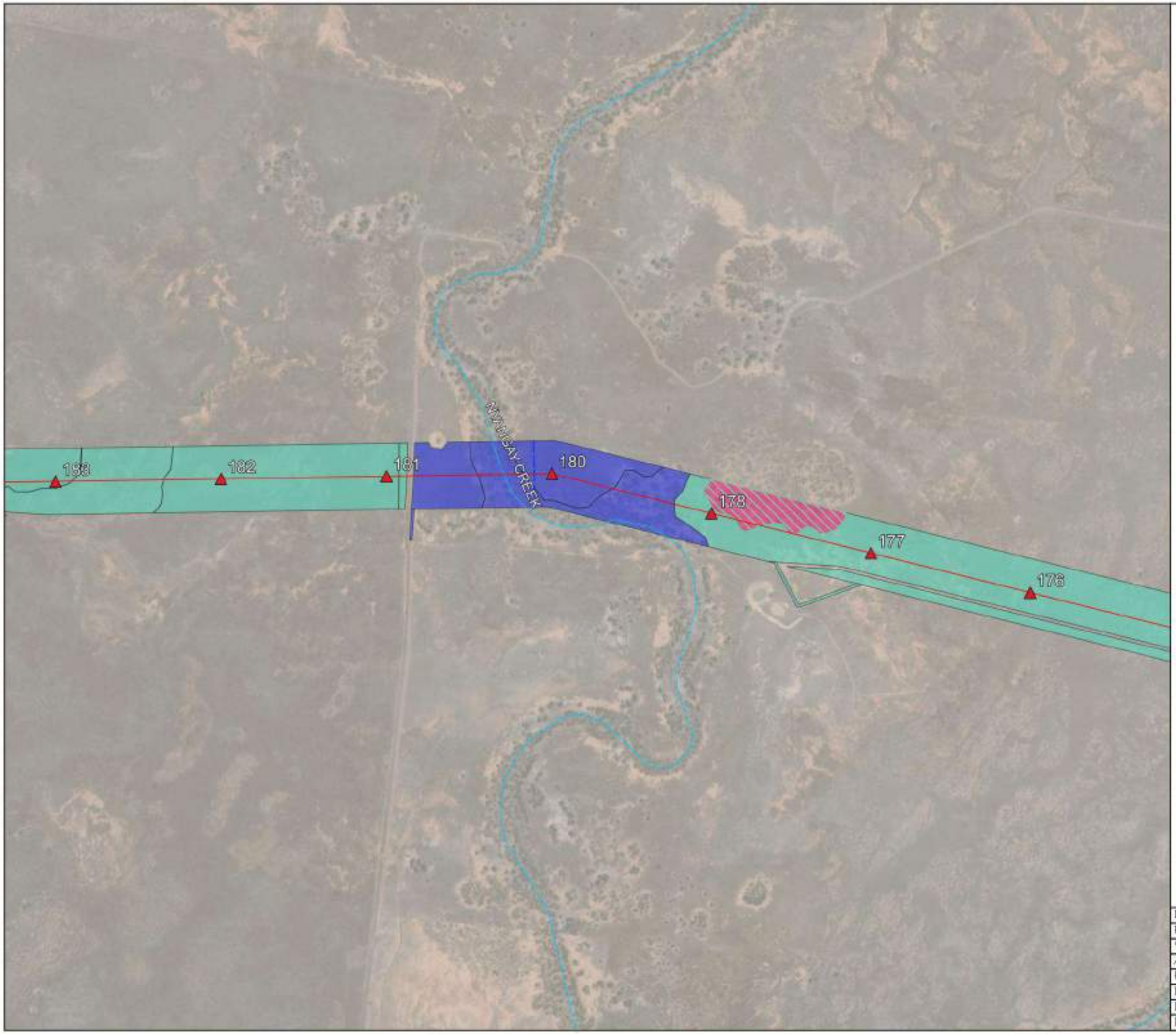
Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 18 of 36





0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse

Threatened Ecological Communities

- Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions

PCTs (Fauna Guilds)

- 164

PCTs (Woodland)

- PCT15
- PCT28

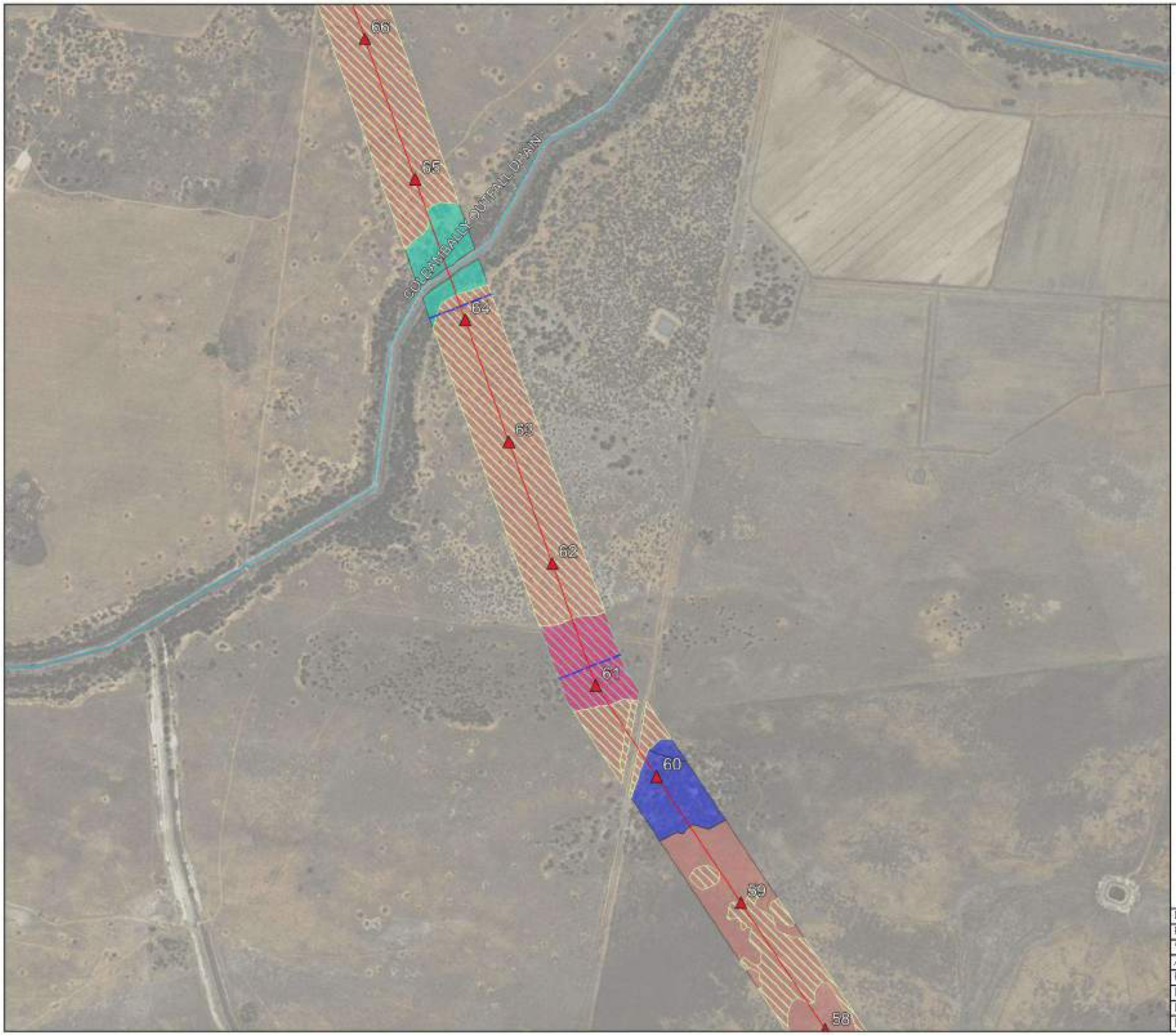
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Connectivity Corridors NSW-Eastern

Map 19 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse

Threatened Ecological Communities

- Myall woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions
- Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions

PCTs (Woodland)

- PCT13
- PCT15
- PCT26
- PCT28

Note: Tower locations are indicative and may be subject to change during detailed design.



DRAWN:	MMH
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Connectivity Corridors NSW-Eastern

Map 20 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 7

PCTs (Woodland)

- PCT11
- PCT26

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 21 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 44
- 46
- 47
- 160
- 164
- 216

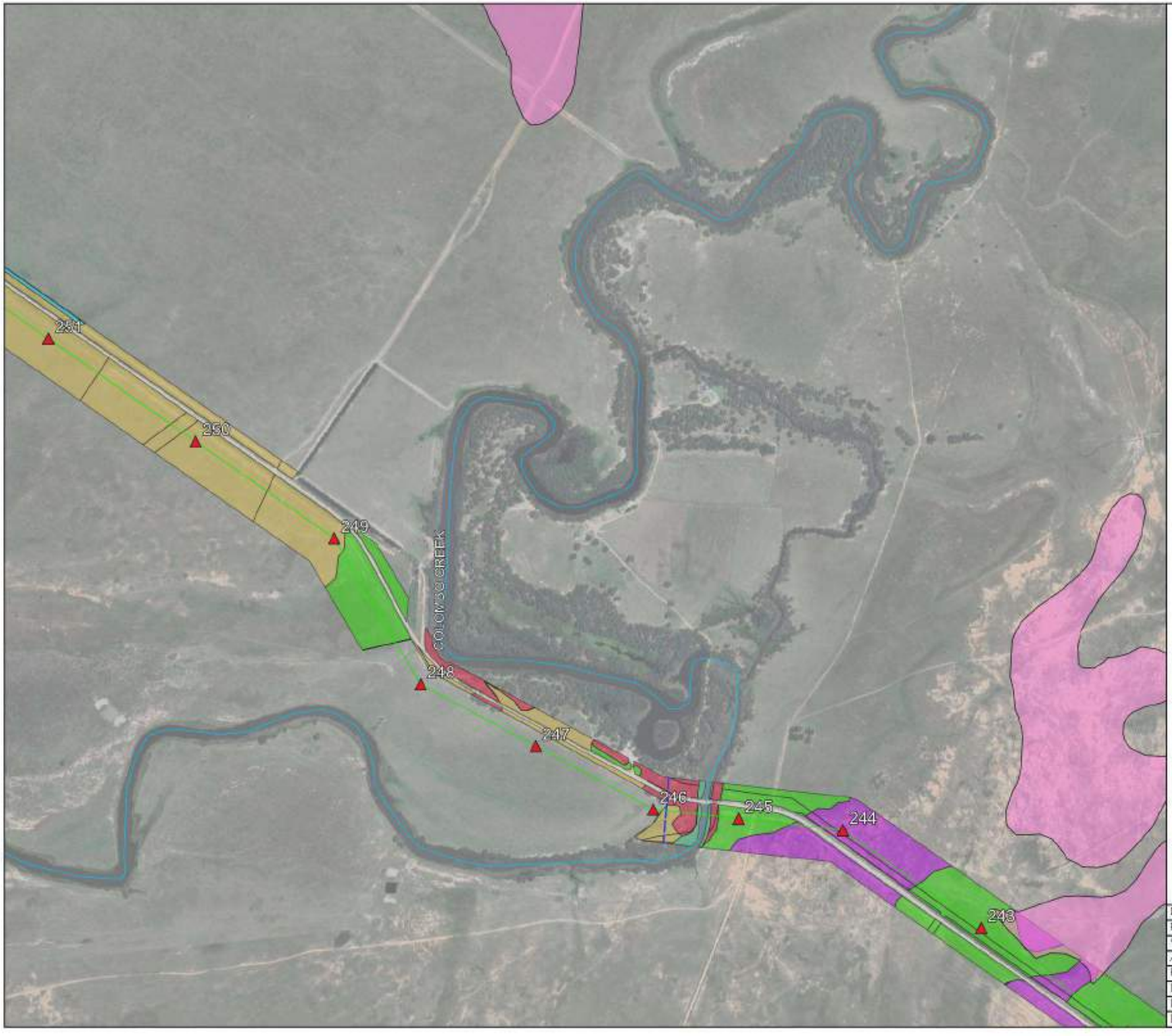
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Connectivity Corridors NSW-Eastern

Map 22 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 7
- 44
- 45
- 46
- 182
- 216

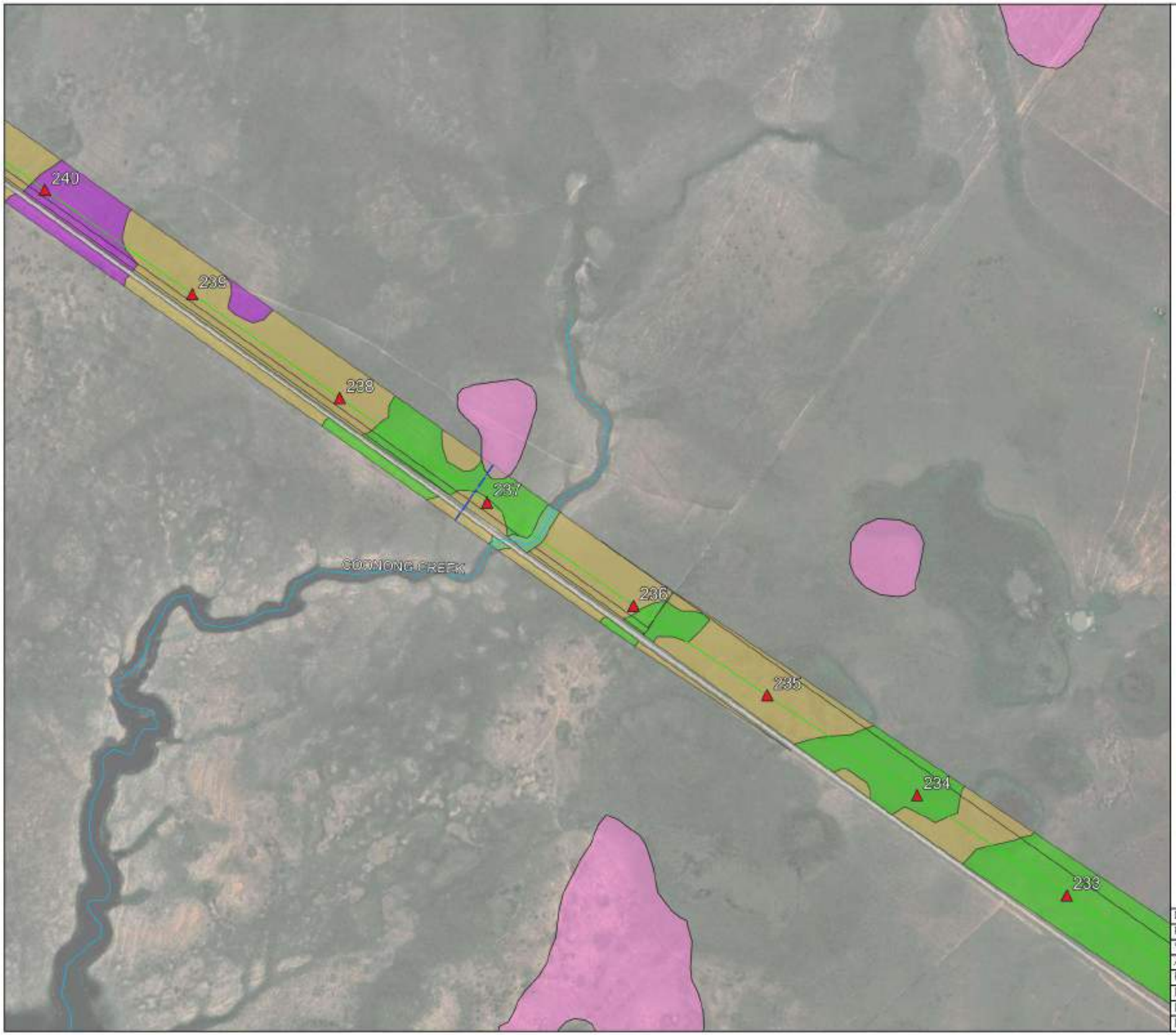
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Connectivity Corridors NSW-Eastern

Map 23 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 44
- 45
- 46
- 53

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 24 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 44
- 45
- 46
- 160

PCTs (Woodland)

- PCT11

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 25 of 36





0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT75
- PCT80

Note: Tower locations are indicative and may be subject to change during detailed design.



DRAWN:	MMH
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DATE:	9.02.2023
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Connectivity Corridors NSW-Eastern

Map 26 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT75
- PCT80

Note: Tower locations are indicative and may be subject to change during detailed design.



DRAWN:	MMH
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Connectivity Corridors NSW-Eastern



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

Threatened Ecological Communities

- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

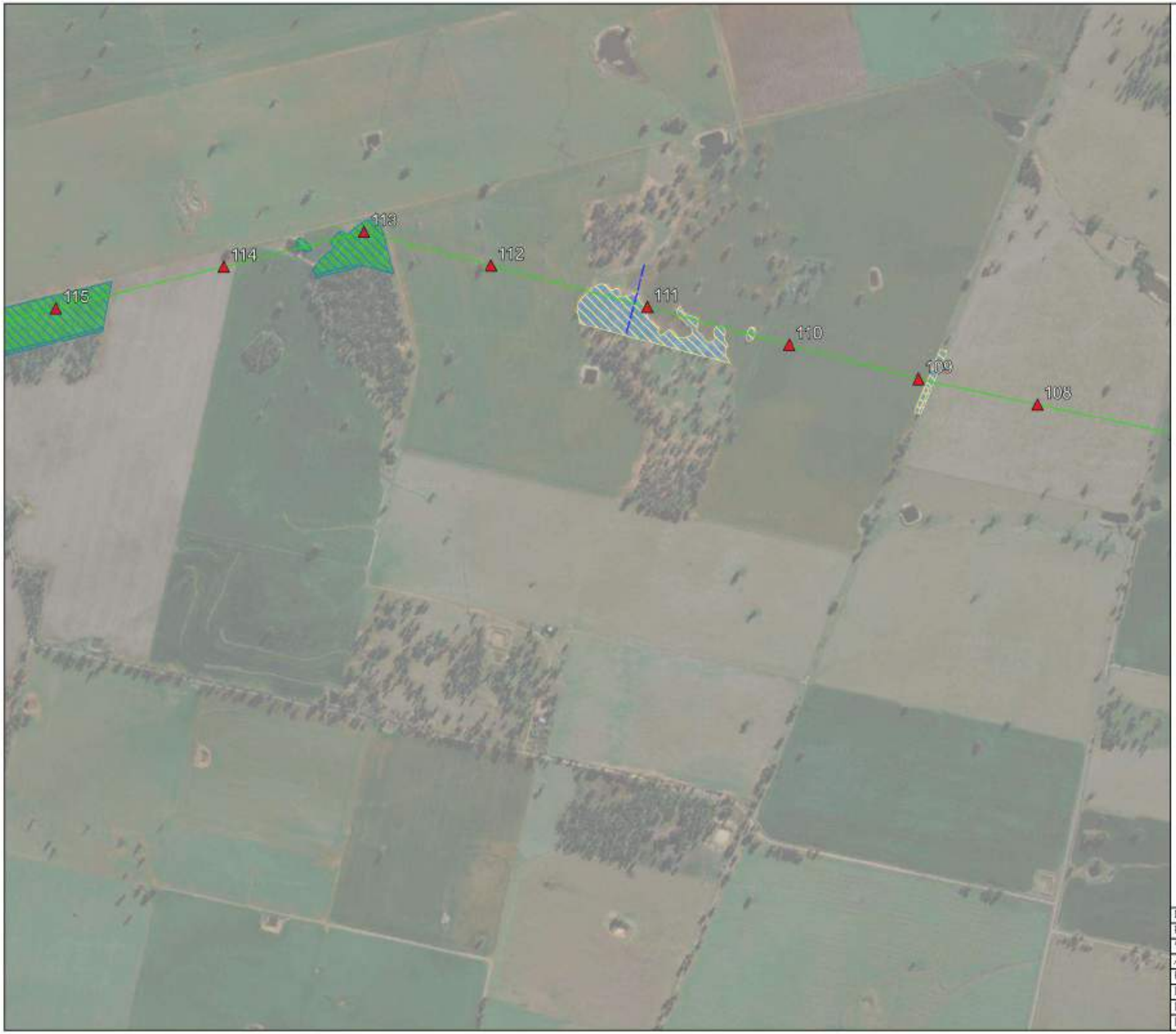
- PCT74
- PCT75

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

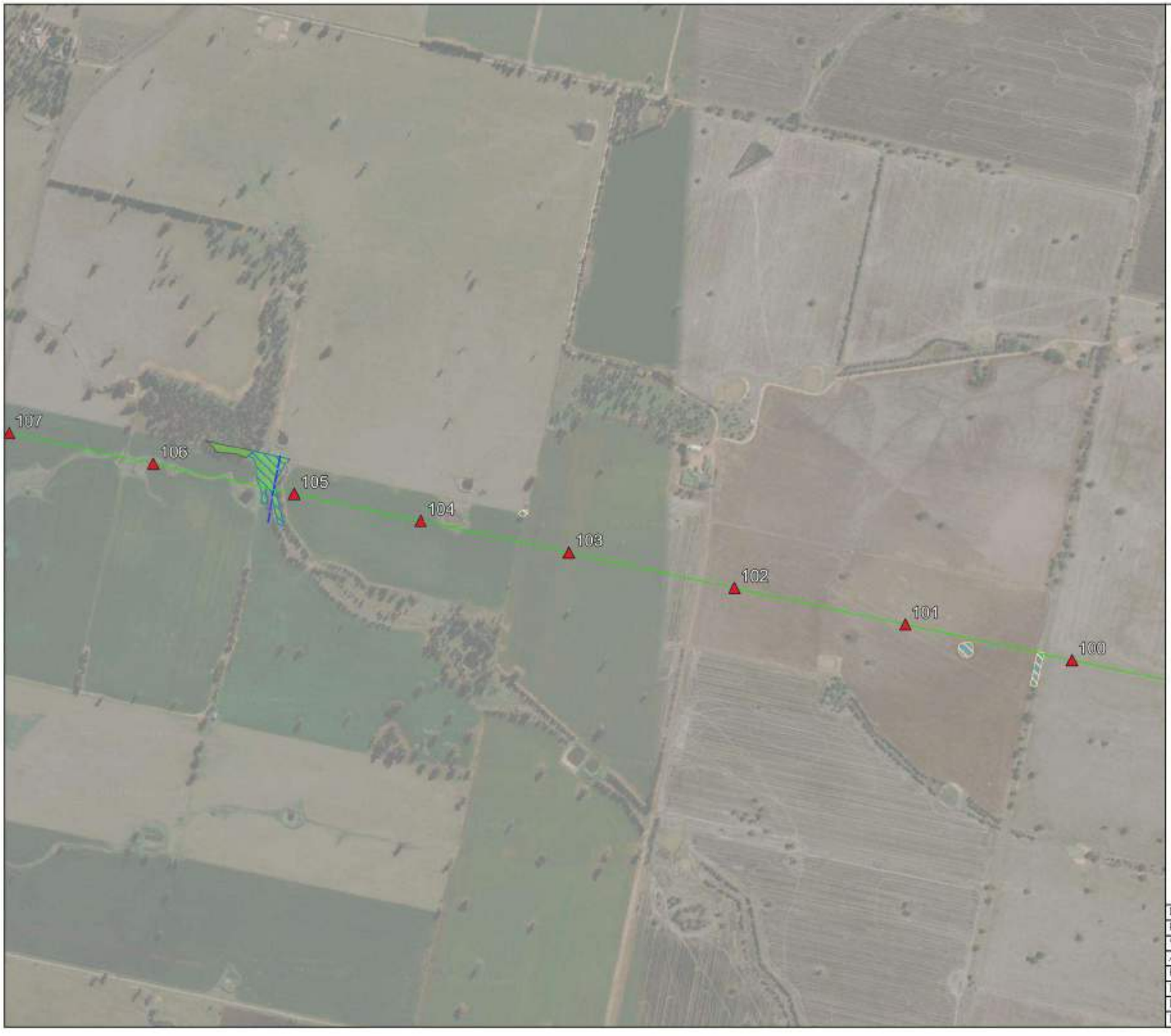
- PCT75
- PCT80

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern



0 250 500 m

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Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT277
- PCT80

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions

PCTs (Fauna Guilds)

- 5

PCTs (Woodland)

- PCT76

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 31 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions

PCTs (Woodland)

- PCT76
- PCT80

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 32 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

PCTs (Fauna Guilds)

- 5

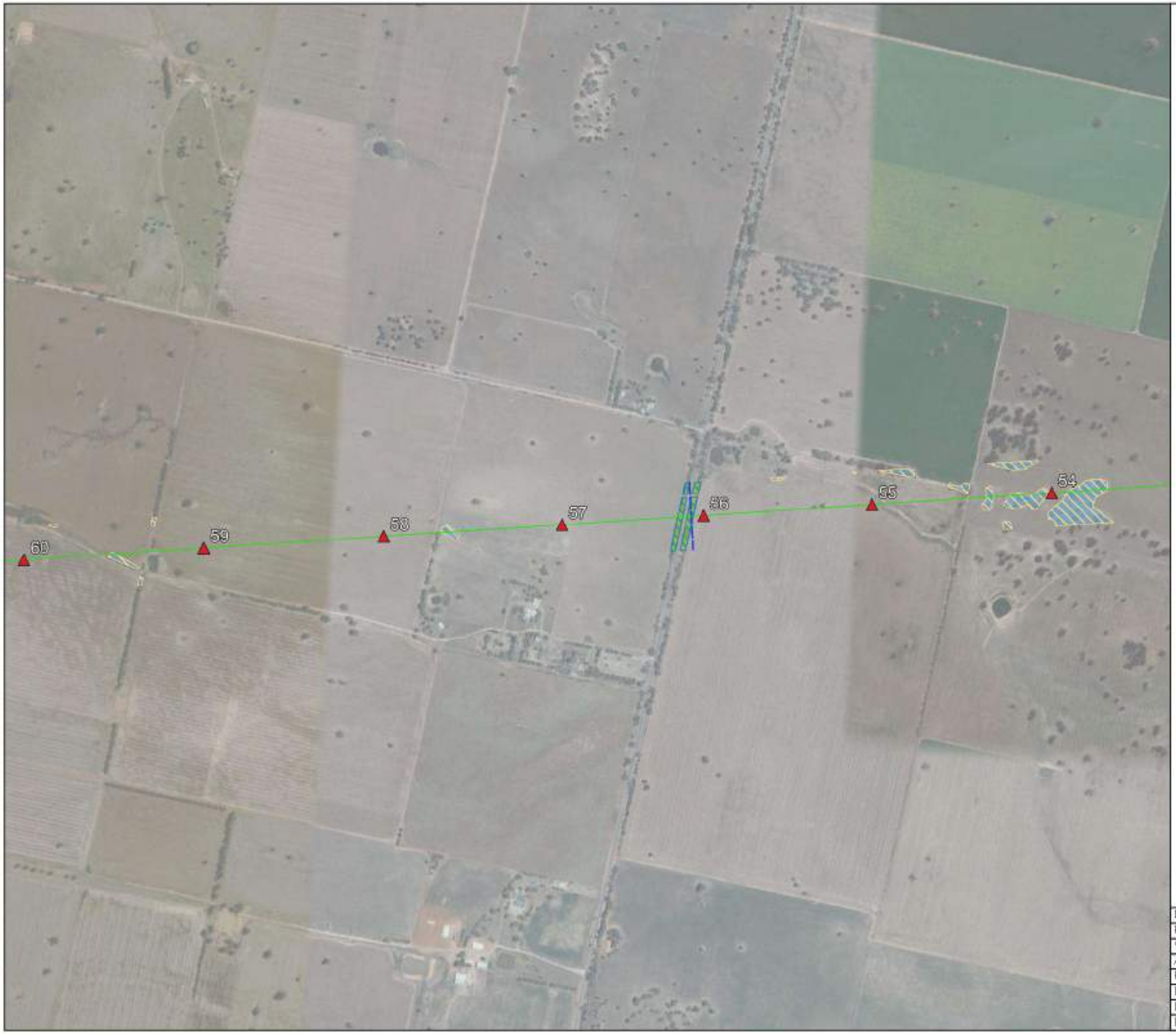
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Connectivity Corridors NSW-Eastern

Map 33 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT267
- PCT80

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

Map 34 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT110
- PCT267
- PCT277
- PCT319
- PCT80

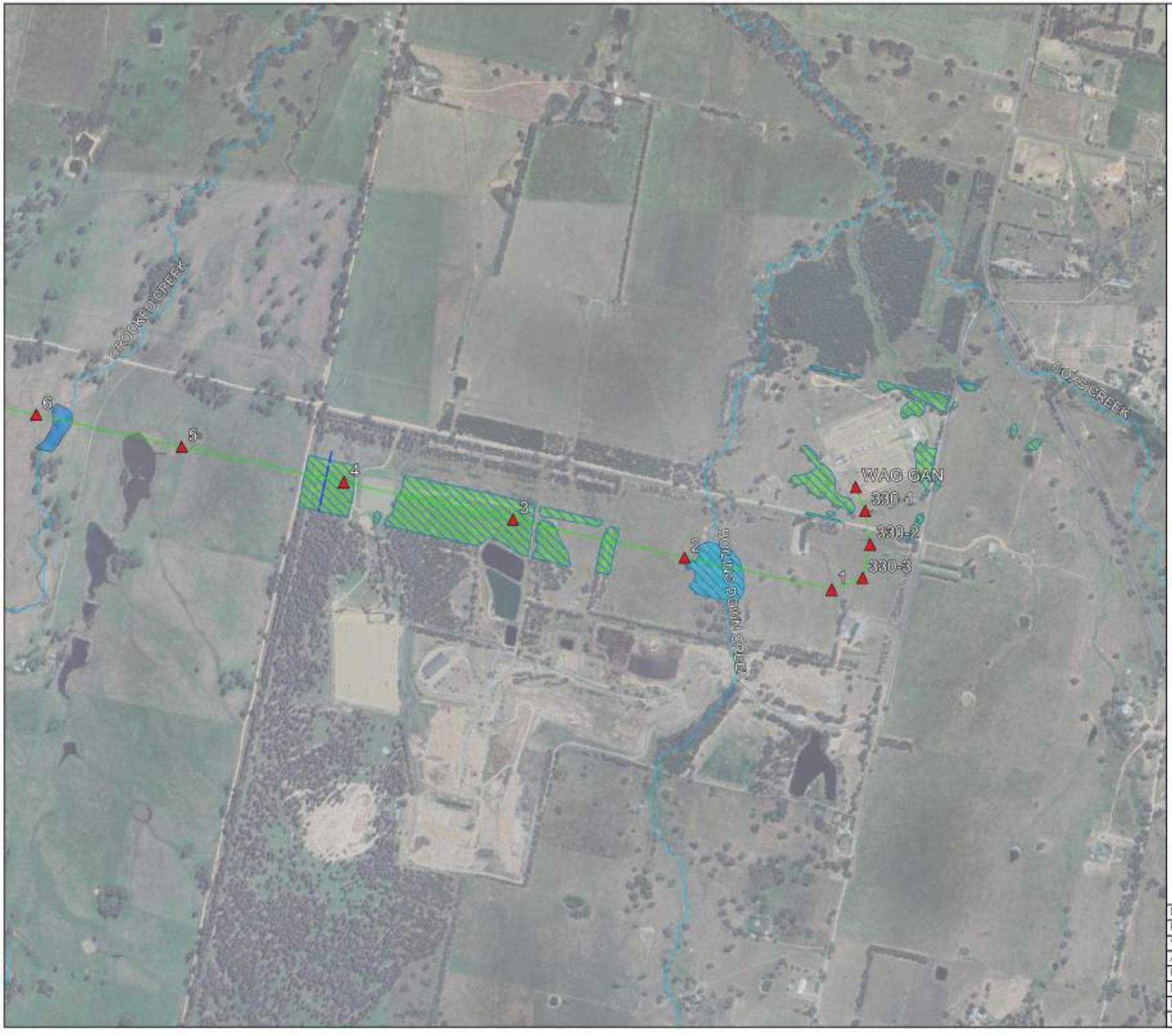
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Connectivity Corridors NSW-Eastern

Map 35 of 36



0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

Threatened Ecological Communities

- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Fauna Guilds)

- 5

PCTs (Woodland)

- PCT277
- PCT74

Note: Tower locations are indicative and may be subject to change during detailed design.



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Connectivity Corridors NSW-Eastern

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Appendix H – Supplementary Hollow and Nest Strategy

PUBLIC

Supplementary Hollow and Nest Strategy EnergyConnect (NSW – Eastern Section)

45860-HSE-DOC-D-0021

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	4/11/2022	Internal review	K.Baxter	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
B	7/11/2022	Issued to Transgrid	L.Coetzee	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
C	18/11/2022	Issued to agencies	K.Baxter	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
D	19/06/2023	Revised to address DPE comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta
E	5/07/2023	Revised to address DPE comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued to Transgrid
C	Issued to agencies
D	Revised to address DPE comments
E	Revised to address DPE

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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Abbreviations

Acronym	Definition
Amendment Report	*Amendment Report EnergyConnect (NSW – Eastern Section)*
BAM	*Biodiversity Assessment Method 2020*
BC Act	*Biodiversity Conservation Act 2016*
BCD	Biodiversity and Conservation Division
BCS	Biodiversity, Conservation and Science Directorate, now known as the Biodiversity and Conservation Division
BDAR	Biodiversity Development Assessment Report
BMP	Biodiversity Management Plan
Biodiversity study area	The biodiversity study area is defined within the Final BDAR as '*a 200-metre-wide corridor (being 100 metre either side of the proposed transmission easement centreline) where field surveys in accordance with the Biodiversity Assessment Method (BAM) have been applied. The area also includes the proposed Dinawan substation site, the existing Wagga Wagga substation site and each of the main construction compounds and accommodation camps at Balranald, the Cobb Highway, Dinawan (Kidman Way), Lockhart and Wagga Wagga. Throughout this report this is also referred to as proposal study area*'. The biodiversity study area is defined within the Commonwealth Approval as '*the area represented in Attachment A by the zone enclosed by the white line designated 'Biodiversity study area.*'
BOS	Biodiversity Offset Strategy
CEMP	Construction Environmental Management Plan
CSSI	Critical State significant infrastructure
Cth	Commonwealth
DPE or Department	NSW Department of Planning and Environment
DPIE	NSW Department of Planning, Industry and Environment now known as NSW Department of Planning and Environment
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
Final BDAR	*Revised Biodiversity Development Assessment Report* (August, 2022)
FM Act	*Fisheries Management Act 1994*
NSW	New South Wales
PCT	Plant community type
project, the	EnergyConnect (NSW – Eastern Section)
Project study area	The proposal study area comprises a generally one-kilometre-wide corridor between the Buronga substation and the Wagga Wagga substation. It traverses around 540 kilometres in total.
RMM	Revised mitigation measures
SA	South Australia
SecureEnergy	Elecnor and Clough Projects Australia Pty Ltd have formed the SecureEnergy Joint Venture (SecureEnergy). SecureEnergy is the contractor who will be carrying out the project on behalf of TransGrid.
SHNS or strategy	Supplementary Hollow and Nest Strategy (this document)
Submissions Report	*Submissions Report EnergyConnect (NSW – Eastern Section)*

1 Introduction

1.1 Context

This Supplementary Hollow and Nest Strategy (SHNS or this strategy) forms part of the Biodiversity Management Plan (BMP) which is part of the Construction Environment Management Plan (CEMP) for Stage 2 of EnergyConnect (NSW – Eastern Section) refer to Figure 1.1 – EnergyConnect (NSW Eastern Section).

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), the *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

1.2 Background

On 29 August 2019, the New South Wales (NSW) Minister for Planning and Public Spaces declared the NSW component of EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – South Australia (SA)/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with 17 from government agencies, five from special interest groups, nine from local councils and 44 from the public.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared a separate Amendment Report to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report describes the updated project for which approval has been sought and was also finalised in May 2022.

On 2 June 2022, the Department requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response TransGrid prepared and provided the *EnergyConnect (NSW –Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to address the requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI-9172452). Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Transgrid have engaged SecureEnergy, a joint venture between Elecnor and Clough Projects Australia Pty Ltd to design and construct their portion of the EnergyConnect project.

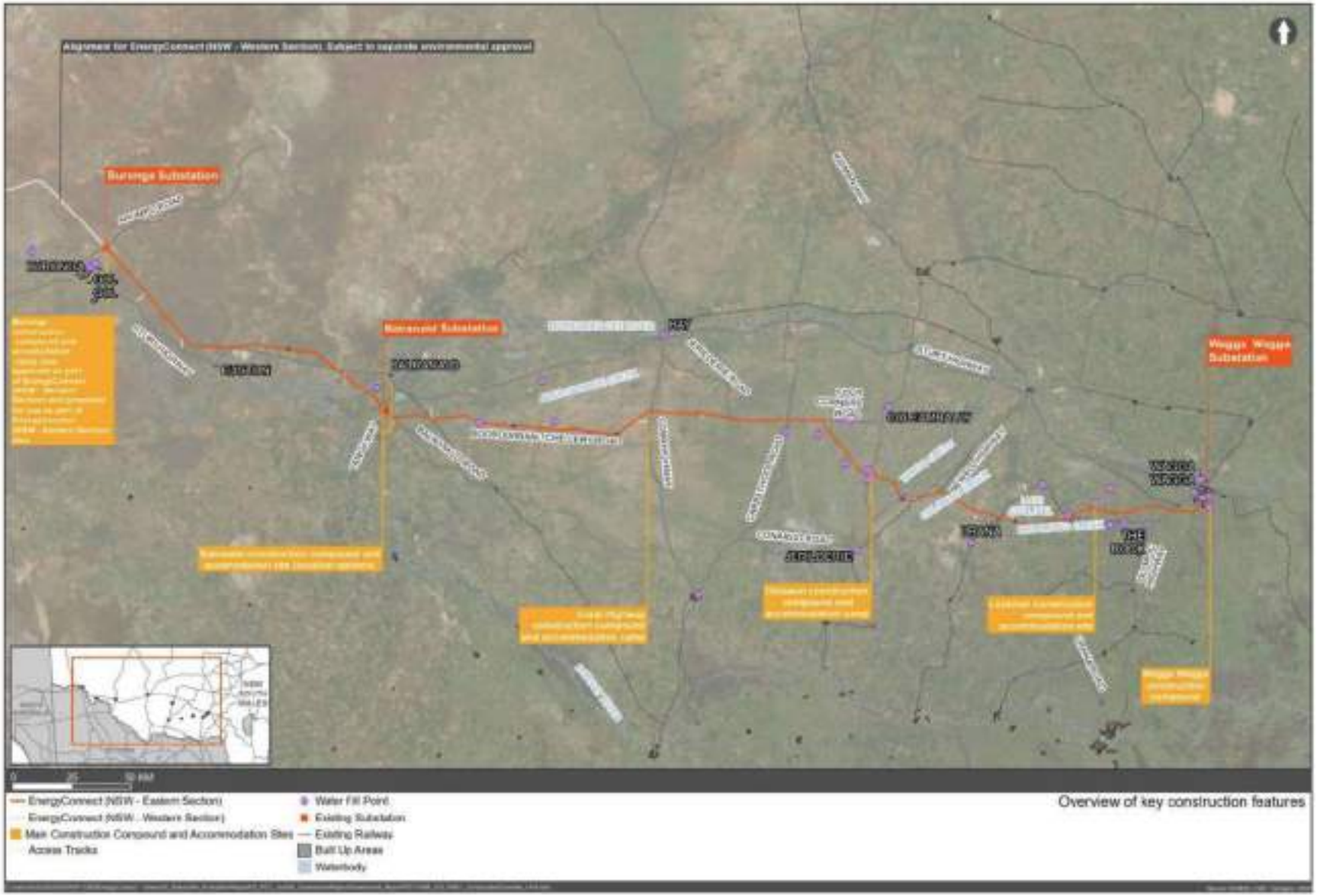


Figure 1.1 - EnergyConnect (NSW Eastern Section)

1.3 Strategy objective and scope

The strategy has been developed to address condition C26 (xii) of the Infrastructure Approval, revised mitigation measure B8 as detailed within the Amendment Report (May 2022) and Table 10-1 of the *Revised Biodiversity Development Assessment Report* (Final BDAR) (August 2022).

The objective of this strategy is to assist in mitigating the impacts of clearing required for the project by identifying target species and prescribing the necessary processes required to install and manage nest boxes for threatened species. The scope of this strategy is to identify threatened fauna species that are likely to be adversely affected by the project, and to provide:

- a process to identify known locations of hollow-bearing trees and nests (based on the results of subsequent ecological surveys), including characterisation of hollow resources;
- a process to identify target locations for nest box installation;
- a process to identify number, type, size, and GPS location of nest boxes for target species to be installed to compensate for hollow bearing tree removal;
- methods and procedures for nest box installation, natural tree hollow re-use and new tree hollow creation, including timing and reporting; and
- measures to address and manage nests (such as raptor nests) prior to clearing.

1.4 Preparation of this strategy

In accordance with condition B1 of the Infrastructure Approval, this strategy has been prepared by a suitably qualified and experienced person. This strategy was prepared by:

- Laurenne Coetzee; and
- Katie Baxter.

The strategy has been reviewed by a representative from the project's ecological team, Michelle Patrick. Michelle is a senior ecologist and an accredited NSW BAM assessor (BAAS19078).

1.5 Consultation

1.5.1 Development of this strategy

In accordance with condition B1 of the Infrastructure Approval, this strategy as part of the Biodiversity Management Plan (BMP) has been prepared in consultation with the Biodiversity and Conservation Division (BCD).

This strategy will be issued to BCD for review and comment. Comments from the consultation process will be incorporated into this Strategy where appropriate. Details of all consultation with BCD will be submitted to DPE along with the submission of this Strategy.

1.6 Submission and approval

Prior to submission to DPE, this strategy will be reviewed by the Environmental Representative (ER) to ensure that it is consistent with the requirements of the Infrastructure Approval. A written statement to this effect will be prepared and submitted to DPE. This review will be undertaken in accordance with condition A12 of the Infrastructure Approval.

This strategy, as part of the BMP, will be submitted to DPE for review and approval by the Planning Secretary prior to the commencement of Stage 2 of construction.

2 Environmental requirements

2.1 Conditions of Approval

The conditions of the Infrastructure Approval relevant to the strategy are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this Strategy or other project management documents.

Table 2.1 - Conditions of Approval relevant to the Supplementary Hollow and Nest Strategy

Condition no.	Requirement	Where addressed	How addressed in this Strategy
Biodiversity EMP Sub-Plan			
C26	The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include: a) a description of the measures that would be implemented for:	Biodiversity Management Plan	-
	(xii) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy;	This strategy Connectivity Strategy	This strategy details the way in which the project will provide for alternative roosting and/or nesting habitat for threatened fauna displaced during clearance.

2.2 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in the Submissions Report and the Amendment Report. The RMMs relevant to this strategy are detailed in Table 2.2.

A cross reference is also included to indicate where the measure is addressed within the strategy or other project management documents.

Table 2.2 - Revised mitigation measures relevant to the Supplementary Hollow and Nest Strategy

No.	Revised mitigation measure	Application location(s)	Where addressed	How addressed
B8	Nest boxes would be provided to provide alternative roosting and/or nesting habitat for threatened fauna displaced during clearing in accordance with a *Supplementary Hollow and Nest Strategy*. The strategy would include the following requirements: • survey of tree hollows and nests within the proposed clearing extents • identify the size, type, number and location of nest boxes required based on the results of the ecological surveys and active hollow resources in adjacent areas • appropriately sized nest boxes would be installed within the vicinity of hollow–bearing trees (subject to landowner agreement and suitable existing trees being present) no more than two weeks prior to clearing of the tree • nest boxes would also include the re–use of existing hollows salvaged prior to or during clearing where practicable; and	All locations where threatened fauna is displaced during clearing	Section 5 Section 5.5.2	The presence of tree hollow habitat for threatened fauna species within the project disturbance area will be confirmed prior to clearing. Where possible, nest box installation will commence prior to clearing in a particular location. Nest boxes would be installed within the vicinity of hollow bearing trees no more than two weeks prior to clearing of the tree.

No.	Revised mitigation measure	Application location(s)	Where addressed	How addressed
	• measures to address and manage nests (such as raptor nests) prior to clearing.			
B9	Pre-clearing surveys will be completed prior to clearing at each location by a suitably 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; and • survey and confirm the presence of raptor nests within and adjacent to the clearing extents.	All locations where threatened fauna is displaced during clearing	*Pre-clearing and Clearing Procedure* Section 5	Pre-clearing surveys will be undertaken in accordance with the *Pre-clearing and Clearing Procedure*. Pre-clearing surveys will be undertaken by the project ecologist in accordance with RMM B9, including confirming that nest boxes are in place where required or that suitable locations have been identified, as well as surveying and confirming the presence of raptor nests within and adjacent to the clearing extents.

2.3 Relevant documents, guidelines and specifications

Documents and guidelines which are relevant to this strategy include:

- Biodiversity Management Plan – Stage 2 (45860-HSE-PL-D-0117);
- *Revised Biodiversity Development Assessment Report* and Appendices (August 2022) (Final BDAR);
- *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (January 2022);
- *Fauna Handling Procedure* (Appendix C of BMP SecureEnergy 2022); and
- *Nest boxes for wildlife: A practical guide* (Franks & Franks, 2011).

3 Important habitat resources

3.1 Tree hollows

The presence of naturally occurring hollows in the environment are a critical resource for hollow-dependent fauna. Hollow-dependent fauna are species that are reliant upon hollows as a key component of their habitat either on a daily or seasonal basis for survival and long-term population viability. This can be either as part of a critical life history component (i.e., breeding events) or as an important component of their natural ecology, behaviour, and ongoing presence within associated and/or preferred habitat.

Hollows as a resource provide shelter and refuge from environmental factors such as exposure to predators and the elements. For several species, the availability of hollows that provide security and protection during periods of vulnerability (e.g., physiological adaptation such hibernation, or bouts of torpor) are crucial for survival (Goldingay, 2009). Many species of fauna require hollows for breeding (e.g., parrots, microbats, and owls) and populations are often limited by the availability of hollows in an area. It is assumed that any decrease in the number of hollows in an area creates the potential to impact on populations of hollow-dependent species. Due to large scale land clearing, loss of hollow bearing trees is listed as a key threatening process because of the threat it poses to hollow-dependent species (NSW Scientific Committee, 2007).

Hollows can be placed into two categories:

1. hollows - naturally formed hollow in a tree or shrub with a single access point as a hole, crack, or similar entrance (with only minor secondary access points if any) that leads to an internal enclosed space larger than the primary access point. The material surrounding this space is part of a standing tree either alive or dead;
2. crevices - naturally formed crevice in a tree which consists of a longitudinal space creating a gap that is enclosed on two sides (e.g., tree branch/limb split, large bark breakaway). A crevice may invariably lead to a hollow space but is delineated from true hollow definition above by its ability to provide habitat for crevice adapted species.

Hollows are a critical habitat resource for many species that are known (or likely to occur) in and/or near the project area. Hollow bearing trees will be removed for this project, which will therefore impact fauna species through:

- increased inter- and intra-specific competition for roosting and nesting sites;
- increased predation on some species due to lack of suitable shelter; and
- decreased breeding rates amongst hollow-dependent breeders such as parrots, owls, and microbats.

3.2 Existing nest resources

The investment of time and energy by fauna to establish resources such as nests that are maintained and available over extended timeframes (i.e., many years) are of benefit to many species. For example, whilst many species of nest building birds will construct new nests in a different location each year, others such as raptors, egrets, and herons construct large platform nests that they may either reuse each year or rotate use with two or three alternative nests site over multiple years. The Common Ringtail Possum also constructs a nest (or drey) in the absence of hollow bearing resources. In the project area, a range of nest resources may be encountered and may include:

- platform nests - typical of many raptors, ravens, magpies, herons, egrets, ibises, large honeyeaters;
- dome nests - typical of babblers, fairywrens, grass wrens, finches found in a range of woodland habitats;
- fauna utilisation is of these resources can be categorised as either:

- primary use - used directly by the bird species that constructed the resource; or
- secondary use - opportunistically used by other species, e.g., the Western Pygmy Possum will use a range of shelter sites in addition to tree hollows, such as old babbler and finch nests, and dense clumps of timber/leaf litter on the ground.

4 Fauna management

4.1 Habitat values

The project disturbance area is largely comprised of remnant native vegetation. Thirty (30) Plant Community Types (PCT) were identified as part of the Final BDAR to have potential for hollow bearing trees and nests to be present. A summary of PCTs within eastern disturbance area, and the threatened hollow-dependant species predicted to use them, is provided in Table 4.1.

Table 4.1 - PCTs with potential to provide hollow resources within disturbance area

PCT no.	PCT description	Predicted threatened hollow-dependant species habitat
5	River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW Southwestern Slopes Bioregion and the eastern Riverina Bioregion	Gang-gang Cockatoo Barking Owl Powerful Owl Superb Parrot Southern Myotis Squirrel Glider Brush-tailed Phascogale Yellow-bellied Sheathtail Bat Little Pied Bat Spotted-tailed Quoll
7	River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion	Major Mitchell's Cockatoo Barking Owl Superb Parrot Masked Owl Southern Myotis Yellow-bellied Sheathtail Bat Little Pied Bat
8	River Red Gum – Warrego Grass – Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion)	Major Mitchell's Cockatoo Barking Owl Regent Parrot Southern Myotis Yellow-bellied Sheathtail Bat Little Pied Bat
11	River Red Gum – Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Major Mitchell's Cockatoo Barking Owl Regent Parrot Superb Parrot Masked Owl Southern Myotis Yellow-bellied Sheathtail Bat Little Pied Bat
13	Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Major Mitchell's Cockatoo Barking Owl Regent Parrot Superb Parrot Masked Owl Yellow-bellied Sheathtail Bat Inland Forest Bat Little Pied Bat

PCT no.	PCT description	Predicted threatened hollow-dependant species habitat
15	Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)	Major Mitchell's Cockatoo Barking Owl Regent Parrot Yellow-bellied Sheathtail Bat Inland Forest Bat Little Pied Bat
22	Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW	Major Mitchell's Cockatoo Regent Parrot Corben's Long-eared Bat Inland Forest Bat Little Pied Bat
23	Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones	Major Mitchell's Cockatoo Superb Parrot Corben's Long-eared Bat Yellow-bellied Sheathtail Bat Little Pied Bat
24	Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains	Barking Owl Masked Owl Yellow-bellied Sheathtail Bat Little Pied Bat
26	Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion	Major Mitchell's Cockatoo Barking Owl Superb Parrot Masked Owl Yellow-bellied Sheathtail Bat Little Pied Bat
28	White Cypress Pine open woodland of sandplains, prior streams and dunes mainly of the semi-arid (warm) climate zone	Major Mitchell's Cockatoo Superb Parrot Corben's Long-eared Bat Yellow-bellied Sheathtail Bat Inland Forest Bat Little Pied Bat
45	Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion	Superb Parrot Yellow-bellied Sheathtail Bat
46	Curly Windmill Grass – speargrass – wallaby grass grassland on alluvial clay and loam on the Hay plain, Riverina Bioregion	Superb Parrot
53	Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains	Barking Owl Masked Owl Yellow-bellied Sheathtail Bat Little Pied Bat
58	Black Oak – Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion	Major Mitchell's Cockatoo Regent Parrot Corben's Long-eared Bat Yellow-bellied Sheathtail Bat Inland Forest Bat Western Pygmy Possum Little Pied Bat

PCT no.	PCT description	Predicted threatened hollow-dependant species habitat
74	Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion	Gang-gang Cockatoo Glossy Black Cockatoo Major Mitchell's Cockatoo Barking Owl Superb Parrot Masked Owl Eastern Pygmy Possum Southern Myotis Squirrel Glider Brush-tailed Phascogale Yellow-bellied Sheathtail Bat
75	Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion	Gang-gang Cockatoo Glossy Black Cockatoo Barking Owl Superb Parrot Squirrel Glider Corben's Long-eared Bat Yellow-bellied Sheathtail Bat
76	Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregion	Glossy Black Cockatoo Major Mitchell's Cockatoo Barking Owl Superb Parrot Masked Owl Squirrel Glider Yellow-bellied Sheathtail Bat Little Pied Bat
80	Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion	Gang-gang Cockatoo Glossy Black Cockatoo Major Mitchell's Cockatoo Barking Owl Superb Parrot Masked Owl Eastern Pygmy Possum Corben's Long-eared Bat Squirrel Glider Brush-tailed Phascogale Yellow-bellied Sheathtail Bat
110	Western-Grey Box- Cypress Pine Shrubby Woodland on Stony Footslopes in the NSW Western Slopes Bioregion and Riverina Bioregion	Gang-gang Cockatoo Major Mitchell's Cockatoo Barking Owl Superb Parrot Masked Owl Eastern Pygmy Possum Squirrel Glider Corben's Long-eared Bat Yellow-bellied Sheathtail Bat Little Pied Bat Spotted-tailed Quoll

PCT no.	PCT description	Predicted threatened hollow-dependant species habitat
143	Narrow-leaved Hopbush – Scrub Turpentine – Senna shrubland on semi-arid and arid sandplains and dunes	Major Mitchell's Cockatoo Yellow-bellied Sheathtail Bat Inland Forest Bat Little Pied Bat
170	Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones	Major Mitchell's Cockatoo Regent Parrot Corben's Long-eared Bat Yellow-bellied Sheathtail Bat Inland Forest Bat Western Pygmy Possum Little Pied Bat
171	Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion	Major Mitchell's Cockatoo Regent Parrot Corben's Long-eared Bat Inland Forest Bat Western Pygmy Possum Little Pied Bat
172	Deep sand mallee of irregular dunefields of the semi-arid (warm) zone	Major Mitchell's Cockatoo Regent Parrot Corben's Long-eared Bat Inland Forest Bat Western Pygmy Possum Little Pied Bat
182	Cumbungi rushland wetland of shallow semi-permanent water bodies and inland watercourses	Southern Myotis Yellow-bellied Sheathtail Bat Little Pied Bat
249	River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW	Major Mitchell's Cockatoo Barking Owl Superb Parrot Masked Owl Southern Myotis Squirrel Glider Corben's Long-eared Bat Yellow-bellied Sheathtail Bat Little Pied Bat Spotted-tailed Quoll
267	White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion	Barking Owl Gang-gang Cockatoo Superb Parrot Masked Owl Squirrel Glider Brush-tailed Phascogale Corben's Long-eared Bat Yellow-bellied Sheathtail Bat Little Pied Bat Spotted-tailed Quoll
277	Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Barking Owl Gang-gang Cockatoo

PCT no.	PCT description	Predicted threatened hollow-dependant species habitat
		Superb Parrot Masked Owl Squirrel Glider Brush-tailed Phascogale Yellow-bellied Sheathtail Bat Spotted-tailed Quoll Eastern False Pipistrelle
319	Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion	Barking Owl

4.2 Salvaging hollow and nest habitat

It may be feasible for habitat resources to be salvaged and retained for fauna use within the general area. Resources such as nests and natural hollows which remain intact during clearing may be able to be installed in adjacent habitat. Features such as rock piles and timber piles could be moved into adjacent retained habitat. Where appropriate, salvaged timber (with due consideration given to fire management requirements) will be utilised in accordance with condition C26(xi) of the Infrastructure Approval.

4.3 Target species

4.3.1 Hollow-dependant and nest-dependant fauna inventory

Development of the strategy incorporates a target species analysis to determine the potential number of hollow-dependant and nest-dependant species likely to be impacted during clearing activities.

All threatened species found to be hollow dependant were included as target species. In total there are 18 species that are listed as threatened under the *Biodiversity Conservation Act 2016* (BC Act) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Hollow use and occupation by fauna are dependent on many variables, such as size of entrance, maximum internal space, thermal properties, and distance of entrance from the internal cavity. Size of entrance can be used as an indicator of the species that may inhabit a hollow. These have been broken down into size classes and are discussed below.

Table 4.2 highlights the threatened hollow dependant target fauna group identified in the analysis of potential species.

Table 4.2 - Identified threatened hollow dependant target fauna group

Fauna group	No. species
Hollow-dependent species	
Extra-large hollow-dependant species	2
Large hollow-dependant species	2
Medium hollow-dependant species	5
Small hollow-dependent species	7
Hollow-dependant microbats	6
Crevice-dependant species	4
Nest-dependent species	
Platform nests in trees	22
Platform nests over water	4

It is noted that hollow dependent species of different sizes may use medium and large sized hollows (e.g. cockatoos, Regent Parrots, Superb Parrots), and so the guidance outlined in the sections below is indicative only in its categorisation of different species.

4.3.2 Extra-large hollow dependant species

Extra-large hollows are hollows with an entrance diameter greater than 25cm. Extra-large hollow bearing resources are limited in semi-arid woodland environments and likely only to occur in areas that support large old growth Black Box and River Red Gum woodland and riparian forest vegetation classes.

Dependent species are typically restricted to large owl species. Barking owl (*Ninox connivens*) is considered likely to occur in the project area.

4.3.3 Large hollow dependant species

Large hollows are considered to be hollows with an entrance diameter of 15-25 cm. Large hollow-dependant species are particularly sensitive to impacts due to loss of hollow-bearing resources given that such hollows are limited by the time required to form. In woodland and forest habitats hollows tend to take more than 80-100 years to form (*National Parks and Wildlife Service, 1999*). Large hollows occurring naturally as available habitat are considered a limited resource. Species dependant on large hollows include large parrots, owls, and large arboreal mammals. Large hollows (especially if they have complex internal cavities and smaller entrance holes) may be utilised by larger breeding/wintering microbat colonies.

Examples relevant to the project of species that utilise large hollows include threatened species such as Major Mitchell's Cockatoo (*Lophochroa leadbeateri*), Regent Parrot (eastern subspecies) (*Polytelis anthopeplus monarchoides*), and Barking owl (*Ninox connivens*). More common species may include the Galah (*Eolophus roseicapilla*), corellas (*Cacatua sp*.), Southern Boobook (*Ninox boobook*), and Common Brushtail Possum (*Trichosurus vulpecula*). Large hollows are typically associated with the larger tree species which are in turn associated of the river and river/creek and floodplain woodland communities. Dominant tree species include River Red Gum (*Eucalyptus camaldulensis)* and Black Box (*E. largiflorens*).

Occupation of tree hollows is often influenced by access preferences. To accommodate these preferences in compensatory and supplementary next boxes, design may include the following:

- large hollow – front entrance facing away from tree – bird specific; and
- large hollow – side entrance next to tree trunk/branch – arboreal mammal specific.

4.3.4 Medium hollow dependant species

Medium hollows are hollows with an entrance diameter of 5-15cm. In a similar manner to large hollow dependant species, this size class replicates a range of dependant hollow dependant fauna that utilise smaller hollow dimensions provided in more detail in Section 5. Whilst long timeframes are still required for these ecological assets to become established, they are likely to be more numerous compared to large hollow based on the age class of woodland PCT within the project area disturbance zone as well as increased potential to occur in additional canopy tree species.

This includes old growth 'bull' mallee dominated woodland as well as riparian/floodplain woodland and forest. Species that are dependent up on these include broad tailed parrots (e.g., Mallee Ringneck *Barnardius zonarius barnardi*, Yellow Rosella *Platycercus elegans flaveolus*, Mulga Parrot (*Psephotus varius)*, Red-rumped Parrot (*Psephotus haematonotus)*, Bluebonnet (*Northiella haematogaster*)), Regent Parrot (*Polytelis anthopeplus monarchoides*), Superb Parrot (*Polytelis swainsonii)*, Mulga Parrot (*Psephotus varius)*, Red-rumped Parrot (*Psephotus haematonotus)*, Blue Bonnet (*Northiella haematogaster)*, Sacred Kingfisher (*Todiramphus sanctus)*, and Owlet Nightjar (*Aegotheles cristatus*).

Compensatory and supplementary next boxes design may include the following:

- medium hollow – front entrance facing away from tree – bird specific; or
- medium hollow – side entrance next to tree trunk/branch – arboreal mammal specific.

4.3.5 Small hollow dependant species

Small hollows are considered to be hollows with an entrance diameter of less than 5cm. Small hollow-dependant species are expected to be the most impacted by the project given that small hollows are likely to be the most numerous in the project area. Small hollows are most likely to occur in mallee woodlands, but will also occur in native pine/belah, floodplain, and riparian woodlands and forests.

Small hollow dependant species are represented in the project area by several threatened species including Corben's Long-eared Bat (*Nyctophilus corbeni)*, Little Pied Bat (*Chalinolobus picatus)*, Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris)*, Scarlet Chested Parrot (*Neophema splendida)*, and Purple Crowned Lorikeet (*Glossopsitta porphryocephala)*.

Common species such as the Budgerigar (*Melopsittacus undulatus)*, Blue-winged Parrot (*Neophema chrysostoma)*, and numerous microbat species are also small hollow dependant. Compensatory and supplementary next boxes design may include the following:

- small hollow – front entrance facing away from tree – bird specific; or
- small hollow – side entrance next to tree trunk/branch – arboreal mammal specific (i.e., Western Pygmy Possum (*Cercartetus concinna*)).

4.3.6 Crevice (hollow) dependant species

Crevices are linear structures providing shelter that may lead to a hollow-bearing cavity or chamber or eventually may form into a hollow or chamber. This may be in the form of discrete fissures in trunks or limbs or exist as a broader timber sheet created by thick bark on a tree trunk or decaying/collapsing trunk layers.

Crevice adapted species often occupy similar structural habitats in rock piles and escarpments. With a lack of rock/stone/bedrock sourced habitat within the project area, these shelter resources are limited to timber derived habitats. Species that typically utilise crevices include skinks, geckoes, and microbats (during the summer months).

Small hollow dependant species are represented in the project area by several threatened species including Little Pied Bat (*Chalinolobus picatus)*, Eastern False Pipistrelle (*Falsistrellus tasmaniensis)* and the Spotted-tailed Quoll (*Dasyurus maculatus*).

4.3.7 Hollows for microbats

In Australia the vast majority of microbats are hollow dependant. Only a small number of species are obligate cave roosters. Hollows utilised by microbats are highly variable and influenced by numerous factors that include, but are not limited to, the following:

- size of access hole (filtering species access based on size);
- size and complexity of internal structure influencing internal microclimates;
- thermal mass of hollow resource - season and temperature variation (breeding, non- breeding);
- propensity for species to forms colonies or preference to roost as individuals; and/or
- proximity to water resources.

Microbats can subsequently be included in all hollow size classes discussed above. Colonies of microbats are included as a large hollow-dependant species as they may utilise large hollows (with small access holes or holes orientated that prevent use by other hollow-dependant species, i.e., vertical entrance) as larger breeding sites and overwintering roost sites where cavities provide

suitable microclimates. During the summer months colonies may disperse with animals utilising smaller hollow resources throughout the landscape.

Compensatory and supplementary nest box designs for microbats may include the following:

- large microbat hollow – large box with appropriate access gap to target species. Such boxes are commonly referred to as winter microbat boxes;
- medium microbat hollow – medium box size with appropriate access gap to target species. Such boxes are commonly referred to as winter microbat boxes; or
- small microbat hollow – smaller box size with appropriate access gap to target species. Such boxes are commonly referred to as summer microbat boxes.

4.3.8 Threatened species prioritisation

The loss of hollow bearing trees poses a threat to hollow-dependant fauna species. However, this threat is increased for threatened species, as their abundance and/or distribution may already be restricted, so they are particularly vulnerable to further threatening processes.

Consequently, hollow dependant threatened species known to occur in the Biodiversity Study Area have been considered priority species for compensatory/supplementary hollows where they are known to occur in the Biodiversity Study Area or considered likely to occur.

It is noted that the Plains Wanderer is not included in this strategy, as it is not a hollow dependant species, however the Plains Wanderer will be managed in accordance with the *Plains Wanderer Protocol* (45860-HSE-PL-D-0135).

5 Pre-clearing surveys and nest box installation

5.1 Survey

The project ecologists will survey and document tree hollows and nests within the proposed clearing extent as outlined in the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027). The survey will be used to identify and locate, where possible, all hollow bearing trees within the disturbance area.

Hollow bearing trees are defined as those trees that have at least one hollow. A tree is considered to contain a hollow if:

- the entrance can be seen;
- the hollow appears to have depth (i.e., solid wood cannot be observed beyond the entrance); and
- the hollow was at least 1m above the ground.

For each hollow bearing tree identified, the following information is proposed to be recorded:

- hollow bearing tree details, such as:
  - tree species;
  - condition (alive or dead);
  - approximate height (m);
  - approximate diameter at breast height (DBH);
- hollow details:
  - location of the hollows (limbs, trunk, or both);
  - number of each hollow class (small <5cm, medium 5-15cm, large 15-25cm and extra-large > 25cm);
  - approximate height (m) of the hollow from the ground;
  - suitability/evidence of fauna.

Each hollow bearing tree is to be mapped using a hand-held GPS unit and marked (using a tree tag and number) and/or sprayed with paint for future identification.

In addition during the pre-clearing survey potential nest resources will also be identified by the project ecologists within the disturbance area. The survey will aim to identify and locate, where possible, all potential nest resources within the disturbance area. This will assist with planning and scheduling requirements for allocation of compensatory and supplementary habitat resources.

5.2 Number of boxes required

The number and type of nest boxes to be installed will be determined based on the results of the surveys undertaken by the project ecologist.

Hollow data will be collected during pre-clearing surveys and will include (for example):

- location of the hollows and nests within the proposed clearing extents;
- number of each hollow class (i.e., small <5cm, medium 5-15cm, large 15-25cm and extra-large >25cm);
- approximate height (m) of the hollow from the ground; and
- suitability/evidence of fauna.

This data will be compared to species specific nest box dimensions to help determine an estimated quantity of nest boxes and specific types.

5.3 Target species and nest box design

Nest boxes are to be specifically designed and selected for the target fauna species/groups identified in Section 4.3. Nest box dimensions are detailed in the table below which is informed by Franks and Franks (Nest boxes for Wildlife, 2011). A nest box identification number will be placed on the nest box (stamped on the side or bottom of the nest box). Nest boxes will likely be constructed in plywood or timber.

Table 5.1 - Nest box dimensions (based on *Nest boxes for wildlife* 2011)

Species	Inside measurement (mm)	Entrance diameter (mm)	Depth of chamber (mm) (from bottom of entrance hole)	Height above ground (m)	Comments
Small birds	150 x 150	50	30	3-6	Horizontal spout entrance
Parrots	150 x 200	30-50	400	2-4	Front entrance
Cockatoo	300 x 400	200	1200	8-10	Very heavy chewer; angled spout entrance
Possums (large)	250 x 250	100	300	2-4	Will use several den sites
Microbat	n/a	Various slot sizes	400 or 600	1.8-5	Bottom opening

There is significant ecosystem value in the retention of habitat features suitable for common species. Other commonly occurring non-threatened fauna perform important ecosystem functions such as pollination, seed dispersal, invertebrate control and provide foraging resources for threatened species (e.g., small mammals for the Barking Owl).

The project should aim to maintain availability of habitat for these species to support ecosystem functionality. As such, nest boxes for common species identified for the project area are also recommended. If target species nest boxes in an area are saturated (i.e., at or above those removed from the disturbance are), common species can be accommodated for by using other nest box design types. This will be determined during and post clearing stages for nest box installation. Where there are fewer nest box sites, priority box type should be given to threatened species.

Nest box design considerations for target fauna species are outlined in Table 5.2. Where possible, hollow limbs and trunks of cleared trees should be re-used.

Table 5.2 - Nest box design considerations for target fauna species/groups

Design theme	Component	Applicable taxa	High-level design considerations
Entrance holes	Size	All species	• The entrance hole should be no larger than that required for the target species. This will reduce the uptake by unwanted species. In particular this will be specified for microbats.
	Location	Selected species	• The entrance hole should generally be positioned toward the top of the nest box so the area remains dark.
	Location	Ducks Kookaburra	• Entrance hole close to the base of the box.
	Location	Arboreal mammals Microbats	• Rear/side entrances should be used for possums and gliders adjacent to trunk/branch to encourage targets species.
	Location	Microbats	• Entrance gap located at bottom of box to avoid competition with other species. • Gap size applied to include/exclude target microbat species.
Box access	Exterior	All species	• Provision of design to provide grip for target animal access.

Design theme	Component	Applicable taxa	High-level design considerations
			• May include grooves cut into rough sawn timber or grooves cut into the face of the box to allow animals to grip the exterior of the nest box.
	Interior	All species	• Provision of design to provide grip for target animal access. • May include mesh or grooves cut into the walls to allow young to climb out of the box.
Furnishings	Internal	All species	• Where appropriate (depending on the target species), wood shavings may be added to each box. • Wood chips, wood shavings or sawdust can be placed into boxes to replicate the inside of decaying hollows and to provide extra insulation.
	Internal	Microbats	• Shade cloth or similar material, and/or timber grooving should be installed in bat boxes to give the bats something to cling to. • Ensure that material/method selected does not bind/catch toes and legs.
Thermoregulation	Roof/lid	All species	• To prevent temperature extremes inside the nest box, do not use metal lids or plates on the roof of the nest box.
	Material	All species	• All milled timber uses should be at least 25 mm thick. • If plywood is used it must be minimum 15mm thick or larger (exterior grade).
	Microclimate	Microbats	• Internal box space should consist of at least 2 compartments (using baffles) to promote microclimate stability. • Larger boxes should incorporate additional baffles/compartments.
General design	Roof/lid	All species	• The lid should overhang the front and sides of the nest box by at least 25 mm to prevent water damage. • Consideration should be given to drip lines.
	Joinery	All species	• Joins should be sealed with to reduce drafts and provide structural integrity (may also require use of screws or nails dependant upon material used). • Screws and/or nail should be inert and/or exterior grade (coated or similar). • Galvanised fittings can be used however they can chemically react with tree fluids.
	Finishing	All species	• There should be no sharp edges or exposed screws or nails.
	Material	All species	• Timber is preferred material for construction of body of nest box due to better thermal mass properties. • Ideally constructed using durable hardwood that is either recycled or sustainably sourced plantation timber. • If not constructed of hardwood, exterior grade plywood is recommended (preferably with FSC certification). • MDF or chipboard should not be used.
	Weather proofing	All species	• If the boxes are to be painted on the outside then the paint should be non-toxic, neutral coloured, exterior grade water-based acrylic paint. • Excessively dark colours increase nest box temperatures, so are not recommended. • The inside should be left natural (i.e., not be painted or treated with oil).
	Drainage	All species	• Small drain holes should be placed in the box (in bottom panel) to allow water to drain.
Mounting	Installation	All species	• Method of installation should be one that minimises damage and/or impact to the host tree.

Design theme	Component	Applicable taxa	High-level design considerations
			• Method of installation should be one that allows for growth of tree with only periodic adjustment/maintenance to mounting to accommodate this growth without nest box or tree failure.
	Maintenance	All species	• Nest box must be mounted in a way that allows for the removal of the nest box for maintenance and/or replacement as required without subsequent damage/impact to the host tree.
Toxicity	Weather proofing	All species	• Where possible glues, paints/finishings in nest box construction should exclude the use of products containing Volatile Organic Compounds. • Oil based paints and varnishes should not be used to finish nest boxes. • Do not used treated materials.
Pest management	Control	All species	• As required, anti-pest devices such as buffalo fly ear tags should be installed to deter European honeybee in areas where they could become a problem. • Some success has been found with the use of artificial grass mounted on the internal side of the roof, and similarly using recycled plastic for lids to deter the establishment of European Honeybees.

5.4 Nest box locations

The location of the nest boxes will be determined by the project ecologist following identification of hollow bearing trees and available nearby habitat. Should there be no suitable areas and trees adjacent to this site, the boxes will be installed at the nearest suitable area. Suitability will be determined by installation guidelines. Spacing of the boxes in relation to the species natural home range is important to consider as overcrowding can be counterproductive and has potential to deter animals from using it.

The project ecologist will also determine the potential for relocation of natural tree hollows for re-use, within adjacent vegetation, or by placement on the ground to create habitat for ground-dwelling fauna.

The project ecologist will provide advice on recommended installation e.g. tree attachment, suitable height, density, location, aspect and timing of nest boxes. Locations for potential installation areas will be considered in order of preference:

1. within the outer edge of the easement;
2. adjacent to the project site on private property, with landowner agreement to access installation and ongoing monitoring in biodiversity offset sites;
3. the distribution of nest boxes across the landscape will be determined with consideration of the following:
    a. installing nest boxes as close as possible to the location of the original hollow bearing tree (where feasible within 100m from point of resource removal);
    b. estimated number of hollows already occurring in the proposed installation site;
    c. placement according to landscape need, not based on land availability (i.e., to reflect the abundance of natural hollows in the vicinity and/or to utilise areas which contain other resources but are lacking hollows);
    d. placement in specific areas to facilitate wildlife connectivity across the landscape;
    e. positioning in habitat locations where sufficient cover is present to avoid exposure to the elements and predators;
    f. average carrying capacity for hollow-dependant species;

g. the target species behaviours (e.g., spacing boxes for a territorial species greater than the home range distance to reduce inter-specific and intra-specific competition spacing of the boxes in relation to the target species natural home range - overcrowding can be counterproductive and has potential to deter animals from using a box);

h. availability and suitability of other resources such as water and food of the target species; and

i. relocation of natural tree hollows if applicable.

The following in-principal considerations will apply when determining trees for nest box installation:

- installation needs to be undertaken safely so placing the boxes at the minimum height for the target species is considered appropriate;
- protecting the box from hot afternoon sun and the predominant aspects of severe storms;
- ensuring that the target species can get access to the entrance e.g., birds like a perch near the box;
- microbat boxes should be near creek lines, water sources and within or adjacent to potential flyways. The Yellow-bellied Sheathtail-bat has shown a preference for trees with an incomplete crown and dead limbs (Clews, 2016);
- recipient tree's condition (should be robust and in good health);
- recipient tree's suitability for the target species and type of box to be installed; and
- minimising the impacts to the recipient tree's growth.

It should be noted that many hollow bearing trees contain multiple hollows of different sizes. As such, several boxes may be placed in suitable trees (dependant on tree species and size) where doing so is considered by the project ecologist to be of benefit to fauna. Multiple roost sites can be utilised by a species, with each roost representing different thermal properties.

5.5 Installation detail

The installation of nest boxes in suitable habitat outside of the disturbance area is proposed to compensate for the loss of hollow bearing trees which will be removed for the project. The project ecologist is to supervise and instruct on the installation of all nest boxes and reused hollows. Specific requirements for installation of nest boxes include:

- the preferred method of attaching nest boxes to trees is the Habisure © System illustrated in Figure 5.1. This method allows for tree growth and minimises damage to the tree. A length of plastic-coated soft fencing wire will be passed through the nest box and around the tree trunk and where the wire is in contact with the tree trunk or branch it will be threaded through a length of garden hose to protect the tree. The garden hose section is not required for trees that are not in early growth stages and where the expected increase in trunk diameter is unlikely to result in any constriction of the trunk on which the wire is installed;
- preferably, nest boxes would be installed on trees where there is an opposing branch available to support the attachments (as in Figure 5.1);
- nest boxes for birds are to be orientated between north-west and east of tree trunks to avoid hot afternoon sun and dominant direction of severe storms;
- nest boxes for bats are to be placed in a number of orientations which should comprise of some shaded boxes and some sun-exposed boxes to generate a variety of thermal conditions to allow for use as both summer and winter roosts. Nest boxes should be installed at the recommended heights for target species/nest box type. Installation of each nest box will include ensuring the box is labelled to aid monitoring, and recording the below information:
  - nest box identification number;

- nest box type;
- nest box height and orientation;
- GPS location;
- date of installation.

Subject to landowner agreement and suitable existing trees being present, nest boxes will be installed no more than two weeks prior to clearing of the tree.

A summary of this information will be included in the Nest Box Installation Report.

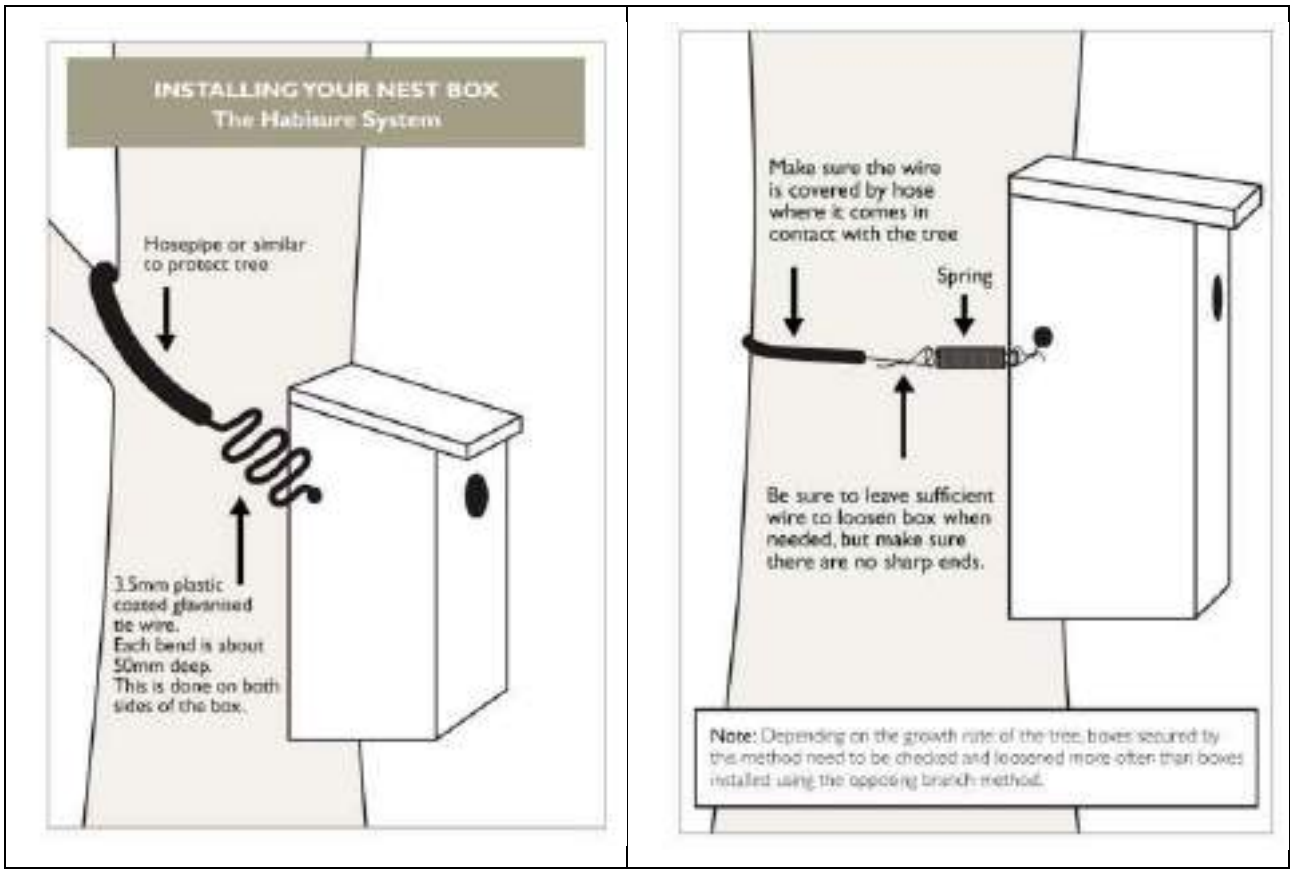


Figure 5.1 - The Habisure © system (from Franks and Franks 2011)

5.5.1 Tree hollow re-use

Advantages to re-using tree hollows include:

- closer resemblance to natural hollows (including microclimates) (Beyer et al. 2008; Griffiths et al. 2017; Ruegger 2017; Griffiths et al. 2018);
- greater longevity than nest boxes (e.g., Harley 2006; Beyer et al. 2008; Ruegger 2017);
- ability to maintain the natural hollow density and type within an area and can be installed at the same aspect and angle due to the individual features of natural hollows that cannot be replicated with a nest box;
- greater attractiveness for a larger array of hollow-dependant species (Ruegger, 2017);
- challenges to re-using tree hollows and hollow creation include:
  - labour intensive without established and efficient workflow;
  - limited to larger tree dimensions that introduce high operational risks;

- large sizes often required use of elevated work platforms which are limited by location (floodplain presents significant site-based risks and safe operation);
- drying out and cracking – the hollow microclimate changes when a live hollow is reused; and
- a repurposed limb is much heavier than a nest box and the weight of a repurposed limb is a limiting factor for effective installation, cost and safety considerations.

The project ecologist will determine the potential for relocation of natural tree hollows for re-use, by placement on the ground to create habitat for ground-dwelling fauna. This technique is to only be used following an assessment of associated environmental constraints, safety risks, and on a case-by-case basis.

5.5.2 Nest box installation timing

As this project will adopt a staged approach to clearing, a similar approach will be proposed for nest box installation.

Any nest boxes which are required within the relevant areas for squirrel gliders will be installed prior to clearing in that location.

Any nest boxes required for other species will be installed in accordance with the following timeframes:

- 30% to be installed prior to clearing within a particular location;
- all remaining nest boxes (100%) will be installed within three months of clearing within a particular location.

Monitoring the timing of installation of the nest boxes will occur in accordance with Table 5.3. Table 5.3 includes a Trigger Action Response Plan (TARP) which will be implemented whenever it is determined that nest box installation does not occur in a particular location prior to clearing. Details of the timing of nest box installation will be provided in the Nest Box Installation Report.

Following the completion of construction, nest boxes will remain in place and will not be removed. Nest boxes will therefore remain post-construction.

Table 5.3 - Nest box installation monitoring and TARP

Objective	Target	Performance indicator	Method of monitoring (how the performance indicator will be validated)	Frequency / timing	Trigger	Action / Response Plan
Minimise and manage the impacts of the project on biodiversity	Nest box installation for **squirrel gliders** to commence prior to clearing in a particular location	Nest box installation for squirrel gliders will commence prior to clearing in a particular location.	Progress updates from the ecologists via meetings and Nest Box Installation Checklist	Fortnightly	Nest box installation for squirrel gliders does not occur in a particular location prior to clearing	• Determine why nest boxes cannot be installed and address barriers to installation. • Reinspect to confirm this has occurred.

Objective	Target	Performance indicator	Method of monitoring (how the performance indicator will be validated)	Frequency / timing	Trigger	Action / Response Plan
	Nest box installation for **other species** to commence prior to clearing in a particular location	30% of nest boxes for other species will be installed prior to clearing in a particular location. All remaining nest boxes (100%) to be installed within three months of clearing in a particular location.	Progress updates from the ecologists via meetings and Nest Box Installation Checklist	Fortnightly	Nest box installation for other species does not occur as follows: • 30% of nest boxes to be installed prior to clearing in a particular location; • all remaining nest boxes (100%) will be installed within three months of clearing within a particular location	• Determine why nest boxes cannot be installed and address barriers to installation. • Reinspect to confirm this has occurred.

5.5.3 Nest Box Installation Report

The Nest Box Installation Report will include the following:

- nest box identification number;
- the number of nest boxes installed on the project;
- the type of nest boxes installed;
- the location that the nest boxes were installed (GPS location);
- the nest box height and orientation;
- the vegetation community type (PCT); and
- the date of installation.

The report will be prepared by the project ecologist and will be made public on the project website.

5.5.4 Nest box monitoring and maintenance

Monitoring during construction will determine the use of nest boxes during the construction phase and will occur on an annual basis. Any requirement to maintain or replace nest boxes due to deterioration or invasion by pest species, will also be assessed based on the viability of the nest box to continue to be used by the target species. Where longer term use is considered unviable, consideration and assessment will be made to determine if nest box replacement is required.

Any longer-term maintenance and monitoring (post-construction) would be detailed within the Operational Environmental Management Plan.

5.6 Nest impact management

Potential nest types have been identified in Section 3 of the strategy. Methods employed in the management of nests can be summarised by the following:

- identified active nests are either to be avoided (where practical) or managed in accordance with *Fauna Handling Procedure* (Appendix C of the Biodiversity Management Plan);

- where nests can be reasonably relocated, locations are to be determined by the project ecologist; and
- relocations may employ securing existing intact nest in same or similar aspect or employ the use of nest poles where it has been identified necessary to do so. Key consideration includes a case-by-case on site assessment with the project ecologists addressing the potential for success to the relocation and additional site safety related risks.

6 Reporting

Reporting will be undertaken in accordance with Table 6.1.

Table 6.1 - Reporting program

Item	Scope	Frequency	Responsibility	Recipient
Pre-clearing survey form	The pre-clearing survey will include: • results of the field survey, including a description of key characteristics of existing tree hollows and/or nest resources, including known or likely inhabitants; • the number of hollow bearing tree resources which will be impacted; and • number and characteristics of nest boxes required.	Prior to clearing in that area	Project ecologist	Environmental Manager
Nest box installation report	A Nest Box Installation Report will be developed upon completion of clearing and completion of installation of all hollow compensatory/supplementation resources. The report is to provide information on the following: • number and type of hollow removed; • number and type of nest boxes installed; • GPS mapped location of nest boxes installed; • plant community type (PCT); • summary to available habitat resources (e.g., water, leaf litter, habitat structure); and • summary to disturbances in locations (e.g., logging, fire, grazing etc.).	Following installation of all nest boxes	Project ecologist	Environmental Manager and Transgrid

6.1 Limitations

Field surveys will be used to confirm the number of hollow bearing trees and other habitat resources in the transmission easement and in disturbance areas. All attempts will be made to identify every hollow within the project disturbance area but hollows in trees can be invariably difficult to identify from ground observation only. Many hollows identified from the ground may not be deep enough to support fauna following closer inspection. Conversely, many small hollows in trunks and branches may not be visible from the ground and may have been missed during surveys.

Prior to clearing activities, the potential number of hollows lost and those requiring supplementation will be estimated based on pre-clearing surveys by the project ecologists. The actual number of hollows removed will be confirmed during the clearing activities.

This strategy has been developed based upon the current knowledge and research on hollow and nest supplementation, using the current design footprint and Final BDAR.

7 References

- Beyer, G., Goldingay, R., & Sharpe, D. (2008). *The characteristics of squirrel glider (Petaurus norfolcensis) den trees in subtropical Australia.* Austral. J. Zool., 56, 13–21
- BioNet. (2022). Occurrence download. Retrieved from https://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx
- Birdlife Australia. (undated). Birdlife Australia (undated). Nest boxes – technical information. Retrieved from http://birdlife.org.au/images/uploads/education_sheets/INFO-Nestbox technical.pdf
- Clews, L. (2016). *Observations on roost use by the yellow-bellied sheathtail-bat (Saccolaimus flaviventris) in Northern New South Wales, Australia*. Australian Mammalogy, 39 (1), 95-99.
- DELWP. (2022). EVC Benchmarks Robinvale Plain Bioregion - website: https://www.environment.vic.gov.au/biodiversity/bioregions-and-evc-benchmarks. Department of Environment, Land, Water and Planning, Victorian Government.
- Franks, A., & Franks, S. (2011). *Nest boxes for wildlife: A practical guide.* Bloomings Books.
- Goldingay, R. L. (2009). *Characteristics of tree hollows used by Australian birds and bats. Wildlife Research,* 36, 394–409.
- Griffiths, S., Lentini, P., Semmens, K., Watson, S., Lumsden, L., & Robert, K. (2018). ChainsawCarved Cavities Better Mimic the Thermal Properties of Natural Tree Hollows than Nest Boxes and Log Hollows. Forests, 9, 235.
- Griffiths, S., Rowland, J., Briscoe, N., Lentini, P., Handasyde, K., Lumsden, L., & Robert, K. (2017). Surface reflectance drives nest box temperature profiles and thermal suitability for target wildlife. PloS One, 12.
- Harley, D. (2006). *A role for nest boxes in the conservation of Leadbeater's Possum. Wildlife Research,* 33, 385-395.
- Jacobs. (2019). *Preliminary Ecological Constraints Assessment.*
- National Parks and Wildlife Service. (1999). Natural tree hollows. Retrieved from NSW Government: https://www.environment.nsw.gov.au/resources/nature/Factsheet5TreeHollows.pdf
- NSW Scientific Committee. (2007). *Loss of hollow-bearing trees - key threatening process listing.* Retrieved from NSW Department of Planning, Industry, and Environment: https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw threatened-species-scientific-committee/determinations/final-determinations/2004-2007/loss-of-hollow-bearing-trees-key-threatening-process-listing
- Roads and Traffic Authority. (2011). *Biodiversity Guidelines - Protecting and managing biodiversity on RTA Projects*. Sydney: RTA - Environment Branch.
- Ruegger, N. (2017). *Artificial tree hollow creation for cavity-using wildlife – Trialling an alternative method to that of nest boxes.* Forest Ecology and Management, 405, 404-412.

Annexure A – Target species analysis

Table A.1 - Target species analysis undertaken to determine hollow-dependant and nest-dependant species that are known or likely to occur within the disturbance area for the project.

Common name	Scientific name	Threatened species listing		Nesting type	Nest dependence		Hollow/resource/nest class	Comments	WSP excluded species	Likelihood of occurring
		NSW	Cth		Hollow dependant	Other nest dependant				
Birds										
Australian Masked Owl	*Tyto novaehollandiae*	V	-	Hollow	Yes	No	Extra Large	Hollows with a diameter greater than 20 cm	Excluded from Candidate species	Low
Barking Owl	*Ninox connivens*	V	-	Hollow	Yes	No	Extra Large	Hollows with a diameter greater than 20 cm and higher than 4 m above ground		Medium
Black Falcon	*Falco subniger*	V	-	Platform	No	Yes	Platform Nest - Tree	Typically nest along watercourses		High
Black-breasted Buzzard	*Hamirostra melanosternon*	V	-	Platform	No	Yes	Platform Nest - Tree		Excluded from Candidate species	Low
Black-chinned Honeyeater (eastern subspecies)	*Melithrptus gularis gularis*	V	-	Bowl	No	Yes	Platform Nest - Tree	Nest placed in tree tops hidden by foliage		Medium
Black-eared Miner	*Manorina melanotis*	CE	E	Cup	No	Yes	Platform Nest - Tree	Loose platform bowl nest as communal nest site		Medium
Brown Treecreeper (eastern subspecies)	*Climacteris picumnus victoriae*	V	-	Hollow	Yes	No	Small hollow			Medium
Diamond Firetail	*Stagonopleura guttata*	V	-	Globular	No	Yes	Platform Nest – Tree			High
Dusky Woodswallow	*Artamus cyanopterus Artamus cyanpterus*	V	-	Cup	No	Yes	Platform Nest – Tree			High

Common name	Scientific name	Threatened species listing		Nesting type	Nest dependence		Hollow/resource/nest class	Comments	WSP excluded species	Likelihood of occurring
		NSW	Cth		Hollow dependant	Other nest dependant				
Flame Robin	*Petroica phoenicea*	V	-	Cup	No	Yes	Platform Nest – Tree			Medium
Gang-gang Cockatoo	*Callocephalon fimbriatum*	V	E	Hollow	Yes	No	Medium	Eucalyptus species with hollows larger than 9 cm diameter		Medium
Gilbert's Whistler	*Pachycephala inornata Pachycephala inornate*	V	-	Cup	No	Yes	Platform Nest – Tree			High
Glossy Black Cockatoo	*Calyptorhynchus lathami*	V	V	Hollow	Yes	No	Large	Hollows larger than 15 cm diameter and 8 m above ground or higher		Medium
Grey Falcon	*Falco hypoeucos*	E	-	Platform	No	Yes	Platform Nest - Tree			Medium
Grey-crowned Babbler (eastern subspecies)	*Pomatostomus temporalis temporalis*	V	-	Dome	No	Yes	Dome Nest			Medium
Hooded Robin (south eastern form)	*Melanodryas cucullata cucullata Melanodryas cucullate cucullate*	V	-	Cup	No	Yes	Platform Nest - Tree			High
Little Eagle	*Hieraaetus morphnoides*	V	-	Platform	No	Yes	Platform Nest - Tree			High
Little Lorikeet	*Glossopsitta pusilla*	V	-	Hollow	Yes	No	Small	Hollows usually 3 cm in diameter and 215 m above ground		Medium
Major Mitchel's Cockatoo	*Lophochroa leadbeateri*	V	-	Hollow	Yes	No	Medium	Hollows larger than 10 cm diameter		High
Painted Honeyeater	*Graniella picta*	V	V	Cup	No	Yes	Platform Nest - Tree			Medium

Common name	Scientific name	Threatened species listing		Nesting type	Nest dependence		Hollow/resource/nest class	Comments	WSP excluded species	Likelihood of occurring
		NSW	Cth		Hollow dependant	Other nest dependant				
Pied Honeyeater	*Certhionyx variegatus*	V	-	Cup	No	Yes	Platform Nest - Tree			Medium
Purple-crowned Lorikeet	*Glossopsitta porphyrocephala*	V	-	Hollow	Yes	No	Medium			High
Purple-gaped Honeyeater	*Lichenostomus cratitius*	V	-	Platform	No	Yes	Platform Nest - Tree			Medium
Redthroat	*Pyrrholaemus brunneus*	V	-	Dome	No	Yes	Dome			Medium
Red-lored Whistler	*Pachycephala rufogularis*	CE	V	Cup	No	Yes	Platform Nest - Tree			Medium
Regent Honeyeater	*Anthochaera phrygia*	CE	CE	Platform	No	Yes	Platform Nest - Tree			Medium
Regent Parrot (eastern subspecies)	*Polytelis anthopeplus monarchoides*	E	V	Hollow	Yes	No	Medium	Hollows larger than 5 cm diameter and 5 m above ground or higher		High
Scarlet Robin	*Petroica boodang*	V	-	Cup	No	Yes	Platform Nest - Tree			Medium
Shy Heathwren	*Hylacola cauta*	V	-	Dome	No	Yes	Dome			Medium
Speckled Warbler	*Chthonicola sagittata*	V	-	Cup	No	Yes	Platform Nest - Tree			Medium
Spotted Harrier	*Circus assimilis*	V	-	Platform	No	Yes	Platform Nest - Tree			High
Square-tailed Kite	*Lophoictinia isura*	V	-	Platform	No	Yes	Platform Nest - Tree		Excluded Breeding habitat based on survey	Medium
Striated Grasswren	*Amytornis striatus*	CE	-	Dome	No	Yes	Dome			Medium
Superb Parrot	*Polytelis swainsonii*	V	V	Hollow	Yes	No	Small	Hollows larger than 5 cm diameter and 4 m		High

Common name	Scientific name	Threatened species listing		Nesting type	Nest dependence		Hollow/resource/nest class	Comments	WSP excluded species	Likelihood of occurring
		NSW	Cth		Hollow dependant	Other nest dependant				
								above ground in trees with a DBH greater than 30cm		
Turquoise Parrot	*Neophema splendida*	V	-	Hollow	Yes	No	Small			Medium
Varied Sittella	*Daphoenositta chrysoptera*	V	-	Cup	No	Yes	Platform Nest - Tree			Medium
White-bellied Sea-Eagle	*Haliaeetus leucogaster*	V	-	Platform	No	Yes	Platform Nest - Tree	Large stick nests within 1km of rivers, creeks lakes, dams, or wetlands	Excluded from Candidate species	Low
White-browed Treecreeper (endangered population)	*Climacteris affinis*	E	-	Hollow	Yes	No	Small		Excluded from Candidate species	Low
Mammal										
Corben's Long-eared Bat	*Nyctophilus corbeni*	V	V	Hollow	Yes	No	Microbat			High
Eastern Pygmy Possum	*Cercartetus nanus*	V	-	Hollow	Yes	No	Small			Medium
Inland Forest Bat	*Vespadelus baverstocki*	V	-	Hollow	Yes	No	Microbat			High
Large-eared Pied Bat	*Chalinolobus dwyeri*	V	V	Hollow	Yes	No	Microbat			Medium
Southern Myotis	*Myotis macropus*	V	-		Yes	No	Microbat	Tree hollows within 200m of riparian zones		High
Squirrel Glider	*Petaurus norfolcensis*	V	-	Hollow	Yes	No	Medium	Trees are critical to movement and must be closely connected (no more than 50m apart)		High

Common name	Scientific name	Threatened species listing		Nesting type	Nest dependence		Hollow/resource/nest class	Comments	WSP excluded species	Likelihood of occurring
		NSW	Cth		Hollow dependant	Other nest dependant				
Western Pygmy Possum	*Cercartetus concinnus*	E	-	Hollow	Yes	No	Small			Medium
Little Pied Bat	*Chalinolobus picatus*	V	-	Hollow	Yes	No	Microbat			Medium
Spotted-Tailed Quoll	*Dasyurus maculatus maculatus*	V	E	Hollow	Yes	No	Large			Medium
Yellow-bellied Sheathtail Bat	*Saccolaimus flaviventris*	V	-	Hollow	Yes	No	Microbat			Medium

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Heritage Management Plan EnergyConnect (NSW – Eastern Section) Stage 1 and Stage 2

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Soil and Water Management Plan
EnergyConnect (NSW - Eastern Section)
Stage 2

45860-HSE-PL-D-0118

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B	Issued for Transgrid review
C	Issued for agency review
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Key Document Stakeholders
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Abbreviations

Acronym	Definition
AHD	Australian height datum
Amendment Report	*Amendment Report EnergyConnect (NSW – Eastern Section)*
AS/NZ	Australian Standard/New Zealand Standard
ASS	Acid sulfate soils
AWS	Automatic weather station
BC Act	*Biodiversity Conservation Act 2016*
BoM	Bureau of Meteorology
BTENX	Benzene, toluene, ethylbenzene, xylene, and naphthalene
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CLM Act	*Contaminated Land Management Act 1997*
Contamination	Contamination means the presence in, on or under land or any other aspect of the environment of a substance (i.e. gas, chemical, liquid or other matter) whether occurring naturally or otherwise, which is: a) at a concentration above the concentration at which the substance, gas, chemical, liquid or other matter, whether occurring naturally or otherwise, is normally present in, on or under land or any other aspect of the environment in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment; or b) toxic, flammable or otherwise capable of causing harm to humans or damage to the environment including asbestos (man-made or naturally occurring), toluene, polychlorine biphenyls, lead based paints, glues, solvents, cleaning agents, paints, water treatment chemicals and acid producing spoil.
CPESC	Certified Professional in Erosion and Sediment Control
CSSI	Critical State significant infrastructure
Cth	Commonwealth
DAWE	Department of Agriculture, Water and the Environment, now known as Department of Climate Change, Energy, the Environment and Water
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DPE	NSW Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure
DPHI or Department	NSW Department of Planning, Housing and Infrastructure
DPIE	NSW Department of Planning, Industry and Environment (now named NSW Department of Planning , Housing and Infrastructure)
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
ER	Environmental Representative
ESCP	Erosion and Sediment Control Plan
ESCS	Erosion and Sediment Control Strategy
GDEs	Groundwater dependent ecosystems

Acronym	Definition
NSW	New South Wales
PASS	Potential acid sulfate soils
PESCP	Progressive Erosion and Sediment Control Plan
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
POEO Act	*Protection of the Environment Operations Act 1997*
project, the	EnergyConnect (NSW – Eastern Section)
RMMs	Revised mitigation measures
SA	South Australia
SAPs	Sensitive area plans
Elecnor	Transgrid has engaged Elecnor Australia, trading as Elecnor, to design and construct the EnergyConnect project.
Stage 1	Stage 1 of construction of the project. This includes establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation and water supply points.
Stage 2	All construction activities associated with EnergyConnect (NSW – Eastern Section). Once approved the Stage 2 CEMP and the relevant Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP and Stage 1 CEMP sub-plans. The Stage 2 CEMP and Stage 2 CEMP sub-plans do not address the operational phase of the project.
Submissions Report	*Submissions Report EnergyConnect (NSW – Eastern Section)*
SWMP	Soil and Water Management Plan
UXO	Unexploded Ordnance
WAL	Water Access Licence
WM Act	*Water Management Act 2000*
WMS	Work method statements
WWTP	Wastewater treatment plant

1 Introduction

1.1 Context

This Soil and Water Management Plan (SWMP or this plan) forms part of the Construction Environmental Management Plan (CEMP) for Stage 2 of EnergyConnect (NSW – Eastern Section).

This document has been prepared for construction activities undertaken during Stage 2 of the project. Once approved this plan will supersede the existing Stage 1 Soil and Water Management Plan. It does not address the operational phase of the project.

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), the *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

1.2 Background

On 29 August 2019 the then New South Wales (NSW) Minister for Planning and Public Spaces declared the New South Wales (NSW) component of EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. Within NSW, EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – SA/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with five from special interest groups, nine from local councils and 44 from the public. In addition, 17 government agencies also provided advice during this time.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared a separate Amendment Report to document design changes and additional environmental assessment undertaken since the exhibition of the EIS. The Amendment Report was also finalised in May 2022.

On 2 June 2022, the NSW Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure (DPHI) requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response Transgrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to

address the various requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI-9172452). Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Transgrid have engaged Elecnor Australia, trading as Elecnor to design and construct their portion of the EnergyConnect project.

1.3 Staging

Condition A8 allows preparation of plans on a staged basis, with the approval of the Planning Secretary. Where a plan is staged, the scope of works can be carried out without addressing requirements of the Infrastructure Approval that are not applicable to that stage. This SWMP is staged in accordance with condition A8. The two stages are as follows:

- Stage 1 – establishment and operation of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation, water supply points; and
- Stage 2 – Stage 1 and all other construction activities (i.e. all construction activities associated with EnergyConnect (NSW – Eastern Section).

The plans for Stage 2 incorporate and supersede the Stage 1 plans and cover the entire construction phase of the project.

This SWMP has been prepared specifically for EnergyConnect (NSW – Eastern Section) Stage 2 and will be implemented for the duration of Stage 2 of construction. The key project components of Stage 2 of construction include, but are not limited to, the activities provided in Table 1.1. The location of the key project components are presented in Figure 1.1.

Table 1.1 - Key project components of construction (Stage 2)

Key activity	Description of key activity
Pre-construction minor works permitted in accordance with the Infrastructure Approval.	The definition of 'construction' within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. Key activities include: • environmental investigations, including biodiversity and heritage protection, salvage and recordings; • Aboriginal heritage assessment, mitigation (e.g. exclusion zones) and salvage activities including subsurface testing/test excavation, additional survey, and consultation with RAPs; • other survey work, such as road dilapidation surveys, and surveys of the general alignment and existing utilities; • installation of environmental management measures (including erosion and sediment controls), fencing, signage and security measures, enabling works; and • connections and pre-commissioning of utilities (wastewater treatment plant, electrical power, lighting etc.).
Continuation of any outstanding Stage 1 construction activities	Construction activities undertaken during Stage 1 of the project will continue where required. This includes, but is not limited to continuation of the following activities: • any outstanding construction activities at Dinawan and Wagga Wagga substations; • operation of earthworks material site, including the crushing and screening plant, where required;

Key activity	Description of key activity
	• operation of the construction compounds including offices and laydown area; and • use of traffic access route and access and egress points.
Establishment of ancillary facilities along the transmission line corridor	A number of minor staging, storage and laydown ancillary areas would be required within the project corridor for temporary storage of materials, plant and equipment required to construct the various elements of the proposal (in particular transmission line structures). Some temporary mobile batching plant locations may also need to be established to enable easy access to concrete. These sites would be in place for shorter periods at locations suitable to support the construction works as they move along the alignment.
Property adjustment work, including adjustments to property fencing	Installation or adjustment of gates and fences would be required at some locations along the alignment to enable access from the nearest roadway to construction areas. These would be constructed in consultation with the relevant council and/or affected landholder.
Water supply points – establishment and/or use	A number of water supply points have been along the length of the project to support construction water needs for the project. The proposed water supply points which are to be established and / or used include: • Lake Benanee*, Balranald Shire Council;159 Church Street, Balranald Shire Council; • 10 Perry Street, Euston*, Balranald Shire Council; • Carey Street/Sturt Highway, Euston*, Balranald Shire Council; • Ravensworth, Hay Shire Council [Ravensworth in Amendment Report]; • Moulamein Road 2, Edward River Council [Moulamein Road, Moulamein in Amendment Report]; • Burraburoon*, Edward River Council; • Carathool Road, Four Corners*, Edward River Council; • Kidman Way*, Murrumbidgee Council; • Crosby Road*, Murrumbidgee Council; • Newell Highway, Morundah*, Federation Council; • Urana-Lockhart Road, Brookong*, Lockhart Shire Council; • Brookdale*, Lockhart Shire Council; • Federation Way/Coonong Road*, Federation Council; • Newell Highway/Arrawidgee Road*, Federation Council; • Federation Way*, Federation Council; • Red Hill Road, Wagga Wagga, Wagga Wagga City Council [Glenfield in Amendment Report]; • 1254 Four Corners Road, Coleambally, Murrumbidgee Council [1254 Four Corners Road in Amendment Report]; • Wonga Station, Four Corners Road, Edward River Council [Wonga in Amendment Report]; • Four Corners Road Mabins Well; Edward River Council [Four Corners Road, Mabins Well in Amendment Report]; • Booroorban-Tchelery Road*, Booroorban, Edward River Council; • Strongs Lane*, Lockhart, Lockhart Shire Council; • Slys Lane*, Lockhart Shire Council; • Bullenbung-the-Rock Road*, Lockhart Shire Council; • French Park-Bullenbung Road*, Lockhart Shire Council; • Napier Road*, Lockhart Shire Council; • Albury Road*, Lockhart, Lockhart Shire Council; • 3 Bencubbin Avenue, Coleambally, Murrumbidgee Council [3 Bencubbin Avenue in Amendment Report];

Key activity	Description of key activity
	• Keri Keri Road, Moulamein, Murray River Council [Keri Keri in Amendment Report]; • 78 Murray Street, Tooleybuc*, Murray River Council; • Federation Way* (near corner Federation Way and Stephen Street), Federation Council; • Mclennons Bore Road, Coleambally, Murrumbidgee Council [Mclennons Bore Road in Amendment Report]; • 8955 Newell Highway Bundure, Murrumbidgee Council [Newell Highway, Bundure in Amendment Report]; • Paraway at Four Corners Road*, Murrumbidgee Council; • Paraway at Cobb Highway*, Hay Shire Council; • North Boundary Road*; Murrumbidgee Council; • Off Sturt Highway* Wentworth Shire Council; • 16 Mile Gums*, Hay Shire Council; • Cadell Street, Hay, Hay Shire Council; • Jerilderie Road*, Hay Shire Council; • 59 Thelangerin Road, Hay*, Hay Shire Council; • Court Street/Sturt Highway*, Balranald Council; • Boiling Down Road*, Wagga Wagga City Council; and • continued use of the Stage 1 water supply points. 'The water supply points may require works to the existing infrastructure to enable connection and use by the water supply vehicles. The definition of 'construction' within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. * The water supply points denoted above with an asterisk are additional to the water supply points identified in the EIS. Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would: • confirm that the water supply point could be accessed using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary's agreement in accordance with condition C32; • reach agreement with the water supplier regarding the use of the water supply point for the project; and • carry out any additional assessments which may be required (ie heritage or biodiversity).
Traffic access routes and access points	The construction vehicle movements will be required for a variety of activities (i.e. earthworks, clearing and grubbing activities). All construction vehicles associated with the development will travel via the haulage routes as identified in Appendix 3 of the Infrastructure Approval or as otherwise approved. The establishment of new access points would include: • establishing vehicle access and egress points to ensure safe vehicle movements. Existing access may also be used; and • establishing truck wheel wash or rumble grids. The definition of construction within the Infrastructure Approval does not include road upgrades (which includes access points). Road upgrade works are, however, incorporated within the Traffic and Transport Management Plan as required by condition C35 b).

Key activity		Description of key activity
Construct access tracks		Access to each tower would be required during construction. Access tracks would be required to be traversable by a range of vehicles. Access tracks would fall into two broad groups: • un-improved access tracks – using existing roads or tracks, or driving on existing soil or ground surface with minimal or no prior preparation; • improved access track – using existing roads or tracks where minor modification (such as grading or widening of the existing track) is required; and • constructed access tracks – around six metres wide and would generally follow the natural contour of the land as far as practicable to minimise the amount of cut and fill and soil disturbance. Access tracks would also include drainage control features such as table drains or cross banks to minimise erosion. Constructed access tracks would be required in areas, where there are no existing roads or tracks, or where terrain conditions prevent continuous access along the line easement between road crossings. Local waterway spans and causeways may be required, where alternative access routes are impractical, along the length of the proposal.
Temporary works		The project will require a significant quantity of temporary works during construction. The temporary works will include, but not limited to, the following: • earthworks, including trenches, excavations, temporary slopes, stockpiles, and embankments; • laydown and parking areas for the towers; • structures, such as formwork, shoring, edge protection, barriers and signage, temporary scaffold; and • equipment/plant foundations, such as work platforms, crane, and piling platforms.
Optical repeater sites		Three optical repeater site communication huts would need to be constructed at Balranald, Boorooban and Lockhart. The optical repeater sites are communication huts to ensure the stability of the communications system over great distances during the operation phase. The key activities for the construction of the optical repeater sites would consist of the following: • site establishment, including vegetation removal and establishment of temporary construction site office, if required; • earthworks and preparation of the site for concrete foundations; • construction of a new communication hut building at each site; • installation of new pole-mounted transformers; • installation of electrical cables and terminations (either through the installed conduits or stringing of the aboveground poles); • installation of site wiring and electrical control equipment within each building; • trenching for underground conduit between the Balranald optical repeater hut and transmission line; • installation of new above ground poles between the transmission line and the respective Booroorban and Lockhart optical repeater sites; • provision of power connections between the transmission line and associated optical repeater site; and • removal of waste and remediation of site areas.
Transmission line construction	Earthworks and transmission tower footing construction	Excavation works and establishment of construction pads at each tower site would be required for the installation of foundations, levelling around the individual tower foundations, drainage and grading or preparation for construction at the tower site. Excavations would typically be up to five metres in depth. Construction of footings and foundation works for the new transmission line towers includes: • piling. Typical transmission line tower piling depth would be generally up to 6-15 metres below ground level and would depend on ground conditions (e.g. greater piling depths would be required where soft soil types are present). The

Key activity		Description of key activity
		foundation type would also vary (subject to detailed design) but would consist of either: - bored pile (reinforced concrete); - driven or screw pile (concrete or steel); and - helical screw anchor, or cast in-situ reinforced concrete. • excavation to create bench sites (stepped ground excavation) where required to provide a level platform for equipment setup, the erection of the tower and other construction activities. Benching would be constructed by use of earthing equipment such as graders and excavators; • steel fabrication works; and • concrete pours.
	Assembly and erection of transmission line towers	The transmission line towers would typically be erected by assembling in sections on the ground and hoisting or lifting successive sections into place using cranes. Alternatively, towers may be erected in place on the footings by installing individual members. These towers would include infrastructure such as step bolts, climbing attachment plates, ladders, platforms, climbing barriers, identification plates, warning plates, other fixtures and fittings for the attachment of earthwires and insulators.
	Stringing of transmission lines including conductors and overhead earth wires and optical ground wire	Following erection and securing of the tower, the transmission line would be strung by either a ground pulled draw wire (with brake/winch sites) or a line stringing drone. The area required for the construction of each tower would require access for tower assembly and stringing works. Where a transmission tower is proposed to allow for a direction change of the transmission line, a larger area would be required (to allow for brake and winching sites). At a typical site, this would include a temporary area of up around 60 metres by 80 metres at each transmission line tower location. Stringing of the transmission line would also be required across several major watercourses, railway lines and roads / highways. The general construction methodology is to assemble and erect a transmission line structure on either side of each river, road or rail crossing. A drone would then be used to take a lead wire over the river to allow cables to then be pulled and strung tower to tower.
	Installation of earthing conductors	The following key activities will be undertaken: • installation of earthing conductors at each of the transmission tower arms; and • installation of earthing or isolation sections of fences and gates where the transmission line crosses or closely runs parallels to a metallic fence.
Utility adjustments and protection		General utility protection and adjustment works, where required, to allow for the Wagga Wagga substation expansion and upgrades works to occur, the optical repeater sites, the establishment and operation of the construction compounds and accommodation camps, and elsewhere as required.
Site rehabilitation and landscaping		Site rehabilitation would be carried out progressively along completed sections of the transmission line as well as the substation sites. This phase would occur following the completion of construction. This phase would include the removal/remediation of the construction compounds and camp sites, removal of temporary facilities and site buildings and temporary environmental controls. Works may also be undertaken to restore: • water infrastructure facilities to pre-existing conditions before arrival on site in consultation with landowners; • natural drainage in areas where temporary facilities were provided; and • fences, gates, etc., which may have been damaged during construction. Installation of the permanent Transgrid property boundary fence surrounding the new and expanded substation sites would also likely occur during this phase.
Demobilisation		Elecnor will start to downsize the construction team with gradual demobilisation as particular key construction activities are completed.

Some activities nominated in this stage will have already commenced as part of the pre-construction minor works permitted in accordance with the Infrastructure Approval. These works remain excluded from the definition of 'construction' and will therefore not be subject to the Stage 2 CEMP and this SWMP. Activities that were approved to be carried out under the Stage 1 SWMP will continue under this SWMP.

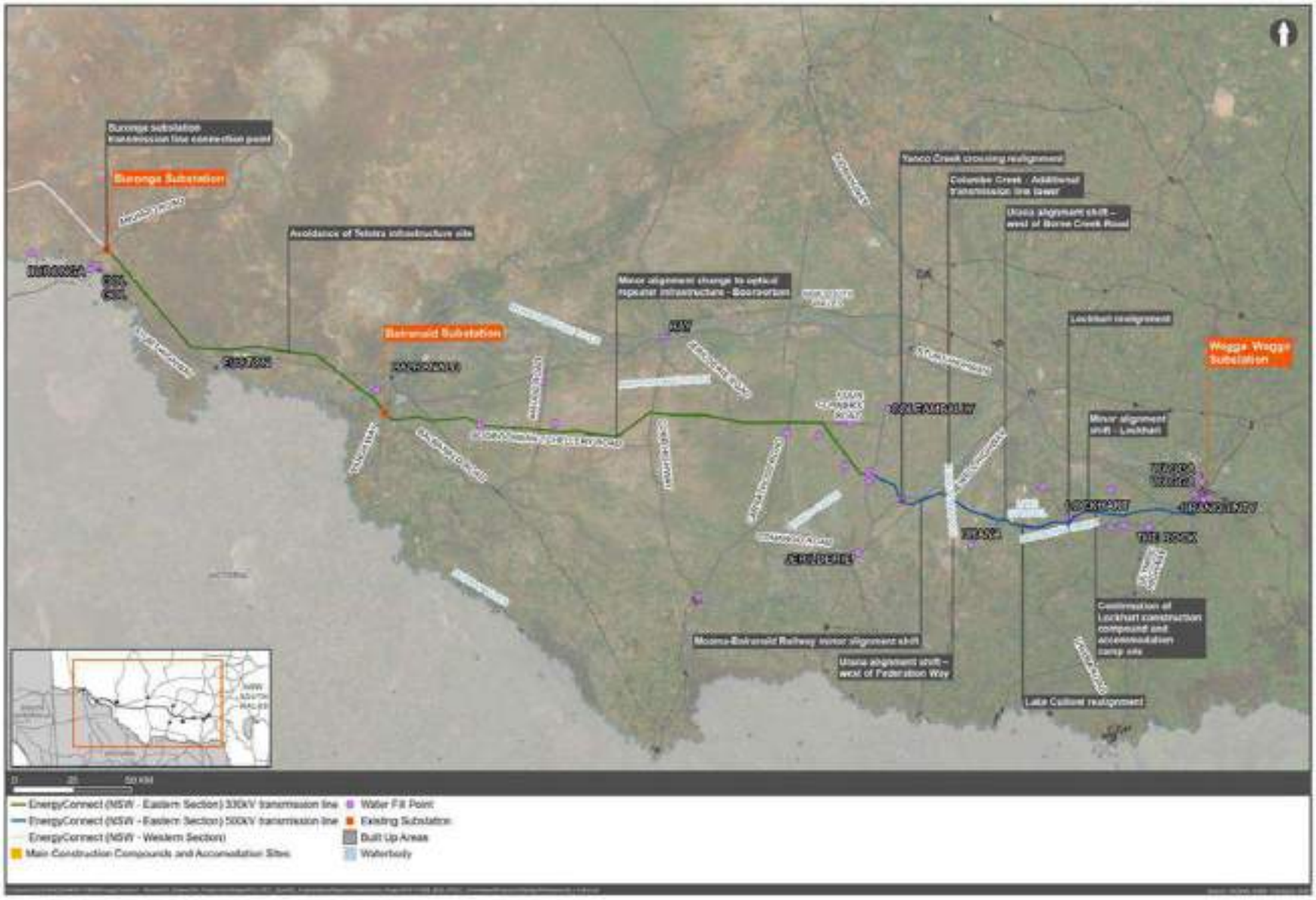


Figure 1.1 - Key features of EnergyConnect (NSW – Eastern Section)

1.4 Environmental management system

The overall environmental management system for the project is described in Section 4 of the CEMP. This SWMP is a sub-plan that forms part of the CEMP and is also part of the environmental management framework for the project, as described in the CEMP.

Management measures identified in this plan will be incorporated into relevant site-based documents including, but not limited to, site or activity specific work method statements (WMS), sensitive area plans (SAPs) or training and awareness material.

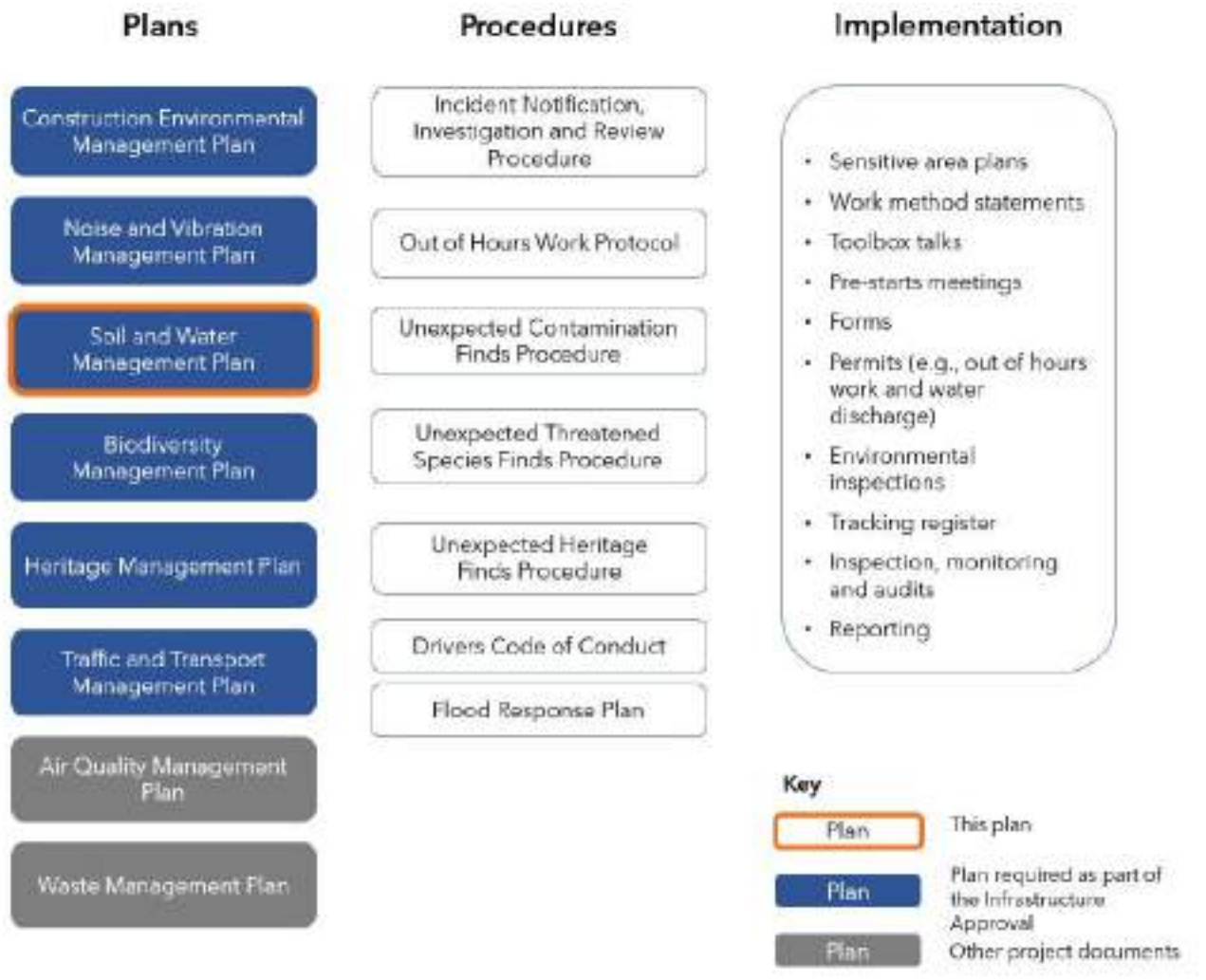


Figure 1.2 - CEMP framework

1.5 Purpose and objective

The purpose of this SWMP is to describe the approach to manage soil and water impacts that will be adopted during construction of the project.

The key objective of this plan is to detail management measures and inform site procedures so that soil, water and contamination impacts are minimised and managed within the scope permitted by the Infrastructure Approval. To achieve this, the following will be undertaken:

- implement appropriate measures to address the requirements outlined in the Infrastructure Approval, EIS and Submissions Report;

- implement appropriate measures during construction to minimise soil, water and contamination impacts; and
- implement appropriate measures to comply with relevant legislative requirements as described in Section 2.1 of this plan.

As a means of assessing environmental performance, environmental objectives (performance measures), targets (criteria) and performance indicators have been established for the project and are provided within Table 4.2 of the CEMP. The performance measures and indicators that are most relevant to soil, water and contamination are detailed in Table 1.2.

Table 1.2 - Environmental objectives, targets and performance indicators relevant to soil, water and contamination

Aspect	Objectives (performance measures)	Targets (criteria)	Performance indicators
Compliance	Compliance with Statutory Approvals and Infrastructure Approval	• Full compliance with statutory approvals. • No regulatory infringements (PINs or prosecutions). • No formal regulatory warning.	Number of regulatory infringements (PINs or prosecutions), formal regulatory warning, audits.
	Implement and comply with the CEMP and associated management plans	• Zero non-compliances identified during each compliance audit of CEMP and sub-plans.	Number of non-compliance arising from each audit.
Soil and water	Minimise erosion and sedimentation	• Implementation of controls in accordance with the PESCPs.	Environmental inspections, audits.
	Ensure that the project does not cause water pollution as defined in section 120 of the POEO Act	• 100% completion of scheduled inspections. • 100% compliance with the Dewatering Procedure.	Environmental inspections, audits.
Incident management and response	Ensure timely communication of incidents. Minimise the risk of an incident by identifying risks and developing actions to minimise those risks	• All incidents reported in accordance with the CEMP. • All risks reviewed in accordance with the Elecnor management system.	Follow up action of incidents as recorded in incident reports.
Inspections and audits	Completion of weekly inspections and audits	• 100% completion of scheduled audits and weekly inspections.	Environmental inspections, audits.

1.6 Preparation of this plan

In accordance with condition B1 of the Infrastructure Approval, this plan has been prepared by suitably qualified and experienced person. This plan was prepared by Cheryl Cahill, an environmental and erosion consultant (attained certification as a Certified Professional in Erosion and Sediment Control (CPESC)).

1.7 Consultation

1.7.1 Development of this plan

In accordance with condition B1 b) of the Infrastructure Approval, this plan has been prepared in consultation with:

- DPE Water; and
- relevant councils.

The plan was issued to relevant stakeholders for review and comment. Comments from the consultation process will be incorporated into this plan where appropriate. Details of all consultation will be submitted to DPE along with the submission of this management plan.

1.7.2 Public sources of information

Elecnor will use a range of tools in accordance with the *Community Communication Strategy* (CCS) (45860-HSE-DOC-D-0024) to facilitate ongoing consultation and communication with the community and stakeholders (including government agencies where necessary) regarding the project. Communication tools include, but are not limited to, stakeholder briefings, project website, community drop-in sessions, door knocks and project factsheets. Refer to the CCS for further information.

In accordance with condition D12 a) of the Infrastructure Approval, project documents including the EIS, approved strategies, plans or programs required under the conditions of approval will be made publicly available on the project website. The project website is https://www.transgrid.com.au/projects-innovation/energyconnect. A 24-hour toll-free telephone number (1800 490 666) is also available for any project enquiries. In accordance with condition D12(b) the information will be kept up to date.

1.7.3 Complaints

Complaints will be managed by the Engagement Team with the use of the Sales Force database. Complaints will be received via phone calls, emails and letters. Any complaint received is regarded as a high priority and will be recorded, tracked and responded to in accordance with the CCS. Complaints will be investigated and dealt with impartially. The key principles of the complaint management process include:

- acknowledge – Elecnor staff should respect the communities' right to voice their concerns. All complaints received should be acknowledged to the complainant either by telephone or in writing;
- resolve – Elecnor staff should aim at first contact, resolution for all community concerns. Elecnor staff should investigate community concerns in detail before negotiating a resolution. All Elecnor staff should use their relevant discretions to achieve a mutually acceptable resolution to complaints;
- escalate – all Elecnor staff should aim to escalate the complaint if the community member remains dissatisfied with the investigation and/or resolution offered by their first point of contact at Elecnor. All complaints where a community member requests to speak to a higher-level representative, should also be escalated;
- record – Elecnor staff should aim, through the Engagement Team, to record all relevant information, on the community account in Sales Force, regarding customer concerns along with details of all discussions had with the community member in the process of investigating and/resolving the complaint. Detailed information on the resolutions offered to address community concerns should also be clearly recorded;
- communicate – Elecnor staff should remain in constant touch with the community member while their concerns are being investigated. The community member should be informed of all steps of the investigation and the resulting outcome at appropriate times;
- report – Elecnor should report on all complaints received to the Elecnor Management Team and Transgrid. The reporting should include information on the number as well as type of

complaints being received, the status of these complaints from time to time and the resulting outcomes or resolutions offered to close them;

- feedback – the Elecnor Engagement Team should aim at regular and intensive reviews to identify possible trends in the complaints being received. These reviews should be aimed at highlighting improvements required to avoid complaints being repeated;
- action – Elecnor should aim to effectively implement improvements suggested directly by the community or highlighted by complaint trends.

Wherever possible, complaints will be resolved directly between Elecnor and the stakeholder. If a complaints management process has been followed and the issue cannot be resolved, dispute resolution will be undertaken in accordance with the CCS. DPHI may request the Environmental Representative (ER) to assist in dispute resolution of community complaints.

All complaints will be provided to the ER and a summary of complaints received, such as a complaint register, will be updated monthly on the project website.

1.8 Submission and approval

Prior to submission to DPHI, the SWMP was reviewed by the ER to ensure that the plan was consistent with the requirements of the Infrastructure Approval. A written statement to this effect was prepared and submitted to DPHI. This review was undertaken in accordance with condition A12 of the Infrastructure Approval.

The SWMP was submitted to DPHI for review and approval by the Planning Secretary prior to the commencement of Stage 2 construction.

Stage 2 of construction did not commence until the CEMP and all sub-plans required under condition B1, or where staging is proposed the plans required for that stage, were approved by the Planning Secretary. The approved SWMP will be implemented for the duration of the Stage 2 construction activities.

1.9 Periodic review

This SWMP will be reviewed at least annually and updated, if required, in accordance with Section 1.10 of the CEMP – Updating the CEMP. This includes the review and, if necessary, revision of this Soil and Water Management Plan in accordance with condition D2, within three months of the following:

- submission of an incident report under condition D6 of the Infrastructure Approval;
- submission of an audit report under condition D11 of the Infrastructure Approval; or
- any modifications to the Infrastructure Approval.

Any updates to the SWMP will be approved as described in Section 1.10 of the CEMP.

2 Environmental requirements

2.1 Legislation

Legislation relevant to this SWMP includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act);
- *Protection of the Environment Operations Act 1997* (POEO Act);
- *Contaminated Land Management Act 1997* (CLM Act); and
- *Water Management Act 2000* (WM Act).

Relevant provisions of the above legislation are detailed within the register of legal and other requirements included in Appendix A1 of the CEMP.

2.2 Conditions of Approval

The conditions of the Infrastructure Approval relevant to soil, water and contamination for Stage 2 of the project are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

Table 2.1 - Conditions of Approval relevant to soil, water and contamination

<table>
<tr><th>Condition no.</th><th>Requirement</th><th>Where addressed</th><th>How addressed</th></tr>
<tr><td>A1</td><td>In meeting the specific performance measures and criteria of this approval, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction, operation, rehabilitation, upgrading or decommissioning of the development.</td><td>Section 5</td><td>Section 5 identifies the management measures to be implemented to prevent, and if prevention is not reasonable and feasible, minimise harm.</td></tr>
<tr><td>B1</td><td>Prior to commencing construction, an Environmental Management Plan (EMP) comprising the Sub-plans listed in Table 1 must be prepared by a suitably qualified and experienced persons, to the satisfaction of the Planning Secretary.
Following the Planning Secretary's approval, the Proponent must implement the Environmental Management Plan.
Table 1: EMP Sub-plans
<table>
<tr><th></th><th>Required EMP Sub-plan</th><th>Relevant government agencies and stakeholders to be consulted for each EMP Sub-plan</th></tr>
<tr><td>(b)</td><td>Soil and Water</td><td>DPE Water
Relevant council</td></tr>
</table></td><td>Title page
Section 1.6
Section 1.7</td><td>This SWMP has been prepared by suitably qualified and experienced people and in accordance with the relevant guidelines.
This SWMP was provided to DPE Water and relevant councils for consultation. Following consultation, the outcomes of consultation were incorporated throughout the SWMP where appropriate.</td></tr>
</table>

Condition no.	Requirement	Where addressed	How addressed
B2	The EMP Sub-plans must be prepared in accordance with relevant guidelines and in consultation with the relevant government agencies identified for each Sub-plan in Table 1, and include:	Section 2.5 Section 1.7	This SWMP has been prepared in accordance with relevant guidelines and will be provided to DPE Water and relevant councils for consultation, in accordance with condition B1.
	a) a summary of relevant background or baseline data;	Section 3	The existing environment (including topography, soils, water and contamination) within and adjacent to the Stage 2 disturbance area is outlined in Section 3.
	b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 2 Appendix A1 of the CEMP	The relevant legislation, conditions, RMMs and guidelines applicable to soil, water and contamination are outlined in Section 2. Appendix A1 of the CEMP provides further detail on the relevant legislation applicable to soil, water and contamination.
	(ii) any relevant limits or performance measures and criteria;	Section 1.5 Section 4.2 of the CEMP – Objectives and targets	The objectives (performance measures) and targets (criteria) relevant to soil, water and contamination management are outlined in Section 1.5. The CEMP also provides project-wide environmental objectives (performance measures) and targets (criteria).
	(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 1.5 Table 1.2 Section 4.2 of the CEMP – Objectives and targets	The performance indicators relevant to soil, water and contamination management are outlined in Section 1.5 and Table 1.2. The CEMP also provides project-wide performance indicators.
	(iv) any relevant commitments or recommendations identified in the EIS;	Section 2.3	Relevant soil, water and contamination commitments and recommendations identified in the EIS, known as RMMs, have been outlined in Section 2.3. Section 1.5 and Section 5 of this SWMP describe how the commitments of the EIS relevant to soil and water management will be implemented.

Condition no.	Requirement	Where addressed	How addressed
	c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 5	Specific soil, water and contamination related safeguards and management measures to address potential impacts associated with Stage 2 of construction and comply with the relevant statutory requirements, limits and performance measures are outlined in Section 5.
	d) a program to monitor and report on the: (i) impacts and environmental performance of the development (including a table summarising all the monitoring and reporting obligations under the conditions of this approval); and	Section 6 Section 6.3 Section 6.4 Section 6.5 Section 6.6	The management measures will be monitored through regular monitoring, inspections and audits outlined in Sections 6.3 to 6.6 of this SWMP.
	(ii) effectiveness of the management measures set out pursuant to paragraph (c);	Section 6 Section 6.3 Section 6.4 Section 6.5 Section 6.6	The effectiveness of the management measures will be managed through the monitoring, inspections, auditing and reporting system outlined in Sections 6.3 to 6.6 of this SWMP.
	e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 6.8 Appendix B Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Noncompliance, nonconformance, corrective and preventative action	Section 6.8 outlines a contingency plan in the event that unpredicted impacts are identified. In the event of the discovery of any unexpected contamination, the *Unexpected Contamination Finds Procedure* (Appendix B) will be followed. The CEMP also provides additional detail regarding incidents and emergencies, reporting, non-compliance, nonconformance, corrective and preventative actions.
	f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 1.9 Section 6 Section 1.9 of the CEMP – Continuous improvement	Section 6 of this SWMP outlines procedures for compliance management, including details for monitoring, inspections, auditing and reporting. This SWMP will be reviewed at least annually as described in Section 1.9 of this SWMP and Section 1.9 of the CEMP. The Plan-Do-Check-Act model will be applied to the continuous improvement process, also outlined in Section 1.9 of the CEMP.

Condition no.	Requirement	Where addressed	How addressed
	g) a protocol for managing and reporting any: (i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion);	Section 6.7 Section 6.8 Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Noncompliance, nonconformance, corrective and preventative action	Sections 6.7 and 6.8 describe the procedures for emergencies, incidents and non-compliances, including those related to soil, water and contamination. Additional detail for managing incidents and emergencies, non-compliances and non-conformances is included in the CEMP. The protocol for reporting of any incidents, non-compliances or nonconformances is included in Section 10 of the CEMP.
	(ii) complaint; or	Section 1.7.3 Community Communication Strategy	A summary of the complaints management procedure and reporting of complaints is included in Section 1.7.3 of this SWMP. The procedure for managing and reporting any complaints is described in the *Enquiries, Complaint and Dispute Resolution Management Procedure* provided in the CCS.
	(iii) failure to comply with other statutory requirements;	Section 6.7 Section 8 of the CEMP – Incidents and emergencies Section 10 of the CEMP – Reporting Section 11 of the CEMP – Noncompliance, nonconformance, corrective and preventative action	In the event of failure to comply with statutory requirements, the procedures summarised in Section 6.7 of this SWMP, and described in more detail in the CEMP, would be followed.
	h) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 1.7.2	The local community and relevant agencies will be kept informed of construction progress and environmental performance through communication tools such as notifications, the project's mobile van and the project website as summarised in Section 1.7.2 of this SWMP.
	i) a protocol for periodic review of the EMP and EMP Sub-Plans.	Section 1.9 Section 1.10 of the CEMP – Updating the CEMP	This SWMP will be reviewed at least annually in accordance with the CEMP.

Condition no.	Requirement	Where addressed	How addressed
	The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	Noted	Noted
Soil and water			
Water supply			
C12	The Proponent must ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of the development to match its available water supply.	Section 2.4.2 Section 5.3 Table 5.2 – SW31	Discussions with councils and private water owners regarding water supply volumes and access options have commenced and will be ongoing throughout the project where required. The scale of the development is prescribed by the operational function that the infrastructure must provide, which is not influenced by available water supply. Elecnor does not anticipate a situation in which a lack of water availability could result in a change to the scale of the development.
C13	The Proponent must report on water take at the site during construction (whether direct or indirect and whether licensable or exempt) in the Independent Audit, including water taken under each water licence for the development. *Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Proponent is required to obtain the necessary water licences for the development.*	Table 5.2 – SW32 Section 6.6 Appendix D	No water take from watercourses is proposed other than through licensed water supply infrastructure owned and operated by others and in accordance with the relevant licence. Water take will be reported and is included within Table 5.2 and Section 6.6. Reference to reporting water take is also included within the Dewatering Procedure.
Erosion and sedimentation			
C14	The Proponent must: a) minimise erosion and control sediment generation; and b) ensure all land disturbances have appropriate drainage and erosion and sediment controls designed, installed and maintained in accordance with *Managing Urban Stormwater – Soils and Construction Volume 1* (Landcom, 2004), *Managing Urban Stormwater – Soils and Construction Volume 2A Installation of Services* (DECC, 2008) and *Managing Urban Stormwater – Soils and Construction Volume 2C Unsealed Roads* (DECC, 2008).	Section 5.1 Table 5.2 – SW4, SW5, SW8 and SW18 Appendix A	An Erosion and Sediment Control Strategy (Appendix A) has been prepared in line with the erosion and sediment principles and requirements of the listed guidelines. A Certified Professional in Erosion and Sediment Control (CPESC) will prepare the initial ESCP covering a range of erosion hazards for the different receiving environments across the project, which will be used as a basis for the development of the Progressive Erosion and Sediment Control Plans (PESCPs). The PESCPs will outline controls to be implemented to minimise soil erosion and sedimentation of waters. Other soil and water

Condition no.	Requirement	Where addressed	How addressed
			management measures are included in Table 5.2.
Pollution of waters			
C15	Unless otherwise authorised by an EPL, the Proponent must ensure the development does not cause any water pollution, as defined under Section 120 of the POEO Act.	Table 5.2 – SW3	No pollution to water, as defined under section 120 of the POEO Act, is to occur, unless authorised by an EPL.
C16	The Proponent must: a) ensure that appropriate components of the concrete batching plants and substation are suitably bunded; and	Table 5.2 – SW25	Appropriate components of the concrete batching plant, such as the concrete mixing and washout areas, and the oil filled components of the substation, will be suitably bunded.
	b) minimise any spills of hazardous materials or hydrocarbons, and clean up any spills as soon as possible after they occur.	Table 5.2 – SW26 and SW27 Appendix C	Spill kits will be provided in strategic and accessible locations adjacent to chemical storage areas, relevant work area and refuelling area locations. If a spill occurs during construction of the project, the *Spill Response Procedure* will be followed.
C17	The Proponent must ensure that any groundwater dewatering activities do not discharge to watercourses.	Table 5.2 – SW34 Appendix D	Dewatering of groundwater will not be discharged directly into watercourses.
Riparian areas			
C18	The Proponent must ensure: a) all activities on waterfront land are constructed in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (2012), *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003) and the *Policy and Guidelines for Fish Habitat and Conservation and Management* (NSW Fisheries, 2013), unless DPE Water agrees otherwise; and	Table 5.2 – SW18	All activities on waterfront land will be guided by the principles from the relevant guidelines.
	b) the geomorphic condition of the major rivers and distributary channels crossed by the development is not impacted.	Table 5.2 – SW18	The project does not include construction within the channel of the main watercourses (other than stringing activities which occurs in the spatial environment above the main watercourses). The risk of impacts to the geomorphology of these major river systems is considered to be negligible.
Flooding			
C19	The Proponent must ensure that the development: c) does not materially alter the flood storage capacity, flows or characteristics in the development area or off-site; and	Section 3.3.4 Section 5.7 Table 5.2 – SW41	Most construction activities occur in areas not prone to flooding and as such would not materially alter the flood

Condition no.	Requirement	Where addressed	How addressed
			storage capacity, flow or characteristics of the local area. Construction activities within flood prone areas may temporarily redistribute flood flows and characteristics. Design and the implementation of appropriate management measures during construction, particularly in advance of a predicted flood, will reduce the impacts of localised flooding. The project will be designed and constructed to minimise impacts on surface water, localised flooding and groundwater.
	d) is designed, constructed and maintained to reduce impacts on surface water, localised flooding and groundwater at the site, unless otherwise agreed by the relevant Council or BCS.	Section 5.7 Table 5.2 – SW40	The project will be designed and constructed to minimise impacts on surface water, localised flooding and groundwater.
Acid sulfate soils			
C20	The Proponent must ensure that any construction activities in identified areas of acid sulfate soil risk are undertaken in accordance with the *Acid Sulfate Soil Manual (Acid Sulfate Soil Management Advisory Committee, 1998)*.	Section 3.2.2 Table 5.2 – SW10 and SW11	If acid sulfate soils are encountered during construction, the appropriate management measures will be implemented with guidance from Acid Sulfate Soil Manual (ASSMAC, 1998).
Salinity			
C21	The Proponent must ensure that any construction activities in identified areas of moderate to high salinity are undertaken in accordance with the *Salinity Training Manual* (DPI, 2014) and *Book 4 Dryland Salinity: Productive use of Saline Land and Water* (NSW DECC, 2008).	Table 5.2 – SW12	No soil salinity data for the Stage 2 disturbance area was available at the time of writing this plan. A visual soil salinity inspection will be undertaken prior to ground disturbance. Where saline soil is confirmed, construction activities in areas of moderate to high salinity 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).
Soil and Water EMP Sub-Plan			
C22	The Soil and Water EMP Sub-Plan required under condition B2 must include provisions for:	This Plan	This SWMP has been prepared to address the requirements of condition C22.

Condition no.	Requirement	Where addressed	How addressed
	e) ensuring the requirements in conditions C12 to C21 are complied with;	Management of condition C14 to C21 requirements are outlined in the above rows.	Conditions C12 to C21 are addressed as outlined in the above rows.
	f) managing flood risk during construction;	Section 3.3.4 Section 5.7 Flood Response Plan (45860-HSE-PL-D-0123)	The majority of the construction areas occur in areas not prone to flooding. Areas with flood risk are detailed in Section 3.3.4. Procedures to safely access and egress from affected areas during a flood event is detailed in the *Flood Response Plan*.
	g) investigating, assessing and managing contaminated land, soils, groundwater and blasting in the development area;	Investigating, assessing and managing contaminated land and soils is addressed in Section 3.2, Section 3.4 and in Table 5.2. Investigating, assessing and managing groundwater and blasting is addressed in Section 3.3.5 and in Table 5.2.	Potential contaminants were identified within Stage 2 disturbance areas, however, the EIS evaluated the risk of encountering contamination as low. If any suspected contaminated land, soils and groundwater is discovered during the construction of the project, the *Unexpected Contamination Finds Procedure* will be followed.
	h) investigating, assessing and managing the potential for asbestos and other hazardous materials in the development area; and	Section 3.2.4 Section 3.4 Table 5.2 Appendix B	The EIS indicates that the risk of naturally occurring asbestos being present within project area is low. No asbestos containing material has been identified within the Stage 2 disturbance area. If any suspected asbestos and/or other hazardous material is discovered during the construction of the project, the *Unexpected Contamination Finds Procedure* will be followed.
	i) managing any unexpected and / or suspected contaminated land, asbestos and unexploded ordinance excavated, disturbed or otherwise discovered during construction.	Table 5.2 Section 3.2.4 Section 3.4 Appendix B	If any unexpected contaminated land, asbestos and unexploded ordinance is discovered during the construction of the project, the *Unexpected Contamination Finds Procedure* will be followed.
C52	Within 6 months of the completion of construction, upgrading or decommissioning, unless the Planning Secretary agrees otherwise, the Proponent must rehabilitate the areas where ancillary facilities, accommodation camps and earthwork material sites are located.	Table 5.2 – SW46	Rehabilitation to ancillary facilities and earthwork material sites will be undertaken progressively where feasible or within 6 months of the completion of the construction

<table>
<tr><th>Condition no.</th><th>Requirement</th><th>Where addressed</th><th>How addressed</th></tr>
<tr><td></td><td>This rehabilitation must comply with the objectives in Table 3.
Table 3: Rehabilitation objectives
<table>
<tr><th>Features</th><th>Objectives</th></tr>
<tr><td>Ancillary facilities</td><td>• Safe, stable and non-polluting
• Progressively rehabilitate the site as soon as possible following disturbance
• To be decommissioned and removed, unless the Planning Secretary agrees otherwise</td></tr>
<tr><td>Land use</td><td>• Restore land capability to pre-existing use</td></tr>
<tr><td>Community</td><td>• Ensure public safety at all times</td></tr>
</table></td><td></td><td>phase of the project with the aim to provide a safe, stabilised and non-polluting area.</td></tr>
</table>

2.3 Revised mitigation measures

The revised mitigation measures (RMMs) for the project are defined in Appendix B of the Submissions Report and Appendix C of the Amendment Report. The RMMs relevant to soil, water and contamination management for the project are presented in Table 2.2 below. The RMMs provided below are extracts from the Submissions Report. A cross reference is also included to indicate where the measure is addressed within this plan or other project management documents.

The management measures that will be implemented for the project are provided in Section 5 of this plan.

Table 2.2 - Revised mitigation measures relevant to soil, water and contamination

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
HF1	Permanent operational infrastructure and landforms within the transmission line easement would be designed and implemented/formed to minimise any potential scour and erosion risks associated with surface water runoff. Drainage infrastructure at substations would be designed to not materially worsen flood impacts on property and infrastructure.	All locations	Table 5.2 – SW8 and SW19	Disturbed surfaces in the immediate vicinity of permanent infrastructure will be shaped to minimise scouring and erosion. The project will be designed and constructed to minimise impacts on surface water and localised flooding.
HF2	Detailed construction planning would consider flood risk at construction areas. This would include: • identifying measures that would be implemented to not worsen flood impacts downstream and on other property and infrastructure during construction up to and including the five per cent AEP design flood event, and • confirming site layouts to avoid or minimise obstruction of overland flow	Transmission line and construction sites within flood prone land	Section 3.3.4 Section 4.2.1 Section 5.7 Table 5.2 – SW40 Flood Response Plan (45860-HSE-PL-D-0123)	This revised mitigation measure is addressed through the Flood Response Plan provided in Appendix B of the Traffic and Transport Management Plan. The project will be designed and constructed to minimise impacts on

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
	paths and to limit the extent of flow diversion required. Practicable measures identified to minimise potential flood risks at construction areas would be implemented.			surface water and localised flooding.
HF3	A detailed assessment would be undertaken to confirm that the bench level of the final design of the Dinawan 330kV Substation will be above the 100 year average recurrence interval (ARI) design and that a 200 year ARI design flood would not impede substation function. The assessment would consider spills/overflows from the detention basin on the irrigation channel to the east of the substation location and a potential failure of the basin embankment. The bench level and design of the substation would be adjusted to ensure compliance with Transgrid's design standards.	Dinawan 330kV Substation	Table 5.2 - SW2	This mitigation measure will be addressed during detailed design and is included in Table 5.2.
HF4	A water quality monitoring program would be implemented to establish baseline water quality conditions at perennial watercourses that the transmission lines would cross, and to facilitate monitoring of any changes in water quality that may be attributable to the proposal during construction. The frequency, location and duration of sampling would be detailed in the monitoring program, but would include: • at a minimum two monitoring locations (one located upstream and one downstream of the transmission line crossing) of the proposal on Colombo Creek • downstream monitoring on the Murrumbidgee River with consideration of existing upstream WaterNSW gauges (including gauge 410130) • monitoring for total dissolved solids, total suspended solids, total nitrogen and total phosphorus. Sampling in the Murrumbidgee River and Colombo Creek would commence at least six months prior to the commencement of ground disturbing activities within the riparian zone at each respective location and then monthly during construction until completion of rehabilitation works in the respective areas. If there are exceedances of water quality criteria, then measures adopted as part of HF6 would be reviewed and revised. Monitoring would continue monthly during construction at each respective	Upstream and downstream of the crossing transmission line crossing for Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek).	Table 5.2 – SW16 Section 6.3	A water quality monitoring program as described in Section 6.3 will be undertaken for the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek) prior to construction at locations adjacent to these watercourses. Water quality monitoring will be undertaken monthly throughout construction until the completion of construction in areas adjacent to the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site.

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
	location until completion of rehabilitation works in the respective areas.			
HF5	Water supply options and management would occur in accordance with agreements between the construction contractor and relevant suppliers.	All locations	Section 2.4.2 Section 5.3 Table 5.2 – SW31	Discussions with councils and private water owners regarding water supply volumes and access options have commenced and will be ongoing throughout the project where required.
HF6	A Soil and Water CEMP sub-plan would be developed in consultation with a Certified Professional in Erosion and Sediment Control and implemented during construction. The plan would detail the processes, responsibilities and measures to manage potential soil and water quality impacts in accordance with the principles and requirements in: • *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004), and *Volumes 2A and 2C* (DECCW, 2008), commonly referred to as the 'Blue Book' • *Best Practice Erosion and Sediment* Control (IESCA – 2008) • Transgrid's Environmental Guidance Notes • *Guidelines for Controlled Activities on Waterfront Land* (DPI, 2012a NRAR, 2018). The Soil and Water CEMP Sub-plan would contain appropriate measures (as a minimum) to: • minimise the extent of ground disturbance • divert surface water runoff around construction locations • install erosion controls within construction locations • collect and filter sediment from surface water runoff within construction locations • manage stockpiles to minimise erosion and sediment transport • manage saline and ASS (if present) • minimise the potential of soil and water quality impacts during storage of project wastes and potentially polluting substances • minimise the duration of soil exposure and progressively rehabilitate and stabilised disturbed areas	All locations	This Plan Section 1.6 Section 5 Section 5.8 Appendix A Appendix D	This SWMP has been developed in consultation with a CPESC and will be implemented during Stage 2 of construction. An Erosion and Sediment Control Strategy has been prepared in line with the erosion and sediment principles and requirements of the listed guidelines. Additionally, a *Dewatering Procedure* has been prepared and outlines the appropriate methods to discharge the water. The management measures which are to be implemented are provided in detail in Section 5 and Table 5.2.

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
	• manage unexpected finds of contaminated materials • manage spills to reduce and address soil and water contamination			
SCG1	Construction materials would be selected to withstand high saline soil and groundwater environment (where applicable).	Locations mapped as moderate to high–risk salinity.	Table 5.2 – SW2 and SW19	Interaction between construction materials and high saline soil and groundwater environment will be considered during detailed design, where applicable.
SCG2	Disturbance to areas of medium risk of contamination would be avoided or minimised where practicable during construction. Disturbance to these areas refers to intrusive work, such as excavation. Where disturbance cannot be avoided, potential impacts would be minimised during finalisation of the design and construction methodology where practicable. Areas of medium risk of contamination that would be disturbed by construction activities would be further investigated including completion of a site inspection. Based on the outcome of the site inspection, where considered to be required, a Phase 2 investigation would be completed in accordance with National Environmental Protection Measure 2013. Additional mitigation measures identified through further investigation would also be implemented.	Cleared agricultural land, potential quarry and PFAS sites.	Table 5.2 – SW13, SW14 and SW15 Table 3.6	Disturbance to areas of potential contamination identified in Table 3.6 have been assigned a preliminary risk evaluation of low and medium and will be avoided or minimised where practicable during construction.
SCG3	Direct impacts to registered bores would be avoided, where possible. If the bores are: • not required to be impacted during construction, then they would be clearly demarcated with a 5 by 5 metre construction exclusion zone • are to be impacted during construction or unavoidably damaged, then make good provisions would apply in consultation with the registered bore owner.	Registered bores	Table 3.5 Table 5.2 – SW36 and SW37	Direct impacts to registered bores will be avoided, where possible. Repair or replacement of any impacted bores will be undertaken in consultation with the registered owner should the bore need to be removed or is unavoidably damaged.
SCG4	Prior to carrying out any blasting, a desktop assessment would be carried out to identify any high potential GDEs and registered bores in the vicinity that might be affected. Potential impacts to the GDEs and bores would be assessed using the latest available location data. The assessment would: • assess any high potential GDEs and registered bores within 50 metres of a blasting site against the minimum	Finalised blasting locations if within 50 metres of high potential GDEs	Section 3.3.6 Table 5.2 – SW38 and SW39	No registered bores are located within 50 metres of potential blasting areas and subsequently the risk to these receivers is considered low. Management measures are included in Table 5.2.

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
	impact criteria of the Aquifer Interference Policy (2012) • identify any necessary measures to monitor blasting and mitigate any potential significant impacts. The measures would be implemented prior to and during the blasting (as relevant). Where the assessment identifies potentially significant impacts to high potential GDEs and bores due to blasting that cannot be mitigated, alternative lesser impact construction methodologies or engineering solutions would be investigated and implemented.			
SCG5	Construction materials, spoil and waste would be suitably stored to minimise the potential for soil, groundwater or water quality impacts.	All locations	Section 5.2 Table 5.2 – SW21 and SW22	Long term storage of construction material particularly spoil and waste will be appropriately stored with the aim to minimise the potential for soil, groundwater or quality impacts.
SCG6	Prior to ground disturbance in areas of potential acid sulfate soils (ASS) occurrence (e.g. in low lying areas surrounding former or current lakes and river beds), testing would be carried out to determine the presence of actual and/or potential ASS. If ASS are encountered, they would be managed in accordance with the *Acid Sulfate Soil Manual* (ASSMAC, 1998) and Transgrid's HSE Guideline.	All areas identified as potential ASS.	Table 5.2 – SW10	Prior to ground disturbance in areas of known acid sulfate soil occurrence known, on-site field testing will be carried out to determine the presence of actual and/or potential acid sulfate soils.
SCG7	Prior to ground disturbance, a visual inspection would be undertaken for the presence of saline soils. Areas of known or suspected salinity would be subject to further testing as required. If salinity is confirmed, excavated soils would be managed in accordance with *Book 4 Dryland Salinity: Productive use of Saline Land and Water* (NSW Department of Environment and Climate Change, 2008b) and the *Salinity Training Manual* (DPI, 2014) to manage salinity impacts. Erosion controls would be implemented in accordance with The Blue Book (Landcom, 2004).	All locations	Table 5.2 – SW12	No soil salinity data for the Stage 2 disturbance area was available at the time of writing this plan. A visual soil salinity inspection will be undertaken prior to ground disturbance. For areas of confirmed salinity, 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, 2004).
SCG8	All chemicals, fuels or other hazardous substances would be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards	All locations (during construction)	Table 5.2 – SW22 and SW23	All chemicals, fuels or other hazardous substances will be stored in accordance

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
	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.			with the supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. Locations of bunded areas will be shown on the ESCP and relevant PESCPs.
SCG9	The discovery of previously unidentified contaminated material would be managed in accordance with an unexpected contamination finds procedure.	All locations	Table 5.2 – SW13 Appendix B	If any unexpected suspected contaminated land, asbestos and unexploded ordnance is discovered, the *Unexpected Contamination Finds Procedure* will be followed.
SCG10	A site-specific risk assessment would occur for locations where there is a risk of encountering Unexploded Ordnance (UXO). The risk assessment would be carried out prior to any activities that could interact with UXO. This would include field verification to validate the historical assessment of UXO contamination and identify appropriate mitigation practices. The risk assessment would occur with input from an appropriate UXO specialist and would identify if and when an explosives engineer is required during site activities. An unexpected finds procedure would be implemented. The procedure would 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 would be implemented prior to and during all relevant site activities. All personnel conducting intrusive works within an identified UXO area would be provided with appropriate safety and awareness briefing(s) prior to the participating in the intrusive works.	Urana UXO area Oak Plains UXO area	Section 3.4.2 Table 5.2 – SW28 and SW29	A site-specific risk assessment will occur for locations where there is a risk of encountering UXO.
SCG11	If groundwater is encountered during piling or excavations, and dewatering is required, any dewatering volumes would be recorded by the contractor and reported annually for each groundwater source by the water calendar year (July to June). Records would be made available to the relevant authority – such as DPIE or DPI – upon request.	All locations	Table 5.2 – SW34 Appendix D	Volumes of water that are dewatered will be recorded in the Dewatering Permit (45860-HSE-FO-G-1006). Records will be provided to the relevant authority upon request.

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
HR11	All chemicals, fuels or other hazardous substances would 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.	All locations	Table 5.2 – SW22, SW23 and SW24	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.
HR14	Appropriate spill containment equipment would be provided and located at strategic, accessible locations	All locations	Table 5.2 – SW27	Spill kits will be provided in strategic and accessible locations relevant work areas and refuelling areas. If spills occur during construction of the project, the *Spill Response Procedure* will be followed.
LP2	Transmission line towers structures (and associated permanent structures or construction compounds) would 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 • drainage catchments for farm dams • locations of high biosecurity risk.	All locations	Table 5.2 – SW20	Transmission line structure foundations and ancillary construction sites will consider the location sites of known farm dams (amongst other landowner issues), where practicable, to avoid disturbance.
LP5	Disturbed areas would be stabilised and appropriately rehabilitated (i.e. as close as possible back to Pre-impacted conditions) as soon as feasible and reasonable following the completion of construction at each location. This would be carried out in consultation with the relevant landowner.	All locations	Table 5.2 – SW46	Areas disturbed by construction will be stabilised and appropriately rehabilitated to a similar condition prior to construction, where feasible and reasonable.
AH9	Construction planning and management would make sure that indirect impacts that could potentially result in a loss of known heritage values due to harm would not occur. Indirect harm could result from physical disturbance from surface water drainage or construction workers driving over sites that are to be protected.	All locations	Table 5.2 – SW7	PESCPs will consider the location of heritage sites when determining appropriate controls.
CI2	Consultation with relevant local councils and other water supply operators would occur in relation to the proposal's water supply strategy to ensure there is effective management of these demands during construction and operation.	All locations	Section 2.4.2 Section 5.3 Table 5.2 – SW31	Discussions with councils and private water owners regarding water supply volumes and access options have

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
				commenced and will be ongoing throughout the project where required.

2.4 Licences and Permits

2.4.1 Environment protection licence

Subject to the outcomes of geotechnical investigations, crushing and screening may be required. If necessary, an Environment Protection Licence (EPL) will be obtained in accordance with POEO Act for the scheduled activity of crushing and screening. The EPL will detail conditions which must be complied with when undertaking the crushing and screening activities.

2.4.2 Water licensing and approvals

Water use approval

Under Section 89 of the WM Act, water use approval grants the right for its holder to use water for a particular purpose at a particular location. However, under section 5.23 of the EP&A Act, the project is exempt from requiring a water use approval.

Water access licence

Section 60A of the WM Act requires that a water access licence (WAL) to be obtained in order to extract water from a water source, such as a river, lake or surface water runoff, or an aquifer, in water-sharing plan areas. It is an offence to take water from a water source without a water access licence.

The project will purchase water from the existing water market within the region or from local council facilities under existing WAL arrangements. Water will be purchased under standard supply/purchase agreement with various water suppliers/landholders who hold existing WAL agreements. As part of the ongoing discussions with potential water suppliers, water supply locations 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 for the construction of the proposal which would be secured under standard supply/purchase agreement from existing facilities. Proposed water supply points are listed in Section 5.3.

As part of the ongoing discussions, the project will ensure that the existing WAL arrangements have adequate water entitlement and allocation such that there is sufficient water for the applicable stages of construction. Where necessary the amount of water used will be allocated depending on the project activity at the time, or additional water supply will be sought in consultation with Transgrid.

Elecnor will request for a copy of the existing WAL agreements held by the water suppliers/landholders. The details of the licences will be checked to confirm the water to be purchased is regulated and eligible for project use. Copies of licences will be saved on to the project document management and storage system.

Water management works approval

As all water will be purchased under existing licence agreements with the various water suppliers/landholders, water will be extracted from existing water supply points. The water supply points will be identified once ongoing discussion with potential water suppliers are finalised. It is

anticipated that a series of existing water supply points will provide connection points to existing water supply pipelines. Proposed water supply points are listed in Table 5.1.

No new extraction infrastructure is proposed for the project. However installation of connection points such as piped connections or standpipes to the existing water supply points are required for certain water supply points. Further details on installation or connection to water supply points are provided in Section 5.3.

It should also be noted that under section 5.23 of the EP&A Act the project is exempt from requiring a water management works approval.

2.4.3 Section 68 approval

Section 68 of the *Local Government Act 1993* specifies a range of activities which require approvals to be obtained from the relevant council. This includes the operation of an on-site sewage system. The project will obtain an approval under section 68 of the *Local Government Act 1993* for the operation of the wastewater treatment plants where required.

2.5 Guidelines

The guidelines, specifications and policy documents referenced in this plan includes:

- *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom, 4th Edition March 2004) and Volumes 2A, 2C and 2D Main Roads Construction (NSW Department of Environment, Climate Change and Water 2008) – commonly referred to as the 'Blue Book';
- *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003);
- *Policy and Guidelines for Fish Habitat and Conservation and Management* (NSW Fisheries, 2013);
- Best Practice Erosion and Sediment Control (IESCA, 2008);
- Transgrid's Environmental Guidance Notes; and
- Guidelines for Controlled Activities on Waterfront Land (NRAR, 2018).

3 Existing environment

This section summaries the existing environmental setting relating to aspects of soil, water and existing contamination within and adjacent to the project. The information below is from Chapter 16 (Hydrology, flooding and water quality) and 21 (Soils, contamination and groundwater) of the EIS, Technical Paper 8 (Hydrology, flooding and water quality), Technical Paper 14 (Phase 1 contamination assessment), Technical Paper 15 (Groundwater impact assessment) and the Amendment Report.

3.1 Topography

At a macro level, the terrain of the project corridor is predominately flat with undulating plans as the topography steadily rises to the east. The topography ranges from approximately 50m Australian Height Datum (AHD) at the western end of the alignment to around 250m at the eastern extent of the alignment. Localised topographic highs of up to about 380 metres AHD occur approximately 10 kilometres west of the Wagga Wagga substation.

3.2 Soils

3.2.1 Geology and soils

The geology underlying the project area includes the Woorinen Formation, Shepparton Formation, Mount Flankey Granite and Wagga Group. Around 70% of the project corridor is situated on aeolian sediments of the Shepparton Formation. These comprise unconsolidated to poorly consolidated mottled variegated clay-silty clays, coarse to fine sand and gravel and are known to form extensive flat alluvial floodplains.

Published soil mapping along the project corridor indicates that the regional soil types are expected to be predominantly transported Quaternary-aged sediments deposited in alluvial flood plains, and dune and are typically comprised of sand and clay or a mixture of the two. While primarily vertosols soil is found along the main watercourses, sand and alluvial plains are in proximity to the Murrumbidgee, Darling, and Darling – Anabranch Rivers. The predominant soil types are typically sand and clay or a mixture of the two.

3.2.2 Acid sulfate soils

Acid sulfate soils (ASS) and potential acid sulfate soils (PASS) are naturally occurring soils containing iron sulfides. The EIS concluded there is an extremely low probability of acid sulfate soils occurring across the project corridor, with the potential exception of low lying areas surrounding lakes and river beds, which are mapped as high probability of containing ASS. Refer to Appendix E1 for maps depicting ASS potential.

Hence, ASS or PASS impacts are generally not expected during Stage 2 of the project except for low lying areas surrounding lakes and river beds.

3.2.3 Soil salinity

Dryland salinity is the accumulation of salts in the soil surface and groundwater in non-irrigated areas. The majority of the project corridor is mapped as having low salinity potential, with no mapped areas of high salinity soils.

Technical Paper 14 (Phase 1 contamination assessment) indicates low salinity potential based on broad scale state mapping. However, soil conductivity testing undertaken indicated some variable salinity conditions across the project area with some soil results indicating moderately saline and very saline soil conditions. Furthermore, an assessment of soil aggressivity with

reference to Piled Footings Design and Installation – AS2159-2009 (Standards Australia, 2009) indicated that the soils are highly alkaline, with high levels of sodicity.

3.2.4 Naturally occurring asbestos

Naturally occurring asbestos refers to the mineral component found as a natural component of soils or rocks. The EIS concluded there are no mapped areas indicating naturally occurring asbestos minerals to be present within the project area. Therefore, no naturally occurring asbestos impacts are expected during Stage 2 of the project.

3.3 Water

3.3.1 Rainfall

The region has a semi-arid climate with hot summers and cool winters. The average temperature range is around 16 to 33°C in summer and around 4 to 15°C in winter. The average annual rainfall across the project corridor varies, however generally the average rainfall values are higher at the eastern end compared to the western end.

The closest weather station to the western end of the project corridor is Irymple (station number: 076015), which records an average annual rainfall of 271mm (1908–2020). Rainfall is typically fairly evenly spread across the year, with higher rainfall values from November to April.

The Urana Post Office weather station (station number: 074110) located along the eastern half of the project corridor recorded an annual average rainfall of 442.2mm (1871–2020). The average monthly rainfall is slightly higher in May and June.

The Wagga Wagga Gurwood Street station (station number: 074127) located on the eastern end of the project corridor recorded an average annual rainfall of 528.1mm (2001 to 2020). While Wagga Wagga AMO station (station number: 072150) recorded an annual average rainfall of 568mm (1941 to 2020). Rainfall is fairly evenly spread across the year, with March typically recording higher values.

Table 3.1 - Summary of climate statistics from closest weather stations (Source: BOM)

Month	Wentworth (SN: 047053)*			Urana (SN: 074110)			Wagga Wagga (SN: 074127)		
	Mean Max (°C)	Mean Min (°C)	Mean rainfall (mm)	Mean Max (°C)	Mean Min (°C)	Mean rainfall (mm)	Mean Max (°C)	Mean Min (°C)	Mean rainfall (mm)
Jan	32.9	17.1	21.2	32.9	16.3	32.7	31.9	16.5	40.9
Feb	32.3	16.8	21.4	32.4	16.3	33.8	30.9	16.4	39.9
Mar	29.2	14.5	19.5	29.2	14.0	35.5	27.7	13.5	46.0
Apr	24.0	10.6	18.6	23.6	9.4	32.7	22.6	9.2	40.3
May	19.5	7.9	27.5	18.7	6.1	41.0	17.4	5.9	50.7
Jun	16.1	5.8	26.1	14.8	3.6	44.9	13.9	3.7	50.7
Jul	15.6	4.8	23.7	14.2	3.2	38.6	12.8	2.8	53.5
Aug	17.6	6.0	25.7	16.0	4.1	39.5	14.5	3.5	50.8
Sep	21.1	8.1	26.6	19.8	6.3	38.2	17.7	5.1	48.9
Oct	24.5	10.8	27.2	23.5	8.8	40.8	21.7	7.8	55.7
Nov	28.3	13.4	24.9	27.7	11.8	33.9	25.9	11.0	48.1
Dec	31.1	15.7	22.0	31.1	14.6	32.6	29.6	13.9	45.7

Month	Wentworth (SN: 047053)*			Urana (SN: 074110)			Wagga Wagga (SN: 074127)		
	Mean Max (°C)	Mean Min (°C)	Mean rainfall (mm)	Mean Max (°C)	Mean Min (°C)	Mean rainfall (mm)	Mean Max (°C)	Mean Min (°C)	Mean rainfall (mm)
Annual average	24.3	11.0	284.9	23.7	9.5	442.1	22.2	9.1	571.4
* Irymple data unavailable									

Due to the low average rainfall values and relatively low gradient of the topography, limited concentrated surface water run-off is expected to be generated from the catchment, particularly at the western end of the project corridor.

3.3.2 Waterbodies and watercourses

The project is located in the Murray-Darling Basin. There are a number of sub-catchments within the Murray-Darling Basin along the project corridor from west to east including the Lower Darling, the Murrumbidgee, Peacock Creek and the Mid-Murray catchments. The project also intersects numerous waterbodies and watercourses (refer to Appendix E2 for maps).

The Lower Darling catchment is around three per cent of the Murray-Darling Basin, and the major river systems, the Darling River and the Darling Anabranch, are located outside the project area. Box Creek, a non-perennial river within this catchment, intersects the project north of Balranald.

The majority of the study area is located in the Murrumbidgee catchment. This catchment is approximately 84,000 square kilometres, or around eight per cent of the Murray-Darling Basin. The Murrumbidgee River flows west through the project area and has its confluence with the Murray River near Balranald. The Yanco Creek system, located north of Urana, is an anabranch complex which links the Murrumbidgee River to the Edward River through interconnected watercourses including Yanco Creek, Colombo Creek, Billabong Creek and The Forest Creek. Before river regulation was introduced, Yanco Creek only connected with the Murrumbidgee River during floods, however water is now diverted from the Murrumbidgee into Yanco Creek at the Yanco Weir and these waterways are now permanently flowing streams.

The upper reaches of the Mid-Murray catchment are located in the project area, located generally between Kidman Way and County Boundary Road. This catchment is approximately three per cent of the Murray-Darling Basin, spanning the Victorian border, and includes the Murray and Edwards Rivers.

Numerous natural watercourses and man-made waterways intersect the project area, including unnamed drainage lines, dry rivers, perennial rivers, canals and drains. The Coleambally Irrigation Area is an approximate 457,000 hectare area in the Murrumbidgee which includes 516 kilometres of supply channels and 717 drainage channels. These irrigation channels supply over 500 licenced agricultural producers generally from mid-August to mid-May.

Ten lakes are also located within the project area. Of particular significance is Lake Urana and Lake Albert. Lake Urana is a large shallow intermittent salt lake in a depression at the end of the drainage basin of Billabong, Coonong and Urangeline creeks. The lake fills every ten to 20 years and retains water for several years. Lake Albert is a 125-hectare artificial lake in the suburb of Lake Albert in Wagga Wagga. The lake is used for recreational purposes including water sports, boating and fishing. Table 4-1 of Technical Paper 8 (Hydrology and flooding assessment) details the Strahler stream order of the waterways crossed by the project or located near the project sites.

3.3.3 Water quality

The existing water quality for the Murray-Darling Basin has been monitored and assessed by a series of external management plans and other documents for a range of parameters. Available

catchment water quality data identified water quality within these watercourses as varied. The State of the Catchment (OEH, 2010), and National Water Quality Assessment (Sinclair Knight Merz , 2011) identified that levels of phosphorus and turbidity often exceeded the trigger values provided in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC, 2000) and the ANZG, an updated version of the previous guidelines (ANZG, 2018).

Generally, water quality on the major rivers of the Murrumbidgee and Murray Rivers is better than in associated tributaries. Section 16.3.5 of the EIS states that the Murrumbidgee and Murray Rivers commonly achieve the existing water quality targets provided in the Murray Darling Basin Plan 2012, noted in Table 3.2, both within and downstream of project works. Where exceedances have been identified, these have been in relation to nutrients, particularly phosphorus and turbidity in tributaries to the major rivers.

Table 3.2 - Basin Plan 2012 water quality targets (Table 16-3 of the EIS)

Water quality zone	Turbidity (NTU) (annual median)	pH	Total nitrogen (ug/L)	Total phosphorus (ug/L)	Dissolved oxygen (mg/L; or % saturation) (Annual median)	Pesticides, heavy metals and other toxic contaminants [1]
Darling Valley, Middle lower (Dml)	50	6.5-8	500	50	85-110%	The protection of 95% of species
Lower Central Murray (cMl)	35	6.5-8	700	80	>8 mg/L or 90-110%	The protection of 95% of species
Castlereagh, Lachlan, Macquarie and Murrumbidgee (A3)	35	6.5-8	600	50	>7 mg/L or 60-110%	The protection of 95% of species
Upper and Middle Central Murray (cMum)	15	6.5-7.5	500	40	>7.7 mg/L or 90-110%	The protection of 95% of species
Lowland Castlereagh, Lachlan, Macquarie and Murrumbidgee (B3)	20	7.0-8.0	600	35	>8 mg/L or 90-110%	The protection of 95% of species

[1] Refer to values in table 3.4.1 of the ANZECC Guidelines (Must not be exceeded)

Additionally the National Water Quality Assessment 2011 reported generally good values for water quality indicators of turbidity, salinity and pH in the Murrumbidgee catchment but not for nutrients.

The 2018 State of the Environment Report scored an overall rating of the Murray River as 'good'. The same report recorded varied values in the Murrumbidgee catchment, however monitoring site values on the Murrumbidgee River were generally 'good' to 'fair' for nutrient values, whereas monitoring values on tributaries to the Murrumbidgee such as Yanco Creek were generally 'poor' to 'very poor'.

Given the high proportion of agricultural land within the project corridor, it is likely that some waterways near the project would not achieve the water quality criteria as laid out in the ANZG 2018 and Murray Darling Basin Plan 2012, particularly for nutrients. The sources of the high nutrient levels are likely to be diffuse and related to current and historical agricultural activities within the project area.

It should also be noted that no background water quality monitoring was carried out as part of the EIS assessment. As such, the EIS has not identified the water quality levels specifically within the disturbance area for Stage 2 of the project.

In accordance with RMM HF4, a water quality monitoring program would be implemented to establish baseline water quality conditions at perennial watercourses that the transmission lines would cross.

3.3.4 Flood prone land

A high level flood risk assessment is detailed in Section 4.4 of Technical paper 8 (Hydrology, flooding and water quality), which found flood affected features are generally near existing waterways. Based on the risk assessment, there are large floodplains around Box Creek, the Murrumbidgee River, Condoulpe Creek, Yellow Clay Creek, Coonong Creek, Bullenbong Creek and dispersed flooding at the very eastern end of the project around Sawpit Gully, Crooked Creek and Boiling Down Creek. Depths in the main river channels are estimated to be up to six metres and up to two metres across the floodplains across the project area (Beca 2020). The velocities within watercourses range from 0.5 metres per second to up to three metres per second. The estimated flood depth and extent for the 1% AEP event are provided in the maps included as Figure 4-8 of Technical paper 8.

The floodplains across the project area contain numerous flood affected receivers, including industrial and community facilities and residential dwellings. No floor levels for these structures are available to determine the actual flood affectation of these structures. Numerous flood affected roads are also located across the project alignment, including the Sturt Highway near the Box Creek and Murrumbidgee River crossing, Balranald Road near Condoulpe Creek, Booroorban-Tchelery Road near the Forest Creek, West Burrabogie Road near Curtains Creek, the Newell Highway near Yanco Creek, Federation Highway and a number of unnamed access roads, near Coonong Creek and Lake Urana, County-Boundary Road, Lockhart Road, Bullenbong-Rock Road, Lockhart-The Rock Road and Boyds Road near Bullenbong Creek and Burkes Creek.

The Murrumbidgee River near Wagga Wagga flooded most recently in 2012 reaching a peak of 10.56 metres. The Wagga Wagga Flood Plan (SES, 2006) described flooding in the Wagga Wagga area and notes that storage dams and flood harvesting infrastructure located in the upper Murrumbidgee valley can affect the severity of flooding on the Murrumbidgee River. These structures can reduce the peak flood discharge, that may result in lower peak flood heights but longer flood durations. This may be done by deliberately storing the flood peak for later release, or by pre-releasing water to create extra space in the dam ahead of an approaching flood.

More recently, flooding of the Murrumbidgee River near Wagga Wagga occurred in November 2022, following widespread heavy rain throughout central-western NSW. The Murrumbidgee River peaked at 9.72 metres at Wagga Wagga, cutting off areas including North Wagga and Gumly Gumly. The Murrumbidgee River borders the northern area of Wagga Wagga.

The Lockhart Floodplain Risk Management Study (WMA Water, 2014) showed that much of the town of Lockhart would become inundated during a 1% Annual Exceedance Probability (AEP) flood event due to flooding along Brookong Creek. The plan notes that flooding may occur at any time of year, but is most likely during winter and spring. Some flash flooding may also occur in summer due to high-intensity thunderstorms.

The historical flood patterns of the whole project area are highly variable due to the presence of large floodplains, semi-arid climate, sporadic rainfall, drought events and the general flat topography. Climate change predictions forecast increases in mean annual rainfall, potentially resulting in more extreme flood events.

Most construction activities occur in areas not prone to flooding and as such would not alter the flood storage capacity, flow or characteristics of the local area. Technical paper 8 determined that during construction, any impacts to flood behaviour are likely to be temporary, localised and insignificant.

3.3.5 Groundwater

Groundwater sources within the project corridor are regulated by three water sharing plans, including:

- Murrumbidgee Alluvial Groundwater Sources 2020;
- NSW Murray-Darling Basin Porous Rock Groundwater Sources 2020; and
- NSW Murray-Darling Basin Fractured Rock Groundwater Sources 2020.

Groundwater regulated by the NSW Murray Darling Basin Porous Rock Groundwater Sources 2020 is located at significant depth, is not anticipated to be intersected by the project and therefore was not considered further in the EIS.

Local groundwater levels vary due to influences from surface water features, climatic conditions and localised geological controls, such as topography and the presence of perched shallow aquitards.

Geotechnical investigations completed as part of the EIS identified water levels ranging from 4.5m to 18.1m below ground level. This water level is inferred to be associated with upper aquifers that are either unconfined perched aquifers or unconfined alluvial aquifers if within a few kilometres of major surface waterbodies. Hydrostratigraphic units (HSUs) have been simplified and adopted in the groundwater assessments undertaken in Technical paper 15 and correspond with groundwater sources listed within the water sharing plans. Hydrostratigraphic units (HSUs) are defined as geological material of similar hydrogeological properties, often with similar groundwater storage and transmissive properties. The HSUs identified across the project corridor are detailed in Table 3.3.

Table 3.3 - HSUs and their thickness, depths and characteristics

HSU	Aquifer/ Depth	Characteristics
Murrumbidgee Alluvium	Shallow 40-60m	Recharge occurs through • leakage from the Murrumbidgee River and its various tributaries and anabranches; • infiltration from rainfall; and • irrigation activity. Groundwater flow is generally east to west.
	Deep 40-400m	Recharge to the system is primarily through connectivity between groundwater sources and leakage from the overlying shallow aquifer. Groundwater flow is generally east to west. Bore yields vary but have been reported to be as high as 350 litres per second (L/s).
Porous rock	Shallow 10-90m	Semi-confined aquifer where groundwater flow is governed by both primary porosity (movement of water around rock grains) and secondary porosity (water movement through fractures). Groundwater flow is strongly influenced by the degree of weathering of the rock mass. Groundwater flow is generally east to west Recharge to the system is primarily through infiltration from rainfall, runoff, surface water within outcropping areas and groundwater flow from connected groundwater sources. Bore yields are highly variable, ranging between 0.5–100 L/s, but commonly greater than 10 L/s.
	Deep 10-330m	Recharge to the system is primarily through connectivity between groundwater sources and leakage from the overlying shallow aquifer.

HSU	Aquifer/ Depth	Characteristics
		Bore yields typically range between 0.5–50 L/s, but can occasionally be greater than 50 L/s. Groundwater flow is generally east to west but influenced by the underlying Lachlan fractured rock topography.
Lachlan fractured rock	Shallow 0-30m Deep 100+m	Groundwater is stored and moves through fractures, joints, bedding plains, faults and cavities within the rock mass or weathered zone (for the shallow aquifer). Hydraulic connectivity between surface water features, other overlying aquifers and between the shallow and deep fractured rock aquifers is limited to the degree of fracturing extending between the aquifers or the bed of the surface water features. The fractured rock aquifers are considered to generally contain low hydraulic connection with overlying aquifers and surface water features throughout the groundwater study area

Overall, there is limited groundwater connectivity to surface water features within the project area, and the connectivity is predominately limited to recharge via leakage from overlying surface water features. Surface water features (streams, rivers, creeks and lakes) are generally ephemeral, with the main exceptions being the Murrumbidgee River and Colombo Creek, and receive the majority of available water from upstream, particularly within the Murrumbidgee Alluvium and Porous rock hydrostratigraphic units (HSUs).

On the eastern portion of the outcropping rock, that forms part of the Lake Albert catchment area, groundwater within the shallow Lachlan fractured rock HSU aquifer is anticipated to have limited hydraulic connectivity to Lake Albert. It is estimated that Lake Albert is primarily recharged from surface water flows of Crooked Creek and Stringybark Creek. Limited inflows from groundwater may occur when the lake level is low.

No potentially contaminated groundwater was identified within the project area as part of the EIS, however no groundwater quality samples were collected during geotechnical investigations. The salinity of the aquifers across the project corridor was assessed in Technical paper 15, noting that it varied depending on the hydrogeological unit the aquifer is contained within and also varies both laterally and vertically with the aquifer. In general salinity levels are as follows:

- unconfined aquifers within 500 metres from fresh surface water – water quality ranges from fresh to brackish in salinity (up to 3,000 microsiemens per centimetre);
- perched aquifers – salinity levels vary, but are generally expected to be high; and
- unconfined aquifers – generally saline to hypersaline with salinity levels between 30,000 and 150,000 microsiemens per centimetre.

Groundwater-dependent ecosystems (GDEs) are those that need access to groundwater to meet all or some of the water requirements necessary to maintain their plant and animal communities and ecological processes. A review of the high priority GDEs are summarised in Table 3.4 below.

Table 3.4 - GDEs with high potential for groundwater interaction

GDE Type	Name	Hydrostratigraphic units (HSU)
Aquatic	Coloboralli Creek	Lachlan fractured rock
Aquatic	Stringybark Creek	Lachlan fractured rock
Aquatic	Boiling Down Creek	Lachlan fractured rock
Aquatic	Crooked Creek	Lachlan fractured rock
Aquatic	Sandy Creek	Lachlan fractured rock
Aquatic	Lake Cullivel	Lachlan fractured rock

GDE Type	Name	Hydrostratigraphic units (HSU)
Aquatic	Wetlands	Lachlan fractured rock and Murrumbidgee Alluvium
Terrestrial	River Red Gum	Lachlan fractured rock
Terrestrial	Red River Gum and Warrego Grass	Murrumbidgee Alluvium
Terrestrial	Red River Gum and Wallaby Grass	Murrumbidgee Alluvium
Terrestrial	Red River Gum and Lignum	Murrumbidgee Alluvium
Terrestrial	Red River Gum and Black Box	Murrumbidgee Alluvium
Terrestrial	Lignum shrubland	Murrumbidgee Alluvium
Terrestrial	Black box	Murrumbidgee Alluvium
Terrestrial	Canegrass Swamp	Porous rock
Terrestrial	Dillon bush (Nitre bush)	Porous rock
Terrestrial	Nitre Goosefoot shrubland	Porous rock

3.3.6 Registered groundwater bores

Technical Paper 15 (Groundwater impact assessment) identified 243 registered bores in the vicinity of the project of which 11 registered bores are located within or near construction activities and are at an increased risk of being accidently damaged during construction. These are detailed in Table 3.5. These registered groundwater bores will be subject to environmental management measures detailed in Table 5-1.

Table 3.5 - Registered groundwater bores

Bore ID	Hydrostratigraphic units (HSU)	Latitude	Longitude	Status	Purpose	Bore depth (mbtoc)
GW415977	Lachlan fractured rock	-35.204749	147.392907	Functioning	Monitoring	25.0
GW415978	Lachlan fractured rock	-35.204749	147.392907	Functioning	Monitoring	10.6
GW415979	Lachlan fractured rock	-35.204343	147.39006	Functioning	Monitoring	19.0
GW415980	Lachlan fractured rock	-35.202956	147.381078	Functioning	Monitoring	7.0
GW415982	Lachlan fractured rock	-35.202938	147.3811	Functioning	Monitoring	22.0
GW049852	Murrumbidgee Alluvium	-35.218185	146.33014	Proposed	Exploration	152.4
GW084098	Murrumbidgee Alluvium	-35.131281	146.126213	Functioning	Monitoring	7.0
GW012872	Murrumbidgee Alluvium	-35.093188	145.889591	Functioning	Monitoring	29.9
GW403762	Murrumbidgee Alluvium	-34.8175	144.932271	Unknown	Household supply	76.0
GW032607	Murrumbidgee Alluvium	-34.883479	144.519611	In use	Stock and domestic	51.8
GW087095	Porous rock	-34.508766	142.765505	Unknown	Monitoring	23.0
Note: mbotc – meter below top of casing.						

3.4 Contamination

3.4.1 Site history

A desktop assessment was undertaken as part of the EIS. The majority of the land within the project corridor is agricultural land with no significant development and sparsely intersected by infrastructure such as roads and electrical easements.

A desktop contamination assessment was undertaken as part of the EIS, identified one site regulated under the CLM Act, and a number of sites of potential contamination within the contamination study area. This site is a former dry cleaning facility located around 1.5 kilometres south east of the proposed water fill point at Narrung Sewage Treatment Works, Wagga Wagga.

A review of previous investigations was completed as part of the EIS for the study area nominated in the EIS, and this indicated that there was no evidence of any areas with significant contamination. However, the EIS reviewed previous investigations and historical aerial photographs, and identified several areas within the project corridor where there is the potential to encounter contamination during construction. These sites have all been assigned a preliminary risk evaluation as low. Construction activities potentially impacting these low risk sites includes vegetation removal, excavation of soils and piling activities. These areas are outlined in Table 3.6 and presented in Appendix E3.

Table 3.6 - Area of potential contamination

Potential areas of contamination	Construction activity	Sensitive receiver	Likelihood	Preliminary risk evaluation
Farm dams	Excavation activities	• Adjacent residents (including locations where the water is applied) • Terrestrial flora/fauna • Surface water and groundwater receptors	Medium potential for contaminant build-up within the dam sediments; low likelihood that dam sediments would need to be disturbed during construction. Farm dams present within the contamination study are not anticipated to be impacted and can be avoided during finalisation of the proposal's design and construction.	Low
Farm dams	Pile construction and de-watering	• Adjacent residents (including locations where the water is applied) • Terrestrial flora/fauna • Surface water and groundwater receptors	Low likelihood that dam water would be disturbed during construction. Farm dams present within the contamination study are not anticipated to be impacted and can be avoided during finalisation of the proposal's design and construction.	Low
Cleared agricultural land	Excavation activities, vegetation clearing, vehicle movement, temporary stockpiling and utilities works	• Current agricultural site users • Terrestrial flora/fauna • Surface water features, including farm dams	Medium potential for agricultural contaminants to be present.	Medium
Cleared agricultural land	Pile construction and de-watering	• Current agricultural site users • Terrestrial flora/fauna	Groundwater depth anticipated to be >5 mbgl. Low likelihood for groundwater contamination.	Low

Potential areas of contamination	Construction activity	Sensitive receiver	Likelihood	Preliminary risk evaluation
		• Surface water features, including farm dams		
Dinawan and Wagga Wagga substations	Excavation activities, vegetation clearing, vehicle movement, temporary stockpiling and utilities works	• Adjacent residents • Maintenance/ construction workers • Terrestrial flora/fauna • Surface water	Low potential for contaminants to be present, however works have the potential to intercept/ mobilise any existing contamination at the site.	Low
Dinawan and Wagga Wagga substations	Pile construction and de-watering	• Adjacent residents • Maintenance/ construction workers • Terrestrial flora/fauna • Surface water	Groundwater depth anticipated to be >5 mbgl. Low likelihood for groundwater contamination	Low
Main transmission line easement	Excavation activities, vegetation clearing, vehicle movement, temporary stockpiling and utilities works	• Terrestrial flora/fauna • Surface water features	Low potential for contaminants to be present.	Low
Main transmission line easement	Pile construction and de-watering	• Terrestrial flora/fauna • Surface water features	Groundwater depth anticipated to be >5 mbgl. Low likelihood for groundwater contamination	Low
Potential quarries and potential scaring/ earthworks sites	Excavation activities, vegetation clearing, vehicle movement, temporary stockpiling and utilities works	• Adjacent residents • Maintenance/ construction workers • Terrestrial flora/fauna • Surface water	Low potential for widespread contaminants to be present.	Low
Potential quarries and potential scaring/ earthworks sites	Pile construction and de-watering	• Adjacent residents • Maintenance/ construction workers • Terrestrial flora/fauna • Surface water	Groundwater depth anticipated to be >5 mbgl. Low likelihood for groundwater contamination.	Low
PFAS sites (within one kilometre of study area).	Water fill point. Use of potential contaminated water for construction activities (dust suppression, washdown areas). Minor trench excavation for temporary utilities.	• Adjacent residents (including locations where the water is applied) • Terrestrial flora/fauna • Surface water and groundwater receptors	Medium potential for widespread contaminants to be present (no significant impacts expected for sites >500 m). No PFAS sites are located within the area of contamination concern.	Low
Service Stations (within 500m of water fill points 301, 602 and 603, 604).	Water fill point Use of potential contaminated water for construction activities (dust	• Adjacent residents (including locations where the water is applied) • Terrestrial flora/fauna	Low potential for widespread contaminants to be present (depth of groundwater likely >5 m).	Low

Potential areas of contamination	Construction activity	Sensitive receiver	Likelihood	Preliminary risk evaluation
	suppression, washdown areas). Minor trench excavation for temporary utilities	• Surface water and groundwater receptors	No service station sites are located within the contamination area of concern.	

Further assessment will be undertaken for areas identified as medium risk that will be subject to disturbance through construction activities, as detailed in Table 5.2.

3.4.2 Unexploded Ordnance

The project area intersects several areas identified by the Department of Defence (DoD) as unexploded ordnance (UXO) areas. These are mapped in Appendix E4.

The main transmission line alignment crosses the Oak Plains (UXO) area south-east of the Buronga substation, which has been assigned a substantial risk category by the DoD.

The transmission line alignment also crosses the Urana (NSW) UXO area, which has been assigned an "other" category by the DoD. Construction activities, including excavation activities, vegetation clearing, vehicle movement and utility works, have the potential to disturb UXO. Further investigation of these UXO category areas may be required by a suitable specialist based on further project risk assessments.

4 Environmental aspects and impacts

4.1 Construction activities

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental Management Systems). The relationship of aspects and impacts is one of cause and effect.

Key aspects of Stage 2 that could result in adverse impacts to soil and water quality or contamination include:

- surface and/or ground disturbance as a result of vegetation clearing and grubbing;
- surface and/or ground disturbance as a result of ground excavation and earthworks;
- surface and/or ground disturbance as a result of the establishment of site access points/tracks and vehicular and machinery movements;
- blasting, concreting, piling and foundation works;
- material stockpiles including the management of acid sulfate and/or saline soils;
- operation of compounds including fuel and chemical storage, refuelling and chemical handling;
- noxious weed treatment including herbicide spraying;
- encountering unexpected existing contaminated/hazardous material as a result of surface and/or ground disturbance; and
- spills and leaks during the operation of plant and machinery, chemical handling or refuelling activities.

4.2 Impacts

The potential for impacts on soil and water will depend on a number of factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment.

The potential impact to soil and water attributable to Stage 2 works might include:

- erosion and sedimentation due to surface and/or ground disturbance;
- soil disturbance and erosion of exposed soil by wind and rain;
- sedimentation of waterbodies and impacts to water quality due to soil disturbance in close proximity to watercourses;
- reduction of soil and/or water quality from spills or leaks;
- exposure and potential oxidation of ASS/potential ASS (PASS) and/or the disturbance of saline soils;
- pollution and health and safety impacts when encountering unexpected contamination finds;
- disturbance of waterbodies, waterway beds and riparian areas;
- changes to groundwater quality and recharge rates;
- redistribution of flood flows and altering of localised flood characteristics; and
- increased sediment loads impacting downstream aquatic habitats and nearby watercourses.

Some impacts on soil, water and contamination attributable to the project are anticipated and have been assessed in the EIS. Section 5 provides a suite of mitigation measures that will be implemented to avoid or minimise potential impacts.

5 Management measures

5.1 Erosion and sediment control

An *Erosion and Sediment Control Strategy* (ESCS) (45860-HSE-PR-D-0016) has been prepared and is provided in Appendix A. The ESCS describes the project's approach to minimising erosion and managing sediment generation for the project. The ESCS outlines the overarching principles to be considered and integrated into the development of the Erosion and Sediment Control Plan (ESCP) and any Progressive Erosion and Sediment Control Plans (PESCPs) required for specific work areas.

A CPESC will prepare the initial ESCP to detail the erosion control measures to be utilised across a range of different receiving environments and landforms on the project. Environmental staff will then typically use the ESCP as a basis to develop PESCPs in consultation with Project Engineers, Superintendents and Supervisors. For high risk environments, such as works near major watercourses, floodplains, and in steep or highly erodible terrain, the progressive ESCPs will be reviewed by the CPESC. This will ensure that erosion and sediment control management is incorporated into the planning stage of construction activities and is coordinated in its approach. PESCPs will be updated as required as sites and associated erosion and sediment control requirements change as the works progress.

The Environmental Manager will approve PESCPs in the first instance. Minor changes thereafter will be approved by environment staff in consultation with the Environmental Manager and CPESC for high risk environments, as required. PESCPs are designed for use as a practical guide and may be produced in conjunction with WMSs.

5.2 Stockpile management

The project will utilise temporary stockpiles to store excess topsoil and subsoil material from topsoil stripping and earthworks activities. The following techniques will be applied to the management of stockpiles:

- the location of stockpiles will be planned in advance of topsoil stripping and bulk earthworks. Stockpile locations will be selected such that they are:
  - where practicable, located on slopes less than 10%;
  - positioned such that erosion of the stockpile and the surrounding area is minimised;
  - placed outside flood prone areas and more than 20m from drainage lines, where practicable;
- stripped topsoil will be stockpiled separately from woody material and vegetation and subsoil layers;
- as required by the PESCP, clean water diversions will be installed upslope of stockpiles and sediment controls will be installed downslope; and
- stockpiles will be appropriately stabilised to minimise the risk of erosion. The PESCP will detail requirements in relation to stabilisation based on the size of the stockpile, the duration that the stockpile will remain in place and the proximity to watercourses and other sensitive environments.

5.3 Water supply points

A series of indicative water supply points have been identified in Appendix B of the Amendment Report as suitable connection points for the supply of either potable or non-potable water for the project.

The water supply points nominated for the project are provided in Table 5.1. The project will also continue to use the nominated water supply points from Project EnergyConnect (NSW – Western Section).

Water will be purchased under licensing agreements with the various water suppliers/landholders as required. These agreements are part of ongoing discussions and final locations will be determined during final negotiations. Additional water supply points may also be identified as the detailed design stage is progressed in order to reduce the distance to, and the number of vehicle movements associated with water supply.

It is estimated that, during peak construction, each water supply point would accommodate up to 20 loads per day (indicatively using water trucks with capacity between 15,000L and 40,000L). Visual assessment will be undertaken to assess the access and existing water supply infrastructure for each water supply points. Any subsequent minor adjustment works required to ensure compatibility and enable the required flow rates will be determined during detailed design and enacted in line with the EIS and Infrastructure Approval.

Table 5.1 - Water supply points

Location	Owner	Council	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report
Located within Balranald LGA						
Church Street, Balranald	Balranald Shire Council	Balranald Shire Council	Potable	Yes	Yes	Church Street, Balranald
159 Church Street, Balranald	Balranald Shire Council	Balranald Shire Council	Potable	No	No	-
Lake Benanee	Private	Balranald Shire Council	Non-potable	No	No	-
812 Windomal Road, Balranald	Private	Balranald Shire Council	Non-potable	Yes	Yes	Lucerne at Balranald
Court Street/Sturt Highway	Balranald Shire Council	Balranald Shire Council	Non-potable	No	No	-
10 Perry Street, Euston	Balranald Shire Council	Balranald Shire Council	Potable	No	No	-
Carey Street / Sturt Highway, Euston	Balranald Shire Council	Balranald Shire Council	Potable	No	No	-
Located within Hay LGA						
Ravensworth	Private	Hay Shire Council	Non-potable	Yes	No	Ravensworth
Paraway at Cobb Highway	Private	Hay Shire Council	Non-potable	No	No	-
16 Mile Gums	LLS	Hay Shire Council	Non-potable	No	No	-
Jerilderie Road	Private	Hay Shire Council	TBC	No	No	-
59 Thelangerin Road	Hay Shire Council	Hay Shire Council	Potable	No	No	-
Located within Murray River LGA						
6204 Yanga Way, Yanga	Old Goodnight	Murray River Council	Non-potable	No	Yes	-
Keri Keri Road	Private	Murray River Council	Non-potable	Yes	No	Keri Keri Road, Keri Keri
78 Murray Street, Tooleybuc	Murray River Council	Murray River	Non-potable	No	No	-

Location	Owner	Council	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report
Located within Murrumbidgee LGA						
137 Cadell Road, Jerilderie	Private	Murrumbidgee Council	Non-potable	No	Yes	-
Kidman Way	Coleambally Irrigation	Murrumbidgee Council	Non-potable	No	No	-
Crosby Road	Coleambally Irrigation	Murrumbidgee Council	Non-potable	No	No	-
Dinawan Stock & Domestic	Private	Murrumbidgee Council	Non-potable	Yes	Yes	Red Swamp / Dinawan Station
Paraway at Four Corners Road	Private	Murrumbidgee Council	Non-potable	No	No	-
North Boundary Road	Private	Murrumbidgee Council	Non-potable	No	No	-
Dinawan Camp and Laydown	Private	Murrumbidgee Council	Non-potable	Yes	Yes	Red Swamp / Dinawan Station
1254 Four Corners Road, Coleambally	Coleambally Irrigation	Murrumbidgee Council	Both	Yes	No	1254 Four Corners Road
137 Cadell Road, Coleambally	Private	Murrumbidgee Council	Non-potable	Yes	No	Cadell Road, Coleambally
Mclennons Bore Road, Coleambally	Private	Murrumbidgee Council	Non-potable	Yes	No	Mclennons Bore Road
8955 Newell Highway Bundure	Private	Murrumbidgee Council	Non-potable	Yes	No	Newell Highway, Bundure
3 Bencubbin Avenue, Coleambally	Murrumbidgee Council	Murrumbidgee Council	Potable	Yes	No	3 Bencubbin Avenue
Located within Wagga Wagga LGA						
50 Elizabeth Avenue, Forest Hill	Riverina Water	Wagga Wagga City Council	Potable	No	Yes	-
Boiling Down Road	Private	Wagga Wagga City Council	Non-potable	No	No	-

Location	Owner	Council	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report
Ashfords Road, Wagga Wagga	Riverina Water	Wagga Wagga City Council	Potable	Yes	Yes	Ashfords Road
Lake Albert (Plumpton Road), Wagga Wagga	Riverina Water	Wagga Wagga City Council	Potable	Yes	Yes	Lake Albert
Red Hill Road	Riverina Water	Wagga Wagga City Council	Potable	Yes	No	Glenfield
Located within Edward River LGA						
Burraburoon	Private	Edward River Council	Non-potable	No	No	-
Moulamein Road 2	Private	Edward River Council	Non-potable	Yes	No	Moulamein
394 Hay Rd, Deniliquin	Edward River Council	Edward River Council	Potable	Yes	Yes	394 Hay Road, Deniliquin
Carrathool Road, Four Corners	Coleambally Irrigation	Edward River Council	Non-potable	Yes	No	Show in Figure 6-9 of the Amendment Report, but unclear of name in Table 6-5 of Amendment Report.
Booroorban-Tchelery Road	Private	Edward River Council	Non-potable	No	No	-
Wonga Station, Four Corners Road	Private	Edward River Council	Both	Yes	No	Wonga
Four Corners Road Mabins Well	Private	Edward River Council	Non-potable	Yes	No	Four Corners Road Mabins Well
Located within Lockhart LGA						
39 Urana Street, The Rock	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	The Rock
2850 Lockhart the Rock Road, Tootool	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	Tootool
Old French Park-Bullenbong Road, French Park	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	French Park

Location	Owner	Council	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report
Urana-Lockhart Road, Brookong	Private	Lockhart Shire Council	Non-potable	No	No	-
Brookdale	Private	Lockhart Shire Council	Non-potable	No	No	-
Strongs Lane, Lockhart	Private	Lockhart Shire Council	Non-potable	No	No	-
Slys Lane	Private	Lockhart Shire Council	Non-potable	No	No	-
Lockhart - the Rock Road, Lockhart	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	Lockhart
Bullenbung-the-Rock Road	Private	Lockhart Shire Council	Non-potable	No	No	-
French Park-Bullenbung Road	Private	Lockhart Shire Council	Non-potable	No	No	-
Napier Road	Private	Lockhart Shire Council	Non-potable	No	No	-
Albury Road, Lockhart	Private	Lockhart Shire Council	Non-potable	No	No	-
Located within Federation LGA						
Federation Way/Coonong Road	Private	Federation Council	Non-potable	No	No	-
Newell Highway/Arrawidgee Road	Private	Federation Council	Non-potable	No	No	-
Federation Way	Private	Federation Council	Non-potable	No	No	-
Richmond Street, Boree Creek	Riverina Water	Federation Council	Potable	Yes	Yes	Boree Creek
Newell Highway, Morundah	Private	Federation Council	Non-potable	No	No	-
Federation Way (near corner Federation Way and Stephen Street)	Riverina Water	Federation Council	Potable	No	No	-

Location	Owner	Council	Type	Considered in Amendment Report	Included in SWMP (Stage 1)	Name in Amendment Report
Located within Wentworth LGA						
Alcheringa Drive, Buronga[1]	Western Murray Irrigation	Wentworth Shire Council	Non-potable	Yes	Yes	Alcheringa Road
Modica Crescent, Buronga[1]	Wentworth Shire Council	Wentworth Shire Council	Potable	Yes	Yes	Modica Crescent, Wentworth
Fletchers Lake Road, Dareton[1]	Western Murray Irrigation	Wentworth Shire Council	Non-potable	No	Yes	-
Off Sturt Highway	Private	Wentworth Shire Council	Non-potable	No	No	-

[1] These water supply points have been included in the Project EnergyConnect (NSW – Western Section) Construction Environmental Management Plan and the associated CEMP Sub-plans and will continue to be used for Project EnergyConnect (NSW – Eastern Section).

Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would:

- confirm that the water supply point could be accessed using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary's agreement in accordance with condition C32;
- reach agreement with the water supplier regarding the use of the water supply point for the project; and
- carry out any additional assessments which may be required.

Treated wastewater from the wastewater treatment plants that are installed at each accommodation camp would also be collected, treated to appropriate standards, and transported via water carts for reuse. Potential uses of the treated wastewater and grey water may include for use in dust suppression, compaction of materials or other construction activities which may require and can utilise grey water.

5.4 Reuse of treated wastewater

As water is a valuable resource within Western NSW, the project will reuse the wastewater produced from the wastewater treatment plants as part of the construction processes to minimise the volume taken from other local sources.

Wastewater treatment plants (WWTPs) would be established at the accommodation camp sites to manage wastewater generated from construction compounds and accommodation camps (including but not limited to showers, kitchens, laundries, toilets, and other facilities). Refer to Section 7.4 and Section 7.5 of the relevant *Accommodation Camp Management Plan* for further information on the management and operation of the WWTPs at each of the accommodation camps. The project will obtain a Section 68 approval (refer Section 2.4.3) from the relevant councils for the operation of the WWTPs as required.

The treated wastewater will be discharged to a basin type structure lined with high density polyethylene/geosynthetic clay liner. The wastewater will then be collected and transported via water carts or similar devices for reuse in the following, but not limited to opportunities:

- use in dust suppression on roads;
- use in compaction of soils;
- use in the emplacement areas;
- wheel wash sites; and
- general washdown of equipment.

Wastewater will not be discharged to watercourses or other water bodies. Wastewater will not be used near food crops or food pastures.

A *Dewatering Procedure* (45860-HSE-PR-G-1018) has been developed and is provided in Appendix D. The Dewatering Procedure addresses the following:

- reinforces the project need for wastewater reuse;
- provides detail on the treated wastewater quality objectives;
- outlines the water quality testing process; and
- outlines the process to manage the application of the treated wastewater.

Prior to the application of treated wastewater to land, the following factors will be considered to understand if the environment has the capacity to receive the additional water loading:

- the existing soil conditions;
- existing environmental aspects such as salinity or flood prone areas;
- the likelihood of potential runoff at the application areas;
- distance from sensitive receivers and aquatic environments; and
- previous and upcoming climatic and weather conditions.

The consideration of these aspects is further detailed within the *Dewatering Procedure*.

5.5 Unexpected contamination finds

Contamination means the presence in, on or under land or any other aspect of the environment of a substance, gas, chemical, liquid or other matter, whether occurring naturally or otherwise, which is:

a) at a concentration above the concentration at which the substance, gas, chemical, liquid or other matter, whether occurring naturally or otherwise, is normally present in, on or under land or any other aspect of the environment in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment; or

b) toxic, flammable or otherwise capable of causing harm to humans or damage to the environment including asbestos (man-made or naturally occurring), toluene, polychlorinated biphenyls, lead based paints, glues, solvents, cleaning agents, paints, water treatment chemicals and acid producing spoil.

Contamination that may not have been detected during previous investigations may be discovered during the project, particularly during ground disturbance activities. Such contamination may be discovered due to observations such as:

- odour;
- unusual discolouration or staining of soil or rock;
- seepage of unusual liquids from soil or rock;
- unusual colour, odours, or sheens on groundwater and/or surface water;
- unusual metal objects or other foreign debris;
- presence of oil;
- presence of waste or rubbish above or below ground; and
- actual or potential asbestos or asbestos containing material.

In such instances, action is required to manage the potential contaminated soil/material encountered during excavation or construction activities. If potentially contaminated material is encountered, the *Unexpected Contamination Finds Procedure* (45860-HSE-PR-D-0014) will be followed.

Works in the immediate vicinity will be stopped or modified and will not recommence until the material has been analysed and management measures developed.

5.6 Disposal of contaminated material

Where contaminated material requires removal from site, the classification, transport and disposal will be carried out in accordance with the *Waste Management Plan* (45860-HSE-PL-D-0121). Key actions from the *Waste Management Plan* include:

- all waste material that is to be disposed of off the project will be dealt with in accordance with the POEO Act and *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014);
- wastes that are unable to be reused or recycled will be disposed of at a licensed waste management facility, or a place lawfully permitted to accept such waste;
- hazardous waste and wastes regulated under a Chemical Control Order will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the *Environmentally Hazardous Chemicals Act 1985*;
- a waste register will be maintained, detailing types of waste, amounts, date, and details of disposal; and
- a section 143 notice under the POEO Act will be obtained (from the landowner) should waste be transported to a site which is not licensed under the POEO Act to accept such waste. Sites and/or facilities licensed for receipt of waste under the POEO Act will not require a section 143 notice.

5.7 Flood response

There are areas that are prone to flooding and there are large floodplains around Box Creek, the Murrumbidgee River, Condoulpe Creek, Yellow Clay Creek, Coonong Creek, Bullenbong Creek and dispersed flooding at the very eastern end of the proposal around Sawpit Gully, Crooked Creek and Boiling Down Creek. A *Flood Response Plan* (45860-HSE-PL-D-0123) has been prepared and, as required by condition C35 of the Infrastructure Approval, forms part of the *Traffic and Transport Management Plan* (45860-HSE-PL-D-115).

The Flood Response Plan details the procedures and options for safe access to and from the site if an extreme flood event occurred within or in close proximity to the project works. Section 4 of the Flood Response Plan outlines the actions to be undertaken in preparation for a potential flood as well as the appropriate flood response and evacuation routes to take in the event of a flood.

5.8 Soil and water management measures

A range of environmental requirements and mitigation measures are identified in the Submissions Report and the Infrastructure Approval. Safeguards and management measures will be implemented to minimise or manage soil, water and contamination impacts.

Specific soil, water and contamination related safeguards and management measures to address impacts associated with Stage 2 of the project are outlined in Table 5.2.

Table 5.2 - Soil and water quality management measures

ID	Measurement/Requirement	When to implement	Responsibility	Source document
General				
SW1	Training will be provided to all project personnel, including relevant subcontractors on soil, water and contamination management and the requirements from this plan through inductions, toolboxes talks and targeted training.	Pre-construction and construction	Environmental Manager Health & Safety team	Good practice
SW2	During detailed design, the interaction between construction materials and high saline soils and the groundwater environment will be considered, where applicable. A flood design assessment, to ensure compliance with Transgrid's design standards, would be undertaken at the Dinawan 330 kV Substation site to confirm that the final design of the substation bench level is above the 100 year average recurrence interval (ARI) design and that a 200 year ARI design flood would not impede substation function. The assessment would also consider spills/overflows from the detention basin on the irrigation channel to the east of the substation location and a potential failure of the basin embankment.	Pre-construction and construction	Design Manager	RMM SCG1 RMM HF3
SW3	No pollution to water, as defined under section 120 of the POEO Act, is to occur, unless authorised by an EPL.	Pre-construction and construction	Construction Manager Supervisor Environmental Manager	Condition C15
Erosion and sediment control				
SW4	An *Erosion and Sediment Control Strategy* (ESCS) (45860-HSE-DOC-D-0016) provided in Appendix A has been prepared in line with the principles and requirements in: • *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004), commonly referred to as the 'Blue Book'; • *Managing Urban Stormwater – Soils and Construction, Volumes 2A - Installation of Services and Volume 2C – Unsealed Roads* (NSW Department of Environment, Climate Change and Water 2008); • *Best Practice Erosion and Sediment Control* (IESCA – 2008); • Transgrid's Environmental Guidance Notes; and • *Guidelines for Controlled Activities on Waterfront Land* (NRAR 2018). The ESCS will be implemented to guide the development of the ESCP and PESCPs for the project.	Construction	Construction Manager Supervisor Environmental Manager	Condition C14 b) RMM HF6

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW5	A Certified Professional in Erosion and Sediment Control (CPESC) will prepare the initial Erosion and Sediment Control Plan (ESCP), which will be used as a basis for the development of Progressive Erosion and Sediment Control Plans (PESCPs). PESCPs will be prepared and implemented for locations where ground disturbance will occur. The PESCPs will outline controls and strategies to be implemented to manage and minimise soil erosion and the movement of sediment and other pollutants to land and/or waters. PESCPs for high risk environments, such as near major watercourses, steep or highly erodible terrain, will be reviewed by the CPESC and Environmental Manager. The PESCPs will be progressively updated throughout the project to reflect the current construction activities occurring on site and to allow the removal of any measures that are ineffective or no longer needed.	Pre-construction and Construction	Certified Professional in Erosion and Sediment Control Environmental Manager	Condition C14 RMM HF6
SW6	Measures will be implemented to minimise mud tracking onto public roads.	Construction	Supervisor	Condition C14
SW7	Location of known heritage items will be identified in the site hazard analysis plan and considered during the preparation of PESCPs, where required. This will ensure that any potential harm due to surface water runoff from site is avoided or minimised.	Construction	Environmental Manager Supervisor	RMM AH9
SW8	Disturbed surfaces in the immediate vicinity of permanent infrastructure will be shaped to avoid concentrating flows and to reduce surface water runoff velocities, minimising the potential for scour and erosion.	Pre-construction, construction	Design Manager Construction Manager Supervisor	RMM HF1 Condition C14 a)
SW9	Construction materials and spoil will be appropriately stored on site and within the construction site compounds with the aim to minimise erosion, dust generation and sediment-related impacts in adjacent areas.	Construction	Construction Manager Supervisor	RMM SCG5 Condition C14 a)
Additional soil assessment and management				
SW10	Prior to ground disturbance in areas of known potential acid sulfate soil occurrence (e.g. in low lying areas surrounding former or current lakes and river beds), on-site field testing will be carried out to determine the presence of actual and/or potential acid sulfate soils.	Construction	Supervisor Environmental Manager	RMM SCG6 Condition C20
SW11	Exposure of acid sulfate soils to the atmosphere will be avoided, where possible. The prevention of oxidation of sulfides is the key in managing acid sulfate soils where avoidance of the exposure of acid sulfate soils to the atmosphere is not possible. The exposed acid sulfate soil will be separated from other spoil material and treated using lime or other similar agents. Other appropriate management measures may be implemented to manage exposed acid sulfate soils with guidance from *Acid Sulfate Soil Manual* (ASSMAC, 1998) and Transgrid's HSE Guideline.	Construction	Supervisor Environmental Manager	RMM SCG6 RMM HF6 Condition C20

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW12	A visual inspection (for known characteristics of salt affected soils) would be undertaken for the presence of saline soils prior to ground disturbance. Areas of known or suspected salinity will be subject to further testing as required. Where saline soil is excavated, the soils will be reinstated at the same depth from which it was excavated. Works in areas of saline 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).	Construction	Environmental Manager Supervisor	RMM SCG7 Condition C21 Condition C22 c)
Contamination assessment and management				
SW13	Promptly notify the Site Supervisor or Environmental Manager of any suspected or actual contamination exposed during construction activities. Cease all work activities within the vicinity of actual or suspected contaminated land. Refer to the *Unexpected Contamination Finds Procedure* (45860-HSE-PR-D-0014) as provided in Appendix B is to be followed.	Construction	All personnel	RMM SCG2 RMM SCG9 CLM Act Condition C22 c) Condition C22 e)
SW14	Disturbance to areas identified as medium risk of contamination will be avoided or minimised where practicable during detailed design and construction.	Design and construction	Design Manager Construction Manager Supervisor	RMM SCG2 Condition C22 c)
SW15	A site specific desktop risk assessment will be undertaken for any areas identified as medium risk of contamination which will be disturbed during construction. Following the conclusion of the site specific desktop risk assessment, a Phase 2 investigation will be undertaken where required. This may include a site inspection completed in accordance with NEPM 2013. The Phase 2 investigation may identify additional mitigation measures.	Design and construction	Environmental Manager	RMM SCG2 Condition C22 c)-e)
Works near major river systems				
SW16	A water quality monitoring program will be implemented as detailed in Section 6.3 to gather baseline water quality conditions in the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek) prior to construction in the vicinity of perennial watercourses crossed by the transmission line works. Water quality monitoring will be undertaken monthly throughout construction until the completion of construction in areas adjacent to the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site.	Pre-construction and construction	Environmental Manager	RMM HF4

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW17	Construction materials, spoil and waste located within 40m of perennial watercourses will be suitably stored to prevent potential impacts to groundwater and sedimentation of adjacent waterways.	Pre-construction and construction	Construction Manager Supervisor	RMM SCG5 Condition C14 a)
SW18	All activities on waterfront lands will be guided by the principles from the *Guidelines for Controlled Activities on Waterfront Land* (2012), *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003) and the *Policy and Guidelines for Fish Habitat and Conservation and Management* (NSW Fisheries, 2013) unless DPE Water agrees otherwise. Measures to control and manage erosion and minimise sedimentation on waterfront lands are further detailed in the ESCS and will be documented for specific areas and activities in the initial ESCP and PESCPs to be developed prior to the works commencing in waterfront areas.	Pre-construction and construction	Environmental Manager Construction Manager Supervisor	Condition C18
SW19	Construction materials would be selected to withstand high saline soil and groundwater environments, where applicable. Measures to reduce localised scouring around the tower footings are to be considered, and would likely consist of a geofabric and rock apron embedded in the soil around the footings.	Pre-construction and construction	Design Manager Supervisor	RMM HF1 RMM SCG1 RMM SCG5 Condition C14 a)
Construction of transmission line structure, site compounds, ancillary facilities and access tracks				
SW20	Transmission line structure foundations and ancillary construction sites will consider the location sites of known farm dams, where practicable, to avoid disturbance.	Pre-construction and construction	Design Manager Construction Manager Environmental Manager	RMM LP2
SW21	Long-term placement of construction materials, particularly spoil and waste will be appropriately managed with the aim to minimise the potential for soil, groundwater or water quality impacts.	Construction	Supervisor Environmental Advisor Environmental Manager	RMM SCG5
Chemicals, fuels or other hazardous substances				
SW22	Construction materials such as fuels, chemicals, vehicles and equipment will be appropriately stored to minimise the introduction of contaminants to the existing soil, groundwater and surface water runoff.	Construction	Supervisor Construction Manager Environmental Advisor	RMM SCG5 RMM SCG8 RMM HR11
SW23	All chemicals, fuels or other hazardous substances will be stored in accordance with the supplier's instructions, any relevant legislations or Australian Standards or the applicable guidelines.	Pre-construction and construction	Supervisor Construction Manager Environmental Manager	RMM SCG8 RMM HR11

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW24	All chemicals, fuels or other hazardous substances will be stored in a bunded area, with the bunding sized at 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s will be shown on relevant PESCPs.	Pre-construction and construction	Supervisor Construction Manager Environmental Manager	RMM HR11
SW25	The appropriate components of the concrete batching plants, such as the concrete mixing and washout areas, and oil filled components of the substation, will be suitably bunded.	Pre-construction and construction	Supervisor Construction Manager Environmental Manager	Condition C16 a)
SW26	In the event of a spill incident of chemicals, fuels or other hazardous substances, the *Spill Response Procedure* (45860-HSE-PR-D-0017) provided in Appendix C will be followed.	Pre-construction and construction	Supervisor Construction Manager Environmental Manager Health & Safety Manager	RMM HF6 Condition C16 b)
SW27	Appropriate spill containment equipment (i.e. spill kits) will be provided and placed at strategic and accessible locations within the site, such as adjacent to chemical storage areas, relevant work areas and refuelling areas.	Construction	Supervisor Construction Manager Environmental Manager	RMM HR14 Condition C16 b)
Unexploded Ordnance (UXO)				
SW28	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	Supervisor Health & Safety Manager	RMM SCG10
SW29	Promptly notify the Site Supervisor or Environmental Manager of any suspected or potential unexploded ordnance exposed during construction activities. Cease all work activities within the vicinity of actual or suspected unexploded ordnance find. The *Unexpected Contamination Finds Procedure* (45860-HSE-PR-D-0014) provided in Appendix B is to be implemented.	Construction	All personnel	RMM SCG10 Condition C22 e)

ID	Measurement/Requirement	When to implement	Responsibility	Source document
Water supply				
SW30	Copies of existing water access licence agreements from the applicable water suppliers/landholders will be requested and saved on to the project document SharePoint site.	Pre-construction and construction	Procurement Manager Environmental Manager Health & Safety team	Good practice
SW31	Water supply options and management will be undertaken in accordance with agreements with the relevant private water owners or relevant council. Sufficient water supply will be in place for all stages of the development, and if necessary, the scale of the development will be managed to match available water supply.	Construction	Construction Manager	RMM HF5 RMM CI2 Condition C12 Condition C13
SW32	Volumes of water taken (including water taken under a licence or under an exemption provision) during construction is to be recorded. The records will be provided during the independent audit when requested.	Construction	Environmental Manager	Condition C13
Dewatering				
SW33	The *Dewatering Procedure* (45860-HSE-PR-D-0018) provided in Appendix D will be implemented for the discharge of any runoff or stormwater which collects within construction areas (such as sediment basins, trenches, sumps) to minimise the potential for soil and water impacts.	Construction	Supervisor Construction Manager Environmental Manager	RMM HF6
SW34	Dewatering of groundwater will not be discharged directly into watercourses, but is to be managed in accordance with the methods included in the *Dewatering Procedure* (45860-HSE-PR-D-0018).	Construction	Supervisor Construction Manager Environmental Manager	Condition C17
SW35	Volumes of water that are dewatered will be recorded in the Dewatering Permit (45860-HSE-PR-D-0018). Records will be provided to the relevant authority upon request.	Construction	Supervisor Environmental Manager	RMM SCG11 Condition C13
Registered bores and high priority groundwater dependent ecosystems				
SW36	Registered groundwater bores that are located within or in the immediate vicinity of the construction area and do not require removal will be clearly demarcated with a 5 x 5m exclusion zone.	Pre-construction and construction	Environmental Manager	RMM SCG3
SW37	If registered groundwater bores are damaged during project activities, works will be undertaken to repair or replace the bore in consultation with the registered bore owner.	Pre-construction and construction at relevant site(s)	Supervisor Construction Manager Engagement Manager	RMM SCG3

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW38	Prior to undertaking any blasting, a desktop assessment would be carried out to identify if any high potential GDEs and/ or registered bores within the vicinity of the blast sites that might be affected. The assessment would: • assess any high potential GDEs and registered bores within 50m of blasting sites against the minimum impact criteria of the Aquifer Interference Policy (2012); and • identify any necessary measures to monitor blasting and mitigate potential significant impacts.	Construction (prior to blasting at relevant sites)	Design Manager Environmental Manager	RMM SCG4 Condition C22 c)
SW39	The measures identified from the desktop assessment above are to be implemented prior to and during blasting, where relevant. Where the assessment identifies potentially significant impacts to high potential GDEs and registered bores that cannot be mitigated, consideration of alternative lesser impact construction methodologies or engineering solutions will be investigated and implemented.	Prior to and during blasting	Supervisor Construction Manager Environmental Manager	RMM SCG4
Flooding				
SW40	Detailed construction planning would consider flood risk at construction areas. This would ensure: • flood impacts downstream and on other property and infrastructure are not exacerbated during construction up to and including the five per cent AEP design flood event, and • site layouts avoid or minimise obstruction of overland flow paths and limit the extent of flow diversion required. Measures to minimise potential flood risks at construction areas would be implemented, where practicable.	Design and construction	Design Manager Supervisor Environmental Manager	RMM HF2 Condition C19 b)
SW41	Permanent operational infrastructure is to be designed and constructed to not materially alter the flood storage capacity, flows or characteristics in the vicinity of the works or immediately downstream of the works.	Design and construction	Design Manager Supervisor Environmental Manager	Condition C19 a)
Monitoring and inspection				
SW42	Monitoring of weather forecasts (including rainfall radar) will occur to determine when adverse weather conditions are predicted to affect work locations. When significant rainfall is predicted (greater than 15mm at 80% chance of occurring), a pre-rainfall inspection will be carried out in accordance with the requirements in Section 6.3, to check the condition of existing sediment and erosion controls, and repairs are to be carried out and additional controls installed if necessary.	Pre-construction and construction	Construction Manager Environmental Manager Health & Safety team	Good practice

ID	Measurement/Requirement	When to implement	Responsibility	Source document
SW43	If safe to do, a post rainfall inspection will occur within the next working day after a rainfall event has occurred (greater than 5mm of rain has been received and runoff occurred). The post rainfall inspection is to evaluate the effectiveness of erosion and sediment controls measures and issue the appropriate action to repair or maintain any controls and/or install additional controls where required.	Pre-construction and construction	Environmental Manager Health & Safety team	Good practice
SW44	Weekly environmental inspections are to be undertaken, which will include an inspection of erosion and sediment controls present on-site, spill response equipment, stockpiles and the site access point(s).	Construction	Environmental Manager	Good practice
SW45	If groundwater is intercepted during excavation or piling activities, the interception of such groundwater will be monitored by site personnel and reported to NRAR in accordance with Clause 21(6) of the *Water Management (General) Regulation 2018*. Where there is the potential for water take to exceed the 3ML exemption provision, additional approvals and sufficient entitlement will be obtained.	Construction	Environmental Manager	*Water Management (General) Regulation 2018* Comment from DPE Water
Rehabilitation and stabilisation				
SW46	Areas disturbed by construction will be stabilised and appropriately rehabilitated to a similar condition prior to construction, where feasible and reasonable following the completion of construction. This will be carried out in consultation with the landowner.	Construction	Supervisor Construction Manager Environmental Manager	RMM LP5
SW47	Rehabilitation to ancillary facilities and earthwork material sites will be undertaken progressively where feasible or within 6 months of the completion of the construction phase of the project with the aim to provide a safe, stabilised and non-polluting area.	Construction	Supervisor Construction Manager Environmental Manager	Condition C52

6 Compliance management

6.1 Training and awareness

All site personnel will undergo the Elecnor site induction. The induction training addresses elements related to soil, water and contamination management including, but not limited to:

- relevant legislation;
- the environmental management system;
- complying with the conditions of the Infrastructure Approval;
- the CEMP;
- spill response; and
- the purpose and general content of PESCPs.

Targeted training in the form of toolbox talks or specific training will also be delivered to personnel with a key role in soil, water and contamination management. Examples of training topics may include:

- specific erosion and sediment controls, including installation methods, maintenance requirements and the requirements of site-specific PESCPs;
- no-go zones;
- UXO within the project area;
- unexpected finds procedure for contamination finds; and
- dewatering procedures.

Further details regarding the staff induction and training are in Section 6 of the CEMP.

6.2 Roles and responsibilities

Elecnor's organisational structure and overall roles and responsibilities are outlined in Section 4.9 of the CEMP. Specific responsibilities for the implementation of mitigation measures are detailed in Section 5 of this SWMP.

6.3 Monitoring

The proposed monitoring program for Stage 2 works is identified in Table 6.1.

Table 6.1 - Monitoring program

Item	Scope	Frequency	Responsibility	Records/ reporting
Weather forecasts and observations	Monitoring of weather forecasts (including rainfall radar) to determine when adverse weather conditions are predicted.	Weekly weather forecast; and Daily monitoring when adverse weather is predicted.	Supervisors	BOM website Pre-starts
Water quality discharge	Water that requires discharge (other than wastewater) will be tested (as required) prior to reuse/discharge and managed in accordance with the *Dewatering Procedure* (45860-HSE-PR-D-0018).	Prior to water discharge	Supervisors Environmental Manager or delegate	*Dewatering permit* (45860-HSE-FO-G-1006)

Item	Scope	Frequency	Responsibility	Records/ reporting
Water quality monitoring program	Monitoring of water quality in the Murrumbidgee River and Colombo Creek to establish baseline water quality conditions at least six months prior to construction in the vicinity of the transmission line works at the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek). Monitoring will then continue monthly during construction until the surface works in the vicinity of the waterways that were disturbed during construction are stabilised and no longer pose a significant sedimentation risk to the waterways. Sample locations will occur approximately 50m downstream and upstream of the project alignment, with consideration of existing upstream WaterNSW gauges (including gauge 410130) downstream of the Murrumbidgee River. Sample locations will be nominated prior to the commencement of monitoring as site inspections are required to select an appropriate location which considers factors such as safety, ease of access, and avoiding water stagnation locations. The monitoring program will monitor for parameters such as: pH, total dissolved solids, total suspended solids (turbidity), total nitrogen and total phosphorus.	Six months prior to the commencement of construction works in the vicinity of the Murrumbidgee River, Colombo Creek and Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek). Continue monthly during construction until the surface works in the vicinity of the waterways are stabilised	Environmental Manager	Water quality record

6.4 Inspections

The proposed inspections relevant to soil and water management are identified in Table 6.2.

Table 6.2 - Inspection timing

Item	Scope	Frequency	Responsibility	Records/reporting
Weekly inspections	Inspection of the site erosion and sediment controls, spill response equipment, stockpiles and the site access point(s).	Weekly	Environmental Manager or delegate	*Environmental Inspection Checklist* (45860-HSE-CHK-G-1008)
Acid sulfate soil	On-site field testing to determine the presence of actual and/or potential acid sulfate soils.	Prior to ground disturbance in areas of known potential acid sulfate soil occurrence	Environmental Advisor	Onsite testing results records in daily diary

Item	Scope	Frequency	Responsibility	Records/reporting
Saline soil inspection	Visual inspection of work areas for indicators of saline soil prior to ground disturbances.	Prior to ground disturbances	Supervisors	Report by exception in daily diary
Pre rainfall inspection	Inspection of the environmental controls to assess site preparedness for potential forecast rainfall events. Inspection to be undertaken on working days, if safe to do so. Issue actions to repair/maintain any damaged controls, or install additional controls if necessary.	Prior to predicted rainfall greater than 15 mm at 80% chance of occurring.	Environmental Manager or delegate Supervisors	*Pre rainfall inspection checklist* (45860-HSE-CHK-G-1009)
Post rainfall inspection	Post rainfall inspections to evaluate the effectiveness of erosion and sediment controls measures and issue appropriate actions to repair or maintain any controls and/or install additional controls where required. Post rainfall inspections will occur after a rainfall event. For the purpose of this inspection, a rainfall event occurs when more than 5mm of rain has been received and/or runoff occurs.	Within the next working day, if safe to do.	Environmental Manager or delegate Supervisors	*Post rainfall inspection checklist* (45860-HSE-CHK-G-1010)

6.5 Auditing

Audits will be undertaken to assess the effectiveness of the management measures and overall compliance, including this plan, and other relevant approvals, licences and guidelines. Audit requirements are detailed in Section 9.3 of the CEMP.

6.6 Reporting

Reporting which will be undertaken in accordance with the SWMP is summarised within Table 6.3.

Table 6.3 - Reporting program

Item	Scope	Frequency	Responsibility	Recipient
Unexpected finds report	Reporting of unexpected contamination finds will be undertaken in accordance with the *EnergyConnect (NSW – Eastern Section) Unexpected Contamination Finds Procedure* (45860-HSE-PR-D-0014).	As required	Environmental Manager	Transgrid EPA
Water take	Volumes of water taken (including water taken under a licence or under an exemption provision) during construction will be provided during the independent audit when requested.	As required	Environmental Manager	Independent Auditor, upon request
Audit reports	Independent audits undertaken in accordance with the Infrastructure Approval will include audits of soil and water management measures (based on the Independent Auditor's program). Audit reports will be prepared. Further detail in relation to auditing is provided within Section 9.3 of the CEMP.	Audits will occur within 12 weeks of the commencement of construction and then at intervals no greater than 26 weeks from the date of the initial Independent	Environmental Manager / Independent Auditor	Transgrid DPHI

Item	Scope	Frequency	Responsibility	Recipient
		Audit or as otherwise agreed by the Secretary.		
Groundwater intercepted during aquifer interference activities	An exemption within the *Water Management (General) Regulation 2018* allows for 3ML per project per year to be intercepted during aquifer interference activities without the need for a water access licence. If groundwater is intercepted during excavation activities, the interception of such groundwater will be monitored by site personnel and geotechnical specialist and reported to NRAR in accordance with Clause 21(6) of the *Water Management (General) Regulation 2018*. Where there is the potential for water take to exceed the 3ML provision, additional approvals and sufficient entitlement will be obtained. In such a situation, reporting will be as per the conditions of the licence and condition C13.	As required	Environmental Manager	Transgrid NRAR

6.7 Emergencies, incidents and non-compliances

6.7.1 Emergencies

Emergency management and planning including emergencies related to soil, water and contamination will be undertaken in accordance with the management system and relevant procedures. Refer to Section 8.1 of the CEMP – Emergency preparedness and emergency response for further details.

6.7.2 Environmental incidents

Environmental incidents, including incidents related to soil, water and contamination (e.g. unauthorised/unapproved discharge of water, contamination of water quality, chemical and hazardous material spills) will be managed as described in Section 8.2 of the CEMP – Environmental incidents and the Incident, Notification and Investigation Procedure Flowchart provided in Appendix A4 of the CEMP. All site personnel are authorised to suspend a work activity that is likely to cause, or is actually causing or contributing to an incident. A supervisor/manager may request additional staff be deployed to the site to provide additional capacity or capability to manage the incident.

Incident reporting is described in Section 8.3 of the CEMP – Incident notification and reporting.

All environmental incidents that occur on the project, regardless of how minor, must be reported to a supervisor by personnel involved or witnesses to the incident immediately after the incident occurs. The Environmental Manager will be notified immediately of any environmental incident. Transgrid will be notified of incidents and near misses immediately. Formal, documented reporting of incidents will be completed, and will be submitted to Transgrid in accordance with requirements under the Contract. The Environmental Representative will also be included on all incident notifications.

For incidents which are reportable to DPHI, notification will occur to DPHI via the Major Projects website immediately after becoming aware that an incident has occurred. A written notification

will then be provided to DPHI via the Major Projects website within seven days after becoming aware of the incident. Refer to Section 8.3.1 of the CEMP - Incident notification and reporting in accordance with the Infrastructure Approval for further details requirements of the notification.

6.7.3 Non-compliances

Where a non-compliance with the Infrastructure Approval has been identified, including those relevant to soil, water and contamination (e.g. not following the notification or reporting requirements in the Unexpected Contamination Finds Procedure), corrective actions will be developed as required and implemented to address the non-compliance that occurred.

Reporting of non-compliances will be undertaken as described in Section 10.1 of the CEMP – Reporting non-compliances. The Planning Secretary will be notified in writing via the Major Projects website within seven days after Transgrid becomes aware of any non-compliance. The written non-compliance notifications will contain the requirements set out in condition D8 of the Infrastructure Approval and will include details such as:

- the non-compliance;
- the reasons for the non-compliance (if known); and
- what actions have been taken, or will be taken, to address the non-compliance.

Refer to Section 10.1.1 of the CEMP - Reporting non-compliances in accordance with the Infrastructure Approval for further details requirements of the notification.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Failure to comply with other statutory requirements such as the EPBC Act Approval will be reported in accordance with Section 10.1.2 of the CEMP. Any other reporting will occur in accordance with Section 10.1.3 of the CEMP.

Where a non-compliance has been identified, the non-compliance will be reviewed by the Environmental Manager to determine the reason for the non-compliance, and what corrective actions have, or will be taken, to address the non-compliance. Preventative actions will be developed as required and implemented to minimise the potential for recurrence.

Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action describes the process for non-compliance management.

6.8 Contingency plan

Although the project has been assessed through the environmental impact assessment process and potential impacts identified, unpredicted impacts may occur as the project progresses. In the event that unexpected impacts are identified, the action or cause will be categorised and as required will be managed as:

- an emergency or environmental incident in accordance with Section 8 of the CEMP – Incidents and emergencies; and/or
- a non-compliance or non-conformance in accordance with Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action.

Reporting of the unpredicted impacts would be in line with the above processes and as described in Section 10 of the CEMP – Reporting.

Corrective and preventative actions may be generated from a number of sources, including but not limited to incidents, audits and management reviews. The actions will be managed in accordance with the management system to ensure that the required actions are tracked and closed out in a timely manner. The completion of the required actions will be recorded, and will

include details on the source of the action (e.g. audit, inspection or other), the action required, target close out date, actual close out date and the person responsible.

Through the identification of corrective and/or preventative actions through the above processes, the following steps will occur as relevant:

- determine the relevant impact assessment criterion/criteria, below which the impact should be reduced, consistent with the requirements of this SWMP;
- identify options to reduce the unexpected impacts to below the relevant criterion/criteria and appropriate timeframe for implementation;
- implement the selected measure(s) to reduce the unexpected impacts; and
- identify and implement an appropriate monitoring program to determine the effectiveness of the selected measure(s) to reduce the unexpected impact.

If the above monitoring program identifies that the unexpected impacts have not been reduced to below the nominated criterion/criteria, items b) to d) of the contingency process will be repeated.

This section does not apply to unexpected contaminations finds. These will be managed in accordance with the *Unexpected Contamination Finds Procedure* included in Appendix B of this SWMP.

Appendix A – Erosion and Sediment Control Strategy

INTERNAL

Erosion and Sediment Control Strategy EnergyConnect (NSW - Eastern Section)

45860-HSE-PR-D-0016

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	10/05/2022	Issued for internal review	M.Lee	R.Walker-Edwards	A.Boyd	JL.Barrenechea	D.Whatmough
B	24/05/2022	Issued for Transgrid's review	M.Lee	R.Walker-Edwards	A.Boyd	JL.Barrenechea	D.Whatmough
C	15/08/2022	Issued for agency consultation	M.Lee / C.Cahill	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
0	19/03/2024	Revised to Elecnor template	K.Nestmann	R.Walker-Edwards	S.Klocke	G.Crighton	G.Arrien

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1 Introduction

This Erosion and Sediment Control Strategy (ESCS or this strategy) is part of the Soil and Water Management Plan (SWMP) for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

This strategy has been prepared by suitably qualified and experienced person. This strategy was prepared by Martin Lee and Cheryl Cahill (attained certification as a certified professional in erosion and sediment control (CPESC)).

1.1 Purpose

The purpose of this ESCS is to outline the overarching principles to be considered and integrated into the development of the progressive erosion and sediment control plans (PESCPs). The PESCPs will be prepared and implemented progressively during construction of EnergyConnect (NSW – Eastern Section).

This strategy has been prepared to address the relevant requirements of the Infrastructure Approval, the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

2 Environmental requirements

The project's approach to erosion and sediment control will be in accordance with the principles identified 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* (IECA – 2008);
- Transgrid's HSE Guidelines and;
- *Guidelines for Controlled Activities on Waterfront Land* (NRAR 2018).

2.1 Hierarchy of erosion and sediment control principles

The guidelines listed above generally describes the hierarchy for erosion and sediment management principles in the following order:

1. integrate erosion and sediment management measures with construction planning;
2. minimise area of disturbance / area of soil exposure to erosion;
3. promptly stabilise / rehabilitate disturbed areas;
4. manage water flow through the site through drainage controls;
5. design and install appropriate erosion control;
6. design and install appropriate sediment control to maximise sediment retention on site; and
7. monitor controls and adjust control measures to maintain the required standard.

3 Existing environment

The existing environmental setting relating to the aspects of soil and water quality within and adjacent to the project is identified in Section 3 of the relevant *Soil and Water Management Plan*. Additional information is available in Chapter 16 and 21 of the EIS Main volume, Technical Paper

8 (Hydrology, flooding and water quality) of the EIS and Section 6.5 of the *Amendment Report EnergyConnect (NSW – Eastern Section)*.

3.1 Soils

Soils are mapped as primarily vertosols according to Australian Soil Classification (CSIRO, 2016a) and are found along the main watercourses while alluvial plains are found in proximity to the Murrumbidgee, Darling, and Darling – Anabranch Rivers.

Published soil mapping along the alignment indicates that the regional geology and soils are expected to be predominantly transported Quaternary-aged sediments deposited in alluvial flood plains, and dune. The predominant soil types are typically sand and clay or a mixture of the two.

Based on broadscale state mapping, almost all of the project area is mapped as having low salinity potential. Soil conductivity testing undertaken in 2020 did however indicate variable salinity conditions across the project area with some soil results indicating moderately saline and very saline soil conditions.

Published acid sulfate soil mapping indicates there is an extremely low probability of acid sulfate soils occurring across the project area, with the exception of low lying areas surrounding lakes and river beds, which are mapped as high probability of containing ASS.

There are no mapped areas indicating naturally occurring asbestos minerals may be present within the project area

3.2 Watercourses

Numerous natural watercourses and man-made waterways intersect the project area, ranging from unnamed drainage lines, dry rivers, perennial rivers, canals and drains. The project intersect 19 named waterways.

Lakes and waterbodies located along the length of the project include Dry Lake, Lake Benee, Lake Caringay, Waldaira Lake, Condoulpe Lake, Dusty Lake, Five Tree Dam, Lake Urana, Lake Cullivel and Lake Albert.

3.3 Rainfall intensity

The average annual rainfall across the project area is variable, however generally average rainfall is higher at the eastern end of the project and lower at the western end.

The Urana Post Office weather station (station number: 074110) near the eastern end of the project area recorded an annual average rainfall of 442.2mm between 1871 to 2020. The average monthly rainfall is slightly higher in May and June.

The closest weather station (Irymple, station number: 076015) to the western end of the project area recorded an average annual rainfall of 271mm between 1908 to 2020. Rainfall is fairly evenly spread across the year, with higher peak rainfall values from November to April.

4 Induction/training

Training and awareness of the principles of erosion and sedimentation will be provided through either site inductions, pre-start meetings and/or toolbox talks.

5 Key management strategies

5.1 Context

It is important to note that the principal objective for managing erosion and sediment on a construction site is to take all reasonable and practicable measures to minimise the short and long-term soil erosion and the adverse effects of sediment transportation.

Generally, the context of the term 'reasonable' means an action based on sound judgement and affordable cost while the contextual meaning of the term 'practicable' is an action capable of being implemented with available means, with reason or with prudence.

It is also important to acknowledge the fact that each construction site demands a unique set of erosion and sediment control measures. Thus, a control measure that is observed to work well in one location does not mean it will work well in another location. Implementation of erosion and sediment controls measures should represent an appropriate balance between the recommended implementation of the control and common sense. There may be situations/locations where erosion and/or sediment control measures are not required or become obsolete depending on the current activities occurring on site at the time.

Elecnor is conscious that EnergyConnect is a long linear infrastructure where the environmental setting and climate may vary spatially. Hence, the suitability of erosion and sediment control measures will depend on both the location in which the controls are being applied, and the construction activities which are to occur.

5.2 Preparation of erosion and sediment control plans

A Certified Professional in Erosion and Sediment Control (CPESC) will prepare the initial ESCP to detail the erosion control measures to be utilised across a range of different receiving environments and landforms on the project. Environmental staff will then typically use the ESCP as a basis to develop progressive erosion sediment control plans (PESCPs) in consultation with Project Engineers, Superintendents and Supervisors. For high risk environments, such as works near major watercourses or in steep or highly erodible terrain, the progressive ESCPs will be reviewed by the CPESC.

PESCPs will provide more detailed and up-to-date information relating to specific areas and control measures. The PESCPs will be implemented concurrently with the relevant site activities and updated as required to reflect the evolution of site conditions as the project progresses.

5.3 Elecnor's erosion and sediment control principles

The hierarchy of principles identified in Section 2.1 has provided guidance for the development of erosion and sediment control principles for the project. These eight principles are listed below.

A compliance matrix is also presented in Annexure A, with this compliance matrix detailing how Elecnor's principles address the guidelines listed within Section 2.

Elecnor Principle 1 – Appropriate planning and documentation

Prior to disturbance of the area and soil exposure, erosion and sediment control issues will be considered and integrated into construction planning, programming and site documentation, which will include the following:

- consider the existing landscape environment and identify areas of key risks to erosion and sediment issues;

- consider sensitive areas and features including, but not limited to, location of known heritage features both within and adjacent to the construction area, biodiversity flora and fauna, watercourses and riparian land;
- develop the site layout and construction process to prevent or minimise environmental harm due to erosion and sediment control issues (e.g. material stockpiles to be located away from surface water flow paths);
- construction planning to minimise extent/duration of soil disturbance; and
- prepare effective and flexible PESCPs that are adjusted and adapted to changing site conditions. The initial PESCP will be prepared prior to soil disturbance activities and implemented concurrently with relevant site activities where required.

Elecnor Principle 2 – Minimise the extent and duration of disturbance

To minimise erosion of disturbed areas, aim to complete work and stabilise disturbed areas progressively.

Elecnor Principle 3 – Control stormwater flows onto, through and from the site

To reduce erosion and surface water runoff volumes that will eventually require treatment, and to maximise the efficiency of sediment control measures, aim to:

- separate 'clean' run-on water from 'dirty' water run-off;
- manage areas susceptible to concentrated water flow; and
- break up slope lengths and minimise catchment areas within the work area where possible, to reduce run-off volume and velocities to manageable levels.

Elecnor Principle 4 – Use erosion control measures to prevent on-site damage

To minimise erosion of disturbed areas and unlined drains, aim to:

- protect the soil surface from raindrop impact;
- protect the soil surface to minimise erosion; and
- convey run-off in a non-erosive manner.

Elecnor Principle 5 – Use sediment control measures to prevent off-site damage

To minimise the off-site transport of eroded sediment, aim to:

- intercept and capture 'dirty' sediment laden run-off water prior to leave the site boundary;
- slow the velocity of 'dirty' water so that soil particles can settle out by gravity;
- chemically treat sediment laden water to remove very fine suspended soil particles (where required); and
- locate control measures as close to the sediment source as possible, while not impeding construction activities.

Elecnor Principle 6 – Minimise impacts on waterfront land

To minimise impacts to waterfront land, aim to:

- protect ground stratum native vegetation within vegetated riparian zones of rivers to the greatest extent practicable, with vegetation clearing ideally limited to the tree stratum only, with trunk bases being retained in-situ;
- minimise the extent of vegetation clearing generally within vegetated riparian corridors wherever practicable in constructing the transmission line structures; and

Elecnor Principle 7 – Stabilise disturbed areas quickly

To minimise erosion of disturbed areas, aim to:

- strip and stockpile site topsoil material for reuse in the restoration / stabilisation phase; and
- stabilise disturbed surfaces progressively following completion of works at each location to minimise erosion.

Elecnor Principle 8 – Inspect and maintain control measures

The effectiveness of erosion and sediment controls is related to both the selection of appropriate techniques and the maintenance of these measures. Elecnor will:

- inspect control measures regularly (e.g. before/after rainfall and during weekly environmental inspections) ;
- maintain, modify and/or implement new control measures as identified and required by the inspection; and
- remove temporary control measures once an area has been stabilised.

5.4 Sediment basins

Sediment basins are stormwater management devices and are not proposed in all construction areas. Generally, sediment basins will only be required in areas where soil disturbance occurs over an area greater than 2,500m^2 per sub-catchment. However and more accurately, the requirement of a sediment basin can be determined when there is an annual soil loss greater than 150m^3/year calculated in accordance with the Blue Book. As such, key areas such as borrow pits, laydown areas or earthworks activities at substations will be assessed to determine if a sediment basin is required. Generally, sediment basins will be constructed where the soil loss calculations indicate they are required. Sediment basins will be constructed and operated in accordance with the Blue Book and the location will be reflected in the relevant PESCP.

Annexure A – Compliance matrix

No.	Principle / objective	Elecnor ESC principles								
		1	2	3	4	5	6	7	8	N/A
Principles of Construction Site Erosion and Sediment Control (IECA 2008)										
1	Appropriately integrate the development into the site									✓*
2	Integrate erosion and sediment control issues into site and construction planning	✓								
3	Develop effective and flexible erosion and sediment control plans based on the anticipated soil, weather and construction conditions	✓								
4	Minimise the extent and duration of soil disturbance		✓				✓			
5	Control water movement through the site			✓			✓			
6	Minimise soil erosion				✓		✓			
7	Promptly stabilise disturbed areas							✓		
8	Maximise sediment retention on the site					✓				
9	Maintain all erosion and sediment control measures in proper working order at all times								✓	
10	Monitor the site and adjust erosion and sediment control practices to maintain the required performance standard								✓	
Blue Book management principles (Landcom 2004)										
1	Assess the soil and water implications of development at the subdivision or site planning stage, including those relating to ecologically sustainable development. Investigate the salinity and the acid sulfate potentials of the soil where their disturbance is likely to expose and/or exacerbate this problem	✓								
2	Plan for erosion and sediment control concurrently with engineering design and before earthworks begin, ensuring proper assessment of site constraints and integration of the various components	✓								
3	Minimise the area of soil disturbed and exposed to erosion		✓							
4	Conserve topsoil for later site rehabilitation / revegetation							✓		
5	Control water flow from the top of, and through the development area			✓						
6	Rehabilitate disturbed lands quickly							✓		
7	Maintain soil and water management measures appropriately during the construction phase								✓	
Transgrid's HSE Guideline										
1	Minimising disturbance		✓							
2	Stabilise high traffic areas	✓								
3	Slow down or redirect water flow through the site			✓						
4	Protect disturbed areas with gravel, mulches, erosion matting or blankets				✓					
5	Stabilise disturbed areas as soon as possible once work is complete							✓		

No.	Principle / objective	Elecnor ESC principles								
		1	2	3	4	5	6	7	8	N/A
6	Avoid allowing sediment to leave the worksite or enter drainage					✓				
Guidelines for Controlled Activities on Waterfront Land (NRAR 2018)										
1	Establish and preserve the integrity of riparian corridors						✓			
2	Seek to minimise disturbance and harm of riparian corridors		✓							
3	Minimise the number of creek crossings of riparian corridors						✓			
4	Treat stormwater run-off before discharging into riparian corridors			✓						

* To be managed through the permanent design process

Appendix B – Unexpected Contamination Finds Procedure

INTERNAL

Unexpected Contamination Finds Procedure EnergyConnect (NSW – Eastern Section)

45860-HSE-PR-D-0014

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
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1 Introduction

This Unexpected Contamination Finds Procedure (procedure) is part of the Soil and Water Management Plan (SWMP) for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

1.1 Purpose

The purpose of this procedure is to detail the actions to be taken in the event that an unexpected actual or potential contamination find is encountered during project works.

This procedure has been prepared to address the relevant requirements of the *Submissions Report EnergyConnect (NSW – Eastern Section)* and the Infrastructure Approval (SSI-9172452) granted by the Minister for Planning.

2 Induction/Training

All site personnel (including sub-contractors) will undertake an induction which will include details relating to this procedure. Training may also occur through toolbox talks, pre-starts and targeted training as required.

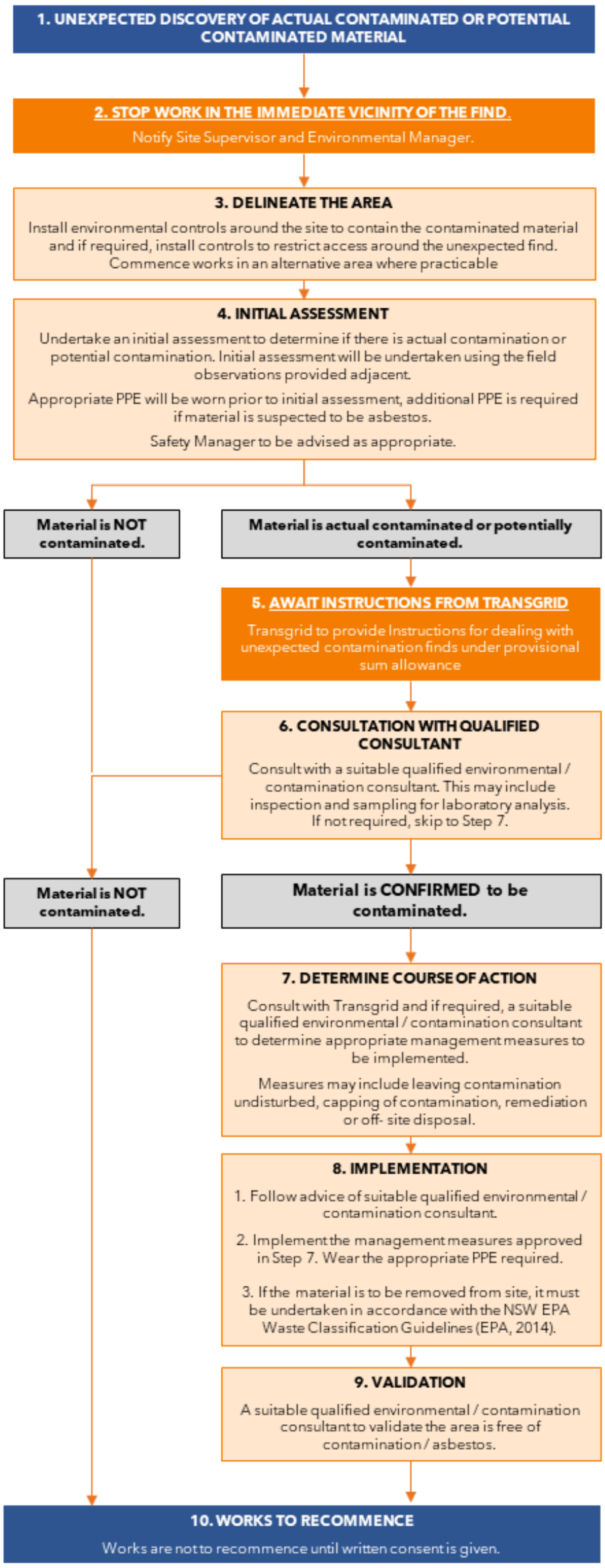
3 Scope

This procedure is applicable for the following:

- all activities conducted by site personnel (including sub-contractors) for the project that have the potential to uncover / encounter contaminated finds (usually during construction);
- where the project does not have approval to disturb the contaminated material; and
- where safeguards for managing the disturbance (apart from this procedure) are not contained in the environmental impact assessment.

Contaminated Land Procedure

Unexpected Contamination Finds Procedure



Purpose

The purpose of this procedure is to detail the actions to be taken in the event that an unexpected actual or potential contaminated material is encountered during construction works associated with EnergyConnect (NSW – Eastern Section).

Definition

Contamination means the presence in, on or under land or any other aspect of the environment of a substance (i.e. gas, chemical, liquid or other matter) whether occurring naturally or otherwise, which is:

(a) at a concentration above the concentration at which the substance, gas, chemical, liquid or other matter, whether occurring naturally or otherwise, is normally present in, on or under land or any other aspect of the environment in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment; or

(b) toxic, flammable or otherwise capable of causing harm to humans or damage to the environment including asbestos (man-made or naturally occurring), toluene, polychlorine biphenyls, lead based paints, glues, solvents, cleaning agents, paints, water treatment chemicals and acid producing spoil.

Field observations

Contamination that may not have been detected during previous investigation works may be discovered during the course of the project. Such contamination may be discovered due to the following field observations :

- odour;
- unusual discolouration or staining of soil or rock;
- seepage of unusual liquids from soil or rock;
- unusual colour, odours or sheens on groundwater and/or surface water;
- unusual metal objects;
- presence of oil;
- presence of waste or rubbish above or below ground; and
- actual or potential asbestos or asbestos containing material (ACM).

Actions

If unexpected contamination is discovered, the following procedure will be implemented:

- **STOP ALL WORKS** in the immediate vicinity of the discovery. Do not remove or unnecessarily disturb the area of the find;
- follow the adjacent flowchart;
- notify the Site Supervisor and the Environmental Manager; and
- Do not recommence work until advised to do so in writing.

Personal Protective Equipment (PPE)

The appropriate Personal Protective Equipment (PPE) will be worn prior to any contamination investigation/management. This may include, but not be limited, to:

- eye goggles;
- face mask;
- rubber boots;
- rubber gloves;
- disposal work clothes; and
- full face respirator with vapour cartridge.

Appendix C – Spill Response Procedure

PUBLIC

Spill Response Procedure
EnergyConnect (NSW – Eastern Section)

45860-HSE-PR-D-0017

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
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1 Introduction

This Spill Response Procedure (SRP or procedure) forms part of the *Soil and Water Management Plan* (SWMP) for EnergyConnect (NSW – Eastern Section).

1.1 Purpose

The purpose of this procedure is to describe the emergency spill response approach that will be employed by Elecnor personnel and subcontractors during construction of the EnergyConnect (NSW – Eastern Section) project.

2 Induction/training

All site personnel (including sub-contractors) will undertake an induction which will include information in relation to spill response. Training may also occur through toolbox talks, pre-start briefings and targeted training as required.

3 Scope

This procedure is to be applied in the event of a chemical, fuel or oil spill that arises due to the project activities.

4 Control measures

4.1 Preventative spill measures

In order to minimise the potential for environmental impacts to water and soil from spills the following will be undertaken:

- training in use of spill containment materials, their locations and spill response will be undertaken proactively as required particularly for personnel who are working within or near to aquatic environments and are involved in regularly handling and using potentially contaminating substances (e.g. personnel who are carrying out refuelling activities);
- unless unavoidable, refuelling, washing and maintenance of vehicles and mechanical plant will occur at least 50m from waterbodies;
- plant and equipment will undergo regular checks and subsequent repair for potential leakages or worn hydraulic hoses;
- all chemicals including fuels and oils will be stored when not in use in bunded areas; and
- all chemicals and hydrocarbons will be stored and handled as per manufacturer's instructions.

Regular inspection of chemical storage areas will be undertaken to assess compliance of the above measures.

4.2 Reactive spill measures

All spills are to be managed in accordance with the steps detailed within Annexure A. This includes the following steps:

1. Assess the situation;
2. Cease work and if safe to do so, control the spill;
3. Report the incident;
4. Clean up the spill;
5. Dispose of contaminated materials; and

6. Investigation and reporting.

4.3 Spill containment

Spill containment materials such as those listed in Table 4.1 referred to as 'spill kits' will be kept and stocked on site at any location where there is significant risk/potential impact of a spill. Examples of potential locations include refuelling areas, chemical storage or where works are within the vicinity of waterways. Spill kits could be stored in a fixed location or be mobile. Spill kits will be placed in dedicated, visible and accessible locations.

The spill kits will be appropriately sized according to the volume of chemicals and fuels being stored or used and the activities which are being undertaken. All staff would be made aware of the location of the spill kit and trained in its use. Spill kits would be restocked as soon as possible after each use, with used material replaced.

Table 4.1 provides examples of appropriate application of material types. Spill kit inspections are to be undertaken on regular intervals such as during the weekly environmental site inspections detailed within Section 9.1 of the Construction Environmental Management Plan. The inspections would check that spill kits are present at the required locations, are accessible and appropriately stocked.

Table 4.1 - Spill containment materials

Product	Description/Application
Pads, pillows and socks	• Used to clean-up (absorb) small to medium liquid spills on land rather than containing. • Thin absorbent mats placed over spills. • Cushion shaped products containing absorbent fibres, used directly under a leak or drip. • Absorbent socks placed at the low point of a spill. • Consider the need to have a spill kit containing these at the source of the activity and extras in-stock on site. • If these materials are not enough to clean-up the spill, consider using absorbent granular materials or equivalent.
Sorbents	• Used during clean-up, sorbents are materials that soak up the spill such as saw dust, granules or peat mixture. • Spread the sorbent over the contaminant after control materials have been applied. • Recover the contaminant/sorbent mixture using shovels/excavator bucket or similar. • Sorbents can be used from small to large spills.
Drip trays and washout bunds	• Used to contain incidental leaks during plant and equipment maintenance. • Containers should be maintained and liquids/sludge collected. • Consider if these containers are not sufficient to contain leaks/washout then construction of permanent bunding may be suitable.
Manual recovery	• Used to physically remove the contaminant either by excavating the contaminant and adjacent soil on land or pump / vacuum truck removal for contaminant and adjacent liquid/sludge in waterbodies. • Control materials should be installed prior to manual recovery to prevent spread during recovery task.

5 Incident management

Environmental incidents will be managed (including notifications and investigations) in accordance with Section 6.7.2 of the *Soil and Water Management Plan*.

Annexure A

SPILL RESPONSE PROCEDURE

IN THE EVENT OF A SPILL

1. ASSESS THE SITUATION

- Is it safe to take action?
- What is the source of spill and can it be stopped, controlled or shutdown?
- Consult the Safety Data Sheet - What PPE and emergency equipment is required?
- Are there any other hazards that need to be controlled? E.g. ignition sources?
- Do I need further assistance?

2. CEASE WORK AND IF SAFE TO DO SO, CONTROL THE SPILL

- Stop work that has resulted in the spill
- Stop the flow immediately
- Contain the spill
- Divert the spill away from waterways if needed
- Use bunds, sand etc. to limit the spread of the spill
- If spill enters the drainage system stop the spill at the low point (or it's furthest extent) if possible

3. REPORT THE INCIDENT

- Report the event to the Site Supervisor
- Site Supervisor to evaluate area and make area safe if possible and assess if further assistance needed
- Site Supervisor to notify the environment and safety teams
- Environment team to notify Transgrid. Environment team to determine if any further reporting is required in accordance with Section 8 of the CEMP.
- HSE senior representative on site to call emergency services as required for large spills beyond the capacity of the work crew to contain or contains hazardous substances, call 000 and request Fire and Rescue HAZMAT

4. CLEAN UP THE SPILL

- Do not hose away spills into the drains or waterways
- If necessary, cover spills during rain events and divert upstream waters through use of a bund to avoid spread and further contamination
- Clean up all contaminated material, soils and water as soon as possible

5. DISPOSE OF CONTAMINATED MATERIALS

- Contaminated materials will be disposed of offsite at a facility authorised to accept the waste. This includes the absorbent material used for clean up

6. INVESTIGATION AND REPORTING

- Re-stock spill kits as soon as possible after the incident
- The Environment team will investigate and report the spill as required within Section 8 of the CEMP

Notes

- Ensure the safety of yourself and others whilst implementing this procedure
- Use appropriate personal protective equipment prior to making contact with any spilt material
- Responsible persons includes personnel involved in the cause of the event, witness to the event, Supervisors, Elecnor Health and Safety Team, construction personnel and emergency response personnel
- Major incidents should refer to Elecnor's *Emergency Preparedness and Response Plan* (458060-HSE-PL-G-1015)

Appendix D – Dewatering Procedure

PUBLIC

Dewatering Procedure
EnergyConnect (NSW – Eastern Section)
Stage 2

45860-HSE-PR-D-0029

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1 Introduction

This *Dewatering Procedure* (45860-HSE-PR-D-0018) is part of the *Soil and Water Management Plan* (SWMP) for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

1.1 Purpose

The purpose of this Dewatering Procedure is to describe how Elecnor Australia (Elecnor) propose to manage dewatering activities during construction of EnergyConnect (NSW – Eastern Section).

In particular, this procedure describes the process for the management of detained water that requires dewatering, including water within sediment basins and water captured in other construction areas such as trenches, excavations, boreholes and sumps.

2 Induction/training

All personnel taking part in construction activities shall be informed through site inductions, pre-start meetings, or toolbox talks of the receiving environment and sensitive areas on EnergyConnect (NSW – Eastern Section).

All staff involved in dewatering activities will undergo site induction and/or specific training relating to this Dewatering Procedure. This will include, but not be limited to:

- relevant legislation;
- the existence of this procedure;
- sediment basin management;
- dewatering and discharge/re-use requirements;
- Dewatering Permits.

3 Scope

This procedure is applicable for the following:

- dewatering activities conducted by site personnel (including sub-contractors) from sediment basins and other construction areas such as trenches, excavations, boreholes and sumps; and
- dewatering of wheel washes, vehicle washdown locations and bunded areas.

It is important to note that dewatering from sediment basins or other construction areas for the project is not to be confused with the dewatering requirements of the wastewater from the turkey's nests. The requirements relating to dewatering of the turkey's nests is outlined in the relevant *Accommodation Camp Management Plan*.

4 Sediment basins

Sediment basins are stormwater management devices to capture sediment laden runoff water. The need for a sediment basin is governed by the volume of soil loss that may occur rather than solely on the location and environmental setting of the project.

Sediment basins are not proposed in all construction areas of EnergyConnect (NSW – Eastern Section). Section 6.3.2 of the *Managing Urban Stormwater: Soils and Construction Volume 1 4th Edition* (Landcom, 2004) (also known as the Blue Book) states that sediment basins will generally only be required in areas where soil disturbance occurs over an area greater than 2,500m^2 per sub-catchment. However, and more accurately, the requirement for a sediment basin can be determined when there is an annual soil loss is greater than 150m^3/year calculated in accordance with the Blue Book. Where the calculated soil loss is less than 150m^3/year, other erosion and sediment control devices can be installed instead.

Key areas such as borrow pits, construction compound areas or the earthworks activities at the substations will be assessed to determine if a sediment basin is required. Generally, sediment basins will not be required along the transmission line alignment due to limited earthworks activities supplemented by the low potential for soil erosion due to the flat topography.

4.1 Sediment basin design

The EIS states that large proportions of clay and sand, or a mixture of the two, can be found within the soil profile of the project area. As a result, all sediment basins are likely to be Type F or Type D in their design. The sediment basins will be designed in accordance with the Blue Book and generally in accordance with the *Best Practice Erosion and Sediment Control* (IECA, 2008).

A peg or other marker will be installed for each sediment basin to clearly show the upper limit of the sediment storage zone.

A summary of how Type D sediment basins are generally designed and operated is outlined in Table 4.1 and an example cross-section diagram for the sediment basin is provided in Figure 4.1.

Table 4.1 - Sediment basin type (Source: IECA, 2008)

Parameter	Type D Sediment Basin
Sizing determined by	The ability to catch all runoff from a nominated rain event (5-day, 80th percentile rainfall event) (based on *Best Practice Erosion and Sediment Control* (IECA, 2008) *Appendix B - Sediment Basin Design and Operation Version 2* and rainfall data taken from the nearest BoM weather station or from Table 6.3a of the Blue Book). Note: design parameters to be refined in consultation with soil conservation specialist as required prior to finalising basin design.
Design features	Single chamber only.
Method of discharge	Passive overflow during rainfall when capacity is overwhelmed. Once treated, detained water is pumped or piped out.
Chemical treatment	Yes.
Flocculant delivery method	Flocculant typically applied by hand or via recirculation pumps where required. Refer to Figure 4.2 for an example of a recirculation pump.
Relative effectiveness	Only effective for the water detained in the basin (i.e. up to the design rainfall event/intensity). If rainfall events exceed the design criteria levels, basins will overflow and the water will not receive treatment.
Potential to detain water for construction use	Yes. Detained water available for onsite re-use.

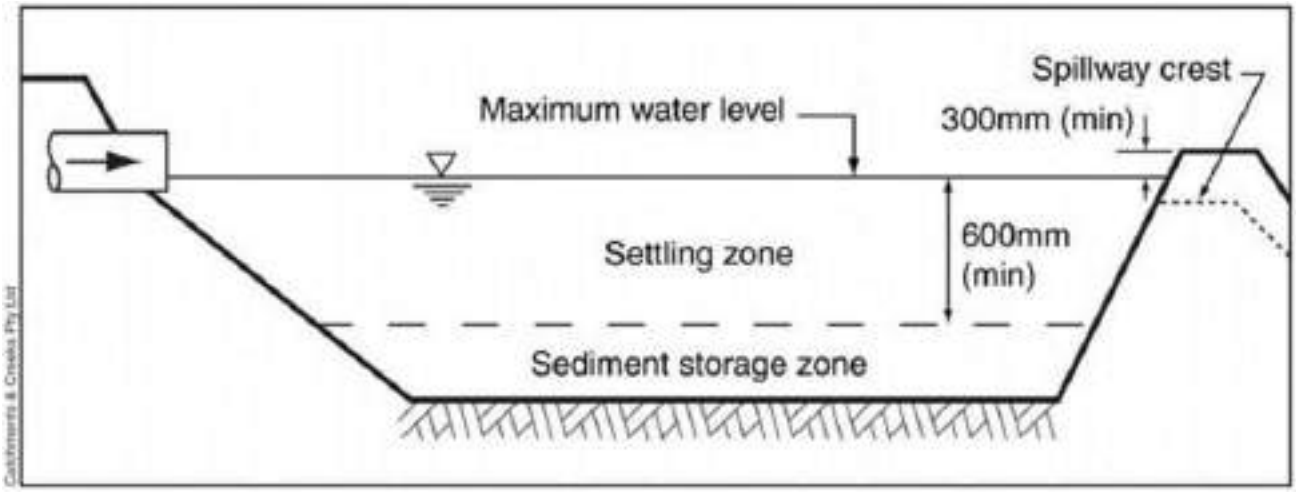


Figure 4.1 - Typical section through Type D sediment basin (Source: IECA, 2008)

4.2 Sediment basin dewatering

Sediment basins will not be dewatered without a *Dewatering Permit* (45860-HSE-FO-G-1006) in place. The *Dewatering Permit* is to be approved by a member of the Environment Team.

4.2.1 Summary of dewatering options

There are two ways that a sediment basin can be dewatered:

1. Reuse; or
2. Discharge.

Reuse

Reuse involves the beneficial reuse of the water. Reuse of water from a sediment basin typically occurs through use in dust suppression, to water/irrigate areas where revegetation is occurring, or for other construction purposes such as compaction.

If detained water is reused on-site, it does not need to meet the water quality criteria for suspended solids and pH (refer to Table 4.2).

Reuse will occur in accordance with Section 6.1 of this procedure.

Discharge

Discharge typically involves pumping or active release of water to reinstate basin capacity. The action usually results in a 'point source' discharge, however discharge may also occur through application through water cart or spraying. Discharge occurs when the water is not being reused.

Discharge of water from the sediment basin does not include the overflow of a basin. Overflow of a basin occurs when the design criteria (5-day, 80th percentile rainfall event) is exceeded.

Discharge will occur in accordance with Section 6.2 of this procedure.

4.2.2 Dewatering timing

Where not required for beneficial reuse, water detained within a sediment basin will be dewatered within five calendar days following the cessation of the rain event that results in basin inflows, so that the basin storage capacity is reinstated. If rain occurs again on-site during the five-day period, the five-day requirement resets.

A rainfall data site will be nominated for each sediment basin. The rainfall data site will either be the nearest BoM weather station or from a rainfall gauge.

Constructed sediment basins will also serve a secondary purpose to store water for beneficial reuse during the project. As the project is located in a region that can experience prolonged periods without significant rainfall, the need to reinstate the basin storage capacity five days after a rainfall event can be diminished.

The Environment Team will monitor the forthcoming weather forecasts and the captured water in the sediment basins, and an assessment will be made on whether dewatering is required based on upcoming forecast weather, local climate, topography and proximity/connection to sensitive environments. The assessment will include consultation with the Construction Team to determine the upcoming construction activities and the volume of water that may be required.

As such, captured water in the sediment basins may be retained for periods greater than five days to enable beneficial reuse of the water for construction activities and dust suppression purposes. Where water is retained for a period which is longer than five days, the basin will be managed to reinstate storage capacity prior to forecast rainfall that is likely to produce measurable basin inflows. This will include the flocculation and treatment of the basins during the five day period so that discharge can occur within five days, should it be required.

4.2.3 Sediment basin treatment

Prior to discharge detained water within the sediment basin will meet the water quality criteria within Table 4.2.

Where treatment is required to achieve the water quality criteria, water treatment will be appropriately timed to ensure dewatering is complete within the five calendar days of the cessation of the rainfall event. If additional rainfall is predicted within the five-day period that is likely to generate runoff that would adversely affect the treatment process, the commencement of treatment may not commence until after the cessation of the predicted rain.

Where captured water is reused, the water quality criteria for total suspended solids and pH do not apply. Reuse of water will occur in accordance with Section 6.1 of this procedure.

Table 4.2 - Water quality criteria for discharge of water from the sediment basin

Parameter	Units	Water quality criteria
pH	pH units	6.5 to 9.0[1]
Total suspended solids (TSS)[2]	mg/L	50
Oil and grease	Visible	Nil

[1]The upper limit of pH 9.0 is based on the discharge being located 300m away from a perennial watercourse and therefore in a location where the discharge will be to land or a vegetated area.

[2]A correlation analysis for suspended solids and turbidity may be carried out to compare Total Suspended Solids (TSS) values against Nephelometric Turbidity Units (NTU). Where a correlation is identified, the appropriate NTU value may be used to determine if the discharge criteria has been met.

4.2.3.1 Reducing turbidity

Clay is the main particle type found in the water within sediment basins. Clay particles are extremely small (less than 0.002 mm in size) and will not settle readily, even in still water (IECA, 2018).

Flocculation is a process where dispersed particles form larger-size clusters. Flocculation can occur through the use of a coagulant, flocculant or both. Coagulants achieve flocculation through charge neutralisation whereas flocculants physically bind clay and colloidal particles together.

Where the level of suspended solids or turbidity within the sediment basin does not meet the criteria within Table 4.2, and dewatering will occur through discharge, treatment will typically occur through the use of flocculants.

There are various ways that flocculants can be applied to a sediment basin. Figure 4.2 represents a suggested method of applying gypsum to a basin where spreading evenly by hand may be impractical. There can be instances where much higher rates of application of flocculants is required to achieve an acceptable level of suspended solids concentration. This can particularly be the case when the basin is in the initial stages of treatment (ie during the first two rain events).

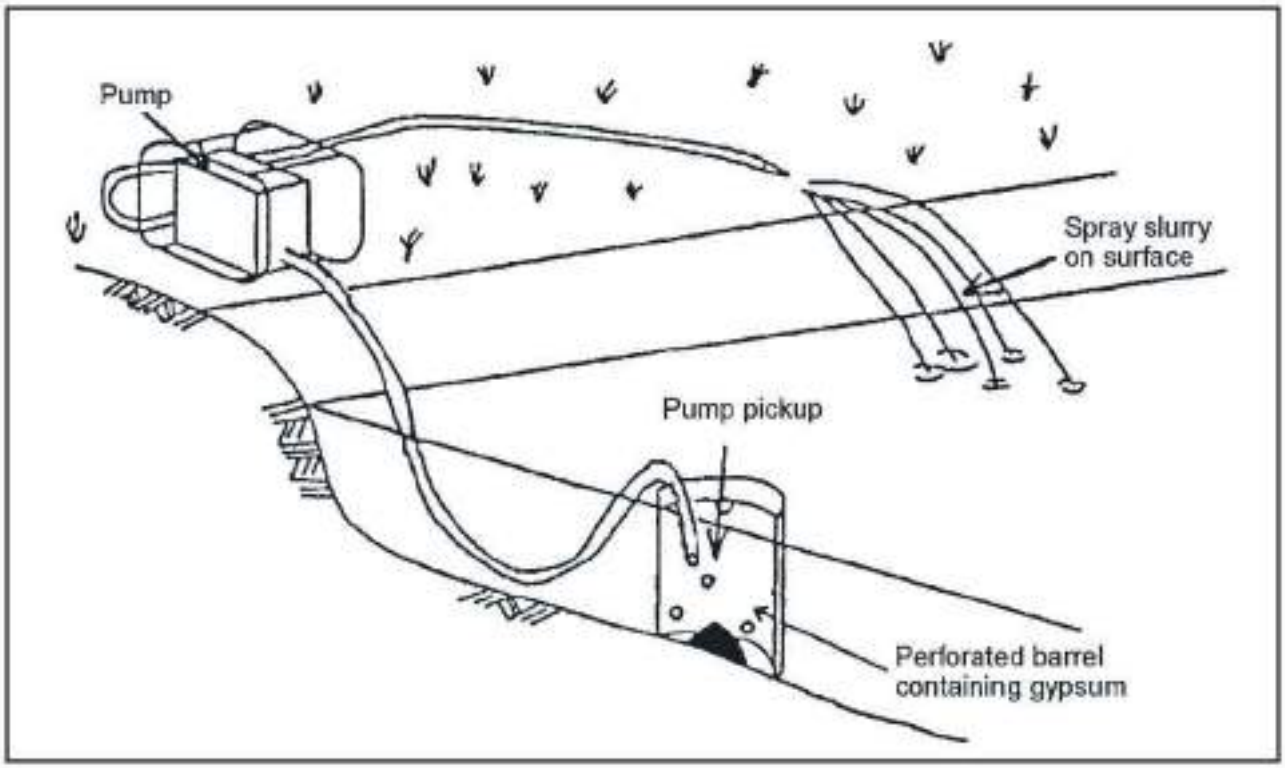


Figure 4.2 - Option for the application of gypsum to a sediment basin (Source: Blue Book, 2004)

4.2.3.2 Adjusting pH

There may be times when the pH value of detained water requires adjusting to meet the criteria detailed in Table 4.2.

To raise the pH of a basin, hydrated lime is typically applied. Application of the lime will consider the total volume of water which requires treating.

To lower pH, pool acid is typically applied. The safety requirements should be followed as outlined in the relevant safety data sheet.

Other treatments may be used in the adjustment of pH. Any alternative treatments will carefully consider the required application rates.

4.3 Sediment basin management

In summary, the following will be carried out to manage the sediment basins:

- rainfall records will be monitored through the use of the nearest BoM weather station or from a rainfall gauge;
- where a rain event has occurred and a basin requires dewatering, the dewatering options will be considered (Section 4.2.1);
- where dewatering of the sediment basin is proposed through discharge, the water quality criteria within Table 4.2 will be achieved prior to discharge. Flocculation of the sediment basin and/or adjustment of pH may be required to achieve the appropriate water quality criteria.

Where dewatering of the sediment basin is proposed through reuse, only the water quality criterion for oil and grease applies;

- a Dewatering Permit will be issued prior to dewatering a sediment basin;
- where basins are dewatered using pumps, the inlets will have a float or other suitable device attached to minimise the risk of drawing sediment from the bottom of the basin;
- all discharges from the sediment basin will be undertaken in a manner that minimises the potential for scour. This is preferably to stable areas with suitable vegetation cover;
- dewatering will generally occur within five calendar days following the cessation of a rain event that results in basin inflows. Retention for more than five days may occur where the water is required for construction purposes and a member of the Environment Team has assessed that dewatering is not required (Section 4.2.2);
- as required by condition C13, 'water take' will be recorded to ensure that it is available for the Independent Audit. There is no definition of 'water take' within the Infrastructure Approval, however it is understood that this would refer to the water used or required by the project. Any recording of 'water take' should therefore relate to the reuse of water from the sediment basin.

4.4 Sediment basin maintenance

In summary, the following will be carried out to maintain the sediment basins:

- after dewatering the sediment basin, a visual inspection will be made to determine if sediment has accumulated above the sediment storage zone;
- if sediment has accumulated above the sediment storage zone, desilting of the basin will be scheduled;
- sediment extracted from the sediment basin will be either:
  - stockpiled and will be managed in accordance with the stockpile requirements detailed within the Soil and Water Management Plan;
  - incorporated into earthworks where suitable; or
  - disposed in an appropriate manner.

4.5 Sediment basin overtopping event

If the amount of rainfall exceeds the design capacity, the basin will overflow.

As such, design of the sediment basin will include a spillway to direct the water during overtopping. Where observed, overtopping events will be recorded in the post rainfall inspections.

5 Other construction areas

Water can often collect within other areas of the project, particularly after a rain event. Groundwater can also collect within excavations, particularly boreholes.

Other construction areas include, for example, trenches, excavations, boreholes and sumps.

In line with the management of sediment basins, water from other construction areas can be dewatered through (1) reuse or (2) discharge.

Where detained water from other construction areas (including groundwater) is reused or discharged, this will be carried out in accordance with Section 6.

The Environmental Manager (or their delegate) may use their discretion to determine when a Dewatering Permit is required for water discharged from other construction areas. This discretion is typically based on risk. For example, water removed from boreholes may be directed to a small washout area without requiring a Dewatering Permit for each event.

6 Dewatering options

Figure 6.1 provides an overview of the dewatering process for the project.

Detail in relation to the reuse or discharge of water is provided below.

6.1 Reuse

Water is a valuable resource within western NSW and the project aims to reuse water where possible. During construction, the project may reuse or take water on-site from a range of sources such as sediment basins, trenches, piles, sumps and open excavations. Generally, water will be taken via a pump or standpipe arrangement into a water cart and transported to the intended usage site.

Water will be reused for various construction activities such as, but not limited to, dust suppression throughout the project corridor (including at transmission tower construction areas, onto and adjacent to access tracks, unsealed roads, and unsealed areas in construction compounds and accommodation camps), soil compaction, wheel wash, vehicle washdown areas and irrigation/watering of vegetation for site restoration/rehabilitation.

If detained water from a sediment basin or another construction area is reused on-site (i.e. within the footprint of disturbance) it must only meet the water quality criterion for oil and grease.

If detained water from a sediment basin or another construction area is reused off-site (i.e. outside the footprint of disturbance), the water quality criteria applies (refer to Section 4.2.3). The re-use of detained water to an off-site location is likely to be unusual in occurrence.

The following will be considered when reusing water for construction activities:

- water is not to be reused near food crops or used in a manner which may result in overspray onto food crops;
- the reuse area is clear of sensitive receiving environments such as waterways, farm dams, threatened flora and endangered ecological communities or areas of contamination.

In the event that water is required to be used within or in close proximity to sensitive areas, the Environmental Manager (or delegate) is to undertake a risk assessment prior to water reuse. The assessment will consider the following:

- no application of water to areas where there is potential to impact threatened flora and endangered ecological communities; and
- no application of water to areas outside the construction disturbance area, which has the potential to impact in-situ Aboriginal heritage features.

Although water generated on site is generally not to be used in close proximity to sensitive areas, there may be some instances where this is unavoidable. For example, the use of water may be required for construction activities (such as the compaction of soils) that are located in areas that are within close proximity to sensitive areas, such as in-situ heritage features.

Where the application of water is essential for construction activities, such as soil compaction within an area that contains or might contain Aboriginal heritage features (i.e. a PAD site, heritage site or heritage item), the management measures of the *Heritage Management Plan* (45860-HSE-PL-D-0113) are to be followed. Indirect impacts to heritage features adjacent to the construction activities should be considered by the Environmental Manager or their delegate (for example for a hearth located adjacent to the work area) with management measures to be applied as required.

As required by condition C13, 'water take' will be recorded to ensure that it is available for the Independent Audit. There is no definition of 'water take' within the Infrastructure Approval, however it is understood that this would refer to the water used or required by the project. Reuse

of water should therefore record or estimate the volume in a manner such that 'water take' is available for the Independent Audit.

6.2 Discharge

Discharge typically involves pumping or active release of water detained within a sediment basin or collected in other construction areas. The action usually results in a 'point source' discharge of detained water to a location on-site, however discharge may also occur through spray application.

Any discharge from sediment basins (to on or off-site areas) will be required to meet the water quality criteria detailed in Table 4.2 prior to discharge.

A *Dewatering Permit* will be in place prior to discharging a basin.

Discharge from other construction areas can occur without achieving the water quality criteria within Table 4.2, provided that the discharge does not result in pollution as defined under the *Protection of the Environment Operations Act 1997*. To assist in achieving this, any required controls as directed by the Environmental Team should be installed.

The Environmental Manager (or their delegate) may use their discretion to determine when a Dewatering Permit is required for water discharged from other construction areas. This discretion is typically based on risk (e.g. volumes, discharge location, or water source). For example water removed from boreholes may be directed to a small washout area without requiring a Dewatering Permit for each event.

Discharge locations will consider the following:

- discharge to occur to areas of existing vegetation or stabilised discharge points to assist with the management of runoff;
- no discharge of areas which may directly or indirectly impact sensitive receiving environments (heritage features, threatened flora, endangered ecological communities) or areas of contamination;
- the receiving area is 40m clear of sensitive receptors such as waterways and farm dams.

Prior to discharge, the factors that will be considered by the Environment Team in deciding whether to issue a Dewatering Permit include forecast weather conditions (no rainfall imminent), soil surface conditions (infiltration capacity), climatic factors (e.g., drought, prevailing winds direction and wind speed) and proximity to sensitive areas.

If erosion or scouring is observed during discharge, the pump will be shut off and the discharge point moved to an alternative location before recommencement of dewatering operations. Relevant details will be recorded on the Dewatering Permit.

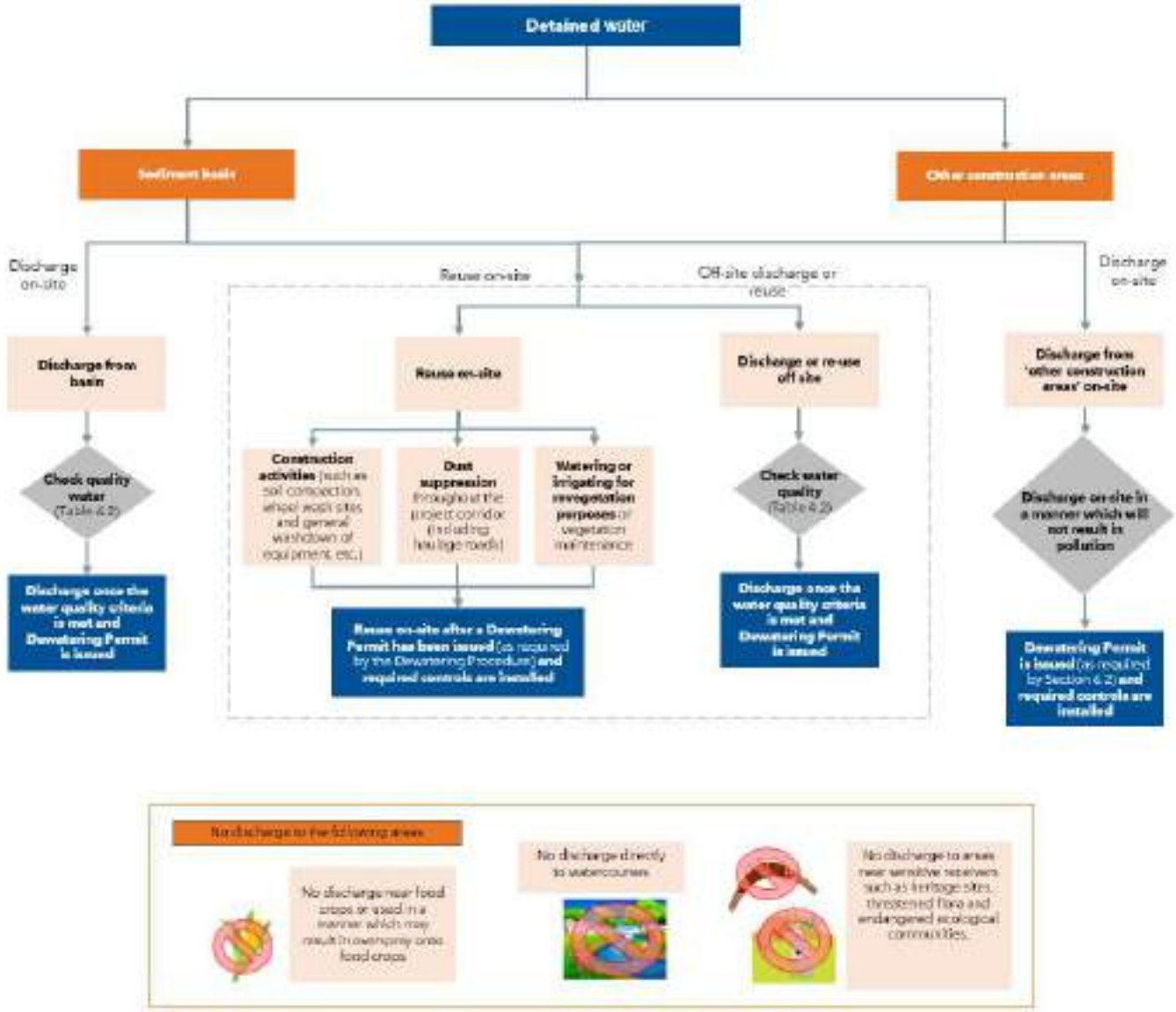


Figure 6.1 - Summary of the water reuse and discharge options

7 Other types of dewatering

7.1 Biosecurity wheel wash management

Wheel wash bays will be installed at designated locations to minimise the transmission of weeds or pathogens. As such, the water at the wheel wash bay will need to be managed so it does not impact the surrounding environment which it is meant to protect.

As water from these wheel washes may contain biocides, antifungals or other disinfectants, the management of water from wheel wash bays will be determined on a case-by-case basis. If the wastewater treatment plants (WWTPs) are capable of treating the contaminants present, the water from the wheel wash bays will be collected, transported and treated by the WWTPs for reuse on the project. This will be further discussed with the plant operator where required.

If the WWTPs is unable to treat the water from the wheel wash bays, the water which contain biocides, antifungals or other disinfectants will generally be drained to a containment sump that is lined with geofabric or other suitable material to avoid percolation. The water will be left to evaporate so that the residue is left behind. Prior to the decommissioning of the washdown bay and containment sump or as required, any residue material will be tested and removed offsite as waste in accordance with the *Waste Management Plan* (45860-HSE-PL-D-0121) for the project.

In the event the water from the washdown bay is at risk of overtopping within the containment sump, the project will dewater the sumps into intermediary bulk containers (IBCs). This water would then be removed offsite as waste in accordance with the *Waste Management Plan*.

7.2 Vehicle washdown in ancillary yards

Vehicle washdown bays will be set up along the construction corridor and/or at the construction compound. Wheel washdown bays proposed at the accommodation camps are detailed within the relevant *Accommodation Camp Management Plan*. These vehicle washdown bays are generally for vehicle and plant maintenance and cleaning, however, the cleaning process will also potentially remove weeds and pathogens that remain attached to the vehicles.

Washdown bays will be positioned to avoid any low points and stormwater drainage lines and will consider the direction of water runoff. Water from the washdown bays will be diverted to a designated sump which would capture silts, mud and soapy water. If de-silting is required at these washdown bays, the accumulated silts and sediments will be visually inspected for any contamination (including oil, grease, detergents, weeds and seeds), tested (as required for classification purposes) and disposed of in accordance with the *Waste Management Plan*. If the residue is deemed to be uncontaminated and suitable for reuse, it would be mixed into other dry material and reused on the project.

7.3 Chemical bunds and secondary containment

Chemical bunds that are used for secondary containment on the project may occasionally fill with rainwater. If the chemical bund has no visible signs of contamination the water will be collected and re-used or discharged in accordance with this procedure. If the bund has signs of oils/grease or hydrocarbons, the water will be collected and transported to a facility authorised to accept the liquid waste as per the *Waste Management Plan*.

8 Monitoring

8.1 Pre-rainfall

Sediment basins will be inspected as part of pre-rainfall inspection to determine if adequate design capacity is available for the upcoming predicted rainfall event and if water extraction from the sediment basin is required. The inspection to be undertaken on working days.

8.2 Post-rainfall

Sediment basins will be inspected as part of the post-rainfall inspections to determine if any maintenance is required. The inspections will occur within the next working day, if safe to do.

8.3 During dewatering

Prior to dewatering of sediment basins for discharge, the water quality will be checked as stipulated in Section 4.2.3. The Supervisor (or delegate) undertaking the dewatering activity will conduct a visual inspection to ensure that water removed from the basin does not include any silts or sediment from the bottom of the basin.

9 Record keeping

As required by Section 6, dewatering activities will be recorded in the *Dewatering Permit* (45860-HSE-FO-G-1006).

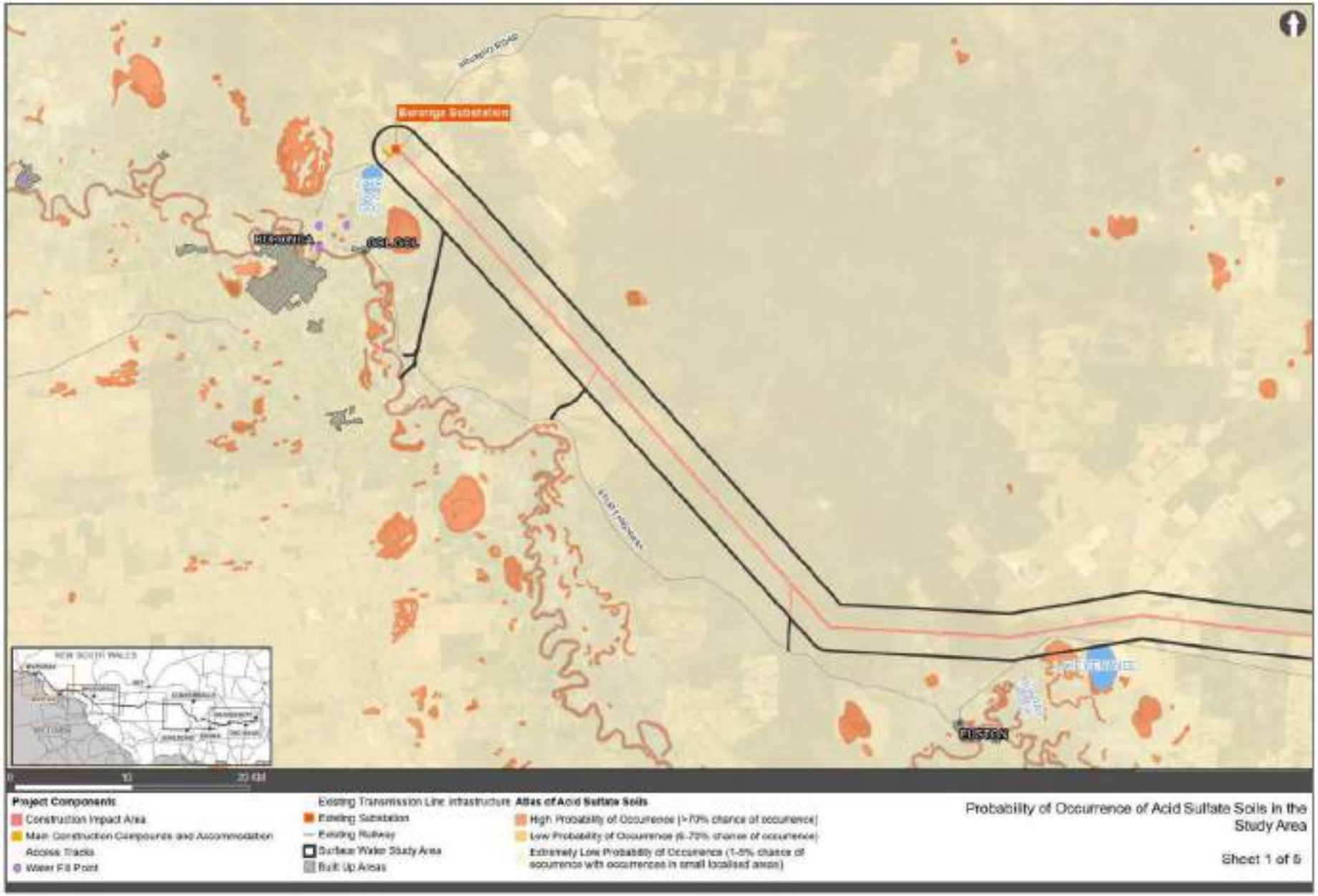
The Dewatering Permit will include the following information:

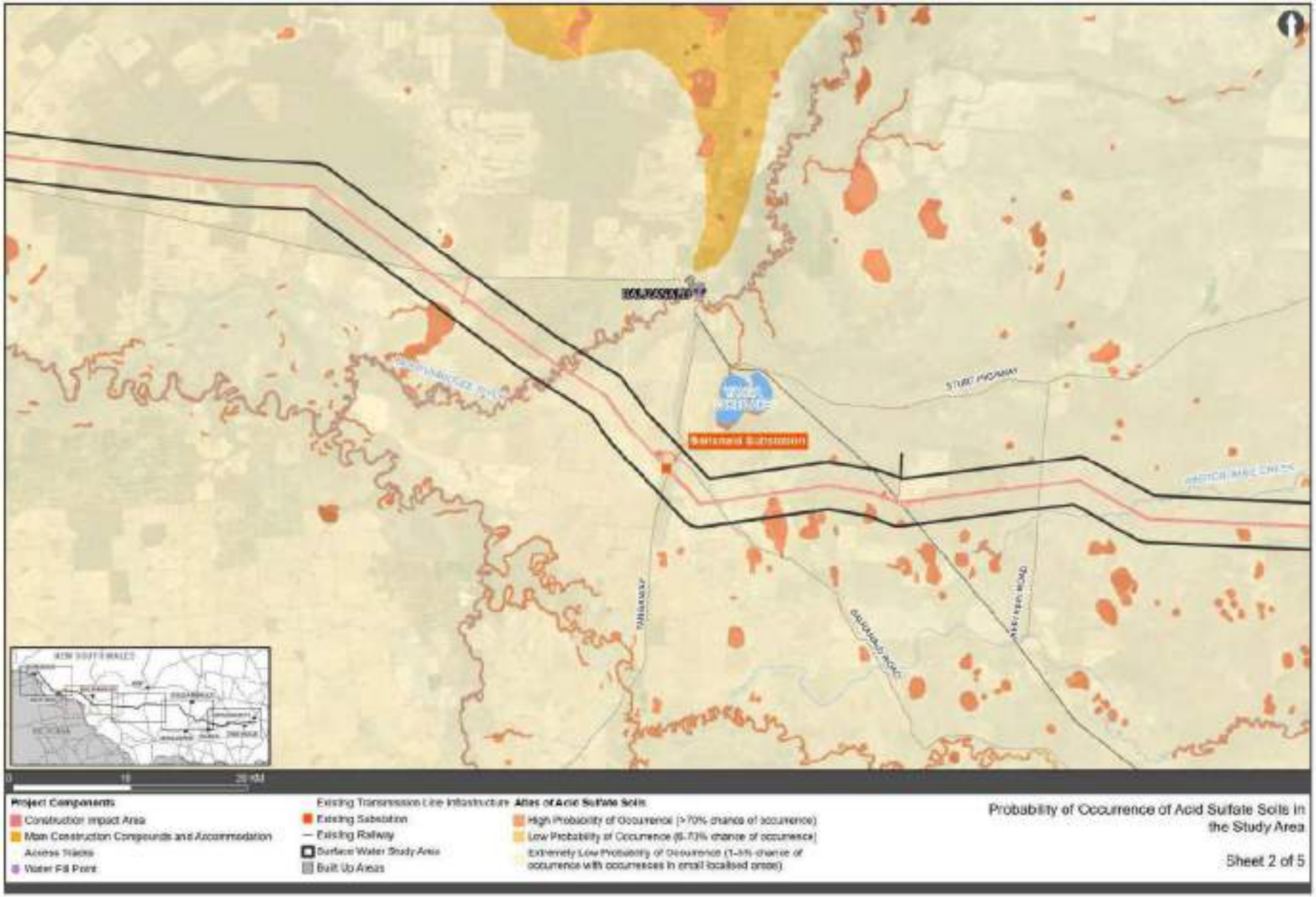
- a summary information section which includes the permit ID number, date and location of proposed discharge;
- the water quality values including the sampling time, date and the name of the person who obtained the sample; and
- quantities of additives, if required, including type of additive, time and date added.

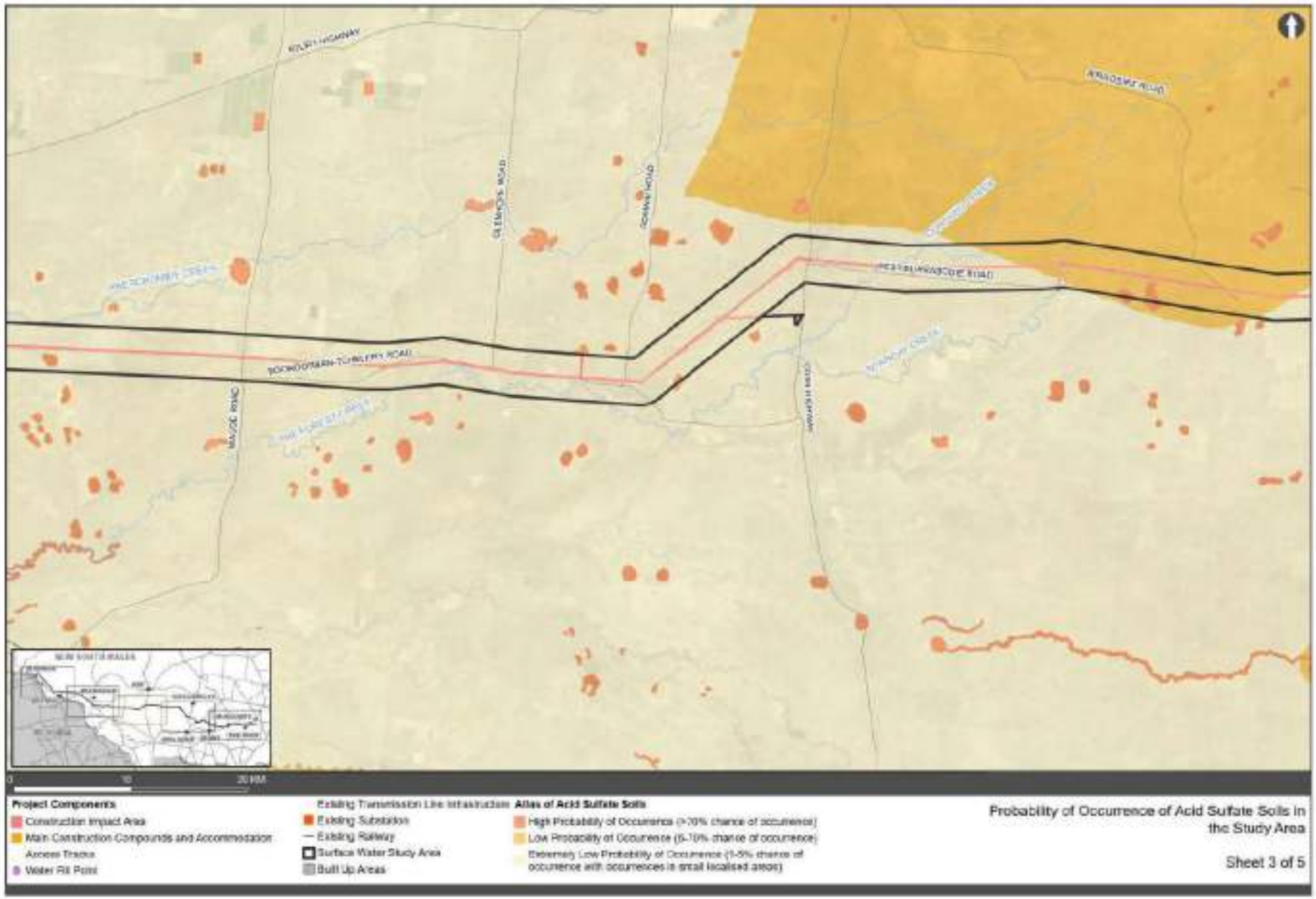
As required by condition C13, 'water take' will be recorded to ensure that it is available for the Independent Audit. Reuse of water should therefore record or estimate the volume in a manner such that 'water take' is available for the Independent Audit.

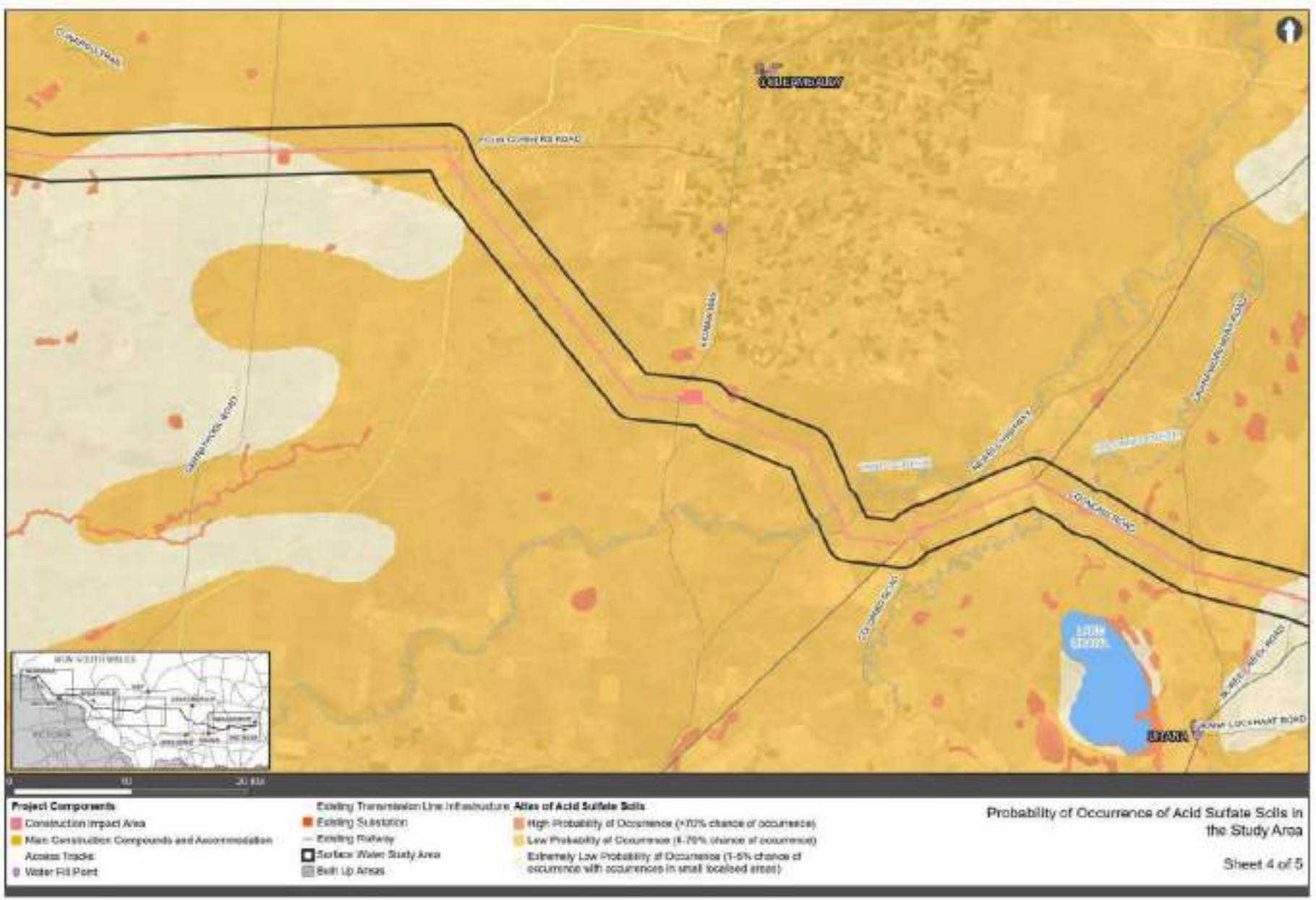
Residue waste from washdown bays and biosecurity washdowns would be reported and tracked in accordance with the project *Waste Management Plan*.

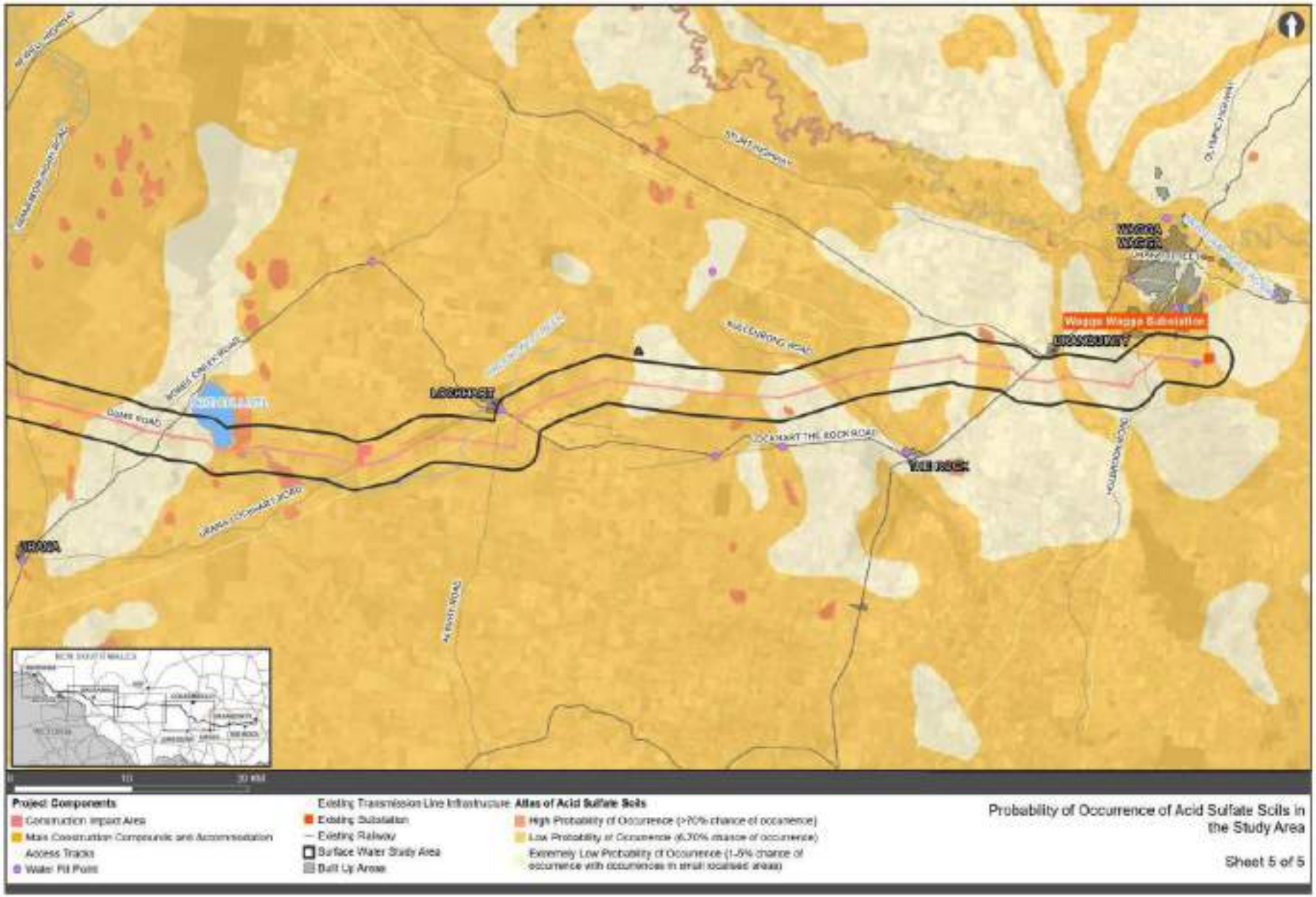
Appendix E1 – Acid sulfate soil risk mapping


Project Components
Construction Impact Area
Main Construction Compounds and Accommodation
Access Tracks
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Surface Water Study Area
Built Up Areas
Atlas of Acid Sulfate Soils
High Probability of Occurrence (>70% chance of occurrence)
Low Probability of Occurrence (6-70% chance of occurrence)
Extremely Low Probability of Occurrence (1-5% chance of occurrence with occurrences in small localised areas)
Probability of Occurrence of Acid Sulfate Soils in the Study Area
Sheet 1 of 6

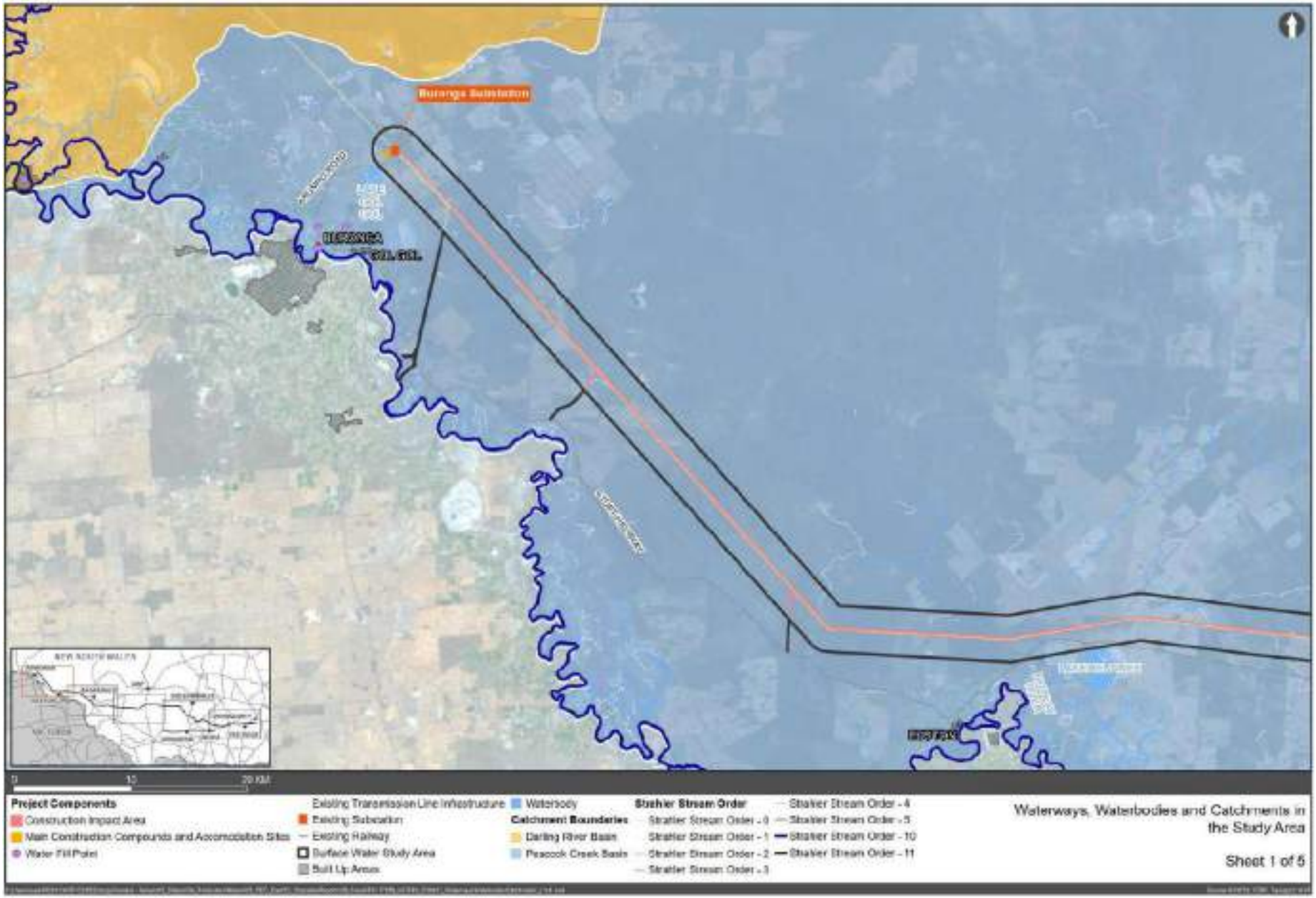

Project Components
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Surface Water Study Area
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Low Probability of Occurrence (5-70% chance of occurrence)
Extremely Low Probability of Occurrence (1-5% chance of occurrence with occurrences in small localised areas)
Probability of Occurrence of Acid Sulfate Soils in the Study Area
Sheet 2 of 5

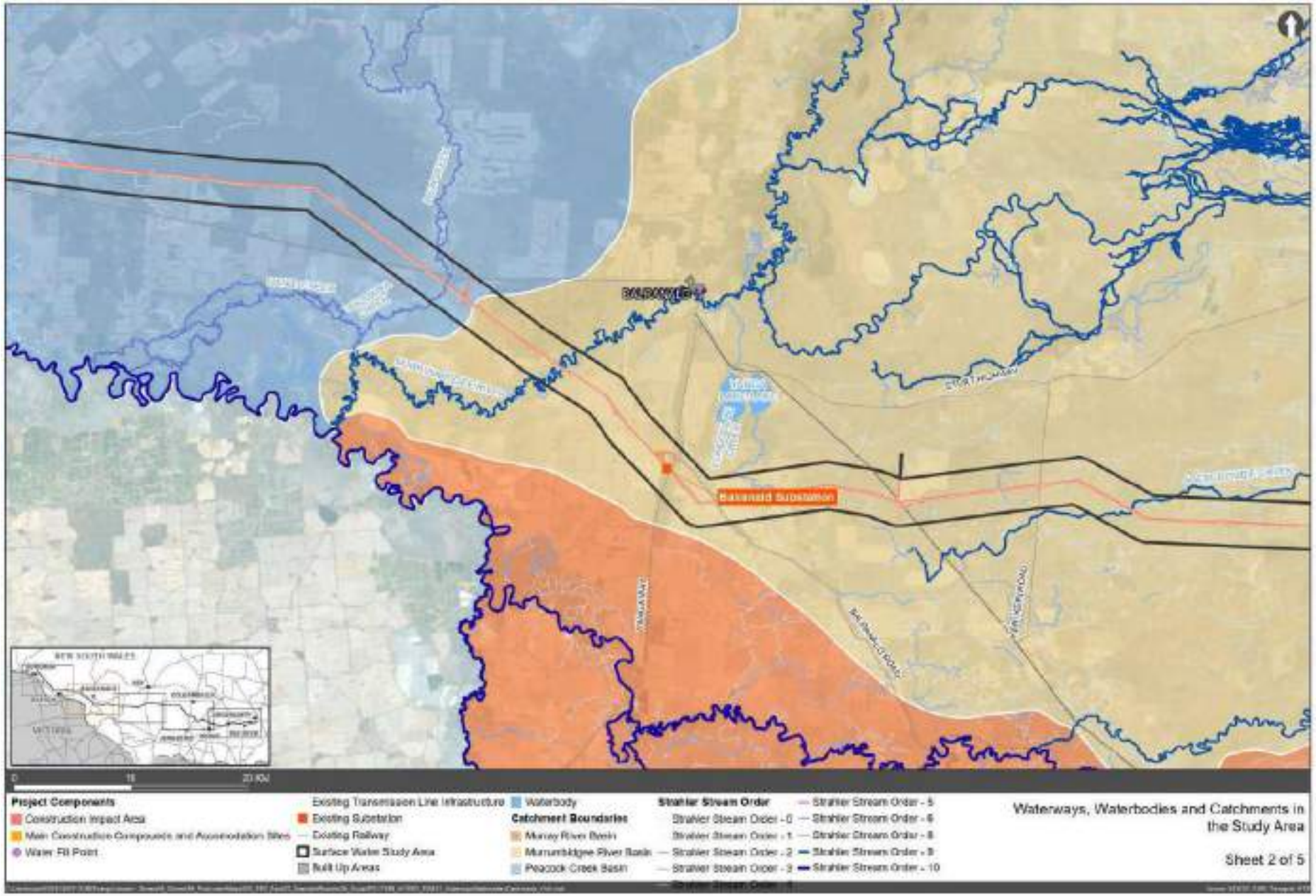

Project Components
Construction Impact Area
Main Construction Compounds and Accommodation
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Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
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Extremely Low Probability of Occurrence (<5% chance of occurrence with occurrences in small localised areas)
Probability of Occurrence of Acid Sulfate Soils in the Study Area
Sheet 3 of 5

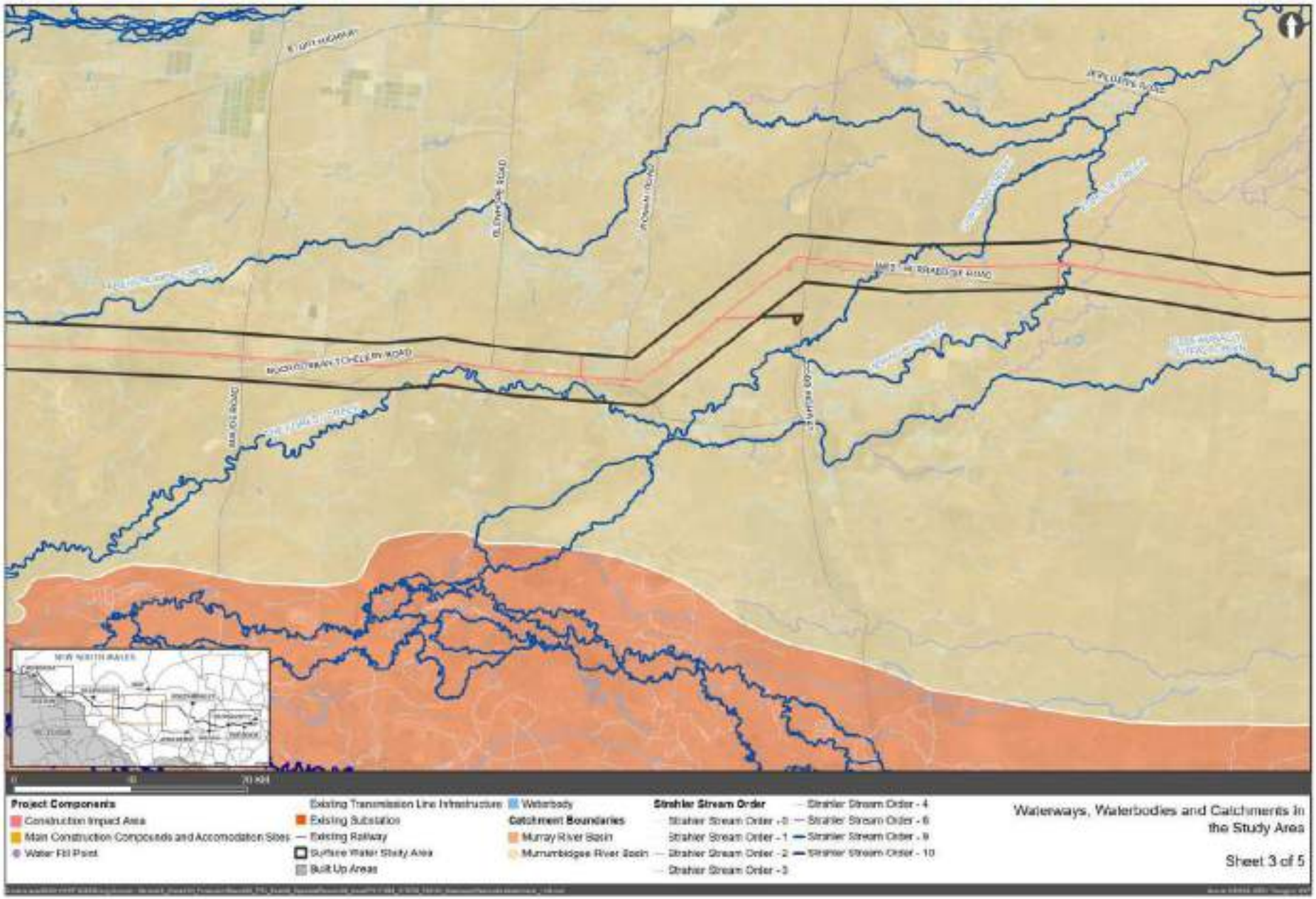

Project Components
Construction Impact Area
Main Construction Compounds and Accommodation
Access Tracks
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Surface Water Study Area
Built Up Areas
Atlas of Acid Sulfate Soils
High Probability of Occurrence (>70% chance of occurrence)
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Extremely Low Probability of Occurrence (1-5% chance of occurrence with occurrences in small localised areas)
Probability of Occurrence of Acid Sulfate Soils in the Study Area
Sheet 4 of 5

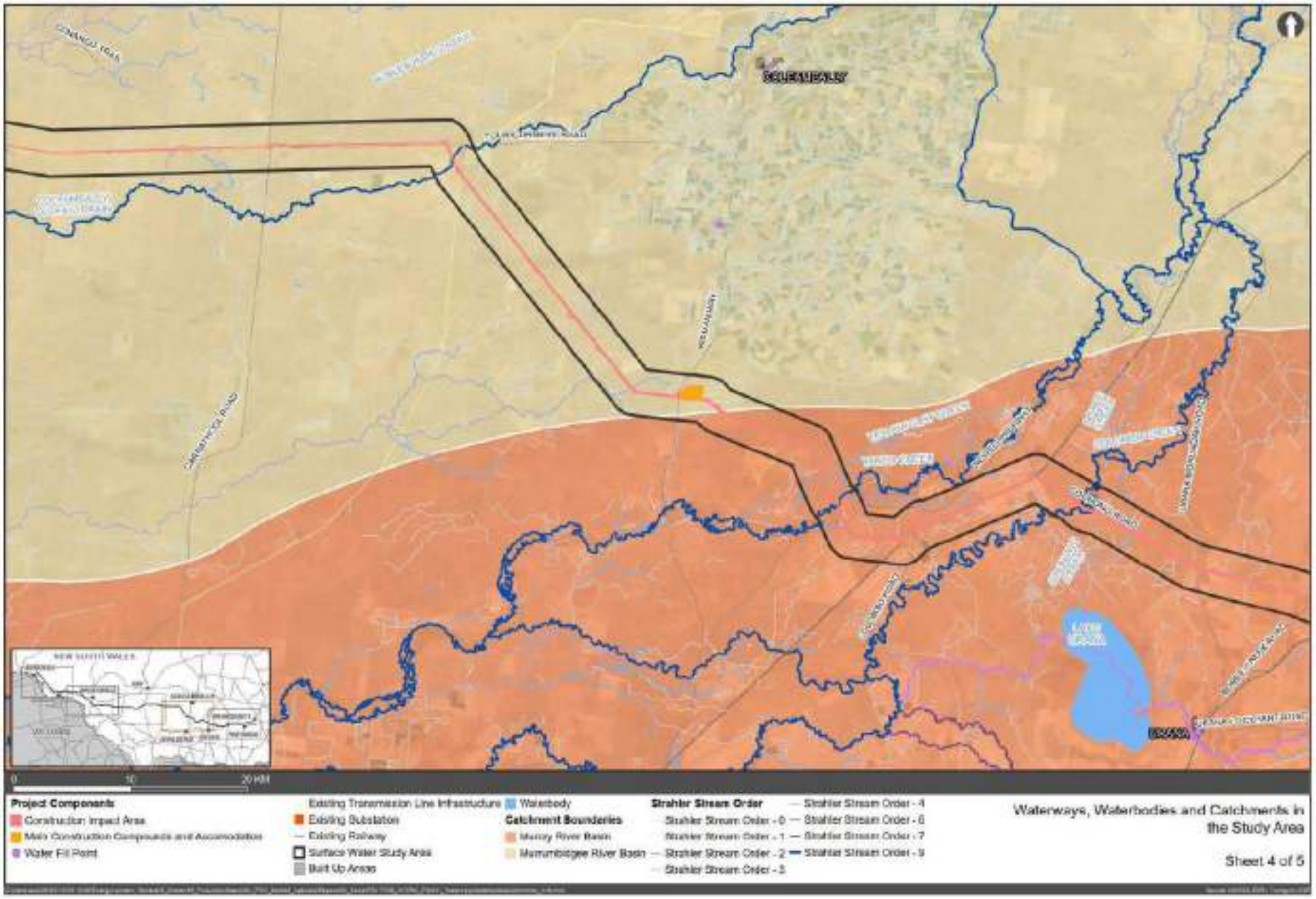

Wagga Wagga Substation
LOCKHART
THE ROCK
URANA
Project Components
Construction Impact Area
Main Construction Compounds and Accommodation
Access Tracks
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Surface Water Study Area
Built Up Areas
Atlas of Acid Sulfate Soils
High Probability of Occurrence (>70% chance of occurrence)
Low Probability of Occurrence (6.70% chance of occurrence)
Extremely Low Probability of Occurrence (1-5% chance of occurrence with occurrences in small isolated areas)
Probability of Occurrence of Acid Sulfate Soils in the Study Area
Sheet 5 of 5

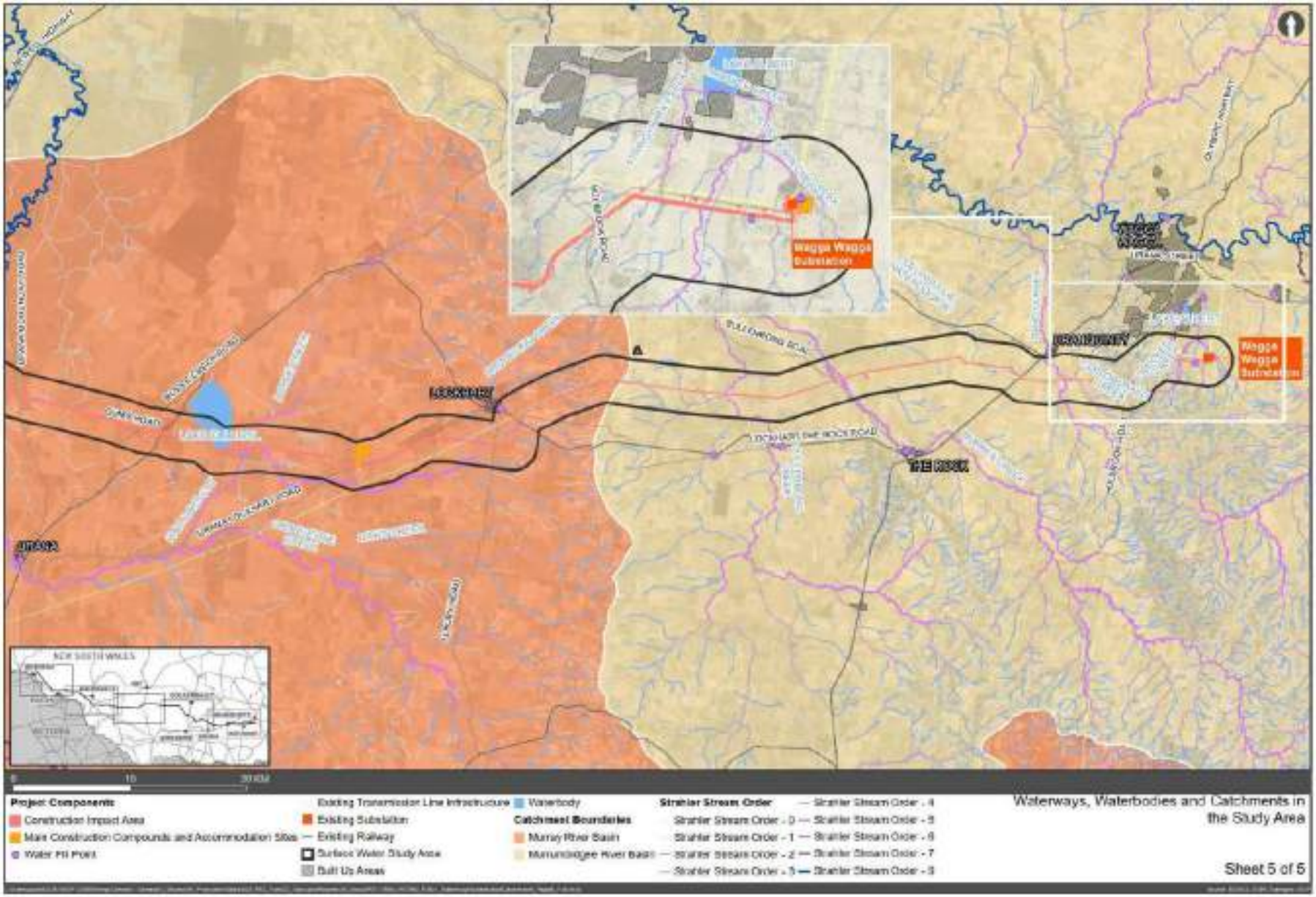
Appendix E2 – Waterbodies, waterways and catchments


Project Components
Construction Impact Area
Main Construction Compounds and Accomodation Sites
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Surface Water Study Area
Built Up Areas
Waterbody
Catchment Boundaries
Darling River Basin
Peacock Creek Basin
Strahler Stream Order
Strahler Stream Order - 0
Strahler Stream Order - 1
Strahler Stream Order - 2
Strahler Stream Order - 3
Strahler Stream Order - 4
Strahler Stream Order - 5
Strahler Stream Order - 10
Strahler Stream Order - 11
Waterways, Waterbodies and Catchments in the Study Area
Sheet 1 of 5

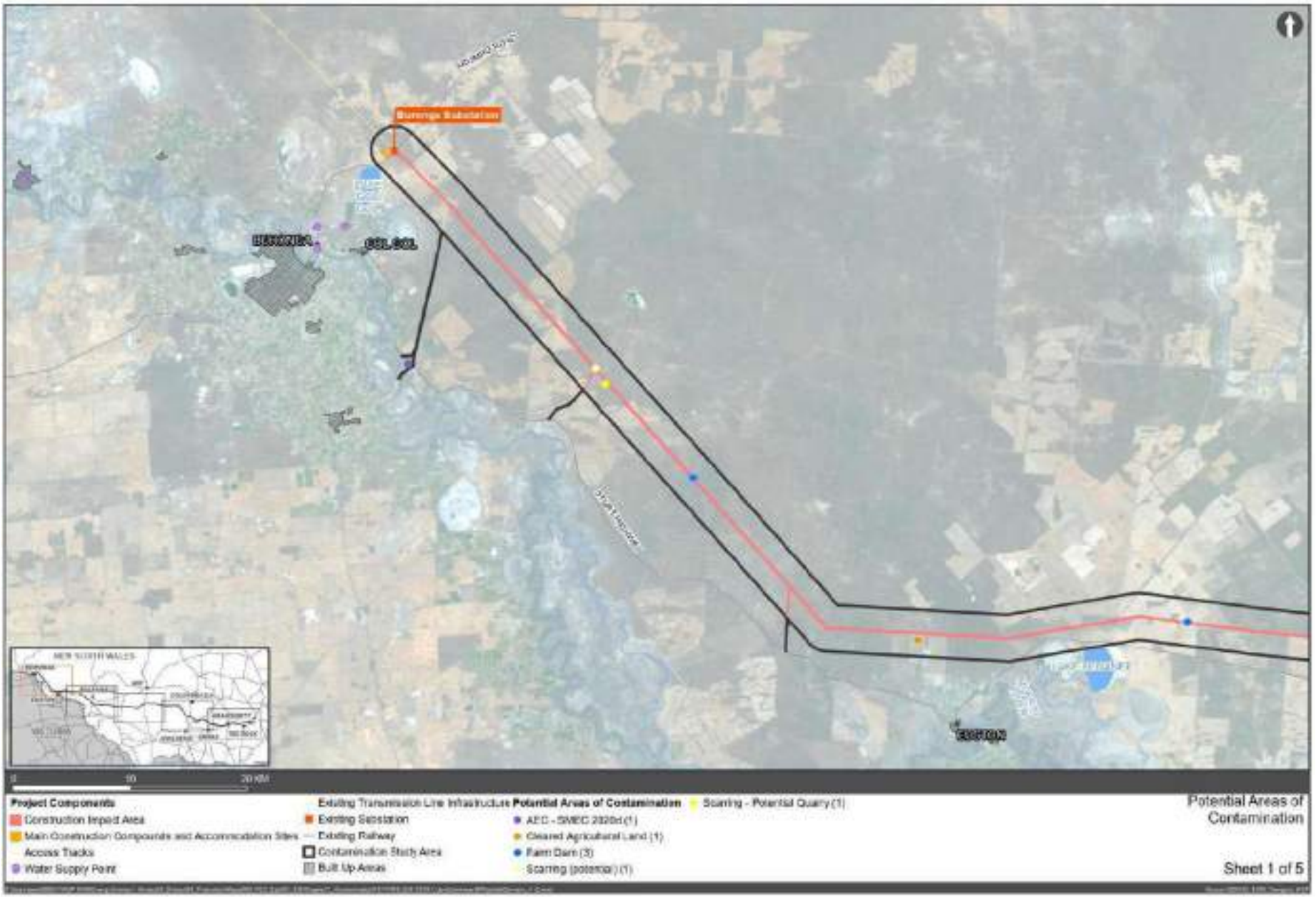

Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Surface Water Study Area
Built Up Areas
Waterbody
Catchment Boundaries
Murray River Basin
Murrumbidgee River Basin
Peacock Creek Basin
Strahler Stream Order
Strahler Stream Order - 0
Strahler Stream Order - 1
Strahler Stream Order - 2
Strahler Stream Order - 3
Strahler Stream Order - 5
Strahler Stream Order - 6
Strahler Stream Order - 8
Strahler Stream Order - 9
Strahler Stream Order - 10
Waterways, Waterbodies and Catchments in the Study Area
Sheet 2 of 5

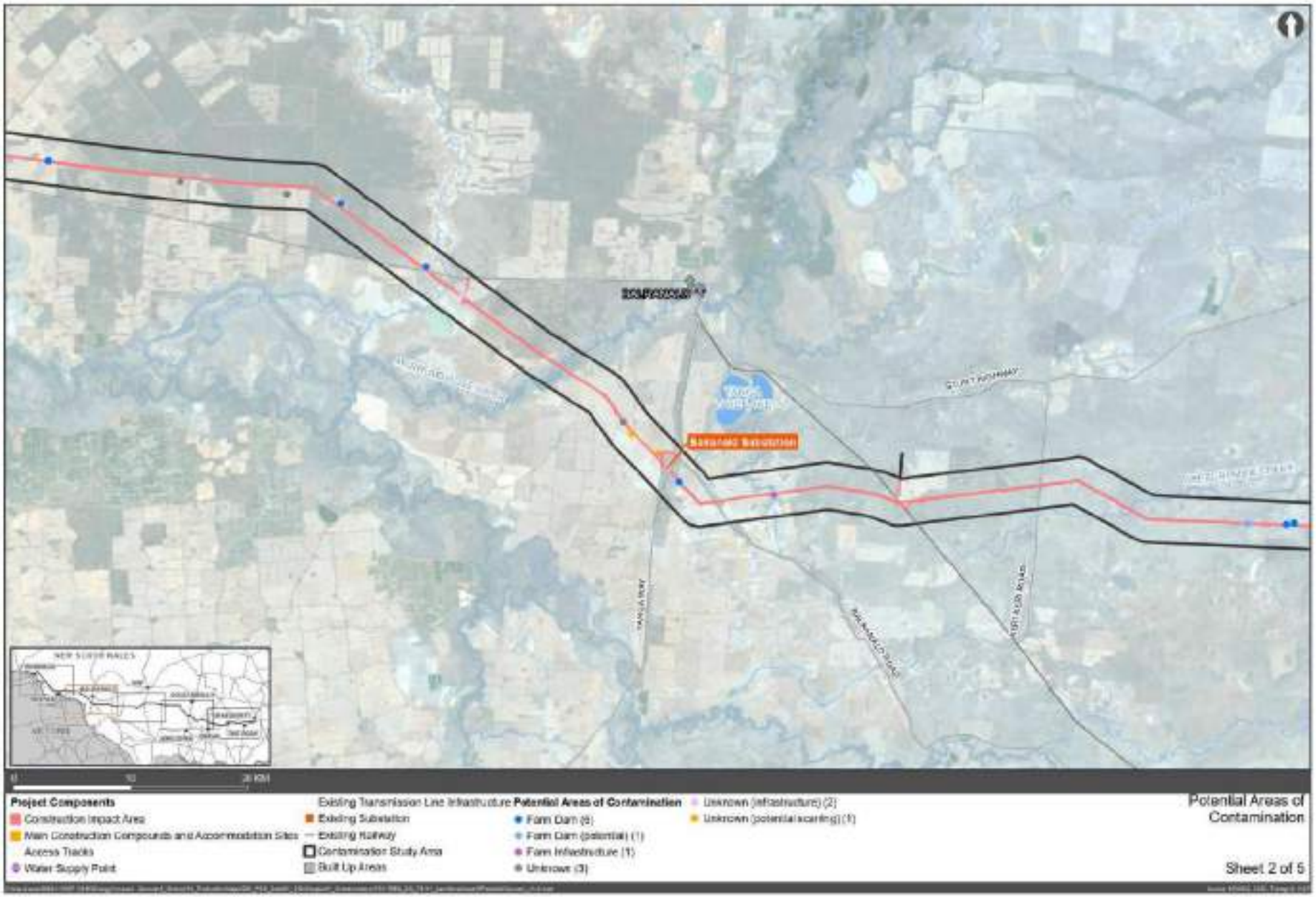

Project Components
Construction Impact Area
Main Construction Compounds and Accomodation Sites
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Surface Water Study Area
Built Up Areas
Waterbody
Catchment Boundaries
Murray River Basin
Murrumbidgee River Basin
Strahler Stream Order
Strahler Stream Order - 0
Strahler Stream Order - 1
Strahler Stream Order - 2
Strahler Stream Order - 3
Strahler Stream Order - 4
Strahler Stream Order - 6
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Strahler Stream Order - 10
Waterways, Waterbodies and Catchments in the Study Area
Sheet 3 of 5

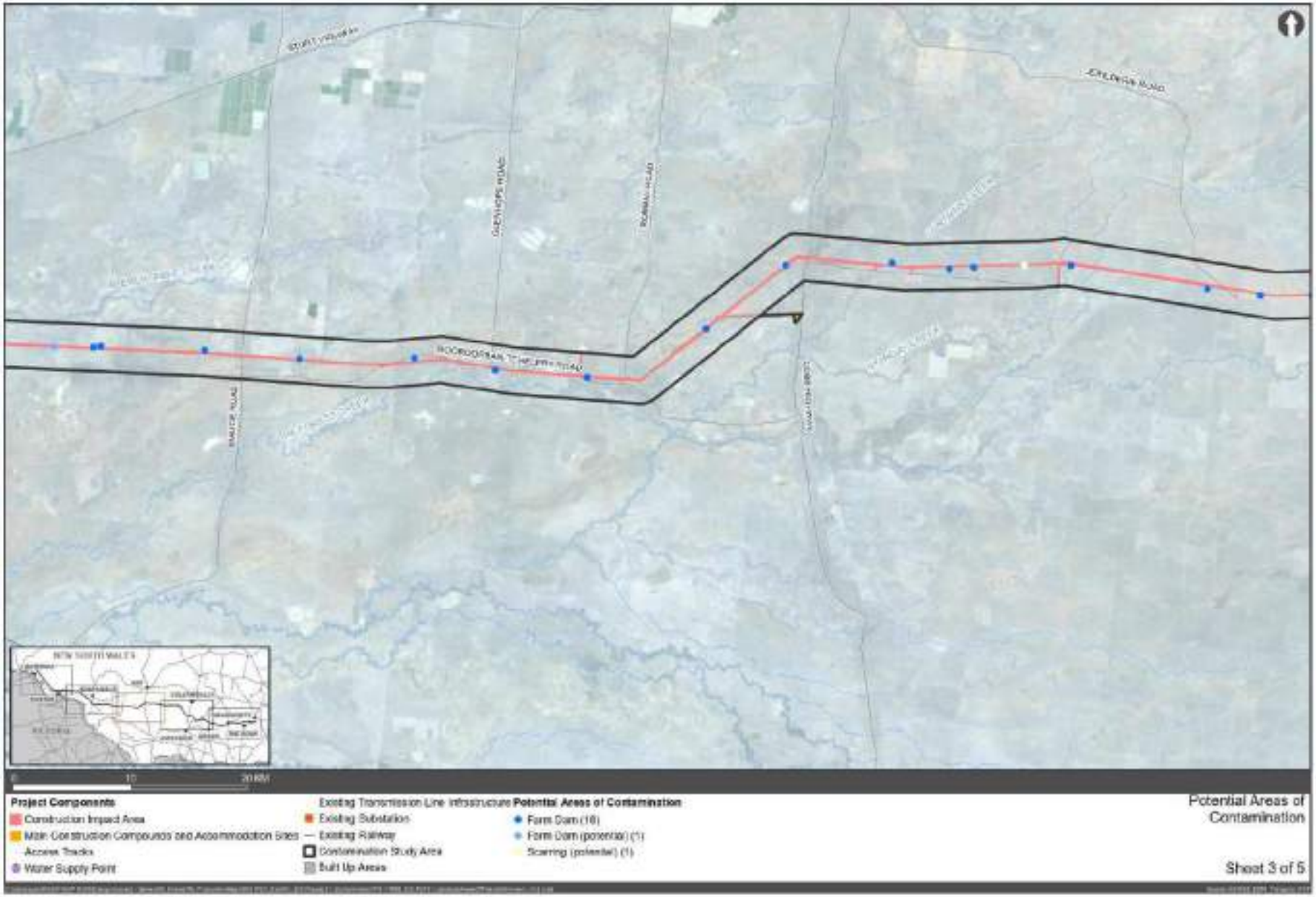

0
10
20 KM
Project Components
Construction Impact Area
Main Construction Compounds and Accomodation
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Surface Water Study Area
Built Up Areas
Waterbody
Catchment Boundaries
Murray River Basin
Murrumbidgee River Basin
Strahler Stream Order
Strahler Stream Order - 0
Strahler Stream Order - 1
Strahler Stream Order - 2
Strahler Stream Order - 3
Strahler Stream Order - 4
Strahler Stream Order - 6
Strahler Stream Order - 7
Strahler Stream Order - 9
Waterways, Waterbodies and Catchments in the Study Area
Sheet 4 of 5

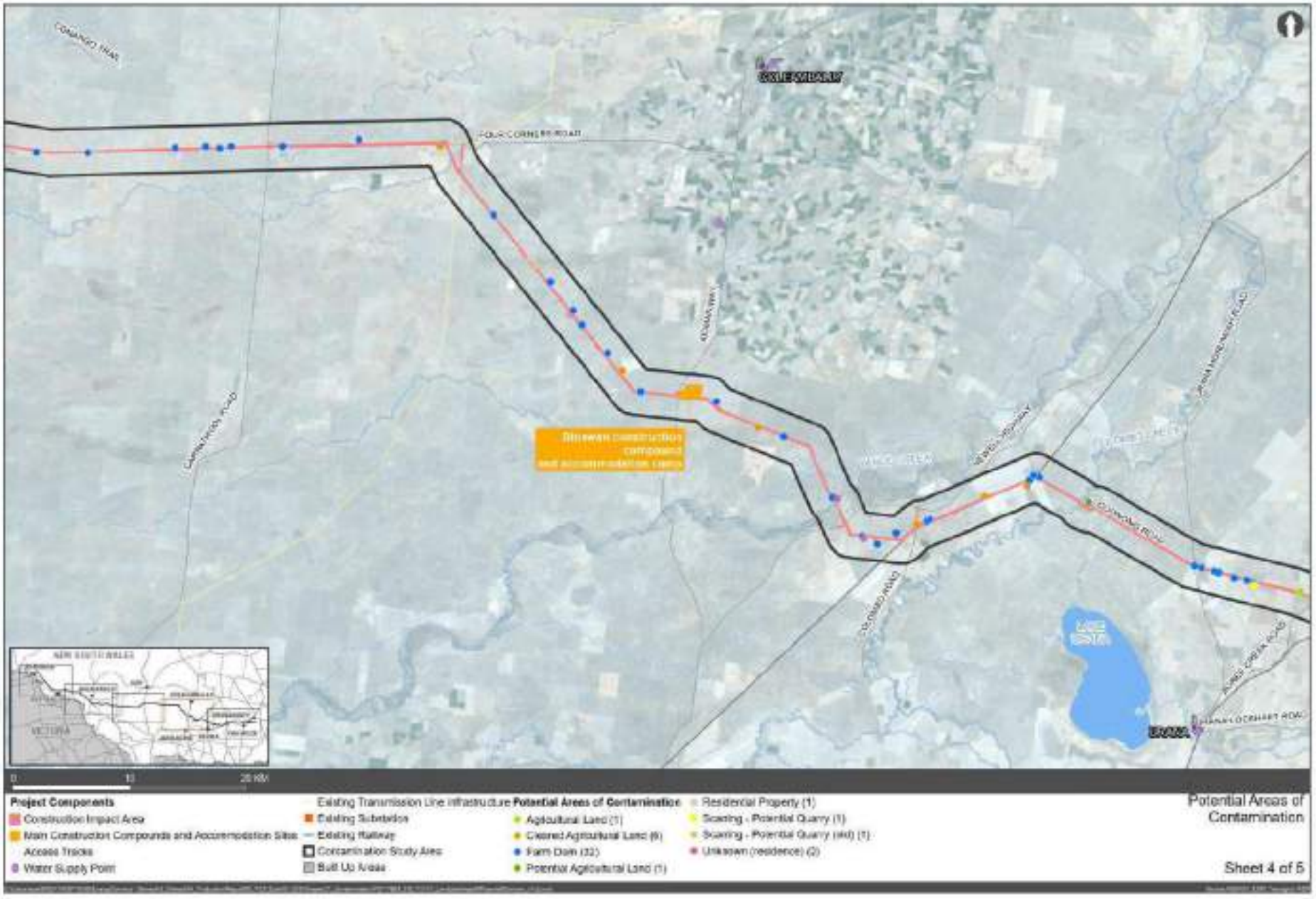

Wagga Wagga Substation
Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Surface Water Study Area
Built Up Areas
Waterbody
Catchment Boundaries
Murray River Basin
Murrumbidgee River Basin
Strahler Stream Order
Waterways, Waterbodies and Catchments in the Study Area
Sheet 5 of 5

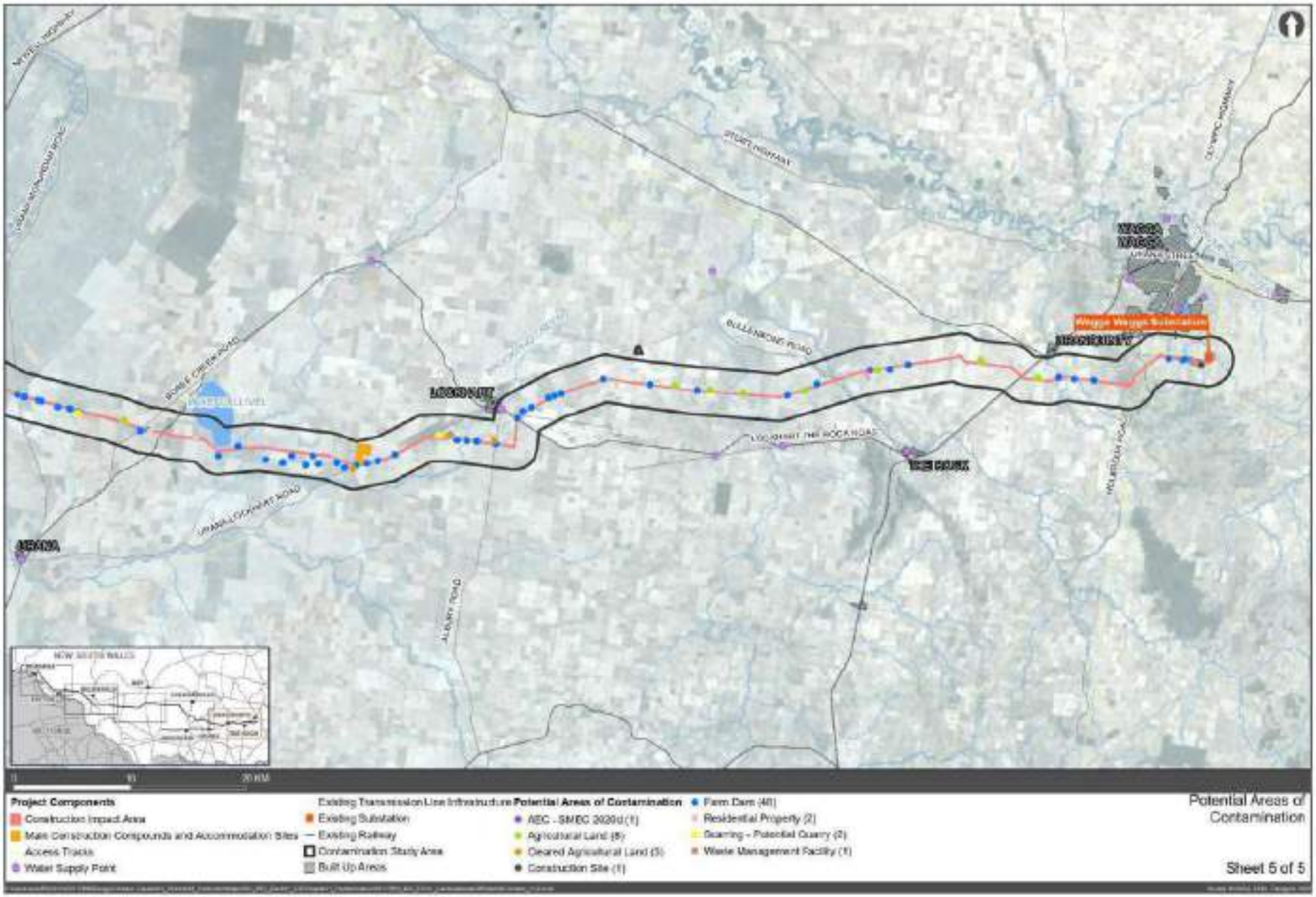
Appendix E3 – Potential Areas of Contamination


Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Access Tracks
Water Supply Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contamination Study Area
Built Up Areas
Potential Areas of Contamination
AEC - SMEC 2020d (1)
Cleared Agricultural Land (1)
Farm Dam (3)
Scarring (potential) (1)
Scarring - Potential Quarry (1)
Potential Areas of Contamination
Sheet 1 of 5

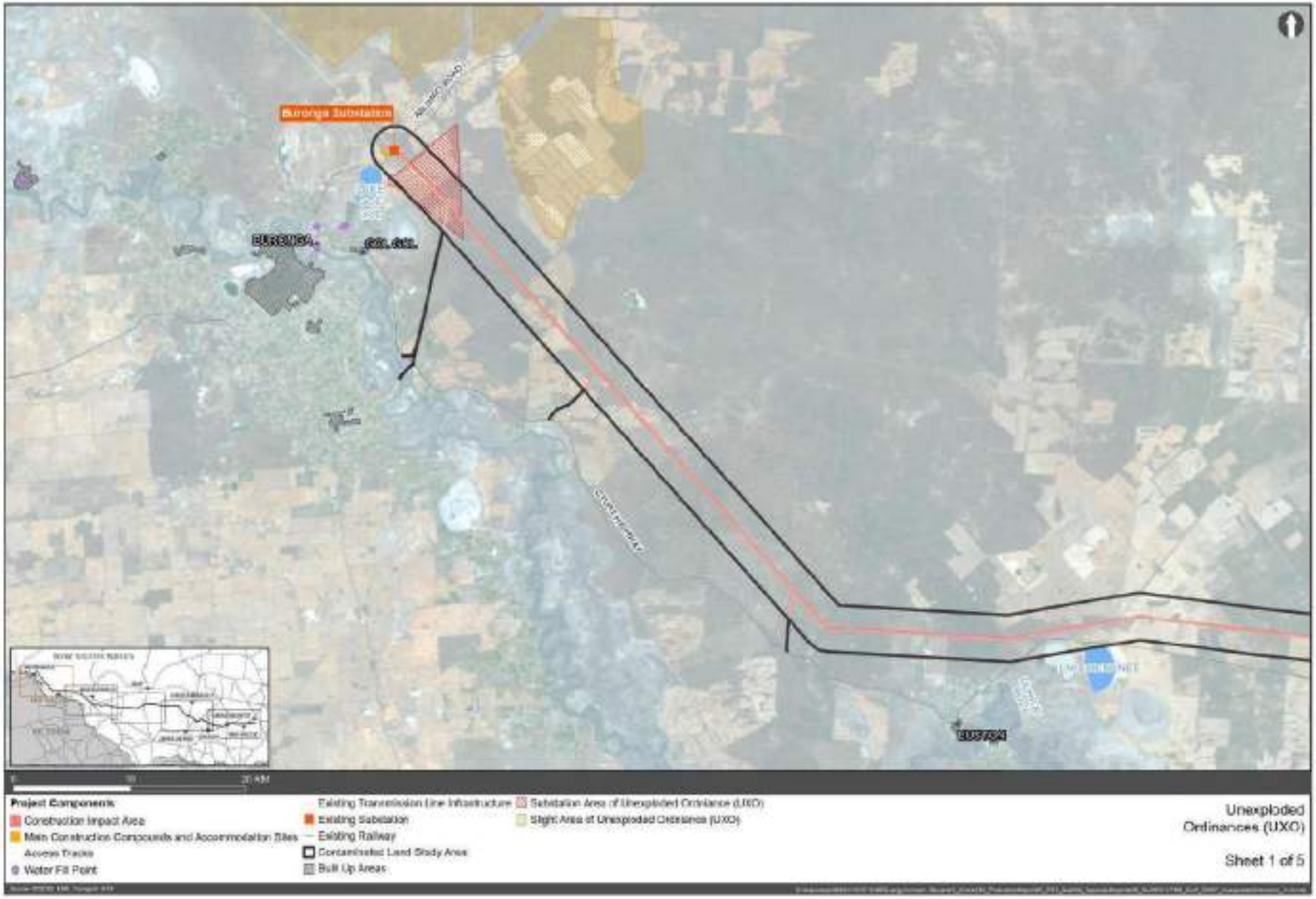

Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Access Tracks
Water Supply Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contamination Study Area
Built Up Areas
Potential Areas of Contamination
Farm Dam (6)
Farm Dam (potential) (1)
Farm Infrastructure (1)
Unknown (3)
Unknown (infrastructure) (2)
Unknown (potential scarring) (1)
Potential Areas of Contamination
Sheet 2 of 5

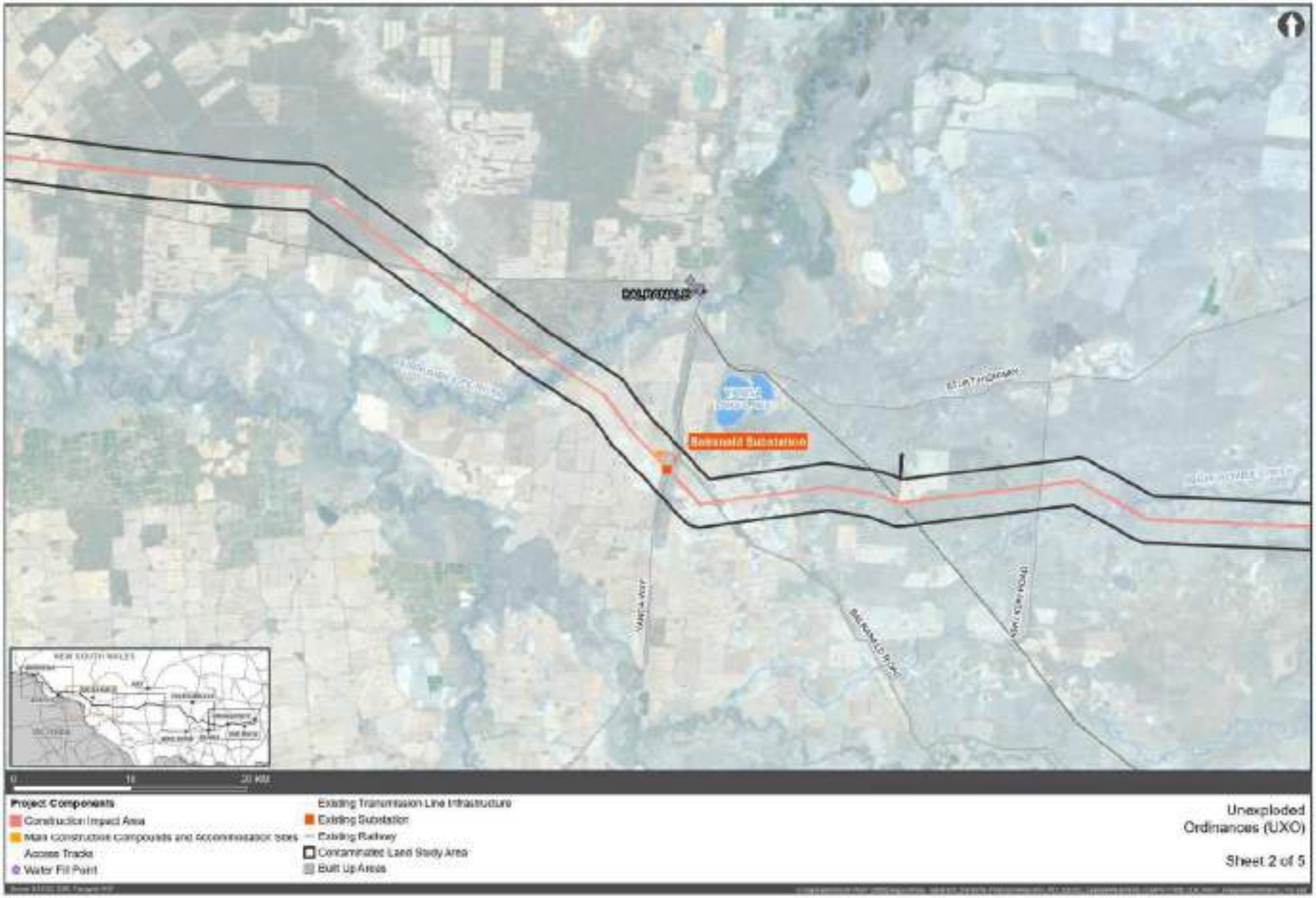

Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Access Tracks
Water Supply Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contamination Study Area
Built Up Areas
Potential Areas of Contamination
Farm Dam (18)
Farm Dam (potential) (1)
Scarring (potential) (1)
Potential Areas of Contamination
Sheet 3 of 5

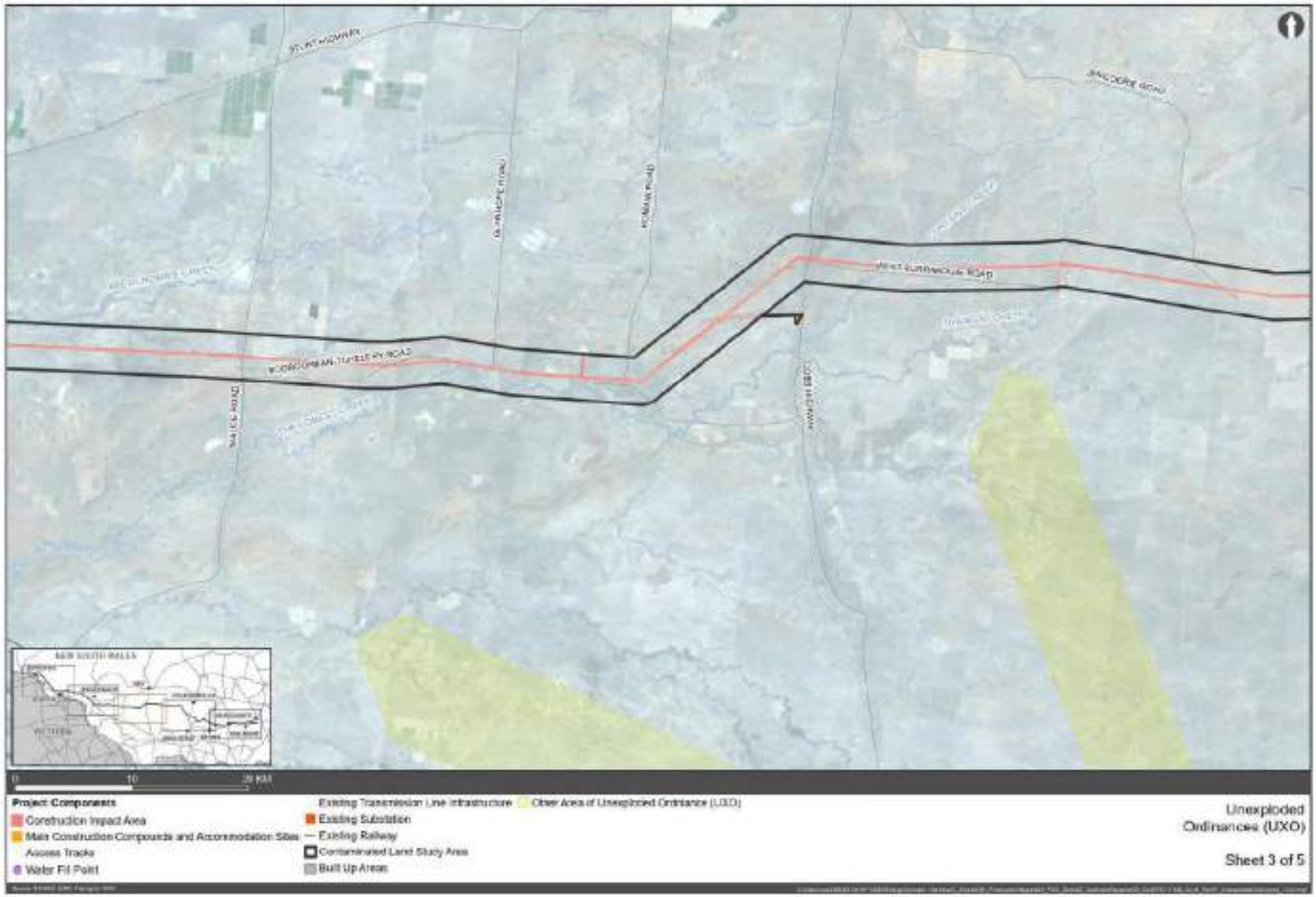

Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Access Tracks
Water Supply Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contamination Study Area
Built Up Areas
Potential Areas of Contamination
Agricultural Land (1)
Cleared Agricultural Land (6)
Farm Dam (32)
Potential Agricultural Land (1)
Residential Property (1)
Scarring - Potential Quarry (1)
Scarring - Potential Quarry (old) (1)
Unknown (residence) (2)
Potential Areas of Contamination
Sheet 4 of 5

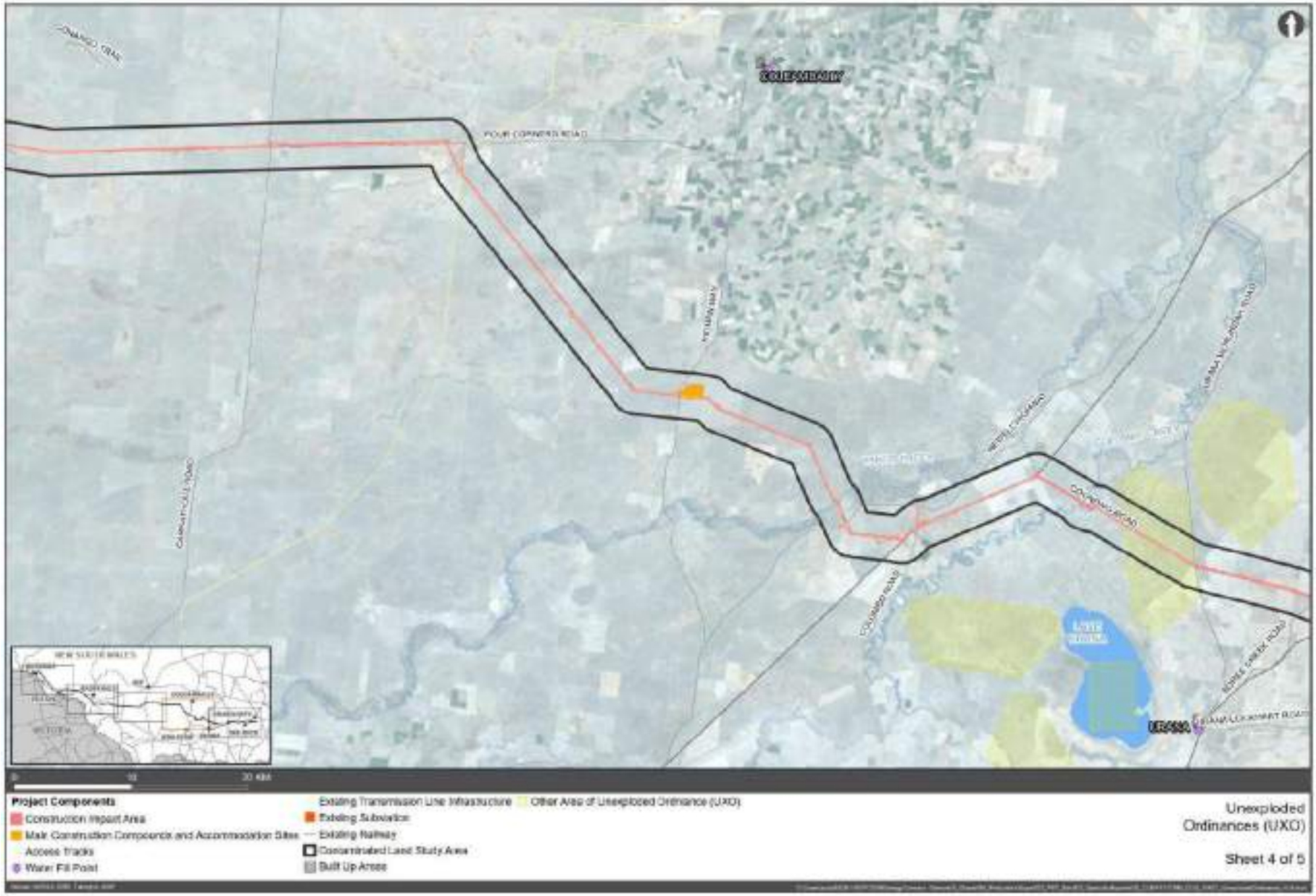

Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Access Tracks
Water Supply Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contamination Study Area
Built Up Areas
Potential Areas of Contamination
AEC - SMEC 2020d (1)
Agricultural Land (5)
Cleared Agricultural Land (3)
Construction Site (1)
Farm Dam (40)
Residential Property (2)
Scarring - Potential Quarry (2)
Waste Management Facility (1)
Potential Areas of Contamination
Sheet 5 of 5

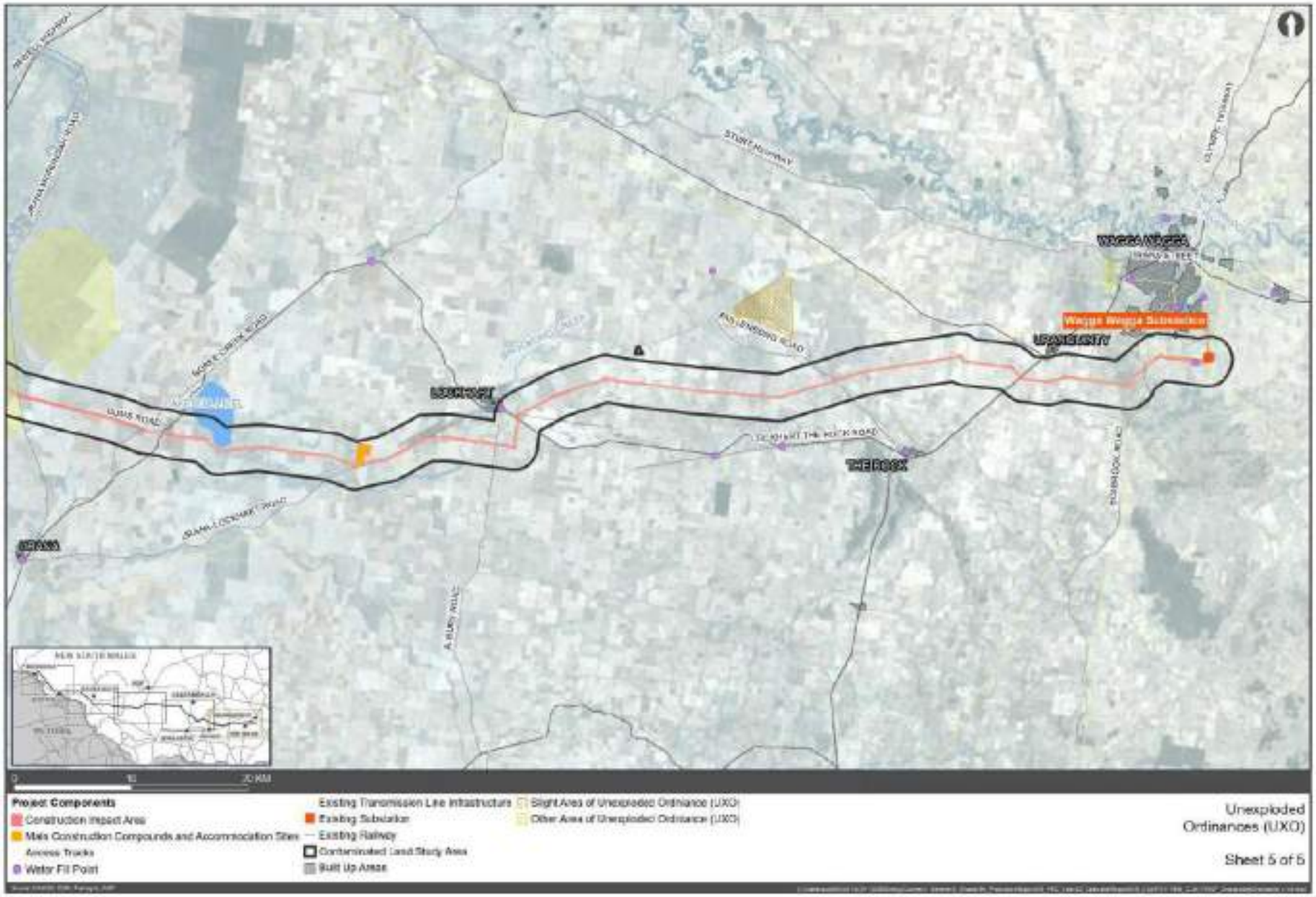
Appendix E4 – Unexploded Ordnances (UXO)


Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Access Tracks
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contaminated Land Study Area
Built Up Areas
Substation Area of Unexploded Ordnance (UXO)
Slight Area of Unexploded Ordnance (UXO)
Unexploded Ordnances (UXO)
Sheet 1 of 5


Project Components
Construction Impact Area
Access Tracks
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contaminated Land Study Area
Built Up Areas
Unexploded Ordinances (UXO)
Sheet 2 of 5


Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Access Tracks
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contaminated Land Study Area
Built Up Areas
Other Area of Unexploded Ordnance (UXO)
Unexploded Ordinances (UXO)
Sheet 3 of 5


COLEAMALLY
POUR CORNERS ROAD
Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Access Tracks
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contaminated Land Study Area
Built Up Areas
Other Area of Unexploded Ordnance (UXO)
Unexploded Ordinances (UXO)
Sheet 4 of 5


Wagga Wagga Substation
Project Components
Construction Impact Area
Main Construction Compounds and Accommodation Sites
Access Tracks
Water Fill Point
Existing Transmission Line Infrastructure
Existing Substation
Existing Railway
Contaminated Land Study Area
Built Up Areas
Slight Area of Unexploded Ordnance (UXO)
Other Area of Unexploded Ordnance (UXO)
Unexploded Ordinances (UXO)
Sheet 5 of 5

PUBLIC

Noise and Vibration Management Plan
EnergyConnect (NSW - Eastern Section)
Stage 2

45860-HSE-PL-D-0116

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
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2	17/04/2024	Revised to Elecnor template	pp K.Nestmann	A.Kriegel	R.Walker-Edwards	G.Crighton	G.Arrien

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued for Transgrid review
C	Issued for Environmental Representative review
0	Issued for DPE review
1	Revised to address DPE comments
2	Revised to update to Elecnor template and Elecnor management system

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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Abbreviations

Acronym	Definition
AAAC	Association of Australian Acoustical Consultants
Amendment Report	*Amendment Report EnergyConnect (NSW – Eastern Section)*
AS/NZ	Australian Standard/New Zealand Standard
Base construction hours or extended (day) working hours	Construction work hours defined in the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* as seven days per week (Monday to Sunday) between 7am and 7pm
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
Council	Relevant Council
CSSI	Critical State significant infrastructure
DAWE	Department of Agriculture, Water and the Environment, now known as Department of Climate Change, Energy, the Environment and Water
dB	Decibel
dBA	Decibel (A-weighted)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DEC	(former) Department of Environment and Conservation
DECC	(former) Department of Environment and Climate Change
DECCW	(former) Department of Environment, Climate Change and Water
DPE	NSW Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure
DPHI or Department	NSW Department of Planning, Housing and Infrastructure
DPIE	Department of Planning, Industry and Environment, now known as NSW Department of Planning, Housing and Infrastructure
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
Elecnor	Elecnor Australia
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	NSW Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPC	Engineering, procurement and construction
EPL	Environment Protection Licence
ER	Environmental Representative
ICNG, the	*Interim Construction Noise Guideline* (Department of Environment and Climate Change 2009)
NML	Noise management level
NPfI	*Noise Policy for Industry* (EPA 2017)
NSW	New South Wales
NVMP	Noise and Vibration Management Plan
OOHW	Out of hours work
PAD	Potential archaeological deposit

Acronym	Definition
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
POEO Act	*Protection of the Environment Operations Act 1997*
project, the	EnergyConnect (NSW – Eastern Section)
Response to DPE Request for Information	EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information (30 August 2022)
RBL	Rating background level
RMMs	Revised mitigation measures
RNP	Road Noise Policy
SA	South Australia
SAP	Sensitive area plan
SecureEnergy	Transgrid has engaged Elecnor Australia, trading as SecureEnergy, to design and construct the EnergyConnect project.
SSI	State significant infrastructure
Stage 1	Stage 1 of construction of the project. This includes establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation and water supply points.
Stage 2	All construction activities associated with EnergyConnect (NSW – Eastern Section). Once approved the Stage 2 CEMP and the relevant Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP and Stage 1 CEMP sub-plans. The Stage 2 CEMP and Stage 2 CEMP sub-plans do not address the operational phase of the project.
Submissions Report	*Submissions Report EnergyConnect (NSW – Eastern Section)*
Technical Paper 10 of the EIS	Technical Paper 10 of the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (Noise and vibration impact assessment)
WMS	Work method statement

1 Introduction

1.1 Context

This Noise and Vibration Management Plan (NVMP or this plan) forms part of the Construction Environmental Management Plan (CEMP) for Stage 2 of EnergyConnect (NSW – Eastern Section).

This plan has been prepared for construction activities undertaken during Stage 2 of the project. Once approved this plan will supersede the existing Stage 1 Noise and Vibration Management Plan. It does not address the operational phase of the project.

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI 9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), the *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

1.2 Background

On 29 August 2019 the then New South Wales (NSW) Minister for Planning and Public Spaces declared the NSW component of EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. Within NSW, EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – South Australia (SA)/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with five from special interest groups, nine from local councils and 44 from the public. In addition, 17 government agencies also provided advice during this time.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared a separate Amendment Report to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report was also finalised in May 2022.

On 2 June 2022, the Department requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response TransGrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to address the various requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI 9172452). Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Transgrid have engaged Elecnor Australia (Elecnor), to design and construct their portion of the EnergyConnect project.

1.3 Staging

Condition A8 allows preparation of plans on a staged basis, with the approval of the Planning Secretary. Where a plan is staged, the scope of works can be carried out without addressing requirements of the Infrastructure Approval that are not applicable to that stage. This NVMP is staged in accordance with condition A8. The two stages are as follows:

- Stage 1 – establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation, water supply points; and
- Stage 2 – Stage 1 and all other construction activities (i.e. all construction activities associated with EnergyConnect (NSW – Eastern Section).

The plans for Stage 2 incorporate and supersede the Stage 1 plans and cover the entire construction phase of the project.

This NVMP has been prepared specifically for EnergyConnect (NSW – Eastern Section) Stage 2 and will be implemented for the duration of Stage 2 of construction. The key project components of Stage 2 of construction include, but are not limited to, the activities provided in Table 1.1.

An overview of the project is provided as Figure 1.1.

Table 1.1 - Key project components of construction (Stage 2)

Key activity	Description of key activity
Pre-construction minor works permitted in accordance with the Infrastructure Approval	The definition of 'construction' within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. Key activities include: • environmental investigations, including biodiversity and heritage protection, salvage and recordings; • Aboriginal heritage assessment, mitigation (e.g. exclusion zones) and salvage activities including subsurface testing/test excavation, additional survey, and consultation with RAPs; • other survey work, such as road dilapidation surveys, and surveys of the general alignment and existing utilities; • installing of environmental management measures (including erosion and sediment controls), fencing, signage and security measures, enabling works; and • connections and pre-commissioning of utilities (wastewater treatment plant, electrical power, lighting etc.).
Continuation of any outstanding Stage 1 construction activities	Construction activities undertaken during Stage 1 of the project will continue where required. This includes, but is not limited to continuation of the following activities: • any outstanding construction activities at Dinawan and Wagga Wagga substations; • operation of earthworks material site, including the crushing and screening plant, where required; • operation of the construction compound including offices and laydown areas; and

Key activity	Description of key activity
	• use of traffic access routes and access and egress points.
Establishment of ancillary facilities along the transmission line corridor	A number of minor staging, storage and laydown ancillary areas would be required within the project corridor for temporary storage of materials, plant and equipment required to construct the various elements of the proposal (in particular transmission line structures). Some temporary mobile batching plant locations may also need to be established to enable easy access to concrete. Upon completion of works, these ancillary sites would be cleared of any temporary infrastructure and equipment. These sites would be in place for shorter periods at locations suitable to support the construction works as they move along the alignment.
Property adjustment work, including adjustments to property fencing	Installation or adjustment of gates and fences would be required at some locations along the alignment to enable access from the nearest roadway to construction areas. These would be constructed in consultation with the relevant council and/or affected landholder.
Water supply points – establishment and/or use	A number of water supply points have been identified along the length of the project to support construction water needs for the project. The proposed water supply points which are to be established and / or used include: • Lake Benanee*, Balranald Shire Council; • 159 Church Street, Balranald Shire Council; • 10 Perry Street, Euston*, Balranald Shire Council; • Carey Street/Sturt Highway, Euston*, Balranald Shire Council; • Ravensworth, Hay Shire Council [Ravensworth in Amendment Report]; • Moulamein Road 2, Edward River Council [Moulamein Road, Moulamein in Amendment Report]; • Burraburoon*, Edward River Council; • Carathool Road, Four Corners*, Edward River Council; • Kidman Way*, Murrumbidgee Council; • Crosby Road*, Murrumbidgee Council; • Newell Highway, Morundah*, Federation Council; • Urana-Lockhart Road, Brookong*, Lockhart Shire Council; • Brookdale*, Lockhart Shire Council; • Federation Way/Coonong Road*, Federation Council; • Newell Highway/Arrawidgee Road*, Federation Council; • Federation Way*, Federation Council; • Red Hill Road, Wagga Wagga, Wagga Wagga City Council [Glenfield in Amendment Report]; • 1254 Four Corners Road, Coleambally, Murrumbidgee Council [1254 Four Corners Road in Amendment Report]; • Wonga Station, Four Corners Road, Edward River Council [Wonga in Amendment Report]; • Four Corners Road Mabins Well; Edward River Council [Four Corners Road, Mabins Well in Amendment Report]; • Booroorban-Tchelery Road*, Booroorban, Edward River Council; • Strongs Lane*, Lockhart, Lockhart Shire Council; • Slys Lane*, Lockhart Shire Council; • Bullenbung-the-Rock Road*, Lockhart Shire Council; • French Park-Bullenbung Road*, Lockhart Shire Council; • Napier Road*, Lockhart Shire Council; • Albury Road*, Lockhart, Lockhart Shire Council; • 3 Bencubbin Avenue, Coleambally, Murrumbidgee Council [3 Bencubbin Avenue in Amendment Report];

Key activity	Description of key activity
	• Keri Keri Road, Moulamein, Murray River Council [Keri Keri in Amendment Report]; • 78 Murray Street, Tooleybuc*, Murray River Council; • Federation Way* (near corner Federation Way and Stephen Street), Federation Council; • Mclennons Bore Road, Coleambally, Murrumbidgee Council [Mclennons Bore Road in Amendment Report]; • 8955 Newell Highway Bundure, Murrumbidgee Council [Newell Highway, Bundure in Amendment Report]; • Paraway at Four Corners Road*, Murrumbidgee Council; • Paraway at Cobb Highway*, Hay Shire Council; • North Boundary Road*; Murrumbidgee Council; • Off Sturt Highway* Wentworth Shire Council; • 16 Mile Gums*, Hay Shire Council; • Cadell Street, Hay, Hay Shire Council; • Jerilderie Road*, Hay Shire Council; • 59 Thelangerin Road, Hay*, Hay Shire Council; • Court Street/Sturt Highway*, Balranald Shire Council; • Boiling Down Road*, Wagga Wagga City Council; and • continued use of the Stage 1 water supply points. The water supply points may require works to the existing infrastructure to enable connection and use by the water supply vehicles. The definition of 'construction' within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 1 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. * The water supply points denoted above with an asterisk are additional to the water supply points identified in the EIS. Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would: • confirm that the water supply point could be accessed using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary's agreement in accordance with condition C32; • reach agreement with the water supplier regarding the use of the water supply point for the project; and • carry out any additional assessments which may be required (ie heritage or biodiversity).
Traffic access routes and access points	Construction vehicle movements will be required for a variety of activities (i.e. earthworks, clearing and grubbing activities). All construction vehicles associated with the development will travel via the access routes as identified in Appendix 3 of the Infrastructure Approval or as otherwise approved. The establishment of access points would include establishing vehicle access and egress points to ensure safe vehicle movements. Existing access points may also be used. The definition of construction within the Infrastructure Approval does not include road upgrades (which includes access points). Road upgrade works are, however, incorporated within the Traffic and Transport Management Plan as required by condition C35.

Key activity		Description of key activity
Construct access tracks		Access to each tower would be required during construction. Access tracks would be required to be traversable by a range of vehicles. Access tracks would fall into two broad groups: • un-improved access tracks - using existing roads or tracks, or driving on existing soil or ground surface with minimal or no prior preparation; • improved access track – using existing roads or tracks where minor modification (such as grading or widening of the existing track) is required; and • constructed access tracks – around six metres wide and would generally follow the natural contour of the land as far as practicable to minimise the amount of cut and fill and soil disturbance. Access tracks would also include drainage control features such as table drains or cross banks to minimise erosion. Constructed access tracks would be required in areas, outside identified heritage risk zones, where there are no existing roads or tracks, or where terrain conditions prevent continuous access along the line easement between road crossings. Local waterway spans and causeways may be required, where alternative access routes are impractical, along the length of the proposal.
Temporary works		The project will require a significant quantity of temporary works during construction. The temporary works will include, but not be limited to, the following: • earthworks, including trenches, excavations, temporary slopes, stockpiles, and embankments; • laydown and parking areas for the towers; • structures, such as formwork, shoring, edge protection, temporary bridges, solid fencing/guardrails/barriers and signage, temporary scaffold; and • equipment/plant foundations, such as work platforms, crane, and piling platforms.
Transmission line construction	Earthworks and transmission tower footing construction	Excavation works and establishment of construction pads at each tower site would be required for the installation of foundations, levelling around the individual tower foundations, drainage and grading or preparation for construction at the tower site. Excavations would typically be up to five metres in depth. Construction of footings and foundation works for the new transmission line towers includes: • piling. Typical transmission line tower piling depth would be generally up to 6-15 metres below ground level and would depend on ground conditions (e.g. greater piling depths would be required where soft soil types are present).The foundation type would also vary (subject to detailed design) but would consist of either: - bored pile (reinforced concrete); - driven or screw pile (concrete or steel); and - helical screw anchor or cast in-situ reinforced concrete; • excavation to create bench sites (stepped ground excavation) where required to provide a level platform for equipment setup, the erection of the tower and other construction activities. Benching would be constructed by use of earthing equipment such as graders and excavators; • steel fabrication works; and • concrete pours.
	Assembly and erection of transmission line towers	The transmission line towers would typically be erected by assembling in sections on the ground and hoisting or lifting successive sections into place using cranes. Alternatively, towers may be erected in place on the footings by installing individual members. These towers would include infrastructure such as step

Key activity		Description of key activity
		bolts, climbing attachment plates, ladders, platforms, climbing barriers, identification plates, warning plates, other fixtures and fittings for the attachment of earthwires and insulators.
	Stringing of transmission lines including conductors and overhead earth wires and optical ground wires	Following erection and securing of the tower, the transmission line would be strung by either a ground pulled draw wire (with brake/winch sites) or a line stringing drone. The area required for the construction of each tower would require access for tower assembly and stringing works. Where a transmission tower is proposed to allow for a direction change of the transmission line, a larger area would be required (to allow for brake and winching sites). At a typical site, this would include a temporary area of up around 60 metres by 80 metres at each transmission line tower location (for the 330kV tower). The transmission line would require spanning a series of major watercourses. The general construction methodology is to assemble and erect a transmission line structure on either side of each major river. A drone would then be used to take a lead wire over the river to allow cables to then be pulled and strung tower to tower. Similar methodology will be undertaken when stringing transmission line across major road networks and railway lines.
	Installation of earthing conductors and connection to substations	The following key activities will be undertaken: • installation of earthing conductors at each of the transmission tower arms; • installation of earthing or isolation sections of fences and gates where the transmission line crosses or closely runs parallels to a metallic fence; and • connection of incoming transmission lines at the Dinawan and Wagga Wagga substations.
Optical repeater sites		Three optical repeater site communication huts would need to be constructed at Balranald, Boorooban and Lockhart. The optical repeater sites are communication huts to ensure the stability of the communications system over great distances during the operation phase. The key activities for the construction of the optical repeater sites would consist of the following: • site establishment, including vegetation removal and establishment of temporary construction site office, if required; • earthworks and preparation of the site for concrete foundations; • construction of a new communication hut building at each site; • installation of new pole-mounted transformers; • installation of electrical cables and terminations (either through the installed conduits or stringing of the aboveground poles); • installation of site wiring and electrical control equipment within each building; • trenching for underground conduit between the Balranald optical repeater hut and transmission line; • installation of new above ground poles between the transmission line and the respective Booroorban and Lockhart optical repeater sites; • provision of power connections between the transmission line and associated optical repeater site; and • removal of waste and remediation of site areas.
Pre-commissioning phases		Pre-commissioning activities would form part of the final construction and installation works and would incorporate all tests and checks to confirm that construction quality assurance documentation, inspection and test plans, checklists and associated activities have been completed for each individual component of plant. This would be to ensure that it has been supplied and installed in accordance with the design and statutory standards and is safe to proceed to commissioning.

Key activity	Description of key activity
	The key pre-commissioning activities which would be undertaken would include: • testing and commissioning of the new substation equipment; • point to point testing of the new transmission lines and substation connections; • earthing testing; • high voltage testing; • high voltage equipment operational checks; • testing of the installed protection, metering, control, and communication systems; and • cut over (energisation) of electricity between the existing and new transmission lines (where required).
Utility adjustments and protection	General utility protection and adjustment works, where required, to allow for the Wagga Wagga substation expansion and upgrades works to occur, the optical repeater sites, the establishment and operation of the construction compounds and accommodation camps, and where else required.
Progressive site rehabilitation and landscaping	Site rehabilitation would be carried out progressively along completed sections of the transmission line as well as the substation sites. This phase would occur following the completion of construction and involve the removal of materials not required during the operation of the substation and/or transmission lines. This phase would include the removal/remediation of the construction compounds and camp sites, removal of temporary facilities and site buildings and temporary environmental controls. Works may also be undertaken to restore: • water infrastructure facilities to pre-existing conditions before arrival on site in consultation with landowners; • natural drainage in areas where temporary facilities were provided; and • fences, gates, etc., which may have been damaged during construction. Installation of the permanent Transgrid property boundary fence surrounding the substation sites would also likely occur during this phase.
Demobilisation	Elecnor will start to downsize the construction team with gradual demobilisation as particular key construction activities are completed.

Some activities nominated in this stage will have already commenced as part of Stage 1 and/or the pre-construction minor works permitted in accordance with the Infrastructure Approval.

The pre-construction minor works will remain excluded from the definition of 'construction' and will therefore not be subject to this NVMP.

Once approved, this NVMP will supersede the existing Stage 1 NVMP. Therefore the activities that were approved to be carried out under the Stage 1 NVMP will continue under this NVMP.

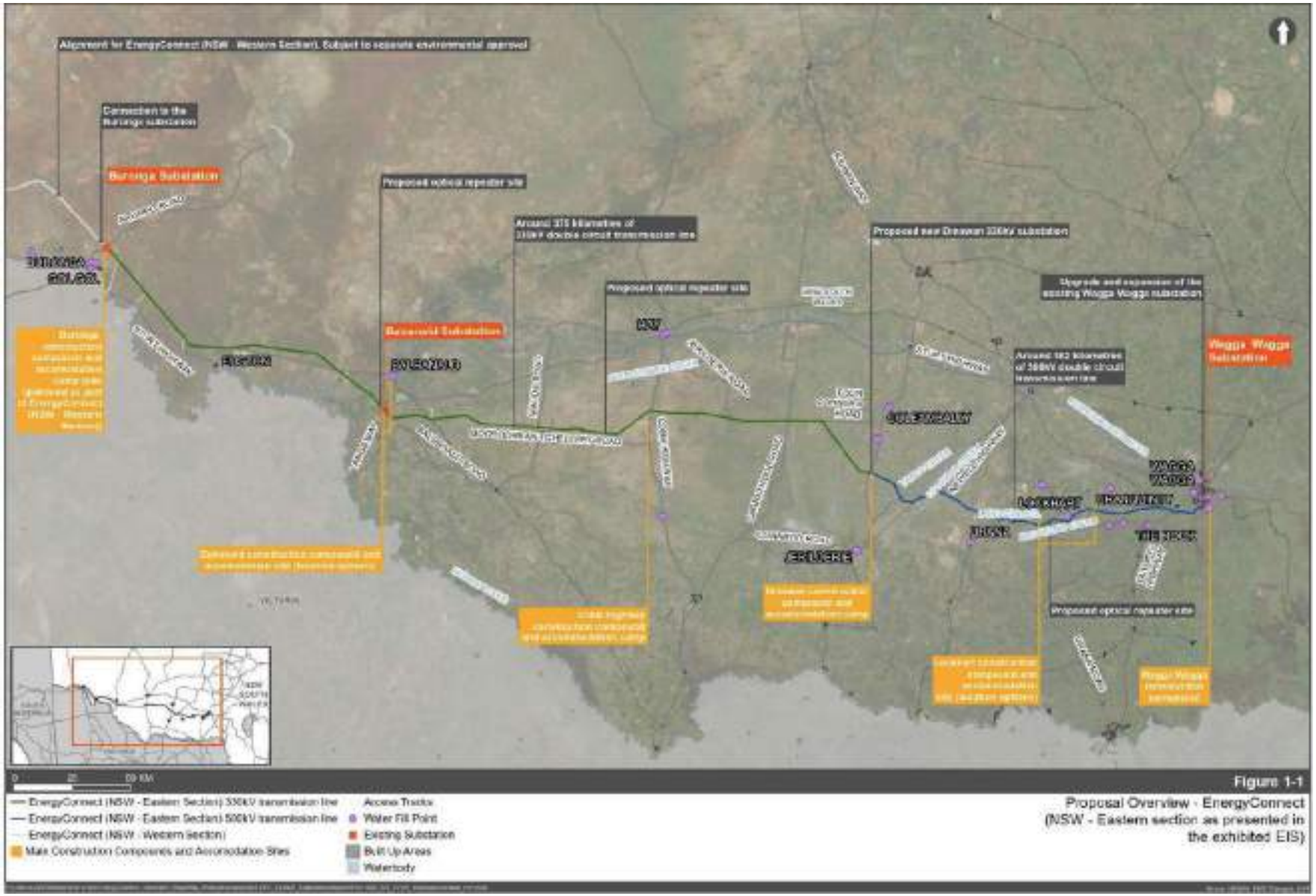


Figure 1.1 - Key features of EnergyConnect (NSW – Eastern Section) as shown in Figure 1-1 of the Amendment Report

1.4 Environmental management system

The overall environmental management system for the project is described in Section 4 of the CEMP.

This NVMP is a sub-plan that forms part of the CEMP and is also part of the environmental management framework for the project, as described in the CEMP. Figure 1.2 shows the CEMP framework for the project.

Management measures identified in this plan will be incorporated into relevant site-based documents including, but not limited to, site or activity specific work packs or work method statements (WMSs), the geographic information system (GIS)/sensitive area plans (SAPs) or training and awareness material.

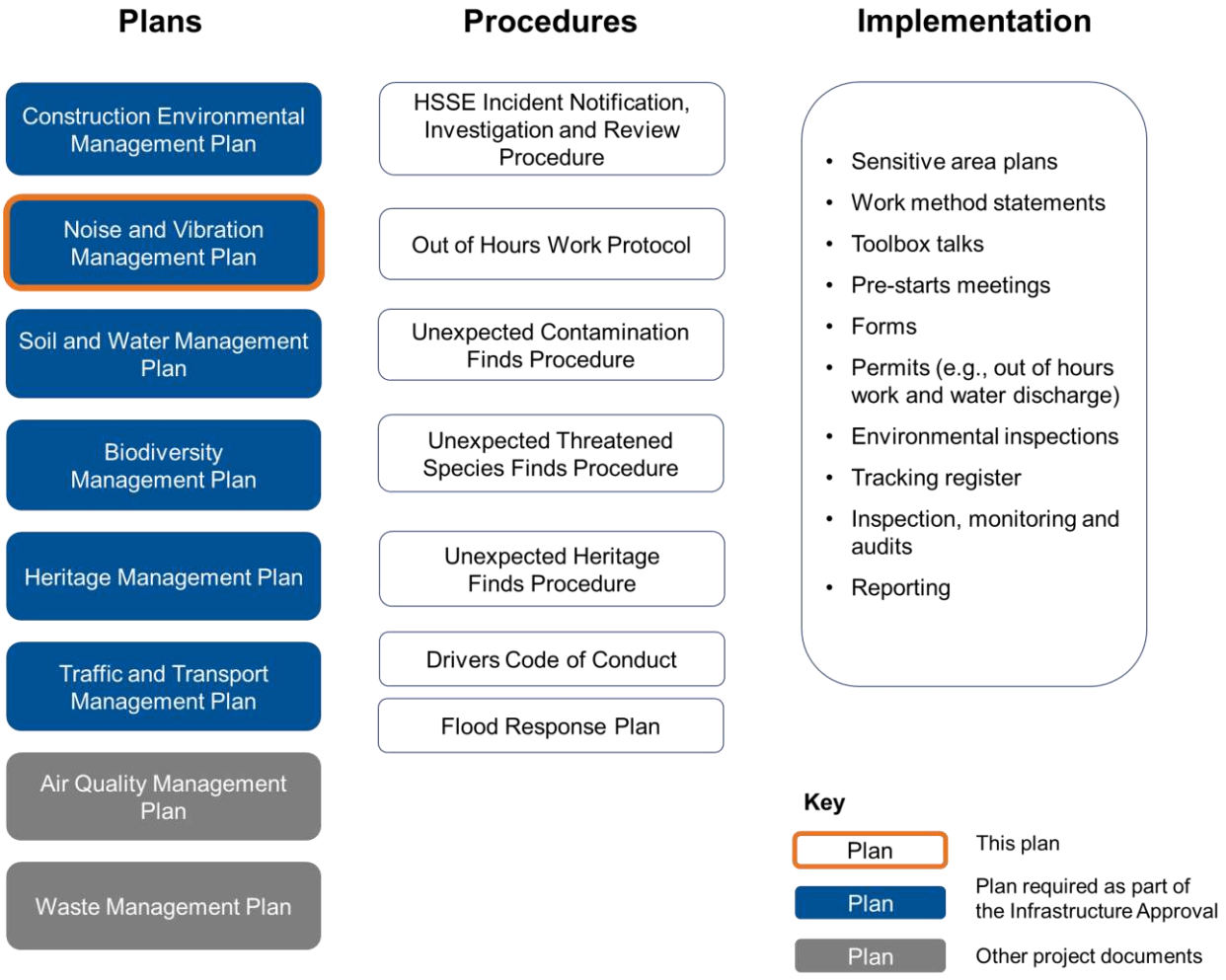


Figure 1.2 - CEMP framework

1.5 Purpose and objective

The purpose of this NVMP is to describe the approach to manage noise and vibration impacts that will be adopted during construction of the project.

The key objective of this plan is to detail management measures and inform site procedures for implementation so that noise and vibration impacts are minimised. To achieve this, the following will be undertaken:

- implement appropriate measures to address the requirements outlined in the Infrastructure Approval, EIS, Submissions Report and Amendment Report;

- implement appropriate measures during construction to minimise potential noise and vibration impacts to sensitive receivers; and
- implement appropriate measures to comply with relevant legislative requirements as described in Section 2.1 of this plan.

As a means of assessing environmental performance, environmental objectives (performance measures), targets (criteria) and performance indicators have been established for the project and are provided within Table 4.2 of the CEMP. All performance measures and indicators are applicable to the project, however, those most relevant to noise and vibration are detailed in Table 1.2.

Table 1.2 - Environmental objectives, targets and performance indicators relevant to noise and vibration

Aspect	Objectives (performance measures)	Targets (criteria)	Performance indicators
Compliance	Compliance with legislation, statutory approvals and the Infrastructure Approval	• Full compliance with statutory approvals. • No regulatory infringements (PINs or prosecutions). • No formal regulatory warning.	Number of regulatory infringements (PINs or prosecutions), formal regulatory warning, audits
	Implement and comply with the CEMP and associated management plans	• Zero non-compliances identified during each compliance audit of CEMP and sub-plans.	Number of non-compliances arising from each audit.
Engage with stakeholders and the broader community, minimise complaints and respond to any complaints within a suitable timeframe	Disseminate regular project updates and other information to keep the community informed of the project, particularly out of hours works. Record and respond to complaints, including noise and vibration complaints, within a timely manner.	• All project updates provided within the timeframes specified within the *Community Communication Strategy*. • All complaints are reviewed within the timeframes specified within the *Community Communication Strategy*.	Timeliness of project updates per project website; and timeliness of complaints response as recorded in the complaints register.
Training and improvement	Provide adequate training to ensure construction activities are undertaken safely and with minimal risk to the environment. Continuously improve environmental performance	• Regular environmental training that focuses on the specific project activities and associated environmental risks; • Regular pre-start meetings and toolbox talks in accordance with Section 6 of the CEMP.	Records of inductions, toolbox talks with environmental focus, daily pre-start meetings.

1.6 Preparation of this plan

In accordance with condition B1 of the Infrastructure Approval, this plan has been prepared and reviewed by a suitably qualified and experienced person. This plan was prepared by Katie Baxter and was reviewed by Rebecca Walker-Edwards.

1.7 Consultation

1.7.1 Development of the Out of Hours Work Protocol

In accordance with condition C10 f) of the Infrastructure Approval, the Out of Hours Work Protocol, which is required to form part of this NVMP, has been prepared in consultation with relevant councils (refer to Appendix A).

The Out of Hours Work Protocol applies to the entire construction phase (Stage 1 and Stage 2) and all associated activities required outside of standard construction hours. The Out of Hours Work Protocol was issued to the relevant councils for review and comment during consultation for the Noise and Vibration Management Plan associated with Stage 1 of construction (45860-HSE-PL-D-0110). Details of all consultation with the relevant councils will be submitted to the Department along with the submission of this plan. No changes were required in relation to Stage 2 of construction.

1.7.2 Ongoing communication and consultation

Elecnor will use a range of tools in accordance with the *Community Communication Strategy* (CCS) (45860-HSE-DOC-D-0024) to facilitate ongoing consultation and communication with the community and stakeholders (including government agencies where necessary) regarding the project. Communication tools include, but are not limited to, stakeholder briefings, project website, community drop-in sessions, door knocks and project factsheets. Notifications will be issued for, but not limited to the following commencement of construction, significant milestones and changes to the scope of work. Refer to the CCS for further information.

In accordance with condition D12 a) of the Infrastructure Approval, project documents including the EIS, approved strategies, plans or programs required under the conditions of approval and independent reports will be publicly available on the project website. The project website is https://www.transgrid.com.au/projects-innovation/energyconnect. A 24-hour toll-free telephone number (1800 490 666) is also available for any project enquiries. In accordance with condition D12 b) the information will be kept up to date.

1.7.3 Negotiated agreements

In accordance with condition C2 c) of the Infrastructure Approval, an agreement with sensitive receivers (owners and occupiers) may be negotiated to carry out works in accordance with the hours and noise limits specified in the agreement.

Where multiple receivers are affected by works, a substantial majority of the receivers must agree to the specified hours and noise limits proposed by the project.

All negotiated agreements will be in writing and will be finalised before the commencement of relevant works.

1.7.4 Complaints

Complaints will be managed by the Engagement Team with the use of the Sales Force. Complaints will be received via phone calls, emails and letters. Any complaint received is regarded as a high priority and will be recorded, tracked and responded to in accordance with the CCS. Complaints will be investigated and dealt with impartially. The key principles of the complaint management process include:

- acknowledge - Elecnor staff should respect the communities' right to voice their concerns. All complaints received should be acknowledged to the complainant either by telephone or in writing;
- resolve - Elecnor staff should aim at first contact, resolution for all community concerns. Elecnor staff should investigate community concerns in detail before negotiating a resolution. All

Elecnor staff should use their relevant discretions to achieve a mutually acceptable resolution to complaints;

- escalate - all Elecnor staff should aim to escalate the complaint if the community member remains dissatisfied with the investigation and/or resolution offered by their first point of contact at Elecnor. All complaints where a community member requests to speak to a higher-level representative, should also be escalated;
- record - Elecnor staff should aim, through the Engagement Team, to record all relevant information, on the community account in Sales Force, regarding customer concerns along with details of all discussions had with the community member in the process of investigating and/resolving the complaint. Detailed information on the resolutions offered to address community concerns should also be clearly recorded;
- communicate - Elecnor staff should remain in constant touch with the community member while their concerns are being investigated. The community member should be informed of all steps of the investigation and the resulting outcome at appropriate times;
- report - Elecnor should report on all complaints received to the Elecnor Management Team and Transgrid. The reporting should include information on the number as well as type of complaints being received, the status of these complaints from time to time and the resulting outcomes or resolutions offered to close them;
- feedback - the Elecnor Engagement Team should aim at regular and intensive reviews to identify possible trends in the complaints being received. These reviews should be aimed at highlighting improvements required to avoid complaints being repeated;
- action - Elecnor should aim to effectively implement improvements suggested directly by the community or highlighted by complaint trends.

Wherever possible, complaints will be resolved directly between Elecnor and the stakeholder. If a complaints management process has been followed and the issue cannot be resolved, dispute resolution will be undertaken in accordance with the CCS. As part of this, a Community Complaints Mediator will be engaged to address any complaint where a member of the public is not satisfied by Elecnor's response. The escalated review process will include an assessment of the details of the complaint received, any findings of the investigation undertaken in response to the complaint, and any further matters raised by the complainant.

If a complaint requires referral to senior management and Transgrid, the complainant will be informed of this and the outcome of the review process. Department of Planning, Housing and Infrastructure (DPHI) may also request that the Environmental Representative (ER) assist in dispute resolution of community complaints.

All complaints will be provided to the ER in accordance with condition A13 on the day they are received, and a summary of complaints received, such as a complaints register, will be updated monthly on the project website in accordance with condition D12 vi).

1.8 Submission and approval

Prior to submission to DPHI, the NVMP was reviewed by the ER to ensure that the plan was consistent with the requirements of the Infrastructure Approval. A written statement to this effect was prepared and submitted to DPHI. This review was undertaken in accordance with condition A12 of the Infrastructure Approval.

This NVMP was submitted to DPHI for review and approval by the Planning Secretary prior to commencement of Stage 2 of construction.

Stage 2 of construction did not commence until the CEMP and all sub-plans required under condition B1, or where staging is proposed the plans required for that stage, have were approved by the Planning Secretary. The approved NVMP will be implemented for the duration of the

Stage 2 construction activities. DPHI was notified in writing via the Major Projects portal of the proposed date of commencement of Stage 2 of construction.

1.9 Periodic review

This NVMP will be reviewed at least annually and updated, if required, in accordance with Section 1.10 of the CEMP – Updating the CEMP. This includes the review and, if necessary, revision of this NVMP in accordance with condition D2 within three months of the following:

- submission of an incident report under condition D6 of the Infrastructure Approval;
- submission of an audit report under condition D11 of the Infrastructure Approval; or
- any modifications to the Infrastructure Approval.

Any updates to the NVMP will be approved as described in Section 1.10 of the CEMP.

2 Environmental requirements

2.1 Legislation

Legislation relevant to the management of noise and vibration includes:

- *Environmental Planning and Assessment Act 1979* (EP&A Act); and
- *Protection of the Environment Operation Act 1997* (POEO Act).

Relevant provisions of the above legislation are detailed within the register of legal and other requirements included in Appendix A1 of the CEMP.

2.2 Conditions of Approval

The conditions of the Infrastructure Approval relevant to noise and vibration are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

Table 2.1 - Conditions of Approval relevant to noise and vibration

<table>
<tr><th>Condition no.</th><th>Requirement</th><th>Where addressed</th><th>How addressed</th></tr>
<tr><td>B1</td><td>Prior to commencing construction, an Environmental Management Plan (EMP) comprising the Sub-plans listed in Table 1 must be prepared by a suitably qualified and experienced persons, to the satisfaction of the Planning Secretary.
Following the Planning Secretary's approval, the Proponent must implement the Environmental Management Plan.
Table 1: EMP Sub-plans
<table>
<tr><th></th><th>Required EMP Sub-plan</th><th>Relevant government agencies and stakeholders to be consulted for each EMP Sub-plan</th></tr>
<tr><td>(a)</td><td>Noise and Vibration</td><td>N/A</td></tr>
</table></td><td>Section 1.6
Section 1.8
The CEMP</td><td>The CEMP has been prepared to address the requirements of an EMP.
Construction of Stage 2 will not commence until this CEMP and the CEMP Sub-plans are approved, as detailed in Section 1.8.
Consultation for the CEMP subplans is addressed in Section 1.7.
There are no specific consultation requirements for this NVMP, however the Out of Hours Work Protocol required by condition C10 must be prepared in consulted with relevant councils (refer to condition C10 f) (i). As noted in Section 1.7.1, the Out of Hours Work Protocol covers all of construction (Stages 1 and 2) and the required consultation was completed during preparation of the Stage 1 documents CEMP and sub-plans. The protocol in Appendix A is unchanged and no additional consultation is required to satisfy condition C10 f) (i).</td></tr>
<tr><td rowspan="4">B2</td><td colspan="3">The EMP Sub-plans must be prepared in accordance with relevant guidelines and in consultation with the relevant government agencies identified for each Sub-plan in Table 1, and include:</td></tr>
<tr><td>a) a summary of relevant background or baseline data;</td><td>Section 3</td><td>The existing known noise and vibration environment adjacent to the project is outlined in Section 3.</td></tr>
<tr><td>b) details of:</td><td>-</td><td>-</td></tr>
<tr><td>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</td><td>Section 2
Section A1 of the CEMP</td><td>The relevant legislation, conditions, RMMs and guidelines applicable to noise and vibration are outlined in Section 2. Appendix A1 of the CEMP</td></tr>
</table>

Condition no.	Requirement	Where addressed	How addressed
			provides further detail on the relevant legislation applicable to noise and vibration.
	(ii) any relevant limits or performance measures and criteria;	Section 4 Section 1.5 Section 4.2 of the CEMP – Objectives and targets	Section 4 identifies specific noise and vibration criteria for the project. Further to this, the objectives (performance measures) and targets (criteria) relevant to noise and vibration management are outlined in Section 1.5 of this NVMP. The CEMP also provides project-wide environmental objectives (performance measures) and targets (criteria).
	(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; and	Section 1.5 Section 4.2 of the CEMP – Objectives and targets	The performance indicators relevant to noise and vibration management are outlined in Section 1.5 of this NVMP. The CEMP also provides project-wide performance indicators.
	(iv) any relevant commitments or recommendations identified in the EIS;	Section 2.3	Relevant noise and vibration commitments and recommendations identified in the EIS, have been outlined in Section 2.3.
	c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 7	Specific noise and vibration related safeguards and management measures to address potential impacts associated with construction and comply with the relevant statutory requirements, limits and performance measures are outlined in Section 7.
	d) a program to monitor and report on the:	-	-
	(i) impacts and environmental performance of the development (including a table summarising all the monitoring and reporting obligations under the conditions of this approval); and	Section 8, including: Section 8.3 Section 8.4 Section 8.5 Section 8.6	Monitoring, inspections, auditing and reporting is outlined in Section 8 of this NVMP.
	(ii) effectiveness of the management measures set out pursuant to paragraph (c);	Section 8	Monitoring of the effectiveness of the management measures is outlined in Section 8 through compliance management process.
	e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 8.8 Section 8 of the CEMP- Incidents and emergencies Section 10 of the CEMP - Reporting Section 11 of the CEMP - Non-	Section 8.8 outlines a contingency plan in the event that unpredicted impacts are identified. The CEMP also provides additional detail regarding incidents and emergencies, reporting, non-compliance, non-conformance, corrective and preventative actions.

Condition no.	Requirement	Where addressed	How addressed
		compliance, non-conformance, corrective and preventative action	
	f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 1.9 Section 8 Section 1.9 of the CEMP - Continuous improvement	Section 8 of this NVMP outlines procedures for compliance management, including details for monitoring, inspections, auditing and reporting. Actions to undertake in the event that monitored noise levels exceed the modelling predictions are identified in Section 8.8 of this NVMP. This NVMP will reviewed at least annually as described in Section 1.9 of this NVMP. The Plan-Do-Check-Act model will be applied to the continuous improvement process, also outlined in Section 1.9 of the CEMP.
	g) a protocol for managing and reporting any: (i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion;	Section 8.7 Section 8.8 Section 8 of the CEMP - Incidents and emergencies Section 10 of the CEMP - Reporting Section 11 of the CEMP - Non-compliance, non-conformance, corrective and preventative action	Sections 8.7 and 8.8 describe the procedures for emergencies, incidents and non-compliances, including those related to noise and vibration. Actions to undertake in the event that monitored noise levels exceed the modelling predictions are identified in Section 8.8 of this NVMP. Additional detail for managing incidents and emergencies, non-compliances and non-conformances is included in the CEMP. The protocol for reporting any incidents, non-compliances or non-conformances is included in Section 10 of the CEMP.
	(ii) complaint; or	Section 1.7.4 Community Communication Strategy (CCS)	A summary of the complaints management procedure and reporting of complaints is included in Section 1.7.4 of this NVMP. The procedure for managing and reporting any complaints is described in the *Enquiries, Complaint and Dispute Resolution Management Procedure* provided in the CCS. The procedure includes a complaints management process which outlines how Elecnor will respond to complaints related to the project. In the event of a noise and vibration related complaint, the complaints management process will be implemented.

Condition no.	Requirement	Where addressed	How addressed
	(iii) failure to comply with other statutory requirements;	Section 8.7 Section 8 of the CEMP - Incidents and emergencies Section 10 of the CEMP - Reporting Section 11 of the CEMP - Non-compliance, non-conformance, corrective and preventative action	In the event of failure to comply with statutory requirements, the procedures summarised in Section 8.7 of this NVMP, and described in more detail in the CEMP, would be followed.
	h) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 1.7 CCS	All public sources of information are available on the project's website (https://www.transgrid.com.au/projects-innovation/energyconnect) and detailed in Section 1.7.
	i) a protocol for periodic review of the EMP and EMP Sub-plans.	Section 1.9 Section 1.10 of the CEMP - Updating the CEMP	This NVMP will be reviewed at least annually in accordance with the CEMP.
	The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	-	Noted
C1	Road upgrades, construction, upgrading and decommissioning activities may only be undertaken between: a) 7 am to 6 pm Monday to Friday; b) 8 am to 1 pm Saturdays; and c) at no time on Sundays and NSW public holidays; unless the Planning Secretary agrees otherwise.	Section 4.1	The standard construction hours for the project are identified in Section 4.1.
C2	The following activities may be carried out outside the hours specified in condition C1 above: a) the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons; b) emergency work to avoid the loss of life, property or to prevent material harm to the environment; or c) works carried out in accordance with the hours and noise limits specified in any negotiated agreements with sensitive receivers (owners and occupiers), provided the negotiated	Section 4.1 Section 1.7.3 Table 7.1 - N15 Appendix A – Out of Hours Work Protocol	The permitted variations to the standard construction hours are identified in Section 4.1. Agreements may be sought with sensitive receivers to undertake works in accordance with negotiated hours and noise limits as identified in Section 1.7.3 and/or in accordance with Appendix A – *Out of Hours Work Protocol*.

Condition no.	Requirement	Where addressed	How addressed
	agreements are in writing and finalised before the commencement of works; d) activities that are inaudible at non-associated residences; e) road upgrades required by the relevant roads authority to be undertaken outside the standard construction hours; or f) works carried out in accordance with an Out-of-Hours Work Protocol approved in accordance with condition C10.		
C3	The Proponent must take all reasonable and feasible steps to minimise the construction, upgrading or decommissioning noise of the development in the locations where the noise is audible to sensitive receivers, including any associated traffic noise.	This NVMP, particularly Section 7	Section 7 provides the management measures to minimise noise impacts on sensitive receivers.
C4	The Proponent must implement mitigation measures:	-	-
	a) to ensure that the noise generated by any construction, upgrading or decommissioning activities is managed in accordance with the requirements for construction 'noise affected' management levels established in accordance with *Interim Construction Noise Guideline* (DECC, 2009); and	Section 4.5 Section 6.2 Section 7	Construction 'noise affected' management levels are described as project 'noise management levels' throughout this NVMP and have been established in accordance with the Interim Construction Noise Guideline (ICNG) as identified in Section 4.5. In line with the ICNG, where predicted or measured noise levels exceed the noise management level (refer to construction noise impacts in Section 6.2), feasible and reasonable work practices will be identified and implemented, such as those included in Section 7.
	b) with the aim of achieving the road traffic noise assessment criteria for residential land uses from *NSW Road Noise Policy* (DECCW, 2011).	Section 4.7 Section 6.4 Table 7.1 – N6	The road traffic noise assessment criteria is described in Section 4.7. A consideration of construction road traffic noise is presented in Section 6.4. Measures to minimise the impacts of construction road traffic are identified in Table 7.1.
C5	The Proponent must comply with the following vibration limits: a) vibration criteria established using the Assessing vibration: a technical guideline (DEC, 2006) (for human exposure); b) BS 7385 Part 2-1993 "Evaluation and measurement for vibration in buildings Part 2" as they are "applicable to Australian conditions"; and	Section 4.6 Section 6.3	The nominated vibration criteria is described in Section 4.6. No exceedances of the nominated vibration criteria are expected as a result of the works as described in Section 6.3.

<table>
<tr><th>Condition no.</th><th>Requirement</th><th>Where addressed</th><th>How addressed</th></tr>
<tr><td></td><td>c) vibration limits set out in the German Standard DIN 4150-3: Structural Vibration- effects of vibration on structures (for structural damage).</td><td></td><td></td></tr>
<tr><td>C6</td><td>Blasting may only be carried out on the site between 9 am and 5 pm Monday to Friday and between 9 am to 1 pm on Saturday. No blasting is allowed on Sundays or public holidays, unless approved in accordance with condition C1.</td><td>Section 4.1</td><td>Should blasting need to occur, the work would be carried out between 9 am and 5 pm Monday to Friday and between 9 am and 1 pm on Saturday. No blasting would be undertaken on Sundays or on public holidays unless the Planning Secretary agrees otherwise.</td></tr>
<tr><td>C7</td><td>The Proponent must ensure that any blasting carried out on the site does not exceed the criteria in Table 2.
Table 2: Blasting criteria
<table>
<tr><th>Location</th><th>Airblast overpressure (dB(Lin Peak))</th><th>Ground vibration (mm/s)</th><th>Allowable exceedance</th></tr>
<tr><td rowspan="2">Any non-associated residence</td><td>120</td><td>10</td><td>0%</td></tr>
<tr><td>115</td><td>5</td><td>5% of the total number of blasts or events over a rolling period of 12 months</td></tr>
</table></td><td>Section 4.7</td><td>Should blasting need to occur, the blasting will not exceed the criteria stipulated in Table 2.</td></tr>
<tr><td>C8</td><td>Except for corona discharge noise, the Proponent must ensure that the noise generated by the operation of the development does not exceed 35 dB(A) LAeq,15min, at the reasonably most affected point of the residence, in accordance with the NPfI, at any non-associated residence.</td><td>Section 5.4</td><td>Detailed design undertaken during Stage 2 will ensure that the project does not exceed 35 dB(A) LAeq,15min, at the reasonably most affected point of residence in accordance with the NPfI, at any non-associated residence.</td></tr>
<tr><td>C9</td><td>The Proponent must:
a) take all reasonable and feasible steps to minimise corona discharge noise during operation of the project;
b) identify residences predicted to experience corona discharge noise levels above 35 dB(A) LAeq, 15 min at the reasonable most affected point of the residence, determined in accordance with the NPfI, and how often corona noise is expected to be above this level per year;
c) implement all reasonable and feasible noise mitigation measures, determined in accordance with the NPfI, at receivers predicted to experience corona discharge noise levels that exceed the noise level identified in condition C8; and
d) prepare and implement a Research Program and allocate $150,000 to this program, prepared in consultation with EPA and be submitted to the Planning Secretary for approval prior to commencement</td><td>Section 7.1</td><td>Detailed design undertaken during Stage 2 will consider all reasonable and feasible steps to minimise the impacts of corona discharge noise that could occur during operation.
Detailed design will identify residences expected to exceed 35 dB(A) LAeq,15min and will determine how often these conditions would likely occur annually.
Detailed design will identify reasonable and feasible noise mitigation measures and these measures will be implemented.
Transgrid will prepare and implement a Research Program, prepared in consultation with the Environment Protection Authority (EPA). Transgrid will allocate $150,000 to this program and will submit the program to the Planning Secretary for approval prior to the commencement of operation.</td></tr>
</table>

Condition no.	Requirement	Where addressed	How addressed
	of operation, which must provide further scientific and engineering understanding of corona discharge noise and best practice noise mitigation measures.		
C10	The Noise and Vibration EMP Sub-Plan required under condition B2 must:	-	-
	a) ensure the requirements in conditions C1 to C9 are complied with;	Refer above for conditions C1 to C9.	Refer above for conditions C1 to C9.
	b) include a description of the reasonable and feasible measures that would be implemented to minimise noise and vibration impacts of the development;	Table 7.1	Management and mitigation measures implemented to minimise noise and vibration impacts of the project are included in Section 7, particularly Table 7.1.
	c) include a detailed description of the noise and vibration management system for the development;	This NVMP, particularly Section 7 and Section 8	The noise and vibration management system is described throughout this NVMP, particularly the management and mitigation measures included in Section 7, and the compliance management process included in Section 8.
	d) include a protocol for the identification, notification and management of works that exceed the noise management levels; and	Section 7.1 Table 7.1 Section 8.3 CCS Appendix A	A protocol for the management of activities that could result in noise levels that exceed the noise management levels at sensitive receivers is identified in Section 7.1. Notification, as required, will be undertaken in accordance with the CCS. Works would be managed in accordance with the management measures identified in Table 7.1 and monitored as described in Section 8.3. Any works undertaken outside the hours identified in conditions C1 and C2, including those that could exceed the noise management levels, would be undertaken in accordance with the Out-of-Hours-Work Protocol in Appendix A.
	e) include a monitoring program that evaluates and reports on the effectiveness of the noise and vibration management system; and	Section 8.3 Section 8.4	The effectiveness of the management measures identified in Section 7 of this NVMP will be monitored and reported through the program provided in Sections 8.3 and 8.4.
	f) include an Out-of-Hours Work Protocol to identify a process for the consideration, management and approval of works that are outside the hours defined in conditions C1 and C6, which must: (i) be prepared in consultation with the relevant Council; (ii) identify low risk activities that can be undertaken without the approval of the Planning	Appendix A – Out of Hours Work Protocol	An Out of Hours Work Protocol has been prepared and is included in Appendix A. The protocol covers all construction activities (Stage 1 and Stage 2). Consultation with the relevant Councils was completed as part of consultation for the Stage 1 CEMP and sub-plans. The Protocol in Appendix A remains unchanged from the version in the Stage 1 NVMP.

Condition no.	Requirement	Where addressed	How addressed
	Secretary and with the approval of the ER; and (iii) identify high risk activities that must be approved by the Planning Secretary; and g) identify Department, Council and community notification arrangements for approved out of hours work.		

2.3 Revised mitigation measures

The revised mitigation measures (RMMs) for the project are provided in Appendix B of the Submissions Report. The RMMs relevant to noise and vibration management are presented in Table 2.2.

A cross reference is also included to indicate where the measure is addressed within this plan or other project management documents. The management measures that will be implemented for the project are provided in Section 7 of this plan.

Table 2.2 - Revised mitigation measures relevant to noise and vibration

Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
NV1	A Construction Noise and Vibration Management Plan (CNVMP) would be prepared by the construction contractor prior to construction works commencing and would (as a minimum) identify:	All locations	This plan	This plan has been prepared prior to Stage 2 construction works commencing.
	• all noise and vibration sensitive receivers;		Appendix B - Sensitive receivers Table 3.1	Sensitive receivers associated with Stage 2 works identified in Table 3.1 and visually represented in Appendix B.
	• feasible and reasonable noise mitigation where management levels are likely to be exceeded;		Section 7 Table 7.1	Feasible and reasonable mitigation measures are identified in Table 7.1.
	• feasible and reasonable noise measures to manage traffic noise impacts on public roads where impacts are identified at any sensitive receiver due to proposal-related traffic;		Section 7 Table 7.1	Mitigation measures to minimise noise levels associated with project construction road traffic are included in Table 7.1, as measure N4.
	• feasible and reasonable vibration mitigation where vibration criteria are likely to be exceeded;		Section 7 Table 7.1	Vibration management measures are included in Table 7.1, specifically measures N8 and N9.
	• describe associated noise and vibration monitoring programs;		Section 8.3	The monitoring program is presented in Section 8.3.
	• refer to complaint handling protocols for complaints related to construction noise and vibration; and		Section 1.7.4	Proactive strategies to prevent complaints include notification and consultation with sensitive receivers. Complaints management will be undertaken in accordance with the CCS.
	• outline community consultation measures including notification requirements.		Section 1.7	
	This CNVMP would be implemented for the duration of construction.		Section 1.3	This plan has been developed for Stage 2 and will be implemented for the duration of Stage 2 of construction.
NV2	Where noise from construction is likely to result in noise affected receivers, mitigation and management measures would be implemented where practicable and	All locations	Section 7 Table 7.1	The mitigation measures listed in RMM NV2 have been included in Table 7.1 of this plan.

Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
	appropriate. This would include (but is not limited to) the following measures:			
	• select quieter plant and equipment and use alternative construction methods to minimise noise levels;		Table 7.1	This requirement is included as management measure N6.
	• plan and schedule concurrent noisy activities to minimise the number of items of noisy plant operating at one time and cumulative noise levels;		Table 7.1	This requirement is included as management measure N7.
	• install screens or use barriers to mitigate noise from stationary noise sources;		Table 7.1	This requirement is included as management measure N6.
	• maximise the offset distance between noisy plant and orient equipment away from sensitive receivers;		Table 7.1	This requirement is included as management measure N6.
	• use noise source controls, such as residential class mufflers, to reduce noise from all regularly – used plant including cranes, excavators and trucks;		Table 7.1	This requirement is included as management measure N6.
	• use alternative reversing alarms in place of traditional beeper reversing alarms during works outside standard construction hours where noise impacts have been predicted;		Table 7.1	This requirement is included as management measure N6.
	• turn off machinery when not in use;		Table 7.1	This requirement is included as management measure N6.
	• ensure equipment is well maintained and not generating excessive noise;		Table 7.1	This requirement is included as management measure N3.
	• operate machinery in a manner which reduces maximum noise level events, such as shaking excavator buckets, loading trucks from a height, steel on steel contact and dragging materials across hard surfaces;		Table 7.1	This requirement is included as management measure N6.
	• provide awareness training regarding noise mitigation measures to be implemented;		Table 7.1	This requirement is included as management measure N1.
	• notify and consult with potentially affected receivers about upcoming noisy activities; and		Table 7.1 Section 1.7.2	This requirement is included as management measure N14 and N16.
	• ensure that noise affected receivers outside standard construction hours and highly noise affected sensitive receivers are provided with appropriate respite.		Appendix A	All works undertaken outside the hours defined in condition C1 and C2 will be undertaken in accordance with the Out of Hours Work Protocol.
NV3	Where construction is likely to result in vibration levels that exceed relevant criteria at sensitive receivers, mitigation and management measures would be implemented where practicable and	All locations	Section 4.6 Section 7 Table 7.1	The mitigation measures listed in RMM NV3 have been included in Table 7.1 of this plan.

Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
	appropriate. This would include (but is not limited to) the following measures:			
	• avoid the use of vibration-intensive plant at distances where human discomfort would result;		Table 7.1	This requirement is included as management measure N8.
	• substitute lower vibration-intensive plant and methods (for example use a smaller machine, lower power settings or alternative equipment);		Table 7.1	This requirement is included as management measure N8.
	• sequence operations to avoid or minimise concurrent vibration-intensive activities;		Table 7.1	This requirement is included as management measure N8.
	• schedule the use of vibration-sensitive equipment during the least sensitive times of the day;		Table 7.1	This requirement is included as management measure N8.
	• confirm any vibration-sensitive heritage structures that could be impacted by the proposal works. Develop site-specific measures to avoid vibration impacts and implement the measures during vibration-intensive activities in the vicinity; and		Table 7.1	No vibration-sensitive heritage structures have been identified in the vicinity of the Stage 2 disturbance area. In the event that vibration-sensitive heritage structures could be impacted, this requirement would be implemented as identified in management measure N9.
	• inform and consult with potentially affected receivers about upcoming vibration-intensive activities.		Table 7.1 Section 1.7.2	This requirement is included as management measure N16 and N14.
NV4	Where noise from construction-related traffic is likely to result in road traffic noise increases of more than 2 dB at affected receivers, mitigation and management measures would be implemented where practicable and appropriate. This would include (but is not limited to) the following measures: • minimise proposal-related traffic movements along the route; • minimise speeds for proposal-related traffic in the vicinity of affected receivers; • avoid compression braking and the use of air brakes in the vicinity of affected receivers; • implement driver training and measures to ensure driver awareness, speed limits, driver behaviour and designated routes are effectively communicated; and • limit traffic movements to daytime periods as far as possible and minimise traffic movements outside standard construction hours.	All locations	Section 4.7 Section 7 Table 7.1	The mitigation measures listed in RMM NV4 have been included in Table 7.1 of this plan, including N4 and N5.

Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
NV5	Activities likely to generate noise levels that exceed applicable noise management levels at sensitive receivers would be scheduled during standard construction hours wherever practicable. Other activities required outside standard construction hours that are likely to generate noise levels that exceed applicable noise management levels at any nearby sensitive receivers would be carried out in accordance with an out of hours works protocol (Mitigation measure NV6).	All locations excluding the operation of the accommodation camps	Section 7 Table 7.1 Appendix A - *Out of Hours Work Protocol*	An Out of Hours Work Protocol has been prepared in line with condition C10 f) of the Infrastructure Approval and is included in Appendix A of this NVMP.
NV6	Develop and implement an out of hours works (OOHW) protocol that details how the proposal would identify, assess and approve out of hours works outside standard construction hours that are likely to generate noise levels that exceed the relevant noise management levels at sensitive receivers. The protocol would include provisions to: • carry out additional assessments for works proposed outside standard construction hours to confirm predicted noise levels • minimise noise levels outside standard construction hours • carry out the noisiest activities as early as possible in the work shift where practicable • identify appropriate respite for noise affected receivers (where required) • notify and engage with potentially affected receivers about upcoming works outside standard construction hours and address any associated complaints. The Out of Hours Work protocol would not apply to the operation of the accommodation camps. Prior to works outside standard construction hours, engagement and consultation would occur with potentially affected receivers regarding various mitigation and management measures. Based on this consultation, appropriate mitigation and management options would be considered and implemented where feasible and reasonable to minimise the impacts.	All locations excluding the operation of the accommodation camps	Section 1.7.2 Table 7.1 Appendix A - Out of Hours Work Protocol	An Out of Hours Work Protocol has been prepared in line with condition C10 f) of the Infrastructure Approval and is included in Appendix A of this NVMP.
NV7	Where residences or other sensitive receivers/structures are within the minimum working distances for vibration, different construction methods with lower source vibration levels would be investigated and implemented, where feasible. Attended vibration measurements would be undertaken at the start of the works to	All locations	Section 6.2.8	No sensitive receivers/ structures are within the minimum working distances for vibration as a result of the Stage 2 works.

Ref	Revised mitigation measures	Application location(s)	Where addressed	How addressed
	determine actual vibration levels at the structure. Works would cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria.			
NV8	Prior to the commencement of blasting, a Blast Management Strategy would be developed. The strategy would describe the process that would be used to design each blast (depths and Maximum Instantaneous Charge for each location etc) to comply with relevant noise and vibration criteria at any nearby sensitive receivers. The strategy would also detail noise and vibration monitoring and landholder notification requirements for blasting. The strategy would be implemented for all blasting.	Blasting locations	Section 6.2.8 Table 7.1	If blasting is proposed, a Blast Management Strategy would be developed in accordance with NV8 prior to the commencement of blasting.
NV9	Investigate any complaints regarding construction noise and vibration to determine if actual noise and vibration levels are as predicted and that appropriate mitigation measures have been implemented. Where required, identify and implement appropriate additional mitigation measures.	Blasting locations	Section 1.7.4 Section 7 Table 7.1	All complaints will be investigated in accordance with the CCS.
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 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.	Transmission line	Table 7.1	Landowners using disturbance areas for livestock grazing will be consulted prior to the commencement of works regarding alternatives for the management of their stock during these activities.

2.4 Licences and permits

Subject to the outcomes of geotechnical investigations, crushing and screening may be required. If necessary, an environment protection licence (EPL) will be obtained for the project for the scheduled activity of crushing and screening. The EPL will detail conditions which must be complied with when undertaking the crushing and screening activities.

2.5 Guidelines

The main guidelines, specifications and policy documents relevant to this plan include:

- NSW *Interim Construction Noise Guideline* (the ICNG), Department of Environment and Climate Change (DECC) 2009;
- *Noise Policy for Industry*, Environment Protection Authority 2017;
- *NSW Road Noise Policy* (RNP) (DECCW, 2011);

- *NSW Assessing Vibration – a technical guideline*, Department of Environment and Conservation 2006;
- British Standard BS 6472-2008, *'Evaluation of human exposure to vibration in buildings (1-80Hz)*;
- British Standard 7385: Part 2-1993 *'Evaluation and measurement of vibration in buildings'*;
- German Standard DIN4150-2016 *Structural vibration Part 3: Effects of vibration on Structures*;
- AS/NZS 2107:2016 *Acoustics – Recommended design sound levels and reverberation times for building interiors*; and
- Association of Australian Acoustical Consultants (AAAC): *Guideline for Child Care Centre Acoustic Assessment* (2013).

The documents identified above are considered by the project as described and referenced throughout this NVMP.

3 Existing environment

The following section summarises the existing noise and vibration environment within and adjacent to Stage 2 of the project. The key reference documents include:

- Chapter 18 of the EIS;
- Technical Paper 10 of the EIS (Noise and vibration impact assessment) (Technical Paper 10 of the EIS); and
- Section 6.6 of the Amendment Report.

Existing noise levels within and surrounding the project are influenced by the surrounding agricultural, industrial and rural residential land uses as well as local traffic and the operation of the existing Wagga Wagga substation.

Wagga Wagga is a rural township at the eastern extent of the project, in which noise levels are influenced by industrial, commercial and urban residential land uses and higher levels of local traffic.

3.1 Sensitive receivers

Sensitive residential receivers located within 1km of the project are listed in Table 3.1. All sensitive receivers located within 5km of the project are shown in Appendix B. All sensitive receivers specific to the water supply points are listed in Table 3.2.

At a broad scale, the project would only impact on a relatively small number of sensitive residential receivers for a majority of the alignment between Buronga and the proposed Dinawan substation. East of the proposed Dinawan substation, there would be smaller areas of more densely located sensitive receivers, typically around the following:

- the townships of Lockhart, Uranquinty and Wagga Wagga;
- a small cluster of receivers within the vicinity of Lake Benanee; and
- a cluster of receivers to the west of Lake Cullivel.

Table 3.1 - Sensitive residential receivers within 1km of the project

Receiver ID	Address	Nearest project element
188	The Rock	Transmission line
191	Valleyfield, 301 Boiling Down Rd, Rowan	
192	Belhaven, 233 Boiling Down Rd, Rowan	
202	Benlock, 83 Ashfords Rd, Gregadoo	Wagga Wagga construction compound
211	2 Mcgeachies Lane, The Rock	Transmission line
231	Caringa, 253 Rowan Rd, Rowan	
249	1066 Bullenbong Rd, Tootool	
259	517 Plumpton Rd, Rowan	
260	286 Boiling Down Rd, Rowan	
279	Uranquinty	
384	4353 Boree Creek Rd, Cullivel	
385	Cullivel	
414	Woodown, 5086 Albury Rd, Lockhart	
415	254 Lockhart The Rock Rd, Lockhart	

Receiver ID	Address	Nearest project element
419	60 Dunleveys Lane, Lockhart	
432	128 Slys Lane, Milbrulong	
450	128 Slys Lane, Milbrulong	
451	Holm Lea, 564 French Park-Bullenbung Rd, Milbrulong	
461	731 Hendersons Rd,Tootool	
468	The Rock	
500	Rowanfeyld, 6701 Holbrook Rd, Rowan	
501	Ubatuba, 6645 Holbrook Rd, Gelston Park	
502	6720 Holbrook Rd, Rowan	
503	6640 Holbrook Rd, Gelston Park	
504	6823 Holbrook Rd, Rowan	
546	2696 Lockhart Rd, Lockhart	Lockhart construction compound and accommodation camp
737	Arundel, 1504 Gregadoo East Rd, Gregadoo	Wagga Wagga construction compound
737	Arundel, 1504 Gregadoo East Rd, Gregadoo	Transmission line
738	Kismet, 1526 Gregadoo East Rd, Gregadoo	Wagga Wagga construction compound
738	Kismet, 1526 Gregadoo East Rd, Gregadoo	Transmission line
739	Kismet, 1526 Gregadoo East Rd, Gregadoo	Wagga Wagga construction compound
739	Kismet, 1526 Gregadoo East Rd, Gregadoo	Transmission line
740	551 Mitchell Rd, Gregado	Wagga Wagga construction compound
740	551 Mitchell Rd, Gregadoo	Transmission line
742	10 Butterbush Rd, Gregadoo	Wagga Wagga construction compound
743	36 Butterbush Rd, Gregadoo	
844	456 Plumpton Rd, Rowan	Transmission line
845	517 Plumpton Rd, Rowan	
846	Spring Creek, 21 Rowan Rd, Rowan	
847	511 Plumpton Rd, Rowan	
848	517 Plumpton Rd, Rowan	
851	688 Plumpton Rd, Rowan	
852	Valleyfield, 301 Boiling Down Rd, Rowan	
853	Mayfield, 202 Ashfords Rd,Gregadoo	Wagga Wagga construction compound
862	9 Ivydale Rd, Gregadoo	
1126	Milbrulong	Transmission line
1685	50985 Sturt Hwy, Euston	
1702	Lockhart	
1712	The Rock	

Receiver ID	Address	Nearest project element
9996	St Johns, 672 French Park-Bullenbung Rd, Milbrulong	
10001	Milbrulong	
10006	Lockhart	
10007	Lockhart	
10239	8955 Newell Hwy, Bundure	
11318	374 Barragunda Rd, Urana	
12296	747 Urana-Lockhart Rd, Lockhart	
14908	Woodlands, 4536 Boree Creek Rd, Urana	
15158	Euston	
20425	Connorton, 6879 Holbrook Rd, Rowan	
20426	Connorton, 6879 Holbrook Rd, Rowan	
20519	Thurrowa Road, Bundure	
20522	877 Coonong Rd, Morundah	
20523	877 Coonong Rd, Morundah	
20564	Il Bosco, 6643 Holbrook Rd, Gelston Park	
20571	6752 Holbrook Rd, Rowan	
20572	6823 Holbrook Rd, Rowan	
26749	6701-6739 Holbrook Rd, Gelston Park, Rowan	
26750	6701-6739 Holbrook Rd, Gelston Park, Rowan	
26865	2750 Lockhart Rd, Lockhart	Lockhart construction compound and accommodation camp
26868	2569-2569 Lockhart Collingullie Rd, Milbrulong	
26869	Collingullie Jerinderie Rd, Milbrulong	
26870	County Boundary Rd, Milbrulong	
26871	County Boundary Rd, Milbrulong	
26907	709-709 The Rock Collingullie Rd, The Rock	Transmission line
26908	709-709 The Rock-Collingullie Rd, The Rock	
26952	718-1040 Old Station Rd, Uranquinty	
27027	688 Plumpton Rd, Rowan	
27028	21-275 Rowan Rd, Rowan	
27032	456-456 Plumpton Rd, Lake Albert, Rowan	

Table 3.2 - Sensitive receivers for water supply points

Location	Owner	Council	Name in Amendment Report (if applicable)	Distance to project site boundary	Distance to nearest EIS sensitive receiver (approximate)	Nearest sensitive receiver (approximate)
Located within Balranald LGA						
Church Street, Balranald	Balranald Shire Council	Balranald Shire Council	Church Street, Balranald	>1.5km	>1.5km	50m SW
159 Church Street, Balranald	Balranald Shire Council	Balranald Shire Council	-	>1.5km	>1.5km	70m NW
Lake Benanee	Private	Balranald Shire Council	-	>1.5km	>1.5km	200m NE
812 Windomal Road, Balranald	Private	Balranald Shire Council	Lucerne at Balranald	>1.5km	>1.5km	25m S
Court Street/Sturt Highway	Balranald Shire Council	Balranald Shire Council	-	>1.5km	>1.5km	50m NW
10 Perry Street, Euston	Balranald Shire Council	Balranald Shire Council	-	>1.5km	>1.5km	25m W
Carey Street / Sturt Highway, Euston	Balranald Shire Council	Balranald Shire Council	-	>1.5km	>1.5km	70m NE
Located within Hay LGA						
Ravensworth	Private	Hay Shire Council	Ravensworth	>1.5km	>1.5km	7.5km SW
Paraway at Cobb Highway	Private	Hay Shire Council	-	<1.5km	>1.5km	10km SE
16 Mile Gums	LLS	Hay Shire Council	-	>1.5km	>1.5km	>20km
Jerilderie Road	Private	Hay Shire Council	-	>1.5km	>1.5km	>20km
59 Thelangerin Road	Hay Shire Council	Hay Shire Council	-	>1.5km	>1.5km	300m NE
Located within Murray River LGA						
6204 Yanga Way, Yanga	Old Goodnight	Murray River Council	-	>1.5km	>1.5km	25m W

Location	Owner	Council	Name in Amendment Report (if applicable)	Distance to project site boundary	Distance to nearest EIS sensitive receiver (approximate)	Nearest sensitive receiver (approximate)
Keri Keri Road	Private	Murray River Council	Keri Keri Road, Keri Keri	>1.5km	>1.5km	There are no receivers within 20km
78 Murray Street, Tooleybuc	Murray River Council	Murray River Council	-	>1.5km	>1.5km	30m W
Located within Murrumbidgee LGA						
137 Cadell Road, Jerilderie	Private	Murrumbidgee Council	-	>1.5km	>1.5km	5km S
Kidman Way	Coleambally Irrigation	Murrumbidgee Council	-	>1.5km	>1.5km	2.3km SW
Crosby Road	Coleambally Irrigation	Murrumbidgee Council	-	>1.5km	>1.5km	2km SE
Dinawan Stock & Domestic	Private	Murrumbidgee Council	Red Swamp / Dinawan Station	>1.5km	2km	2km W
Paraway at Four Corners Road	Private	Murrumbidgee Council	-	<1.5km	>1.5km	10km SE
North Boundary Road	Private	Murrumbidgee Council	-	<1.5km	>1.5km	14.5km
Dinawan Camp and Laydown	Private	Murrumbidgee Council	Red Swamp / Dinawan Station	>1.5km	>1.5km	2.3km SW
1254 Four Corners Road, Coleambally	Coleambally Irrigation	Murrumbidgee Council	1254 Four Corners Road	>1.5km	>1.5km	60m NE
137 Cadell Road, Coleambally	Private	Murrumbidgee Council	Cadell Road, Coleambally	<1.5km	>1.5km	4.5km SW
3 Bencubbin Avenue, Coleambally	Murrumbidgee Council	Murrumbidgee Council	3 Bencubbin Avenue	>1.5km	>1.5km	50m SW
Mclennons Bore Road, Coleambally	Private	Murrumbidgee Council	Mclennons Bore Road	<1.5km	>1.5km	2.5km SE
8955 Newell Highway Bundure	Private	Murrumbidgee Council	Newell Highway, Bundure	<1.5km	>1.5km	2.5km SE

Location	Owner	Council	Name in Amendment Report (if applicable)	Distance to project site boundary	Distance to nearest EIS sensitive receiver (approximate)	Nearest sensitive receiver (approximate)
Located within Wagga Wagga LGA						
50 Elizabeth Avenue, Forest Hill	Riverina Water	Wagga Wagga City Council	-	>1.5km	>1.5km	30m E
Boiling Down Road	Private	Wagga Wagga City Council	-	<1.5km	<1.5km	50m W
Ashfords Road, Wagga Wagga	Riverina Water	Wagga Wagga City Council	Ashfords Road	<1.5km	<1.5km	500m NE
Lake Albert (Plumpton Road), Wagga Wagga	Riverina Water	Wagga Wagga City Council	Lake Albert	>1.5km	>1.5km	50m E
Red Hill Road	Riverina Water	Wagga Wagga City Council	Glenfield	>1.5km	>1.5km	60m NE
Located within Edward River LGA						
Burraburoon	Private	Edward River Council	-	>1.5km	>1.5km	1.5km NE
Moulamein Road 2	Private	Edward River Council	Moulamein	>1.5km	>1.5km	500m SE
394 Hay Road, Deniliquin	Edward River Council	Edward River Council	394 Hay Road, Deniliquin	>1.5km	>1.5km	20m E
Carrathool Road, Four Corners	Coleambally Irrigation	Edward River Council	Show in Figure 6-9 of the Amendment Report, but unclear of name in Table 6-5 of Amendment Report.	>1.5km	>1.5km	20km
Booroorban-Tchelery Road	Private	Edward River Council	-	>1.5km	>1.5km	2.5km SW
Wonga Station, Four Corners Road	Private	Edward River Council	Wonga	>1.5km	>1.5km	400m NE
Four Corners Road Mabins Well	Private	Edward River Council	Four Corners Road Mabins Well	<1.5km	>1.5km	500m SE

Location	Owner	Council	Name in Amendment Report (if applicable)	Distance to project site boundary	Distance to nearest EIS sensitive receiver (approximate)	Nearest sensitive receiver (approximate)
Located within Lockhart LGA						
39 Urana Street, The Rock	Riverina Water	Lockhart Shire Council	The Rock	>1.5km	>1.5km	25 W
2850 Lockhart the Rock Road, Tootool	Riverina Water	Lockhart Shire Council	Tootool	>1.5km	>1.5km	100m S
Old French Park-Bullenbong Road, French Park	Riverina Water	Lockhart Shire Council	French Park			
Urana-Lockhart Road, Brookong	Private	Lockhart Shire Council	-	>1.5km	>1.5km	9km NW
Brookdale	Private	Lockhart Shire Council	-	<1.5km	>1.5km	400m S
Strongs Lane, Lockhart	Private	Lockhart Shire Council	-	<1.5km	>1.5km	500m SE
Slys Lane	Private	Lockhart Shire Council	-	<1.5km	>1.5km	350m SE
Lockhart - the Rock Road, Lockhart	Riverina Water	Lockhart Shire Council	Lockhart	>1.5km	>1.5km	100m S
Bullenbung-the-Rock Road	Private	Lockhart Shire Council	-	>1.5km	>1.5km	1.7km NW
French Park-Bullenbung Road	Private	Lockhart Shire Council	-	>1.5km	>1.5km	300m NW
Napier Road	Private	Lockhart Shire Council	-	>1.5km	>1.5km	1.6km NW
Albury Road, Lockhart	Private	Lockhart Shire Council	-	>1.5km	>1.5km	900m NW
Located within Federation LGA						
Federation Way/Coonong Road	Private	Federation Council	-	>1.5km	>1.5km	>20km

Location	Owner	Council	Name in Amendment Report (if applicable)	Distance to project site boundary	Distance to nearest EIS sensitive receiver (approximate)	Nearest sensitive receiver (approximate)
Newell Highway/Arrawidgee Road	Private	Federation Council	-	>1.5km	>1.5km	>20km
Federation Way	Private	Federation Council	-	<1.5km	>1.5km	2.4km SW
Richmond Street, Boree Creek	Riverina Water	Federation Council	Boree Creek	>1.5km	>1.5km	100m NE
Newell Highway, Morundah	Private	Federation Council	-	>1.5km	>1.5km	2km SE
Federation Way (near corner Federation Way and Stephen Street)	Riverina Water	Federation Council	-	>1.5km	<1.5km	1km SW
Located within Wentworth LGA						
Off Sturt Highway	Private	Wentworth Shire Council	-	>1.5km	>1.5km	10km SE

3.2 Aboriginal and historic heritage

Supplementary technical assessment 2 of the Submissions Report included the *Revised Non-Aboriginal and Aboriginal Cultural Heritage Assessment Report* which identifies the location of Aboriginal heritage features in the vicinity of the project. Aboriginal features include culturally modified trees, middens, scattered artefact finds and potential archaeological deposits (PADs).

The supplementary technical assessment identified the following Aboriginal features that have the potential to be impacted by the project:

- two PADs, PAD15 and PAD45, and two sites, PEC-E-18 and PEC-E-20 would be located less than 200m away from the Cobb Highway accommodation camp and compound and the nearby transmission line corridor;
- PAD38, which was refined into a larger PAD area, encompasses part of the alignment, a transmission line tower and an access track near the Lockhart alignment; and
- one PAD32 and one artefact scatter (PEC-E-60) which encompasses a transmission line tower Colombo Creek.

Technical Paper 10 of the EIS considered Aboriginal heritage items that are identified within the minimum safe working distances (refer Table 4.8). The technical paper stated that it does not implicitly follow that these items are sensitive to vibration on the basis of being classified as a heritage item alone, and that the items (trees, middens or scattered artefact finds) consist of typically non-vibration sensitive objects. The report concluded that none of these items were classified as structures and as such, no vibration heritage items are assumed to be within the safe working distances during construction. It is noted that Technical Paper 10 made no reference to PADs.

Additional information regarding the management of heritage sites near the Stage 2 works are included in the *Heritage Management Plan* (45860-HSE-PL-D-0119).

Further to above, no historic heritage structures were identified within the safe working distances for the Stage 2 works.

3.3 Measured noise levels

Unattended noise monitoring was undertaken at two locations during the assessment process of the EIS. Table 3.3 details the noise levels that were measured during the noise monitoring which occurred between 18 October and 4 November 2021 at 211 Liddles Lane, Jerilderie (referred to as noise monitoring location 1 (NM1)) and 83 Ashfords Road, Wagga Wagga (referred to as noise monitoring location 2 (NM2)).

The EIS advises that these noise monitoring locations were selected as they were considered representative of the existing background noise levels across the project and are located in the vicinity of the proposed Dinawan 330kV substation (NM1) and the existing Wagga Wagga substation (NM2).

Table 3.3 - Unattended noise measurement results

Noise monitoring location	Measured noise level (dBA)					
	Rating background level (RBL) dBA			Ambient noise level $L_{Aeq(15min)}$		
	Day[1]	Evening[1]	Night[1]	Day[1]	Evening[1]	Night[1]
NM1	35 (32)[2]	30	30 (27)[2]	52	51	48
NM2	35 (31)[2]	30 (29)[2]	30 (26)[2]	46	43	38

Notes (as per the EIS):

(1) Time periods defined as – Day: 7am to 6pm Monday to Saturday, 8am to 6pm Sunday; Evening: 6pm to 10pm; Night: 10pm to 7am Monday to Saturday, 10pm to 8am Sunday

(2) Where background levels are below the minimum assumed RBLs outlined in the NPfI, they have been adjusted to 35dBA during the day period, and 30dBA during the evening and night periods in accordance with the NPfI

To characterise the existing noise environment, short term (attended) noise measurements were also undertaken at each of the unattended noise monitoring locations during the daytime period as summarised in Table 3.4. Background noise levels were observed to be low during the daytime period and dominated by rural and natural sounds. The main noise sources observed during monitoring included birds, insects, motor vehicles, agricultural equipment, which is typical of rural and natural sounds and is expected to be generally consistent across the project area. Background noise levels were found to be consistent with the findings of the unattended noise monitoring program.

Table 3.4 - Attended noise measurement results

ID	Date and Time	Measured noise level			Comments
		$L_{A90(15min)}$	$L_{Aeq(15min_}$	L_{Amax}	
NM1	20/10/2020 2:40 pm	33	42	62	Noise from a nearby tractor, insects, birds, local traffic
NM2	19/10/2020 2:55 pm	33	43	62	Local traffic, birds, electricity substation, insects

4 Noise and vibration criteria

The EPA recommends management levels and goals when assessing construction noise and vibration. These are outlined in:

- the ICNG (DECC, 2009); and
- *Assessing Vibration: a technical guideline* (DEC, 2006).

Relevant elements of these documents are summarised in the sections below.

4.1 Construction hours

4.1.1 Standard construction hours

In accordance with condition C1, and in line with the ICNG standard construction hours, road upgrades, construction, upgrading or decommissioning may only be undertaken between:

- 7am to 6pm – Monday to Friday;
- 8am to 1pm – Saturdays; and
- at no time on Sundays and NSW public holidays;

unless the Planning Secretary agrees otherwise.

In accordance with condition C6, blasting may only be carried out on the site between 9 am and 5 pm Monday to Friday and between 9 am to 1 pm on Saturday. No blasting is allowed on Sundays or public holidays, unless approved in accordance with condition C1.

4.1.2 Variation to standard construction hours

The following construction, upgrading and decommissioning activities may be carried out outside the hours specified above, as permitted in condition C2:

- the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons;
- emergency work to avoid the loss of life, property or to prevent material harm to the environment;
- works carried out in accordance with the hours and noise limits specified in any negotiated agreements with sensitive receivers (owners and occupiers), provided the negotiated agreements are in writing and finalised before the commencement of works;
- activities that are inaudible at non-associated residences;
- road upgrades required by the relevant roads authority to be undertaken outside the standard construction hours; or

works carried out in accordance with an Out-of-Hours Work Protocol approved in accordance with condition C10.Construction work is proposed seven days per week (Monday to Sunday) between 7am and 7pm (referenced in the EIS as the base construction hours). These work hours were assessed in the EIS, to enable an overall reduction in the duration of construction and were considered due to the limited number of nearby sensitive receivers and the proposed shift arrangements of the workforce given the remote nature of the project. Any works undertaken outside of the standard construction hours detailed within Section 4.1.1, except those allowable as detailed within this section, will be undertaken subject to the requirements of the Out of Hours Work Protocol (Appendix A).

4.2 Out of hours work protocol

An Out of Hours Work Protocol (required in accordance with condition C10 f)) is provided in Appendix A to identify the process for the consideration, management and approval of works to be undertaken outside the hours defined in conditions C1, C2 and C6 (which details blasting hours) of the Infrastructure Approval.

Works that comply with the conditions C1, C2 and C6 are not required to be undertaken in accordance with the processes outlined in the Out of Hours Work Protocol. Operation of the accommodation camps will not be subject to the Out of Hours Work Protocol as the definition of 'construction' within the Infrastructure Approval excludes the operation of the accommodation camps. The operation of the accommodation camps is addressed in their respective Accommodation Camp Management Plan required under condition C50.

4.3 Construction noise and assessment objectives

The ICNG provides guidelines for the assessment and management of construction noise. The ICNG focuses on applying a range of work practices to minimise construction noise impacts rather than focusing on achieving numeric noise levels.

The main objectives of the ICNG are to:

- identify and minimise noise from construction works;
- focus on applying all 'feasible' and 'reasonable' work practices to minimise construction noise impacts;
- encourage construction during the recommended standard hours only, unless approval is given for works that cannot be undertaken during these hours;
- reduce time spent dealing with complaints at the project implementation stage; and
- provide flexibility in selecting site-specific feasible and reasonable work practices to minimise noise impacts.

4.4 Quantitative noise assessment criteria

Construction noise assessment goals presented in the ICNG are referred to as noise management levels for residential, sensitive land uses and commercial/industrial premises.

4.4.1 Residential premises

Table 4.1 (reproduced from Table 2 of the ICNG) sets out the external noise management levels for construction noise at residences.

In Table 4.1 the rating background level (RBL) is used when determining the management level. The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the *Noise Policy for Industry* (NPfI) (EPA, 2017).

As a guide, the difference between the internal noise level and the external noise level is typically 10dB with windows open for adequate ventilation.

Table 4.1 - Noise at residents using quantitative assessment

Time of day	Noise Management Level $L_{Aeq(15min)}$ *	How to apply
Recommended standard hours:	Noise affected RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise.

Time of day	Noise Management Level $L_{Aeq(15min)}$ *	How to apply
• Monday to Friday 7am to 6pm • Saturday 8am to 1pm • No work on Sundays or public holidays		• where the predicted or measured $L_{Aeq(15min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level; and • the proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. • where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: – times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences; – if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	Noise affected RBL + 5dB	• a strong justification would typically be required for works outside the recommended standard hours; • the proponent should apply all feasible and reasonable work practices to meet the noise affected level; and • where all feasible and reasonable practices have been applied and noise is more than 5dBA above the noise affected level, the proponent should negotiate with the community.

* Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5m above ground level. If the property boundary is more than 30m from the residence, the location for measuring or predicting noise levels is at the most noise- affected point within 30m of the residence. Noise levels may be higher at upper floors of the noise affected residence.

4.4.2 Other land uses (non-residential)

The ICNG provides noise management levels for commercial and industrial premises and 'other sensitive' land uses (ICNG, Table 3). The management levels for other noise sensitive receivers not listed in the ICNG, such as hotels, are derived from *AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors* and the Association of Australian Acoustical Consultants (AAAC) *Guideline for Child Care Centre Acoustic Assessment* (2013). The noise management levels from AS2107 are the upper range levels to account for the variable and short-term nature of construction noise.

Table 4.2 presents noise management levels for other non-residential land uses based on the principle that the characteristic activities for each of these land uses should not be unduly disturbed. The noise management levels apply when the premises are in use during any assessment period.

Internal noise levels are assessed at the centre of the occupied room. External noise levels are assessed at the most affected point within 50m of the area boundary. Where internal noise levels cannot be measured, external noise levels may be used. A conservative estimate of the difference between internal and external noise levels is 10dB for buildings other than residences. Some buildings may achieve greater performance, such as where windows are fixed (that is, cannot be opened).

Table 4.2 - Noise at sensitive land uses (non-residents) using quantitative assessment

Land use	Noise management level ($L_{Aeq(15min)}$)	Where noise management level applies	Assumed façade loss (conservative) (dBA)	External equivalent noise management level ($L_{Aeq(15min)}$)	Reference
Cinema space, theatre, auditorium	35	Internal noise level	20	55	AS2107 'maximum'
Hotel (sleeping areas: hotels near minor roads)	35	Internal noise level	20	55	AS2107 'maximum'
Classrooms at schools and other educational institutions	45	Internal noise level	10	55	AS2107 'maximum'
Childcare centre (sleeping areas)	40	Internal noise level	10	50	AAAC Guideline for Child Care Centre Acoustic Assessment
Hospital wards and operating theatres	45	Internal noise level	20	65	ICNG
Places of worship	45	Internal noise level	20	65	ICNG
Library (reading areas)	45	Internal noise level	20	65	AS2107 'maximum'
Community centres – municipal buildings	50	Internal noise level	10	60	AS2107 'maximum'
Restaurant, bar (bars and lounges/ restaurant)	50	Internal noise level	20	70	AS2107 'maximum'
Passive recreation (e.g. area used for reading, meditation)	60	External noise level	--	60	ICNG
Active recreation (e.g. sports fields)	65	External noise level	--	65	ICNG
Commercial premises (including offices and retail outlets)	70	External noise level	--	70	ICNG
Industrial premises	75	External noise level	--	75	ICNG

4.4.3 Sleep disturbance criteria

Where construction works are planned to extend over more than two consecutive nights, the potential for works to disturb sleep should be considered. Factors that may be important in assessing the extent of impact on sleep include how often high noise events occur at night, the predicted maximum noise levels, whether there are times when there is a clear change in the noise environment (such as during early morning shoulder periods), and the degree of maximum noise levels above the background noise level.

A night-time sleep disturbance 'screening criterion' noise goal of RBL + 15dB is used to identify the receivers where there is potential for sleep disturbance.

Where the sleep disturbance screening criterion is exceeded, further assessment is conducted to determine whether the 'awakening reaction' level of L_{Amax} 55dBA internal (i.e. 65dBA external assuming an open window or 75dBA external assuming a closed window) would be exceeded and the likely number of these events. The awakening reaction level is the level above which sleep disturbance is considered likely.

4.5 Project noise management levels for residential receivers

The project noise management levels presented in Table 4.3 are based on the existing background noise levels and are determined in accordance with the ICNG.

Table 4.3 - Noise management levels for residential receivers

Location	Rating background level (RBL) L_{A90}			Noise management level (NML) $L_{Aeq(15min)}$				Sleep disturbance $L_{A1(1min)}$
	Day (7am – 6pm)	Evening (6pm – 10pm)	Night (10pm – 7am)	Standard Hours[1] (RBL + 10dB)	Out of hours work (OOHW)[2] (RBL + 5dB)			
				Day (7am – 6pm)	Day	Evening	Night	RBL + 15dB
Dinawan	35 (32)[3]	30 [3]	30 (27)[3]	45	40	35	35	45
Wagga Wagga	35 (31)[3]	30 (29)[3]	30 (26)[3]					
All other receivers	35	30	30					

Notes:

(1) ICNG standard construction hours are defined as Monday – Friday: 7am – 6pm, Saturday: 8am – 1pm with no work on Sundays or public holidays.

(2) Out of hours work time periods are defined as:

Day: 7am to 8am Saturday, 1pm to 6pm Saturday and 8am to 6pm on Sunday and public holidays

Evening: 6pm to 10pm Monday to Sunday

Night: 10pm to 7am Monday to Saturday, 10pm to 8am Sunday

(3) Where background levels are below the minimum assumed RBLs outlined in the NPfI, they have been adjusted to 35dBA during the day period, and 30dBA during the evening and night periods in accordance with the NPfI.

4.6 Vibration criteria

Effects of ground vibration on buildings resulting from construction may be segregated into the following three categories:

- human exposure – disturbance to building occupants: vibration in which the occupants or users of the building are inconvenienced or possibly disturbed;
- effects on building contents – vibration where the building contents may be affected; and
- effects on building structures – vibration in which the integrity of the building or structure itself may be prejudiced.

4.6.1 Human comfort

Vibration criteria relating to human comfort that are applicable to this project are taken from the DEC (2006) document *Assessing Vibration – A Technical Guideline* and include the following:

- continuous vibration – from uninterrupted sources (Table 4.4);
- impulsive vibration – up to three instances of sudden impact e.g. dropping heavy items, per monitoring period (Table 4.5); and

- intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously (Table 4.6). All proposed vibration intensive activities are considered intermittent.

Table 4.4 - Human comfort - continuous vibration acceleration criteria (m/s²) 1-80Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
		0.04	0.029	0.080	0.058
Workshops	Day or night-time	0.04	0.029	0.080	0.058

Table 4.5 - Human comfort - impulsive vibration acceleration criteria (m/s²) 1-80Hz

Location	Assessment period	Preferred values		Maximum values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

Table 4.6 - Intermittent vibration impacts criteria (m/s1.75) 1-80Hz

Location	Daytime		Night-time	
	Preferred values	Maximum values	Preferred values	Maximum values
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

4.6.2 Structural damage

Two standards by which building damage from construction-induced vibration are commonly assessed include:

- British Standard 7385: Part 2-1993 *Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration* (BSI 1993); and
- German DIN 4150: Part 3 – 1999 *Effects of Vibration on Structure* (DIN 1999).

The German standard provides the most stringent criteria and will be used in this NVMP. The DIN guideline values for peak particle velocity (mm/s) measured at the foundation of the building are summarised in Table 4.7. The criteria are frequency dependent and specific to particular categories of structure.

Table 4.7 - Structural damage criteria

Type of structure	Peak Component Particle Velocity, mm/s			
	Vibration at the foundation at a frequency of			Vibration of horizontal plane of highest floor at all frequencies
	1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz*	
Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

* For frequencies above 100Hz, at least the values specified in this column shall be applied.

4.6.3 Minimum working distances

The EIS (Table 5-10 of Technical Paper 10 of the EIS) identified minimum working distances for typical items of vibration intensive equipment to minimise potential for vibration related impacts. These are reproduced in Table 4.8.

Where vibration intensive equipment such as vibratory rollers, hydraulic hammers or bored piling rigs are used at a greater distance from sensitive receivers than the specified minimum working distance, there is negligible risk of structural damage or impacts on human comfort. Where recommended minimum working distances are not met, more detailed consideration of potential vibration impacts and the construction approach would occur during detailed design.

Table 4.8 - Minimum working distances for vibration intensive plant

Equipment	Rating/Description	Minimum working distance (m)		
		Human response (DEC, 2006)	Cosmetic damage to non-heritage structures (BSI, 1993)	Damage to heritage structures (DIN 4150-3:1999-02)
Vibratory roller	<100kN (typically 2-4t)	20	6	16
	>300kN (typically 13-18t)	100	20	54
Small hydraulic hammer	300kg – 5 to 12t excavator	7	2	5
Medium hydraulic hammer	900kg – 12 to 18t excavator	23	7	15
Large hydraulic hammer	1600kg – 18 to 34t excavator	73	22	44
Pile boring	≤800mm	N/A	2	5
Piling rig - hammer	12t down force	50	15	115

4.7 Blasting criteria

Table 4.9 reflects the blasting criteria stipulated for the project in accordance with condition C7. Any blasting undertaken on the project will meet the blasting criteria.

Table 4.9 - Blasting criteria

Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance
Any non-associated residence	120	10	0%
	115	5	5% of the total number of blasts or events over a rolling period of 12 months

4.8 Construction road traffic noise

Technical Paper 10 of the EIS notes that traffic impacts associated with construction vehicles are assessed using guidance from the *Road Noise Policy* (RNP). The RNP provides guidance on the assessment of noise impacts on sensitive receivers from additional road traffic generated by the proposal operating on a public road network.

The RNP makes a distinction between the assessment of freeway/arterial/sub-arterial roads and local roads. Freeway/arterial/sub-arterial roads are assessed over day (7am to 10pm) and night (10pm to 7am) periods.

Table 4.10 presents a summary of applicable road traffic criteria for residential receivers identified in Table 3 of the RNP.

Table 4.10 - Road traffic noise criteria for receivers on existing roads affected by the additional traffic from the project

Road type	External road traffic noise criteria[1]	
	Day 7am – 10pm	Night 10pm – 7am
Freeway/arterial/sub-arterial roads	60 dBA $L_{Aeq(15hour)}$	55 dBA $L_{Aeq(9hour)}$
Local roads	55 dBA $L_{Aeq(1hour)}$	50 dBA $L_{Aeq(1hour)}$

(1) Façade corrected noise levels

The application notes from the RNP detail the requirements for construction-generated traffic noise as follows:

> *For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level as a result of the development should be limited to 2dB above that of the noise level without the development. This limit applies where the noise level without the development is within 2dB of, or exceeds, the relevant day or night noise assessment criterion.*

Therefore, if the road traffic noise levels increase by more than 2dB as a result of the proposed construction traffic, and the criteria outlined in Table 4.9 are exceeded, mitigation options should be investigated.

4.9 Noise intensive equipment

Elecnor considers noise intensive equipment as having a sound power level above 115dBA (refer to Table B.1.1 of Technical Paper 10 of the EIS). Noise intensive equipment that may be used includes but is not limited to:

- piling rig;
- D8 dozer;
- excavator with hammer;
- pneumatic jackhammer;
- stump grinder; and/or

- mulcher/chipper.

5 Environmental aspects and impacts

5.1 Construction activities

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental management systems). The relationship of aspects and impacts is one of cause and effect.

The key aspects that could result in adverse impacts to noise and vibration include the use of noise and/or vibration producing equipment for the following activities:

- vegetation clearing and grubbing activities;
- topsoil stripping;
- topsoil/material handling including stockpiling, material and spoil loading and material and spoil haulage;
- earthworks;
- surface grading and compaction;
- operating plant and equipment, including crushing and screening (as required);
- tower assembly and stringing;
- establishment of access points and water supply points;
- movement of vehicles including light and heavy vehicles;
- establishment and operation of the construction compounds at Wagga Wagga, Lockhart, Dinawan, Cobb Highway and Balranald;
- establishment of the accommodation camps at Lockhart, Dinawan and the Cobb Highway; and
- operation of the construction compounds.

Subject to a Blast Management Strategy in accordance with NV8, blasting may also be undertaken during construction.

5.2 Construction impacts

Potential impacts attributable to the works might include:

- loss of amenity for residential and non-residential sensitive receivers;
- reputational impacts due to complaints from the public; and
- disturbance of livestock.

Noise and vibration impacts will be intermittent and transient in nature, with some activities only occurring for a week at a time (e.g. access and clearing at tower sites).

Due to the location of the transmission line works and the distances to nearby receivers at the various sites, the works may exceed the noise management levels at a number of receivers along the alignment:

- up to and around 166 receivers are predicted to exceed the standard hours noise management levels during the access and clearing stage; and
- up to and around 139 receivers are predicted to exceed the standard hours noise management levels during the earthworks phase.

Construction activities associated with the Dinawan substation and Buronga sites are generally predicted to comply with noise management levels. At the Cobb Highway site a number of impacts are anticipated to occur at receivers:

- up to and around 26 residential receivers are predicted to exceed the standard hours noise management level (NML) during the predicted worst case (noisiest) works stage which is the earthworks stage. For the other work stages, up to six residential receivers are predicted to exceed the standard hours noise management levels; and
- up to and around 95 and 350 residential receivers are predicted to exceed the day and evening/night out of hours noise management levels respectively if out of hours earthworks are required at the Wagga Wagga substation.

There is also negligible risk of structural damage or impacts on human comfort due to the use of vibration intensive equipment (refer Section 6.2.7).

Further detail of the potential noise and vibration impacts resulting from specific proposed activities is provided within Section 6. The environmental management described in Section 7 (particularly the measures in Table 7.1) have been developed to address the potential noise and vibration impacts described here and in Section 5.3.

5.3 Blasting

Blasting may be required, depending on geotechnical conditions along the project alignment. The need for blasting will be confirmed during detailed development of the construction methodology, however it is expected that it will be limited to small areas as required at tower locations where shallow bedrock or hard geological conditions are identified.

Controlled blasting is a process used in road construction to break up hard rock that cannot be easily removed by typical excavation techniques or where typical excavation techniques (for example using excavators with hydraulic hammers) would result in poor amenity outcomes for adjacent sensitive receivers.

Controlled blasting may be required to be used in some locations along the alignment to loosen and break up existing rock to allow for creation of transmission tower pads and/or to facilitate excavation associated with the proposed Dinawan 330kV and/or Wagga 330kV substation works.

Controlled blasting will be used to loosen or sever the existing shallow rock in areas required so it can be removed by more traditional excavation methods. This would typically be undertaken by drilling a line of closely spaced holes within the area required (such as a transmission tower pad). Each hole would then be loaded with a small amount of explosives and a delayed detonation of the explosive would be carried out to limit the amount of energy being released at any particular moment. The energy generated as a result of detonating the explosive would break the harder rock formation(s) into smaller pieces to allow subsequent removal.

Following the controlled blasting activities, two options would be available for the removal of the rock material. These would include traditional excavation with excavation equipment or additional blasting. The technique to be used would be determined based on the success of the initial blasting activities.

Specific blasting and seismic details would be assessed on a site and blast specific basis. It is important that the actual buffer zone distances, associated specifically with this project, be identified and appropriate measures taken to limit overpressure and vibration to acceptable levels at critical locations.

5.4 Designing for corona discharge

Audible noise associated with the operation of high voltage transmission lines is primarily due to corona discharge from transmission lines. Such phenomenon is driven by conductor's Surface

Voltage Gradient (SVG) and accumulation of pollution and water droplets on the transmission lines conductor surface. Corona discharge noise is therefore intermittent, typically occurring in certain atmospheric conditions such as during rain, mist or fog.

Such audible noise is understood to be typically characterised a broadband crackling noise with a possible more prominent tonal component at 100Hz. Such noise occurrence would apply to the new transmission lines as well as existing transmission lines which run parallel to the new transmission lines, where cumulative noise impact requires consideration.

As outlined in Section 4 of the Response to DPE Request for Information (30 August 2022), options for at-source mitigation of potential operational noise from corona discharge to achieve the project trigger level of 35 dB(A) LAeq,15min are limited and not reasonable and feasible for this infrastructure. Only at-receiver treatments are likely to be reasonable and feasible to mitigate potential amenity impacts due to corona discharge in this context.

The operation of the project is not addressed in this Plan.

6 Construction noise and vibration assessment

6.1 Construction activities

Appendix B of Technical Paper 10 of the EIS includes a summary of the construction scenarios and noise levels for plant and equipment that were assessed to predict noise impacts associated with the project.

The scenarios relevant to construction that were assessed include:

- substation construction at Dinawan and expansion of Wagga Wagga substation:
  - enabling works;
  - earthworks and civil construction works;
  - electrical construction works;
  - pre-commissioning; and
  - demobilisation and rehabilitation;
- construction compounds and accommodation camps:
  - enabling works;
  - enabling works – site establishment;
  - operation of the compound – standard hours;
  - operation of the compound – outside standard hours; and
  - demobilisation / rehabilitation;
- transmission line construction:
  - enabling works;
  - site establishment and access tracks;
  - earthworks and civil construction works;
  - tower assembly;
  - tower erection;
  - tower stringing;
  - commissioning/energisation; and
  - demobilisation and rehabilitation.

Additional information regarding the types of activities included in each scenario and assessed equipment is included in Appendix C.

6.2 Construction noise impacts

Condition C4 of the Infrastructure Approval states that noise generated by any construction activities must be managed in accordance with the requirements for construction 'noise affected' management levels established in accordance with the ICNG.

Construction 'noise affected' management levels are described as project 'noise management levels' throughout this NVMP and have been established in accordance with the ICNG as identified in Section 4.5. In line with the ICNG, where predicted or measured noise levels exceed the noise management level, feasible and reasonable work practices will be identified and implemented, such as those included in Section 7.

The information in the following sections describes the potential noise impacts for Stage 2 activities compared to the noise management levels. The information is generally obtained from noise assessments presented in Chapter 18 and Technical Paper 10 of the EIS and Section 6.6 of the Amendment Report. The location of the nearest sensitive receivers referenced in this section are depicted on the maps included in Appendix B.

6.2.1 Wagga Wagga

Overview

The EIS assessed the upgrade and expansion of the Wagga Wagga substation site and the establishment and operation of a construction compound adjacent to the Wagga Wagga substation.

Potential impacts

Section 5.2.1.9 of Technical Paper 10 of the EIS found that construction works at the Wagga Wagga substation upgrade and expansion site and compound site would result in a number of predicted exceedances of the noise management level at the nearest sensitive receivers in close proximity to both sites. The predicted noise levels at the Wagga Wagga substation and construction compound sites during standard hours and out of hours work periods are listed within Table 6.1.

Table 6.1- Predicted noise levels – Wagga Wagga substation and construction compound

Construction work phase	Period[1]	Project NML $L_{eq(15min)}$ dBA	Predicted noise level range $L_{eq(15min)}$ dBA	Exceedance of project NMLs $L_{eq(15min)}$ dBA	Highly noise affected NML 75dBA or greater $L_{eq(15min)}$
Substation early and set out works	SH day	45	Up to 55	Up to 10	-
	OOHW day	40	Up to 60	Up to 20	-
	OOHW E/N	35	Up to 55	Up to 20	-
Earthworks and civil construction works	SH day	45	Up to 60	Up to 20	-
	OOHW day	40	Up to 70	Up to 30	-
	OOHW E/N	35	Up to 65	Up to 30	-
Electrical construction works	SH day	45	Up to 65	Up to 20	-
	OOHW day	40	Up to 60	Up to 20	-
	OOHW E/N	35	Up to 65	Up to 30	-
Construction of the compound	SH day	45	Up to 70	Up to 30	-
	OOHW day	40	Up to 60	Up to 20	-
	OOHW E/N	35	Up to 70	Up to 35	-
Operation of the compound	SH day	45	Up to 65	Up to 20	-
	OOHW day	40	Up to 60	Up to 20	-
	OOHW E/N	35	Up to 65	Up to 30	-
Pre-commissioning	SH day	45	Up to 55	Up to 10	-
	OOHW day	40	Up to 60	Up to 20	-
	OOHW E/N	35	Up to 65	Up to 20	-
Final completion	SH day	45	Up to 55	Up to 10	-
	OOHW day	40	Up to 60	Up to 20	-

Construction work phase	Period[1]	Project NML $L_{eq(15min)}$ dBA	Predicted noise level range $L_{eq(15min)}$ dBA	Exceedance of project NMLs $L_{eq(15min)}$ dBA	Highly noise affected NML 75dBA or greater $L_{eq(15min)}$
	OOHW E/N	35	Up to 65	Up to 20	-

(1) SH day = ICNG standard construction hours, OOHW day = 7am to 8am and 1pm to 6pm Saturday, 8am to 6pm Sunday, OOHW E/N = 6pm to 7am Monday to Saturday and 6pm to 8am Sunday.

Note: Exceedance classes – Less than or meets noise management level (NML); NML+1–10 dB; NML+11 – 20 dB; NML+21 dB or more

The closest receivers are residential and are located approximately 330m south east of the Wagga Wagga substation, however the majority of receivers predicted to experience exceedances of the noise management levels are located in suburban districts to the north of the substation. No non-residential sensitive receivers were predicted to be impacted by the upgrade and expansion works at Wagga Wagga substation.

As noted in Section 7, reasonable and feasible measures would be implemented for works that are predicted to exceed the relevant NMLs or result in audible noise at sensitive receivers, in accordance with D4 and RMM NV2.

In accordance with condition C10 f), any works proposed to be undertaken outside the hours defined in conditions C1, C2 and C6 of the Infrastructure Approval, will be undertaken in accordance with the Out of Hours Work Protocol included in Appendix A.

As detailed in RMM NV5, activities likely to generate noise levels that exceed applicable noise management levels at sensitive receivers would be scheduled during standard construction hours, wherever practicable.

Stage 2 construction works at the Wagga Wagga sites would generally be conducted between 7 am and 7 pm. Where works are anticipated to result in impacts below the noise management levels, these works may be undertaken outside of these hours, in accordance with the Out of Hours Work Protocol (Appendix A).

6.2.2 Dinawan

Overview

The EIS assessed the Dinawan site for the establishment of a new substation and temporary construction compound and accommodation camp. The closest receiver was determined to be located at least four kilometres from the Stage 2 works.

Potential impacts

The EIS predicted the noise levels due to the Dinawan construction compound and accommodation camp during standard hours of work and out of hours work periods. These are listed within Table 6.2.

Table 6.2 - Predicted noise levels – Dinawan substation, construction compound and accommodation camp

Construction work phase	Period[1]	Project NML $L_{eq(15min)}$ dBA[2]	Predicted noise level range $L_{eq(15min)}$ dBA	Exceedance of project NMLs $L_{eq(15min)}$ dBA	Highly noise affected NML 75dBA or greater $L_{eq(15min)}$
All activities	SH Day	45	Less than 45	-	-
	OOHW D	40	Less than 40	-	-
	OOHW E/N	35	Less than 35	-	-

(1) SH day = ICNG standard construction hours, OOHW day = 7am to 8am and 1pm to 6pm Saturday, 8am to 6pm Sunday, OOHW E/N = 6pm to 7am Monday to Saturday and 6pm to 8am Sunday.

Note: Exceedance classes – Less than or meets noise management level (NML); NML+1–10 dB; NML+11 – 20 dB; NML+21 dB or more

No exceedances of construction noise management levels were predicted to occur near this site during any construction works at all hours.

In accordance with condition C10 f), any works proposed to be undertaken outside the hours defined in conditions C1, C2 and C6 of the Infrastructure Approval, will be undertaken in accordance with the Out of Hours Work Protocol included in Appendix A.

As detailed in RMM NV5, activities likely to generate noise levels that exceed applicable noise management levels at sensitive receivers would be scheduled during standard construction hours, wherever practicable.

Stage 2 construction works at the Dinawan substation sites would generally be conducted between 7 am and 7 pm. Where works are anticipated to result in impacts below the noise management levels, these works may be undertaken outside of these hours, in accordance with the Out of Hours Work Protocol (Appendix A).

6.2.3 Cobb Highway

Overview

The EIS assessed the Cobb Highway site as a construction compound and accommodation camp. The location of the combined construction facility was revised in the Amendment Report, to avoid impacts to a known PAD site. The Amendment Report considered that the change in location did not alter the noise assessment results from the EIS in the vicinity of the site.

Potential impacts

Section 5.2.1.5 of Technical Paper 10 of the EIS found that construction works at the Cobb Highway compound site would result in a number of predicted noise management level exceedances at the nearest sensitive receivers in close proximity to the site. The predicted noise levels at the Cobb Highway construction compound and accommodation camp site during standard hours and out of hours work periods are listed within Table 6.3.

Table 6.3 - Predicted noise levels – Cobb Highway construction compound and accommodation camp

Construction work phase	Period[1]	Project NML $L_{eq(15min)}$ dBA[2]	Predicted noise level range $L_{eq(15min)}$ dBA	Exceedance of project NMLs $L_{eq(15min)}$ dBA	Highly noise affected NML 75dBA or greater $L_{eq(15min)}$
Construction of the compound and camp	SH Day	45	Up to 50	Up to 5	-
	OOHW D	40	Up to 45	Up to 5	-
	OOHW E/N	35	Up to 45	Up to 10	-
Operation of the compound	SH Day	45	Less than 45	-	-
	OOHW D	40	Less than 40	-	-
	OOHW E/N	35	Less than 35	-	-
Decommissioning	SH Day	45	Less than 45	-	-
	OOHW D	40	Less than 40	-	-
	OOHW E/N	35	Up to 40	Up to 5	-

(1) SH day = ICNG standard construction hours, OOHW day = 7am to 8am and 1pm to 6pm Saturday, 8am to 6pm Sunday, OOHW E/N = 6pm to 7am Monday to Saturday and 6pm to 8am Sunday.

Note: Exceedance classes – Less than or meets noise management level); NML+1–10 dB; NML+11 – 20 dB; NML+21 dB or more

One residential property located approximately 1.5km north from the construction compound (Receiver ID 1777) was predicted to experience exceedances of the noise management levels during the Stage 2 works. These exceedances are anticipated to be limited to less than 5dB during both the standard and out of hours day works (OOHW D) and less than 10dB during works undertaken during evening and night periods (OOHW E/N).

As noted in Section 7, reasonable and feasible measures would be implemented for works that are predicted to exceed the relevant NMLs or result in audible noise at sensitive receivers, in accordance with D4 and RMM NV2.

In accordance with condition C10 f), any works proposed to be undertaken outside the hours defined in conditions C1, C2 and C6 of the Infrastructure Approval, will be undertaken in accordance with the Out of Hours Work Protocol included in Appendix A.

As detailed in RMM NV5, activities likely to generate noise levels that exceed applicable noise management levels at sensitive receivers would be scheduled during standard construction hours, wherever practicable.

Stage 2 construction works at the Cobb Highway sites would generally be conducted between 7 am and 7 pm. Where works are anticipated to result in impacts below the noise management levels, these works may be undertaken outside of these hours, in accordance with the Out of Hours Work Protocol (Appendix A).

6.2.4 Lockhart (County-Boundary Road)

Overview

The EIS assessed the Lockhart site as a construction compound and accommodation camp.

Potential impacts

Section 5.2.1.8 of Technical Paper 10 of the EIS found that construction works at the Lockhart construction compound and accommodation camp would result in a number of predicted exceedances of the noise management levels at the nearest sensitive receivers in close proximity to the site. The predicted noise levels at the Cobb Highway site during standard hours and out of hours work periods are listed within Table 6.4.

Table 6.4 - Predicted noise levels – Lockhart construction compound and accommodation camp

Construction work phase	Period[1]	Project NML $L_{eq(15min)}$ dBA	Predicted noise level range $L_{eq(15min)}$ dBA	Exceedance of project NMLs $L_{eq(15min)}$ dBA	Highly noise affected NML 75dBA or greater $L_{eq(15min)}$
Construction of the compound and camp	SH day	45	Up to 45	Up to 10	-
	OOHW day	40	Up to 60	Up to 20	-
	OOHW E/N	35	Up to 55	Up to 20	-
Operation of the compound	SH day	45	Up to 45	-	-
	OOHW day	40	Up to 40	-	-
	OOHW E/N	35	Up to 45	Up to 10	-

(1) SH day = ICNG standard construction hours, OOHW day = 7am to 8am and 1pm to 6pm Saturday, 8am to 6pm Sunday, OOHW E/N = 6pm to 7am Monday to Saturday and 6pm to 8am Sunday.

Note: Exceedance classes – Less than or meets noise management level (NML); NML+1–10 dB; NML+11 – 20 dB; NML+21 dB or more

Nine residential receivers are predicted to experience exceedances of the noise management levels, with one receiver (Receiver ID 546) located approximately 630 metres northeast of the

Lockhart site, predicted to a maximum exceedance of 19 dBA during the out of hours evening/night time period during the Stage 2 works to establish the construction compound. The EIS noted this receiver would also experience an exceedance of the noise management level of up to 10dB during the evening and night period, however this is likely associated with the operation of the camp (as the EIS grouped the operational noise assessment for these facilities), which is not included in the Stage 2 scope of works.

As noted in Section 7, reasonable and feasible measures would be implemented for works that are predicted to exceed the relevant NMLs or result in audible noise at sensitive receivers, in accordance with D4 and RMM NV2.

In accordance with condition C10 f), any works proposed to be undertaken outside the hours defined in conditions C1, C2 and C6 of the Infrastructure Approval, will be undertaken in accordance with the Out of Hours Work Protocol included in Appendix A.

As detailed in RMM NV5, Activities likely to generate noise levels that exceed applicable noise management levels at sensitive receivers would be scheduled during standard construction hours, wherever practicable.

Stage 2 construction works at the Lockhart sites would generally be conducted between 7 am and 7 pm. Where works are anticipated to result in impacts below the noise management levels, these works may be undertaken outside of these hours, in accordance with the Out of Hours Work Protocol (Appendix A).

6.2.5 Balranald

Overview

The EIS assessed the Balranald site as a construction compound and accommodation camp.

Potential impacts

No receivers are predicted to experience exceedances of the noise management levels during any work stages at the construction compound at Balranald (1.1 kilometres northwest of existing Balranald substation).

In accordance with condition C10 f), any works proposed to be undertaken outside the hours defined in conditions C1, C2 and C6 of the Infrastructure Approval, will be undertaken in accordance with the Out of Hours Work Protocol included in Appendix A.

Stage 2 construction works at the Balranald sites would generally be conducted between 7 am and 7 pm. Where works are anticipated to result in impacts below the noise management levels, these works may be undertaken outside of these hours, in accordance with the Out of Hours Work Protocol (Appendix A).

6.2.6 Buronga - operation of construction compound

Section 3 of the Technical Paper 10 of the EIS noted that the project would use the proposed construction compound and accommodation camp at Buronga which was approved under the EnergyConnect NSW – Western Section project approval. No new activities are required at this facility and as a result no new noise impacts were predicted. Based on noise assessments undertaken for the NSW – Western Section, no receivers are predicted to experience exceedances of the nose management levels during operation of the construction compound at Buronga. Therefore no exceedances of construction noise management levels were identified for this facility for the Stage 2 works.

6.2.7 Transmission line

Overview

Technical Paper 10 of the EIS identified that based on the indicative duration of works along the transmission line corridor, it is expected that for each key activity stage, the duration would generally be limited to less than one week with periods of no work between each stage of the transmission line construction (varying between one and 15 weeks).

Potential impacts

The construction of the transmission line has the potential to result in the exceedance of noise management levels for all assessed construction scenarios. The predicted noise levels for the transmission line construction works presented in Table 6.5 are conservative, as the assessment did not include screening impacts from terrain and assumed all plant identified in Appendix C of this NVMP was operational at any one time. As described in Section 5.2.1.1 of Technical Paper 10 of the EIS, actual noise levels experienced during construction are expected to be generally well below the predicted noise levels in at any identified receiver.

Due to the progressive nature of works at different locations along the transmission line corridor, all receivers would not be impacted for the entire duration of works.

Table 6.5 - Predicted noise levels – transmission line construction (source WSP)

Construction work phase	Period[1]	Project NML $L_{eq\ 15\ min}$ dBA	Predicted noise level range $L_{eq\ 15\ min}$ dBA	Exceedance of project NMLs $L_{eq\ 15\ min}$ dBA	Highly noise affected NML 75dBA or greater $L_{eq\ 15\ min}$
Enabling works	SH day	45	Up to 75	Up to 30	-
	OOHW day	40	Up to 70	Up to 30	-
	OOHW E/N	35	Up to and >65	>30	-
Site establishment and access tracks	SH day	45	Up to and >75	>30	2 receivers
	OOHW day	40	Up to and >70	>30	-
	OOHW E/N	35	Up to and >65	>30	-
Earthworks and civil construction works	SH day	45	Up to and >75	>30	2 receivers
	OOHW day	40	Up to and >70	>30	-
	OOHW E/N	35	Up to and >65	>30	-
Tower assembly	SH day	45	Up to 75	Up to 30	-
	OOHW day	40	>70	>30	-
	OOHW E/N	35	Up to and >65	>30	-
Tower erection	SH day	45	Up to 75	Up to 30	-
	OOHW day	40	Up to and >70	>30	-
	OOHW E/N	35	Up to and >65	>30	-
Tower stringing	SH day	45	Up to 75	Up to 30	-
	OOHW day	40	Up to and >70	>30	-
	OOHW E/N	35	Up to and >65	>30	-
Commissioning / energisation	SH day	45	Up to 65	Up to 20	-
	OOHW day	40	Up to and >70	>30	-
	OOHW E/N	35	Up to 65	Up to 30	-
Demobilisation and rehabilitation	SH day	45	Up to 75	Up to 30	-
	OOHW day	40	Up to and >70	>30	-
	OOHW E/N	35	Up to and >65	>30	-

Note: Exceedance classes – Less than or meets noise management level (NML); NML+1–10 dB; NML+11 – 20 dB; NML+21 dB or more

(1) SH day = ICNG standard construction hours, OOHW day = 7am to 8am and 1pm to 6pm Saturday, 8am to 6pm Sunday, OOHW E/N = 6pm to 7am Monday to Saturday and 6pm to 8am Sunday.

6.2.8 Blasting

Estimated maximum instantaneous charges to comply with the objectives outlined below have been provided in Figure 6.1 to provide some indication of acceptable blast sizes, however further assessment would be undertaken and incorporated into site specific blast management plans to ensure that the vibration and overpressure objectives can be met. It should be noted that the assessment conducted are preliminary in nature and should be confirmed once tower locations and blasting methodology are finalised as part of detailed design.

Vibration formula:

$$V = 1140\left(\frac{R}{Q^{1/2}}\right)^{-1.6}$$

and

Overpressure formula: OP = 165 – 24 *(LogR – 0.33LogQ)

Where:

V = ground vibration as peak particle velocity in mm/s

R = distance between charge and point of measurement in metres

Q = effective charge mass per delay or maximum instantaneous charge in kilograms.

The distance limits per nominated Maximum Instantaneous Charge (MIC) may vary significantly depending on the geological conditions, local shielding and meteorological factors at the site.



Figure 6.1 - Estimated effective mass charges to minimise annoyance (source: WSP)

Based on the outcomes of this assessment, the need for management and mitigation is dependent upon the maximum MIC proposed for use and the separation distance to the nearest affected sensitive receivers. These would be developed on a site specific basis in a Blast Management Strategy in accordance with RMM NV8.

Areas where blasting may be required are provided in Figure 6.2.

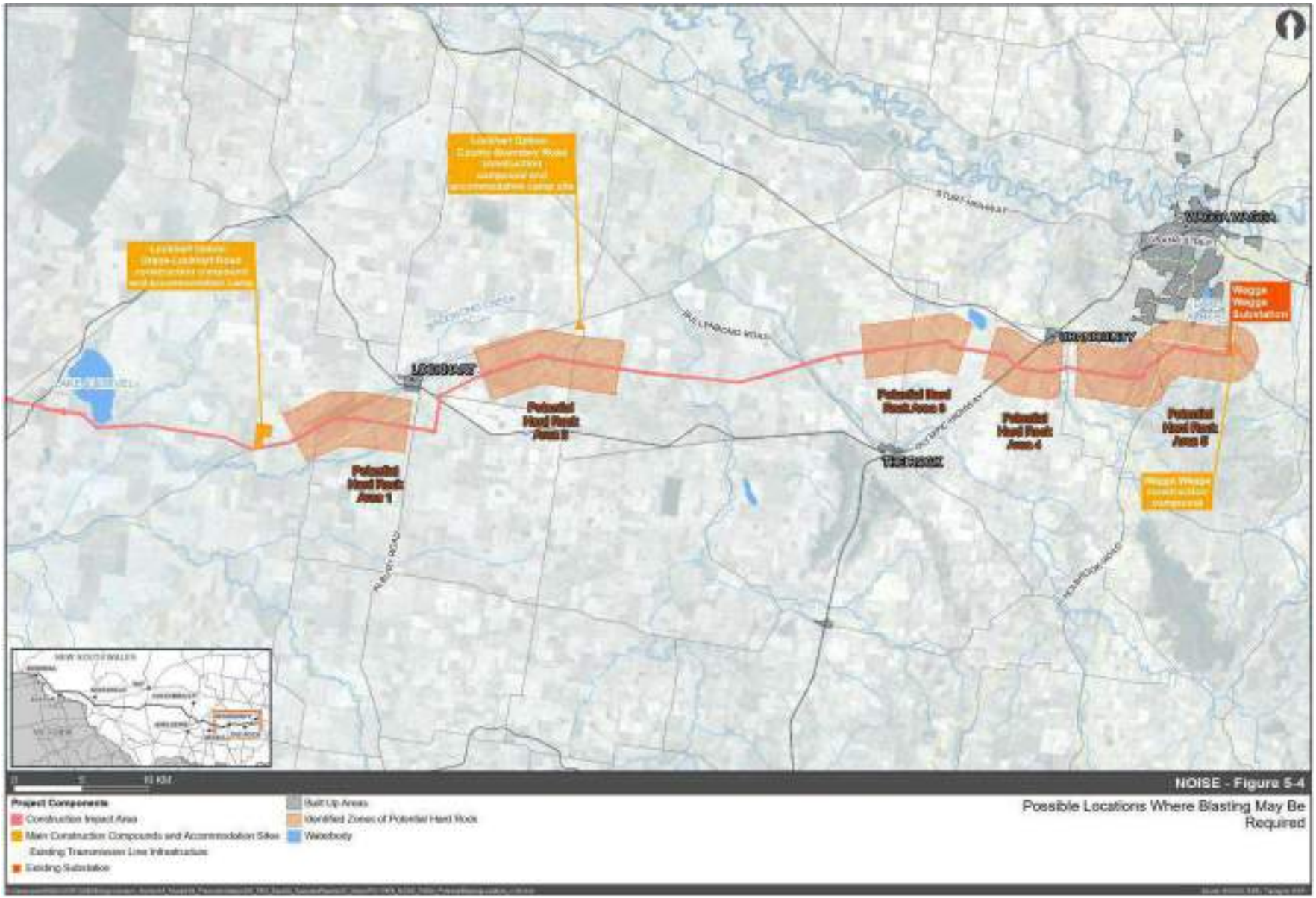


Figure 6.2 - Areas identified in the Final BDAR where potential blasting may be required (source: WSP)

6.2.9 Corona discharge

As outlined in Technical Paper 10 of the EIS, the transmission line audible noise risk zone is based on the setback distances from the transmission line centreline where the operational noise trigger level of Leq, 15min 35 dBA is met for both the project's contribution and cumulative impact (where relevant). These distances are summarised in Table 6.6. Based on these distances, the number of potential residential receivers within each of these audible noise risk zones has been calculated. The results are provided in Table 6.7.

The 'significance' of the predicted noise impact has been determined based on guidance provided in NPfI, as discussed in Technical Paper 10 of the EIS, is summarised in Table 6.8.

Table 6.6 - Transmission line audible noise risk zones (distance from new transmission line centreline) (source: WSP)

	Transmission line scenarios	Project only (metres)	Cumulative impact scenario	Cumulative impact risk zone (metres) (north/south)
1	330kV (Base) Buronga substation to Dinawan 330kV substation; and	442	Dinawan substation to Wagga Wagga substation: • Section 3.A; and • Section 3.B.	505/433
	500kV (Base) Dinawan 330kV substation to Wagga Wagga substation	358		432/401
2	330kV (Base + 1% SVG) Buronga substation to Dinawan 330kV substation; and	548	Dinawan substation to Wagga Wagga substation: • Section 3.A; and • Section 3.B.	569/512
	500kV (Base + 1% SVG) Dinawan 330kV substation to Wagga Wagga substation	451		510/535

Table 6.7 - Number of residential receivers within transmission line audible noise risk zones (source: WSP)

	Transmission line scenarios	No. of sensitive receivers within audible risk zone	No. of additional sensitive receivers within audible risk zone (cumulative impacts)	Cumulative impact risk zone (metres) (north/south)
1	330kV (Base) Buronga substation to Dinawan 330kV substation; and	8	6	14 (up to 8 dB exceedance)
	500kV (Base) Dinawan 330kV substation to Wagga Wagga substation			
2	330kV (Base + 1% SVG) Buronga substation to Dinawan 330kV substation; and	12	11	23 (up to 9 dB exceedance)
	500kV (Base + 1% SVG) Dinawan 330kV substation to Wagga Wagga substation			

Table 6.8 - Significance of audible noise impact per NPfI (source: WSP)

Significance of noise impact	No. of receivers	List of receivers (ID)
330kV (Base) Buronga substation to Dinawan substation and 500kV (Base) Dinawan substation to Wagga Wagga substation		
Negligible (≤ 2 dB(A) above trigger level)	6	20522, 12942, 450, 313, 500, 259
Moderate (≥ 3 but ≤ 5 dB(A) above trigger level)	6	422, 208, 26750, 504, 27028, 202

Significance of noise impact	No. of receivers	List of receivers (ID)
Significant (≥ 5 dB(A) above trigger level)	2	385, 26749
Total	**14**	-
330kV (Base + 1% SVG) Buronga substation to Dinawan substation and 500kV (Base + 1% SVG) Dinawan substation to Wagga Wagga substation		
Negligible (≤ 2 dB above trigger level)	12	20519, 461, 468, 26908, 26907, 211, 279, 313, 186, 20533, 500, 259
Moderate (≥ 3 but ≤ 5 dB above trigger level)	9	422, 20522, 12942, 450, 208, 26750, 504, 27028, 202
Significant (≥ 5 dB above trigger level)	2	385, 26749
Total	**23**	-

In fair weather conditions all sensitive receivers are expected to be compliant with the project Noise Trigger Level (PNTL). This assumes that all sensitive receivers would be located outside of the easement which is an operational requirement (that is, all sensitive receivers would be greater than 40 metres from the transmission line).

Based on analysis conducted by Beca on historical meteorological data (Appendix D of Technical Paper 10 of the EIS), audible noise corona discharge noise is not expected to be a constant occurrence but is only present during wet and misty conditions. Based on the meteorological conditions identified for the area, the expected annual frequency of these conditions is between 20–40 per cent of the time. During heavier rain events, general ambient noise levels in the environment would likely be higher and therefore potentially have a masking effect over any possible corona discharge noise. Noise disturbance under such circumstances is therefore likely to be low risk.

Appropriate operational mitigation measures will be identified during detailed design and implemented accordingly.

6.3 Construction vibration

At sufficient levels, vibration can lead to cosmetic (and possibly structural) building damage and can cause disturbance to occupants. Vibration can also affect sensitive structures, which could include heritage listed buildings. Due to the distance between the works and recorded historic heritage items, no direct or indirect impacts to historic heritage items are expected as result of the Stage 2 works at Lockhart, Dinawan, Cobb Highway and Balranald. The Ivydale homestead and woolshed (Wagga Wagga LEP 2010, #I72 and #I73) are located in close proximity to the construction compound at Wagga Wagga. The EIS identified that neither heritage item would be impacted by the works.

The nearest sensitive receiver to the Stage 2 works is approximately 44m from the transmission line corridor boundary, and inside the minimum human response working distance during the work stages of access and clearing, earthworks and civil construction works and final completion stages. Each of these stages is schedule to be carried out for a period of approximately one week. This receiver is located outside of the safe working distance for cosmetic damage and presented graphically in Technical Paper 10 (Appendix B-5) of the EIS.

The minimum working distances identified in Table 4.8 indicate that where sensitive receivers are in excess of 100m from vibration generating equipment, there is negligible risk of structural damage or impacts on human comfort due to the use of vibration intensive equipment. There are therefore no receivers identified within the safe working distances of either of the substation locations, or the construction compounds or accommodation camps.

One potential archaeological deposit (PAD) was identified within close proximity to the Cobb Highway camp and compound, however, modifications to the location and scale of the facility were made as part of the Amendment Report to reduce potential impacts to this site.

6.4 Construction road traffic noise

Section 5.5 of Technical Paper 10 of the EIS assessed the road traffic noise impacts for primary access and key haulage routes from modelled traffic numbers. Indicative vehicle movements for construction of the project were identified in Appendix B-6 of Technical Paper 10 of the EIS and assessed traffic noise levels for residential receivers within 350 metres of each route. Table 3-2 of the Amendment Report detailed changes in haulage route use and haulage road classifications from that described in Section 6.11.3.1 of the EIS, or to ensure consistency with the figures presented of the construction haulage network. However the expected volumes did not change.

The use of the haulage routes would vary according with the construction activity undertaken - in terms of both volume of construction vehicles and the duration of use and only a quarter of the identified haulage routes would be used for the full duration of construction. Construction vehicle traffic would generally be higher during the main earthworks and civil construction activities.

As assessed in the EIS, road traffic noise levels would increase by more than 2dB at numerous properties across the whole project, due to the relatively large increases in vehicle volumes when compared to the low existing vehicle volumes. However, almost all of these increases are predicted to remain below 10dB. Increases up to 2dB are considered to be barely perceptible to the average person.

For the Stage 2 works, the number of affected properties would be expected to be lower than those identified for the whole project. A total of 10 receivers (over the whole project) detailed in Table 6.9 have been assessed to have predicted noise increases of greater than 2dB and exceed the RNP criteria identified in Table 4.10.

Table 6.9 - Road traffic noise impacts that exceeds both triggers (>2dB and RNP criteria)

Road	LGA	Type of haulage route/expected traffic impact	RNP criteria L_{AEQ} Road type	Number of properties increasing by more than 2dB and exceeding RNP criteria
Elizabeth Avenue	Wagga Wagga	**Secondary Haulage Route** Would be used throughout the construction program. The proposal would typically generate around 86 construction vehicles per day when in use (50 light vehicles and 36 heavy vehicles) but would peak up to 200 daily movements for short durations (100 light vehicles and 100 heavy vehicles).	55 local roads	10

While the construction traffic noise assessment determined a number of properties would experience noise increases, the base road noise emission levels would remain low, as would the number of properties predicted to exceed the RNP criteria. These exceedances would also be intermittent through the proposal construction program as not all roads are required to be used daily for the full program duration. The construction traffic noise assessment provided is conservative and typical noise levels are likely to be lower than those predicted.

In accordance with RMM NV4, where noise from construction–related traffic is likely to result in road traffic noise increases of more than 2 dB at affected receivers, mitigation and management measures would be implemented where practicable and appropriate. Consideration will also be given to the noise levels associated with construction traffic and whether or not these levels comply with the road traffic noise criteria in the RNP as identified in Table 4.10 of this NVMP.

By implementing the mitigation measures outlined within Table 7.1, further noise impacts associated with construction road traffic will be minimised.

7 Environmental management

7.1 Designing for corona discharge

Detailed design undertaken during Stage 2 will consider all reasonable and feasible steps to minimise the impacts of corona discharge noise that could occur during operation. Detailed design processes will:

- identify residences expected to exceed 35 dB(A) LAeq,15min at the reasonably most affected point of the residence, determined in accordance with the NPfI, and will determine how often these conditions would likely occur annually; and
- identify reasonable and feasible noise mitigation measures for those residences.

Where possible, the measures will be implemented prior to the commencement of operation. This will be subject factors such as the provision of access to private properties and acceptance of measures from landholders, where applicable.

The NPfI states that:

> *Where the project noise trigger level is exceeded, assess the feasible and reasonable mitigation measures that could be implemented to reduce noise down towards the relevant project noise trigger level. If it is reasonable to achieve these levels, the proponents should do so. If not, then achievable noise levels should be identified. It is not mandatory to achieve the trigger levels but the assessment should provide justification if they cannot be met. An assessment of the acceptability of residual impacts should also be provided.*

Guidance is provided in NPfI in regard to definition of 'feasible' and 'reasonable' mitigation as well as a generic list of mitigation measures.

The current alignment has been selected based on the consideration of a range of constraints and opportunities, including environmental considerations, and is not expected to be altered in any significant manner. As outlined in Section 4 of the Response to DPE Request for Information (30 August 2022), options for at-source mitigation of potential operational noise from corona discharge to achieve the project trigger level of 35 dB(A) LAeq,15min are limited. The available options are not reasonable and feasible for this infrastructure.

Due to of the height of the transmission lines (noise sources), the large angles of exposure and the potential for adverse impact to visual amenity impacts, path controls, such as noise barriers are not reasonable and feasible in this context.

Subsequent to consideration of all source and pathway feasible and reasonable noise mitigation measures (as discussed in the preceding subsections), the NPfI allows for receiver property treatment to be considered for any residual noise impacts. Only at-receiver treatments are likely to reasonable and feasible in this context to mitigate potential amenity impacts in internal areas due to corona discharge.

To provide an appropriate indoor acoustic amenity for residential dwellings, appropriate internal ambient noise level targets are typically established per *AS/NZS 2107:2016 Acoustics–Recommended design sound levels and reverberation times for building interiors*. Relevant internal noise and reverberation criteria for the sleeping areas of rural residential buildings is recommended as 25-30 Leq, dBA.

From the perspective of the NPfI, receivers with a 'negligible' level of significance as discussed in Table 6.8 are not likely to warrant receiver-based controls. Technical Paper 10 of the EIS identified that for the other receivers with a higher category of noise level significance, based on an outdoor noise levels of 46 dBA Leq / 44 dBA Leq during the worst-case condition, an overall noise reduction of between 16 and 21 dB / 14 and 19 dB would be required to be achieved through

the building envelope to meet the appropriate internal noise target. This assumes that the affected rooms are sleeping areas. Where the noise affected rooms are less noise sensitive, lower noise reductions may be appropriate.

In addition to the mitigation measures identified during detailed design in Stage 2, Transgrid will prepare and implement a Research Program, prepared in consultation with the Environment Protection Authority (EPA). Transgrid will allocate $150,000 to this program and will submit the program to the Planning Secretary for approval prior to the commencement of operation.

7.2 Exceedances of construction noise management levels

As described in Section 6.2, the noise assessment carried out in the EIS and the Amendment Report indicated the potential for noise impacts during Stage 2 works at sensitive receivers located within a worst case separation distance of approximately two kilometres.

If construction activities are identified that could generate noise levels that are likely to exceed the relevant noise management levels at any sensitive receivers, additional reasonable and feasible measures would be implemented in accordance with this plan and RMM NV2. As detailed in RMM NV5, works likely to generate noise levels that exceed applicable noise management levels at sensitive receivers would be scheduled during standard construction hours, wherever practicable, or would be undertaken in accordance with an out of hours works protocol (RMM NV6).

A construction noise and vibration management tool will be implemented on the project, that incorporates specific work areas and equipment for each activity to calculate the potential noise and vibration impacts. The tool can also estimate whether and which sensitive receivers are within minimum working distances from the proposed construction activities. The noise tool will:

- consider the location of the proposed activities;
- consider the noise and vibration generating activities that will take place and determine if they are low or high risk activities;
- assess the predicted noise and vibration levels against the relevant management levels; and
- identify feasible and reasonable mitigation and management measures in accordance with the ICNG.

Any noise assessments undertaken for the project, as and when required by RMM NV6, will be document controlled separately from this NVMP.

Where exceedances of noise management or vibration levels are predicted, residents/sensitive receivers will be notified of construction activities that are likely to affect their noise and vibration amenity in accordance with Section 9 of the *Community Communication Strategy* (45860-HSE-DOC-D-0024). This proactive communication will include:

- the types of activities to be undertaken;
- the timing of activities including expected start and finish;
- the location of activities; and
- details of the community information line and how to make an enquiry and/or a complaint.

Notification of OOHW will occur in accordance with the notification requirements of the *Out of Hours Work Protocol* (45860-HSE-PR-D-0011).

Elecnor will use a range of tools to communicate with the community and stakeholders such as community and stakeholder notifications, email, community drop-in sessions and door knocks.

Works that potentially exceed the noise management levels will be undertaken in accordance with the relevant measures identified in Table 7.1, and any additional measures that are identified

through the additional noise assessments described above. Monitoring will be undertaken as described in Section 8.3.

7.3 Management measures

A range of environmental requirements and mitigation measures are identified in the EIS, Submissions Report and the Infrastructure Approval. Safeguards and management measures will be implemented to minimise or manage impacts to noise and vibration as required by RMM NV2 and condition C4. Specific safeguards and management measures that will be implemented to address noise and vibration impacts associated with Stage 2 of the project are identified in Table 7.1.

Table 7.1 - Noise and vibration management measures

ID	Measurement/Requirement	When to implement	Responsibility	Source document
General				
N1	Training and awareness programs will be delivered to project personnel, including relevant sub-contractors on noise and vibration requirements (including operating hours) through inductions, toolboxes and targeted training.	Pre-construction and construction	Environmental Advisor Environmental Manager Health & Safety Team	Good practice RMM NV2
N2	Landowners using disturbance areas for livestock grazing will be consulted prior to the commencement of works regarding alternatives for the management of their stock during these activities.	Pre-construction and construction	Engagement Manager Construction Manager	LP6
Construction noise				
N3	Plant and equipment used on site will maintained in a proper and efficient condition and operated in a proper and efficient manner to avoid the generation of excessive noise.	Pre-construction and construction	Health & Safety Team	POEO Act RMM NV2
N4	Where noise levels from construction-related traffic are expected to result in road traffic noise increases of more than 2dB at an affected receiver, mitigation and management measures would be implemented where practicable and appropriate. Measures may include: • a driver's code of conduct will be developed and implemented (refer to *Traffic and Transport Management Plan* (45860-HSE-PL-D-0109)); • heavy vehicle parking, idling and queuing on public roads will be discouraged (except where permitted, e.g. water supply points); • heavy vehicles will avoid compression braking and the use of air brakes in the vicinity of affected receivers; • limit traffic movements to daytime periods as far as possible and minimise traffic movements outside standard construction hours; and • all heavy and light vehicles associated with the project will travel to and from site via the routes nominated in the *Traffic and Transport Management Plan* (45860-HSE-PL-D-0109), where practical. These mitigation measures will be implemented with the aim of achieving the road traffic noise assessment criteria for residential land uses from the *Road Noise Policy* (DECCW, 2011).	Pre-construction and construction	Supervisors Construction Manager Environmental Manager Engagement Manager All project-related vehicle drivers	RMM NV4 Condition C4

ID	Measurement/Requirement	When to implement	Responsibility	Source document
N5	Where the noise level without the development is either within 2dB or exceeds the relevant road traffic noise criteria (Table 4.10), and noise levels associated with project construction road traffic results in increases greater than 2dB at any affected receiver, feasible and reasonable noise measures will be examined to reduce potential noise impacts. Measures may include: • minimising peak traffic movements or regulating time of use; or • reducing traffic speed (where safe to do).	Construction	Supervisors Construction Manager Environmental Manager	RMM NV4 Condition C4
N6	Where noise from construction is predicted to exceed the noise management levels, mitigation and management measures would be implemented where practicable and appropriate. This would include the following measures: • select quieter plant and equipment and use alternative construction methods to minimise noise levels; • install screens or use barriers to mitigate noise from stationary noise sources; • maximise the offset distance between noisy plant and orient equipment away from sensitive receivers; • use noise source controls, such as residential class mufflers, to reduce noise from all regularly – used plant including cranes, excavators and trucks; • use alternative reversing alarms in place of traditional beeper reversing alarms during works outside standard construction hours where noise impacts have been predicted; • turn off machinery when not in use; and • operate machinery in a manner which reduces maximum noise level events, such as shaking excavator buckets, loading trucks from a height, steel on steel contact and dragging materials across hard surfaces.	Construction	Supervisors Construction Manager Environmental Manager	RMM NV2
N7	Where noise from construction is predicted to exceed the applicable noise management levels, work would be planned and scheduled where practicable and appropriate: • during standard construction hours; and; • to minimise the number of items of noisy plant operating at one time and cumulative noise levels.	Construction	Supervisors Construction Manager Environmental Manager	RMM NV2 RMM NV5

ID	Measurement/Requirement	When to implement	Responsibility	Source document
Construction vibration				
N8	Where construction is likely to result in vibration levels that exceed relevant criteria at sensitive receivers, mitigation and management measures would be implemented where practicable and appropriate. This would include (but is not limited to) the following measures: • avoid the use of vibration–intensive plant at distances where human discomfort would result; • substitute lower vibration–intensive plant and methods (for example use a smaller machine, lower power settings or alternative equipment); • sequence operations to avoid or minimise concurrent vibration–intensive activities; and • schedule the use of vibration–sensitive equipment during the least sensitive times of the day.	Construction	Supervisors Construction Manager Environmental Manager	RMM NV3
N9	In the event that vibration-sensitive heritage structures could be impacted by the Stage 2 works: • develop site-specific measures to avoid vibration impacts; and • implement the measures during vibration-intensive activities in the vicinity of the vibration-sensitive heritage structures.	Construction	Supervisors Construction Manager Environmental Manager	RMM NV3
Blasting				
N10	A Blast Management Strategy will be prepared prior to the commencement of blasting and will: • describe the process that would be used to design each blast (depths and Maximum Instantaneous Charge for each location, etc.) to comply with relevant noise and vibration criteria at any nearby sensitive receivers; and • detail noise and vibration monitoring and landholder notification requirements for blasting. The strategy will be implemented for all blasting.	Prior to blasting During blasting	Engineers Environmental Manager	
N11	Where required, impacts from blasting would require assessment with regard to the Australian and New Zealand Environment Conservation Council's (ANZECC) *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration* (ANZECC, 1990) and the *AS 2187.2 Explosives – Storage, Transport and use Part 2: Use of Explosives*.	During blasting	Engineers Environmental Manager	
Working hours				
N12	Road upgrades, construction, upgrading and decommissioning may only be undertaken between: • 7am to 6 pm Monday to Friday; • 8am to 1 pm Saturdays; and • at no time on Sundays and NSW public holidays; unless the Planning Secretary agrees otherwise.	Pre-construction and Construction	Supervisors Construction Manager Environmental Manager	Condition C1

ID	Measurement/Requirement	When to implement	Responsibility	Source document
N13	The following construction, upgrading and decommissioning activities may be undertaken outside of the hours specified in measure N13 above: • the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons; • emergency work to avoid the loss of life, property or to prevent material harm to the environment; • activities that are inaudible at non-associated residences; • road upgrades required by the relevant roads authority to be undertaken outside the standard construction hours; or • works carried out in accordance with an Out of Hours Work Protocol.	Construction	Supervisors Construction Manager Environmental Manager	Condition C2
N14	Any works outside of the hours defined in condition C1, C2 and C6 will be undertaken in accordance with the Out of Hours Work Protocol in Appendix A.	Construction	Supervisors Construction Manager Environmental Manager	RMM NV6 Condition C2 f) Condition C10 f)
N15	Works may be undertaken in accordance with the hours and noise limits specified in negotiated agreements with affected sensitive receivers. Where multiple receivers are affected by works, a substantial majority of the receivers must agree to the specified hours and noise limits proposed by the project. Negotiated agreements must be in writing and finalised prior to the relevant works.	Pre-construction and Construction	Supervisors Environmental Manager Engagement Manager	Condition C2 c)
Consultation and complaints management				
N16	Where exceedances of noise and vibration management levels are predicted, residents/sensitive receivers will be notified of construction activities that are likely to affect their noise and vibration amenity in accordance with the *Community Communication Strategy* (45860-HSE-DOC-D-0024). This proactive communication will include: • the types of activities to be undertaken; • the timing of activities including expected start and finish; • the location of activities; • details of the community information line and how to make an enquiry and/or complaint.	Construction	Engagement Manager	RMM NV2 RMM NV3

ID	Measurement/Requirement	When to implement	Responsibility	Source document
N17	Investigate any complaints regarding construction noise and vibration to determine if actual noise and vibration levels are as predicted and that appropriate mitigation measures have been implemented. Where required, identify and implement appropriate additional mitigation measures.	Construction	Environmental Manager Engagement Manager	RMM NV9
N18	All complaints received will be managed in accordance with the *Community Communication Strategy* (45860-HSE-DOC-D-0024).	Construction	Engagement Manager	RMM NV9
Designing for corona discharge				
N19	Detailed design processes during Stage 2 will take all reasonable and feasible steps to minimise corona discharge noise during operation. These processes will: • identify residences expected to exceed 35 dB(A) LAeq,15min at the reasonably most affected point of the residence, determined in accordance with the NPfI, and will determine how often these conditions would likely occur annually; and • identify reasonable and feasible noise mitigation measures for those residences. The measures will be implemented prior to the commencement of operation, subject to the provision of access to private properties and acceptance of measures from landholders, where applicable.	Construction	Design Manager	Condition C9
Monitoring and reporting				
N20	Noise and vibration monitoring will be undertaken in accordance with Section 8.1.	Construction	Environmental Manager Environmental Advisor	RMM NV1

8 Compliance management

8.1 Training and awareness

All site personnel will undergo the Elecnor site induction prior to the personnel participating in on-site construction activities. The induction training addresses elements related to noise and vibration management including, but not limited to:

- complying with the conditions of the Infrastructure Approval;
- the environmental management system, including the CEMP;
- sensitive receivers in close proximity to project locations;
- management measures that are necessary to comply with to minimise and manage potential impacts to those sensitive receivers; and
- the *Out of Hours Work Protocol* (45860-HSE-PR-D-0011).

Targeted training in the form of toolbox talks or specific training will also be delivered to personnel with a key role in noise and vibration management. Examples of training topics include:

- vibration awareness in the vicinity of Aboriginal heritage features; and
- noise monitoring.

Records of training, including attendance, will be retained by Elecnor.

8.2 Roles and responsibilities

Elecnor's organisational structure and overall roles and responsibilities are outlined in Section 4 of the CEMP.

The project environmental management structure incorporates the following site personnel:

- Environmental Manager responsible for overall management of the CEMP and CEMP sub-plans; and
- Environmental Advisors to assist in implementing and monitoring measures in the CEMP and CEMP sub-plans.

Elecnor's Project Director, in consultation with functional managers, will ensure that appropriate resources are available to effectively manage the implementation of the CEMP and CEMP sub-plans during delivery of the project. All Elecnor staff, subcontractors and visitors are required to operate in accordance with this NVMP and related environmental management plans during construction.

Specialist consultants and subcontractors will be engaged for environmental support roles, as required, such as noise and vibration specialists for noise modelling (as required) and ongoing advice throughout construction.

Specific responsibilities for the implementation of mitigation measures are detailed in Section 7 of this NVMP.

8.3 Monitoring

The impacts and environmental performance of the project relevant to noise and vibration, and the effectiveness of the management measures identified in Section 7 will be monitored through the proposed monitoring program in Table 8.1.

Table 8.1 - Monitoring program

Item	Scope	Frequency	Equipment	Responsibility	Records/ reporting
Commencement of OOHW activities	At the commencement of a new OOHW activities or location where exceedances of the noise management levels are predicted to occur at the most affected receiver. This will be at select locations/occasions which are determined based on risk.	Commencement of OOHW activities predicted to exceed noise management levels. This will be on select occasions which are determined based on risk.	Hand held calibrated noise monitor	Environmental Advisor	Noise monitoring records
Commencement of new activity near structures/ receivers within minimum vibration working distances	Attended vibration measurements would be undertaken at the start of the works to determine actual vibration levels at the structure.	Commencement of works for receivers/ structures within minimum working distances	Vibration monitor	Environmental Advisor	Noise monitoring records
Complaint-based monitoring	Where complaints are received, noise monitoring may be undertaken at sensitive receivers to determine if the actual construction noise generated exceeds the predicted 'worst case' construction noise levels identified in this plan.	As required	Hand held calibrated noise monitor	Environmental Manager, Environmental Advisor	Noise monitoring records
Weekly inspections	Inspection of the environmental controls and implementation of the noise and vibration mitigation measures outlined in Table 7.1.	Weekly	Not applicable	Environmental Advisor Supervisors	Weekly Environmental Inspection Checklist

8.4 Inspections

Weekly inspections will be performed by the Environmental team and documented in a weekly environmental checklist. The inspections will check the implementation and effectiveness of the management measures identified in Section 7 and the environmental performance of the project relevant to noise and vibration. Visual inspection of any noise controls, e.g. hoarding or noise barriers will be undertaken.

8.5 Auditing

Audits will be undertaken to assess the effectiveness of the management measures and overall compliance with this plan, and other relevant approvals, licences and guidelines. Audit requirements are detailed in Section 9.3 of the CEMP.

Independent audits will be undertaken in accordance with the *Independent Audit Post Approval Requirements (2020)*.

8.6 Reporting

Reporting which will be undertaken in accordance with the NVMP is summarised within Table 8.2.

Table 8.2 - Reporting program

Item	Scope	Frequency	Responsibility	Recipient
Monitoring reporting	Monitoring reports will include the results of monitoring undertaken during the reporting period and an assessment of the effectiveness of the noise and vibration management system. Monitoring reports will be prepared as required based on monitoring which has occurred (i.e. six monthly). Reporting of noise and vibration matters on the project website in accordance with condition D12.	As required based on monitoring which has occurred (i.e. six-monthly)	Environmental Manager	ER Transgrid Public (via project website)
Audit reports	Independent audits undertaken in accordance with the Infrastructure Approval will include audits of noise and vibration management measures (based on the Independent Auditor's program). Audit reports will be prepared. Further detail in relation to auditing is provided within Section 9.3 of the CEMP.	Independent audits will be undertaken within 12 weeks from the commencement of construction and then at intervals, no greater than 26 weeks from the date of the initial Independent Audit or as otherwise agreed by the Secretary.	Environmental Manager / Independent Auditor	ER Transgrid DPHI

8.7 Emergencies, incidents and non-compliances

8.7.1 Emergencies

Emergency management and planning including any emergencies related to noise and vibration will be undertaken in accordance with the management system and relevant procedures.

Refer to Section 8.1 of the CEMP.

8.7.2 Environmental incidents

Environmental incidents, including incidents related to noise and vibration will be managed as described in Section 8.2 and Appendix A4 of the CEMP. All site personnel are authorised to suspend a work activity that is likely to cause or actually causing or contributing to an incident. A supervisor/manager may request additional staff be deployed to the site to provide additional capacity or capability to manage the incident.

Incident reporting is described in Section 8.3 of the CEMP.

All environmental incidents that occur on the project, regardless of how minor, must be reported to a supervisor by personnel involved or witnesses to the incident immediately after the incident occurs. The Environmental Manager will be notified immediately of any environmental incident. Transgrid will be notified of incidents and near misses immediately. Formal, documented reporting of incidents will be completed, and will be submitted to Transgrid in accordance with requirements under the Contract. The Environmental Representative will also be included on all incident notifications.

For incidents which are reportable to DPHI, notification will occur to DPHI via the Major Projects website immediately after becoming aware that an incident has occurred. A written notification will then be provided to DPHI via the Major Projects website within seven days after becoming

aware of the incident. Refer to Section 8.3.1 of the CEMP in accordance with the Infrastructure Approval for further details requirements of the notification.

8.7.3 Non-compliances

Where a non-compliance with the Infrastructure Approval has been identified, including those relevant to noise and vibration, corrective actions will be developed as required and implemented to address the non-compliance that occurred.

Reporting of non-compliances will be undertaken as described in Section 10.1 of the CEMP – Reporting non-compliances. The Planning Secretary will be notified in writing via the Major Projects website within seven days after Transgrid becomes aware of any non-compliance. The written non-compliance notifications, in line with condition D7, will contain the requirements set out in Appendix 4 of the Infrastructure Approval and will include details such as:

- the non-compliance;
- the reasons for the non-compliance (if known); and
- what actions have been taken, or will be taken, to address the non-compliance.

Refer to Section 10.1.1 of the CEMP in accordance with the Infrastructure Approval for further details requirements of the notification.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Failure to comply with other statutory requirements such as the EPBC Act Approval will be reported in accordance with Section 10.1.2 of the CEMP. Any other reporting will occur in accordance with Section 10.1.3 of the CEMP.

Where a non-compliance has been identified, the non-compliance will be reviewed by the Environmental Manager to determine the reason for the non-compliance, and what corrective actions have, or will be taken, to address the non-compliance. Preventative actions will be developed as required and implemented to minimise the potential for recurrence.

Section 11 of the CEMP describes the process for non-compliance management.

8.8 Contingency plan

Although the project has been assessed through the environmental impact assessment process and potential impacts identified, unpredicted impacts may occur as the project progresses. In the event that unexpected impacts are identified, the action or cause will be categorised and as required will be managed as:

- an emergency or environmental incident in accordance with Section 8 of the CEMP – Incidents and emergencies; and/or
- a non-compliance or non-conformance in accordance with Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action.

Reporting of the unpredicted impacts would be in line with the above processes and as described in Section 10 of the CEMP – Reporting.

Corrective and preventative actions may be generated from a number of sources, including but not limited to incidents, audits and management reviews. The actions will be managed in accordance with the Clough management system to ensure that the required actions are tracked and closed out in a timely manner. The completion of the required actions will be recorded and will include details on the source of the action (e.g. audit, inspection or other), the action required, target close out date, actual close out date and the person responsible.

Through the identification of corrective and/or preventative actions through the above processes, the following steps will occur as relevant:

a) determine the relevant impact assessment criterion/criteria, below which the impact should be reduced, consistent with the requirements of this NVMP;

b) identify options to reduce the unexpected impacts to below the relevant criterion/criteria and appropriate timeframe for implementation;

c) implement the selected measure(s) to reduce the unexpected impacts; and

d) identify and implement an appropriate monitoring program to determine the effectiveness of the selected measure(s) to reduce the unexpected impact.

If the above monitoring program identifies that the unexpected impacts have not been reduced to below the nominated criterion/criteria, items b) to d) of the contingency process will be repeated.

Appendix A - Out of Hours Work Protocol

PUBLIC

Out of Hours Work Protocol
EnergyConnect (NSW - Eastern Section)

45860-HSE-PR-D-0011

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
4	9/02/2023	Revised to provide a separate section for Wagga Wagga	R. Walker-Edwards	C.Curlewis	G.Crighton	B.Calligeros	S.Basanta
5	17/04/2023	Revised to address DPE comments	R.Walker-Edwards	C.Curlewis	G.Crighton	-	S.Basanta
6	17/04/2024	Revised to Elecnor template	pp K.Nestmann	A.Kriegel	R.Walker-Edwards	G.Crighton	G.Arrien

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued for Transgrid review
C	Issued for Transgrid review and ER review
0	Issued for ER review
1	Revised to address DPE comments
2	Revised to address DPE email and meeting comments regarding Wagga Wagga
3	Revised to address DPE comments
4	Revised to provide a separate section for Wagga Wagga
5	Revised to address DPE comments
6	Revised to Elecnor template

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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1 Introduction

This Out of Hours Work Protocol (OOHW Protocol or protocol) supports the Noise and Vibration Management Plan (NVMP), which forms part of the Construction Environment Management Plan (CEMP) for EnergyConnect (NSW – Eastern Section).

This OOHW Protocol has been prepared to address condition C10 of the Infrastructure Approval (SSI-9172452) and revised mitigation measure (RMM) NV6 identified in the *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report).

In accordance with condition C10 f) of the Infrastructure Approval, this OOHW Protocol has been prepared in consultation with the relevant councils and was be approved by the Planning Secretary prior to works being undertaken outside the hours defined in condition C1 and C2.

Blasting is not proposed for Stage 1 of the project however it may be required as part of the Stage 2 works and would be carried out in accordance with conditions C6 and C7.

This OOHW Protocol is applicable to works that are proposed outside the hours defined in condition C1, C2 and C6. Works that comply with the hours or circumstances defined in these conditions are not required to be undertaken in accordance with the processes outlined in this OOHW Protocol.

In accordance with RMM NV6, the operation of the accommodation camp facilities would not be subject to this OOHW Protocol, as these camps will be operational 24 hours a day, 7 days a week, as assessed in the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS).

2 Construction hours

2.1 Standard construction hours

In accordance with condition C1, and in line with the *Interim Construction Noise Guideline* (ICNG), standard construction hours, road upgrades, construction, upgrading and decommissioning activities may only be undertaken between:

- 7 am to 6 pm – Monday to Friday;
- 8 am to 1 pm – Saturdays; and
- at no time on Sundays and NSW public holidays;
- unless the Planning Secretary agrees otherwise.

In accordance with condition C6, blasting is further limited to specific times within standard construction hours, and may only be undertaken between:

- 9 am and 5 pm Monday to Friday**;**
- 9 am to 1 pm on Saturday**;** and
- no blasting is allowed on Sundays or public holidays**.**

2.2 Variation to standard construction hours

The following construction, upgrading and decommissioning activities may be carried out outside the hours specified in condition C1:

- the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons;
- emergency work to avoid the loss of life, property or to prevent material harm to the environment;
- works carried out in accordance with the hours and noise limits specified in any negotiated agreements with sensitive receivers (owners and occupiers), provided the negotiated agreements are in writing and finalised before the commencement of works;
- activities that are inaudible at non-associated residences;
- road upgrades required by the relevant roads authority to be undertaken outside the standard construction hours; or
- works carried out in accordance with an Out-of-Hours Work Protocol approved in accordance with condition C3.

Inaudible is not defined within the Infrastructure Approval. To provide clarity, out of hours works are considered to be audible when receivers are noise affected in accordance with the *Interim Construction Noise Guideline* (ICNG). The noise affected levels are described in Table 2 of the ICNG. Further detail relating to noise management levels is provided in Section 5 and Section 6.

Any other planned works which are proposed to occur outside of the hours detailed within conditions C1, C2 and C6 must be undertaken in accordance with this OOHW Protocol.

3 OOHW process

3.1 Justification

Generally, works are considered justified as OOHW:

- to sustain the operational integrity of the electricity network or other services/utilities (e.g. water, gas, sewerage, drainage) and to minimise potential services/utilities disruptions;
- to promote the safety of construction personnel and/or the general public;
- to sustain the operational integrity of the road network or to promote the safety of road users where proposed works are in the vicinity of a main road;
- where works will shorten the length of the works that would affect a receiver and are supported by the affected community;
- where a need to work outside the recommended standard hours is demonstrated and justified;
- where works are required to be completed continuously (over a longer period than the ICNG standard construction day); and
- where works do not result in impacts to noise affected and vibration affected sensitive receivers (i.e. compliant with the noise management levels and vibration criteria as outlined in Section 4 of the Noise and Vibration Management Plan (NVMP)).

The potential for amenity impacts due to works outside standard construction hours changes based on the time of the day and night. The justification for works outside standard construction hours must consider the potential for amenity impacts based on sensitivity of the proposed working hours. For example, noisy activities carried out during the early evening period (for example during daylight hours after 6pm) have less potential to result in amenity impacts than works later in the evening (up to 10pm) or at night (10pm to 7am).

Some works (such as works within road and rail corridors and works associated with utility infrastructure) can only occur with the permission of the relevant asset owner/authority. The asset owner/authority may require these works to occur outside standard construction hours to maintain the operational integrity of the associated infrastructure network. When this occurs, works are considered justified. Note that this does not apply to road upgrades as these may occur outside of the standard construction hours without the application of the OOHW Protocol (refer condition C2). Where construction activities can occur outside of the standard construction hours in accordance with condition C2, or where construction activities are justified outside standard construction hours, associated activities at the relevant construction compounds to support the activities are also justified.

Construction activities that are likely to be required to occur outside of standard construction hours are indicatively provided within Table 3.1.

Table 3.1 - Indicative list of construction activities likely to be required outside of standard construction hours

Stage	Stage 1	Stage 2
Construction activities	Construction activities which are likely to be required to occur outside of standard construction hours during Stage 1 include: • vegetation clearing and grubbing activities; • topsoil stripping;	Construction activities which are likely to be required to occur outside of standard construction hours during Stage 2 include: • vegetation clearing and grubbing activities; • topsoil stripping;

Stage	Stage 1	Stage 2
	• topsoil/material handling including stockpiling, material and spoil loading and material and spoil haulage; • earthworks; • surface grading and compaction; • crushing and screening (as required); • movement of light and heavy vehicles; • establishment of the construction compounds and accommodation camps; and • operation of the construction compounds.	• topsoil/material handling including stockpiling, material and spoil loading and material and spoil haulage; • earthworks; • surface grading and compaction; • operating plant and equipment, including crushing and screening (as required); • tower assembly, erection and stringing; • movement of light and heavy vehicles; • establishment of the construction compounds and accommodation camps; • operation of the construction compounds; • commissioning / energisation; and • rehabilitation and decommissioning.

The justification of the proposed OOHW activities will be identified in the OOHW permit as identified in Section 3.2. The OOHW is considered to be justified if it meets or is below the noise management levels.

3.1.1 OOHW required to address delivery of critical State significant infrastructure

EnergyConnect is declared critical State significant infrastructure under schedule 5 of the *State Environmental Planning Policy (State and Regional Development) 2011*. Critical state significant infrastructure projects are high priority infrastructure projects that are essential to the State for economic, social or environmental reasons.

EnergyConnect is expected to:

- help NSW's energy future demand, particularly as existing coal-fired generators retire;
- reduce annual residential bills and small business bills in New South Wales;
- integrate renewable energy sources into the National Electricity Market;
- provide low-cost renewable generation sources;
- improve the reliability of the power network in both New South Wales and South Australia;

Australia is currently undergoing an energy crisis, particularly in relation to affordability concerns. The timely delivery of EnergyConnect is important in assisting to meet these demands.

The EIS proposed that the working hours for EnergyConnect be from 7am to 7pm, seven days per week. These working hours were proposed to assist with the timely delivery of the project. Of particular importance, as part of these working hours, is the ability to work Saturday afternoons and Sundays, particularly at the substations, which have the longest construction durations. Completing the substations sooner will reduce the overall duration of any associated amenity impacts for sensitive receivers in the vicinity. The use of the construction compounds on Saturday afternoons and Sundays is also critical to support substation and transmission line works during those times.

Construction of the substations and operation of the construction compounds is therefore proposed to occur outside of the standard construction hours on Saturday (from 7am to 8am and 1pm to 7pm) and on Sundays (from 7am to 7pm) (extended (day) working hours).

There is, therefore, a need for extended working hours (compared to the standard construction hours established by condition C1) to deliver the infrastructure as quickly as possible and minimise the overall duration of disturbance to the affected community. However, works outside standard construction hours for extended durations have the potential to disrupt the amenity of

any nearby affected sensitive receivers. While extended (day) working hours are justified in this context, appropriate mitigation measures must be selected and implemented to minimise amenity impacts.

Where the noise management levels are exceeded, activities during extended (day) working hours would be subject to the following requirements of this OOHW Protocol:

- a construction noise assessment would be undertaken. Assessments are most likely to be undertaken through a construction noise tool;
- appropriate mitigation measures will be considered and implemented to reduce the noise levels as detailed within Table 7.1 of the NVMP including:
  - where possible, avoiding activities outside standard construction hours where exceedances of noise management levels indicate that the residents will be highly noise affected (ie experience noise of 75 dB(A) or more);
  - limiting high noise impact activities (refer Section 4.3) outside standard construction hours where a sensitive receiver may be noise affected (by more than 10dBA above the noise management level (NML));
  - minimising the use of noise intensive equipment (refer Section 4.4) outside standard construction hours;
  - selecting quieter plant and equipment and use alternative construction methods to minimise noise levels;
  - install screens or use barriers to mitigate noise from stationary noise sources;
  - using noise source controls, such as residential class mufflers, to reduce noise levels;
  - using alternative reverse alarms in place of traditional beeper reversing alarms during works outside standard construction hours where noise impacts have been predicted;
  - turning off machinery when not in use; and
  - operating machinery in a manner which reduces maximum noise level events, such as shaking excavator buckets, loading trucks from a height, steel on steel contact and dragging materials across hard surfaces;
- where exceedances of noise management levels are predicted, the Engagement Team (or delegates) will undertake engagement and consultation with potentially affected receivers on noise mitigation and management measures, including respite (RMM NV6). Feedback from the affected receivers would be considered when planning and carrying out noise generating activities at the substations outside standard construction hours;
- where exceedances of noise management levels indicate that the residents will be highly noise affected (ie a noise management level of 75 dB(A) or more), then approval will be sought from the Environmental Representative for the works; and
- community engagement (including notification with potentially affected receivers) will be undertaken as required, in accordance with the *Community Communication Strategy* (45860-HSE-DOC-D-0024).

These requirements do not apply to construction activities permitted to occur in accordance with condition C2.

3.2 OOHW permit

For the proposed OOHW, the following process will be implemented:

1. OOHW permit prepared by the team requesting the works that summarises the activities, equipment required, location and duration and proposed mitigation measures, and justifies why the activities are needed outside standard construction hours;
2. The OOHW permit will be submitted to the Environment Team, who will undertake a noise assessment for the OOHW (or review the assessment, if this has been completed as part of Step 1). This may include use of the construction noise and vibration management tool developed for the project;
3. Where exceedances of noise management levels are predicted, the Engagement Team (or delegates) will undertake engagement and consultation with potentially affected receivers on noise mitigation and management measures, including respite (RMM NV6). Previous feedback on preferences for mitigation and management measures may be applied to subsequent, similar scenarios;
4. The Environment Team will determine the appropriate mitigation measures based on the predicted noise levels and duration of works, and determine the appropriate risk level (refer to Section 6.1);
5. The OOHW permit will be submitted to the appropriate party for review and approval (refer to Section 6.4);
6. The OOHW permit will be assessed and approved or not approved; and
7. If approved, community engagement (including notification with potentially affected receivers) will be undertaken as required, in accordance with the *Community Communication Strategy* (45860-HSE-DOC-D-0024) and the OOHW will proceed.

OOHW permits may be issued for extended periods of time where the risk of amenity impacts due to noise and vibration are negligible and/or where similar activities will be undertaken for an extended period of time.

OOHW permits may also be issued on an area basis (rather than an activity basis) so that project areas can be identified where project activities can occur at any time without the any risk of exceeding noise management levels at the nearest sensitive receivers (for example remote sections of the transmission line). The approval process for OOHW is identified in Section 6.

3.3 Coordination of third party OOHW

To identify and coordinate any OOHW undertaken by third parties in the vicinity of the project site, where sensitive receivers would be noise affected by the Elecnor Australia (Elecnor) works, the following will occur:

- Elecnor will use best endeavours to identify other potential OOHW in the vicinity of the proposed project's OOHW. This may include OOHW undertaken by third parties (e.g. utility providers, road authorities, etc.), other State significant infrastructure or State significant development projects;
- Elecnor will communicate with any other parties, giving as much advanced notice as possible regarding proposed OOHW. If there are multiple OOHW proposed in the same vicinity and sensitive receivers would be noise affected (an exceedance of the noise management level), the project's proposed OOHW will be reviewed to determine respite periods; and
- in the event that the OOHW proposed by all parties cannot be coordinated to provide appropriate respite for noise affected receivers, the following will occur:
  - further communication with third party regarding their proposed works;
  - modification or rescheduling of the proposed OOHW;
  - consultation with affected receivers regarding mitigation measures (RMM NV6); and/or

- consideration of additional respite or mitigation in addition to that considered in consultation with affected receivers.

It is noted that other parties may have their own procedures in place regarding out of hours works.

4 OOHW assessment

4.1 Noise assessment

A construction noise assessment will be undertaken to consider proposed works outside of the hours defined in conditions C1, C2 and C6. Assessments are most likely to be undertaken through a construction noise tool.

The construction noise tool will enable the prediction and assessment of potential noise impacts resulting from proposed OOHW in specific work areas. The construction noise tool provides assistance in identifying noise and vibration impacts on sensitive receivers, based on the specific work areas and types of plant and equipment operating in the work area. The tool will identify potentially noise affected sensitive receivers, as well as the magnitude of any predicted exceedance of relevant noise management levels.

The results of the assessment(s) will be used to determine the requirements for actions in accordance with this OOHW Protocol.

4.2 Noise intensive equipment

Elecnor considers noise intensive equipment as having a sound power level above 115dBA (refer to Table B-1.1 of Technical Paper 10 (Noise and Vibration Impact Assessment) of the EIS). Noise intensive equipment therefore includes:

- piling rig;
- D8 dozer with and without tree pusher;
- excavator with hammer;
- stump grinder;
- mulchers/chipper.

4.3 High noise impact activities

The ICNG identifies the following activities as particularly annoying to nearby residents:

- use of power saws;
- grinding metal or grinding concrete / masonry;
- rock drilling;
- jackhammering, rock hammering or rock breaking; and
- impact piling.

For the purposes of this protocol, these activities are referred to as high noise impact activities.

4.4 Vibration

Where vibration intensive activities are proposed during the OOHW, these will be assessed for compliance with minimum working distances for human comfort and structural damage identified in Section 4.6.3 of the NVMP.

5 OOHW management and mitigation measures

The results of the noise and vibration assessment process described in Section 4.1 will be used to determine the most appropriate reasonable and feasible mitigation measures from the NVMP and any additional measures that might be required.

ICNG standard construction hours and the nominated OOHW periods are represented in Table 5.1.

Table 5.1 - ICNG standard construction hours and OOHW periods

Day	12am	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	7pm	8pm	9pm	10pm	11pm
Monday																			Extended (day) working hours		OOHW period 1 (evening)			
Tuesday																								
Wednesday		OOHW period 2 (night)							ICNG standard construction hours															
Thursday																								
Friday																								
Saturday																								
Sunday/PH																								

Notes:

PH = public holiday; ICNG standard construction hours = white; Extended (day) working hours = grey; OOHW period 1 (evening) = blue; OOHW period 2 (night) = orange

Feasible and reasonable are defined as the following under the ICNG:

- Feasible – a work practice or abatement measure is feasible if it is capable of being put into practice or of being engineered and is practical to build given project constraints such as safety and maintenance requirements;
- Reasonable – selecting reasonable measures from those that are feasible involves making a judgment to determine whether the overall noise benefits outweigh the overall adverse social, economic and environmental effects, including the cost of the measure.

Where exceedances of the noise management levels are expected, mitigation measures identified will be implemented. The noise mitigation measures below are in line with the noise mitigation measures described in Section 8 of Technical Paper 10 of the EIS. The nominated mitigation measures are:

- **Notification**: The notification may consist of a letterbox drop (or equivalent) detailing work activities, time periods over which these will occur, impacts and mitigation measures. Notification will be provided to potentially affected receivers seven business days prior to the start of works. Given that the affected sensitive receivers are also likely to be affected landholders for the project, phone call and email will be favoured for these notifications;
- **Respite**: Where out-of-hours construction noise is proposed to occur during OOHW period 1 (evening) or OOHW period 2 (night) the following will apply:
  - for OOHW period 1 (evening) where work occurs for four or more consecutive evenings, respite should occur; or
  - for OOHW period 2 (night) where work occurs for three or more consecutive nights, respite should occur;

- **Duration respite**: Respite periods may be counterproductive in reducing the impact on the community for longer duration projects. In these instances, where it can be agreed upon by affected residents, it may be beneficial to increase the work duration, number of evenings or nights worked through duration respite so that the project can be completed more quickly. The project will engage with affected receivers to determine support for duration respite. Where possible, negotiated agreements permitted in accordance with condition C2(c) are the preferred project approach in lieu of duration respite.

In accordance with RMM NV6, prior to the notification of potentially noise and vibration impacted receivers, community engagement and consultation would occur with potentially affected receivers regarding potential mitigation and management of impacts, and to address any complaints. Based on this engagement and consultation, appropriate mitigation and management measures would be considered and implemented where feasible and reasonable to minimise the impacts.

6 Approval process

6.1 Risk level

The following section outlines the assessment criteria to determine the risk level of the proposed OOHW. The risk category considers both the predicted noise impact relative to the appropriate noise management level and the duration of works.

Where reference is made to predicted noise levels, these levels are those which are predicted to occur either before the implementation of mitigation measures, or after the implementation of management measures where the mitigation measures reduce the predicted noise level.

Due to risk, the approval process differs for out of hours works proposed at Wagga Wagga substation and Wagga Wagga construction compound. Section 6.2 therefore provides for the approvals process for all other project areas and Section 6.3 provides the approval process for Wagga Wagga substation and Wagga Wagga construction compound.

6.2 All project areas (other than Wagga Wagga substation and construction compound)

6.2.1 Negligible risk activities

Negligible risk relates to activities which are:

- for extended (day) working hours – predicted noise levels are higher than NML (audible) but no more than 5 dBA above NML.

Any works proposed during evening or night must be assessed as low or high risk in accordance with the categories below.

6.2.2 Low risk activities

Low risk activities are:

- essential activities:
  - works required to occur on or adjacent to a road (i.e. stringing activities) and the relevant road authority requires the works to be undertaken outside the standard construction hours (i.e. Road Occupancy Licence restrictions). This does not include road upgrade works as condition C2 permits road upgrades to occur outside of the hours detailed within condition C1;
  - utility works required by relevant service providers to occur outside of the standard construction hours;
  - works on or adjacent to rail corridors. The asset owner/authority may require these works to occur outside standard construction hours to maintain the operational integrity of the associated infrastructure network;
  - activities (i.e. concrete pours) which must occur continuously for quality reasons;
  - where transmission line connections to the substations are required to occur during an outage; or
- for any other activity (other than the above-listed essential activities):
  - any activity during extended (day) working hours where predicted noise levels are 5 dBA to 20 dBA above the NML; or
  - any activity during evening or night where predicted noise levels are higher than the NML (audible) to 10 dBA above the NML.

6.2.3 High risk activities

A high risk activity is any activity which is not considered to be negligible risk and is not considered to be low risk.

High risk activities include:

- any activity during extended (day) working hours where predicted noise levels are >20 dBA above the NML;
- any activity during evening or night where predicted noise levels are >10 dBA above the NML; or
- activities where the Environmental Representative is of the opinion that the proposed works do not meet the criteria of low risk. These proposals should be revised by the project (to achieve the criteria of low risk) or referred to the Planning Secretary.

Refer to Table 6.1 which provides a summary of the approval process.

Table 6.1 - Summary of the process for OOHW for all project areas (other than Wagga Wagga substation and Wagga Wagga construction compound)

All project areas (other than Wagga Wagga substation and Wagga Wagga construction compound)				
Risk level	**Approval authority**	**Item no.**	**OOHW period**	**Activities or circumstances**
The below activities <u>are not subject</u> to the OOHW Protocol process due to the application of condition C2:				
Permitted	Not applicable	1	Any	The below activities are not subject to this OOHW Protocol in accordance with condition C2 of the Infrastructure Approval: • the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons; • emergency work to avoid the loss of life, property or to prevent material harm to the environment; • works carried out in accordance with the hours and noise limits specified in any negotiated agreements with sensitive receivers (owners and occupiers), provided the negotiated agreements are in writing and finalised before the commencement of works; • activities that are inaudible at non-associated residences; or • road upgrades required by the relevant roads authority to be undertaken outside the standard construction hours. These works may proceed without any further approvals detailed within the OOHW Protocol.
Activities not listed within condition C2 <u>will be subject</u> to the OOHW Protocol process as follows:				
Negligible	Elecnor Environmental Manager	2a	Extended (day) working hours	Negligible risk relates to: • activities where predicted noise levels are higher than NML (audible) but no more than 5dBA above NML.
		2b	Evening and night periods	Any works proposed during evening or night <u>cannot be deemed negligible</u> and must be assessed as low or high risk in accordance with the categories below.
Low	Environmental Representative	3a	Any OOHW period	Any activity which is <u>not negligible</u> in risk, and is one of the following <u>essential activities</u>: • works required to occur on or adjacent to a road (ie stringing activities) and the relevant road authority requires the works to be undertaken outside the standard construction hours (i.e. Road Occupancy Licence restrictions). This does not include road upgrade works as condition C2 permits road upgrades to occur outside of the hours detailed within condition C1; • utility works required by relevant service providers to occur outside of the standard construction hours; • works on or adjacent to rail corridors. The asset owner/authority may require these works to occur outside standard construction hours to maintain the operational integrity of the associated infrastructure network; • activities (ie concrete pours) that must occur continuously for quality reasons; • where transmission line connections to the substations are required to occur during a power outage.
		3b	Extended (day) working hours	Any activity which is <u>not negligible</u> in risk and is <u>not an essential activity within row 3a</u>. The following noise levels must be met for the activity to be determined as low risk: • any activity during extended (day) working hours where predicted noise levels are 5 dBA to 20 dBA above the NML.
		3c	Evening and night periods	Any activity which is <u>not an essential activity within row 3a</u>. The following noise levels must be met for the activity to be determined as low risk: • any activity during evening or night where predicted noise levels are higher than the NML (audible) to 10 dBA above the NML.
High	Planning Secretary	4	Any OOHW period	A high risk activity is any activity which <u>is not</u> considered to be negligible risk and <u>is not</u> considered to be low risk. High risk activities include: • any activity during extended (day) working hours that results in predicted noise levels which are more than 20 dBA above the NML; • any activity during evening or night where predicted noise levels are >10 dBA above the NML; • activities where the Environmental Representative is of the opinion that the proposed works do not meet the criteria of low risk. These proposals should be revised by the project (to achieve the criteria of low risk) or referred to the Planning Secretary.

6.3 Wagga Wagga substation and Wagga Wagga construction compound

6.3.1 Negligible risk activities

Due to the proximity of sensitive receivers and duration of works, the negligible risk category does not apply to works at the Wagga Wagga substation or Wagga Wagga construction compound.

6.3.2 Low risk activities

Low risk activities are:

- essential activities:
  - works required to occur on or adjacent to a road (i.e. stringing activities) and the relevant road authority requires the works to be undertaken outside the standard construction hours (i.e. Road Occupancy Licence restrictions). This does not include road upgrade works as condition C2 permits road upgrades to occur outside of the hours detailed within condition C1;
  - utility works required by relevant service providers to occur outside of the standard construction hours;
  - works on or adjacent to rail corridors. The asset owner/authority may require these works to occur outside standard construction hours to maintain the operational integrity of the associated infrastructure network;
  - activities (i.e. concrete pours) which must occur continuously for quality reasons;
  - where transmission line connections to the substations are required to occur during an outage; or
  - high risk activities (i.e. clearing and grubbing) within Section 6.3.3, but only if they are required to occur as part of the items listed above (i.e. works required as part of an ROL, or works during a power outage etc). At all other times, these activities are high risk activities;
- any other activity (other than the above listed essential activities):
  - for Saturday between 1pm and 5pm where the predicted noise level is higher than NML (audible) to 10 dBA above the NML;
  - for the extended (day) working hours where the predicted noise levels are higher than NML (audible) to 10 dBA above the NML. Such works between Saturday 5pm and Monday 7am are not included as activities during this period, as they are considered to be high risk; or
  - during evening or night (7pm to 7am) (other than between Saturday 5pm and Monday 7am, as these are high risk) where predicted noise levels are higher than the NML (audible) to 5 dBA above the NML. In these situations, consent agreements would be required from 100% of noise affected residences.

6.3.3 High risk activities

A high risk activity is any activity which is not considered to be negligible risk and is not considered to be low risk.

High risk activities include the following activities if proposed to occur during extended (day) working hours, evening or night (except for any activity required as part of an essential low risk activity as detailed in Section 6.3.2):

- clearing and grubbing;

- bulk earthworks;
- foundation preparation at the Wagga Wagga construction compound;
- rock drilling;
- boring;
- jackhammering, rock hammering or rock breaking;
- impact piling;
- any activity from Saturday 5pm to Monday 7am is considered to be high risk;
- any activity during extended (day) working hours where predicted noise levels are >10 dBA above the NML;
- any activity during evening or night (7pm to 7am) where predicted noise levels are >5 dBA above the NML. In these situations, consent agreements would be required from 100% of noise affected residences; or
- activities where the Environmental Representative is of the opinion that the proposed works do not meet the criteria of low risk. These proposals should be revised by the project (to achieve the criteria of low risk) or referred to the Planning Secretary.

Table 6.2 - Summary of the process for OOHW for Wagga Wagga substation and Wagga Wagga construction compound

Wagga Wagga substation and Wagga Wagga construction compound				
Risk level	**Approval authority**	**Item no.**	**OOHW period**	**Activities or circumstances**
The below activities are not subject to the OOHW Protocol process due to the application of condition C2:				
Permitted	Not applicable	1	Any	The below activities are not subject to this OOHW Protocol in accordance with condition C2 of the Infrastructure Approval: • the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons; • emergency work to avoid the loss of life, property or to prevent material harm to the environment; • works carried out in accordance with the hours and noise limits specified in any negotiated agreements with sensitive receivers (owners and occupiers), provided the negotiated agreements are in writing and finalised before the commencement of works; • activities that are inaudible at non-associated residences; or • road upgrades required by the relevant roads authority to be undertaken outside the standard construction hours. These works may proceed without any further approvals detailed within the OOHW Protocol.
Activities not listed within condition C2 will be subject to the OOHW Protocol process as follows:				
Negligible	Elecnor Environmental Manager	2a	Extended (day) working hours	OOHW at the Wagga Wagga substation or Wagga Wagga construction compound site cannot be deemed negligible and must be assessed as low or high risk in accordance with the criteria below.
		2b	Evening and night periods	Any works proposed during evening or night cannot be deemed negligible and must be assessed as low or high risk in accordance with the categories below.
Low	Environmental Representative	3a	Any OOHW period	Any activity which is not negligible in risk, and is one of the following essential activities: • works required to occur on or adjacent to a road (ie stringing activities) and the relevant road authority requires the works to be undertaken outside the standard construction hours (i.e. Road Occupancy Licence restrictions). This does not include road upgrade works as condition C2 permits road upgrades to occur outside of the hours detailed within condition C1; • utility works required by relevant service providers to occur outside of the standard construction hours; • works on or adjacent to rail corridors. The asset owner/authority may require these works to occur outside standard construction hours to maintain the operational integrity of the associated infrastructure network; • activities (ie concrete pours) that must occur continuously for quality reasons; • where transmission line connections to the substations are required to occur during a power outage; • refer to the list of high risk activities (i.e clearing and grubbing) within row 4. These activities can only be assessed as low risk if they are required to occur as part of the items listed above (i.e. works required as part of an ROL, or works during a power outage etc). At all other times, these activities are high risk activities.
		3b	Extended (day) working hours	Any activity which is not negligible in risk and is not an activity within row 3a. The following noise levels must be met for the activity to be determined as low risk: • for Saturday between 1pm and 5pm where the predicted noise level is higher than NML (audible) to 10 dBA above the NML; • for the extended (day) working hours of 6pm – 7pm Monday to Friday and 7am to 8am Saturday where the predicted noise levels are higher than NML (audible) to 10 dBA above the NML. Saturday 5pm to Monday 7am are not included as activities during this period are considered to be high risk.
		3c	Evening and night periods	Any activity which is not an activity within row 3a. The following noise levels must be met for the activity to be determined as low risk: • any other activity during evening or night (7pm to 7am) (other than Saturday 5pm to Monday 7am as these are high risk) where predicted noise levels are higher than the NML (audible) to 5 dBA above the NML. In these situations, consent agreements would be required from 100% of noise affected residences.
High	Planning Secretary	4	Any OOHW period	A high risk activity is any activity which is not considered to be negligible risk and is not considered to be low risk. High risk activities include: • at Wagga Wagga substation and Wagga Wagga construction compound, the following activities if proposed to occur during extended (day) working hours, evening or night (except where required as part of an essential low risk activity as detailed in row 3a): – clearing and grubbing; – bulk earthworks; – foundation preparation at the Wagga Wagga construction compound; – rock drilling; – boring; – jackhammering, rock hammering or rock breaking; – impact piling; – any activity from Saturday 5pm to Monday 7am is considered to be high risk; – any activity during extended (day) working hours where predicted noise levels are >10 dBA above the NML; or – any activity during evening or night (7pm to 7am) where predicted noise levels are >5 dBA above the NML. In these situations, consent agreements would be required from 100% of noise affected residences; – activities where the Environmental Representative is of the opinion that the proposed works do not meet the criteria of low risk. These proposals should be revised by the project (to achieve the criteria of low risk) or referred to the Planning Secretary.

6.4 Approval pathway

An approval process that considers the risk of the proposed out of hours work activities has been identified in Table 6.3 , in accordance with condition C10 f).

Table 6.3 - OOHW approval pathway

Risk level	Approval pathway
Negligible	Elecnor Environmental Manager
Low	Environmental Representative
High	Planning Secretary

Once the risk level has been determined, considering the noise assessment and duration of proposed works, the OOHW permit and supporting assessment will be provided to the relevant approval authority identified in Table 6.3 .

Activities with negligible risk can be approved by the Elecnor Environmental Manager. The Environmental Representative has the authority to approve OOHW assessed to be low risk as described in Section 6.1, while the Planning Secretary will be required to approve any OOHW assessed to be high risk.

The Environmental Representative may approve the application with conditions that must be met during the activity.

If a negligible risk activity receives a complaint from an affected sensitive receiver in relation to construction noise, the Environmental Representative will be advised of the complaint. Where the Environmental Representative deems it appropriate, the activity will be reassessed as a low risk activity.

If, during the assessment process, the Environmental Representative is of the opinion that the proposed works do not meet the low risk criteria described in Section 6.1, the Environmental Representative will inform Elecnor of this opinion. The proposed works may be revised, or the permit will be provided to the Planning Secretary for assessment.

If during the assessment process for high risk activities, the Planning Secretary (or their delegate) determines that the proposed works can be assessed as low risk, the application will be referred to the Environmental Representative.

Once reviewed, the OOHW permit may be approved or not approved through the approval pathway. If not approved, the proposed works may be modified and resubmitted in line with the flow chart presented in Appendix A.

If approved, the OOHW will be undertaken in accordance with the OOHW permit and any identified mitigation measures.

This OOHW Protocol or the high risk approvals will be subject to a two monthly review by the Department of Planning and Environment (the Department). The approvals may be terminated by the Department following such review.

7 OOHW stakeholder consultation and communication

The Engagement Team will use a range of communication tools to provide clear, effective and timely information to the predicted affected sensitive receivers and stakeholders. The method of communication will be selected based on the type of works, potential impacts and individual receiver.

7.1 Notification

Affected receivers will be notified of upcoming OOHW activities that would be undertaken under this OOHW Protocol at least five days prior to the start of works. Notification details are described in Section 3.2 and Section 5.

Notification will also be provided to relevant councils and Department of Planning, Housing and Infrastructure (the Department) prior to the commencement of OOHW undertaken under this OOHW Protocol. Notification to councils may occur through email, phone call or project updates (including updates of the proposed OOHW). Notification to the Department may occur through email or a submission made to the Planning Portal.

In the event of unexpected OOHW (emergency or other) the Environmental Manager and Engagement Manager (or delegates) will be contacted. Elecnor will use best endeavours to notify all noise and/or vibration affected sensitive receivers within two (2) hours after commencing any works.

7.2 Consultation

All consultation will be undertaken in accordance with the *Community Communication Strategy* (45860-HSE-DOC-D-0024), which includes a description of communication tools such as letterbox drops, phone calls and emails.

Where exceedances of noise management levels are predicted prior to OOHW, consultation will be undertaken with affected receivers to understand their preferences for mitigation and management measures (in accordance with RMM NV6). The results of this consultation may be applied in similar subsequent OOHW activities.

Where agreements are reached with the potentially noise affected sensitive receivers regarding OOHW the proposed work can proceed without an OOHW permit (in accordance condition C2(c)).

7.3 Complaints management

Section 1.7.5 of the NVMP outlines the complaints management process. The key principles of the complaints management process will be implemented for any OOHW carried out under this protocol, as outlined in the NVMP.

In addition to the complaints management process outlined in the NVMP, should a complaint be received that relates to noise associated with out of hours work, the complaint will be reviewed by the Environment Manager (or delegate) to ensure that appropriate mitigation measures were implemented as per the approved out of hours work permit.

The complaints register will need to be submitted to the Department's Compliance team on a weekly basis when complaints are received.

7.3.1 Recurrent complaints

Should recurrent complaints be received from the same receiver about the same type of out of hours work, the Environment Manager (or delegate) will review the applied mitigation measures and determine if any additional reasonable and feasible measures can be implemented and/or if

the construction methodology can be reasonably or feasibly altered in such a way that would meaningfully reduce impacts on the complainant.

The project's responses to recurrent complainants and the decision whether to apply further mitigation measures or not, will be reviewed by the ER.

7.3.2 Noise monitoring

Noise monitoring (attended or unattended) at the complainant's property boundary may be offered in instances of recurrent complaints, with the aim of comparing the actual noise levels to those predicted in the out of hours work permit and understanding the suitability of the implemented noise mitigation measures. Should the monitored noise levels exceed the maximum levels considered in the out of hours work permit (i.e. in cases of negligible or low risk work), work that applies to that out of hours work permit will be halted at the end of the shift, and an investigation will be carried out to understand why that is the case. The work creating the noise exceedance cannot recommence under that particular permit until the Environment Manager (or delegate) has given approval.

Should the permit be deemed insufficient by the investigation, a new permit may be required to be produced and approved, and additional mitigation measures may need to be applied.

Noise monitoring results would be explained to the complainant, if requested, and the outcome of the investigation would be shared with the ER.

8 OOHW compliance management

8.1 Department review

This OOHW Protocol or the high risk approvals will be subject to a two monthly review by the Department. The approvals may be terminated by the Department following such review.

8.2 Monitoring

Noise monitoring will be undertaken in accordance with Section 8.3 of the NVMP to confirm actual noise levels do not exceed predicted noise levels. Noise monitoring will be undertaken in the following scenarios:

- at the commencement of new OOHW activities that are predicted to exceed the noise management level at sensitive receivers; and
- in response to complaints received as a result of OOHW construction activities.

8.3 Continual improvement

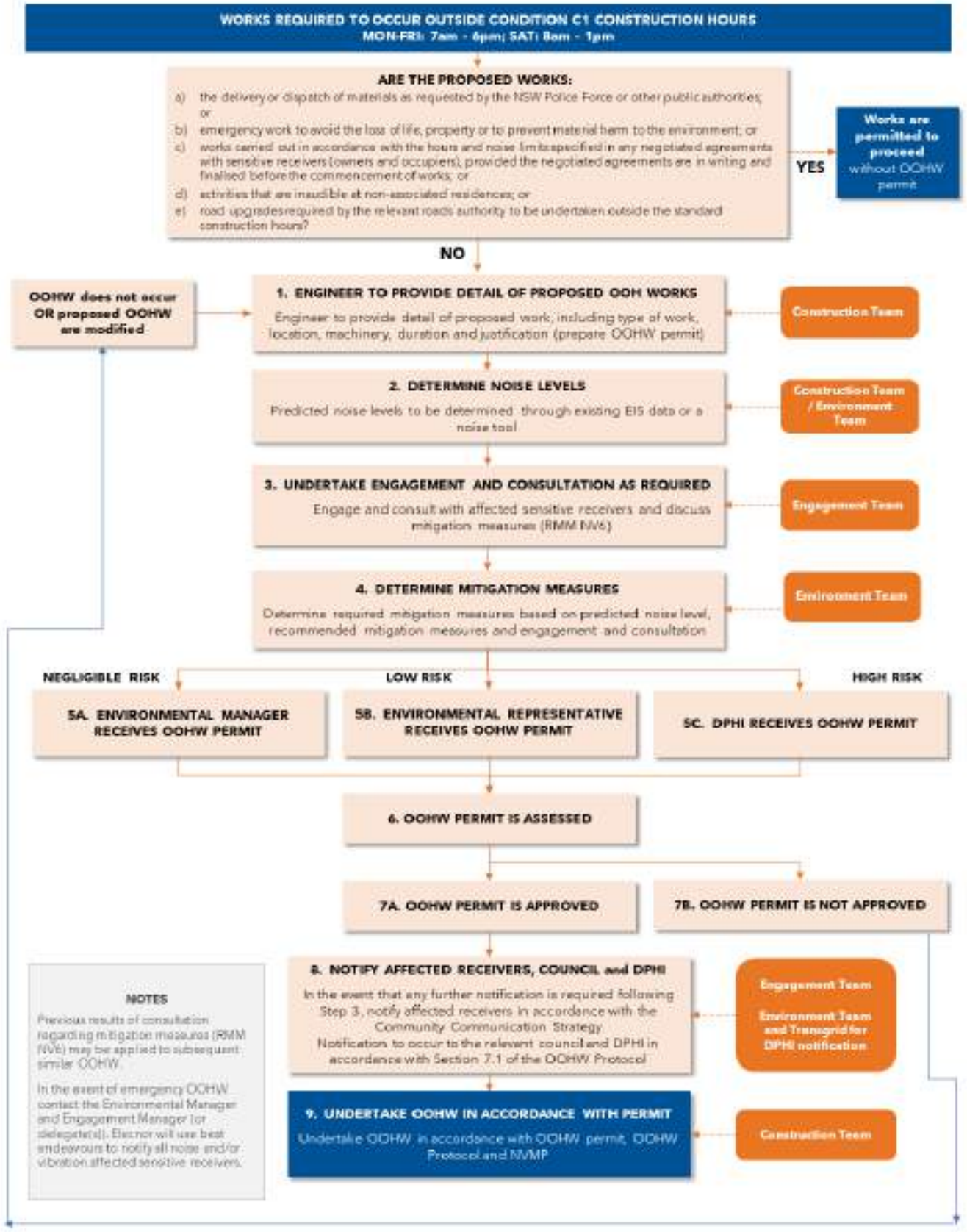
Where monitored construction noise and/or vibration levels are found to be above modelling predictions or in response to complaints, the process described in Section 8.9 of the NVMP will be implemented, which includes:

- confirming the monitored levels are due to project works;
- determining if the exceedance is due to an uncharacteristically loud piece of plant or equipment;
- confirm that the actual activity being undertaken is the same as the modelled scenario on which the predictions are based;
- review feasible and reasonable mitigation measures that were applied and revise, if necessary, which may include reducing plant size, modifying time of works and/or utilising alternative construction methodology; and
- communicate lessons learnt, as required, to relevant personnel.

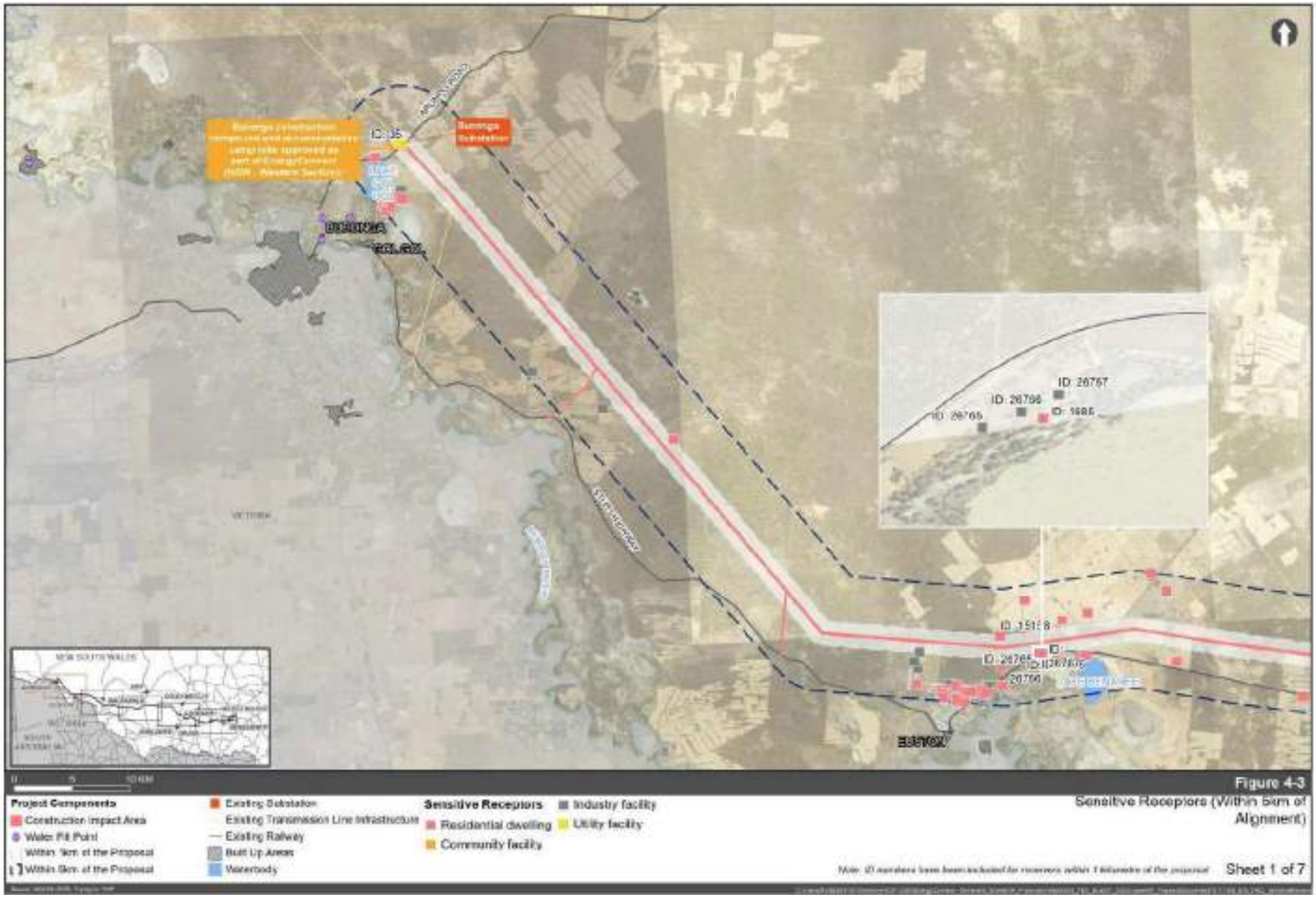
Section 1.7.5 of the NVMP outlines the complaints management process. The key principles of the complaint management process will be implemented for OOHW, as outlined in the NVMP.

Appendix A – Out of Hours Work Protocol flowchart

Noise Management Procedure
OUT OF HOURS WORK PROCEDURE



Appendix B - Sensitive receivers


Project Components
Construction Impact Area
Water Fill Point
Within 1km of the Proposal
Within 5km of the Proposal
Existing Substation
Existing Transmission Line Infrastructure
Existing Railway
Built Up Areas
Waterbody
Sensitive Receptors
Residential dwelling
Community facility
Industry facility
Utility facility
Figure 4-3
Sensitive Receptors (Within 5km of Alignment)
Sheet 1 of 7

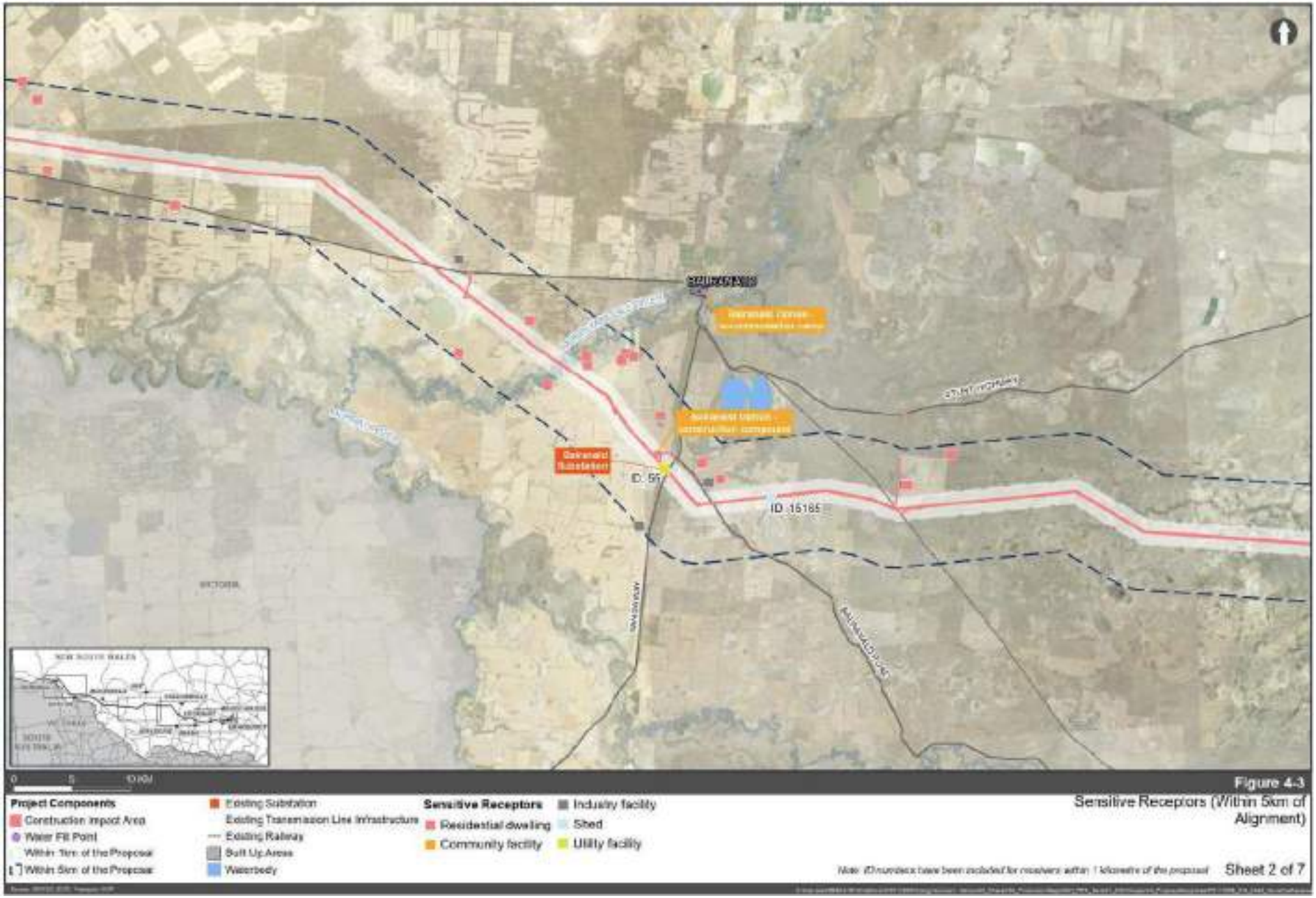


Figure 4-3
Sensitive Receptors (Within 5km of Alignment)

Note: ID numbers have been included for receivers within 1 kilometre of the proposal

Sheet 2 of 7

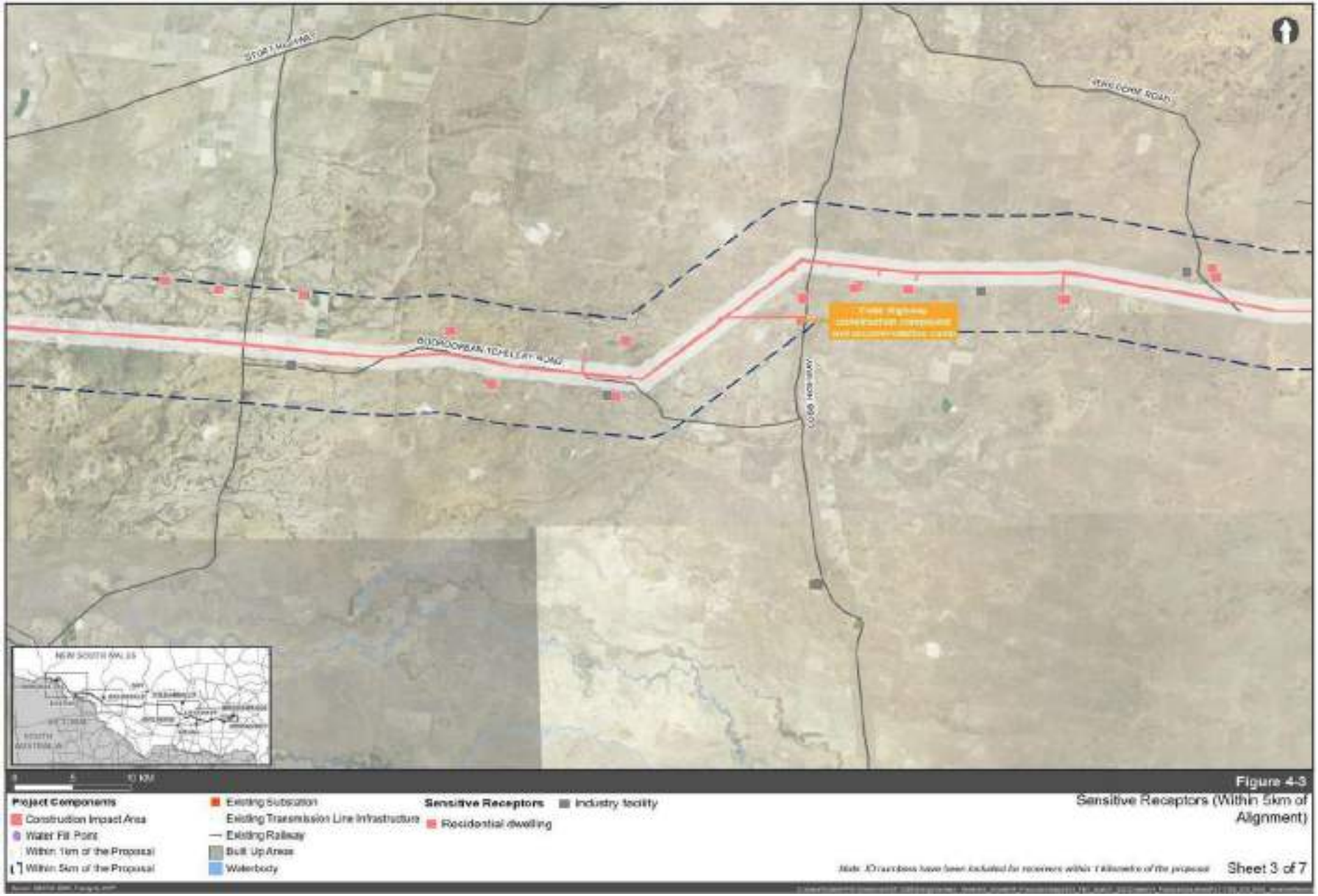
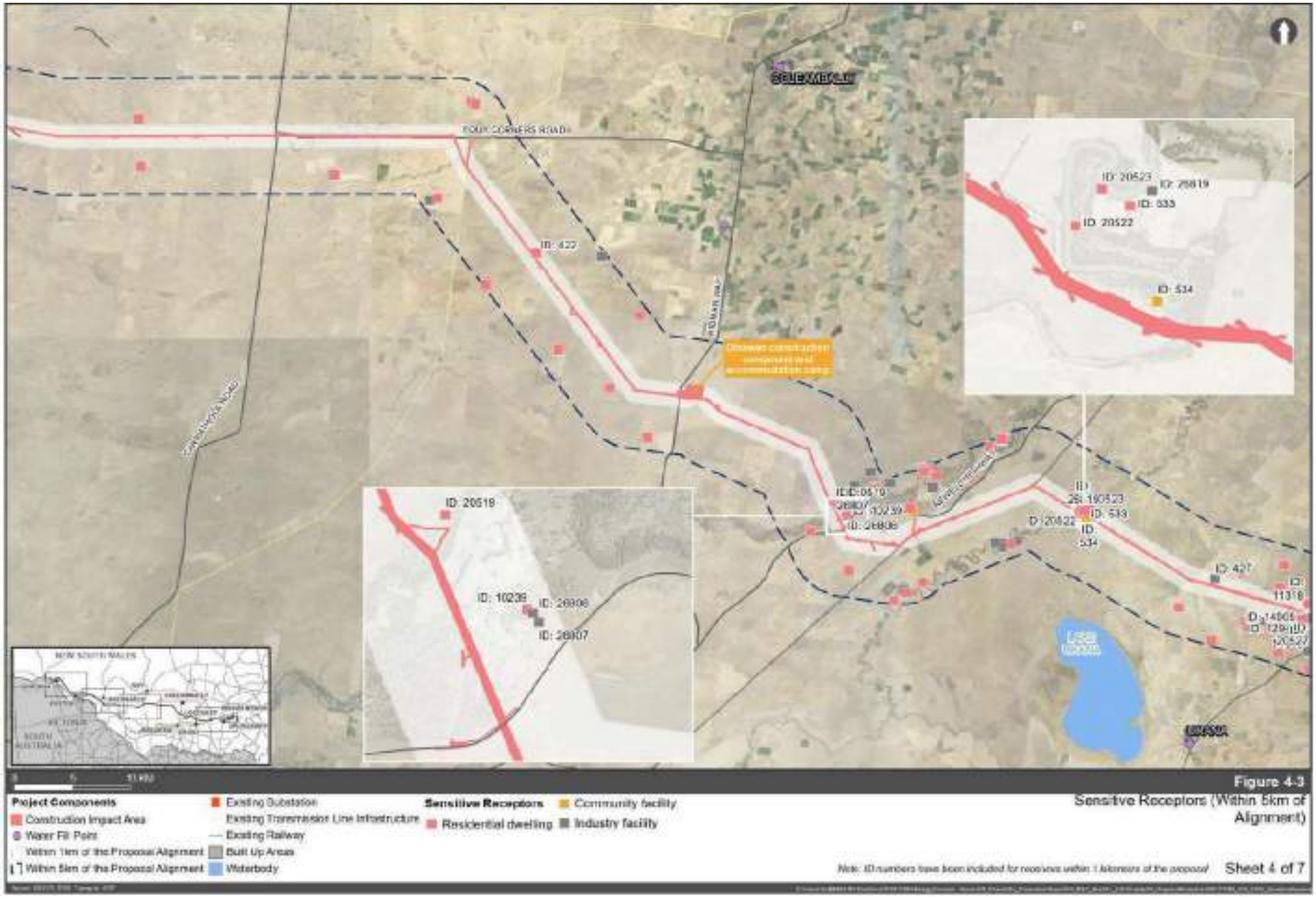
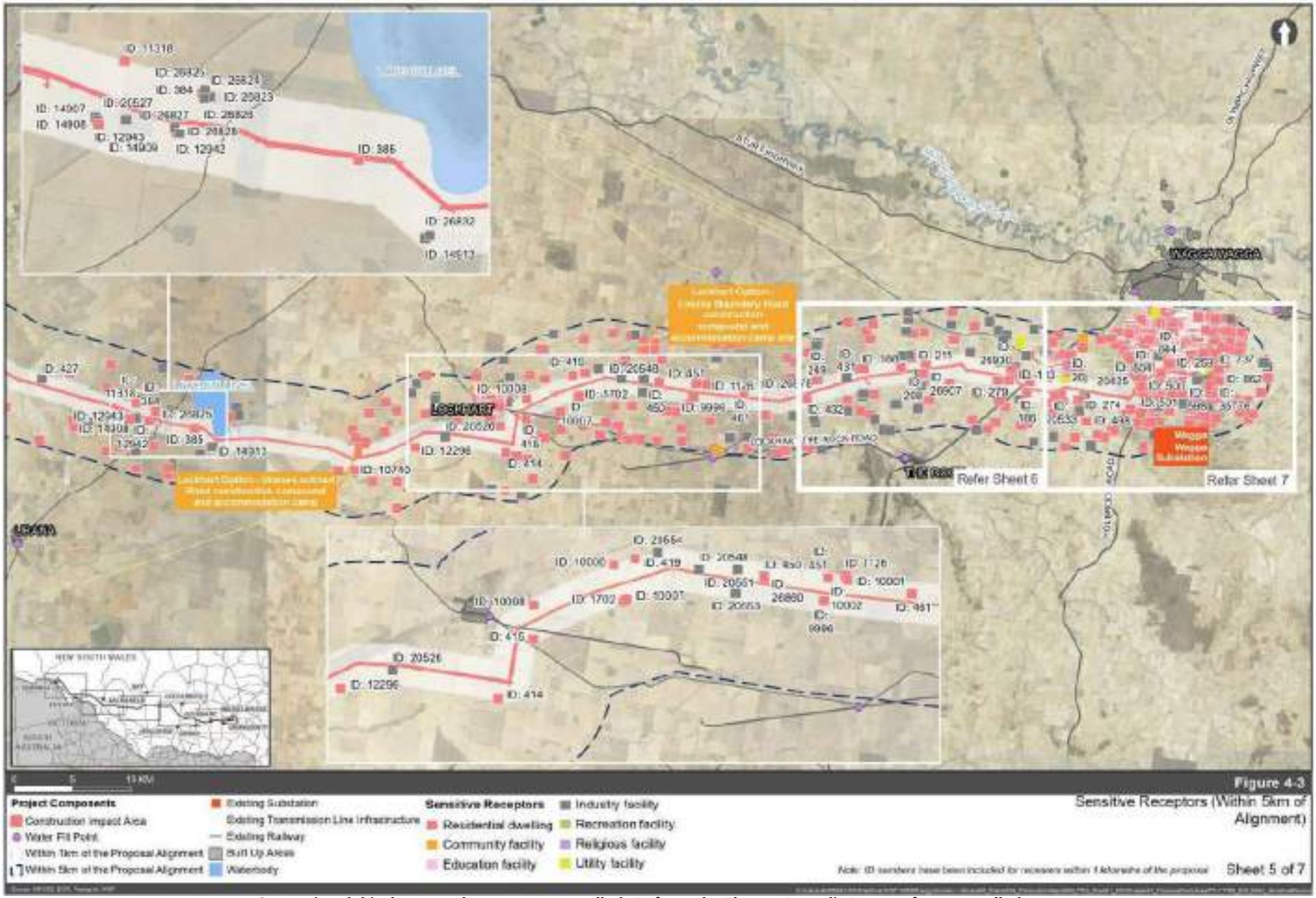


Figure 4-3
Sensitive Receptors (Within 5km of Alignment)


FOUR CORNERS ROAD
ID: 422
ID: 20523
ID: 28819
ID: 533
ID: 20522
ID: 534
ID: 20519
ID: 10239
ID: 28806
ID: 28807
Figure 4-3
Sensitive Receptors (Within 5km of Alignment)
Project Components
Construction Impact Area
Water Fill Point
Within 1km of the Proposal Alignment
Within 5km of the Proposal Alignment
Existing Substation
Existing Transmission Line Infrastructure
Existing Railway
Built Up Areas
Waterbody
Sensitive Receptors
Residential dwelling
Community facility
Industry facility
Sheet 4 of 7


Refer Sheet 6
Refer Sheet 7
Project Components
Construction Impact Area
Water Fill Point
Within 1km of the Proposal Alignment
Within 5km of the Proposal Alignment
Existing Substation
Existing Transmission Line Infrastructure
Existing Railway
Built Up Areas
Waterbody
Sensitive Receptors
Residential dwelling
Community facility
Education facility
Industry facility
Recreation facility
Religious facility
Utility facility
Figure 4-3
Sensitive Receptors (Within 5km of Alignment)
Sheet 5 of 7

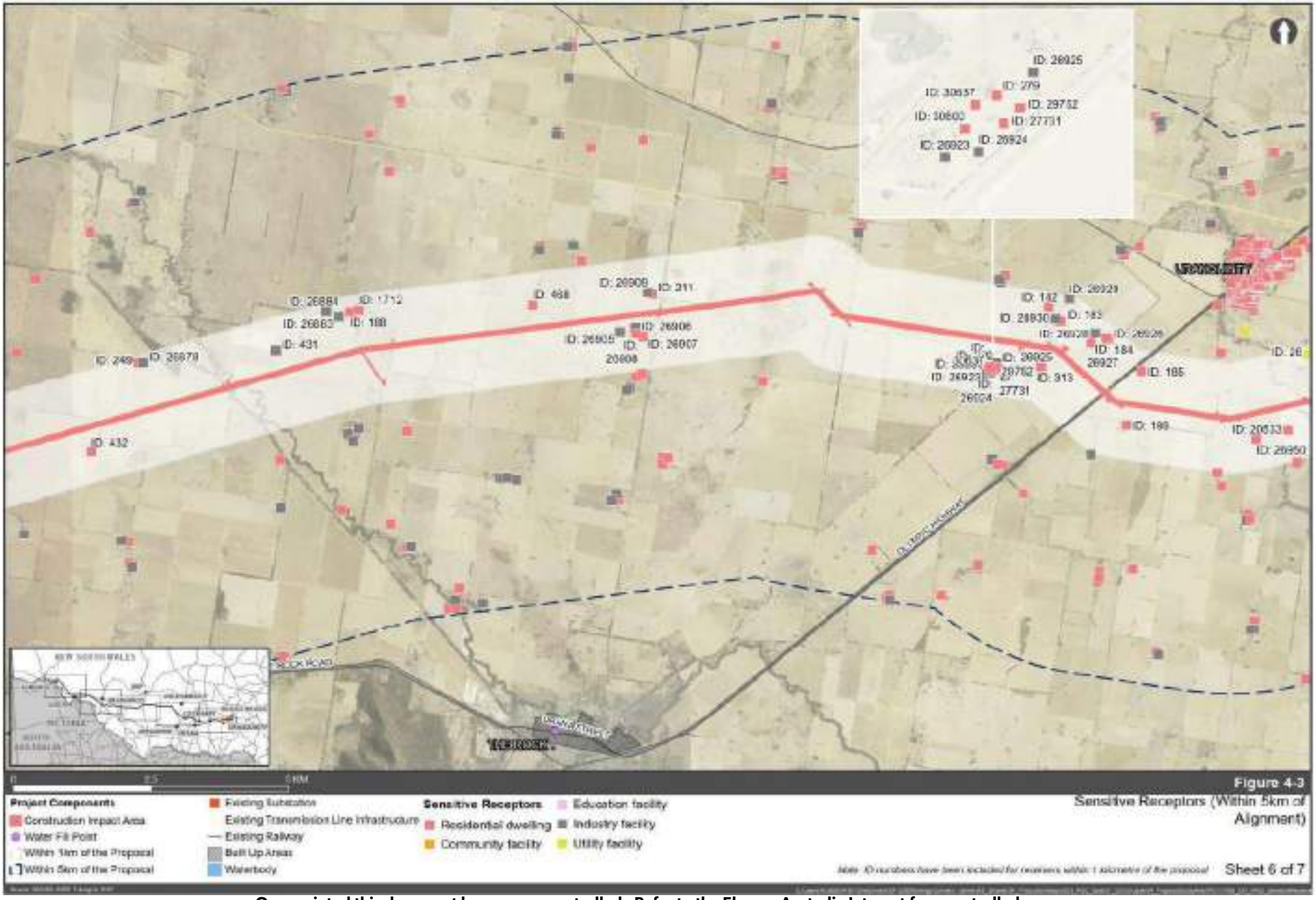


Figure 4-3
Sensitive Receptors (Within 5km of Alignment)

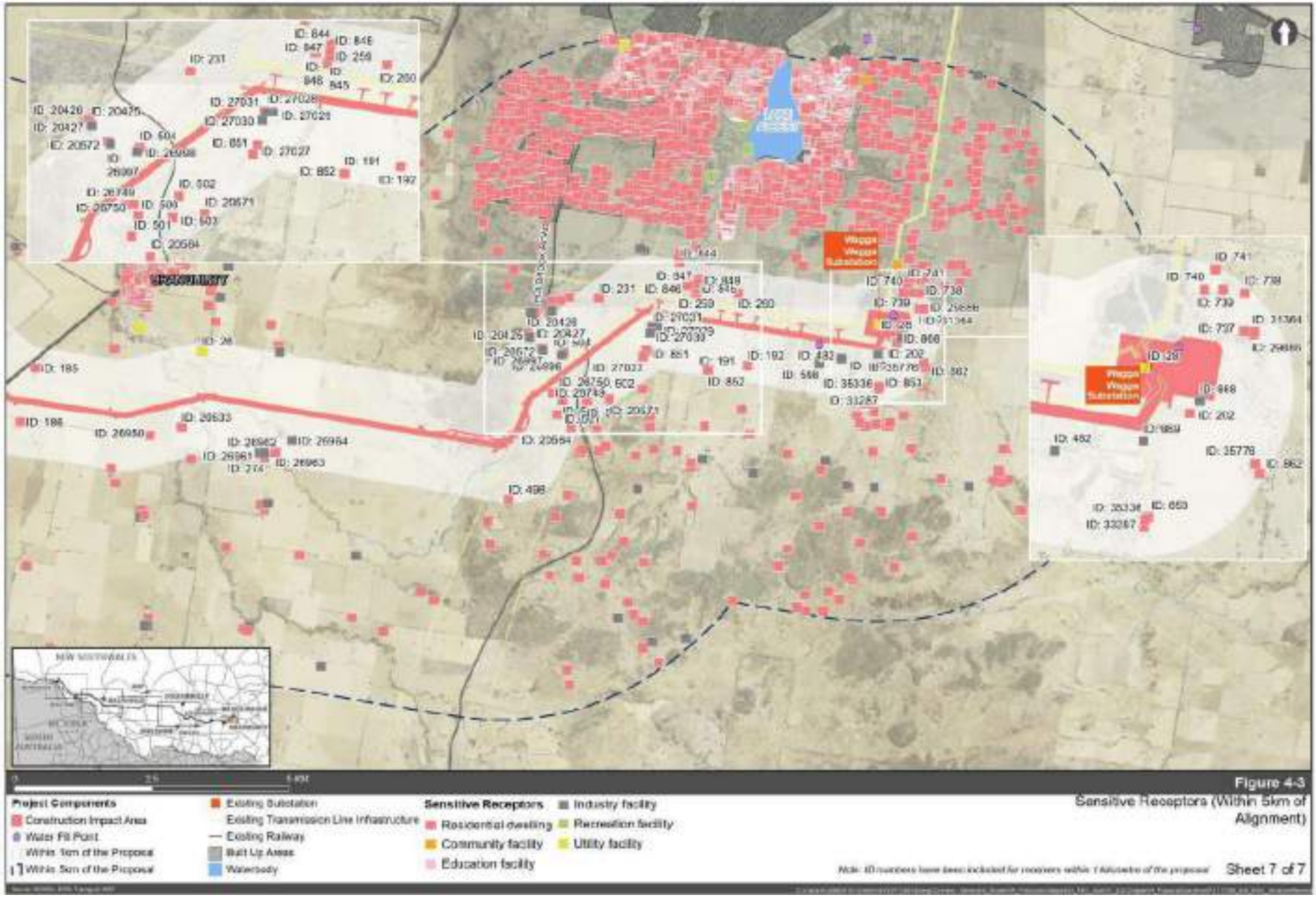


Figure 4-3
Sensitive Receptors (Within 5km of Alignment)

Appendix C - Construction scenarios and noise levels for plant and equipment

Table C.1 Construction scenarios and associated plant and equipment – main construction compounds and accommodation camps (source: Appendix B-1 in Technical Paper 10 of the EIS)

WORK STAGE	EQUIPMENT	NUMBER OF ITEMS	USAGE FACTOR	BASE SWL
Enabling works – site establishment	Flatbed hi – ab truck	1	1	107
	Concrete agitator	1	0.5	109
	Concrete pump	1	0.5	102
	Bob cat	1	1	104
	10–15 tonne roller	1	1	109
	Watercart	1	1	107
	CAT 140M grader	1	0.5	113
	D8 Dozer	1	0.5	116
	30–45 tonne excavator	1	1	110
	20 tonne excavator	1	1	110
	12–15 tonne excavator	1	1	104
	7–10 tonne excavator	1	1	104
	5 tonne excavator	1	1	100
	Excavator with hammer	1	0.5	119
	12–15 tonne franna crane	1	0.5	98
	15–20 tonne franna crane	1	0.5	98
	70 tonne crane	1	0.2	113
	Backhoe	1	1	111
	Pneumatic jackhammer	1	0.5	115
	Dumper truck	1	2	110
	Elevated working platforms	1	0.5	98
	Chainsaw	1	0.1	114
	Mulcher/Chipper	1	0.1	116
	TOTAL			**125**
Compound operation	Front end loader	1	1	91
	Excavator (tracked) 35t	1	1	108
	Road truck	1	1	110
	Light vehicles	1	1	108
	Power generator	1	1	88
	Concrete batching plant	1	1	103
	TOTAL			**112**

Table C.2 Construction scenarios and associated plant and equipment – substation construction
(source: Appendix B-1 in Technical Paper 10 of the EIS)

WORK STAGE	EQUIPMENT	NUMBER OF ITEMS	USAGE FACTOR	BASE SWL
Earthworks and Civil Construction Works (Substations)	Rigid tippers with trailers	3.00	1.00	110
	Compactor	2.00	1.00	106
	Flatbed Hi – Ab truck	1	1.00	107
	Tilt tray truck	1	1.00	103
	Concrete agitator	1	0.30	109
	Concrete pump	1	0.25	109
	Bob cat	2.00	1.00	104
	10–15 tonne roller	2.00	1.00	109
	Watercart	2.00	1.00	107
	Piling rig	1	0.10	116
	CAT 14M grader	1	1.00	113
	CAT 140M grader	1	0.50	113
	Scraper	7.00	1	110
	30–45 tonne excavator	1	1	110
	20 tonne excavator	1	0.50	110
	12–15 tonne excavator	1	1	104
	7–10 tonne excavator	1	1	104
	5 tonne excavator	1	1	100
	Excavator with hammer	1	0.20	122
	15–20 tonne franna crane	1	0.30	113
	Backhoe	1	1	111
	Pneumatic jackhammer	1	0.20	115
	<10t dump truck	3.00	1	110
	Articulated Dumper truck	2.00	1	110
	Rigid Dumper truck	2.00	1	110
	Elevated working platforms	1	0.10	98
	Asphalt plant	1	0.10	106
	Geotech boring rig	1	0.50	112
	Generator	1	3.00	103
	Trencher	1	1	105
	Chainsaw	3.00	1	114
	Mulcher/Chipper	2.00	1	116
	TOTAL			**127**

Table C.3 Construction scenarios and associated plant and equipment – early works at substations (source: Appendix B-1 in Technical Paper 10 of the EIS)

WORK STAGE	EQUIPMENT	NUMBER OF ITEMS	USAGE FACTOR	BASE SWL
Early works, and setout works (Substations)	Flatbed Hi – Ab truck	1	1	110
	Watercart	1	1	107
	Bob cat	1	1	104
	12-15 tonne excavator	1	1	104
	Geotech boring rig	1	1	112
	TOTAL			**115**
Access & Clearing	Rigid tippers with trailers	2.00	1	110
	Flatbed Hi – Ab truck	2.00	1	107
	Concrete agitator	1	0.10	109
	Concrete pump	1	0.05	109
	Bob cat	2.00	1	104
	10–15 tonne roller	2.00	1	109
	Watercart	2.00	1	107
	CAT 14M grader	1	2.00	113
	CAT 140M grader	1	1	113
	D8 Dozer with tree pusher	1	0.70	116
	30–45 tonne excavator	1	0.80	110
	20 tonne excavator	1	0.80	110
	Excavator with harvester	1	1	110
	Excavator with shears and grab	1	1	110
	Articulated Dumper truck	1	0.50	110
	Chainsaw	4.00	1	114
	Stump Grinder	2.00	1	116
	Mulcher/Chipper	2.00	1	116
	TOTAL			127

Table C.4 Construction scenarios and associated plant and equipment – transmission lines
(source: Appendix B-1 in Technical Paper 10 of the EIS)

WORK STAGE	EQUIPMENT	NUMBER OF ITEMS	USAGE FACTOR	BASE SWL
Early works, and setout works (Transmission lines)	Flatbed Hi – Ab truck	1	1	110
	Watercart	1	1	107
	Geotech boring rig	1	1	112
	TOTAL			**114**
Early works, and setout works (Substations)	Flatbed Hi – Ab truck	1	1	110
	Watercart	1	1	107
	Bob cat	1	1	104
	12-15 tonne excavator	1	1	104
	Geotech boring rig	1	1	112
	TOTAL			**115**
Access & Clearing	Rigid tippers with trailers	2.00	1	110
	Flatbed Hi – Ab truck	2.00	1	107
	Concrete agitator	1	0.10	109
	Concrete pump	1	0.05	109
	Bob cat	2.00	1	104
	10–15 tonne roller	2.00	1	109
	Watercart	2.00	1	107
	CAT 14M grader	1	2.00	113
	CAT 140M grader	1	1	113
	D8 Dozer with tree pusher	1	0.70	116
	30–45 tonne excavator	1	0.80	110
	20 tonne excavator	1	0.80	110
	Excavator with harvester	1	1	110
	Excavator with shears and grab	1	1	110
	Articulated Dumper truck	1	0.50	110
	Chainsaw	4.00	1	114
	Stump Grinder	2.00	1	116
	Mulcher/Chipper	2.00	1	116
	TOTAL			127

WORK STAGE	EQUIPMENT	NUMBER OF ITEMS	USAGE FACTOR	BASE SWL
Earthworks and Civil Construction Works (Transmission Lines)	Prime mover and semi trailer	1	1	108
	Flatbed Hi – Ab truck	1	1	107
	Tilt tray truck	1	1	103
	Concrete agitator	1	0.50	109
	Concrete pump	1	0.40	109
	Bob cat	4.00	1	104
	10–15 tonne roller	1	1	109
	Watercart	3.00	1	107
	Piling rig	1	1	116
	CAT 140M grader	1	0.50	113
	D8 Dozer with tree pusher	1	1	116
	30–45 tonne excavator	1	1	110
	20 tonne excavator	1	0.50	110
	12–15 tonne excavator	1	1	104
	7–10 tonne excavator	1	1	104
	5 tonne excavator	1	1	100
	Excavator with hammer	1	0.50	122
	15–20 tonne franna crane	1	1.00	113
	Backhoe	1	1.00	111
	Pneumatic jackhammer	1	1.00	115
	<10t dump truck	1	1.00	110
	Articulated Dumper truck	1	0.50	110
	Elevated working platforms	1	1.00	98
	Asphalt plant	1	0.20	106
	Geotech boring rig	1	0.50	112
	Generator	1	1.00	103
	TOTAL			**125**

WORK STAGE	EQUIPMENT	NUMBER OF ITEMS	USAGE FACTOR	BASE SWL
Tower Assembly	Prime mover and semi-trailer	1 to 3	1	108
	Flatbed Hi – Ab truck	1 to 3	1	107
	Watercart	1	1	107
	15–20 tonne franna crane	2 to 3	1	98
	50 tonne crane	1	1	113
	70 tonne crane	1	0.50	113
	130 tonne crane [1]	2.00	1	113
	300 tonne crane	1	0.20	113
	Elevated working platforms	4.00	1	98
	Generator	2 to 5	1	103
	TOTAL			**120-121**
Tower Erection	Prime mover and semi-trailer	3.00	1	108
	Flatbed Hi – Ab truck [1,2]	1 to 2	1	107
	Bob cat	1	1	104
	Watercart	1	1	107
	70 tonne crane	1	1	113
	130 tonne crane	1	0.50	113
	200 tonne crane	1	0.50	113
	300 tonne crane	2.00	1	113
	Backhoe	1	1	111
	Elevated working platforms	4.00	1	98
	Generator [1]	2.00	1	103
	TOTAL			**121**

PUBLIC

Traffic and Transport Management Plan EnergyConnect (NSW – Eastern Section) Stage 1 and Stage 2

45860-HSE-PL-D-0115

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	APPROVED
9	15/04/2024	Revised to address DPHI comments	K.Nestmann	R.Walker-Edwards	S.Klocke	G.Crighton
10	19/04/2024	Revised to address DHPI and Wagga Wagga City Council comments	S.Dando	R.Walker-Edwards	G.Crighton	G.Arrien
11	25/11/2024	Revised to include additional roads	A.Suleman	R.Walker-Edwards	G.Crighton	F.Delgodo

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Refer to the Elecnor Australia Intranet for controlled copy.

Revision History	
Rev.	**Detailed Description**
A	Issued for Transgrid review
B	Updated to address Transgrid comments and issued for agency consultation
C	Revised to address agency comments
D	Revised to address TfNSW comments
0	For issue to the ER
1	Revised to address DPE comments
2	Revised to address DPE comments
3	Revised to address DPE comments
4	Revised to include additional roads and issued to councils and TfNSW
5	Revised to now only include Euston roads while other roads are consulted
6	Revised to address comments following consultation of all additional roads
7	Revised to address DPHI comments
8	Revised to address Wagga Wagga City Council comments
9	Revised to address DPHI comments
10	Revised to address DPHI and Wagga Wagga City Council comments
11	Revised to include additional roads

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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Abbreviations

Acronym	Definition
Amendment Report	*Amendment Report EnergyConnect (NSW – Eastern Section)*
BAL	Rural Basic Left Turn
BAR	Rural Basic Right Turn
CCS	Community Communication Strategy
CEMP	Construction Environmental Management Plan
CoR	Chain of Responsibility
CSSI	Critical State significant infrastructure
Cth	Commonwealth of Australia
DAWE	(former) Department of Agriculture, Water and the Environment
DCC	Drivers Code of Conduct
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DECCW	(former) Department of Environment, Climate Change and Water
DPE	NSW Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure
DPHI or Department	NSW Department of Planning, Housing and Infrastructure
DPIE	NSW Department of Planning, Industry and Environment, now known as NSW Department of Planning, Housing and Infrastructure
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
Elecnor Australia	Elecnor
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
ER	Environmental Representative
FRP	Flood Response Plan
GCM	Gross Combination Mass
GIS	Geographical information system
GVM	Gross Vehicle Mass
HSSE	Health, Safety, Sustainability and Environment
HVNL	Heavy Vehicle National Law
IVMS	In Vehicle Monitoring System
kV	Kilo Volt
LGA	Local government area
NHVR	National Heavy Vehicle Regulator
NSW	New South Wales
OSOM	Oversize Overmass
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
project, the	EnergyConnect (NSW – Eastern Section)
PMT	Project Management Team

Acronym	Definition
Response to DPE Request for Information	EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information (30 August 2022)
RMMs	Revised mitigation measures
ROL	Road occupancy licence
SA	South Australia
SAP	Sensitive area plan
SecureEnergy	Transgrid has engaged Elecnor Australia, trading as SecureEnergy, to design and construct the EnergyConnect project.
SSI	State significant infrastructure
Stage 1	Stage 1 of construction of the project. This includes establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation and water supply points.
Stage 2	All construction activities associated with EnergyConnect (NSW – Eastern Section). Once approved the Stage 2 CEMP and the relevant Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP and Stage 1 CEMP sub-plans. The Stage 2 CEMP and Stage 2 CEMP sub-plans do not address the operational phase of the project.
Submissions Report	*Submissions Report EnergyConnect (NSW – Eastern Section)*
SWMP	Soil and Water Management Plan
TCP	Traffic Control Plan
TfNSW	Transport for New South Wales
TTMP, this plan	Traffic and Transport Management Plan
UGRL	UGL Regional Linx
VMP	Vehicle Movement Plan
WMS	Work Method Statement

1 Introduction

1.1 Context

This Traffic and Transport Management Plan (TTMP or plan) forms part of the Construction Environmental Management Plan (CEMP) for Stage 2 of EnergyConnect (NSW – Eastern Section).

This document has been prepared for construction activities undertaken during Stage 2 of the project. This plan supersedes the Stage 1 TTMP. It does not address the operational phase of the project.

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

1.2 Background

On 29 August 2019, the then New South Wales (NSW) Minister for Planning and Public Spaces declared the NSW component of EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. Within NSW, EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – SA/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted for the project on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with five from special interest groups, nine from local councils and 44 from the public. In addition, 17 government agencies also provided advice during this time.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared a separate Amendment Report to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report was also finalised in May 2022.

On 2 June 2022, the Department requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response Transgrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to address the various requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI-917245). Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Transgrid have engaged Elecnor Australia (Elecnor) trading as SecureEnergy, to design and construct their portion of the EnergyConnect project.

1.3 Staging

Condition A8 allows preparation of plans on a staged basis, with the approval of the Planning Secretary. Where a plan is staged, the scope of works can be carried out without addressing requirements of the Infrastructure Approval that are not applicable to the particular stage. This TTMP is staged in accordance with condition A8. The two stages are as follows:

- Stage 1 – establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation, water supply points; and
- Stage 2 – Stage 1 and all other construction activities (i.e. all construction activities associated with EnergyConnect (NSW – Eastern Section).

The plans for Stage 2 incorporate and supersede the Stage 1 plans and cover the entire construction phase of the project.

This TTMP has been prepared specifically for EnergyConnect (NSW – Eastern Section) Stage 2 and will be implemented for the duration of Stage 2 of construction. The key project components of Stage 2 of construction include, but are not limited to, the activities provided in Table 1.1. The location of the key project components are presented in Figure 1.1.

Table 1.1 - Key project components of construction (Stage 2)

Key activity	Description of key activity
Pre-construction minor works permitted in accordance with the Infrastructure Approval.	The definition of 'construction' within the Infrastructure Approval excludes following 'pre-construction minor works' activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. Key activities include: • environmental investigations, including biodiversity and heritage protection, salvage and recordings; • Aboriginal heritage assessment, mitigation (e.g. exclusion zones) and salvage activities including subsurface testing/test excavation, additional survey, and consultation with RAPs; • other survey work, such as road dilapidation surveys, and surveys of the general alignment and existing utilities; • installing of environmental management measures (including erosion and sediment controls), fencing, signage and security measures, enabling work; and • connections and pre-commissioning of utilities (wastewater treatment plant, electrical power, lighting etc.).
Continuation of any outstanding Stage 1 construction activities	Construction activities undertaken during Stage 1 of the project will continue where required. This includes, but is not limited to continuation of the following activities: • outstanding construction activities at Dinawan and Wagga Wagga substations; • operation of earthworks material site, including the crushing and screening plant, where required; • operation of the construction compound including offices and laydown area; and • use of traffic access routes and access and egress points.

Key activity	Description of key activity
Establishment of ancillary facilities on the transmission line construction corridor	A number of minor staging, storage and laydown ancillary areas would be required within the project corridor for temporary storage of materials, plant and equipment required to construct the various elements of the proposal (in particular transmission line structures). Some temporary mobile batching plant locations may also need to be established to enable easy access to concrete. These sites would be in place for shorter periods at locations suitable to support the construction works as they move along the alignment.
Property adjustment work, including adjustments to property fencing	Installation or adjustment of gates and fences would be required at some locations along the alignment to enable access from the nearest roadway to construction areas. These would be constructed in consultation with the relevant council and/or affected landholder.
Water supply points – establishment and/or use	A number of water supply points have been identified as along the length of the project to support construction water needs for the project. The proposed water supply points which are to be established and / or used include: • Lake Benanee*, Balranald Shire Council; • 159 Church Street, Balranald Shire Council; • 10 Perry Street, Euston*, Balranald Shire Council; • Ivanhoe Road*, Iluka Fill Point, ,Balranald Shire Council; • Carey Street/Sturt Highway, Euston*, Balranald Shire Council; • Ravensworth, Hay Shire Council [Ravensworth in Amendment Report]; • Moulamein Road 2, Edward River Council [Moulamein Road, Moulamein in Amendment Report]; • Burraburoon*, Edward River Council; • Carrathool Road, Four Corners*, Edward River Council; • Kidman Way*, Murrumbidgee Council; • Crosby Road*, Murrumbidgee Council; • Newell Highway, Morundah*, Federation Council; • Urana-Lockhart Road, Brookong*, Lockhart Shire Council; • Brookdale*, Lockhart Shire Council; • Federation Way/Coonong Road*, Federation Council; • Newell Highway/Arrawidgee Road*, Federation Council; • Federation Way*, Federation Council; • Red Hill Road, Wagga Wagga, Wagga Wagga City Council [Glenfield in Amendment Report]; • 1254 Four Corners Road, Coleambally, Murrumbidgee Council [1254 Four Corners Road in Amendment Report]; • Wonga Station, Four Corners Road, Edward River Council [Wonga in Amendment Report]; • Four Corners Road Mabins Well; Edward River Council [Four Corners Road, Mabins Well in Amendment Report]; • Booroorban-Tchelery Road*, Booroorban, Edward River Council; • Strongs Lane*, Lockhart, Lockhart Shire Council; • Slys Lane*, Lockhart Shire Council; • Bullenbung-the-Rock Road*, Lockhart Shire Council; • French Park-Bullenbung Road*, Lockhart Shire Council; • Napier Road*, Lockhart Shire Council; • Albury Road*, Lockhart, Lockhart Shire Council; • 3 Bencubbin Avenue, Coleambally, Murrumbidgee Council [3 Bencubbin Avenue in Amendment Report]; • Keri Keri Road, Murray River Council [Keri Keri in Amendment Report]; • 78 Murray Street, Tooleybuc*, Murray River Council;

Key activity	Description of key activity
	• intersection of Young Street and Carne Street*, Murray River Council; • Federation Way* (near corner Federation Way and Stephen Street), Federation Council; • Mclennons Bore Road, Coleambally, Murrumbidgee Council [Mclennons Bore Road in Amendment Report]; • 8955 Newell Highway Bundure, Murrumbidgee Council [Newell Highway, Bundure in Amendment Report]; • Paraway at Four Corners Road*, Murrumbidgee Council; • Paraway at Cobb Highway*, Hay Shire Council; • North Boundary Road*; Murrumbidgee Council; • Off Sturt Highway* Wentworth Shire Council; • 16 Mile Gums*, Hay Shire Council; • Cadell Street, Hay, Hay Shire Council; • Jerilderie Road*, Hay Shire Council; • 59 Thelangerin Road, Hay*, Hay Shire Council; • Court Street/Sturt Highway*, Balranald Council; • Boiling Down Road*, Wagga Wagga City Council; and • continued use of the Stage 1 water supply points. The water supply points may require works to the existing infrastructure to enable connection and use by the water supply vehicles. The definition of 'construction' within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval. * The water supply points denoted above with an asterisk are additional to the water supply points identified in the EIS. Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would: • confirm that the water supply point could be accessed using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary's agreement in accordance with condition C32; • reach agreement with the water supplier regarding the use of the water supply point for the project; and • carry out any additional assessments which may be required (i.e. heritage or biodiversity).
Traffic access routes and access points	Construction vehicle movements will be required for a variety of activities (i.e. earthworks, clearing and grubbing activities). All construction vehicles associated with the development will travel via the access routes as identified in Appendix 3 of the Infrastructure Approval or as otherwise approved. The establishment of access points would include establishing vehicle access and egress points to ensure safe vehicle movements. Existing access points may also be used. The definition of construction within the Infrastructure Approval does not include road upgrades (which includes access points). Road upgrade works are, however, incorporated within the Traffic and Transport Management Plan as required by condition C35 b).
Construct access tracks	Access to each tower would be required during construction. Access tracks would be required to be traversable by a range of vehicles. Access tracks would fall into the broad groups:

Key activity		Description of key activity
		• un-improved access tracks - using existing roads or tracks, or driving on existing soil or ground surface with minimal or no prior preparation; • improved access track – using existing roads or tracks where minor modification (such as grading or widening of the existing track) is required; and • constructed access tracks – around six metres wide and would generally follow the natural contour of the land as far as practicable to minimise the amount of cut and fill and soil disturbance. Access tracks would also include drainage control features such as table drains or cross banks to minimise erosion. Constructed access tracks would be required in areas where there are no existing roads or tracks, or where terrain conditions prevent continuous access along the line easement between road crossings. Local waterway spans and causeways may be required, where alternative access routes are impractical, along the length of the proposal.
Temporary works		The project will require a significant quantity of temporary works during construction. The temporary works will include, but not be limited to, the following: • earthworks, including trenches, excavations, temporary slopes, stockpiles, and embankments; • laydown and parking areas for the towers; • structures, such as formwork, shoring, edge protection, barriers and signage, temporary scaffold; and • equipment/plant foundations, such as work platforms, crane, and piling platforms.
Optical repeater sites		Three optical repeater site communication huts would need to be constructed at Balranald, Booroorban and Lockhart. The optical repeater sites are communication huts to ensure the stability of the communications system over great distances during the operation phase. The key activities for the construction of the optical repeater sites would consist of the following: • site establishment, including vegetation removal and establishment of temporary construction site office, if required; • earthworks and preparation of the site for concrete foundations; • construction of a new communication hut building at each site; • installation of new pole-mounted transformers; • installation of electrical cables and terminations (either through the installed conduits or stringing of the aboveground poles); • installation of site wiring and electrical control equipment within each building; • trenching for underground conduit between the Balranald optical repeater hut and transmission line; • installation of new above ground poles between the transmission line and the respective Booroorban and Lockhart optical repeater sites; • provision of power connections between the transmission line and associated optical repeater site; and • removal of waste and remediation of site areas.
Transmission line construction	Earthworks and transmission tower footing construction	Excavation works and establishment of construction pads at each tower site would be required for the installation of foundations, levelling around the individual tower foundations, drainage and grading or preparation for construction at the tower site. Excavations would typically be up to five metres in depth. Construction of footings and foundation works for the new transmission line towers includes: • piling. Typical transmission line tower piling depth would be generally up to 6-15 metres below ground level and would depend on ground conditions (e.g. greater piling depths would be required where soft soil types are present).The foundation type would also vary (subject to detailed design) but would consist of either: – bored pile (reinforced concrete); – driven or screw pile (concrete or steel); and

Key activity		Description of key activity
		– helical screw anchor, or cast in-situ reinforced concrete. • excavation to create bench sites (stepped ground excavation) where required to provide a level platform for equipment setup, the erection of the tower and other construction activities. Benching would be constructed by use of earthing equipment such as graders and excavators; • steel fabrication works; and • concrete pours.
	Assembly and erection of transmission line towers	The transmission line towers would typically be erected by assembling in sections on the ground and hoisting or lifting successive sections into place using cranes. Alternatively, towers may be erected in place on the footings by installing individual members. These towers would include infrastructure such as step bolts, climbing attachment plates, ladders, platforms, climbing barriers, identification plates, warning plates, other fixtures and fittings for the attachment of earth wires and insulators.
	Stringing of transmission lines including conductors and overhead earth wires and optical ground wire	Following erection and securing of the tower, the transmission line would be strung by either a ground pulled draw wire (with brake/winch sites) or a line stringing drone. The area required for the construction of each tower would require access for tower assembly and stringing works. Where a transmission tower is proposed to allow for a direction change of the transmission line, a larger area would be required (to allow for brake and winching sites). At a typical site, this would include a temporary area of up around 60 metres by 80 metres at each transmission line tower location. The transmission line would require spanning across a series of major watercourse. The general construction methodology is to assemble and erect a transmission line structure on either side of each major river crossing. A drone would then be used to take a lead wire over the river to allow cables to then be pulled and strung tower to tower. Similar methodology will be undertaken when stringing transmission line across major road networks and railway lines.
	Installation of earthing conductors	The following key activities will be undertaken: • installation of earthing conductors at each of the transmission tower arms; • installation of earthing or isolation sections of fences and gates where the transmission line crosses or closely runs parallels to a metallic fence; and • connection of incoming transmission lines at the Dinawan and Wagga Wagga substations.
Utility adjustments and protection		General utility protection and adjustment works, where required, to allow for the Wagga Wagga substation expansion and upgrades works to occur, the optical repeater sites, the establishment and operation of the construction compounds and accommodation camps, and where else required.
Site rehabilitation and landscaping		Site rehabilitation would be carried out progressively along completed sections of the transmission line as well as the substation sites. This phase would occur following the completion of construction and involve the removal of materials not required during the operation of the substation and/or transmission lines. This phase would include the removal/remediation of the construction compounds and camp sites, removal of temporary facilities and site buildings and temporary environmental controls. Works may also be undertaken to restore: • water infrastructure facilities to pre-existing conditions before arrival on site in consultation with landowners; • natural drainage in areas where temporary facilities were provided; and • fences, gates, etc., which may have been damaged during construction. Installation of the permanent TransGrid property boundary fence surrounding the expanded substation site would also likely occur during this phase.
Demobilisation		Elecnor will start to downsize the construction team with gradual demobilisation as particular key construction activities are completed.

Some activities nominated in this stage will have already commenced as part of the pre-construction minor works permitted in accordance with the Infrastructure Approval. These works will remain excluded from the definition of 'construction' and will therefore not be subject to the Stage 2 CEMP and this TTMP. Activities that were approved to be carried out under the Stage 1 TTMP will continue under this TTMP.

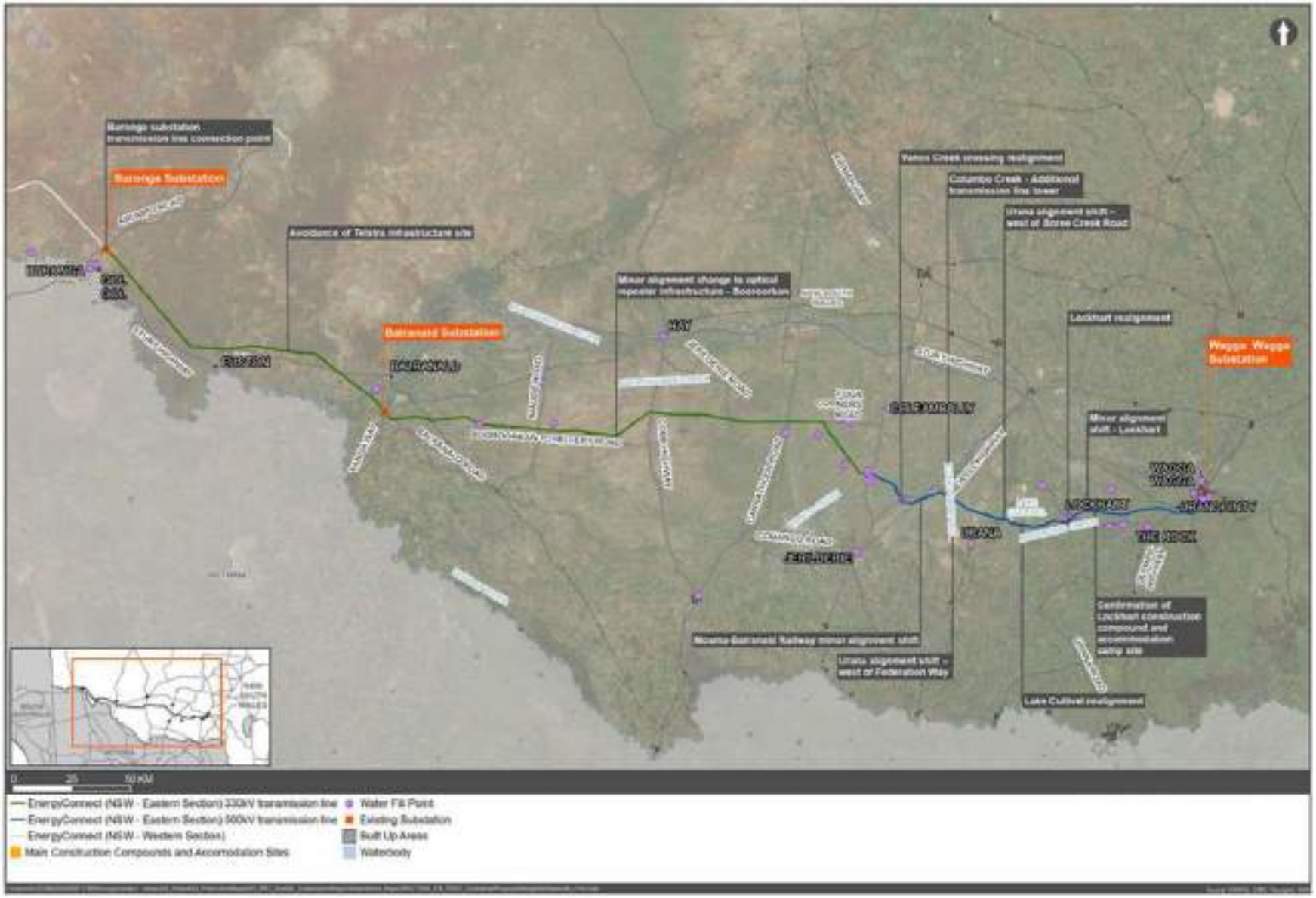


Figure 1.1 - Key features of EnergyConnect (NSW - Eastern Section)

1.4 Environmental management system

The overall environmental management system for the project is described in Section 4 of the CEMP – Environmental management system. This TTMP is a sub-plan that forms part of the CEMP and is also part of the environmental management framework for the project, as described in the CEMP.

Management measures identified in this plan will be incorporated into relevant site-based documents including, but not limited to, site or activity specific work pack or work method statements (WMS), the geographical information system (GIS)/sensitive area plans (SAPs) or training and awareness material.

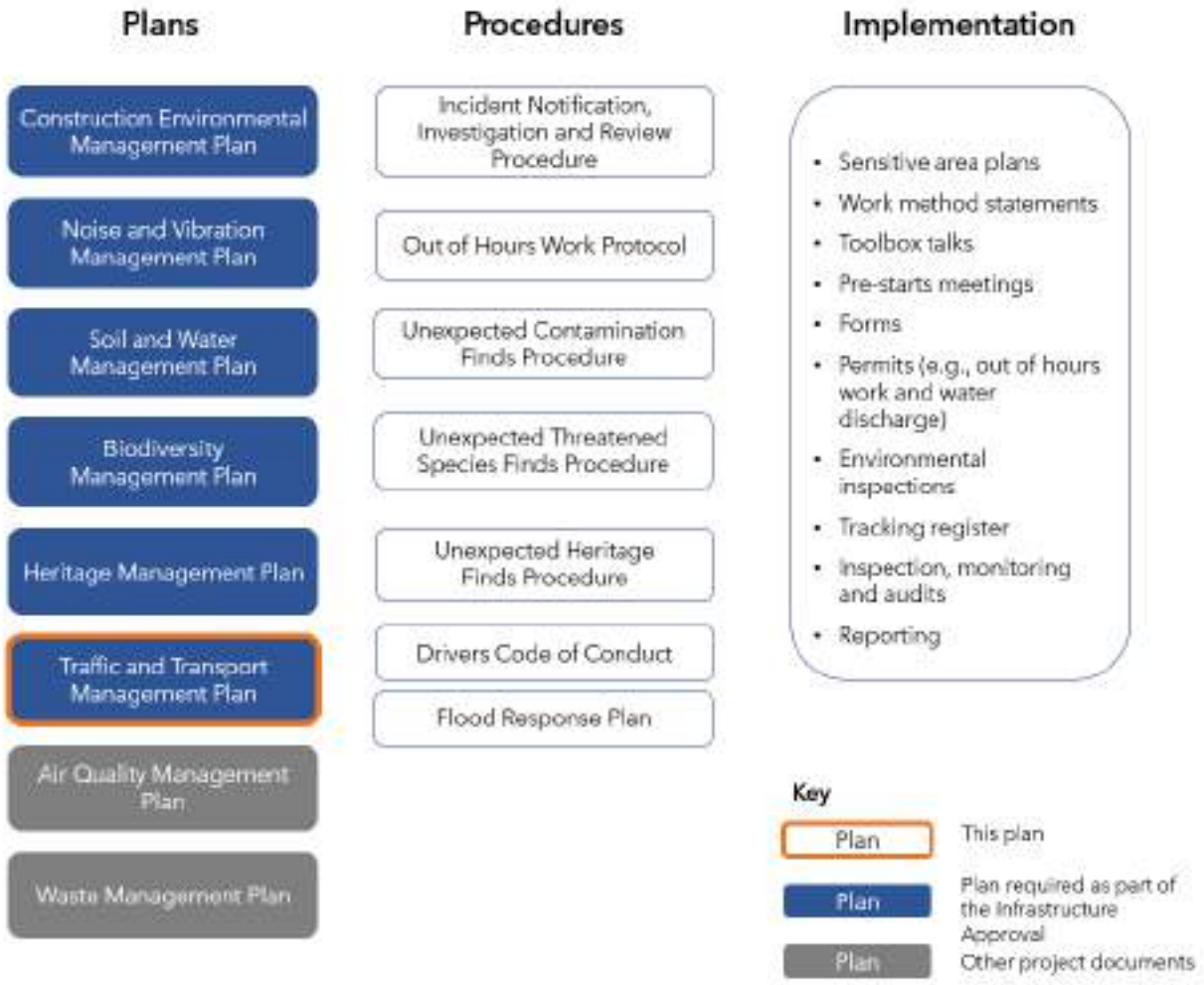


Figure 1.2 - CEMP framework

1.5 Purpose and objective

The purpose of this TTMP is to describe the approach to manage traffic and transport impacts that will be adopted during construction of the project.

The key objective of this TTMP is to detail management measures and inform site procedures for implementation so that traffic and transport impacts are minimised and within the scope permitted by the Infrastructure Approval. To achieve this, the following will be undertaken:

- implement appropriate measures to minimise traffic and transport impacts during construction of the project;

- implement appropriate measures to address the requirements outlined in the Infrastructure Approval, EIS, Submissions Report and Amendment Report; and
- implement appropriate measures to comply with relevant legislative requirements as outlined in Section 2.1 of this plan.

As a means of assessing environmental performance, environmental objectives (performance measures), targets (criteria) and performance indicators have been established for the project and are provided within Section 4.2 of the CEMP – Objectives and targets. The performance measures and indicators that are most relevant to traffic and transport management are detailed within Table 1.2.

Table 1.2 - Environmental objectives, targets and performance indicators relevant to traffic and transport

Aspect	Objectives (performance measures)	Targets (criteria)	Performance indicators
Traffic	Provide a safe environment for road users	No death or injury to workers and the public as a result of traffic incidents	Number of incidents recorded relating to traffic
Traffic	Minimise complaints due to traffic, transport and access from community	Implementation of the management measures in this plan Respond to traffic related complaints in a timely manner, as outlined in the Community Communication Strategy	Follow up action of incidents as recorded in incident reports Follow up action of complaints as recorded in the Sales Force database

1.6 Preparation of this plan

In accordance with condition B1 of the Infrastructure Approval, this plan has been prepared and reviewed by suitably qualified and experienced persons. This plan was prepared by Katrina Nestmann and Martin Lee, and reviewed by Rebecca Walker-Edwards and Graham Crighton.

1.7 Consultation

1.7.1 Development of this plan

In accordance with condition B1 e) of the Infrastructure Approval and RMM TA1, this TTMP has been prepared in consultation with:

- Transport for New South Wales (TfNSW); and
- relevant councils (Balranald Shire Council, Murray River Council, Edward River Council, Hay Shire Council, Murrumbidgee Council, Federation Council, Lockhart Shire Council, Wentworth Shire Council, Wagga Wagga City Council, Berrigan Shire Council and Narrandera Shire Council).

This TTMP was issued to relevant stakeholders for review and comment. As described in the Agency Consultation Report, not all councils have provided comments on the plan. Comments from the consultation process will be incorporated into this plan where appropriate. Details of all consultation will be submitted to Department of Planning, Housing and Infrastructure (DPHI) along with the submission of this TTMP.

1.7.2 Ongoing communication and consultation

Elecnor will use a range of tools in accordance with the *Community Communication Strategy* (CCS) (45860-HSE-DOC-D-0024) to facilitate ongoing consultation and communication with the community and stakeholders (including government agencies where necessary) regarding the

project. Communication tools include, but are not limited to, stakeholder briefings, project website, community drop-in sessions, door knocks and project factsheets. Refer to the CCS for further information.

Co-ordination of traffic management arrangements between major construction projects will occur in consultation with the relevant road authorities (TfNSW and local councils). This will consider any potential conflicts in relation to deliveries and identified haulage access during the program.

In accordance with condition D12 a) of the Infrastructure Approval, project documents including the EIS, approved strategies, plans or programs required under the conditions of approval and independent reports will be publicly available on the project website. The project website is https://www.transgrid.com.au/projects-innovation/energyconnect. A 24-hour toll-free telephone number (1800 490 666) is also available for any project enquiries. In accordance with condition D12 b) the information will be kept up to date.

1.7.3 Complaints

Complaints will be managed by the Engagement Team with the use of the Sales Force. Complaints will be received via phone calls, emails and letters. Any complaint received is regarded as a high priority and will be recorded, tracked and responded to in accordance with the CCS. Complaints will be investigated and dealt with impartially. The key principles of the complaint management process include:

- acknowledge - Elecnor staff should respect the communities' right to voice their concerns. All complaints received should be acknowledged to the complainant either by telephone or in writing;
- resolve – Elecnor staff should aim at first contact, resolution for all community concerns. SecureEnergy staff should investigate community concerns in detail before negotiating a resolution. All Elecnor staff should use their relevant discretions to achieve a mutually acceptable resolution to complaints;
- escalate – all Elecnor staff should aim to escalate the complaint if the community member remains dissatisfied with the investigation and/or resolution offered by their first point of contact at Elecnor. All complaints where community request to speak to a higher-level representative, should also be escalated;
- record – Elecnor staff should aim through the Engagement Team at recording all relevant information, on the community account in Sales Force, regarding customer concerns along with details of all discussions had with the community member in the process of investigating and/resolving the complaint. Detailed information on the resolutions offered to address community concerns should also be clearly recorded;
- communicate – Elecnor staff should remain in constant touch with the community member while their concerns are being investigated. The community member should be informed of all steps of the investigation and the resulting outcome at appropriate times;
- report – Elecnor should report on all complaints received to the Elecnor Management Team and Transgrid. The reporting should include information on the number as well as type of complaints being received, the status of these complaints from time to time and the resulting outcomes or resolutions offered to close them;
- feedback – the Elecnor Engagement Team should aim at regular and intensive reviews to identify possible trends in the complaints being received. These reviews should be aimed at highlighting improvements required to avoid complaints being repeated; and

- action – Elecnor should aim at effective implementation of improvements suggested directly by the community or highlighted by complaint trends.

Wherever possible, complaints will be resolved directly between Elecnor and the stakeholder. If a complaints management process has been followed and the issue cannot be resolved, dispute resolution will be undertaken in accordance with the CCS. DPHI may request the Environmental Representative (ER) to assist in dispute resolution of community complaints.

All complaints will be provided to the ER and a summary of complaints received, such as a complaint register, will be updated monthly on the project website.

1.8 Submission and approval

Prior to submission to DPHI, the TTMP was reviewed by the ER to ensure the plan was consistent with the requirements of the Infrastructure Approval. A written statement to this effect was prepared and submitted to DPHI. The ER review was undertaken in accordance with condition A12 of the Infrastructure Approval.

This TTMP was then submitted to DPHI for review and approval by the Planning Secretary prior to the commencement of Stage 2 of construction.

Stage 2 of construction did not commence until the CEMP and all sub-plans required under condition B1, or where staging is proposed the plans required for that stage, were approved by the Planning Secretary. The approved TTMP will be implemented for the duration of the Stage 2 construction activities.

1.9 Periodic review

This TTMP will be reviewed at least annually and updated, if required, in accordance with Section 1.10 of the CEMP – Updating the CEMP. This includes the review and, if necessary, revision of this TTMP in accordance with condition D2, within three months of the following:

- submission of an incident report under condition D6 of the Infrastructure Approval;
- submission of an audit report under condition D11 of the Infrastructure Approval; or
- any modifications to the Infrastructure Approval.

Any updates to the TTMP will be approved in line with Section 1.10 of the CEMP.

2 Environmental requirements

2.1 Legislation

Legislation relevant to the management of traffic and transport includes:

- *Environmental Planning and Assessment Act 1979*;
- *Environmental Planning and Assessment Regulation 2000*;
- *Roads Act 1993*;
- *Dangerous Goods (Road and Rail Transport) Act 2008*;
- *Road Transport Act 2013*;
- *Heavy Vehicle (Adoption of National Law) Act 2013 No 42a*;
- *Road Rules 2014*; and
- *Work Health and Safety Act 2011*.

Relevant provisions of the above legislation are detailed within the register of legal and other requirements included in Appendix A1 of the CEMP.

2.2 Conditions of Approval

The conditions of the Infrastructure Approval relevant to traffic and transport for Stage 2 of the project are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

Table 2.1 - Conditions of Approval relevant to traffic and transport

Condition no.	Requirement	Where addressed	How addressed
A1	In meeting the specific performance measures and criteria of this approval, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction, operation, rehabilitation, upgrading or decommissioning of the development.	Section 6	Section 6 identifies the management measures to be implemented to prevent, and if prevention is not reasonable and feasible, minimise harm.
A19	All plant and equipment used on site, or in connection with the development, must be: a) maintained in a proper and efficient condition; and b) operated in a proper and efficient manner.	Table 6.3 - TT54	Management measure TT54 in Table 6.3 requires that all plant and equipment used on the project is maintained in a proper and efficient condition, and operated in a proper and efficient manner.
B1	Prior to commencing construction, an Environmental Management Plan (EMP) comprising the Sub-plans listed in Table 1 must be prepared by suitably qualified and experienced persons, to the satisfaction of the Planning Secretary. Following the Planning Secretary's approval, the Proponent must implement the Environmental Management Plan.	Section 1.6 Section 1.7 Section 5 The CEMP	The CEMP (in lieu of an EMP) has been prepared by suitably qualified and experienced persons prior to the commencement of construction. This TTMP has been provided to TfNSW and relevant councils for consultation. Following consultation, the outcomes of consultation have been

<table>
<tr><th>Condition no.</th><th>Requirement</th><th>Where addressed</th><th>How addressed</th></tr>
<tr><td></td><td>Table 1: EMP Sub-plans
<table>
<tr><th></th><th>Required EMP Sub-plan</th><th>Relevant government agencies and stakeholders to be consulted for each EMP Sub-plan</th></tr>
<tr><td>(e)</td><td>Traffic and Transport</td><td>TfNSW
Relevant council</td></tr>
</table></td><td></td><td>incorporated throughout the TTMP where appropriate.</td></tr>
<tr><td>B2</td><td>The EMP Sub-plans must be prepared in accordance with relevant guidelines and in consultation with the relevant government agencies identified for each Sub-plan in Table 1, and include:</td><td>Section 1.7
Section 2.5</td><td>This TTMP has been prepared in accordance with relevant guidelines and has been provided to TfNSW and the relevant councils for consultation, in accordance with condition B1.</td></tr>
<tr><td></td><td>a) a summary of relevant background or baseline data;</td><td>Section 3</td><td>The existing environment related to traffic and transport for Stage 2 is outlined in Section 3.</td></tr>
<tr><td></td><td>b) details of:
(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</td><td>Section 2
Appendix A1 of the CEMP</td><td>The relevant legislation, conditions, RMMs and guidelines applicable to traffic and transport are outlined in Section 2.
Appendix A1 of the CEMP provides further detail on the relevant legislation applicable to traffic and transport.</td></tr>
<tr><td></td><td>(ii) any relevant limits or performance measures and criteria; and</td><td>Section 1.5
Section 4.2 of the CEMP - Objectives and targets</td><td>The objectives (performance measures) and targets (criteria) relevant to traffic and transport management are outlined in Section 1.5.
The CEMP also provides project-wide environmental objectives (performance measures) and targets (criteria).</td></tr>
<tr><td></td><td>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</td><td>Section 1.5
Table 1.2
Section 4.2 of the CEMP - Objectives and targets</td><td>The performance indicators relevant to traffic and transport management are outlined in Section 1.5 and Table 1.2.
The CEMP also provides project-wide performance indicators.</td></tr>
<tr><td></td><td>(iv) any relevant commitments or recommendations identified in the EIS;</td><td>Section 2.3</td><td>Relevant traffic commitments and recommendations identified in the EIS, known as RMMs, have been outlined in Section 2.3.
Section 2.3 and Section 6 of this TTMP describe how the commitments of the EIS relevant to traffic management will be implemented.</td></tr>
</table>

Condition no.	Requirement	Where addressed	How addressed
	c) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 6	Specific traffic related safeguards and management measures to address potential impacts associated with Stage 2 of construction and comply with the relevant statutory requirements, limits and performance measures are outlined in Section 6.
	d) a program to monitor and report on the: (i) impacts and environmental performance of the development (including a table summarising all the monitoring and reporting obligations under the conditions of this approval); and	Section 7, including: Section 7.3 Section 7.4 Section 7.5 Section 7.6	The management measures will be managed through regular monitoring, inspections, audits outlined in Sections 7.3 to 7.6 of this TTMP.
	(ii) effectiveness of the management measures set out pursuant to paragraph (c);	Section 7	Monitoring the effectiveness of the management measures is outlined in Section 7.
	e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 7.8 Section 8 of the CEMP - Incidents and emergencies Section 10 of the CEMP - Reporting Section 11 of the CEMP - Non-compliance, non-conformance, corrective and preventative action	Section 7.8 outlines a contingency plan in the event that unpredicted impacts are identified. The CEMP also provides additional detail regarding incidents and emergencies, reporting, non-compliance, non-conformance, corrective and preventative actions.
	f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 1.9 Section 7 Section 1.9 of the CEMP - Continuous improvement	Section 7 of this TTMP outlines procedures for compliance management, including details for monitoring, inspections, auditing and reporting. This TTMP will be reviewed at least annually as described in Section 1.9 of this TTMP and Section 1.9 of the CEMP. The continuous improvement process outlined in Section 1.9 of the CEMP will be implemented.

Condition no.	Requirement	Where addressed	How addressed
	g) a protocol for managing and reporting any: (i) incident, non-compliance or exceedance of any impact assessment criterion and performance criterion;	Section 7.7 Section 7.8 Section 8 of the CEMP - Incidents and emergencies Section 10 of the CEMP - Reporting Section 11 of the CEMP - Non-compliance, non-conformance, corrective and preventative action	Section 7.7 and 7.8 describe the procedures for emergencies, incidents and non-compliances, including those related to traffic and transport. Additional detail for managing incidents and emergencies, non-compliances and non-conformances is included in the CEMP. The protocol for reporting of any incidents, non-compliances or non-conformances is included in Section 10 and 11 of the CEMP.
	(ii) complaint; or	Section 1.7.3 Community Communication Strategy	A summary of the complaints management procedure and reporting of complaints is included in Section 1.7.3 of this TTMP. The procedure for managing and reporting any complaints is described in the *Enquiries, Complaint and Dispute Resolution Management Procedure* provided in the CCS.
	(iii) failure to comply with other statutory requirements;	Section 7.7 Section 8 of the CEMP - Incidents and emergencies Section 10 of the CEMP - Reporting Section 11 of the CEMP - Non-compliance, non-conformance, corrective and preventative action	In the event of failure to comply with statutory requirements, the procedures summarised in Section 7.7 of this TTMP and described in more detail in the CEMP would be followed.
	h) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 1.2 Section 1.7.2	The TTMP contains publicly available data sources to assist with understanding the environmental impacts of the development. The local community and relevant agencies will be kept informed of construction progress and environmental performance through communication tools such as notifications and the project

Condition no.	Requirement	Where addressed	How addressed
			website as summarised in Section 1 of this TTMP.
	i) a protocol for periodic review of the EMP and EMP Sub-plans.	Section 1.9 Section 1.10 of the CEMP - Updating the CEMP	This TTMP will be reviewed at least annually in accordance with the CEMP.
	The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	Noted	Noted.
C1	Road upgrades, construction, upgrading and decommissioning activities may only be undertaken between: a) 7 am to 6 pm Monday to Friday; b) 8 am to 1 pm Saturdays; and c) at no time on Sundays and NSW public holidays; unless the Planning Secretary agrees otherwise.	Section 6.7 NVMP	The standard construction hours for the project are identified in Section 6.7. Refer to the *Noise and Vibration Management Plan* (45860-HSE-PL-D-0110) for further details. Section 6.7 also provides details for works undertaken during the hours defined in conditions C1, C2 and C10 of the Infrastructure Approval.
C3	The Proponent must take all reasonable and feasible steps to minimise the road upgrades, construction, upgrading or decommissioning noise of the development in the locations where the noise is audible to sensitive receivers, including any associated traffic noise.	NVMP	The NVMP provides the management measures to minimise noise impacts on sensitive receivers.
C31	All over-dimensional vehicles associated with the development must only travel to and from the site via the Primary Access Routes described in the EIS, as identified in the figure in Appendix 3, unless the Planning Secretary agrees otherwise. *Note: The Proponent is required to obtain relevant permits under the Heavy Vehicle National Law (NSW) for the use of over-dimensional vehicles on the road network.*	Section 5.3 Table 6.3 - TT17	All over-dimensional vehicles associated with the development will only travel via the primary access routes described in the EIS, as identified in the figure in Appendix 3, unless the Planning Secretary agrees otherwise. Appendix E outlines the primary access routes which can be used by over-dimensional vehicles.
C32	All heavy and light vehicles associated with construction, upgrading and decommissioning of the development must travel to and from the site via the Primary Access Routes, Secondary Access Routes and Water Supply Routes as described in the EIS and identified in the figure in Appendix 3, unless the Planning Secretary agrees otherwise	Section 5.1 Section 5.2 Table 6.3 - TT18	All heavy and light vehicles associated with construction, upgrading and decommissioning will travel to and from the site via the primary, secondary and water access routes as described in the EIS and identified in Appendix 3 of the Infrastructure Approval, unless the Planning Secretary agrees otherwise. Appendix E identifies the primary and secondary access routes and water supply routes to be used for Stage 2 construction activities. Section 5.2 outlines the additional approved access

Condition no.	Requirement	Where addressed	How addressed
			routes which the project will use during Stage 2 works.
C33	Unless the Planning Secretary agrees otherwise, the Proponent must implement the road upgrades identified in Appendix 3 in accordance with the relevant standard and timing requirements, to the satisfaction of the relevant roads authority.	Section 6.2	Section 6.2 outlines the road upgrades required as identified in Appendix 3 of the Infrastructure Approval.
C34	The Proponent must: a) undertake independent dilapidation surveys to assess the: (i) existing condition of all local roads on the transport routes (including local road crossings) prior to construction, upgrading or decommissioning works; and (ii) condition of all local roads on the transport routes (including local road crossings): - within 1 month of the completion of construction, upgrading or decommissioning works, or within a timeframe agreed to by the relevant roads authority; - on an annual basis during construction, or within a timeframe agreed to by the relevant roads authority; b) repair (or pay the full costs associated with repairing) any damage to local roads on the transport route (including local road crossings), if dilapidation surveys identify that the road has been damaged by the development during construction, upgrading or decommissioning works; and c) prepare a report in consultation with the relevant roads authority. If there is a dispute about the road maintenance works, or the implementation of these works, then either party may refer the matter to the Planning Secretary for resolution	Section 6.1 Table 6.3 - TT2 and TT3	Dilapidation surveys will be undertaken in accordance with this condition and as outlined in Section 6.1. If the dilapidation surveys identify that a local road (or local road crossing) has been damaged during construction, upgrading or decommissioning works by the development, the identified damage will be repaired.
C35	The Traffic and Transport EMP Sub-Plan required under condition B2 must include:		
	a) details of the transport route to be used for all development-related traffic;	Section 5	Section 5 describes the construction access routes for heavy and light vehicles, as well as oversize vehicle movements.
	b) details of the road upgrade works required by condition C33 of this approval, including;	Section 6.2	Section 6.2 outlines the road upgrade works, including minor access points, required for Stage 2 works. A list of the road upgrades required is identified in

Condition no.	Requirement	Where addressed	How addressed
	(i) final number, location and type of Minor Access Points intersections to be implemented; and (ii) verification that the proposed types of intersection treatments have sufficient capacity for the proposed vehicle numbers;		Appendix 3 of the Infrastructure Approval. The project does not propose to construct any new roads or intersections for Stage 2. The intersection treatments will be verified as having sufficient capacity for the proposed number of vehicles. Refer to Section 6.2.1 for further details.
	c) details of the measures that would be implemented to: (i) minimise traffic safety impacts of the development and disruptions to local road users during construction, upgrading or decommissioning works, including:	Section 6	Section 6 outlines management measures to be implemented during construction to minimise traffic safety impacts.
	- a description of the proposed dilapidation surveys required by condition C34 of this approval;	Section 6.1 Table 6.3 - TT2 and TT3	Section 6.1 outlines the dilapidation surveys that will occur prior to construction for Stage 2.
	- a description of the proposed measures for managing traffic flow around the work sites, construction compounds and accommodation camps;	Section 5.7 Section 6.2 Section 6.5	Section 6.2 and Section 6.5 outline measures to manage traffic flow around the work sites, construction compounds and accommodation camps during construction. The access points listed in Section 6.2 will be completed in accordance with s138(2) of the *Roads Act 1993*, including the appropriate BAR/BAL treatment and Safe Intersection Sight Distance requirements outlined in *Austroads Guide to Road Design Part 4A*. The design will consider traffic flow into and around the work site, accommodation camps and construction compounds. The access points at the accommodation camps and construction compounds will be constructed in accordance with Appendix 3 unless the Planning Secretary agrees otherwise. At each of the access points that need to be installed at the camps and compounds, signage will also be provided to assist in directing and addressing traffic flow. Access points that need to be installed will be approved by the relevant road authority prior to use in accordance with condition C33, unless the Planning Secretary agrees otherwise.

Condition no.	Requirement	Where addressed	How addressed
			Traffic Control Plans will be prepared to address all construction activities that affect traffic conditions, including those for the camp and compounds. Road Occupancy Licences (ROLs) will also be obtained (as required) and complied with for any road closures (full or partial) on roads that intersect with the access routes prior to any such closure.
	- temporary traffic controls, including detours and signage;	Section 6.5	The temporary traffic controls will be developed as part of the TCPs for Stage 2 and are outlined in Section 6.5 of this TTMP.
	- procedures for stringing cables and transmission lines across roads;	Section 5.4	Where stringing is required over roads, the relevant ROLs will be obtained from the relevant road authorities. Detail of the process intended to be used will be provided with the ROL application.
	- notifying the local community about development-related traffic impacts;	Section 1.7.2 CCS	Communication tools will be used by the project to inform stakeholders and the community of periodic traffic related impacts, including proposed road network changes, movement of OSOM vehicles and access impacts.
	- procedures for receiving and addressing complaints from the community about development- related traffic;	Section 1.7.3 CCS	Complaints will be managed by the Engagement Team with the use of the Salesforce database.
	- minimising potential cumulative traffic impacts with other projects in the area;	Section 6.6	Section 6.6 outlines the cumulative traffic impacts with other projects in the area. Traffic arrangements between major construction projects will occur in consultation with TfNSW and local councils.
	- minimising potential conflict between development-related traffic and rail services, stock movements and school buses, in consultation with local schools, including preventing queuing on the public road network;	Section 3.5 Section 6.6 Table 6.3 - TT6 to TT10	Scheduling, outlined in Section 6.6, will act to minimise potential for conflict with traffic and rail services, stock movements and other projects in the area. Management measures for minimising conflict between development-related traffic are identified in TT6 to TT10.
	- implementing measures to minimise development-related traffic on the public road network outside of standard construction hours;	Section 6.7 Table 6.3 - TT15	Development related traffic will be scheduled within standard hours, wherever possible. If works are required outside of standard construction hours, the

Condition no.	Requirement	Where addressed	How addressed
			OOHW Protocol will be implemented (in the NVMP).
	- minimising dirt tracked onto the public road network from development-related traffic;	Table 6.3 - TT51	Management measure TT51 in Table 6.3 outlines the measures in order to minimise tracking of mud from project area onto public sealed roads.
	- details of the employee shuttle bus service (if proposed), including pick-up and drop-off points and associated parking arrangements for construction workers, and measures to encourage employee use of this service;	Section 5.6	Regular employee shuttle bus services will be used to transfer workers to and from the airport and accommodation camps.
	- encouraging car-pooling or ride sharing by employees;	Table 6.3 - TT49	Management measure TT49 in Table 6.3 states that carpooling and other shared transport initiatives for construction workers will be encouraged throughout construction. Carpooling and other shared transport initiatives may be promoted through the implementation of tools such as toolboxes and awareness training.
	- scheduling of haulage vehicle movements to minimise convoy length or platoons;	Section 6.6 Table 6.3 - TT33 to TT36	In order to limit cumulative impacts on the road network and impacts to motorists, scheduling of vehicle movements to avoid peak traffic periods and conflicts with other road users will be implemented. Management measures relating to scheduling of vehicles is outlined in management measures TT33 to TT36 in Table 6.3.
	- responding to local climate conditions that may affect road safety such as fog, dust, wet weather and flooding;	Section 6.6 Appendix B Table 6.3 - TT16	Scheduling will act to minimise potential for conflict with local climate conditions such as fog, wet weather and flooding. The Flood Response Plan in Appendix B outlines procedures and options for safe access to and from the site in the event of flooding.
	- ensuring loaded vehicles entering or leaving the site have their loads covered or contained;	Table 6.3 - TT50	Management measure TT50 in Table 6.3 states that all trucks entering or leaving the site with loads will have their loads covered or contained.

Condition no.	Requirement	Where addressed	How addressed
	- responding to any emergency repair or maintenance requirements;	Section 6.8 Table 6.3 - TT41	Emergency repair and maintenance requirements are detailed within Section 6.8 of this TTMP. Management measure TT41 in Table 6.3 outlines that broken down vehicles will be moved off the road, and hazard lights used.
	- provisions for maintaining emergency vehicle access at all times;	Section 6.2 Table 6.3 - TT31	Management measure TT31 in Table 6.3 states that access to properties will be provided at all times for emergency vehicles.
	- a traffic management system for managing over-dimensional vehicles; and	Section 6.4	Section 6.4 of this TTMP describes the measures to be implemented for managing over-dimensional vehicles, including Vehicle Movement Plans (VMP).
	- fatigue management; and	Section 6.10 Appendix A	The Drivers Code of Conduct (DCC) in Appendix A describes driver's obligations including the management of fatigue.
	(ii) comply with the traffic conditions in this approval;	Section 7	Section 7 of this TTMP describes compliance management related to traffic impacts for Stage 2, to ensure compliance with the traffic conditions in this approval.
	d) include a drivers code of conduct that addresses:	Appendix A	The Drivers Code of Conduct (DCC) is included in Appendix A.
	(i) travelling speeds;	Section 6.10 Appendix A	The DCC in Appendix A describes driver's obligations including obeying the speed limits.
	(ii) procedures to ensure that drivers to and from the development adhere to the designated over-dimensional and heavy vehicle routes;	Section 6.4 Section 10 Appendix A	The DCC in Appendix A describes the additional requirements for heavy vehicles or over dimension vehicles.
	(iii) procedures to ensure that drivers to and from the development implement safe driving practices; and	Section 6.10 Appendix A	The DCC in Appendix A describes all site personnel (including sub-contractors) will undertake an induction which will include details relating to the DCC.
	(iv) include a detailed program to monitor and report on the effectiveness of these measures and the code of conduct; and	Section 6.10 Section 6.11 Section 7.3 Appendix A	The effectiveness of the management measures identified in this DCC will be monitored and reported through daily and weekly visual inspections. In Vehicle Monitoring System (IVMS) will be utilised on the project.

Condition no.	Requirement	Where addressed	How addressed
	e) a flood response plan detailing procedures and options for safe access to and from the site in the event of flooding.	Section 6.12 Appendix B	A Flood Response Plan, describing the procedures and options for safe access in the event of flooding, has been prepared and is included as Appendix B of this TTMP.
C41	The Proponent must ensure that the storage, handling, and transport of dangerous goods is undertaken in accordance with the relevant Australian Standards and guidelines, particularly *AS1940 The storage and handling of flammable and combustible liquids* and *AS/NZS 1596:2014 The storage and handling of LP Gas*, the *Dangerous Goods Code*, and the EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual*.	Section 6.9	Dangerous goods will be stored, handled and transported in accordance with *AS1940 The storage and handling of flammable and combustible liquids* and *AS/NZS 1596:2014 The storage and handling of LP Gas*, the *Dangerous Goods Code*, and the EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual*.

2.3 Revised mitigation measures

The revised mitigation measures (RMMs) are provided in Appendix B of the Submissions Report and Appendix C of the Amendment Report. The RMMs relevant to traffic and transport are presented in Table 2.2 below.

A cross reference is also included to indicate where the measure is addressed within this plan or other project management documents. The management measures that will be implemented for the project are provided in Section 6 of this TTMP.

Table 2.2 - Revised mitigation measures relevant to traffic and transport

Ref.	Revised mitigation measures	Applicable location	Where addressed	How addressed
TA1	A Traffic and Transport Management sub-plan would be developed and implemented. The sub-plan would detail how potential proposal-related traffic and access impacts during construction would be minimised and managed. This plan would be prepared in consultation with the local councils and Transport for NSW.	All locations	This plan Section 1.7	This TTMP outlines the management measures to manage and minimise impacts related to proposal related traffic and access requirements. This TTMP has been provided to TfNSW and all councils for consultation. The outcomes of consultation have been incorporated throughout the TTMP where appropriate.
TA2	The Traffic and Transport Management sub-plan would outline the process for obtaining road occupancy licences, and preparing and implementing traffic management plans and traffic controls plans, as required by the relevant roads authority, for road works. Road occupancy licences would be obtained prior to any such occupancy.	All locations	This plan Section 2.4.1 Section 6.5	Any ROLs required during construction will be obtained from the relevant road authorities. Where an ROL is required, the occupancy covered by the ROL will not commence until that ROL has been issued. TCPs will be developed as required as part of the construction planning process for construction activities that affect traffic conditions and

Ref.	Revised mitigation measures	Applicable location	Where addressed	How addressed
				the safety of road users on the external or internal road network.
TA3	Any permits required under the National Heavy Vehicle Law for oversized and overmass vehicle movements associated with the proposal would be obtained from the National Heavy Vehicle Regulator. Permit applications would be supported by a Vehicle Movement Plan prepared to identify the proposed heavy vehicle route(s). The plan would consider activities of adjoining land uses and safety of the public, particularly when entering urban areas from rural highways.	Construction haulage routes, access/egress points to access tracks and main construction compound and accommodation camps.	Section 2.4.2 Section 6.4.2 Table 6.3 - TT12	If vehicles exceed the dimension or mass limits contained in a Class 1 Notice or Ministerial Order, an access permit from the NHVR will be required to operate on the NSW road network. Permits from the NHVR will be obtained, where required, to provide oversized and overmass vehicles access during construction. Permit applications will be supported by a VMP.
TA4	Measures that are required to address potential road safety issues associated with proposal-related use of access routes would be identified in consultation with the relevant roads authority. Any road upgrade works to facilitate construction of the proposal would be designed in accordance with Austroads guidelines as relevant. The Traffic and Transport Management sub-plan would include a program for monitoring road safety along proposal access routes and addressing any construction-related issues identified.	Construction haulage routes, access tracks, main construction compound and accommodation camp accesses	Section 1.7 Section 6.2.2 Section 7.3	This TTMP has been provided to TfNSW and all relevant councils for consultation. The consultation outcomes have been incorporated throughout the TTMP where appropriate. Any designs for road upgrades will be completed in accordance with the Austroads Guide to Road Design as required. The effectiveness of the management measures identified in Section 6 will be monitored through the proposed monitoring program in Section 7.3.
TA5	A Driver Code of Conduct would be developed and implemented. The code would: • define acceptable driver behaviour for proposal personnel to promote road safety • address fatigue management • ensure that the impacts of construction-related vehicle movements on local roads and the local community are minimised.	Construction haulage routes, access tracks, main construction compound and accommodation camp accesses	Appendix A	The purpose of the DCC in Appendix A is to ensure that the impacts of construction-related traffic on local roads, the local community and businesses is minimised. The DCC defines acceptable driver behaviour for all vehicle drivers in connection with the project. The DCC also describes how fatigue will be managed in accordance with the DCC and the *Driving and Journey Management Work Instruction* (45860-HSEWI-G-0041)
TA6	Consultation with rail authorities (operators) would occur for all proposal activities required in active rail corridors. The consultation would confirm	Where the transmission line requires access	Table 6.3 - TT8	Consultation with relevant rail authorities (operators) will occur for all works required in active rail corridors.

Ref.	Revised mitigation measures	Applicable location	Where addressed	How addressed
	authority requirements (such as track occupancy authorisations) and necessary requirements for staff working within the rail corridor (accreditations). All works in active rail corridors would occur in accordance with the identified requirements.	within the rail corridor.		
TA7	Road condition surveys would be carried out for all local roads that would be used as construction haulage routes, in consultation with the relevant roads authority. The surveys would be carried out prior to the road being used by heavy vehicles to support construction of the proposal. A road condition monitoring and maintenance program would be developed in consultation with the relevant roads authority for all local roads used as construction haulage routes and implemented for the duration of construction. Post–construction road condition surveys would be carried out for local roads used as a construction haulage route when use by construction vehicles ceases. Damage to the roads (and other infrastructure such as stock grids) that is attributed to the proposal would be addressed in consultation with the relevant roads authority and within three months of construction use concluding or as otherwise agreed with the relevant roads authority. Roads would be reinstated to equivalent or better condition.	All sealed local roads (within the vicinity or 200 m of the proposal) and/or all unsealed roads on haulage routes.	Section 6.1 Table 6.3 - TT2 and TT3	Independent dilapidation surveys will be undertaken in accordance with condition C34 and this RMM. If the dilapidation surveys identify that a sealed local road (within 200m of the project) or unsealed roads on access (haulage) routes has been damaged during construction, upgrading or decommissioning works, and that damage is attributable to the project, the identified damage will be repaired within three months of construction use concluding or as otherwise agreed with the relevant roads authority. A road condition monitoring and maintenance program will be developed in consultation with the relevant roads authority for all local roads used as construction access routes and implemented for the duration of construction.
TA8	Actions to ensure that existing road structures proposed to be used during construction are suitable for the proposed use would be investigated and implemented where required. These would include: • while establishing access tracks, a suitably qualified engineer would assess the existing structures for suitability considering structure type, condition, vehicle types, loading and frequency of use • if structures are deemed unsuitable, the following alternatives would be	Existing bridge and drainage / culvert assets	Section 3.7 Table 6.3 - TT20	The majority of bridges located on State and regional roads have been classified to be utilised for certain vehicle types with specific load limits. It is therefore acknowledged that the restricted access vehicle and OSOM vehicles can only traverse these bridges subject to any constraints for the vehicle type.

Ref.	Revised mitigation measures	Applicable location	Where addressed	How addressed
	considered and implemented where practicable and appropriate: - alternative routes (access via easement) - alternative vehicle types (smaller loads) - temporary works (e.g. propping, or similar) in consultation with asset owners. Any damage to road structures caused by proposal– related heavy vehicle usage would be rectified at the conclusion of use.			
TA9	A Community Communications Strategy would be developed and implemented to manage communications in order to engage and notify local communities of major works that could disrupt the road network. The Community Communication Strategy would be developed in conjunction with the Traffic and Transport Management sub–plan to detail the methodology, frequency and response measures in relaying information to the community and for addressing community concerns. All affected communities would be notified in advance of any disruptions to the transport network. This may be in the form of variable message signs, website notices, public notices in local publications and personal correspondence.	All locations	Section 1.7.2 Community Communications Strategy	Communication tools will be used by the project to inform stakeholders and the community of periodic traffic related impacts, including proposed road network changes, movement of OSOM vehicles and access impacts. This includes a Community Communications Strategy.
TA10	Road Occupancy Licence(s) would be sought for all temporary lane closures (as required by the relevant roads authority). Associated activities within the road reserve would occur in accordance with the relevant licences. Any road closures with significant impact, such as short–term full road closure and long–term temporary lane/road closures would be assessed on a case–by– case basis, and approval sought from the relevant road authority. Where feasible, temporary road closures are to be planned outside of the	All roads that intersect with the transmission line alignment (for stringing of transmission lines) or on haulage routes.	Section 2.4.1 Table 6.3 - TT11	An ROL will be obtained from the relevant road authorities for construction activities that are likely to impact on the operational efficiency of the road network (classified and unclassified roads). This includes activities impacting a traffic lane or lanes or off-road activities which affect traffic flow.

Ref.	Revised mitigation measures	Applicable location	Where addressed	How addressed
	traffic peak periods to minimise impact to the road network.			
TA11	Vehicle Movement Plans would be prepared as part of the Traffic and Transport Management sub–plan and implemented for all proposal heavy vehicle routes. The plans would identify the allowable heavy vehicle routes and include travel directions, permitted intersection turning movements, speeds, approved parking and lay– up areas, maximum allowable types/size of trucks and any traffic control required. The requirements of Vehicle Movement Plan would be communicated to all construction heavy vehicle drivers	All roads on haulage routes, as identified in Table 4.4 of Technical paper 4.	Section 6.4.2 Section 6.4.3 Table 6.3 - TT12	Vehicle Movement Plans (VMP) will be implemented as outlined in Section 6.3.2. Section 6.4.3 outlines further details of the heavy vehicle access routes associated with construction. Management measure TT12 in Table 6.3 states that the VMP will be used to support permit applications.
TA12	Significant traffic generating developments in the vicinity of the proposal would be identified. Consultation would occur with those developments and the relevant roads authority regarding proposal–related vehicle movements and road works. Measures to address any potentially significant cumulative traffic and access impacts would be identified and implemented.	All locations	Section 6.6	Section 6.6 describes the scheduling measures to limit cumulative impacts on the road network and motorists
TA13	The appointed Construction Contractor would coordinate and appropriately manage movements on the alternative route options and communicate the changes to the affected residents and the council as part of the communication process of the Traffic and Transport Management sub–plan. This would be implemented should local road closures be required and alternative route provided.	Local roads as identified in Table 4.4 of Technical paper 4.	Table 6.3 - TT16	Management measure TT16 in Table 6.3 outlines the use of alternative routes will be identified in consultation with the relevant road authority and affected residents.
TA14	A Fatigue Management Plan would be developed and implemented for proposal that addresses driver fatigue and associated regulatory requirements. This plan is to be implemented during construction	All roads on haulage routes, as identified in Table 4.4 of Technical paper 4.	Appendix A Section 6.10	The DCC in Appendix A describes driver's obligations including the management of fatigue. Section 6.10 outlines that fatigue will also be managed in accordance with the *Driving and Journey Management Work Instruction* (45860-HSE-WI-G0041).
TA15	Road and surface conditions and the traffic controls implemented at each proposal site access/egress point from the	Access / egress points to access tracks and the main	Table 6.3 - TT4	Management measure TT4 in Table 6.3 states road and surface conditions and the traffic controls implemented

Ref.	Revised mitigation measures	Applicable location	Where addressed	How addressed
	sealed road network would be monitored during construction. Any identified issues would be rectified.	construction compound and accommodation camps		at the access point from the sealed road network, will be monitored during construction.
TA16	Existing connections to the public road network would be considered for use when access to construction locations via private land is required. Existing site access points would be used for construction access where feasible and reasonable and in consultation with the relevant landholder. Consultation with the relevant roads authority would occur for all new site access points.	Access / egress points to access tracks	Section 6.2.1 Section 6.2.2	Section 6.2.1outlines that existing connections will be utilised wherever feasible and reasonable. Consultation will occur with the relevant landholder. Section 6.2.2 outlines that consultation with the relevant road authority will occur for new access points connected to the public road network.
TA17	Temporary access points within the road reserve that are not required for operational reasons would be removed and restored in consultation with the relevant roads authority following the completion of construction.	Access / egress points to access tracks	Table 6.3 - TT30	Management measure TT30 in Table 6.3 states that temporary access points within the road reserve, not required for operational reasons, will be removed in consultation with the relevant roads authority following the completion of construction.
TA18	Construction access tracks would be retained for operational access, where required and practicable in consultation with the relevant landholder.	Access tracks	Section 6.3	Access tracks retained for operational purposes will be consulted with Transgrid and the relevant landholder.
LP6	Procedures would be implemented so that potential impacts or conflicts between livestock and construction activities are appropriately managed. Procedures would be developed in consultation with affected landholders and would include management of: • … • vehicle movements and other activities within the vicinity of livestock • …	Transmission line	Table 6.3 - TT6 NVMP	Procedures will be developed in consultation with affected landholders to include vehicle movements and other activities within the vicinity of livestock. Aspects of this revised mitigation measure relating to noise intensive activities and potential stressors created by construction activities is addressed in the *Stage 2 Noise and Vibration Management Plan* (45860-HSE-PL-D-0116).
HF2	Detailed construction planning would consider flood risk at construction areas. This would include: • identifying measures that would be implemented to not worsen flood impacts downstream and on other property and infrastructure during construction up to and including the five per	Transmission lines and construction sites within flood prone land	Appendix B SWMP	The FRP in Appendix B describes flood emergency management procedures. For further detail refer to the *Soil and Water Management Plan* (SWMP)(45860-HSEPL-D-0118).

Ref.	Revised mitigation measures	Applicable location	Where addressed	How addressed
	cent AEP design flood event, and • confirming site layouts to avoid or minimise obstruction of overland flow paths and to limit the extent of flow diversion required. Practicable measures identified to minimise potential flood risks at construction areas would be implemented.			
HR13	Dangerous goods and hazardous substances would 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, 2018).	All locations	Section 6.9 Table 6.3 - TT52	Section 6.9 and management measure TT52 outline the measures to transport dangerous goods and hazardous substances.
CI1	Consultation with relevant roads authority would occur in relation to road use.	All locations	Section 1.7	This TTMP has been provided to TfNSW and the relevant councils for consultation. The outcomes of consultation have been incorporated throughout the TTMP where appropriate.

2.4 Licences and Permits

2.4.1 Road occupancy licences

In accordance with Section 138 of the *Roads Act 1993*, a road occupancy licence (ROL) will be obtained from the relevant road authorities for construction activities that are likely to impact on the operational efficiency of the road network (classified and unclassified roads). This includes activities impacting a traffic lane or lanes or off-road activities which affect traffic flow.

Any ROL required during construction will be obtained from the relevant road authorities. Where a ROL is required, the works covered by the ROL will not commence until that ROL has been issued. In conjunction with an ROL, it may be necessary to reduce the speed limit of the roadway for the period of the occupancy for the safety of road users and workers. Roadwork speed zones will be established in accordance with AS1742.3-2009 *Traffic control devices for works on roads* in consultation with the road authority(s). The speed zone authorisations will form part of the ROL application process as required by the road authority.

2.4.2 Oversize overmass (OSOM) access permits

The National Heavy Vehicle Regulator (NHVR) administers the one set of laws and regulations under the Heavy Vehicle National Law (HVNL). NSW, Victoria and South Australia have changed their respective legislation to mirror the requirements under the HVNL. The aim of the HVNL is to:

- manage the impact of heavy vehicles on the environment, road infrastructure and public amenity;

- promote industry productivity and efficiency; and
- consolidate the current national heavy vehicle model laws and replaces corresponding state and territory legislation.

If vehicles exceed the dimension or mass limits contained in a Class 1 Notice or Ministerial Order, an access permit from the NHVR will be required to operate on the NSW road network. Oversize overmass (OSOM) vehicles are defined as Class 1 vehicles under the *Heavy Vehicle National Law*. All OSOM permit requests are lodged through the NHVR portal.

A vehicle or vehicle combination is considered to be OSOM if it exceeds any general access mass or dimension limits. A Transport Management Plan is required for any of the following OSOM movements:

- all OSOM movements that are classified as 'High Risk' due to their dimensions and/or weights;
- all OSOM movements that travel on a 'High Risk' route; and
- all OSOM movements that involve the transport of a 'Critical/Sensitive' load.

The Transport Management Plan will include the nominated vehicle size, weight of the OSOM load, proposed route & analysis of the required turn movements. The Transport Management Plan will be prepared to accompany the access permit application and submitted to TfNSW to obtain approval prior to these movements occurring.

2.5 Guidelines

The main guidelines, specifications and policy documents relevant to this plan include:

- *Austroads Guide to Road Design*;
- *Austroads Guide to Traffic Management*;
- *Austroads Guide to Road Design Part 4A (Unsignalised & Signalised Intersections)*;
- *Traffic Control at Work Sites – Version 6*;
- *Australian Standard 1742 Parts 1 to 14 Manual of Uniform Traffic Control Devices*;
- *Australian Standard 1742.3-2009 Traffic control devices for works on roads*;
- *NSW Heavy Vehicle Access Policy Framework (TfNSW, 2018)*;
- *Transport of Dangerous Goods by Road and Rail, Edition 7.7 (National Transport Commission, 2020)*; and
- *Towards Zero – Safe System 2016*.

The documents identified above are considered by the project as described and referenced throughout this TTMP.

3 Existing environment

The following section summarises the existing traffic and transport activities within and adjacent to Stage 2 of the project. The key reference documents include:

- Section 19 and Technical Paper 11 of the EIS; and
- Amendment Report.

Appendix C provides a summary of the existing daily traffic volumes, peak hourly traffic estimates and capacity of the existing roads used for Stage 2 works.

3.1 Local, State and National Roads

The existing road network consists of a combination of national, State, regional and local roads. The key roads (access routes) within the project area for Stage 2 are detailed in the following sections.

As a result of consultation undertaken with the relevant councils on this plan, some approved access routes were either:

- removed from this plan (as council requested that the road not be used for construction of the project); or
- restricted in use.

The restriction in use is typically that light vehicles only are permitted to use the road as a result of construction. One road (Brunskill Road, Wagga Wagga) is restricted in use to light vehicles only, with heavy vehicles permitted to use this road as an alternate flood access. Table 3.1 to Table 3.3 list the approved access routes and any restrictions which apply. These restrictions are also indicated within Appendix E and within the project geographical information system (GIS).

Elecnor confirms that the removal of the approved roads will not increase the impacts, such as traffic volumes and noise, on other assessed and approved roads.

Elecnor also confirms that the restrictions on some approved roads for use by light vehicles only will not increase the impacts (i.e. heavy vehicle traffic volumes and noise) on other assessed and approved roads.

The changes made to the approved roads within this plan, will not affect the ability of Elecnor to adequately carry out the project.

3.1.1 State roads

The State roads within the project area for Stage 2 are detailed in Table 3.1.

Table 3.1 - State roads used for the delivery of Stage 2

Name	Description	Access road type	Authority
Sturt Highway (A20)			
Sturt Highway (A20) (Buronga)	Sealed	Primary	TfNSW
Sturt Highway (between Buronga and Robinvale)	Sealed	Primary	TfNSW
Sturt Highway (between Robinvale and Balranald)	Sealed	Primary	TfNSW
Sturt Highway (between Balranald and Cobb Highway)	Sealed	Primary	TfNSW
Sturt Highway (between Cobb Highway and Newell Highway)	Sealed	Primary	TfNSW

Name	Description	Access road type	Authority
Sturt Highway (within Murrumbidgee LGA)	Sealed	Primary	TfNSW
Sturt Highway (east of Wagga Wagga)	Sealed	Primary	TfNSW
Sturt Highway (between Olympic Highway and Wagga Wagga)	Sealed	Primary	TfNSW
Sturt Highway (between Newell Highway and Olympic Highway)	Sealed	Primary	TfNSW
Colin Knott Drive (Wagga Wagga, part of Sturt Highway)	Sealed	Primary	TfNSW
Hammond Avenue (Wagga Wagga, part of Sturt Highway)	Sealed	Primary	TfNSW
Edward Street (Wagga Wagga, part of Sturt Highway)	Sealed	Primary	TfNSW
Market Street (Balranald, part of Sturt Highway)	Sealed	Primary	TfNSW
Moama Street (part of Sturt Highway)	Sealed	Primary	TfNSW
Silver City Highway (B79)			
Silver City Highway (B79)	Sealed	Primary	TfNSW
Cobb Highway (B75)			
Cobb Highway	Sealed	Primary	TfNSW
Cobb Highway (south of Deniliquin) (including Hay Road)	Sealed	Primary	TfNSW
Hay Road (Deniliquin, part of Cobb Highway)	Sealed	Primary	TfNSW
Davidson Street (Deniliquin, part of Cobb Highway)	Sealed	Primary	TfNSW
Charlotte Street (Deniliquin, part of Cobb Highway)	Sealed	Primary	TfNSW
Ochtertyre Street (Deniliquin, part of Cobb Highway)	Sealed	Primary	TfNSW
Hardinge Street (Deniliquin, part of Cobb Highway)	Sealed	Primary	TfNSW
Lachlan Street (part of Cobb Highway)	Sealed	Water	TfNSW
Riverina Highway (B58)			
Riverina Highway (east of Finley)	Sealed	Primary	TfNSW
Riverina Highway (west of Finley)	Sealed	Primary	TfNSW
Riverina Highway (north of Corowa in Federation Council)	Sealed	Primary	TfNSW
Finley Road (Deniliquin, part of Riverina Highway)	Sealed	Primary	TfNSW
Honour Avenue (Federation, part of Riverina Highway)	Sealed	Primary	TfNSW
Chanter Street (Berrigan, part of Riverina Highway)	Sealed	Primary	TfNSW
Barragunda Road (Berrigan, part of Riverina Highway)	Sealed	Primary	TfNSW
Tuppal Street (Berrigan, part of Riverina Highway)	Sealed	Primary	TfNSW
Kidman Way (B87)			
Kidman Way (near Morundah Road)	Sealed	Primary	TfNSW
Kidman Way (near Sturt Highway) (including Jerilderie-Darlington Point Road)	Sealed	Primary	TfNSW

Name	Description	Access road type	Authority
Olympic Highway (A41)			
Olympic Highway (between Urana Street in The Rock and Yarrangundry Street in Uranquinty)	Sealed	Primary	TfNSW
Olympic Highway (between Sturt Highway and Yarrangundry Street in Uranquinty)	Sealed	Primary	TfNSW
Olympic Highway (south of The Rock)	Sealed	Primary	TfNSW
Olympic Highway (north of Wagga Wagga)	Sealed	Primary	TfNSW
Railway Street (Lockhart, part of Olympic Highway)	Sealed	Primary	TfNSW
Moorong Street (Wagga Wagga, part of Olympic Highway)	Sealed	Primary	TfNSW
Newell Highway (A39)			
Newell Highway (north of Jerilderie)	Sealed	Primary	TfNSW
Newell Highway (south of Jerilderie)	Sealed	Primary	TfNSW
Jerilderie Street (Jerilderie, part of Newell Highway)	Sealed	Primary	TfNSW
Southey Street (Jerilderie, part of Newell Highway)	Sealed	Primary	TfNSW
Murray Street (Berrigan, part of Newell Highway)	Sealed	Primary	TfNSW
Dean Street (Berrigan, part of Newell Highway)	Sealed	Primary	TfNSW
Other State roads			
Murray Valley Highway	Sealed	Primary	TfNSW
Yanga Way (including Tooleybuc Road and Lea Street)	Sealed	Primary	TfNSW
Hume Highway	Sealed	Primary	TfNSW

3.1.2 Regional roads

The regional roads within the project area for Stage 2 are detailed in Table 3.2.

Table 3.2 - Regional roads used for the delivery of Stage 2

Name	Description	Access road type	Authority
Roads within Wentworth LGA			
Arumpo Road	Sealed	Primary	Wentworth Shire Council
Roads within Balranald LGA			
Mayall Street	Sealed	Secondary/Water	Balranald Shire Council
Ivanhoe Road	Sealed	Primary/Water	Balranald Shire Council
Roads within Murray River LGA			
Baratta Street	Sealed	Primary	Murray River Council
Carne Street	Sealed	Primary	Murray River Council
Kyalite Road	Sealed	Primary	Murray River Council
Moulamein Road	Sealed	Primary	Murray River Council
Paterson Street	Sealed	Secondary	Murray River Council
Pretty Pine Road (west)	Sealed	Primary	Murray River Council
Tallow Street	Sealed	Primary	Murray River Council

Name	Description	Access road type	Authority
Balranald Road (near Moulamein)	Sealed	Primary	Murray River Council
Maude Road	Sealed/unsealed	Secondary	Murray River Council
Roads within Hay LGA			
Maude Road	Sealed/Unsealed	Secondary	Hay Shire Council
Roads within Edward River LGA			
Pretty Pine Road (east)	Sealed	Primary	Edward River Council
Wanderer Street	Sealed	Secondary	Edward River Council
Maude Road	Sealed/Unsealed	Secondary	Edward River Council
Roads within Murrumbidgee LGA			
Conargo Road (in Conargo)	Sealed	Primary	Murrumbidgee Council
Morundah Road	Sealed	Primary	Murrumbidgee Council
Yamma Road	Sealed	Primary	Murrumbidgee Council
Conargo Road (near Sturt Highway)	Sealed	Primary	Murrumbidgee Council
Jerilderie - Urana Road	Sealed	Primary	Murrumbidgee Council
Roads within Federation LGA			
Back Berrigan Road	Sealed	Secondary	Federation Council
Boree Creek Road	Sealed	Secondary	Federation Council
Brookong Creek Road	Sealed	Primary	Federation Council
Chapman Street	Sealed	Primary	Federation Council
Cocketgedong Road	Sealed	Primary	Federation Council
Federation Way (north of Urana)	Sealed	Primary	Federation Council
Federation Way (south of Urana)	Sealed	Primary	Federation Council
Mahonga Road	Sealed	Secondary	Federation Council
William Street	Sealed	Primary	Federation Council
Woodhouse Street	Sealed	Primary	Federation Council
Roads within Lockhart LGA			
Albury Road	Sealed	Secondary	Lockhart Shire Council
East Street	Sealed	Primary	Lockhart Shire Council
Ford Street	Sealed	Secondary	Lockhart Shire Council
Green Street (light vehicles)	Sealed	Secondary	Lockhart Shire Council
Boree Creek Road	Sealed	Secondary	Lockhart Shire Council
Lockhart Collingullie Road	Sealed	Primary	Lockhart Shire Council
Lockhart-Kywong Road	Sealed	Secondary	Lockhart Shire Council
Lockhart Road (west of Bullenbong Creek)	Sealed	Secondary	Lockhart Shire Council
Reid Street	Sealed	Secondary	Lockhart Shire Council
The Rock-Collingullie Road	Sealed	Secondary	Lockhart Shire Council
Urana Street (The Rock)	Sealed	Primary	Lockhart Shire Council
Urana-Lockhart Road	Sealed	Primary	Lockhart Shire Council

Name	Description	Access road type	Authority
Roads within Wagga Wagga LGA			
Holbrook Road	Sealed	Secondary	Wagga Wagga City Council
Lockhart Road (east of Bullenbong Creek)	Sealed	Primary	Wagga Wagga City Council
Tumbarumba Road	Sealed	Primary	Wagga Wagga City Council
Bourke Street (light vehicles)	Sealed	Primary	Wagga Wagga City Council
Docker Street (light vehicles)	Sealed	Primary	Wagga Wagga City Council
Roads within Narrandera LGA			
Lockhart Road	Sealed	Secondary	Narrandera Shire Council
Roads within Berrigan LGA			
Oaklands Road	Sealed	Primary	Berrigan Shire Council
Carter Street	Sealed/Unsealed	Primary	Berrigan Shire Council
Jerilderie Street	Sealed	Primary	Berrigan Shire Council

3.1.3 Local roads

The local roads within the project area for Stage 2 are detailed in Table 3.3.

Table 3.3 - Local roads used for the delivery of Stage 2

Name	Description	Access road type	Authority
Roads within Wentworth LGA			
Corbett Avenue	Sealed	Water	Wentworth Shire Council
Dansons Road	Unsealed	Secondary	Private
Modica Crescent	Sealed	Water	Wentworth Shire Council
Alcheringa Drive	Sealed	Water	Wentworth Shire Council
Roads within Balranald LGA			
Abbotts Tank Road	Unsealed	Secondary	Balranald Shire Council
Benanee Road	Unsealed	Secondary	Balranald Shire Council
Euston Prungle Road	Sealed	Secondary	Balranald Shire Council
McCabe Street	Sealed	Primary/Water	Balranald Shire Council
Unnamed Road off Ivanhoe Road	Unsealed	Water	Balranald Shire Council
Windomal Road	Sealed	Secondary	Balranald Shire Council
Church Street	Sealed	Primary/Water	Balranald Shire Council
Murray Terrace	Sealed	Water	Balranald Shire Council
Perry Street	Sealed	Water	Balranald Shire Council
Selwyn Street	Sealed	Water	Balranald Shire Council
Moa Street	Sealed	Water	Balranald Shire Council
Roads within Murray River LGA			
Baldon Road	Unsealed	Secondary	Murray River Council
Balranald Road (south of alignment)	Unsealed/Sealed	Secondary	Murray River Council
Balranald Road (north of alignment)	Unsealed/Sealed	Secondary	Murray River Council

Name	Description	Access road type	Authority
Binbinette Road	Unsealed	Secondary	Murray River Council
Brougham Street	Sealed	Secondary	Murray River Council
Cedar Avenue	Sealed	Primary	Murray River Council
Impimi Road	Unsealed	Secondary	Murray River Council
Keri Keri Road (south)	Unsealed	Secondary	Murray River Council
Keri Keri Road (north)	Unsealed	Secondary	Murray River Council
Morago Street	Sealed	Secondary	Murray River Council
Berambong Road	Unsealed	Secondary	Murray River Council
Perekerton Road	Unsealed	Secondary	Murray River Council
Murray Street	Sealed	Water	Murray River Council
Lea Street	Sealed	Water	Murray River Council
River Street	Sealed	Water	Murray River Council
Carne Street (north of Tallow Street)	Sealed	Water	Murray River Council
Young Street	Sealed	Water	Murray River Council
Roads within Hay LGA			
Glenhope Road	Unsealed	Secondary	Hay Shire Council
Jerilderie Road	Sealed	Primary	Hay Shire Council
Romani Road	Sealed	Secondary	Hay Shire Council
West Burrabogie Road	Unsealed	Primary	Hay Shire Council
Thelangerin Road	Sealed	Water	Hay Shire Council
Showground Road	Sealed	Water	Hay Shire Council
Dunera Way	Sealed	Water	Hay Shire Council
Roads within Edward River LGA			
Booroorban-Tchelery Road	Sealed	Secondary	Edward River Council
Carrathool Road (south-west of Moonbria Road intersection)	Sealed	Primary	Edward River Council
Carrathool Road (north of Moonbria Road intersection)	Sealed	Secondary	Edward River Council
Dry Lake Road	Unsealed	Secondary	Edward River Council
East-West Road	Unsealed	Secondary	Edward River Council
Millears Road	Sealed	Secondary	Edward River Council
Monimail Road	Sealed	Secondary	Edward River Council
Moonbria Road	Unsealed	Primary	Edward River Council
Nesbits Road	Sealed	Secondary	Edward River Council
Wandook Road	Sealed	Primary	Edward River Council
Warwillah Road	Unsealed	Secondary	Edward River Council
Willurah Road	Sealed	Secondary	Edward River Council
Goolgumbla Road	Unsealed	Primary	Edward River Council (also Murrumbidgee Council)
Pooginook Road	Unsealed	Primary	Edward River Council

Name	Description	Access road type	Authority
Unnamed track (located off Four Corners Road)	Unsealed	Secondary	Edward River Council
Roads within Murrumbidgee LGA			
Bundure Road	Sealed/Unsealed	Secondary	Murrumbidgee Council
Cadell Road	Sealed	Secondary	Murrumbidgee Council
Colombo Road	Unsealed	Secondary	Murrumbidgee Council
Crutchs Road	Unsealed	Secondary	Murrumbidgee Council
Fernbank Road	Unsealed	Secondary	Murrumbidgee Council
Four Corners Road	Sealed	Primary	Murrumbidgee Council
Liddles Lane	Unsealed	Primary	Murrumbidgee Council
Mcdonald Road	Unsealed	Secondary	Murrumbidgee Council
Mclennons Bore Road	Unsealed	Secondary	Murrumbidgee Council
North Boundary Road	Sealed	Primary	Murrumbidgee Council
Six Mile Lane	Unsealed	Secondary	Murrumbidgee Council
Thurrowa Road	Sealed/Unsealed	Primary and Secondary	Murrumbidgee Council
Wilson Road	Sealed	Primary	Murrumbidgee Council
Crosby Road	Unsealed	Secondary	Murrumbidgee Council
Gilbert Road	Sealed	Secondary	Murrumbidgee Council
Jimmy Cull Road	Sealed	Water	Murrumbidgee Council
Bencubbin Avenue	Sealed	Water	Murrumbidgee Council
Goolgumbla Road	Unsealed	Primary	Murrumbidgee Council (also Edward River Council)
Roads within Federation LGA			
Barragunda Road	Unsealed	Secondary	Federation Council
Battens Road	Sealed	Secondary	Federation Council
Berrigan Oaklands Road	Sealed	Primary	Federation Council
Browley Street	Sealed	Primary	Federation Council
Coonong Road	Unsealed	Secondary	Federation Council
Cullivel Road	Sealed	Secondary	Federation Council
Drummond Street	Sealed	Secondary	Federation Council
Eades Street	Sealed	Secondary	Federation Council
Greenvale Road	Sealed	Secondary	Federation Council
Gums Road	Unsealed	Secondary	Federation Council
Lachlan Street	Sealed	Secondary	Federation Council
Mallons Road	Unsealed	Secondary	Federation Council
Meritons Road	Unsealed	Secondary	Federation Council
Spraydon Road	Unsealed	Secondary	Federation Council
Strontian Road	Sealed	Secondary	Federation Council
West Gums Road	Unsealed	Secondary	Federation Council

Name	Description	Access road type	Authority
Yarrabee Street	Sealed	Primary	Federation Council
Boree Creek Road (north of Boree Creek)	Sealed	Secondary	Federation Council
Richmond Street	Sealed	Secondary	Federation Council
Stephen Street	Sealed	Water	Federation Council
Roads within Lockhart LGA			
Andriskes Lane	Unsealed	Secondary	Lockhart Shire Council
Ben Hoffmans Lane	Unsealed	Secondary	Lockhart Shire Council
Bidgeemia Road	Sealed	Secondary	Lockhart Shire Council
Boyds Road/Somervilles Road	Unsealed	Secondary	Lockhart Shire Council
Bullenburg The Rock Road	Sealed	Primary	Lockhart Shire Council
County Boundary Road	Sealed	Secondary	Lockhart Shire Council
Dunleveys Lane	Unsealed	Primary	Lockhart Shire Council
Flood Detour Road	Unsealed	Secondary	Lockhart Shire Council
Frank Westblades Lane	Unsealed	Secondary	Lockhart Shire Council
French Park-Bullenbung Road	Unsealed	Secondary	Lockhart Shire Council
Hendersons Road	Unsealed	Secondary	Lockhart Shire Council
Lockhart Boree Creek Road	Sealed	Secondary	Lockhart Shire Council
Lockhart The Rock Road	Sealed	Secondary	Lockhart Shire Council
Mangoplah Road	Sealed	Secondary	Lockhart Shire Council
Old French Park-Bullenbung Road	Sealed	Water	Lockhart Shire Council
Osborne Yerong Creek Road	Sealed	Secondary	Lockhart Shire Council
Ryans Lane	Unsealed	Secondary	Lockhart Shire Council
Soldier Settlement Road	Sealed	Secondary	Lockhart Shire Council
Slys Lane	Sealed	Secondary	Lockhart Shire Council
Spanish Avenue	Sealed	Secondary	Lockhart Shire Council
Strongs Lane	Unsealed	Secondary	Lockhart Shire Council
Tenison Lane	Unsealed	Secondary	Lockhart Shire Council
The Rock Mangoplah Road	Sealed	Secondary	Lockhart Shire Council
Tribolets Road	Unsealed	Secondary	Lockhart Shire Council
Urana Street (Lockhart)	Sealed	Secondary	Lockhart Shire Council
Wandella Lane	Unsealed	Secondary	Lockhart Shire Council
Webbs Lane	Unsealed	Secondary	Lockhart Shire Council
Yuluma Road	Sealed	Secondary	Lockhart Shire Council
Edwards Road	Unsealed	Secondary	Lockhart Shire Council
Humphries Lane	Unsealed	Secondary	Lockhart Shire Council
Mortons Lane	Unsealed	Secondary	Lockhart Shire Council
Napier Road	Unsealed	Secondary	Lockhart Shire Council
Bullenbong Road	Sealed	Secondary	Lockhart Shire Council

Name	Description	Access road type	Authority
Commera Wilson Lane	Unsealed	Secondary	Lockhart Shire Council
Tinamba Lane	Unsealed	Primary	Lockhart Shire Council
Tutty's Lane	Unsealed	Secondary	Lockhart Shire Council
Wattles Road	Unsealed	Primary	Lockhart Shire Council
Kings Lane	Unsealed	Secondary	Lockhart Shire Council
Roads within Wagga Wagga LGA			
Ashfords Road	Sealed	Primary	Wagga Wagga City Council
Boiling Down Road	Unsealed	Primary	Wagga Wagga City Council
Brunskill Road (light vehicles with heavy vehicles permitted to use as an alternate flood access)	Sealed	Primary	Wagga Wagga City Council
Dunns Road (light vehicles)	Sealed	Primary	Wagga Wagga City Council
Elizabeth Avenue (from Sturt Highway to Inglewood Road)	Sealed	Primary	Wagga Wagga City Council
Elizabeth Avenue (from Inglewood Road and Gregadoo East Road)	Sealed	Secondary	Wagga Wagga City Council
Glenfield Road	Sealed	Primary	Wagga Wagga City Council
Gregadoo East Road	Sealed	Primary	Wagga Wagga City Council
Gregadoo Road (light vehicles)	Sealed	Primary	Wagga Wagga City Council
Hanging Rock Road	Sealed	Secondary	Wagga Wagga City Council
Inglewood Road	Sealed	Primary	Wagga Wagga City Council
Kooringal Road	Sealed	Primary	Wagga Wagga City Council
Lake Albert Road (Sturt Highway to Kooringal Road)	Sealed	Primary	Wagga Wagga City Council
Lake Albert Road (Kooringal Road to Brunskill Road) (light vehicles)	Sealed	Primary	Wagga Wagga City Council
Lloyd Road	Sealed	Primary	Wagga Wagga City Council
Mitchell Road (from Inglewood Road to Gregadoo East Road)	Sealed	Primary	Wagga Wagga City Council
Mitchell Road (from Kyeamba Avenue to Inglewood Road)	Sealed	Secondary	Wagga Wagga City Council
Old Station Road	Unsealed	Secondary	Wagga Wagga City Council
Oxley Bridge Road	Sealed	Secondary	Wagga Wagga City Council
Pearson Street	Sealed	Primary	Wagga Wagga City Council
Plumpton Road	Sealed	Primary	Wagga Wagga City Council
Red Hill Road	Sealed	Primary	Wagga Wagga City Council
Rowan Road (Holbrook Road to the access point that provides access to Line 5, Tower 9 and 10)	Unsealed	Secondary	Wagga Wagga City Council
Rowan Road (Line 5, Tower 9 and 10 access point to Plumpton Road) (light vehicles)	Unsealed	Secondary	Wagga Wagga City Council
Somervilles Road	Unsealed	Secondary	Wagga Wagga City Council

Name	Description	Access road type	Authority
The Rock-Narrandera Road	Sealed	Water	Wagga Wagga City Council
Uranquinty Cross Road	Sealed	Secondary	Wagga Wagga City Council
Yarragundry Street	Sealed	Secondary	Wagga Wagga City Council
Key Street	Sealed	Secondary	Wagga Wagga City Council
Ryan Street	Sealed	Secondary	Wagga Wagga City Council
Bakers Lane	Sealed	Primary	Wagga Wagga City Council
Bullenbong Road	Sealed	Secondary	Wagga Wagga City Council
Kyeamba Avenue	Sealed	Secondary	Wagga Wagga City Council
Redbank Road (heavy and light vehicles on the section from Boiling Down Road to the transmission line easement)	Unsealed	Secondary	Wagga Wagga City Council
Vincent Road	Sealed	Secondary	Wagga Wagga City Council
Roads within Narrandera LGA			
Kywong Boree Creek Road	Sealed	Secondary	Narrandera Shire Council
Strontian Road	Sealed	Secondary	Narrandera Shire Council
Roads within Berrigan LGA			
Strathvale Road	Sealed/Unsealed	Primary	Berrigan Shire Council

3.1.4 Crown roads

Crown roads are public roads and are set aside for existing or future access. Crown roads can be identified as paper roads because they only exist on maps and are not built. There are Crown roads that are not used or required for public access. When Crown roads are not managed by the local road authority (i.e. Council), the roads have been treated within the EIS, and therefore this TTMP, as access tracks.

One unnamed track located between access point 2084 and 2085 is identified as a Crown road. The unnamed track is currently not being used for public access. Edward River Council are not responsible for the maintenance and repair of this unnamed track.

3.2 Existing traffic volumes

Technical Paper 11 (Traffic and transport impact assessment) provides the traffic volume data of the key roads identified for Stage 2. Appendix C provides a summary of the existing daily traffic volumes, peak hourly traffic estimates and capacity of the existing roads used for Stage 2 works.

3.3 Water supply points

A series of indicative water supply points have been identified in Appendix B of the Amendment Report as suitable connection points for the supply of either potable or non-potable water for the project.

The water supply points nominated for the project are provided in Table 3.4. The project will also continue to use the nominated water supply points from Project EnergyConnect (NSW – Western Section).

Water will be purchased under licensing agreements with the various water suppliers/landholders as required. These agreements are part of ongoing discussions and final locations will be determined during final negotiations. Additional water supply points may also be identified as the detailed design stage is progressed in order to reduce the distance to, and the number of

vehicle movements associated with water supply. Where additional access routes are required to access the additional water supply points, the Planning Secretary's agreement would be sought in accordance condition C32. Refer to Section 5.2.

It is estimated that, during peak construction, each water supply point would accommodate up to 20 loads per day (indicatively using water trucks with capacity between 15,000L and 40,000L). Visual assessment will be undertaken to assess the access and existing water supply infrastructure for each water supply points. Any subsequent minor adjustment works required to ensure compatibility and enable the required flow rates will be determined during detailed design and enacted in line with the EIS and Infrastructure Approval.

Table 3.4 - Water supply points

Location	Owner	Council	Type	Considered in Amendment Report	Included in TTMP (Stage 1)	Name in Amendment Report	Indicative access routes
Located within Balranald LGA							
Church Street, Balranald	Balranald Shire Council	Balranald Shire Council	Potable	Yes	Yes	Church Street, Balranald	Access via Sturt Highway, McCabe Street and Church Street
159 Church Street, Balranald	Balranald Shire Council	Balranald Shire Council	Potable	No	No	-	Access via Sturt Highway, Market Street, Moa Street and Church Street
Lake Benanee	Private	Balranald Shire Council	Non-potable	No	No	-	Access off Sturt Highway
812 Windomal Road, Balranald	Private	Balranald Shire Council	Non-potable	Yes	Yes	Lucerne at Balranald	Access via Sturt Highway and Windomal Road
Court Street/Sturt Highway	Balranald Shire Council	Balranald Shire Council	Non-potable	No	No	-	Access off Sturt Highway
10 Perry Street, Euston	Balranald Shire Council	Balranald Shire Council	Potable	No	No	-	Access via Murray Terrace, Perry Street and Selwyn Street Following installation of Balranald Shire Council's new standpipe on the Sturt Highway, this water supply point will only be used on limited occasions, such as when the water supply point on the Sturt Highway is offline.
Carey Street / Sturt Highway, Euston	Balranald Shire Council	Balranald Shire Council	Potable	No	No	-	Access off Sturt Highway
Iluka Fill Point	Private	Balranald Shire Council	Raw	No	No	-	Access via Ivanhoe Road and an unnamed local road
Located within Hay LGA							
Ravensworth	Private	Hay Shire Council	Non-potable	Yes	No	Ravensworth	Access via Sturt Highway and Maude Road
Paraway at Cobb Highway	Private	Hay Shire Council	Non-potable	No	No	-	Access off Cobb Highway

Location	Owner	Council	Type	Considered in Amendment Report	Included in TTMP (Stage 1)	Name in Amendment Report	Indicative access routes
16 Mile Gums	LLS	Hay Shire Council	Non-potable	No	No	-	Access off Cobb Highway
Jerilderie Road	Private	Hay Shire Council	TBC	No	No	-	Access off Jerilderie Road
59 Thelangerin Road	Hay Shire Council	Hay Shire Council	Potable	No	No	-	Access via Lachlan Street, Showground Road and Thelangerin Road
Located within Murray River LGA							
6204 Yanga Way, Yanga	Old Goodnight	Murray River	Non-potable	No	Yes	-	Access via Yanga Way and Balranald Road
Keri Keri Road	Private	Murray River	Non-potable	Yes	No	Keri Keri Road, Keri Keri	Access via Balranald Road and Keri Keri Road
78 Murray Street, Tooleybuc	Murray River Council	Murray River	Non-potable	No	No	-	Access via Murray Street and Lea Street
Intersection of Young Street and Carne Street	Murray River Council	Murray River	Raw	No	No	-	Access via Tallow Street, Carne Street, Young Street and Paterson Streen
Located within Murrumbidgee LGA							
137 Cadell Road, Jerilderie	Private	Murrumbidgee Council	Non-potable	No	Yes	-	Access via Kidman Way and Cadell Road
Kidman Way	Coleambally Irrigation	Murrumbidgee Council	Non-potable	No	No	-	Access via Kidman Way and Liddles Lane
Crosby Road	Coleambally Irrigation	Murrumbidgee Council	Non-potable	No	No	-	Access via Newell Highway and Thurrowa Road or access via Kidman Way, Gilbert Road and Crosby Road
Dinawan Stock & Domestic	Private	Murrumbidgee Council	Non-potable	Yes	Yes	Red Swamp / Dinawan Station	Access via Kidman Way and Bundure Road
Paraway at Four Corners Road	Private	Murrumbidgee Council	Non-potable	No	No	-	Access via Conargo Road or Carrathool Road then Four Corners Road
North Boundary Road	Private	Murrumbidgee Council	Non-potable	No	No	-	Access via Conargo Road or Carrathool Road then North Boundary Road

Location	Owner	Council	Type	Considered in Amendment Report	Included in TTMP (Stage 1)	Name in Amendment Report	Indicative access routes
Dinawan Camp and Laydown	Private	Murrumbidgee Council	Non-potable	Yes	Yes	Red Swamp / Dinawan Station	Access off Kidman Way
1254 Four Corners Road, Jerilderie	Coleambally Irrigation	Murrumbidgee Council	Both	Yes	No	1254 Four Corners Road	Access off Four Corners Road
137 Cadell Road, Coleambally	Private	Murrumbidgee Council	Non-potable	Yes	Yes	Cadell Road, Coleambally	Access via Kidman Way and Cadell Road
Mclennons Bore Road, Coleambally	Private	Murrumbidgee Council	Non-potable	Yes	No	Mclennons Bore Road	Access via Kidman Way and McLennons Bore Road
8955 Newell Highway Bundure	Private	Murrumbidgee Council	Non-potable	Yes	No	Newell Highway, Bundure	Access via Newell Highway and Thurrowa Road
3 Bencubbin Avenue, Coleambally	Murrumbidgee Council	Murrumbidgee Council	Potable	Yes	No	3 Bencubbin Avenue	Access via Bencubbin Avenue and Jimmy Cull Road
Located within Wagga Wagga LGA							
50 Elizabeth Avenue, Forest Hill	Riverina Water	Wagga Wagga City Council	Potable	No	Yes	Forest Hill	Access via Sturt Highway, Elizabeth Avenue or access via Mitchell Road, Inglewood Road, Elizabeth Avenue
Boiling Down Road	Private	Wagga Wagga City Council	Non-potable	No	No	-	Access via Ashfords Road and Boiling Down Road
Ashfords Road, Wagga Wagga	Riverina Water	Wagga Wagga City Council	Potable	Yes	Yes	Ashfords Road	Access off Ashfords Road
Lake Albert (Plumpton Road), Wagga Wagga	Riverina Water	Wagga Wagga City Council	Potable	Yes	Yes	Lake Albert	Access via Ashfords Road, Mitchell Road, Plumpton Road and Lake Albert Road
Red Hill Road	Riverina Water	Wagga Wagga City Council	Potable	Yes	No	Glenfield	Access via Boiling Down Road, Plumpton Road, Olympic Highway and Red Hill Road
Located within Edward River LGA							
Burraburoon	Private	Edward River Council	Non-potable	No	No	-	Access off West Burrabogie Road

Location	Owner	Council	Type	Considered in Amendment Report	Included in TTMP (Stage 1)	Name in Amendment Report	Indicative access routes
Moulamein Road 2	Private	Edward River Council	Non-potable	Yes	No	Moulamein	Access off Maude Road
394 Hay Road, Deniliquin	Edward River Council	Edward River Council	Potable	Yes	Yes	394 Hay Road, Deniliquin	Access off Hay Road
Carrathool Road, Four Corners	Coleambally Irrigation	Edward River Council	Non-potable	Yes	No	Shown in Figure 6-9 of the Amendment Report, but unclear of name in Table 6-5 of Amendment Report.	Access off Carrathool Road
Booroorban-Tchelery Road	Private	Edward River Council	Non-potable	No	No	-	Access off Booroorban Tchelery Road
Wonga Station, Four Corners Road	Private	Edward River Council	Both	Yes	No	Wonga	Access off Four Corner Road
Four Corners Road Mabins Well	Coleambally Irrigation	Edward River Council	Non-potable	Yes	No	Four Corners Road Mabins Well	Access via Carrathool Road
Located within Lockhart LGA							
39 Urana Street, The Rock	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	The Rock	Access off Urana Street
2850 Lockhart the Rock Road, Tootool	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	Tootool	Access off Lockhart the Rock Road.
Old French Park-Bullenbong Road, French Park	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	French Park	Access via Lockhart the Rock Road and Old French Park-Bullenbong Road
Urana-Lockhart Road, Brookong	Private	Lockhart Shire Council	Non-potable	No	No	-	Access off Urana-Lockhart Road

Location	Owner	Council	Type	Considered in Amendment Report	Included in TTMP (Stage 1)	Name in Amendment Report	Indicative access routes
Brookdale	Private	Lockhart Shire Council	Non-potable	No	No	-	Access off Hendersons Road
Strongs Lane, Lockhart	Private	Lockhart Shire Council	Non-potable	No	No	-	Access via Lockhart Collingullie Road, Dunleveys Lane, Ben Hoffmanns Lane and Strong Lane
Slys Lane	Private	Lockhart Shire Council	Non-potable	No	No	-	Access via Lockhart Road, French Park Bullenbung Road and Slys Lane or access via County Boundary Road and Slys Lane
Lockhart - the Rock Road, Lockhart	Riverina Water	Lockhart Shire Council	Potable	Yes	Yes	Lockhart	Access via County Boundary Road and Lockhart The Rock Road,
Bullenbung-the-Rock Road	Private	Lockhart Shire Council	Non-potable	No	No	-	Access off Bullenbong Road
French Park-Bullenbung Road	Private	Lockhart Shire Council	Non-potable	No	No	-	Access off French Park-Bullenbung Road
Napier Road	Private	Lockhart Shire Council	Non-potable	No	No	-	Access off Napier Road
Albury Road, Lockhart	Private	Lockhart Shire Council	Non-potable	No	No	-	Access via Napier Road and Albury Road
Located within Federation LGA							
Federation Way/Coonong Road	Private	Federation Council	Non-potable	No	No	-	Access off Federation Way
Newell Highway/Arrawidgee Road	Private	Federation Council	Non-potable	No	No	-	Access via Newell Highway and Colombo Road
Federation Way	Private	Federation Council	Non-potable	No	No	-	Access off Federation Way
Richmond Street, Boree Creek	Riverina Water	Federation Council	Potable	Yes	Yes	Boree Creek	Access via Lockhart Boree Creek Road, Drummonds Street, Eades Street and Richmond Street

Location	Owner	Council	Type	Considered in Amendment Report	Included in TTMP (Stage 1)	Name in Amendment Report	Indicative access routes
Newell Highway, Morundah	Private	Federation Council	Non-potable	No	No	-	Access via Newell Highway and Coonong Road
Federation Way (near corner Federation Way and Stephen Street)	Riverina Water	Federation Council	Potable	No	No	-	Access via Federation Way.
Located within Wentworth LGA							
Alcheringa Drive, Buronga[1]	Western Murray Irrigation	Wentworth Shire Council	Non-potable	Yes	Yes	Alcheringa Road	Access via Silver City Highway, Corbett Avenue and Alcheringa Drive
Modica Crescent, Buronga[1]	Wentworth Shire Council	Wentworth Shire Council	Potable	Yes	Yes	Modica Crescent, Wentworth	Access via Silver City Highway, Corbett Avenue and Modica Crescent
Fletchers Lake Road, Dareton[1]	Western Murray Irrigation	Wentworth Shire Council	Non-potable	No	Yes	-	Access via Silver City Highway and Fletchers Lake Road.
Off Sturt Highway	Private	Wentworth Shire Council	Non-potable	No	No	-	Access off Sturt Highway

[1] These water supply points have been included in the Project EnergyConnect (NSW – Western Section) Construction Environmental Management Plan and the associated CEMP Sub-plans and will continue to be used for Project EnergyConnect (NSW – Eastern Section).

Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would:

- confirm that the water supply point could be accessed using:
  - the existing access points; or
  - through using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary's agreement in accordance with condition C32;
- reach agreement with the water supplier regarding the use of the water supply point for the project; and
- carry out any additional assessments which may be required.

3.4 Heavy vehicle route restriction

The heavy vehicle restrictions on access routes are outlined in Section 4.2 and illustrated in Figure 4-3 of Technical Paper 11 (Traffic and Transport Impact Assessment).

Vehicles known as general access vehicles (GAV) which comply with mass and dimension requirements do not require a notice or permit to operate on the road network. Heavy vehicles other than GAV are subject to road network restrictions according to the vehicle types:

- restricted access vehicles (RAV) (i.e. 19m, 23m and 25/26m B-doubles);
- road trains (Type 1 A-double, modular B-triple, B-triple, AB-triple and Type 2 A-triple); and
- over size and over mass (OSOM) vehicles, which are defined as a vehicle (or vehicle combination) that exceeds any general access mass or dimension limits.

Several State roads that would be utilised as access routes are part of the existing approved RAV, road train and OSOM network. The abovementioned heavy vehicles do not require a notice or permit to access this approved road network. These include Sturt Highway (A20) between Buronga and Wagga Wagga, Yanga Way and Kidman Way.

Along the approved access routes, some state roads such as Cobb Highway and Newell Highway as well as regional roads provide approved access for certain types of heavy vehicles. Most local roads along access routes are not part of the existing approved RAV, road train and OSOM network.

Further information on roads and areas approved for RAV, road train and OSOM can be found on Transport for NSW Road Train Network Map online.

3.5 Public transport

Buses provide the primary public transport service in the towns in the project area. Coach services are available for Buronga, Euston, Balranald, Hay, Urana, Lockhart and Wagga Wagga. These form part of TfNSW's Regional Train and Coaches Network which generally runs an infrequent return trip once daily or for several times a week only.

The Wagga Wagga LGA itself is generally well serviced by local bus network operated by Busabout, other local private bus operators including Junee Buses (providing services to Junee, north-east of Wagga Wagga) and Allens Coaches providing services for schools. School bus services exist between Wagga Wagga and Coolamon, Gainmain, Flowerdale, Marrar, Methul, Tooyal, Lockhart, Currawarna on school days only.

Bus services would not experience any delays on the access routes given the negligible adverse impacts identified from the road network performance review.

3.6 Regional rail services

The project crosses the following active railway lines, according to the TfNSW, NSW Public Level Crossing Finder:

- Main Southern Railway operated by ARTC (operational railway line), approximately three kilometres southwest of Uranquinty;
- the Rock Oakland Railway operated by UGL Regional Linx (UGRL) (operational railway line), approximately two kilometres southeast of Lockhart;
- the Rock Oakland Railway operated by UGRL (non-operational railway line), approximately nine kilometres northeast of Urana;
- Narrandera Tocumwal Railway operated by UGRL (non-operational railway line), near intersection of Colombo Road and Crutchs Road, Bundure; and
- Moama Balranald Railway operated by VLine (operational railway line), approximately 25 kilometres southeast of Balranald.

Refer to Figure 3.1.

3.7 Bridges and culverts

Bridges and culverts have been identified on the access routes proposed in the EIS. The majority of bridges are located on State and regional roads that have been classified to be utilised for certain vehicle types with specific load limits. It is therefore acknowledged that the restricted access vehicles and OSOM vehicles are able to traverse these bridges.

Through the EIS consultation process, preliminary engagement has been completed with councils in relation to bridge and culvert load limits and these have been considered in the EIS.

3.8 Active transport

The construction activities are anticipated to have limited interactions with pedestrians and cyclists, with only limited active transport infrastructure within the project study area. This potential interaction occurs when the access route forms part of the main street through the town. The impacts from these additional construction traffic movements are considered minor given the low number of movements and the off-road active transport facilities enabling separation between vehicles and pedestrians/cyclists.

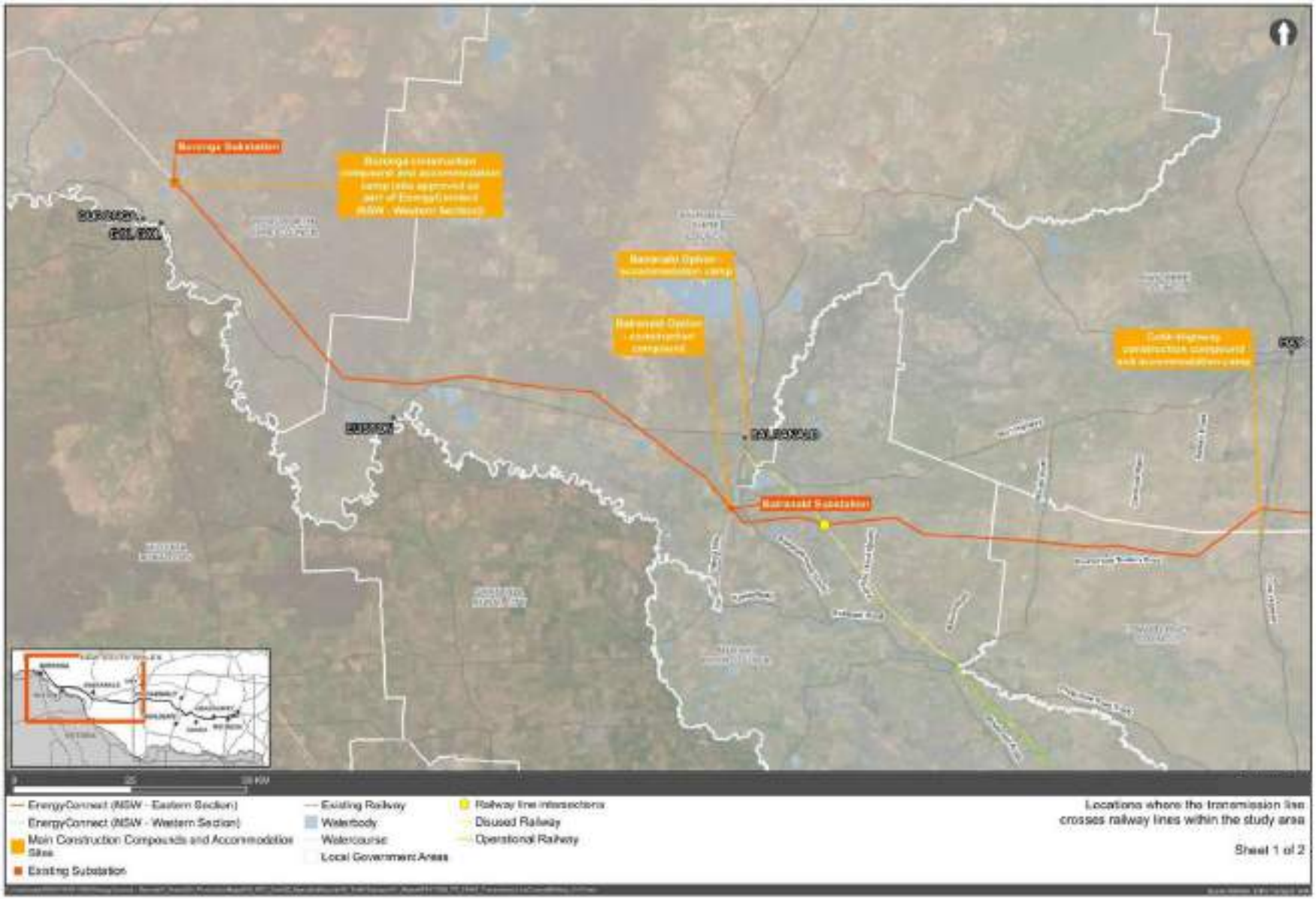


Figure 3.1 - Transmission line intersection with railway lines

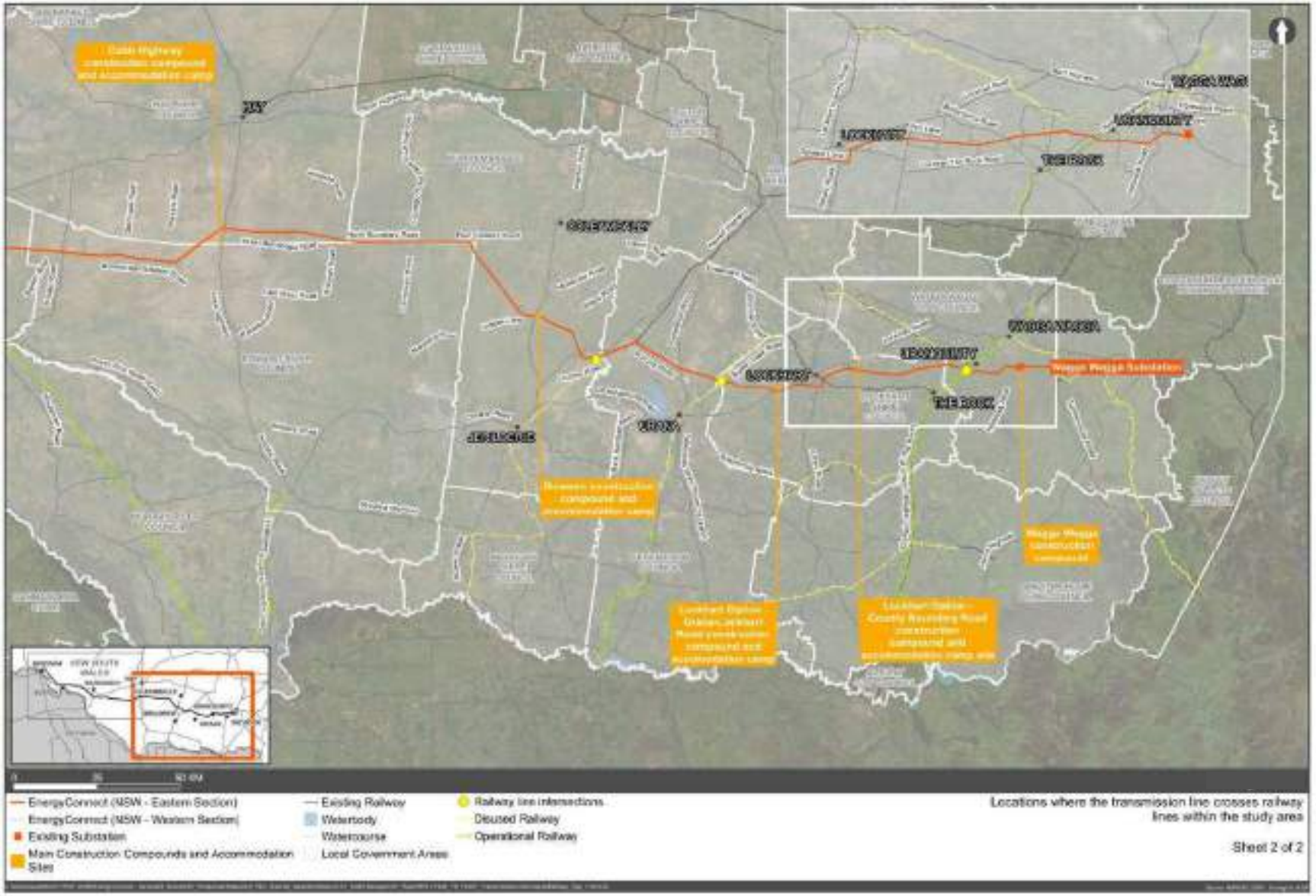


Figure 3.1 - Transmission line intersection with railway lines (continued)

4 Environmental aspects and impacts

4.1 Construction activities

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental management systems). The relationship of aspects and impacts is one of cause and effect.

The key aspects that could result in adverse impacts to traffic and transport include:

- increase in heavy and light vehicle movements on the access routes that would range between three and 91 vehicles per hour in one direction;
- increase in traffic on surrounding roads that are not access routes due to overall increase in access into the town(s) with workers;
- transport of heavy, oversize and overmass vehicles;
- acceleration and deceleration of heavy vehicles; and
- increase of oversize and overmass vehicles.

4.2 Impacts

Potential traffic and transport impacts attributable to Stage 2 works might include:

- increased heavy vehicle volumes and associated impacts, including road deterioration and impacts to motorists;
- potential interaction with pedestrians and cyclists when the access route forms part of the main street through the town;
- regional rail activities;
- short term road closures and/or traffic restrictions and delays during the transport of oversize and heavy loads; and
- short term restrictions for properties that have been consulted with.

5 Construction traffic and parking

5.1 Construction access routes (heavy and light vehicles)

Construction heavy vehicle movements will be required for a variety of activities (i.e. earthworks, clearing and grubbing activities).

All heavy and light vehicles associated with construction, upgrading and decommissioning will travel via the access routes as identified in the EIS and the figure in Appendix 3 of the Infrastructure Approval or on routes otherwise to by the Planning Secretary as per condition C32 (refer to Section 5.2). The primary, secondary and water access routes are the potential access routes for the Stage 2 works. These access routes will be used by both general construction traffic and heavy vehicle access routes. Section 3.1.2 of Technical Paper 11 – Traffic and Transport Impact Assessment classified the access routes as follows:

- primary access routes – haulage routes between ports to the main construction compounds which may involve OSOM transport movements. It also encompasses haulage routes between all main construction compounds and/or accommodation camp sites for the project (including camp to camp) as well as routes to secondary haulage routes from main construction compounds, accommodation camps and other ancillary sites;
- secondary access routes – haulage routes between the main construction compounds and the transmission line work area. This route does not involve the movements of OSOM vehicles unless otherwise approved by Planning Secretary; and
- water access routes – identified routes proposed to be used by water trucks to travel between water sources and the nearest primary or secondary routes.

In addition to the access route types above, heavy and light vehicles associated with the project will travel via private tracks / unnamed tracks during the project. These tracks are primarily to access the transmission line work area.

5.2 Additional construction access routes

Table 5.1 identifies several additional construction access routes that are required by the project. These access routes are additional to the routes in the EIS and Appendix 3 of the Infrastructure Approval as described in the Section 3.1.

In accordance with condition C32, all heavy and light vehicles associated with construction, upgrading and decommissioning must travel to and from the site via the primary access routes, secondary access routes and water supply routes as described in the EIS and identified in Appendix 3, unless the Planning Secretary agrees otherwise.

Any further additional construction access routes which may be proposed will be subject to an assessment and obtaining the Planning Secretary's agreement as required by condition C32.

Table 5.1 - Additional construction access routes

Road name	Description	Proposed access route type	NSW road network classification	Road authority	Reason for use
Roads within Balranald LGA					
Church Street (extension)	Sealed	Water	Local road	Balranald Shire Council	Required to access proposed water supply point located at Church Street, Balranald
Moa Street	Sealed	Water	Local road	Balranald Shire Council	Required to access proposed water supply point located at Church Street, Balranald
McCabe Street (extension)	Sealed	Primary/Water	Local Road	Balranald Shire Council	Required to access Iluka water supply point located off Ivanhoe Road, Balranald
Mayall Street	Sealed	Secondary/Water	Regional Road	Balranald Shire Council	Required to access Iluka water supply point located off Ivanhoe Road, Balranald
Ivanhoe Road	Sealed	Primary/Water	Regional Road	Balranald Shire Council	Required to access an unnamed local road to Iluka water supply point located on a private property
Unnamed Local Road	Unsealed	Water	Local Road	Balranald Shire Council	Required to access the Iluka water supply point off Ivanhoe Road
Roads within Edward River LGA					
Goolgumbla Road	Unsealed	Primary	Local road	Edward River Council	Required to access transmission line easement and provides alternate access to canal crossing during flood
Pooginook Road	Unsealed	Primary	Local road	Edward River Council	Required to access transmission line easement and provides alternate access to canal crossing during flood
Unnamed track (located off Four Corners Road)	Unsealed	Secondary	Track	Crown land	Required to access transmission line easement with access points 2084 and 2085
Roads within Federation LGA					
Spraydon Road (extension)	Unsealed	Secondary	Local road	Federation Council	Required extension to access points 5078 and 5079 to the intersection of West Gums Road and Spraydon Road
Stephen Street	Sealed	Water	Local road	Federation Council	Required to access approved water supply point located at intersection of Federation Highway and Stephen Street

Road name	Description	Proposed access route type	NSW road network classification	Road authority	Reason for use
Roads within Hay LGA					
Lachlan Street (part of Cobb Highway)	Sealed	Water	State road	TfNSW	Required to access proposed water supply point located at 59 Thelangerin Road, Hay
Thelangerin Road	Sealed	Water	Local road	Hay Shire Council	Required to access proposed water supply point located at 59 Thelangerin Road, Hay
Showground Road	Sealed	Water	Local road	Hay Shire Council	Required to access proposed water supply point located at 59 Thelangerin Road, Hay
Dunera Way	Sealed	Water	Local road	Hay Shire Council	Required to access proposed water supply point located at 59 Thelangerin Road, Hay
Roads within Lockhart LGA					
Commera Wilson Lane	Unsealed	Secondary	Local road	Lockhart Shire Council	Required to access transmission line easement (access point 5056/57)
Strongs Lane (extension)	Unsealed	Secondary	Local road	Lockhart Shire Council	Required to access transmission line easement (access point 5032/32a)
Tinamba Lane	Unsealed	Primary	Local road	Lockhart Shire Council	Required to access transmission line easement
Tutty's Lane	Unsealed	Secondary	Local road	Lockhart Shire Council	Required to access transmission line easement
Wattles Road	Unsealed	Primary	Local road	Lockhart Shire Council	Required to access transmission line easement
Kings Lane	Unsealed	Secondary	Local road	Lockhart Shire Council	Required to access transmission line easement
Roads within Murray River LGA					
Keri Keri Road (south)	Unsealed	Secondary	Local road	Murray River Council	Provide alternate access to Binbinette Road, and Balranald Road if flooding occurs on Binbinette Road
Berambong Road	Unsealed	Secondary	Local road	Murray River Council	Provide alternate access to Binbinette Road, and Balranald Road if flooding occurs on Binbinette Road
Murray Street (extension)	Sealed	Water	Local road	Murray River Council	Required to access proposed water supply point located at 78 Murray Street, Tooleybuc
Lea Street (extension)	Sealed	Water	Local road	Murray River Council	Required to access proposed water supply point located at 78 Murray Street, Tooleybuc

Road name	Description	Proposed access route type	NSW road network classification	Road authority	Reason for use
River Street	Sealed	Water	Local road	Murray River Council	Required to access proposed water supply point located at 78 Murray Street, Tooleybuc
Perekerton Road	Unsealed	Secondary	Local road	Murray River Council	Provide alternate access to Binbinette Road, and Balranald Road if flooding occurs on Binbinette Road
Carne Street	Sealed	Water	Local Road	Murray River Council	Required to access / egress water supply point located at the intersection of Young Street and Carne Street
Young Street	Sealed	Water	Local Road	Murray River Council	Required to access / egress water supply point located at the intersection of Young Street and Carne Street
Roads within Murrumbidgee LGA					
Jimmy Cull Road	Sealed	Water	Local road	Murrumbidgee Council	Required to access approved water supply point located at 3 Bencubbin Street, Coleambally
Bencubbin Avenue	Sealed	Water	Local road	Murrumbidgee Council	Required to access approved water supply point located at 3 Bencubbin Street, Coleambally
Thurrowa Road (extension)	Sealed / unsealed	Primary	Local road	Murrumbidgee Council	Required to access transmission line easement and access point 5114
Mclennons Bore Road	Unsealed	Secondary	Local road	Murrumbidgee Council	Required to access transmission line easement and provides alternate access to canal crossing during flood
Goolgumbla Road	Unsealed	Primary	Local road	Murrumbidgee Council	Required to access transmission line easement and provides alternate access to canal crossing during flood
Wilson Road (extension)	Sealed	Primary	Local road	Murrumbidgee Council	Required to access transmission line easement and provides alternate access to canal crossing during flood
Roads within Wagga Wagga LGA					
Kyeamba Avenue	Sealed	Secondary	Local road	Wagga Wagga City Council	Required to access transmission line easement to avoid using the approved light vehicle only roads, Brunskill Road and Lake Albert Road

Road name	Description	Proposed access route type	NSW road network classification	Road authority	Reason for use
Redbank Road	Unsealed	Secondary	Local road	Wagga Wagga City Council	Required to access transmission line easement (heavy and light vehicles on the section from Boiling Down Road to the transmission line easement)
Vincent Road	Sealed	Secondary	Local road	Wagga Wagga City Council	Required to access transmission line easement to avoid using the approved light vehicle only roads, Brunskill Road and Lake Albert Road
Mitchell Road (extension)	Sealed	Secondary	Local road	Wagga Wagga City Council	Required to access transmission line easement to avoid using the approved light vehicle only roads, Brunskill Road and Lake Albert Road
Roads within Berrigan LGA					
Jerilderie Street	Sealed	Primary	Regional road	Berrigan Shire Council	Council requested the use of this road to minimise traffic along Carter Street and Oaklands Street
Strathvale Road	Sealed / unsealed	Primary	Local road	Berrigan Shire Council	Council requested the use of this road to minimise traffic along Carter Street and Oaklands Street

5.3 Construction access routes (oversize vehicle movements)

In accordance with condition C31, all over-dimensional vehicles associated with the development must only travel via the primary access routes described in the EIS, as identified in figure Appendix 3 of the Infrastructure Approval, unless the Planning Secretary agrees otherwise.

The project is therefore required to seek the Planning Secretary's agreement for over-dimensional vehicles associated with the development to travel along access routes that are not identified as primary access routes.

Any of the long distance haul routes will be subject to permits granted by NHVR and will be assessed accordingly.

The OSOM vehicles would travel using primary access routes along OSOM-approved roads (within NSW) to access the Dinawan substation site via Kidman Way. It is not expected that OSOM deliveries would be required to the Wagga Wagga substation. In the event that the Wagga Wagga substation site requires a delivery via an OSOM vehicle, the appropriate approvals would be sought at that point in time.

5.4 Transmission line crossings

5.4.1 Transmission line crossings over roads

The transmission line corridor will intersect and traverse over, the public roads listed in Table 5.2.

Table 5.2 - Transmission line crossings

Road name	Road authority	Road name	Road authority
Euston Prungle Road	Balranald Shire Council	Spraydon Road	Federation Shire Council
Benanee Road	Balranald Shire Council	Barragunda Road	Federation Shire Council
Abbotts Tank Road	Balranald Shire Council	Boree Creek Road	Federation Shire Council
Sturt Highway (A20)	TfNSW	Cullivel Road	Federation Shire Council
Windomal Road	Balranald Shire Council	Commera Wilson Lane	Lockhart Shire Council
Yanga Way	TfNSW	Urana-Lockhart Road	Lockhart Shire Council
Balranald Road	Murray River Council	Albury Road	Lockhart Shire Council
Keri Keri Road	Murray River Council	Napier Road	Lockhart Shire Council
Baldon Road	Murray River Council	Lockhart The Rock Road	Lockhart Shire Council
Maude Road	Edward River Council	Ben Hoffmanns Lane	Lockhart Shire Council
Booroorban-Tchelery Road	Edward River Council	Dunleveys Lane	Lockhart Shire Council
Romani Road	Hay Shire Council	County Boundary Road	Lockhart Shire Council
Cobb Highway	TfNSW	Pat Gollashs Lane	Lockhart Shire Council
Jerilderie Road	Hay Shire Council	French Park-Bullenbung Road	Lockhart Shire Council
Conargo Road	Murrumbidgee Council	Hendersons Road	Lockhart Shire Council
Four Corners Road	Murrumbidgee Council	Bullenbong Road	Lockhart Shire Council

Road name	Road authority	Road name	Road authority
Fernbank Road	Murrumbidgee Council	Boyds Road	Lockhart Shire Council
Mclennons Bore Road	Murrumbidgee Council	The Rock-Collingullie Road	Lockhart Shire Council
Kidman Way	TfNSW	Hanging Rock Road	Wagga Wagga City Council
Bundure Road	Murrumbidgee Council	Olympic Highway	TfNSW
Thurrowa Road	Murrumbidgee Council	Old Station Road	Wagga Wagga City Council
Newell Highway	TfNSW	Oxley Bridge Road	Wagga Wagga City Council
Crutchs Road	Murrumbidgee Council	Holbrook Road	Wagga Wagga City Council
Colombo Road	Murrumbidgee Council	Plumpton Road	Wagga Wagga City Council
Coonong Road	Federation Council	Boiling Down Road	Wagga Wagga City Council
Federation Way	Federation Council		

Where stringing is required over roads, the following will occur:

- in accordance with Section 2.4.1, ROLs will be obtained from the relevant road authorities;
- the appropriate traffic control measures will be established;
- rider poles, scaffolding or other appropriate protection will be used to ensure that the conductors remain at height.

Detail of the process intended to be used will be provided with the ROL application.

Stringing of the transmission line over roads may occur through one of the two processes outlined below, however this will be subject to change as the process is finalised through the ROL process.

Line crossing method

The following approach is applied for this method:

- the ports will be assembled by sections, ensuring that the minimum proximity distance is maintained;
- once the supports are installed, the side rails will be installed between them, making good use of the crane and controlling their movement with insulation ropes, or using service pulleys and/or gear placed on the head of the supports;
- wearing insulated gloves, the insulation ropes will be passed from one side of the line to the other, making a mesh between the side rails.



Figure 5.1 - Example of the crossings method

Crossing through the installation of safety mesh

The following approach is applied for this method:

- assembly of the protection:
  - installation of cranes in defined location/s;
  - cranes to be supplied with a basket and pulley to avoid the stay rope falling while it is being hung;
  - the stay rope is hung through pulleys installed in the cranes that protect the crossings;
  - once the rope is hung, the steel stay will be passed and duly braced, securing its attachment to a static element (blocks);
  - a mesh comprising steel ropes and slings between both hung stay (safety) in order to cover the services to be protected and prevent a cable accidentally falling;
  - this protection will be installed until the stringing is concluded. Once the work is completed the owner of the services will be informed, which will proceed to disassemble said protection;
- disassembly of the protection. For the removal of the protection area, the following steps will be followed:
  - the mesh comprising steel ropes and slings between the hung stays will be removed;
  - once the mesh is removed, the stay cables will be removed one by one. This operation will be done using as support, the lower phases of the recently strung line.

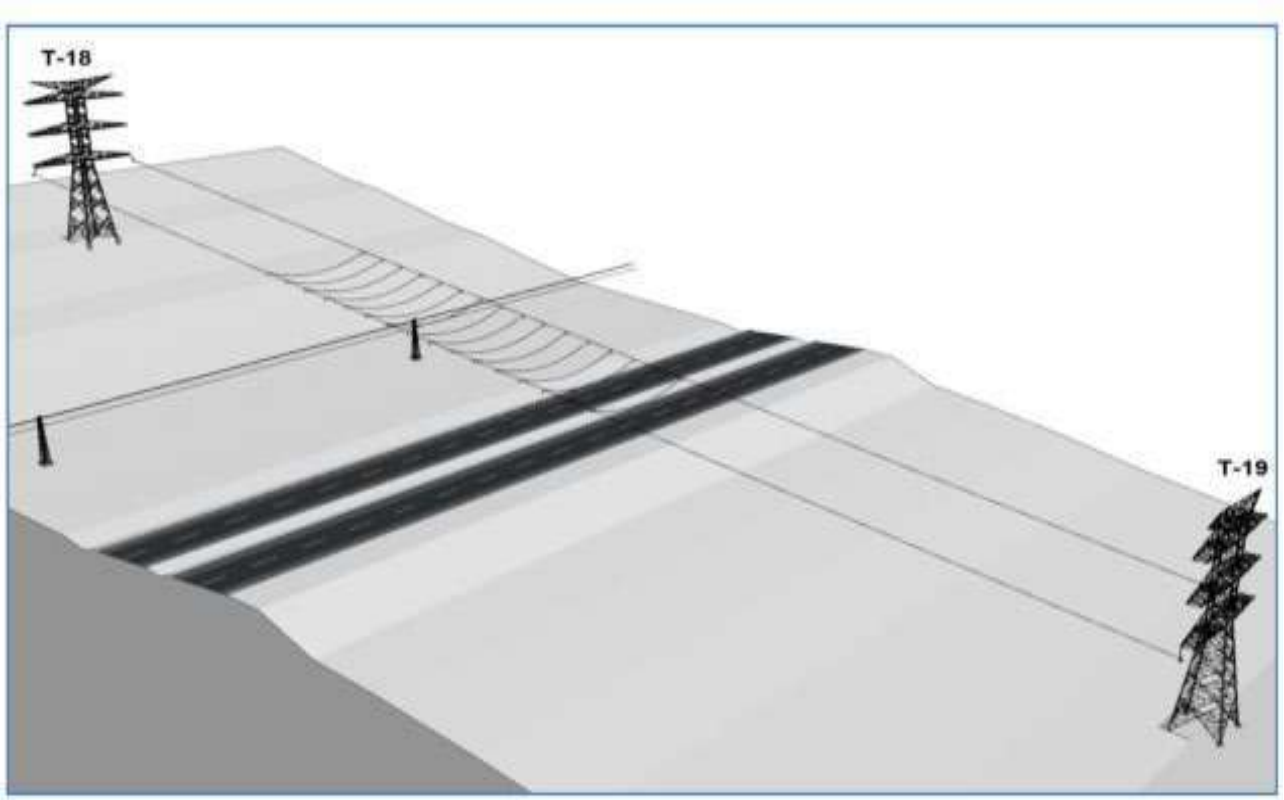


Figure 5.2 - Example of the safety mesh method

5.4.2 Transmission line crossings over rail corridors

The transmission line corridor will intersect several active and disused railway easements as outlined in Section 3.6. Consultation with the relevant rail authorities (operators) will occur for transmission line stringing works required in active rail corridors. The requirements (such as track occupancy authorisations) and necessary requirements for staff working within the rail corridor (accreditations) will be confirmed with the relevant rail authorities. Works in active rail corridors will occur in accordance with the identified requirements. The existing railway line that runs parallel to Olympic Highway between The Rock and Uranquinty often experiences traffic congestion at the railway level cross points while the train is approaching. The project will consider the utilisation of the following railway crossing points:

- Yarragundry Street, Uranquinty (preferred option);
- Bon Accord Road, The Rock (least preferred option);
- Old Trunk Road, The Rock (least preferred option); and
- Urana Street, The Rock (preferred option).

5.4.3 Transmission line crossings over watercourses

The transmission line corridor will also intersect numerous natural watercourses, waterbodies (such as lakes) and man-made waterways intersect the study area, including unnamed drainage lines, dry rivers, perennial rivers, canals and drains. Consultation with TfNSW Maritime will be undertaken, where required, prior to the commencement of transmission line stringing works over these watercourses. Drones will likely be used when traversing the watercourses.

5.5 Construction worker parking

During the construction phase, it is expected that relevant workers will typically be based within the accommodation camps and will park within the respective main construction compounds or substation area. Construction workers may travel to the site locally from the surrounding towns.

5.6 Construction shuttle bus service

During the Stage 2 construction phase, a dedicated employee shuttle bus service will be utilised to transfer workers to and from the airports and the accommodation camps (following establishment of the accommodation camps).

Workers that require aviation transportation will be likely flown into Mildura and Wagga Wagga airports. Workers will be picked-up from the arrival terminal of the airport and dropped-off at the appropriate accommodation camps and vice versa. Employees will be encouraged to use the dedicated shuttle bus to travel between the project accommodation camps and the airports.

The shuttle bus routes will utilise the primary and secondary routes, as much as possible. The shuttle bus may require the use of roads that are part of the public road network such as local roads to access the airport terminal.

5.7 Construction compound and accommodation camp site access

The main construction compound and accommodation camp sites, including diagrams of the general location of the construction compound, accommodation camp and the relevant access points are detailed in Table 5.3.

Table 5.3 - Construction compound and accommodation camp access points

Location	Considered in EIS / Amendment Report?	General access point works	General site layout
Buronga construction compound and accommodation camp	Yes	A combined accommodation camp and construction compound is located on Arumpo Road adjacent to the existing Buronga substation. An access point (Basic Right Turn and Basic Left Turn) has been constructed from Arumpo Road directly to the Buronga construction compound and accommodation camp as part of the approved EnergyConnect (NSW – Western Section). This access point will also be used by construction vehicles supporting works for Eastern.	
Balranald construction compound	Yes	The main construction compound would be located on Yanga Way and has an existing access point (Basic Right Turn and Basic Left Turn). The project is considering the opportunity to use an alternative, existing construction compound area (Limondale construction compound) located approximately 1km south of the Balranald	

Location	Considered in EIS / Amendment Report?	General access point works	General site layout
		construction compound. This area was used previously for the Limondale solar farm project and connects to the same access point on Yanga Way. The use of the Limondale solar farm construction compound was not considered in the Project EnergyConnect (NSW-Eastern Section) EIS/Amendment Report, however was fully assessed within the Environmental Impact Statement for the Limondale Solar Farm project (SSD-8025). If used as an alternative to the Balranald construction compound, it would require no additional disturbance/impact and would avoid direct impacts at the Balranald construction compound site, including to Matters of National Environmental Significance (Mallee Bird Community EEC).	
Deniliquin laydown yard	No	This existing subdivision/development site is located on the corner of Ochtertyre Street (Cobb Highway) and Cemetery Road, Deniliquin, and has an existing access point connecting to Ochtertyre Street (Cobb Highway), which is an approved primary access route for the project. The access point and associated internal access road, and all associated consultation with and concurrence from TfNSW, is addressed in the subdivision determination granted by Council (refer to DA18/19). No alteration of the existing site access point would be required to facilitate use of the site by project-related traffic.	

Location	Considered in EIS / Amendment Report?	General access point works	General site layout
Cobb Highway construction compound and accommodation camp	Yes	This combined site is located on Cobb Highway within the Edward River Council local government area. This would require the construction of an access point, directly from Cobb Highway road shoulder to the new construction compound site.	
Dinawan substation construction compound and accommodation camp	Yes	This would require the construction of an access point, directly from Yanga Way road shoulder to the new construction compound site.	
Lockhart construction compound and accommodation camp	Yes	This would require the construction of an access point, directly from the County Boundary Road road shoulder to the new construction compound site.	
Wagga Wagga construction compound	Yes	This would require the construction of an access point, directly from the Ashford Road road shoulder to the new construction compound site. There is the potential that an access point would be required on Boiling Down Road to enter the substation area for both construction of the substation and establishment of a small construction compound.	

The construction compounds and accommodation camp sites have been selected to be located near a sealed main road to facilitate journeys to worksites, airports, local services and amenities.

Suitably sized and located temporary access points off the adjacent roadways are either installed or are required for each of these main construction compound and accommodation camp sites.

The access point design will be developed in consultation with the relevant road authority.

5.8 Access points

Elecnor will aim to use existing access points which connect to the public road network, where possible, to minimise the number of access points that need to be installed.

New temporary access points may be required to provide connection from a gazetted road to the project access tracks. The access tracks are required to access the transmission line easement and other construction areas. The temporary access points installed by the project within the road reserve, which are not required for operational reasons, will be removed following completion of construction, unless directed to remain by Transgrid or the landowner.

In most instances, access for transmission tower construction areas would cater for low vehicle movements. The type of access point will be determined with consideration to the type of road that is being impacted (e.g. minor paved road, major road or highway or gravel road). Sealed access points would be provided where the access point connects to a sealed road in consultation with the relevant road authority.

Table 5.4 - Temporary access point connection

Type	Description	Access point type	Example
1	Access off major road/highway	Type 1 access points are defined by coming directly off a high-speed major road or highway.	
2	Access off minor paved road	Type 2 access points are defined as a connection to a paved road that is deemed to be minor.	
3	Access off gravel road	Type 3 access points are defined as a connection to a road that is constructed of gravel and has table drains.	
4	Access off gravel road with minimal temporary works required	Type 4 access points are defined as a connection to a gravel road where there is no table drain present or where there is limited access required to a tower.	

5.8.1 Access point treatment

The project will aim to use existing access points, including access points at nominated water supply points, which connect to the public road network, where possible, to minimise the number of access points that need to be installed. Use of existing connections to the public road network will be considered in consultation with the relevant landholder, when accessing construction areas via private land.

The project will establish an access point to the gazetted road network where there are no existing access points or the existing access point is unsuitable. The type of access point treatment will be determined in consideration to the type of road that is being impacted.

Refer to Section 6.2 for details on the indicative number of access points connecting from a gazetted road to the transmission line easement, or other construction areas for construction activities.

Unless the Planning Secretary agrees otherwise, Elecnor will utilise a Rural Basic Right Turn (BAR) and Rural Basic Left Turn (BAL) configurations for the following access points:

- Cobb Highway construction compound and accommodation camp;
- Dinawan construction compound, accommodation camp and substation;
- Lockhart construction compound and accommodation camp; and
- Wagga Wagga construction compound on Ashfords Road.

The BAR/BAL configuration will involve localised pavement widenings to provide adequate space for motorists to pass construction vehicles turning into the site access. The use of a BAL and BAR has been assessed utilising the *Austroads Guide to Road Design Part 4A (Unsignalised & Signalised Intersections)*. Figure 5.3 outlines a BAL and BAR configuration. The temporary access points listed above will be removed following completion of construction.

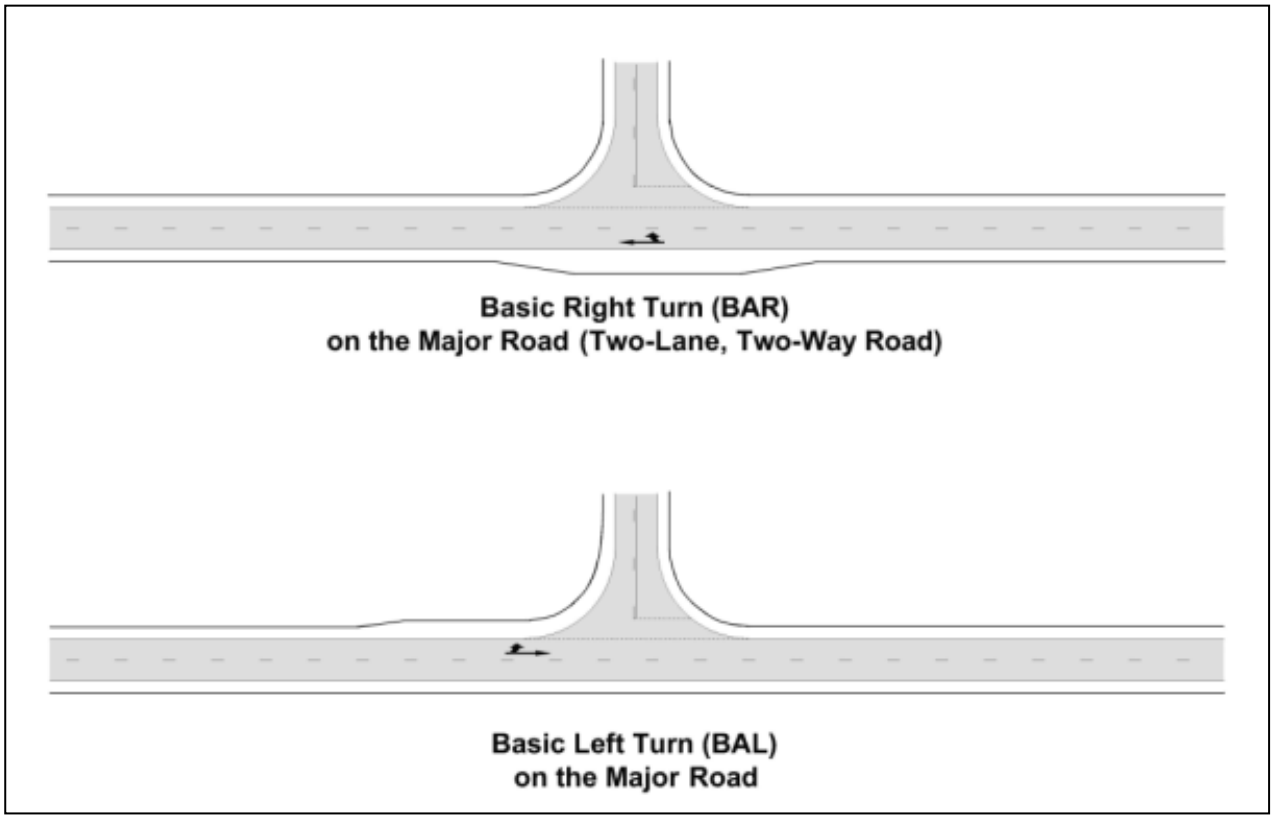


Figure 5.3 - Rural Basic Right Turn and Rural Basic Left Turn configurations

Other access points required for access from the access road to the transmission line easement or construction area will be designed in accordance with the relevant guidelines and in consultation with the relevant road authority. Refer to Section 6.2.2 for further details. These access points do not require road widening like BAR/BAL design.

The variation between these access points is based on the material that the access point is constructed of. Examples of access point treatment are as follow:

1. compact the existing surface material overlaid with sub-base and base material with a sealed finished surface;
2. compact the existing surface material overlaid with sub-base and unsealed base material;
3. compact the existing surface material overlaid with unsealed base material; and
4. use as existing surface with limited clearing and grubbing only.

5.9 Water supply point access

Access to the nominated water supply locations identified in Section 3.3 will require an access point.

The project will seek to use existing access points that connect to the public road network, where possible, to minimise the number of access points that need to be installed. Refer to Section 6.2.1 for further details on existing access points.

Where there is no existing access point or the existing access point is deemed unsuitable at the nominated water supply point, the project will install a new, or upgrade the existing access point. The access point will likely consist of gravel looped access tracks with connection to the existing road pavement to allow trucks to access the water supply point. Refer to Section 6.2.2 for further details on the design requirements of new access points.

6 Management measures

Management measures to be implemented during construction are described in the following section. To minimise impacts the management measures related to traffic and transport, included in Table 6.3, will be applied.

6.1 Dilapidation surveys

Independent dilapidation surveys will be undertaken in accordance with condition C34 and RMM TA7. The dilapidation surveys will be undertaken in consultation with relevant roads authorities.

Dilapidation surveys will be undertaken on all local roads on the transport route (including local road crossings). Local roads on the transport route are those that would be used for construction access routes.

Dilapidation surveys will be undertaken for the portion of the local road network, listed in Table 3.3, that will be used by the project during the construction phase. The dilapidation surveys will be undertaken prior to construction, upgrading or decommissioning works to assess the existing conditions of all local roads on the transport route (including local road crossings).

Dilapidation surveys will then be undertaken in accordance with the timing listed below unless otherwise agreed to by the relevant road authority:

- on an annual basis during construction;
- within one month of the completion of any construction, upgrading or decommissioning works.

If the dilapidation surveys identify that a local road (or local road crossing) has been damaged during construction, upgrading or decommissioning works, the identified damage will be repaired (or the full costs will be paid associated with repairing) any damage to local roads on the transport route (including local road crossings). Damage to the roads (and other infrastructure such as stock grids) that is attributed to the project would be addressed in consultation with the relevant roads authority and within three months of construction use concluding or as otherwise agreed with the relevant roads authority. Roads would be reinstated to equivalent or better condition.

6.2 Road upgrades

The definition of construction within the Infrastructure Approval excludes road upgrades. Road upgrade works are, however, incorporated within this TTMP as required by condition C35 b).

Unless the Planning Secretary agrees otherwise, the road upgrades as identified in Appendix 3 of the Infrastructure Approval, will be implemented to the relevant standard and timing requirements as identified in Appendix 3 and to the satisfaction of the relevant roads authority. Appendix 3 of the Infrastructure Approval noted that the number, location and type of minor access point intersections will be confirmed in the Traffic and Transport Management Plan (this plan).

The list of the road upgrades identified in Appendix 3 of the Infrastructure Approval for Stage 2 works are outlined Table 6.1.

Table 6.1 - Road upgrades

Type	Number of access points	Location	Intersection treatment	Timing	Road authority
Water supply points	As listed in Section 3.3	Relevant road as described in Section 3.3	As described below and in Section 6.2.1, utilise existing access point where possible, otherwise installed a minor access point.	Prior to construction of the relevant minor access track off the public road network	Relevant council
Minor access points intersections (any access point associated with minor access tracks off public road network)	As listed in Section 5.8	Relevant road as described in Section 5.8	As described below and in Section 6.2.1, utilise existing access point where possible, otherwise installed a minor access point.	Prior to construction of the relevant minor access track off the public road network	Relevant council

The final location of the access points to the transmission line easement and water supply points would be confirmed during detailed design or confirmed during final negotiations with the water supplier. The project will seek to utilise existing access points, wherever possible. Refer to Section 6.2.1 for details on existing access points. If an existing access point is not available or the access point is deemed unsuitable, the project will seek to use an alternative existing access point.

Otherwise, the project will install a minor access point as outlined in Section 6.2.2, where required. The details associated with the minor access points will be consulted with the relevant road authority. The installation of these minor access points will be temporary and will be removed at the end of the project in consultation with the relevant road authority.

There may be circumstances where refinements or changes to the location of an access point, or a new access point, will be required. These circumstances would include, for example:

- where changes in tower locations are required as part of the detailed design process and the location of the access point is affected by the movement of the tower; or
- due to the results reported in the Addendum Aboriginal Cultural Heritage Assessment Report.

As a result of a relocated or new access point, changed impacts may be introduced. Proposed changes to the location of an access point will be communicated to the Elecnor Environment team. In accordance with condition C33 of the Infrastructure Approval, consultation with the relevant roads authority will be carried out for any relocated or new access points prior to installation of the access point. This will likely occur as part of the ROL application process with the design of new or changed access point provided as part of this application.

The project will utilise temporary access points from the gazetted road network to access the transmission line easement, or other construction areas for construction activities. Table 5.4 identifies examples of temporary access point connection to the gazetted road network.

6.2.1 Existing access points

Elecnor will aim to use existing access points, including access points at nominated water supply points, which connect to the public road network, where possible, to minimise the number of access points that need to be installed.

Use of existing connections to the public road network will be considered in consultation with the relevant landholder, when accessing construction areas via private land.

During Stage 2 works, access to properties will be maintained or alternative arrangements agreed in consultation with landholders. Access to properties for emergency vehicles will be provided at all times.

To provide safe entry and exit to the worksite from the designated site gates the following will occur:

- ensure the access points nominated can accommodate the turning movement of the largest vehicle that will be accessing the site as required;
- ensure all access points are clearly visible to approaching traffic and signposted accordingly; and
- ensure that vehicles will enter and exit the access gates in forward direction only. If this is not possible, traffic control will be implemented to assist.

6.2.2 Access point design and location

Design of new access points will be developed in accordance with the s138(2) of the *Roads Act 1993* and in accordance with the *Austroads Guide to Road Design,* including the appropriate safe intersection sight distance (SISD) requirements. The access points will be designed to minimise conflicts with vehicle movements on the road network.

The design of the new access points will be developed in consultation with the relevant road authority, where the access point connects to the public road network, prior to construction of the relevant minor access track off the public road network.

Elecnor will verify that the proposed intersection treatment has sufficient capacity for the proposed number of construction vehicles. Where required, this verification will be provided to the relevant road authorities for use during review.

The indicative location of the access points is provided within Appendix D.

There may be instances where refinements or changes to the location of the access points will be required, especially throughout the detailed design phase. Elecnor will communicate with the relevant road authority when there are proposed changes to the location and/or access point design for the access points. This will typically occur through the design review process, through seeking approval for a road occupancy licence and through seeking satisfaction of the road authority in accordance with condition C33.

The temporary access points installed by the project which are not required for operational reasons, will be removed following the completion of construction, unless directed to remain by Transgrid or the landowner.

6.3 Access tracks

The types of access tracks are described in Table 6.2. Unimproved access tracks will be used wherever possible during the construction phase of the project.

Access track locations may also move throughout the construction phase as additional heritage and biodiversity surveys are completed. Access tracks will be positioned to minimise environmental impact on sensitive locations as much as practical.

Table 6.2 - Access track types

Type	Description
Un-improved access tracks	Unimproved access tracks will provide access to the work sites by using existing roads or tracks, or driving on existing soil or ground surface with minimal or no prior preparation.

Type	Description
	The alignment of these access track will consider the use of existing disturbed areas in order to avoid or minimise further disturbances. Unimproved access tracks will be used wherever possible during the construction phase of the project.
Improved access tracks	Improved access tracks will provide access to the work area by using existing roads or tracks where some additional grading or widening of the existing track is required. This may include widening of existing narrow sections to allow for sufficient width to allow construction vehicles to pass.
Constructed access tracks	Constructed access tracks will be required in areas where there are no existing tracks, or where terrain conditions prevent continuous access along the line easement between road crossings. In these situations, 'off easement' access would be required, and suitable access tracks would be constructed. Typically, the proposed constructed 'off-easement' access tracks would be located parallel to the proposed easement, where possible. Constructed access tracks would be around between six and 10 metres wide and would generally follow the natural contour of the land as far as practicable to minimise the amount of cut and fill and soil disturbance. In the case of cultivated land, it may be necessary to route access tracks along fence lines or otherwise in accordance with landholder requirements. Track construction would be carried out so as to cause minimum disturbance to soil and vegetation both on and adjacent to the track. Construction access tracks would be retained for operational access, where required and practicable in consultation with Transgrid and the relevant landholder.

6.4 Heavy vehicle and over-dimension vehicle management

6.4.1 Chain of Responsibility

Heavy Vehicle National Law (HVNL) requires that every party in the heavy vehicle transport supply chain has a duty to ensure the safety of their transport activities.

The Chain of Responsibility (CoR) requirements apply to heavy vehicles, which are:

- owned or hired by Elecnor;
- used by subcontractors to:
  - undertake work for Elecnor; and
  - supply goods and materials to Elecnor.

Under the HVNL, a road-going vehicle that has a gross vehicle mass (GVM) of more than 4.5t must meet a number of requirements in relation to mass, dimension, loading and speed. Vehicles that have a GVM or gross combination mass (GCM) of more than 12t, or a bus with a GVM of more than 4.5 tonnes, designed to carry more than 12 people including the driver, are fatigue-regulated heavy vehicles and subject to fatigue management requirements.

A heavy vehicle is determined by its GVM rating, not the load it is carrying at the time. There are still legislative obligations regarding speed and fatigue which must be complied with when a heavy vehicle is returning to its depot without a load.

The project requires the use of heavy vehicles to transport:

- plant, equipment and materials to the project site from suppliers across NSW and potentially Victoria and South Australia; and
- waste to regional landfill(s) or to specific waste disposal sites as described in the project *Waste Management Plan* (45860-HSE-PL-D-0121).

Elecnor recognises their role to manage and control transport of plant, equipment and materials to meet the CoR requirements.

6.4.2 Vehicle movement plans

Permits from the 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).

The VMP will be developed to indicate the proposed heavy vehicle routes and will be used to communicate approved heavy access routes and include travel directions, permitted intersection turning movements, speeds, approved parking, lay-up areas, areas off-limits to parking, types / size of trucks to be used and any traffic control required.

The VMP will consider activities of adjoining land uses and safety of the public, particularly when entering urban areas from rural highways.

The VMP will be developed for key areas of the project as required, details will include (but not limited to):

- key intersections; and
- key project roads shown in Appendix E.

Elecnor will ensure that suppliers and subcontractors are notified of the approved routes in and around the Stage 2 site prior to commencing work. Specific construction driver training to understand route constraints, expectations, safety issues, human error and its relationship with fitness for work and chain of responsibility duties, and to limit the use of compression braking is to be completed where necessary.

6.4.3 Heavy vehicle access routes

All over-dimensional vehicles associated with the development will only travel to and from the site via the primary access routes described in the EIS, as identified in the figure in Appendix 3 of the Infrastructure Approval, unless the Planning Secretary agrees otherwise.

The *NSW Heavy Vehicle Access Policy Framework* (TfNSW, 2018) provides a framework for heavy vehicle access in NSW for both state and local council roads. Heavy vehicle routes to and from construction sites have been prepared with the objectives being to minimise impacts to local roads and maximise the utilisation of State and regional roads where feasible and reasonable. Where an emergency requires, non-project listed roads, including local roads may be used by light vehicles and heavy vehicles only where safe to do so and authorised by the relevant authorities.

Heavy vehicle access routes will be adjusted in response to road closures by the relevant council (e.g. during wet weather conditions or during other maintenance or other upgrade activities). Where this results in the use of local roads within the project areas, these will be identified in consultation with the relevant council and affected residents, and suitable management measures identified and implemented.

Heavy vehicle parking, idling and queuing on public roads will be minimised where practicable particularly within the regional towns.

At all times heavy vehicle drivers will be required to obey the road rules which includes covering loads when in transit to and exit from the project site.

6.5 Traffic control plans

TCPs will be developed as part of the construction planning process for all construction activities that affect traffic conditions and the safety of road users on the external or internal road network.

TCPs would be prepared by appropriately qualified persons and sent to the relevant road authority for approval and be communicated to all workers prior to implementation.

Specifically for Stage 2 works, short term TCPs will be developed to facilitate the following activities:

- widening of the existing pavement at the Stage 2 access point to construct BAL and BAR treatments; and
- short term stoppages to assist vehicle movements in and out of the Stage 2 access points.

TCPs will be developed progressively during construction in accordance with the Roads and Maritime publication Traffic Control at Work Sites – Version 6 and the Australian Standard AS1742-2002 Manual of Uniform Traffic Control Devices. The TCPs will be developed in consultation with the relevant road authority(s), including TfNSW and Wentworth Shire Council.

The TCPs will establish the specific management measures to be implemented to ensure the safety of road users and to maintain efficient road network operations. They will include:

- the traffic control devices to be installed in advance of the works which may include cones, barriers, signs, traffic controllers and temporary traffic signals etc and how these are to be established;
- additional advisory signs or speed restrictions to be installed during construction;
- road occupancy requirements and approvals;
- road speed reductions required for the safety of the public and workers; and
- traffic management inspection and maintenance requirements.

Emergency services will be notified prior to the implementation of traffic changes to ensure that they are aware of the potential impacts that may affect emergency responses.

6.6 Scheduling

Section 7 (Cumulative impact assessment) of the EIS outlines the cumulative impact assessment that was completed for the EIS. Projects with the potential for cumulative impacts with the proposal, including land development and state-level road projects, were identified through a review of publicly available information and environmental impact assessments.

All land development projects appear to either involve a small scope of work or generate minimal traffic movements during construction and/or operation. It is also unlikely that these projects would all be under construction concurrently. Overall, the cumulative traffic impacts are considered minor.

The state-level road projects may generate impacts along some access routes during the road upgrades. The impacts are anticipated to be minor to medium in nature and cause temporary delays on some haulage activities due to temporary speed reduction and lane closure.

In order to limit cumulative impacts on the road network and impacts to motorists, scheduling of vehicle movements to avoid peak traffic periods and conflicts with other road users will be implemented.

Scheduling will act to:

- minimise potential for conflict with local climate conditions such as fog, wet weather and flooding;
- minimise potential conflict with schedule events through consultation with relevant stakeholders;

- minimise potential for conflict with traffic and rail services, stock movements and other projects in the area, as far as practicable; and
- minimise convoying or platoons.

Drivers are to avoid forming convoys where other road users are limited in vehicle movements by no-break in heavy vehicles. The impact of heavy vehicles from convoys and congestion through local townships during peak traffic periods are to be mitigated through the following initiatives:

- heavy vehicle parking, idling and queuing on public roads will be discouraged (except where permitted, e.g. water supply points);
- all heavy and light vehicles associated with the project will travel to and from site via the routes nominated in the *Traffic and Transport Management Plan* (45860-HSE-PLD0018), unless otherwise approved by the Planning Secretary; and
- minimising traffic movements by ensuring full loads.
- drivers will communicate via radio and aim to maintain distance between each heavy vehicle.

OSOM permits will be obtained from NHVR for all OSOM deliveries. The issuing authority typically take into account the scheduling and conditions of the OSOM movements to minimise cumulative impacts on the road network. Scheduling requirements from OSOM permits and associated VMP will be included in driver inductions and will be reiterated through pre-start meetings.

6.7 Outside of standard construction hours

Road upgrades, construction, upgrading and decommissioning activities may only be undertaken between:

(a) 7 am to 6 pm Monday to Friday;

(b) 8 am to 1 pm Saturdays; and

(c) at no time on Sundays and NSW public holidays;

unless the Planning Secretary agrees otherwise.

Condition C1 identifies standard construction hours for the project and provides that road upgrades and construction can occur outside standard construction hours with agreement from the Planning Secretary or in accordance with condition C2.

If works are required out of hours (OOH), the Out of Hours Work Protocol (OOHW Protocol) will be implemented. The OOHW Protocol (required in accordance with condition C10 f) is provided in Appendix A of the *Noise and Vibration Management Plan* (45860-HSE-PL-D-0116) and identifies the process for the consideration, management and approval of works to be undertaken outside the hours defined in conditions C1, C2 and C10 of the Infrastructure Approval.

Works that comply with the conditions C2 are not required to be undertaken in accordance with the processes outlined in the OOHW Protocol.

6.8 Emergency repair/maintenance

Vehicles that have broken down will be moved off the road, provided this can be done so safely. Where vehicles require maintenance on the roadside, hazard lights will be used. The hazard will be communicated using available communication systems (i.e. radio channels) in order to warn other drivers and operators.

Before towing operations commence on haul roads, notification will be given to all haul road users through the communication system. Before earthmoving equipment is towed, a risk assessment will be conducted and control measures implemented in accordance with project safety requirements.

6.9 Dangerous goods

In New South Wales, the transportation of dangerous goods and hazardous substances is governed by the *Dangerous Goods (Road and Rail Transport) Act 2008*. All contractors involved in the transportation of such will be expected to adhere to the requirements of this Act *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) while travelling on both public roads and on the site.

Although RMM HR13 requires compliance with the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission, 2018), the Code has been more recently updated (2020).

Examples of dangerous goods and hazardous substances expected to be transported to the site include:

- pesticides and herbicides;
- fuel, oils and lubricants; and
- paints and other paint markers.

The Australian Code for the *Transport of Dangerous Goods by Road and Rail, Edition 7.5. 2020* sets out requirements for transporting dangerous goods by road and rail. The transport of hazardous and dangerous goods will be managed in accordance with the CoR requirements.

6.10 Drivers Code of Conduct

The safety of workers and road users is of paramount importance to Elecnor, and the fit and proper behaviour of drivers is directly related to establishing and maintaining a high safety standard during project delivery.

Furthermore, all drivers involved in the project must comply with the legal obligations whilst operating vehicles. To assist in achieving safe outcomes during construction, a DCC has been developed and is included in Appendix A of the TTMP. The DCC addresses the following:

- travelling speeds;
- procedures to ensure that drivers adhere to the designated over-dimensional and heavy vehicle routes;
- procedures to ensure that drivers implement safe driving practices; and
- detailed program to monitor and report on the effectiveness of these measures and the code of conduct.

Prior to working on the project, all vehicle drivers will be required to have read the DCC and acknowledge their compliance with it throughout their involvement in the project. The expectations of the DCC will also be established in the project induction and will be reiterated through pre-starts. Elecnor will retain copies of the signed DCCs.

The DCC includes an element of fatigue management. This includes the requirements for drivers on the project to:

- manage their fatigue in accordance with the *Driving and Journey Management Work Instruction* (45860-HSE-WI-G-0041);
- be suitably rested by taking regular rest breaks; and
- for operators of heavy vehicles to comply with the CoR legal requirements under the National Heavy Vehicle Law (*Heavy Vehicle (Adoption of National Law) Act 2013 No 42)*.

6.11 In vehicle monitoring systems

An In Vehicle Monitoring System (IVMS) will be utilised on the project as per the Employee Requirements (Health and Safety). An IVMS will be included as part of the specification for any project-specific vehicle. Mobile IVMS will be provided at the access control point for non-project specific vehicles which are using project-specific roads.

The IVMS will allow the location of vehicles on the site to be tracked remotely by authorised personnel at the security and traffic management centre. It will also allow monitoring of driver behaviour patterns.

The IVMS will record live data, including:

- vehicle location;
- speed; and
- hours spent driving.

The IVMS system will be monitored for compliance regularly. Compliance is reported as part of the Monthly Progress Reports.

6.12 Flood Response Plan

A *Flood Response Plan* (45860-HSE-PL-D-0123) has been prepared detailing procedures and options for safe access to and from the site in the event of flooding (refer to Appendix B).

In the event of a flood, evacuation from the sites will be via a determined safe route given by the Project Management Team (PMT). To determine the safest route, the PMT will monitor warning channels to determine the status of surrounding roads.

Table 6.3 - Traffic and transport management measures

ID	Management measure	When to implement	Responsibility	Source document
Training				
TT1	Training will be provided to all project personnel, including relevant subcontractors on the relevant traffic management requirements from this plan through inductions, toolboxes and targeted training.	Pre-construction and construction	Environmental Manager, HSSE team	Good practice
Dilapidation surveys and monitoring				
TT2	Independent dilapidation surveys will be undertaken prior to construction, upgrading or decommissioning works to assess the existing conditions of all local roads on the transport route (including local road crossings). Following this, dilapidation surveys will be undertaken on an annual basis during construction works or within a timeframe agreed to by the relevant roads authority.	Pre-construction and construction	Project Operations Director, Environmental Manager	Condition C34 RMM TA7
TT3	Within one month of the completion of any construction, upgrading or decommission works, or within a timeframe agreed to by the relevant road authority, a dilapidation survey will be undertaken to assess the condition of all local roads on the transport route (including local road crossings). Any damage as a result of construction vehicles will be repaired following the completion of construction.	One month of completion of construction	Project Operations Director, Environmental Manager	Condition C34 RMM TA7
TT4	Road and surface conditions and the traffic controls implemented at each new site access/egress point from the sealed road network would be monitored. Any identified issues which have occurred as a result of the project will be rectified.	Construction	Site Supervisors	RMM TA15
Consultation				
TT5	The community will be notified in advance of proposed road network changes through appropriate forms of communication.	Construction	Engagement Manager	RMM TA9
TT6	Procedures will be developed in consultation with affected landholders to include vehicle movements and other activities within the vicinity of livestock.	Construction	Engagement Manager, Supervisors	Condition C35 c) RMM LP6
TT7	Consultation with relevant roads authority will occur in relation to road use.	Construction	Engagement Manager, Environmental Manager, Interface Manager	RMM CI1

ID	Management measure	When to implement	Responsibility	Source document
TT8	Consultation with relevant rail authorities (operators) will occur for all works required in rail corridors. The relevant requirements (such as track occupancy authorisations) and necessary requirements for staff working within the rail corridor (accreditations) will be confirmed with the relevant rail authorities.	Construction	Project Operations Director (or delegate), Environmental Manager	RMM TA6
TT9	Consultation with TfNSW Maritime Division will be undertaken, where required, prior to the commencement of transmission line stringing activities in the relevant river system (i.e navigable waterways) to establish the appropriate management measures to minimise impacts to marine vessel.	Construction	Project Operations Director (or delegate), Environmental Manager	Comment from TfNSW during consultation of NSW-Western Section (Letter WST21/00260/02)
TT10	Consultation will occur with local schools if there is the potential for conflict between development related traffic and school buses.	Construction	Engagement Manager, Environmental Manager, Interface Manager	Condition C35 c)
Permits, plans and licences				
TT11	Road Occupancy Licence(s) will be obtained (as required) for any road closures (full or partial) on roads that intersect with the transmission line corridor or are on haulage routs 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. The conditions of the licence and the requirements of any associated Traffic Control Plans will be implemented for the relevant activities.	Construction	Project Operations Director (or delegate)	RMM TA10
TT12	Permits will be obtained from the National Heavy Vehicle Regulator (NHVR) for the movement of oversize and overmass vehicles as required. The permit applications will be supported by a Vehicle Movement Plan (VMP), prepared to indicate the proposed heavy vehicle route(s). The VMP will consider activities of adjoining land uses and safety of the public, particularly when entering urban areas from rural highways. All oversize and overmass vehicle movements will occur in accordance with permits from NHVR and associated VMP.	Construction	Project Operations Director (or delegate)	RMM TA3 RMM TA11
TT13	Traffic control plans (TCPs) will be developed for activities that impact traffic conditions and the safety of road users on the external or internal road network. TCPs will be developed in accordance with the appropriate standards and developed in consultation with relevant road authorities.	Construction	Supervisors	Condition C35 c)
TT14	Temporary traffic controls, including detours and signage, will be identified in the TCPs and implemented for the duration of works as stated in the TCP.	Construction	Site Supervisors	Condition C35 c)

ID	Management measure	When to implement	Responsibility	Source document
TT15	The OOHW Protocol will be implemented for works outside of standard construction hours which are not subject to condition C2, to minimise traffic impacts on the public road network.	Construction	Environmental Manager, Supervisors	Condition C35 c)
Access routes				
TT16	Access routes will be adjusted in response to road closures by the relevant road authority (e.g. during wet weather conditions or during other maintenance or other upgrade activities). Where this results in the use of alternative routes and/or local roads, these will be identified in consultation with relevant road authority and affected residents, and suitable management measures identified and implemented.	Construction	Project Operations Director (or delegate)	RMM TA13
TT17	All over-dimensional vehicles associated with the development will only travel to and from the site on access routes outlined in Section 3.1, unless the Planning Secretary agrees otherwise. All relevant permits under the Heavy Vehicle National Law (NSW) will be obtained for the use of over-dimensional vehicles on the road network.	Construction	Supervisors	Condition C31
TT18	All heavy and light vehicles associated with the development will travel to and from the site on access routes outlined in Section 3.1, unless the Planning Secretary agrees otherwise.	Construction	Supervisors	Condition C32
TT19	Alternative route options will be coordinated and appropriately managed, and communicated with the affected residents and the council.	Construction	Site Supervisors	RMM TA13
TT20	If existing road structures (such as existing bridge, drainage and culvert assets) are deemed unsuitable, the following alternatives would be considered and implemented where practicable and appropriate: • alternative routes (access via easement); • alternative vehicle types (smaller loads); and • temporary works (e.g. propping, or similar) in consultation with asset owners. Any damage to road structures caused by project related heavy vehicle usage would be rectified at the conclusion of use.	Construction	Site Supervisors	RMM TA8
TT21	Where possible, Kyalite Road will be used during construction instead of Balranald Road, particularly during wet weather events.	Construction	Site Supervisors	Consultation with Murray River Council
TT22	Where possible, the project will aim to minimise the use of Maude Road (within Hay Shire Council) during construction.	Construction	Site Supervisors	Consultation with Hay Shire Council
TT23	Green Street, Lockhart will be used by light vehicles only. This requirement is subject to approval being received from the Department for heavy vehicles associated with construction, upgrading and decommissioning, to use the alternate access of Tinambla Lane and Wattles Road.	Construction	Site Supervisors	Consultation with Lockhart Shire Council

ID	Management measure	When to implement	Responsibility	Source document
TT24	Where possible, the project will aim to minimise the use of Carter Street and Oaklands Road (within Berrigan) during construction. The alternate route of Jerilderie Street and Strathvale Road would be used subject to approval of these roads in accordance with condition C32.	Construction	Site Supervisors	Consultation with Berrigan Shire Council
TT25	The following roads within Wagga Wagga LGA will be used by light vehicles only: • Bourke Street; • Docker Street; • Brunskill Road. Brunskill Road may be used by heavy vehicles during times of flooding as an alternate access; • Dunns Road; • Gregadoo Road; • Lake Albert Road (Kooringal Road to Brunskill Road); and • Rowan Road (Line 5, Tower 9 and 10 access point to Plumpton Road). Heavy vehicles associated with construction, upgrading and decommissioning of the project will not use these roads.	Construction	All personnel	Consultation with Wagga Wagga City Council
Access points				
TT26	Elecnor will utilise existing access points which connect to the public road network where feasible and reasonable with the aim to minimise the number of access points to be installed. Use of existing connections to the public road network will be considered, in consultation with the relevant landholder, when accessing construction areas via private land is required.	Construction	Site Supervisors, Design Engineers	Condition C33 RMM TA16
TT27	Where a new access point is required to be installed for the project, the access points will be designed in accordance with the relevant guidelines and in consultation with the relevant road authority. The access point will be constructed to the satisfaction of the relevant road authority.	Construction	Site Supervisors, Design Engineers	Condition C33 RMM TA16
TT28	For the water supply points, the project will seek to use existing access points, where possible. If there are no access points to the water supply point, the project will install a minor access point as required.	Construction	Site Supervisors	Condition C35
TT29	Elecnor will verify that the proposed intersection treatments have sufficient capacity for the proposed number of construction vehicles. As required, this verification will be provided to the relevant road authorities for use during review.	Construction	Design Engineers	Condition C35
TT30	Temporary access points installed by the project within the road reserve, that are not required for operational reasons will be removed in consultation with the relevant roads authority following the completion of construction.	Construction	Site Supervisors	RMM TA17

ID	Management measure	When to implement	Responsibility	Source document
Access and scheduling				
TT31	Access to properties will be provided at all times for emergency vehicles.	Construction	Supervisors	RMM TA8
TT32	Access to properties will be maintained or agree alternative arrangements will be agreed upon in consultation with landholders.	Construction	Supervisors	RMM TA9
TT33	Scheduling of vehicle movements will be undertaken to avoid peak traffic periods, and conflicts with other road users and local climate conditions.	Construction	Supervisors	Condition C35 c)
TT34	Deliveries will be scheduled and staggered to prevent vehicles queuing. Deliveries will be arranged so they travel at an ordered distance allowing for a steady entry into the site without the need to queue.	Construction	Supervisors	Condition C35 c)
TT35	Heavy vehicles will aim to travel staggered from one another when in transit in order to minimise delays to non-construction vehicle movements. This will be managed by scheduling of vehicle movements and staggering of the departure of trucks from Elecnor sites at the direction of site personnel.	Construction	Supervisors	Condition C35 c)
TT36	Scheduling requirements from OSOM permits and associated VMP will be included in driver inductions and will be reiterated through pre-start meetings.	Construction	Supervisors	Condition C35 c)
TT37	Where feasible, temporary road closures are to be planned outside of the traffic peak periods to minimise impact to the road network.	Construction	Project Operations Director (or delegate)	RMM TA10
TT38	Development related traffic will be scheduled within standard hours, wherever possible.	Construction	Site Supervisors	Condition C35 c)
TT39	Following installation of Balranald Shire Council's new standpipe on the Sturt Highway, Murray Terrace, Perry Street and Selwyn Street will only be used for construction on limited occasions, such as when the water supply point on the Sturt Highway is offline.	Construction	Site Supervisors	ER comment
TT40	Heavy vehicles will be managed to limit access to the Church Street, Balranald standpipe and the Murray Terrace, Euston standpipe during school bus operation times as much as possible (7:00am to 9:00am and 2:00pm to 4:00pm, on an official school day).	Construction	Supervisors, All water truck drivers	Consultation with Balranald Shire Council
Emergencies				
TT41	Vehicles that have broken down will be moved off the road, provided this can be done so safely. Hazard lights will be used when vehicles require maintenance on the roadside. The hazard will also be communicated using available communication methods (i.e. radio channels) in order to warn other drivers and operators.	Construction	Supervisors	Condition C35 c)
TT42	Emergency services will be notified prior to the implementation of traffic changes to ensure that they are aware of the potential impacts that may affect emergency responses.	Construction	Engagement Manager, Supervisors.	Condition C35 c)

ID	Management measure	When to implement	Responsibility	Source document
TT43	Notification will be given to applicable haul road users before a broken down vehicle is towed.	Construction	Supervisors	Condition C35 c)
Driver's Code of Conduct				
TT44	The Driver's Code of Conduct within Appendix A will be implemented.	Construction	All drivers	Condition C35 d) RMM TA5
Flood Response Plan				
TT45	The Flood Response Plan (Appendix B) will be implemented in the event of a flood. The Flood Response Plan details the procedures and options for safe access to and from the site in the event of flooding.	Construction	Environmental Manager, Supervisors	Condition C35 e) RMM HF2
Miscellaneous				
TT46	In vehicle monitoring system (IVMS) will be required for project specific site vehicle. Mobile IVMS will be provided at the access control point for non-project specific vehicles which are using project specific roads. IVMS will record live data such as vehicle location, speed and hours spent driving.	Construction	Supervisors	Elecnor H&S
TT47	Drivers will communicate via radio and aim to maintain distance between each heavy vehicle.	Construction	Supervisors	Condition C35 c)
TT48	Project staff will be made aware of the need to report any impacts on the road network so that reactive measures can be implemented.	Construction	Environmental Manager, Supervisors	Condition C35 c)
TT49	Carpooling and other shared transport initiatives for construction workers will be encouraged throughout construction.	Construction	Supervisors	Condition C35 c)
TT50	All trucks entering or leaving the site with loads will have their loads covered.	Construction	Supervisors	Condition C35 c)
TT51	In order to minimise tracking of mud from the project area onto public sealed roads, the following will be implemented: • progressive erosion sediment control plans (ESCP) to minimise on-site mud; • where weather warrants, inspections to monitor the condition of public sealed roads will be undertaken; • covering of heavy vehicle loads; and • where necessary public sealed roads will be maintained.	Construction	Supervisors	Condition C35 c)

ID	Management measure	When to implement	Responsibility	Source document
TT52	Dangerous goods and hazardous substances will be transported in accordance with relevant legislation and codes, including: • Dangerous Goods (Road and Rail Transport) Act 2008; • Road and Rail Transport (Dangerous Goods) (Road) Regulation 1998; • the Australian Code for the Transport of Dangerous Goods by Road and Rail (National Transport Commission, 2020); • AS1940 The storage and handling of flammable and combustible liquids; • AS/NZS 1596:2014 The storage and handling of LP Gas; and • EPA's Storing and Handling of Liquids: Environmental Protection – Participants Manual.	Construction	Environmental Advisor, Supervisors	RMM HR13 Condition C41
TT53	In order to reduce traffic congestion at the railway level crossings associated with the railway that runs parallel to Olympic Highway between The Rock and Uranquinty, the project will use the following railway crossing points as required and where reasonable and feasible: • Yarragundry Street, Uranquinty (preferrable option); • Bon Accord Road, The Rock (least preferred option); • Old Trunk Road, The Rock (least preferred option); and • Urana Street, The Rock (preferrable option).	Construction	Supervisors, All drivers	Consultation with TfNSW
TT54	All plant and equipment used for the project will be maintained in a proper and efficient condition, and operated in a proper and efficient manner.	Construction	Plant and equipment operators, Subcontractors, Supervisors	Condition A19
TT55	A letter drop will be organised for the affected residents associated with the use of the water supply point on Church Street, Balranald and Murray Terrace, Euston.	Construction	Engagement Manager, Interface Manager	Consultation with Balranald Shire Council
TT56	An advertisement will be placed in the Swan Hill Guardian for public information regarding the use of the water supply point on Church Street, Balranald and Murray Terrace, Euston.	Construction	Engagement Manager, Interface Manager	Consultation with Balranald Shire Council

7 Compliance management

7.1 Training

All site personnel will undergo the Elecnor site induction training prior to the personnel participating in on-site construction activities. The induction training will address elements related to traffic management including, but not limited to:

- the environmental management system, including the CEMP;
- existence and requirements of this TTMP;
- relevant legislations;
- complying with the conditions of the Infrastructure Approval;
- roles and responsibilities for traffic management; and
- driver behaviour and the DCC.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in traffic, transport and access management. Examples of training topics include:

- VMP - approved heavy vehicle access routes, safe entry and exit and other access restrictions;
- delivery driver's induction which will include safe protocols to be followed whilst travelling on internal and external roads. The briefing will reinforce posted speed limits, advisory speeds and historic high accident points on winding sections of road;
- working hours; and
- flood response.

Records of training, including attendance, will be retained by Elecnor.

7.2 Roles and responsibilities

Elecnor's organisational structure and overall roles and responsibilities are outlined in Section 4 of the CEMP.

The project environmental management structure incorporates the following site personnel:

- Environmental Manager responsible for overall management of the CEMP and CEMP sub-plans; and
- Environmental Advisors to assist in implementing and monitoring measures in the CEMP and CEMP sub-plans.

Elecnor's Project Director, in consultation with functional managers, will ensure that appropriate resources are available to effectively manage the implementation of the CEMP and CEMP sub-plans during delivery of the project. All Elecnor staff, subcontractors and visitors are required to operate in accordance with this TTMP and related environmental management plans during construction.

Specific responsibilities for the implementation of mitigation measures are detailed in Section 6 of this TTMP.

7.3 Monitoring

The impacts and environmental performance of the project relevant to traffic and transport, and the effectiveness of the management measures identified in Section 6 will be monitored through the proposed monitoring program in Table 7.1.

Table 7.1 - Monitoring program

Parameter	Scope	Frequency	Responsibility	Record/reporting
Weekly inspection	Inspection of the environmental controls and implementation of the traffic and transport mitigation measures outlined in Table 6.3.	Weekly	Project Operations Director (or delegate)	Weekly environmental inspection checklist
Weather monitoring	Inclement weather impacting project light and heavy vehicles	As required	Environmental Advisor	Communications

7.4 Inspections

Weekly inspections will be performed by the Environmental Advisor and documented in a weekly environmental checklist. The inspections will check the implementation and effectiveness of the management measures identified in Section 6 and the environmental performance of the project relevant to traffic and transport. Visual inspection of the local roads, signage and road closure delineation will be undertaken.

Inspections for works covered by ROLs will be conducted to ensure all required controls outlined in the TCP are in place before occupying the identified roads.

7.5 Auditing

Audits will be undertaken to assess the effectiveness of the management measures and overall compliance with this plan, and other relevant approvals, licences and guidelines. Audit requirements are detailed in Section 9.3 of the CEMP - Auditing.

7.6 Reporting

Reporting which will be undertaken in accordance with the TTMP is summarised within Table 7.2.

Table 7.2 - Reporting program

Item	Scope	Frequency	Responsibility	Recipient
Road Dilapidation Survey	Assess existing condition of all local roads on the transport route	Prior to construction, upgrading or decommissioning works	Construction Manager	Transgrid Relevant road authority (in consultation with the relevant road authority)
	Assess condition of all local roads on the transport route	Within 1 month of the completion of any construction, upgrading or decommissioning works, or within a timeframe agreed to by the relevant road authority. Annual basis during construction works, or within a timeframe agreed	Construction Manager	Transgrid Relevant road authority (in consultation with the relevant road authority)

Item	Scope	Frequency	Responsibility	Recipient
		to by the relevant road authority.		
Audit reports	Independent audits undertaken in accordance with the Infrastructure Approval will include audits of traffic and transport measures (based on the Independent Auditor's program). Audit reports will be prepared. Further detail in relation to auditing is provided within Section 9.3 of the CEMP - Auditing.	At intervals, no greater than 26 weeks from the date of the initial Independent Audit or as otherwise agreed by the Secretary.	Environmental Manager/ Independent Auditor	Transgrid DPHI

Reporting requirements and responsibilities are documented in the Section 10 of the CEMP - Reporting.

7.7 Emergencies, incidents and non-compliances

7.7.1 Emergency

Emergency management and planning including emergencies related to traffic and transport, will be undertaken in accordance with the relevant management system and procedures. Emergencies will be managed through the *Project Emergency Preparedness and Response Plan* (45860-HSE-PL-G-1015).

Refer to Section 8.1 of the CEMP – Emergency preparedness and emergency response for further details.

7.7.2 Incidents

Environmental incidents, including incidents related to traffic and transport will be managed as described in Section 8.2 of the CEMP – Environmental incidents and the Incident, Notification and Investigation Procedure Flowchart provided in Appendix A4 of the CEMP. All site personnel are authorised to suspend a work activity that is likely to cause, or is actually causing or contributing to an incident. A supervisor/manager may request additional staff be deployed to the site to provide additional capacity or capability to manage the incident.

Incident reporting is described in Section 8.3 of the CEMP – Incident notification and reporting.

All environmental incidents that occur on the project, regardless of how minor, must be reported to a supervisor by personnel involved or witnesses to the incident immediately after the incident occurs. The Environmental Manager will be notified immediately of any environmental incident. Transgrid will be notified of incidents and near misses immediately. Formal, documented reporting of incidents will be completed, and will be submitted to Transgrid in accordance with requirements under the Contract. The Environmental Representative will also be included on all incident notifications.

For incidents which are reportable to DPHI, notification will occur to DPHI via the Major Projects website immediately after becoming aware that an incident has occurred. A written notification will then be provided to DPHI via the Major Projects website within seven days after becoming aware of the incident. Refer to Section 8.3.1 of the CEMP - Incident notification and reporting in accordance with the Infrastructure Approval for further details requirements of the notification.

7.7.3 Non-compliance

Where a non-compliance with the Infrastructure Approval has been identified, including those relevant to traffic and transport, corrective actions will be developed as required and implemented to address the non-conformance that occurred

Reporting of non-compliances will be undertaken as described in Section 10.1 of the CEMP – Reporting non-compliances. The Planning Secretary will be notified in writing via the Major Projects website within seven days after Transgrid becomes aware of any non-compliance. The written non-compliance notifications will contain the requirements set out in condition D8 of the Infrastructure Approval and will include details such as:

- the non-compliance;
- the reasons for the non-compliance (if known); and
- what actions have been taken, or will be taken, to address the non-compliance.

The notification will also need to identify the development, application number and condition of approval that the development is non-compliant with. Refer to Section 10.1.1 of the CEMP - Reporting non-compliances in accordance with the Infrastructure Approval for further details requirements of the notification.

A non-compliance which has been notified as an incident does not need to also be notified as a noncompliance.

Failure to comply with other statutory requirements such as the EPBC Act Approval will be reported in accordance with Section 10.1.2 of the CEMP. Any other reporting will occur in accordance with Section 10.1.3 of the CEMP.

Where a non-compliance has been identified, the non-compliance will be reviewed by the Environmental Manager to determine the reason for the non-compliance, and what corrective actions have, or will be taken, to address the non-compliance. Preventative actions will be developed as required and implemented to minimise the potential for recurrence.

Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action describes the process for non-compliance management.

7.8 Contingency plan

Although the project has been assessed through the environmental impact assessment process and potential impacts identified, unpredicted impacts may occur as the project progresses. In the event that unexpected impacts are identified, the action or cause will be categorised and as required will be managed as:

- an emergency or environmental incident in accordance with Section 8 of the CEMP – Incidents and emergencies; and/or
- a non-compliance or non-conformance in accordance with Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action.

Reporting of the unpredicted impacts would be in line with the above processes and as described in Section 10 of the CEMP – Reporting.

Through the identification of corrective and/or preventative actions through the above processes, the following steps will be considered as relevant:

a) determine the relevant impact assessment criterion/criteria, below which the impact should be reduced, consistent with the requirements of this TTMP;

b) identify options to reduce the unexpected impacts to below the relevant criterion/criteria and appropriate timeframe for implementation;

c) implement the selected measure(s) to reduce the unexpected impacts; and

d) identify and implement an appropriate monitoring program to determine the effectiveness of the selected measure(s) to reduce the unexpected impact.

If the above monitoring program identifies that the unexpected impacts have not been reduced to below the nominated criterion/criteria, items b) to d) of the contingency process will be repeated.

The consequences of the impact will be assessed when identifying corrective and preventative actions related to incidents and non-compliances/non-conformances.

Appendix A - Drivers Code of Conduct

PUBLIC

Driver's Code of Conduct
EnergyConnect (NSW – Eastern Section)

45860-HSE-PR-D-0019

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	10/05/2022	Issued for internal review	M.Lee	R.Walker-Edwards	A.Boyd	JL.Barrenechea	D.Whatmough
B	25/05/2022	Issued for Transgrid's review	M.Lee	R.Walker-Edwards	A.Boyd	JL.Barrenechea	D.Whatmough
C	15/08/2022	Issued for agency consultation	M.Lee	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
D	9/10/2023	Revised to new format in line with the TTMP	R.Walker-Edwards	S.Klocke	G.Crighton	-	G.Arrien Echevarria

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued for Transgrid's review
C	Issued for agency consultation
D	Revised to new format in line with the TTMP

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

1 Introduction

This Driver's Code of Conduct (DCC or Code) has been prepared to address the requirements of condition D39 d) of the Infrastructure Approval (SSI-9172452) granted by the Minister for Planning. This Driver's Code of Conduct is part of the Traffic and Transport Management Plan (TTMP) for the delivery of EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

1.1 Purpose and scope

The purpose of this DCC is to ensure that the impacts of construction related traffic on local roads and the local community and businesses is minimised. This DCC clearly defines acceptable driver behaviour for all vehicle drivers in connection with the project including Elecnor Australia (Elecnor) staff, suppliers and subcontractors using private and company vehicles. The DCC applies to all personnel travelling to and from the project.

The DCC will be provided in the project onboarding process for workers employed on the project.

This DCC is applicable to all drivers involved in EnergyConnect (NSW – Eastern Section). Project staff will be required to acknowledge their obligations and accept responsibility with regards to the safe and legal operation of vehicles at all times whilst working on the project.

2 Induction/Training

All site personnel (including sub-contractors) will undertake an induction which will include details relating to this DCC. Training may also occur through delivery driver inductions, toolbox talks, pre-starts and targeted training as required.

3 Driver's obligations

All drivers are to comply with this DCC. Drivers' obligations for driving to, from or on the project are detailed below. Targeted training in the form of toolbox talks or specific training will be delivered to site personnel to ensure they understand the DCC. Specific safe driving practices outlined in this DCC will be included in the training. Failure to comply with this DCC may lead to either the issue of a warning notice or disciplinary action.

Monitoring of the safe driving practices outlined in the DCC will be conducted through daily and/or weekly inspections.

3.1 Over-dimensional and heavy vehicles

All drivers to and from the development will adhere to the designated over-dimensional and heavy vehicle routes.

Targeted training in the form of toolbox talks or specific training will be delivered to the site personnel. Approved over-dimensional and heavy vehicle haulage routes will be included in the training. This will be undertaken to inform site personnel of the designated over-dimensional and heavy vehicles haulage routes.

Monitoring of the over-dimensional and heavy vehicles will be conducted through weekly inspections to determine if site personnel are using the dedicated haulage routes.

4 Monitoring and reporting

The monitoring of the effectiveness of the DCC will be completed through weekly visual inspections. The inspections will be documented via a weekly environmental inspection checklist. The responsibility of the monitoring of the DCC will be undertaken by the Construction Manager, Safety Manager, Environmental Manager and/or the Project Engineer.

In addition, the In-Vehicle Management System (IVMS) will be utilised for Elecnor's vehicles which combines the installation of an electronic device in a vehicle with purpose designed computer software to enable the driver to monitor key driving metrics. The IVMS system also provides real time feedback to the worker in the form of an alarm so that the driver can modify their driving behaviour, in a short period of time, within the parameters set by the IVMS.

Driver's Code of Conduct
EnergyConnect (NSW – Eastern Section)

Drivers obligations

1) Drivers MUST at all times:
   - adhere to all of the obligations required by law;
   - hold a current and appropriate licence for the class of vehicle they are operating;
   - drive at no more than the legal speed limit including those imposed by the project;
   - ensure the vehicle is roadworthy, registered, insured and well maintained;
   - comply with all construction and road work signs;
   - comply with all Oversize Overmass (OSOM) permits;
   - take the necessary and/or prescribed rest breaks so that operation of the vehicle is not affected by fatigue;
   - enter and leave the site with loads covered or contained;
   - operate the vehicle free from the effects of drugs and alcohol;
   - ensure that vehicles are operated calmly, safely and with a high degree of care and attention; and
   - operate vehicles in a manner that is suitable to the road and weather conditions including consideration for the likelihood for encountering wildlife. In the event of a fauna strike on a gazetted road, drivers are to follow item 8) below.
2) There shall be no littering from a vehicle. Rubbish is to be disposed of in appropriate bins.
3) Drivers are to notify their employer or operator immediately should the status or conditions of their driver's licence change.
4) Drivers must ensure they can be contacted at all times when on duty, either through ultra high frequency (UHF) radio or other handsfree devices. Vehicle specification requirements for UHF radio or satellite phones are found in the *Driving and Journey Management Work Instruction* (45860-HSE-WI-G-0041).
5) Drivers are to give due consideration to the public at all times. This includes:
   - behaving and driving professionally at all times; and
   - responding courteously if approached by members of the public and directing them to the EnergyConnect community contact number (1800 490 666).
6) Fatigue will be managed in accordance with the *Driving and Journey Management Work Instruction* (45860-HSE-WI-G-0041).
7) Fitness to drive will be managed in accordance with *Driving and Journey Management Work Instruction* (45860-HSE-WI-G-0041).
8) Fauna strikes are to be reported to your Supervisor. The Supervisor is to ensure these details are reported to the Environment team.

Additional requirements for heavy vehicles or over dimension vehicles

In addition to the general driver requirements, all heavy or over-dimension vehicle drivers are to comply with the additional requirements related to heavy vehicles.

1) Drivers MUST at all times:
   - adhere to their Chain of Responsibility requirements;
   - ensure the heavy vehicle is operated within its legal mass and dimension limits;
   - adhere to any permit to travel requirements;
   - adhere to direction of road authorities and OSOM permit; and
   - adhere to the designated over-dimensional and heavy vehicle routes.
2) Drivers are to take regular rest breaks to manage fatigue and breaks of no less than the minimum periods prescribed by the National Heavy Vehicle Regulator.
3) Convoys and congestion can have a large impact on the local community, motorists and road authority operations. Drivers are to avoid forming convoys where other road users are limited in vehicle movements by no-break in heavy vehicles.

Appendix B - Flood Response Plan

PUBLIC

Flood Response Plan
EnergyConnect (NSW - Eastern Section)
Stage 2

45860-HSSE-PL-D-0123

REV	DATE	GENERAL DESCRIPTION	PREPARED	REVIEWED	VERIFIED	VERIFIED	APPROVED
A	1/11/2022	Issued for internal review	M.M.Hutcheson	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
B	2/11/2022	Issued for Transgrid review	M.M.Hutcheson	R.Walker-Edwards	A.Boyd	B.Calligeros	S.Basanta
C	14/02/2023	Revised to address council comments	R.Walker-Edwards	C.Curlewis	G.Crighton	B.Calligeros	S.Basanta
D	8/09/2023	Revised to update abbreviations and issued for consultation	K.Nestmann	R.Walker-Edwards	C.Curlewis	G.Crighton	S.Basanta
E	9/10/2023	Revised to reflect the new Elecnor template in line with Rev 5 of the TTMP	R.Walker-Edwards	Sarah Klocke Sarah Klocke (Oct 9, 2023 13:18 GMT+11) S.Klocke	-	G.Crighton	G.Arrien Echevarria

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Revision History	
Rev.	**Detailed Description**
A	Issued for internal review
B	Issued for Transgrid review
C	Revised to address council comments
D	Revised to update abbreviations
E	Revised to new format in line with the TTMP

Key Document Stakeholders
To be communicated with during reviews and revisions of this document

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Abbreviations

Acronym	Definition
AEP	Annual Exceedance Probability
Amendment Report	*Amendment Report EnergyConnect (NSW – Eastern Section)*
BoM	Bureau of Meteorology
CEMP	Construction Environmental Management Plan
EIS	*Environmental Impact Statement EnergyConnect (NSW – Eastern Section)*
EPA	NSW Environment Protection Authority
ERT	Emergency Response Team
ER	Emergency Response
FRP, this plan	Flood Response Plan
HSSE Manager	Health, Safety, Sustainability, and Environmental Manager
LEMO	Local Emergency Management Officer
Minor flood	A flood classification determined by emergency services; characterised by the inundation of low-lying areas next to water courses, closure of minor roads, and submersion of low-level bridges. In urban areas flooding may affect some backyards and buildings below floor level as well as bicycle and pedestrian paths. In rural areas removal of livestock and equipment may be required.
NSW	New South Wales
PMT	Project Management Team
project, the	EnergyConnect (NSW – Eastern Section)
RFS	Rural Fire Service
RMMs	Revised mitigation measures
SecureEnergy	Transgrid has engaged Elecnor Australia, trading as SecureEnergy, to design and construct the EnergyConnect project.
SES	NSW State Emergency Service
Site PMT	Project management team (Construction Manager, Project Manager) based on construction sites
SSI	State significant infrastructure
Submissions Report	*EnergyConnect (NSW – Eastern Section) Submissions Report*

1 Introduction

1.1 Context

This Flood Response Plan (FRP or plan) forms part of the *EnergyConnect (NSW – Eastern Section) Stage 2 Traffic and Transport Management Plan* (45860-HSE-PL-D-0115) and the overall Construction Environmental Management Plan (CEMP) for Stage 2 of EnergyConnect (NSW – Eastern Section).

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI 9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), and the *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report).

1.2 Purpose and objective

The purpose of this plan is to address the requirements of condition C35 e) of the Infrastructure Approval, which requires the preparation of the Flood Response Plan.

The key objective of this plan is to meet the requirements of condition C35 c) and e), that is to detail the procedures and options for safe access to and from site in the event of flooding.

2 Environmental requirements

2.1 Legislation

There are no legislative requirements relevant to this FRP.

2.2 Conditions of Approval

The conditions of the Infrastructure Approval relevant to flooding are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

Table 2.1 - Conditions of Approval relevant to flooding

Condition no.	Requirement	Where addressed	How addressed
C35	The Traffic and Transport CEMP Sub-Plan required under condition B2 must include:		
	c) details of the measures that would be implemented to:		
	(i) minimise traffic safety impacts of the development and disruptions to local road users during construction, upgrading or decommissioning works, including: • responding to local climate conditions that may affect road safety such as fog, dust, wet weather and flooding;	Section 4	Section 4 details the preparation and response that will be undertaken to minimise traffic safety impacts as a result of extreme weather or flooding.
	e) a flood response plan detailing procedures and options for safe access to and from the site in the event of flooding.	This plan Section 4.4 Section 4.6 Table 4.1	The procedure for safe evacuation is identified in Section 4.6. The procedure in response to a flooding event is summarised in Table 4.1.

2.3 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in Appendix B of the Submissions Report and Appendix C of the Amendment Report. The RMMs relevant to flood emergency are detailed in Table 2.2 below.

A cross reference is also included to indicate where the measure is addressed within this plan or other project management documents. The management measures that will be implemented for the project are provided in Section 5 of this plan.

Table 2.2 - Revised mitigation measures relevant to flooding

Reference	Revised mitigation measures	Applicable locations	Where addressed	How addressed
HF2	Detailed construction planning would consider flood risk at construction areas. This would include: • identifying measures that would be implemented to not worsen flood impacts downstream and on other property and infrastructure during construction up to and including the five per cent annual exceedance probability (AEP) design flood event, and • confirming site layouts to avoid or minimise obstruction of overland flow paths and to limit the extent of flow diversion required. Practicable measures identified to minimise potential flood risks at construction areas would be implemented.	Transmission line and construction sites within flood prone land	Section 4.2 Section 4.5 Section 4.7	In the event of a flood the flood response procedure will be followed as summarised in Section 4.7.
HF3	A detailed assessment would be undertaken to confirm that the bench level of the final design of the Dinawan 330kV Substation will be above the 100-year average recurrence interval (ARI) design and that a 200 year ARI design flood would not impede substation function. The assessment would consider spills/overflows from the detention basin on the irrigation channel to the east of the substation location and a potential failure of the basin embankment. The bench level and design of the substation would be adjusted to ensure compliance with Transgrid's design standards.	Dinawan 330kV Substation	Section 3.3 and detailed design	Earthworks will be undertaken to raise the design level of the site.

3 Site characteristics

This section summarises the existing environmental setting in relation to the hydrology and flooding aspects within and adjacent to the project. The information below is from Chapter 16 and 21 of the EIS, and *Technical Paper 8 - Hydrology, flooding and water quality* of the EIS.

3.1 Topography

The topography of the project varies from the western extent to the eastern extent. At a macro level, the catchments slope from east to west with the eastern extent of the project sitting approximately 200m above sea level and the western extent sitting approximately 40m above sea level at Mildura. While the terrain varies, it is generally flat to undulating plains country. Localised topographic highs of up to approximately 380m occur approximately 10km west of the Wagga Wagga substation.

There are a high number of existing naturally occurring and man-made watercourses and waterbodies in proximity to the project. These include waterways classified at a range of stream orders throughout the Strahler stream order, major rivers, and lakes. The existing large watercourses and waterbodies in proximity to the project are the Murray River, Murrumbidgee River, Colombo Creek, Lake Urana, and Yanga Lake.

The elevation of the project from Buronga Substation at its western extent remains relatively flat moving eastward to where the transmission line intersects with Jerilderie Road, south of Hay township, sitting at between 75m and 100m above sea level. From here to where the transmission line intersects with Boree Creek Road, north of Urana, the elevation lies between approximately 100m-125m above sea level. The elevation of the project from this point to its' eastern extent steadily raises to between 200m and 225m, excluding localised topographic peaks exceeding between 325m and 350m around Wagga Wagga City.

3.2 Climate and rainfall

The project region has a semi-arid climate with hot summers and cool winters. The average temperature range is around 16°C to 33°C in summer and around 4°C to 15°C in winter. The average annual rainfall across the project varies, however average rainfall is generally higher at project's eastern extent than that of the western extent.

The EIS used data from three weather stations (Irymple, Urana Post Office, and Wagga Wagga Gurwood Street) which are spaced at near regular intervals throughout the project corridor with the aim to outline the climactic context of the project area.

The closest weather station to Buronga at the western extent of the project (Irymple, station number 076012) records an average annual rainfall of 271mm (1908-2020). Rainfall is typically evenly dispersed throughout the year, with a peak in rainfall values from November to April.

The Urana Post Office weather station (station number: 074110) near the eastern extent of the project records an average annual rainfall of 442.2mm (1871-2020). The average monthly rainfall is slightly higher during May and June.

Near the eastern extent of the project, the average annual rainfall recorded at Wagga Wagga Gurwood Street station (station number: 074127) is 528.1mm from 2001-2020 and 568mm from 1941-2020 at Wagga Wagga AMO station (station number: 072150).

3.3 Floodplain

The EIS used data from a high-level flood risk assessment was conducted by BECA in 2020 to outline the potential extent of flooding in the vicinity of the project. The EIS stated in Section 16.4.1 that the site for the upgrade and expansion of the Wagga Wagga substation is not located

within a flood prone area and is therefore not affected by flooding nor at risk of experiencing flooding impacts on construction works at the sites.

A hydrological risk assessment was undertaken for EnergyConnect by BECA in 2020, which outlined the flood risk, and subsequent potential flood extent, of the project area. Data from this study was used in the EIS to identify which project areas were flood prone, identifying large floodplains around:

- Box Creek;
- the Murrumbidgee River;
- Condoulpe Creek;
- Yellow Clay Creek;
- Coonong Creek;
- Bullenbong Creek; and
- dispersed flooding at the very eastern extent of the project.

Smaller floodplains are also present around several smaller watercourses throughout the project area.

Historical flooding depths are outlined in Figure 16.2 of the EIS. It should be noted that the majority of the project area has at one point been subject to flooding, however the instances of historic severe flooding (>5m flood depth) in the project area is limited to areas in proximity to the larger floodplains outlined above. This is outlined in Section 16.4.1 of the EIS and Section 5.1 of *Technical Paper 8 – Hydrology and Flooding Impact Assessment*, which highlight that while construction activities in these areas would need to consider potential flooding effects, generally, any associated flood impacts are likely to be temporary, localised, and insignificant.

Section 4.1.4 of the Submissions Report (submission ID 49) indicated that there is a nearby levee bank along the irrigation channel to the proposed location of the Dinawan 300kV substation used as a detention basin for the Coleambally Irrigation system. The submission noted that the levee poses a risk of potential impact to the proposed Dinawan 330kv substation as it is made only from nearby soil, occasionally requiring repairs, and was not constructed with consideration of there being a major electrical substation nearby downstream of the basin.

Section 16.4.1 of the EIS also stated that all other construction compounds and accommodation camps were identified as being located away from flood prone areas and are similarly not at risk of flooding impacts on construction works.

4 Flood preparation and response

Flood response encompasses actions that reduce the threat to life, property and the environment following the onset of an emergency. This includes mobilisation prior to onset of the flood.

As outlined in Section 3.3, the project area is generally not impacted by flooding outside of areas within the major floodplains. Where flood risk is present, any associated impacts are likely to be localised and insignificant in nature.

Roads used for access and egress to and from sites during flooding events will be subject to the discretion of the HSSE Manager and site supervisor based on advice from media reports, NSW State Emergency Services (SES), council Local Emergency Management Officers, the Murray Darling Basin Authority, and Water NSW.

The following is a prepared response in case of extreme and severe weather events.

4.1 Extreme weather monitoring

Local conditions and weather will be monitored and interpreted onsite via the BOM Warning Centre website (http://www.bom.gov.au/australia/flood/).

In the lead up to severe or extreme weather events (as defined by BoM), there may also be warnings of a flood or storms through:

- media reports;
- NSW SES total flood warning systems;
- the Murray Darling Basin Authority (for information in relation to the Hume Dam); and
- WaterNSW's early warning network.

It must be noted that the recent floods of September and November 2022 identified that BOM and SES do not recognise a number of waterways which the project traverses. Contact should also be made with the relevant Local Emergency Management Officers (LEMO) for each council in the event of extreme weather.

Monitoring of information via these channels will be used to inform the appropriate planning for work tasks to be undertaken for the day, including consideration of potential flooding to various work zones and access to and from site.

Where a weather event is expected to be a localised inundation event (storm), pre-rainfall inspections would be undertaken as required by the *Soil and Water Management Plan* (45860-HSSE-PL-D-0112).

4.2 Site preparation

All construction areas will be inspected and prepared in accordance with the Health and Safety Management Plan (which is relevant to the on-site emergency response). The Flood Incident Guideline provided in Appendix A will be completed.

4.3 Flood response

If a flood event is forecast, site personnel requirements will be reviewed.

Personnel on site will follow instructions at their work site and/or accommodation where a roll-call will be completed. All personnel will be directed to seek shelter at their designated accommodation camp and construction compound or their nominated off-site accommodation (where safe to do so), at the appropriate times staged as below:

- site personnel including support personnel shall return to flood refuge (accommodation) on notice from the Project Management Team (PMT) via a determined safe route as described in Section 4.5;
- designated personnel may be required to remain on site to assist with flood preparedness. This may include the work teams, engineers, and anyone deemed useful by the PMT or Superintendent to carry out preparedness duties. No attempt should be made to enter or cross any flood waters that is above a minor flood level, or where the flood inundation level is not known.

Should a life-threatening situation arise in a flood event, emergency services will be contacted (000) immediately. Based on an assessment of the likely length of disruption to site activities, site personnel remaining may be directed to vacate the site if it is safe to do so.

4.4 Action and alarm

The following actions and alarm levels are proposed in the event of severe or extreme weather:

Category 1: Site preparation

- when 80mm (or greater) of rainfall is forecast over a 24-hour period (or less). Site preparation in accordance with Section 4.2 of this plan will occur and will include the completion of the Flood Incident Guideline (refer to Appendix A).

Category 2: Alarm

- Project Management Team (PMT) will determine when to raise a Category 2 Alarm. The Site Supervisor and relevant members of the PMT are to monitor weather and river conditions for potential warning signs of flood events and overland flows. It should be noted that severe rainfall events occurring in areas beyond the project boundary can flow into the rivers systems that are part of the project's catchment area. Following the assessment, if a flood event is imminent, the appropriate evacuation procedures will be initiated and followed. Further details relating to evacuation are provided in Section 4.5 of this plan.

4.5 Evacuation

The Wagga Wagga substation construction compound and accommodation camps and all other construction compounds and accommodation camps, excluding Dinawan substation, are not at risk of flooding. As such, areas within each construction compound and accommodation camp will be nominated by the Project Team as muster points in the event that personnel are required to stop work and muster.

Other project areas not subject to flooding will be nominated as required dependent on the proximity of construction activities to the accommodation camps and construction compounds.

Prior to or during a flood, personnel may be required to leave the site to return to their accommodation or place of residence.

Weather monitoring and monitoring of media would provide identification of potential flooding risk and would allow safe and orderly evacuation of site personnel if required. The site would be closed and remain closed for the duration of the flood event except in an emergency or as directed by emergency service providers.

The *Emergency Preparedness & Response Plan* (45860-HSSE-PL-G-1015) has been prepared to include a section on flood emergency management that will be implemented in response to flood events.

4.6 Site access and egress

In the event of a flood, access and egress to and from the construction areas will be via safe routes determined by the PMT. If a skeleton crew is required to stay on site, a safe route will be ensured for access and egress between accommodation and the worksite.

To determine the safest route, the PMT will monitor warning channels to determine the status of surrounding roads.

Further information on road closures can be obtained from:

- Wagga City Council (website, Twitter, and Facebook pages);
- Lockhart Shire Council;
- Murrumbidgee Council;
- Edward River Council;
- Balranald Shire Council;
- Murray River Council;
- Hay Shire Council;
- Federation Council;
- Wentworth Shire Council;
- Narrandera Shire Council;
- Transport for NSW - for information on road closures due to flood, Transport for NSW can be contacted on 132 701 or visit the Live Traffic NSW website. The Live Traffic App can also be used to provide information on mobile devices; and
- NSW SES Southern Zone Headquarters.

Contact details are also provided within Appendix B.

Access back to the site, once deemed safe, will be assessed as per Appendix A.

4.7 Flood response procedure summary

The flood response procedure to be undertaken in the event of extreme weather or flooding is summarised in Table 4.1.

Table 4.1 - Summary of flood response procedure

Response Item	Action	Procedure	Responsibility	Timeframe
BoM warning for flooding or flash flooding	Increase level of alert	Monitor BoM website Notify all Site Supervisors of warning Contact council LEMOs as required to identify any other watercourses which may be affected by flooding Complete actions within Section 4.2 Site preparation and Section 4.3 Flood response	Environmental Manager Site Supervisor Construction Manager Project Manager	In event of flood

Response Item	Action	Procedure	Responsibility	Timeframe
Flood Occurrence	Raise a category 2 Alarm and commence procedure	Once alarm has been raised under Section 4.4, complete Section 4.5 Evacuation.	Site Supervisor Construction Manager Project Manager	When 80mm of rainfall is expected within 24 hours
Post-flood	Conduct safety walk through	Determine whether it is safe to return to site and repair any damage	Environmental Manager Construction Manager Site Supervisor Safety Manager	Following flood event

5 Flood recovery

5.1 Site inspections

Sites would be reopened after a flood event only once it is deemed safe following a site inspection by a site safety representative and site supervisor. Other specialists, such as engineers, may be requested to assess the site prior to reopening. The inspection would identify if any environmental and/or safety hazards remain.

5.2 Reporting

Should the flood event and associated project response actions constitute an incident, then investigation, notification and reporting will occur in accordance with Section 8 of the CEMP. Incidents may include for example, a spill or release of contaminants due to floodwaters inundating machinery or equipment.

The investigation will include a review of events leading up to the incident and implement improved practices as required.

Annexure A - Flood Incident Guideline

Flooding - Inclement Weather

Scenario description	Flooding from rain deluge			
General outline of emergency response	Increased level of alert of flooding. Initiate site preparation and PMT/safety to make decision whether all crew are to leave the site via a safe route or establish a skeleton crew to remain on site. Once alarm raised, complete PMT/safety plan. Involve appropriate external agencies if required.			
Disciplines required (indicate) – Guide only	Firefighting	☐	First Aid	☐
	Vehicle extraction	☐	Breathing apparatus	☐
	Hazmat	☐	Rescue	☐
	Specialist	☐	Other	☐
Emergency response resources and their location	**Site**	ERT, Safety Manager		
	ER Internal Support	Fire and Rescue, NSW SES		

QUESTIONS	Y/N	ACTIONS
Can work be relocated to a drier area?		If Y, then work can proceed
Is there alternative work available at a drier location?		If Y, then work can proceed
Can tarps and/or enclosures be erected to keep out the rain?		If Y, then work can proceed
Can truck unloading be performed in a dry area?		If Y, then work can proceed
Can non-electrical work be performed?		If Y, then work can proceed if workers remain dry
Will wet weather gear keep the user dry?		If Y, then work can proceed if work can be done safely
Will wearing of wet weather gear cause additional hazards, excessive sweating, heat stress?		If Y, then wet weather gear is not suitable and alternative work required
Can slings and/or chains be prevented from slipping? Can lift be performed safely?		If Y, then work can proceed if workers remain dry
Is work to be performed within an excavation?		If Y, then alternative work is required
Is lightning and thunder evident?		If Y, then personnel must work under cover
Is the area likely to flood?		If Y, then consider damming area, temporary sump pump or alternative work.
Is it safe to access/leave site?		If Y, then provide detail on the safe access routes to use

Annexure B - Emergency contact list

The following details will be refined during construction.

EXAMPLE EMERGENCY CONTACT LIST

Position	Name	Contact
Person in Charge	Project Manager	Phone: TBA Email: TBA
Person in Charge	Site Supervisor	Phone: TBA Email: TBA
Person in Charge	Construction Manager	Phone: TBA Email: TBA
Safety	Safety Manager	Phone: TBA Email: TBA
Environmental	Environmental Manager	Phone: TBA Email: TBA
Log Keeper	HSSE Administrator	Phone: TBA Email: TBA
Emergency Response Team	External Agencies	Phone: TBA Email: TBA

DRAFT

Note that this contact list is an example only, live lists will be kept up to date within the project office.

EXAMPLE EMERGENCY SERVICE CONTACT DETAILS

Emergency Contacts	
IN AN EMERGENCY and **FOR ALL FIRES: DIAL 000 (TRIPLE ZERO)** Secondary Emergency Call from Mobiles: Dial 112	
DO NOT CALL 000 FOR INFORMATION OR ADVICE. CALLING 000 UNNECESSARILY MAY PUT OTHERS WHO ARE IN A GENUINE EMERGENCY SITUATION AT RISK.	
All emergencies including flooding	**Dial 000**
NSW RFS	https://www.rfs.nsw.gov.au/fire-information/fires-near-me
NSW Ambulance	131 233
State Emergency Service	132 500
NSW SES Southern Zone Headquarters	02 6932 9199
Fire and Rescue NSW General Enquires	02 9265 2999
TransGrid (emergencies)	1800 027 253
SafeWork NSW	13 10 50
EPA Pollution Incident Hotline	131 555
Transport for NSW	13 22 13
Local Emergency Management Officers (council)	Contact each relevant council

Appendix C - Existing traffic volumes

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Roads within Wentworth LGA				
Arumpo Road	Wentworth	Regional Road	TfNSW Traffic Counter from Western EIS	20
Corbett Avenue	Wentworth	Local Road	N/A (estimated)	20
Dansons Road	Wentworth	Local Road	N/A (estimated)	10
Silver City Highway (B79)	Wentworth	State Road	TfNSW Traffic Counter from Western EIS	200
Sturt Highway (A20) (Buronga)	Wentworth	State Road	TfNSW Traffic Counter from Western EIS	200
Modica Crescent	Wentworth	Local Road	N/A (estimated)	10
Alcheringa Drive	Wentworth	Local Road	No data available	No data available
Roads within Balranald LGA				
Abbotts Tank Road	Balranald	Local Road	N/A (estimated)	20
Benanee Road	Balranald	Local Road	N/A (estimated)	20
Euston Prungle Road	Balranald	Local Road	N/A (estimated)	50
Market Street (Balranald, part of Sturt Highway)	Balranald	State Road	N/A (estimated)	50
McCabe Street	Balranald	Local Road	N/A (estimated)	20
McCabe Street (Extension)	Balranald	Local Road	N/A (estimated)	20
Murray Valley Highway	Balranald	State Road	Yes – TfNSW Traffic Counter, Station ID – 97477	150
Sturt Highway (between Buronga and Robinvale)	Balranald	State Road	Western EIS	50
Sturt Highway (between Robinvale and Balranald)	Balranald	State Road	Yes – Traffic counts available.	50
Windomal Road	Balranald	Local Road	N/A (estimated)	50

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Yanga Way (including Tooleybuc Road)	Balranald	State Road	Yes – TfNSW Traffic Counter, Station ID – 97494	20
Church Street	Balranald	Local Road	N/A (estimated)	50
Murray Terrace	Balranald	Local Road	N/A (estimated)	20
Perry Street	Balranald	Local Road	N/A (estimated)	20
Selwyn Street	Balranald	Local Road	N/A (estimated)	20
Moa Street	Balranald	Local Road	N/A (estimated)	50
Mayall Street	Balranald	Regional Road	N/A (estimated)	50
Ivanhoe Road	Balranald	Regional Road	N/A (estimated)	50
Unnamed Road	Balranald	Local Road	N/A (estimate)	20
Roads within Murray River LGA				
Baldon Road	Murray River	Local Road	N/A (estimated)	20
Balranald Road (south of alignment)	Murray River	Local Road	N/A (estimated)	50
Balranald Road (north of alignment)	Murray River	Local Road	N/A (estimated)	50
Baratta Street	Murray River	Regional Road	N/A (estimated)	50
Binbinette Road	Murray River	Local Road	N/A (estimated)	20
Brougham Street	Murray River	Local Road	N/A (estimated)	20
Carne Street	Murray River	Regional Road	N/A (estimated)	50
Cedar Avenue	Murray River	Local Road	N/A (estimated)	50
Impimi Road	Murray River	Local Road	N/A (estimated)	20
Keri Keri Road (south)	Murray River	Local Road	N/A (estimated)	20
Keri Keri Road (north)	Murray River	Local Road	N/A (estimated)	20
Kyalite Road	Murray River	Regional Road	N/A (estimated)	50
Morago Street	Murray River	Local Road	N/A (estimated)	20

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Moulamein Road	Murray River	Regional Road	N/A (estimated)	50
Paterson Street	Murray River	Regional Road	N/A (estimated)	20
Pretty Pine Road (west)	Murray River	Regional Road	N/A (estimated)	50
Sturt Highway (between Balranald and Cobb Highway)	Murray River	State Road	Yes – TfNSW Traffic Counter, Station ID – T0234	50
Tallow Street	Murray River	Regional Road	N/A (estimated)	50
Balranald Road (near Moulamein)	Murray River	Regional Road	N/A (estimated)	50
Maude Road	Murray River	Regional Road	No data available	No data available
Yanga Way (including Lea Street and Tooleybuc Road)	Murray River	State Road	No data available	No data available
Berambong Road	Murray River	Local Road	N/A (estimated)	20
Perekerton Road	Murray River	Local Road	N/A (estimated)	20
Murray Street	Murray River	Local Road	N/A (estimated)	20
River Street	Murray River	Local Road	N/A (estimated)	10
Lea Street	Murray River	Local Road	N/A (estimated)	10
Carne Street (north of Tallow Street)	Murray River	Local Road	N/A (estimated)	50
Young Street	Murray River	Local Road	N/A (estimated)	50
Roads within Hay LGA				
Cobb Highway	Hay	State Road	Yes – TfNSW Traffic Counter, Station ID – 97234	10
Glenhope Road	Hay	Local Road	N/A (estimated)	10
Jerilderie Road	Hay	Local Road	N/A (estimated)	20
Maude Road	Hay	Regional Road	Yes – Traffic surveyor counts available.	10
Moama Street	Hay	State Road	N/A (estimated)	50

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Romani Road	Hay	Local Road	N/A (estimated)	10
Sturt Highway (between Cobb Highway and Newell Highway)	Hay	State Road	Yes – TfNSW Traffic Counter, Station ID – 95021	50
West Burrabogie Road	Hay	Local Road	N/A (estimated)	10
Thelangerin Road	Hay	Local Road	N/A (estimated)	20
Showground Road	Hay	Local Road	N/A (estimated)	10
Dunera Way	Hay	Local Road	N/A (estimated)	10
Roads within Edward River LGA				
Booroorban-Tchelery Road	Edward River	Local Road	N/A (estimated)	10
Carrathool Road	Edward River	Local Road	N/A (estimated)	20
Dry Lake Road	Edward River	Local Road	N/A (estimated)	10
East-West Road	Edward River	Local Road	N/A (estimated)	10
Finley Road (Deniliquin, part of Riverina Highway)	Edward River	State Road	Yes – TfNSW Traffic Counter, Station ID – 97318	50
Hay Road (Deniliquin, part of Cobb Highway)	Edward River	State Road	Yes – TfNSW Traffic Counter, Station ID – 97327	50
Millears Road	Edward River	Local Road	N/A (estimated)	20
Monimail Road	Edward River	Local Road	N/A (estimated)	20
Moonbria Road	Edward River	Local Road	N/A (estimated)	20
Nesbits Road	Edward River	Local Road	N/A (estimated)	20
Pretty Pine Road (east)	Edward River	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 97066	20

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Riverina Highway (west of Finley)	Edward River	State Road	Yes – TfNSW Traffic Counter, Station ID – 97001	50
Wandook Road	Edward River	Local Road	N/A (estimated)	20
Warwillah Road	Edward River	Local Road	N/A (estimated)	20
Willurah Road	Edward River	Local Road	N/A (estimated)	20
Davidson Street (Deniliquin, part of Cobb Highway)	Edward River	State Road	N/A (estimated)	50
Charlotte Street (Deniliquin, part of Cobb Highway)	Edward River	State Road	N/A (estimated)	50
Ochtertyre Street (Deniliquin, part of Cobb Highway)	Edward River	State Road	Yes – TfNSW Traffic Counter, Station ID – 97042	50
Hardinge Street (Deniliquin, part of Cobb Highway)	Edward River	State Road	N/A (estimated)	50
Wanderer Street	Edward River	Regional Road	N/A (estimated)	50
Maude Road	Edward River	Regional Road	No data available	No data available
Cobb Highway (south of Deniliquin)	Edward River	State Road	Yes – TfNSW Traffic Counter, Station ID – 97042	50
Goolgumbla Road	Edward River	Local Road	N/A (estimated)	20
Pooginook Road	Edward River	Local Road	N/A (estimated)	20
Unnamed track (located off Four Corners Road)	Edward River	Local Road	N/A (estimated)	10
Roads within Murrumbidgee LGA				
Bundure Road	Murrumbidgee	Local Road	N/A (estimated)	20
Cadell Road	Murrumbidgee	Local Road	N/A (estimated)	20
Colombo Road	Murrumbidgee	Local Road	N/A (estimated)	20
Conargo Road (in Conargo)	Murrumbidgee	Regional Road	N/A (estimated)	50
Crutchs Road	Murrumbidgee	Local Road	N/A (estimated)	20
Fernbank Road	Murrumbidgee	Local Road	N/A (estimated)	20

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Four Corners Road	Murrumbidgee	Local Road	Yes – Traffic counts available.	10
Jerilderie Street (Jerilderie)	Murrumbidgee	State Road	N/A (estimated)	50
Jerilderie-Urana Road	Murrumbidgee	Local Road	N/A (estimated)	50
Kidman Way (Near Morundah Road)	Murrumbidgee	State Road	Yes – TfNSW Traffic Counter, Station ID – 97246	25
Kidman Way (Near Sturt Highway)	Murrumbidgee	State Road	Yes – TfNSW Traffic Counter, Station ID – 97119	50
Liddles Lane	Murrumbidgee	Local Road	N/A (estimated)	20
Mcdonald Road	Murrumbidgee	Local Road	N/A (estimated)	20
Mclennons Bore Road	Murrumbidgee	Local Road	N/A (estimated)	20
Morundah Road	Murrumbidgee	Regional Road	N/A (estimated)	20
Newell Highway (north of Jerilderie)	Murrumbidgee	State Road	Yes – TfNSW Traffic Counter, Station ID – 97035	50
Newell Highway (south of Jerilderie)	Murrumbidgee	State Road	Yes – TfNSW Traffic Counter, Station ID – 97032	50
North Boundary Road	Murrumbidgee	Local Road	Yes – Traffic counts available.	10
Six Mile Lane	Murrumbidgee	Local Road	N/A (estimated)	20
Southey Street	Murrumbidgee	State Road	N/A (estimated)	50
Thurrowa Road	Murrumbidgee	Local Road	N/A (estimated)	20
Wilson Road	Murrumbidgee	Local Road	N/A (estimated)	20
Yamma Road	Murrumbidgee	Regional Road	N/A (estimated)	50
Conargo Road (near Sturt Highway)	Murrumbidgee	Regional Road	Yes – Traffic counts available.	10

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Sturt Highway (within Murrumbidgee LGA)	Murrumbidgee	State Road	N/A (estimated)	100
Crosby Road	Murrumbidgee	Local Road	N/A (estimated)	10
Gilbert Road	Murrumbidgee	Local Road	N/A (estimated)	20
Jimmy Cull Road	Murrumbidgee	Local Road	N/A (estimated)	20
Bencubbin Avenue	Murrumbidgee	Local Road	N/A (estimated)	20
Goolgumbla Road	Edward River	Local Road	N/A (estimated)	20
Roads within Federation LGA				
Back Berrigan Road	Federation	Regional Road	N/A (estimated)	50
Barragunda Road	Federation	Local Road	N/A (estimated)	20
Battens Road	Federation	Local Road	N/A (estimated)	20
Berrigan Oaklands Road	Federation	Local Road	N/A (estimated)	50
Boree Creek Road	Federation	Regional Road	N/A (estimated)	50
Brookong Creek Road	Federation	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95211	50
Browley Street	Federation	Local Road	N/A (estimated)	50
Chapman Street	Federation	Regional Road	N/A (estimated)	50
Cocketgedong Road	Federation	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95335	20
Coonong Road	Federation	Local Road	N/A (estimated)	20
Cullivel Road	Federation	Local Road	N/A (estimated)	20
Drummond Street	Federation	Local Road	N/A (estimated)	50
Eades Street	Federation	Local Road	N/A (estimated)	50
Federation Way (north of Urana)	Federation	Regional Road	N/A (estimated)	20

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Federation Way (south of Urana)	Federation	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95214	20
Greenvale Road	Federation	Local Road	N/A (estimated)	20
Gums Road	Federation	Local Road	N/A (estimated)	20
Lachlan Street	Federation	Local Road	N/A (estimated)	50
Mahonga Road	Federation	Regional Road	N/A (estimated)	50
Mallons Road	Federation	Local Road	N/A (estimated)	50
Meritons Road	Federation	Local Road	N/A (estimated)	20
Spraydon Road	Federation	Local Road	N/A (estimated)	20
Strontian Road	Federation	Local Road	N/A (estimated)	50
West Gums Road	Federation	Local Road	N/A (estimated)	20
William Street	Federation	Regional Road	N/A (estimated)	50
Woodhouse Street	Federation	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95212	20
Yarrabee Street	Federation	Local Road	N/A (estimated)	50
Riverina Highway (north of Corowa in Federation Council)	Federation	State Road	N/A (estimated)	50
Honour Avenue (part of Riverina Highway)	Federation	State Road	N/A (estimated)	50
Boree Creek Road (north of Boree Creek)	Federation	Local Road	N/A (estimated)	50
Richmond Street	Federation	Local Road	N/A (estimated)	50
Stephen Street	Federation	Local Road	N/A (estimated)	20
Roads within Lockhart LGA				
Albury Road	Lockhart	Regional Road	N/A (estimated)	50
Andriskes Lane	Lockhart	Local Road	N/A (estimated)	20
Ben Hoffmans Lane	Lockhart	Local Road	N/A (estimated)	20

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Bidgeemia Road	Lockhart	Local Road	N/A (estimated)	50
Boree Creek Road	Lockhart	Regional Road	N/A (estimated)	50
Boyds Road/Somervilles Road	Lockhart	Local Road	N/A (estimated)	20
Bullenburg The Rock Road	Lockhart	Local Road	Yes – Traffic counts available.	10
County Boundary Road	Lockhart	Local Road	N/A (estimated)	20
Dunlevys Lane	Lockhart	Local Road	N/A (estimated)	20
East Street	Lockhart	Regional Road	N/A (estimated)	100
Flood Detour Road	Lockhart	Local Road	N/A (estimated)	20
Ford Street	Lockhart	Regional Road	N/A (estimated)	50
Frank Westblades Lane	Lockhart	Local Road	N/A (estimated)	20
French Park-Bullenbung Road	Lockhart	Local Road	N/A (estimated)	20
Green Street	Lockhart	Regional Road	N/A (estimated)	100
Hendersons Road	Lockhart	Local Road	N/A (estimated)	20
Lockhart Boree Creek Road	Lockhart	Local Road	N/A (estimated)	50
Lockhart Collingullie Road	Lockhart	Regional Road	Yes – Traffic counts available.	50
Lockhart-Kywong Road	Lockhart	Regional Road	N/A (estimated)	50
Lockhart Road (west of Bullenbong Creek)	Lockhart	Regional Road	N/A (estimated)	100
Lockhart The Rock Road	Lockhart	Local Road	N/A (estimated)	50
Mangoplah Road	Lockhart	Local Road	N/A (estimated)	50
Old French Park-Bullenbung Road	Lockhart	Local Road	N/A (estimated)	20
Olympic Highway (Between Urana St In The Rock And Yarrangundry St In Uranquinty)	Lockhart	State Road	Yes – TfNSW Traffic Counter, Station ID – 95551	125
Osborne Yerong Creek Road	Lockhart	Local Road	N/A (estimated)	50

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Railway Street (part of Olympic Highway))	Lockhart	State Road	Yes – TfNSW Traffic Counter, Station ID – 95551	125
Reid Street	Lockhart	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95336	20
Ryans Lane	Lockhart	Local Road	N/A (estimated)	20
Solider Settlement Road	Lockhart	Local Road	N/A (estimated)	20
Slys Lane	Lockhart	Local Road	N/A (estimated)	20
Spanish Avenue	Lockhart	Local Road	N/A (estimated)	20
Strongs Lane	Lockhart	Local Road	N/A (estimated)	20
Tenison Lane	Lockhart	Local Road	N/A (estimated)	20
The Rock Mangoplah Road	Lockhart	Local Road	N/A (estimated)	50
The Rock-Collingullie Road	Lockhart	Regional Road	N/A (estimated)	50
Tribolets Road	Lockhart	Local Road	N/A (estimated)	20
Urana Street (Lockhart)	Lockhart	Local Road	Yes – TfNSW Traffic Counter, Station ID – 95208	20
Urana Street (The Rock)	Lockhart	Regional Road	Yes – Traffic counts available.	50
Urana-Lockhart Road	Lockhart	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95336	20
Wandella Lane	Lockhart	Local Road	N/A (estimated)	20
Webbs Lane	Lockhart	Local Road	N/A (estimated)	20
Yuluma Road	Lockhart	Local Road	N/A (estimated)	20
Olympic Highway (south of The Rock)	Lockhart	State Road	Yes – TfNSW Traffic Counter, Station ID – 95551	125

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Edwards Road	Lockhart	Local Road	N/A (estimated)	10
Humphries Lane	Lockhart	Local Road	N/A (estimated)	10
Mortons Lane	Lockhart	Local Road	N/A (estimated)	10
Napier Road	Lockhart	Local Road	N/A (estimated)	10
Bullenbong Road	Lockhart	Local Road	No data available	No data available
Commera Wilson Lane	Lockhart	Local Road	N/A (estimated)	20
Tinamba Lane	Lockhart	Local Road	N/A (estimated)	20
Tutty's Lane	Lockhart	Local Road	N/A (estimated)	20
Wattles Road	Lockhart	Local Road	N/A (estimated)	20
Kings Lane	Lockhart	Local Road	N/A (estimated)	20
Roads within Wagga Wagga LGA				
Ashfords Road	Wagga Wagga	Local Road	N/A (estimated)	20
Boiling Down Road	Wagga Wagga	Local Road	N/A (estimated)	10
Brunskill Road	Wagga Wagga	Local Road	N/A (estimated)	20
Colin Knott Drive (part of Sturt Highway)	Wagga Wagga	State Road	N/A (estimated)	100
Dunns Road	Wagga Wagga	Local Road	Yes – Traffic counts available.	10
Edward Street (part of Sturt Highway)	Wagga Wagga	State Road	Yes – TfNSW Traffic Counter, Station ID – 95064	200
Elizabeth Avenue	Wagga Wagga	Local Road	N/A (estimated)	50
Glenfield Road	Wagga Wagga	Local Road	N/A (estimated)	100
Gregadoo East Road	Wagga Wagga	Local Road	Yes – Traffic counts available.	50
Gregadoo Road	Wagga Wagga	Local Road	N/A (estimated)	200

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Hammond Avenue (part of Sturt Highway)	Wagga Wagga	State Road	Yes – TfNSW Traffic Counter, Station ID – 95486	900
Hanging Rock Road	Wagga Wagga	Local Road	N/A (estimated)	20
Holbrook Road	Wagga Wagga	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95176	100
Inglewood Road	Wagga Wagga	Local Road	N/A (estimated)	50
Kooringal Road	Wagga Wagga	Local Road	N/A (estimated)	200
Lake Albert Road	Wagga Wagga	Local Road	N/A (estimated)	200
Lloyd Road	Wagga Wagga	Local Road	Yes – Traffic counts available.	100
Lockhart Road (east of Bullenbong Creek)	Wagga Wagga	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95204	50
Mitchell Road	Wagga Wagga	Local Road	N/A (estimated)	100
Moorong Street (part of Olympic Highway)	Wagga Wagga	State Road	N/A (estimated)	200
Old Station Road	Wagga Wagga	Local Road	N/A (estimated)	20
Olympic Highway (north of Wagga Wagga)	Wagga Wagga	State Road	Yes – TfNSW Traffic Counter, Station ID – 95137	100
Olympic Highway (Between Sturt Highway and Yarrangundry Street in Uranquinty)	Wagga Wagga	State Road	Yes – TfNSW Traffic Counter, Station ID – 95065	150
Oxley Bridge Road	Wagga Wagga	Local Road	N/A (estimated)	50
Pearson Street	Wagga Wagga	Local Road	N/A (estimated)	200
Plumpton Road	Wagga Wagga	Local Road	N/A (estimated)	100
Red Hill Road	Wagga Wagga	Local Road	N/A (estimated)	300
Rowan Road	Wagga Wagga	Local Road	N/A (estimated)	20

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Somervilles Road	Wagga Wagga	Local Road	N/A (estimated)	20
Sturt Highway (east of Wagga Wagga)	Wagga Wagga	State Road	Yes – TfNSW Traffic Counter, Station ID – 95060	200
Sturt Highway (between Olympic Highway and Wagga Wagga)	Wagga Wagga	State Road	Yes – TfNSW Traffic Counter, Station ID – 95062	350
The Rock-Narrandera Road	Wagga Wagga	Local Road	N/A (estimated)	20
Travers Street	Wagga Wagga	Local Road	N/A (estimated)	200
Tumbarumba Road	Wagga Wagga	Regional Road	N/A (estimated)	100
Uranquinty Cross Road	Wagga Wagga	Local Road	N/A (estimated)	50
Yarragundry Street	Wagga Wagga	Local Road	N/A (estimated)	100
Key Street	Wagga Wagga	Local Road	N/A (estimated)	50
Ryan Street	Wagga Wagga	Local Road	N/A (estimated)	50
Sturt Highway (between Newell Highway and Olympic Highway)	Wagga Wagga	State Road	Yes – TfNSW Traffic Counter, Station ID – 95064	200
Bakers Lane	Wagga Wagga	Local Road	N/A (estimated)	20
Bourke Street	Wagga Wagga	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95412	450
Docker Street	Wagga Wagga	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 95412	450
Bullenbong Road	Wagga Wagga	Local Road	No data available	No data available
Kyeamba Avenue	Wagga Wagga	Local Road	N/A (estimated)	20
Vincent Road	Wagga Wagga	Local Road	N/A (estimated)	20
Redbank Road	Wagga Wagga	Local Road	N/A (estimated)	20

Road name and location	Local government area	NSW road network classification	Traffic count availability	Estimated peak hour volume (vehicles per hour in one direction)
Roads within Berrigan LGA				
Chanter Street (part of Riverina Highway)	Berrigan	State Road	No data available	No data available
Barragunda Road (part of Riverina Highway)	Berrigan	State Road	No data available	No data available
Tuppal Street (part of Riverina Highway)	Berrigan	State Road	No data available	No data available
Murray Street (part of Newell Highway)	Berrigan	State Road	No data available	No data available
Dean Street (part of Newell Highway)	Berrigan	State Road	No data available	No data available
Oaklands Road	Berrigan	Regional Road	No data available	No data available
Carter Street	Berrigan	Regional Road	No data available	No data available
Jerilderie Street	Berrigan	Regional Road	Yes – TfNSW Traffic Counter, Station ID – 97256	30
Strathvale Road	Berrigan	Local Road	N/A (estimated)	10
Roads within Narrandera LGA				
Lockhart Road	Narrandera	Regional Road	No data available	No data available
Kywong Boree Creek Road	Narrandera	Local Road	No data available	No data available
Strontian Road	Narrandera	Local Road	No data available	No data available

Appendix D - Access point mapping

FOR INFORMATION ONLY

BRG-GF
BRG-CG
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CLOUGH ELECNOR JOINT VENTURE

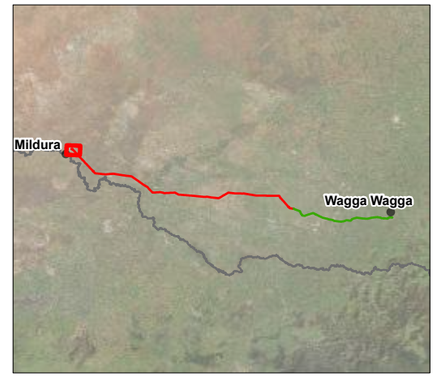
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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:61,035 (when printed at A3)

Legend

- Access Track Points
- Towers
- L2



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World Imagery: Earthstar Geographics

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APPROVED:	
REV:	C
DATE:	11/2/2023
DESCRIPTION:	Issued for Information
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ACCESS POINTS L2
MAP 1 OF 56

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CLOUGH ELECNOR JOINT VENTURE

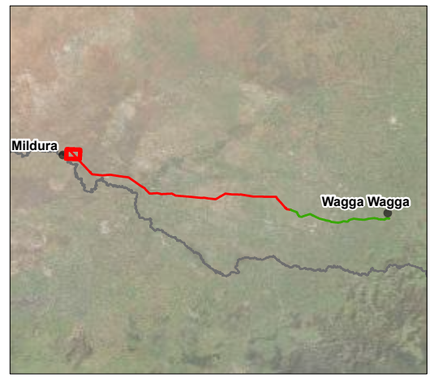
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Datum: GDA2020 Projection: New South Wales Lambert
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Legend

- Access Track Points
- Towers
- L2



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ACCESS POINTS L2
MAP 2 OF 56

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785 784 783 782 781 2002 2001 779 780 778 777 776 775 774 773 772 771 770 769 768 767 766 765 764 763 762 761 760 759 758 757 756 755 754 753 752 751 750 749 748 747 746 745 2003 744 743 742 741 740

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CLOUGH ELECNOR JOINT VENTURE

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0 500 1,000 2,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:61,035 (when printed at A3)

Legend

- Access Track Points
- Towers
- L2



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World Imagery: Earthstar Geographics

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ACCESS POINTS L2
MAP 3 OF 56



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CLOUGH ELECNOR JOINT VENTURE

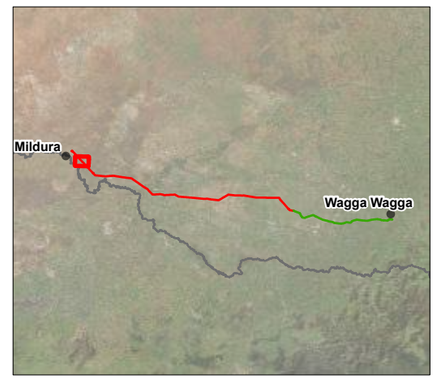
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0 500 1,000 2,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:61,035 (when printed at A3)

Legend

- Access Track Points
- Towers
- L2



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ACCESS POINTS L2
MAP 4 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:61,035 (when printed at A3)

Legend

- Access Track Points
- Towers
- L2



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ACCESS POINTS L2
MAP 5 OF 56

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757 756 755 753 752 751 750 749 748 747 746 745 2003 744 743 742 741 740 739 738 737 736 735 734 733 732 731 730 729 728 727 726 725 724 723 722 721 720 719 718 717 716 715 714 713 712 2005

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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ACCESS POINTS L2
MAP 6 OF 56

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742 741 740 739 738 737 736 735 734 733 732 731 730 729 728 727 726 725 724 723 722 721 720 719 718 717 716 715 714 713 712 711 710 709 708 707 706 705 704 703 702 701 700 699 698 697

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CLOUGH ELECNOR JOINT VENTURE

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Datum: GDA2020 Projection: New South Wales Lambert
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ACCESS POINTS L2
MAP 7 OF 56

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CLOUGH ELECNOR JOINT VENTURE

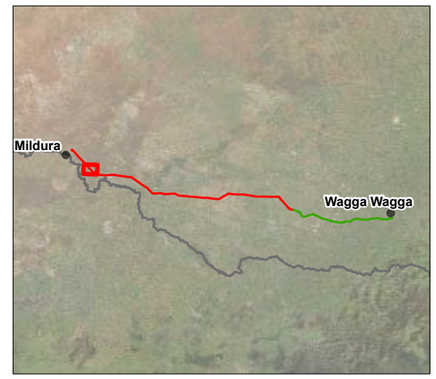
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ACCESS POINTS L2
MAP 8 OF 56

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CLOUGH ELECNOR JOINT VENTURE

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Meters

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ACCESS POINTS L2
MAP 9 OF 56

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699 698 697 696 695 694 2006 692 693 691 690 689 688 687 686 685 684 683 680 679 678 677 676 675 674 673 672 670 669 668 671 682 2007 2008

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CLOUGH ELECNOR JOINT VENTURE

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Meters

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ACCESS POINTS L2
MAP 10 OF 56

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

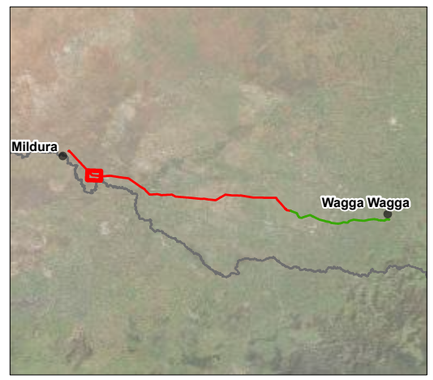
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ACCESS POINTS L2
MAP 11 OF 56

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CLOUGH ELECNOR JOINT VENTURE

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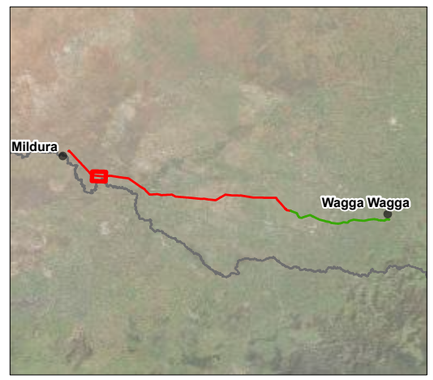
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Meters

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ACCESS POINTS L2
MAP 12 OF 56

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CLOUGH ELECNOR JOINT VENTURE

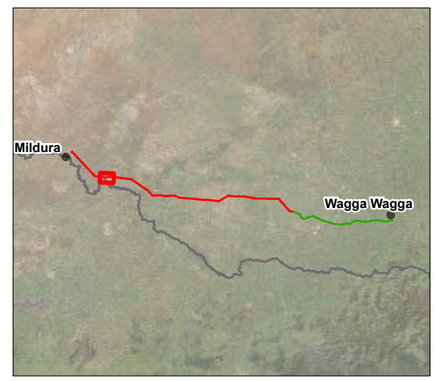
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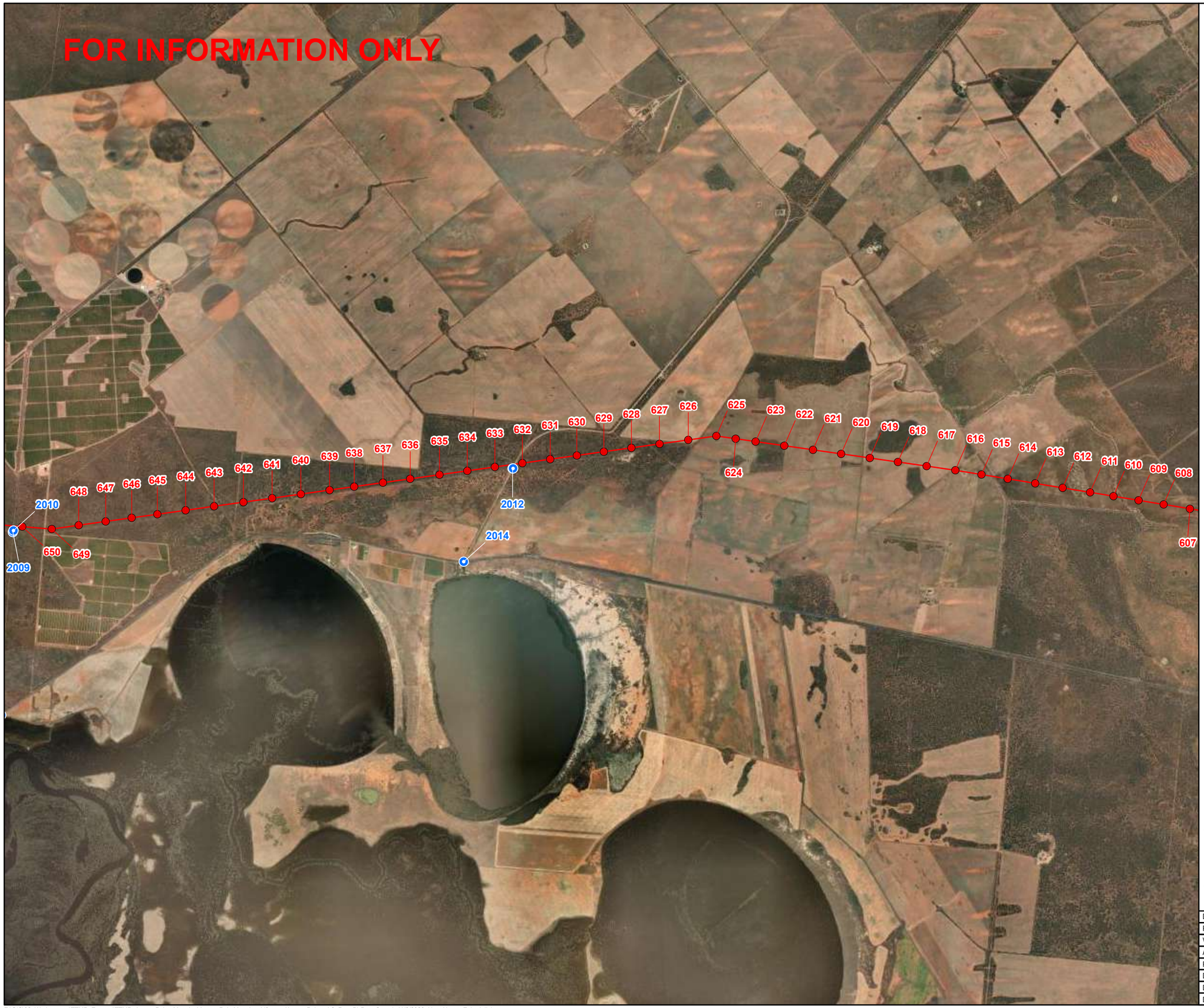
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ACCESS POINTS L2
MAP 13 OF 56

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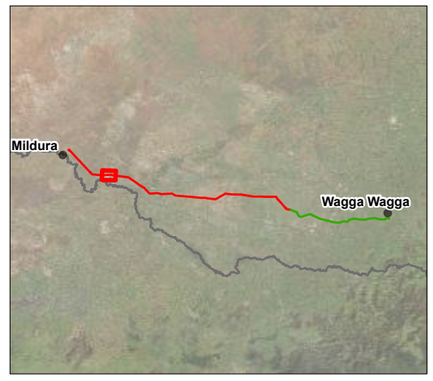
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MAP 14 OF 56

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CLOUGH ELECNOR JOINT VENTURE

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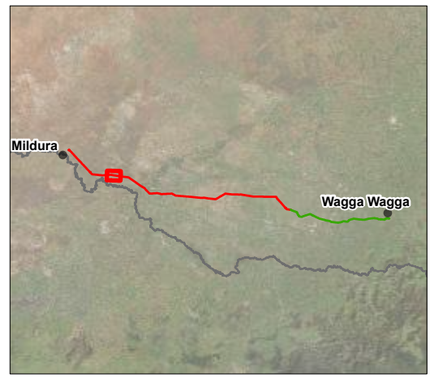
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- Access Track Points
- Towers
- L2



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ACCESS POINTS L2
MAP 15 OF 56

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CLOUGH ELECNOR JOINT VENTURE

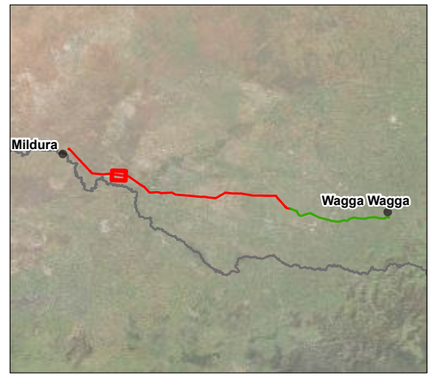
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secureenergy
CLOUGH ELECNOR JOINT VENTURE

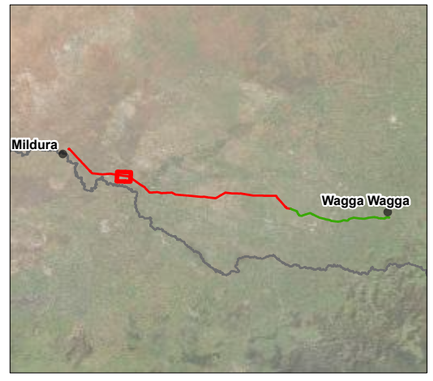
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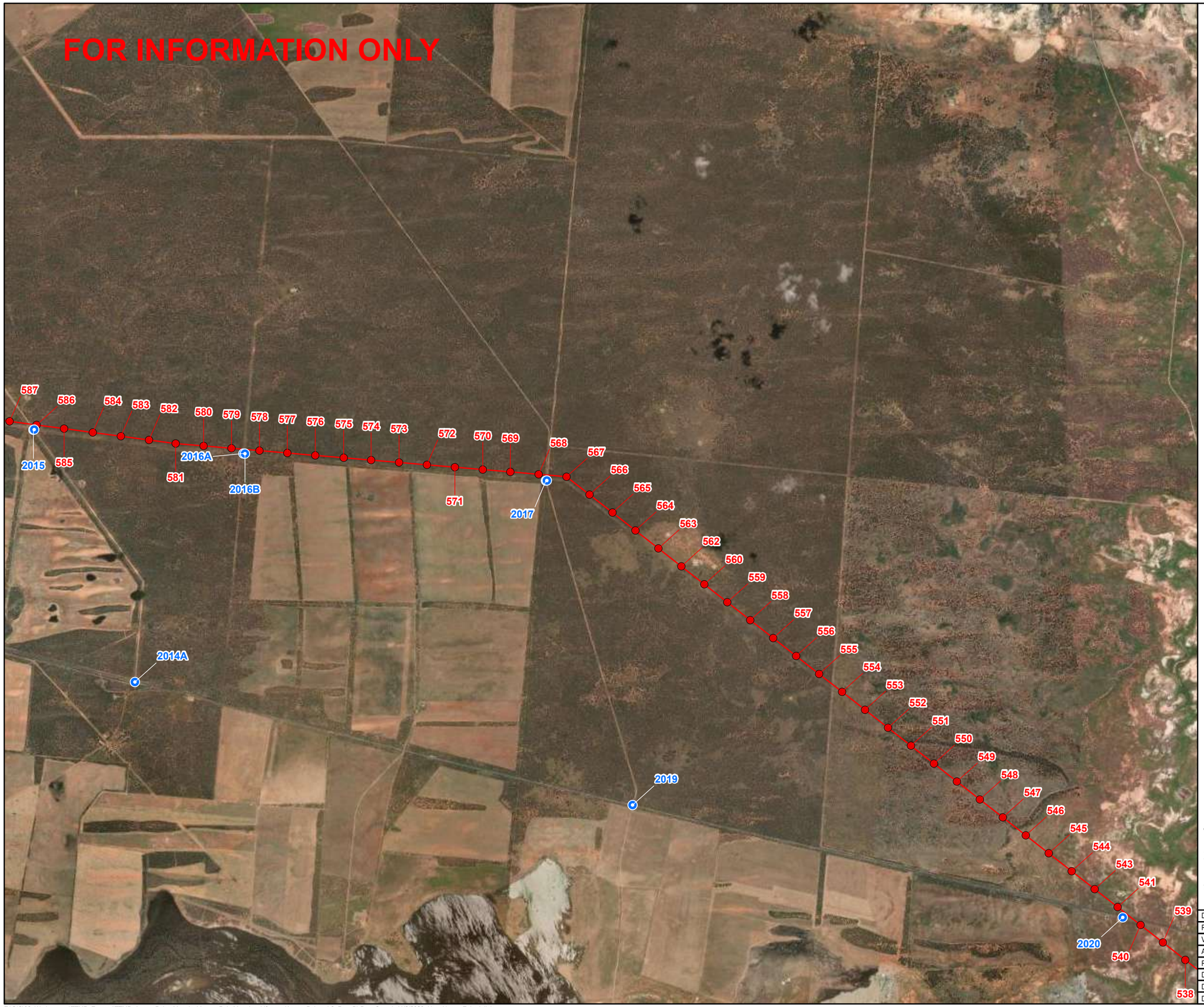
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ACCESS POINTS L2
MAP 17 OF 56

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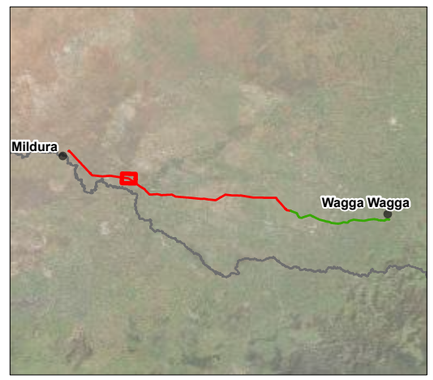
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ACCESS POINTS L2
MAP 18 OF 56

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CLOUGH ELECNOR JOINT VENTURE

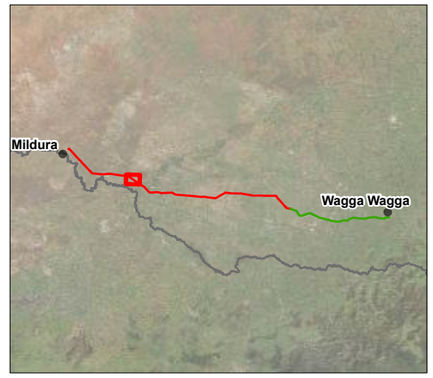
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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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ACCESS POINTS L2
MAP 19 OF 56

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2020 2021 2022

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CLOUGH ELECNOR JOINT VENTURE

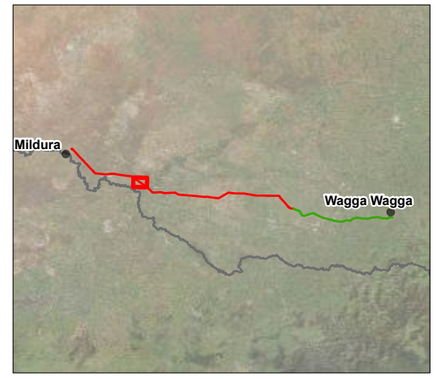
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ACCESS POINTS L2
MAP 20 OF 56

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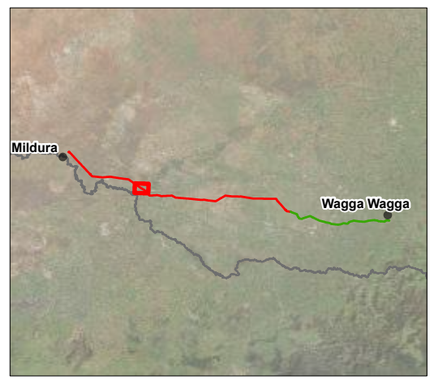
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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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MAP 21 OF 56

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

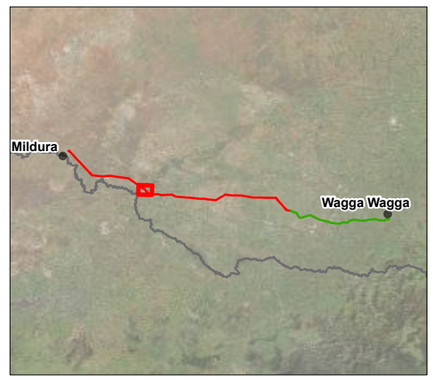
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0 500 1,000 2,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:61,035 (when printed at A3)

Legend

- Access Track Points
- Towers
- L2



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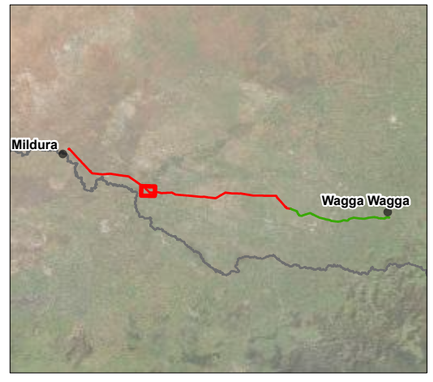
secureenergy
CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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ACCESS POINTS L2
MAP 23 OF 56

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CLOUGH ELECNOR JOINT VENTURE

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0 500 1,000 2,000
Meters

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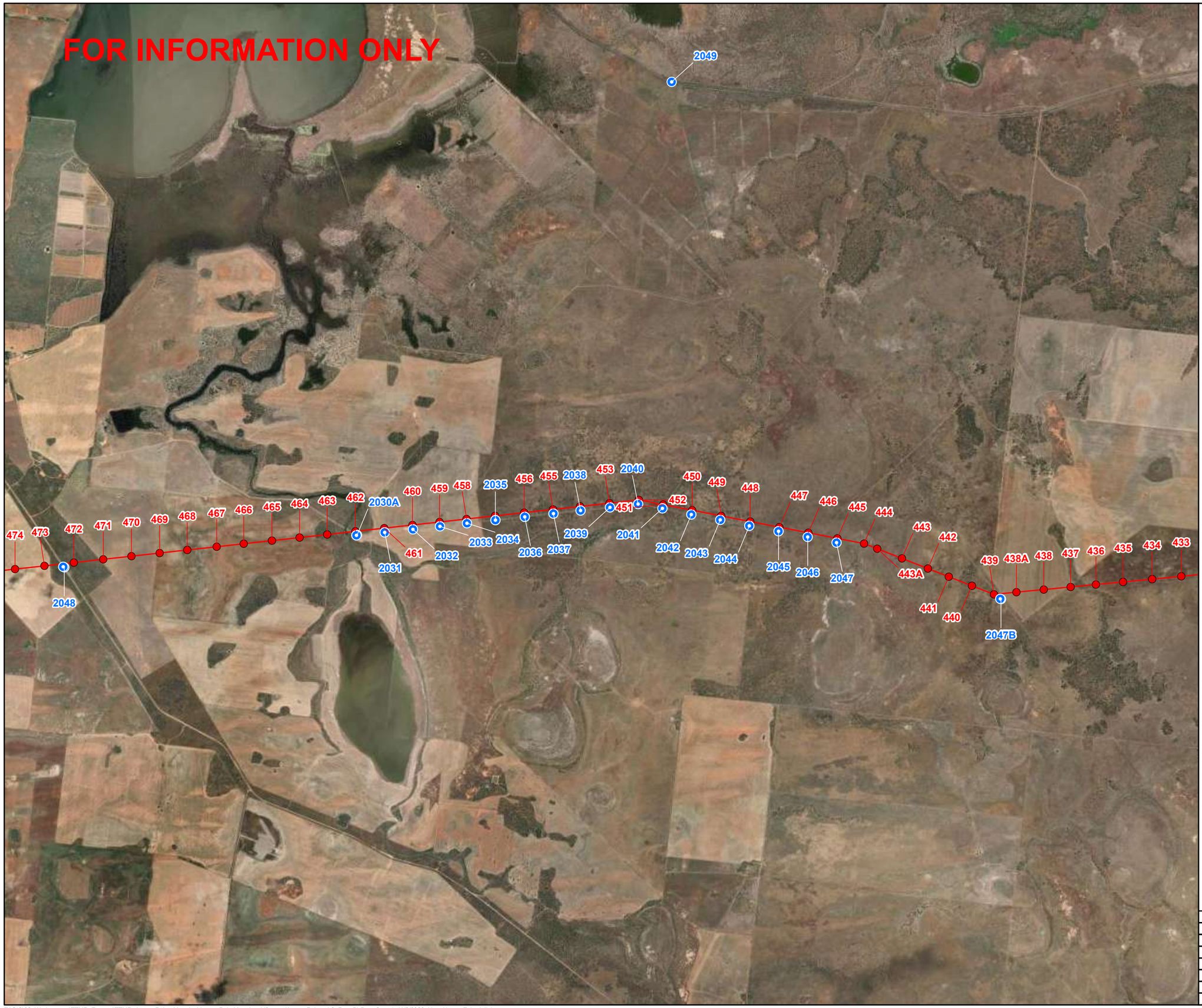
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CLOUGH ELECNOR JOINT VENTURE

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Meters

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MAP 25 OF 56

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CLOUGH ELECNOR JOINT VENTURE

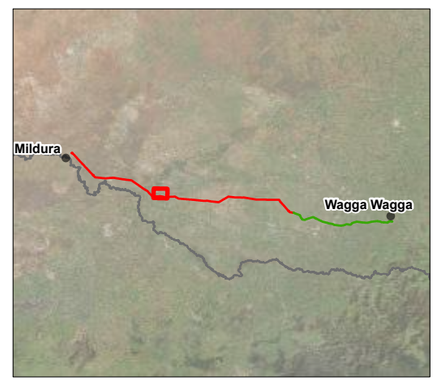
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CLOUGH ELECNOR JOINT VENTURE

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Meters

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MAP 27 OF 56

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CLOUGH ELECNOR JOINT VENTURE

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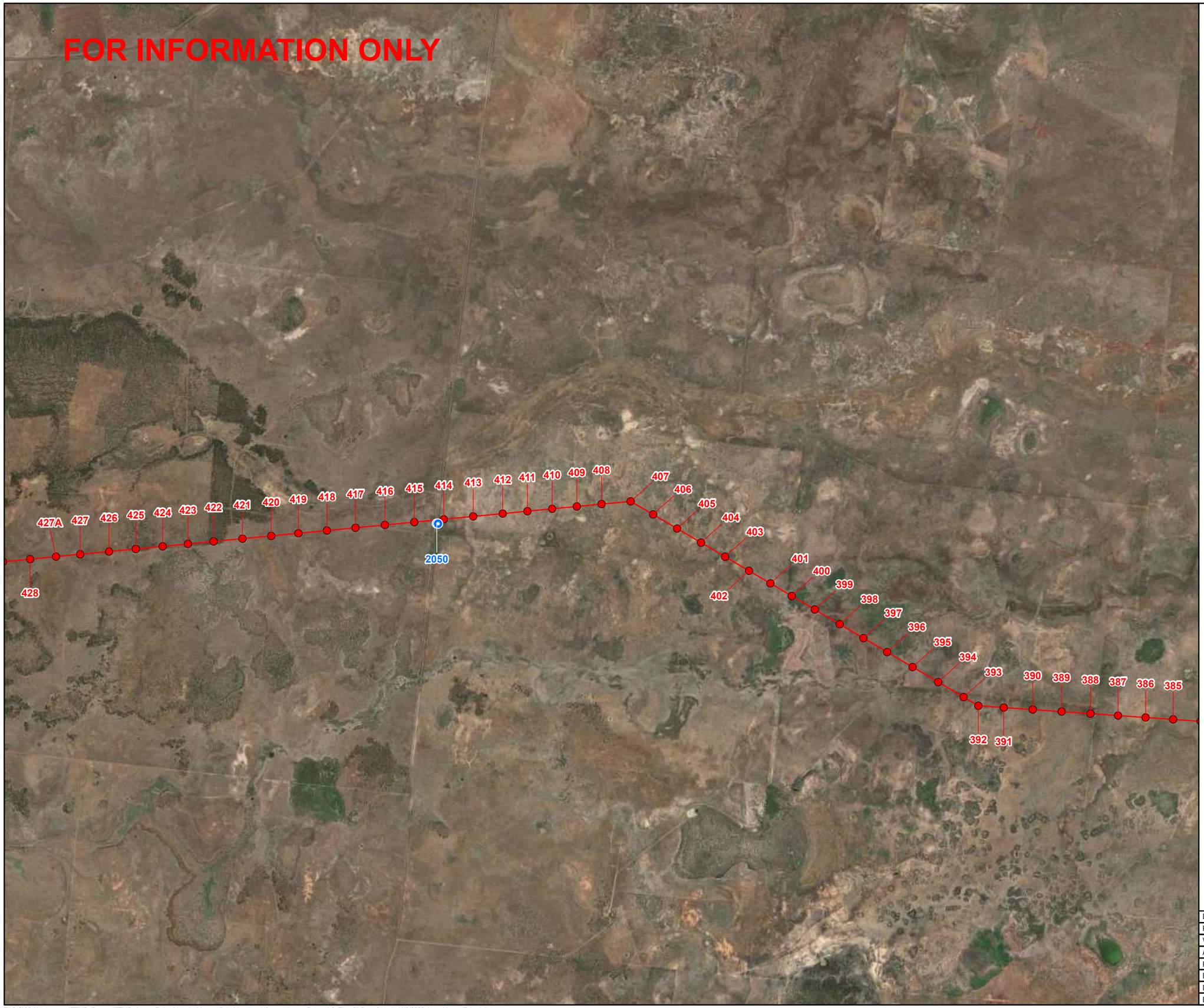
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CLOUGH ELECNOR JOINT VENTURE

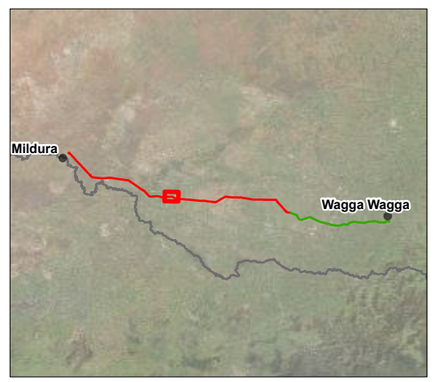
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MAP 29 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

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MAP 30 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

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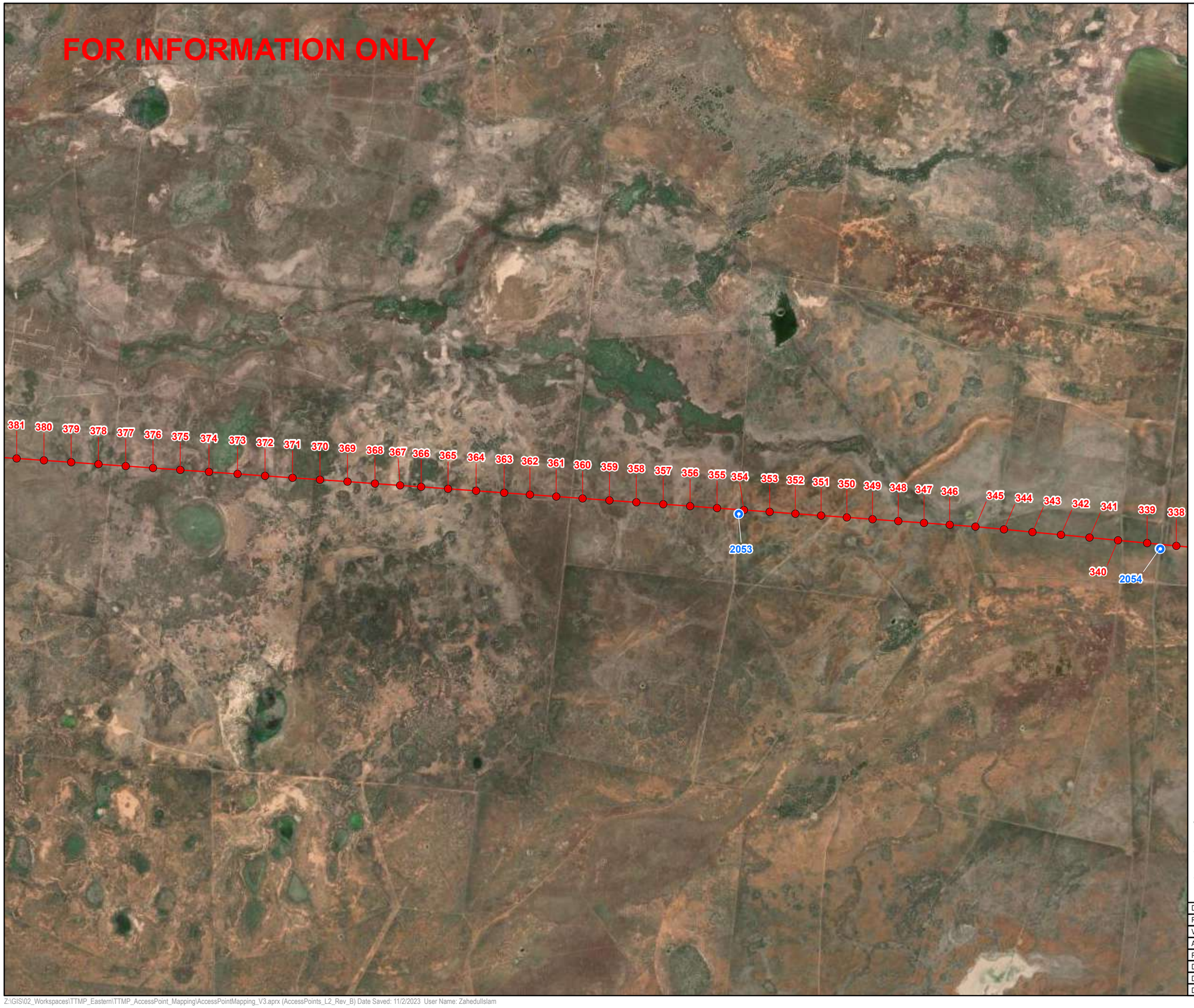
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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

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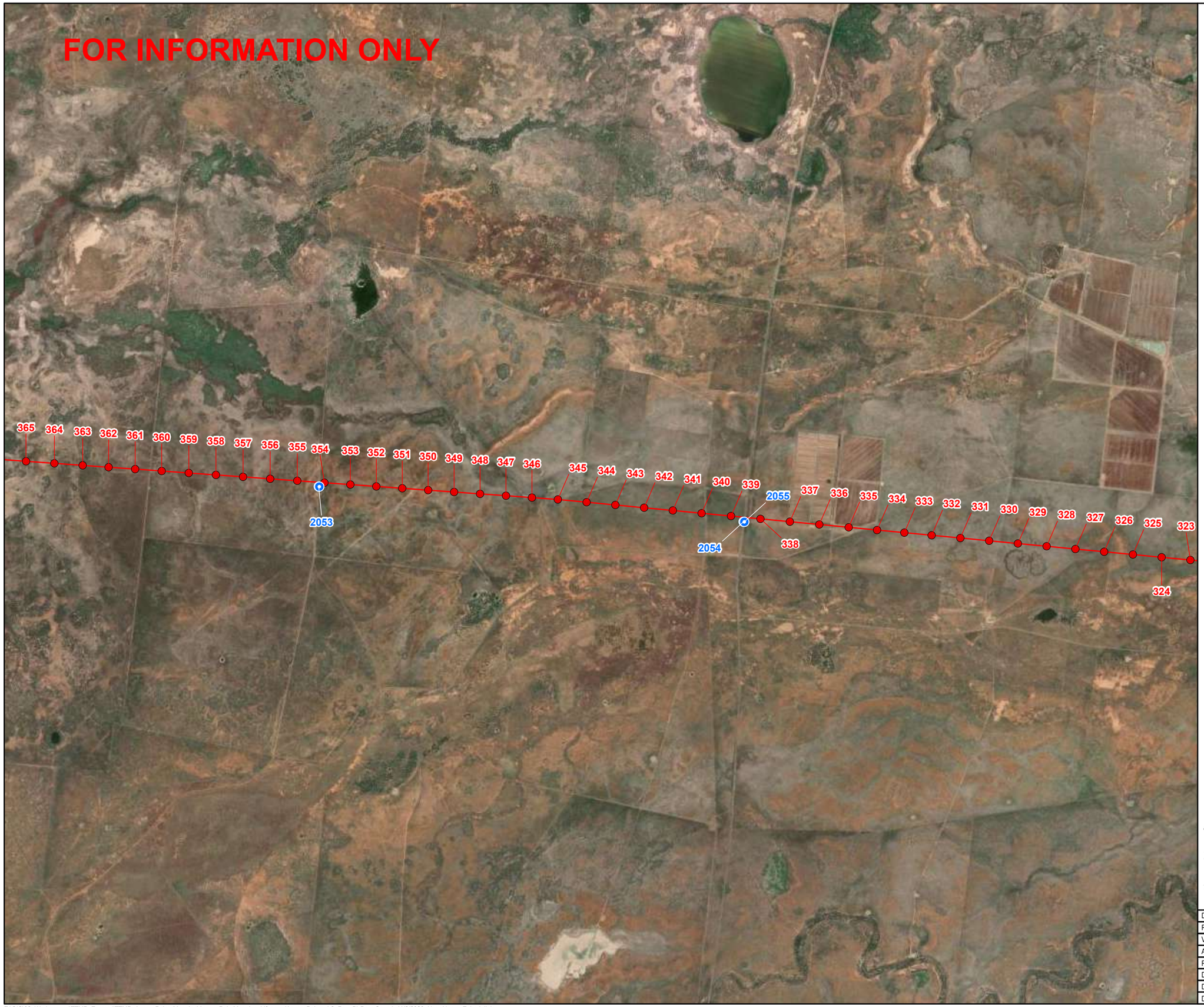
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ACCESS POINTS L2
MAP 32 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000

Meters

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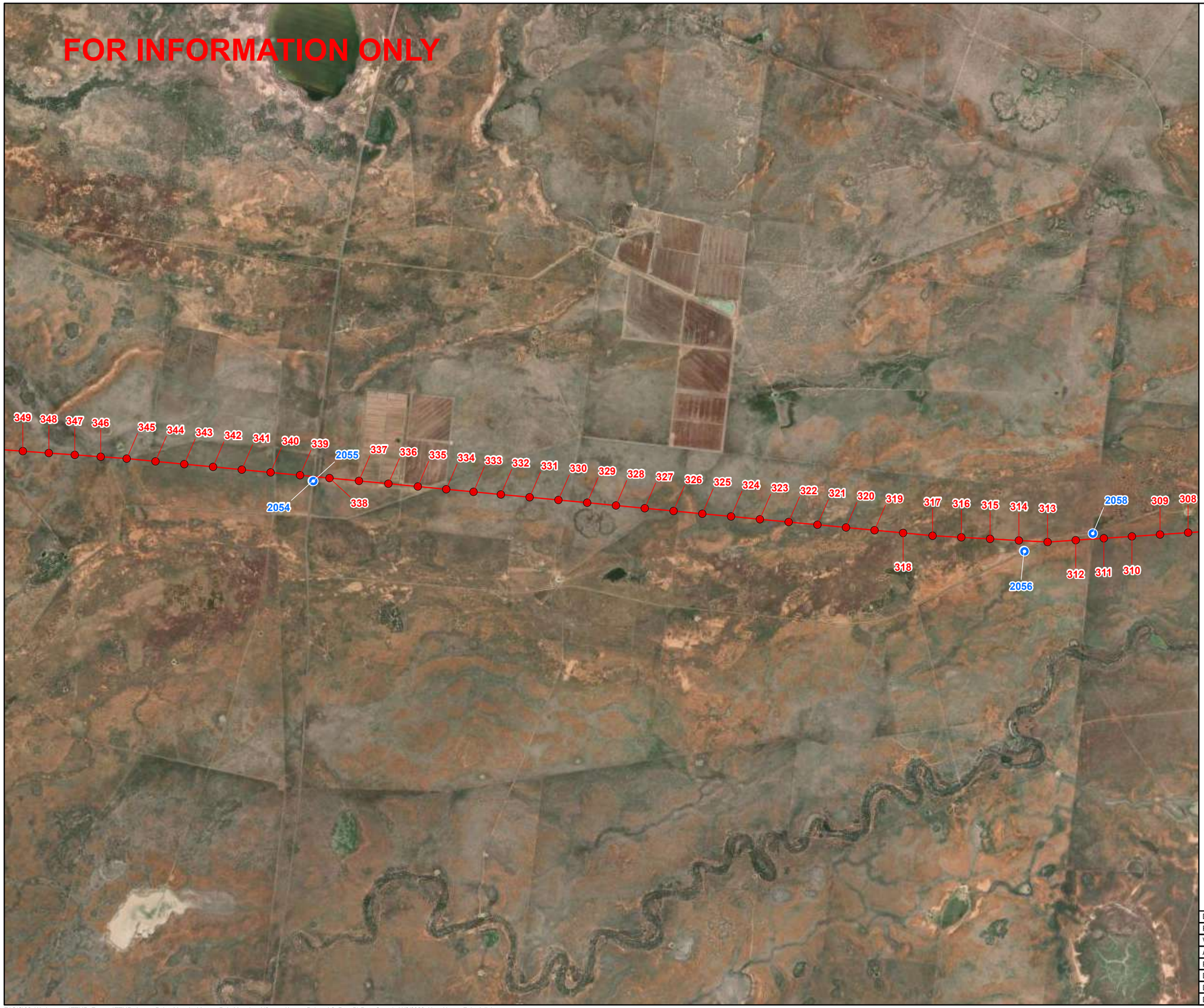
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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000

Meters

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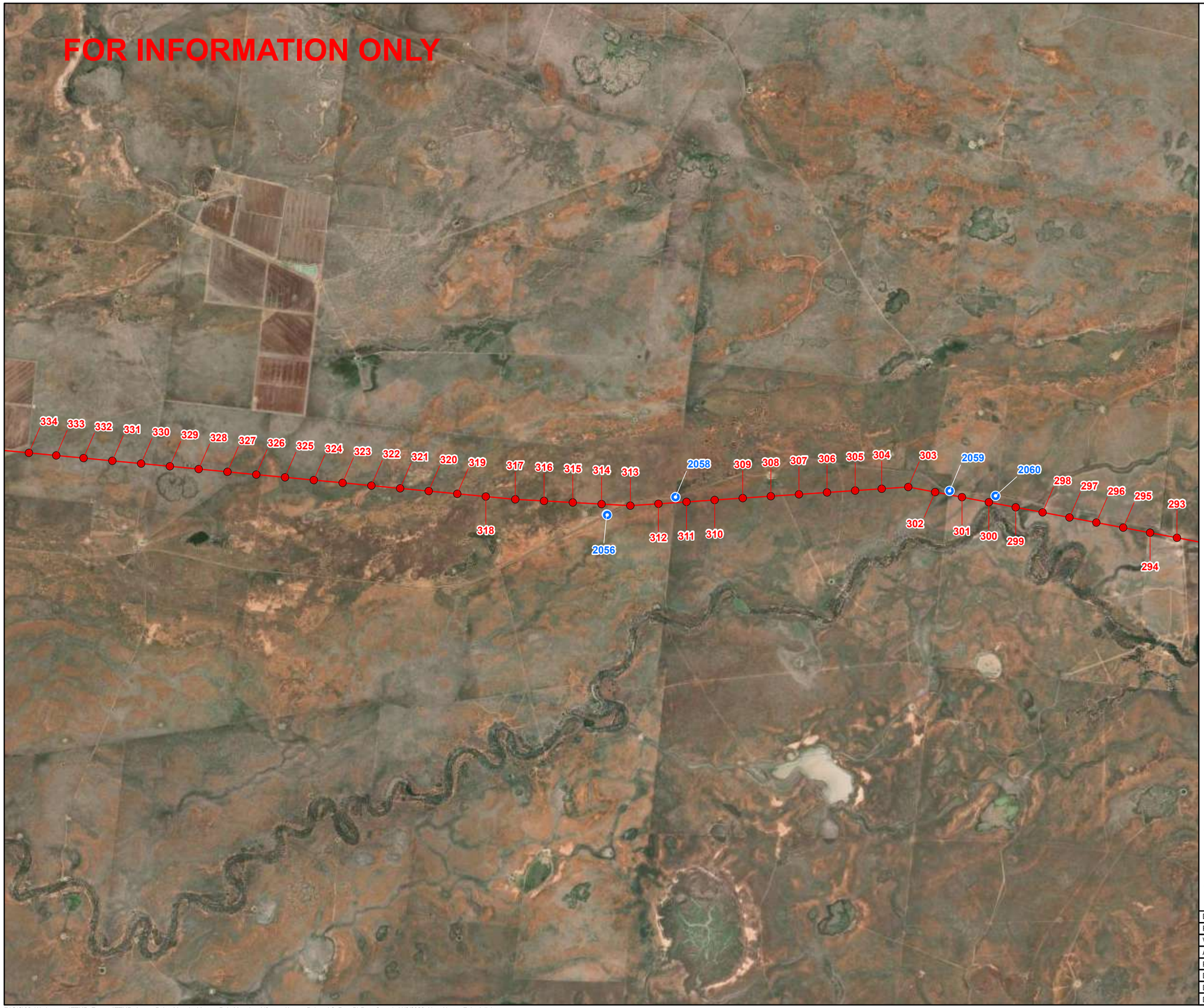
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CLOUGH ELECNOR JOINT VENTURE

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0 500 1,000 2,000

Meters

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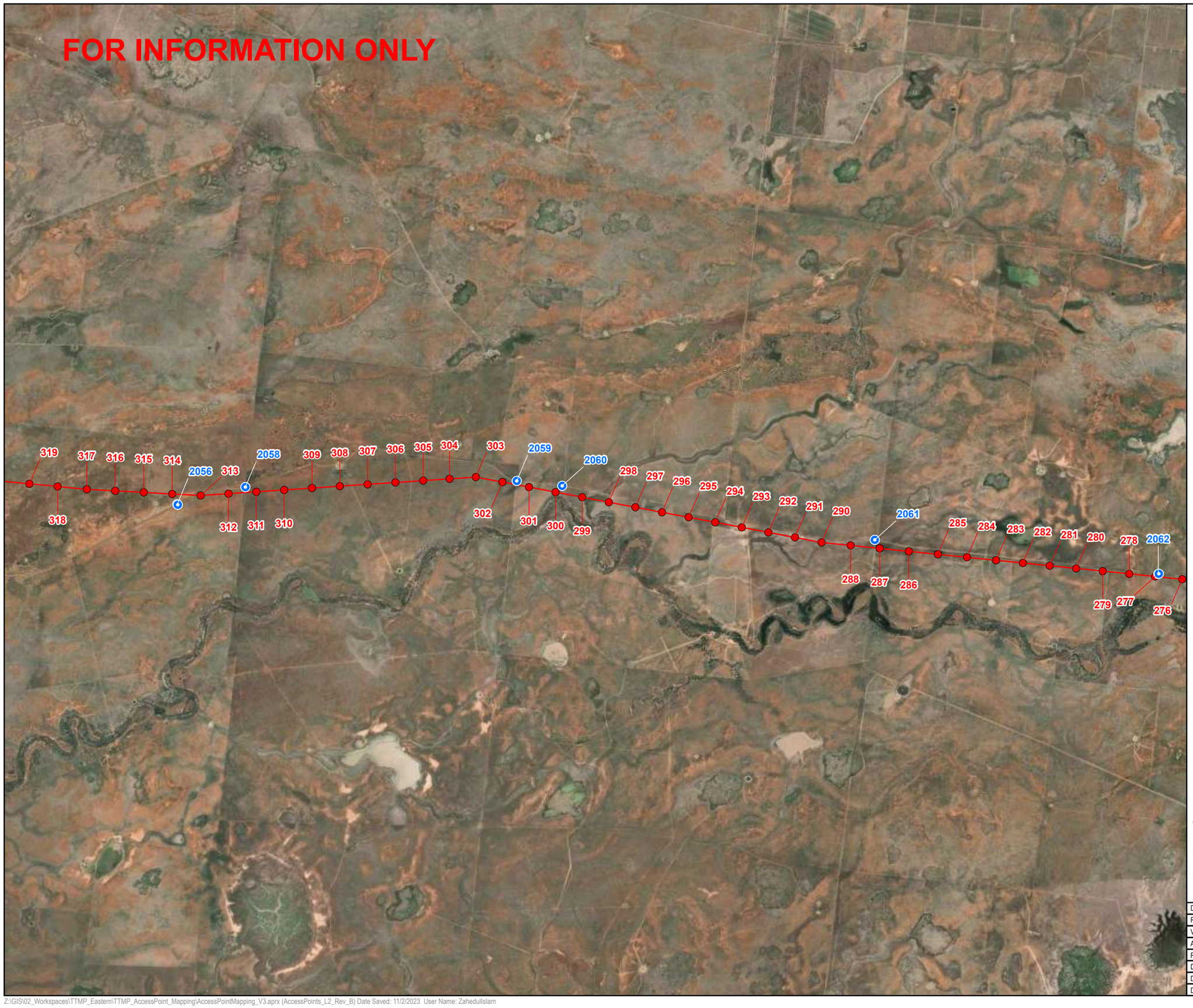
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CLOUGH ELECNOR JOINT VENTURE

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Meters

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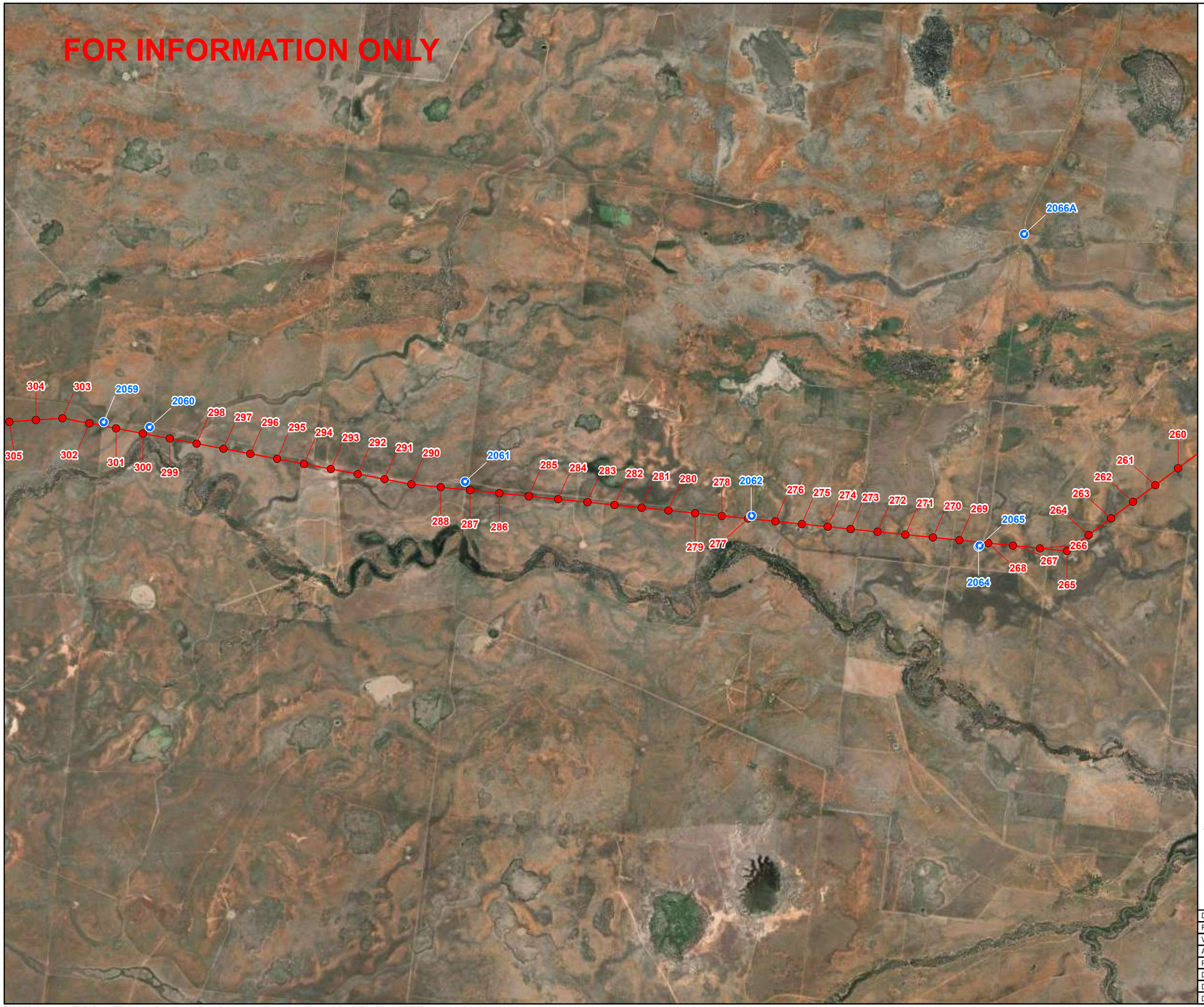
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CLOUGH ELECNOR JOINT VENTURE

N

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Meters

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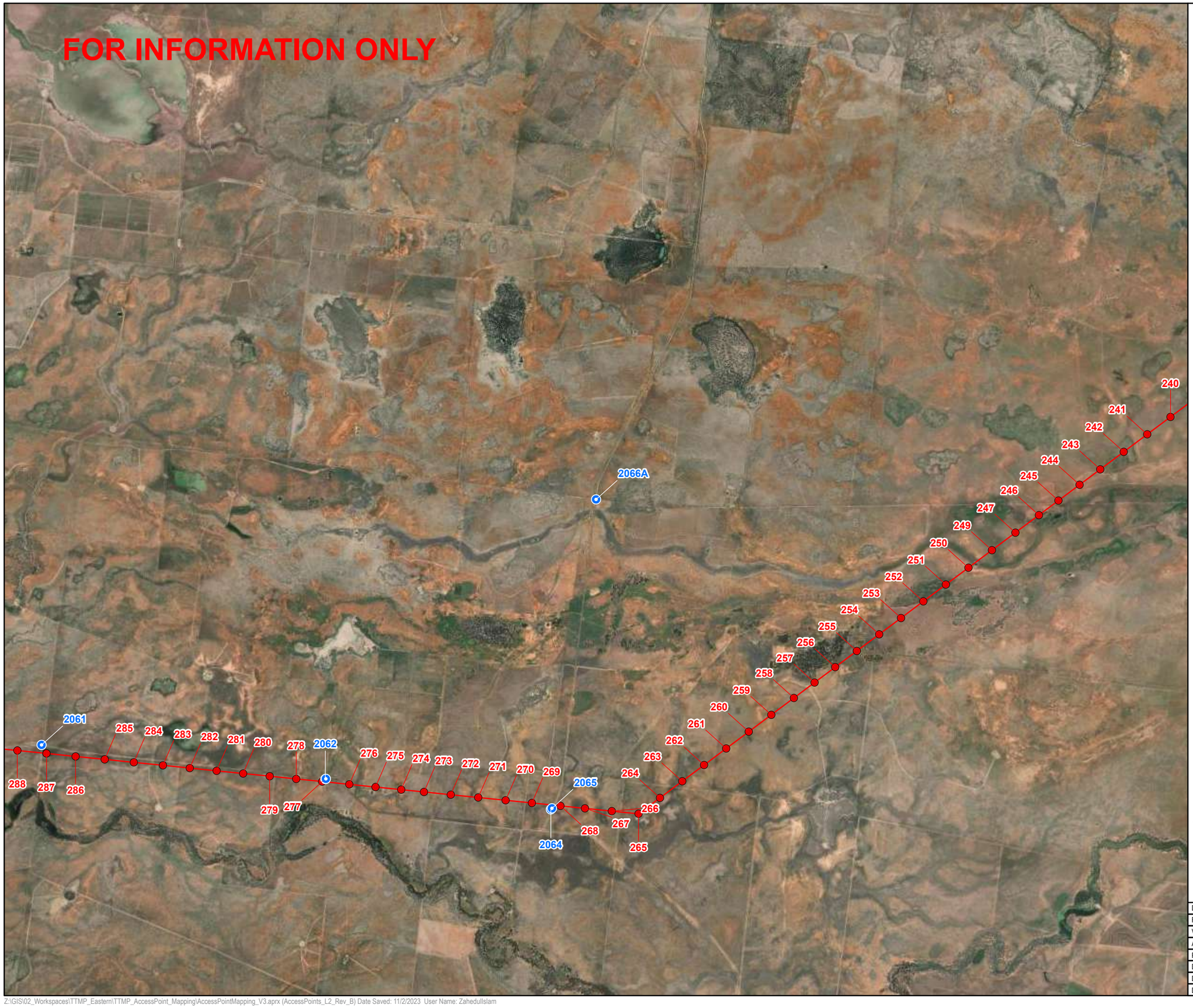
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CLOUGH ELECNOR JOINT VENTURE

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Meters

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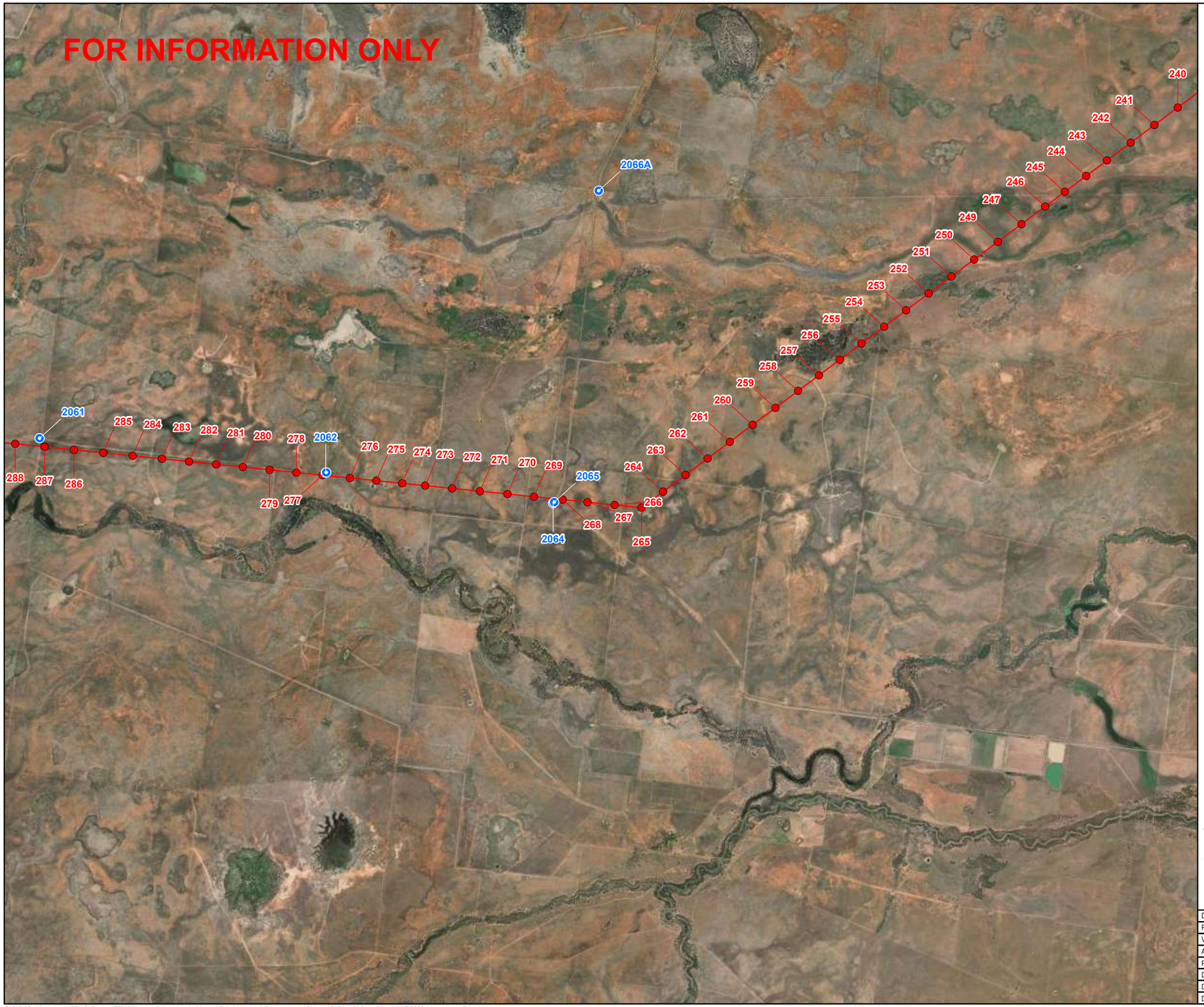
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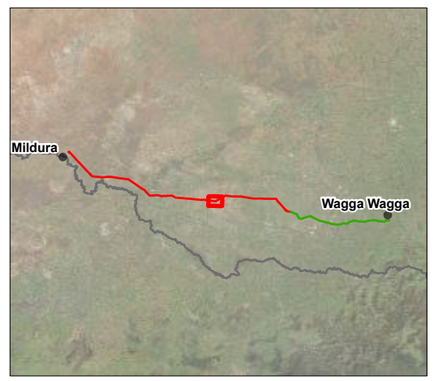
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ACCESS POINTS L2
MAP 39 OF 56

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CLOUGH ELECNOR JOINT VENTURE

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Meters

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ACCESS POINTS L2
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CLOUGH ELECNOR JOINT VENTURE

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Meters

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ACCESS POINTS L2
MAP 41 OF 56

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000

Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:61,035 (when printed at A3)

Legend

- Access Track Points
- Towers
- L2



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ACCESS POINTS L2
MAP 42 OF 56

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:61,035 (when printed at A3)

Legend

- Access Track Points
- Towers
- L2



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ACCESS POINTS L2
MAP 43 OF 56

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206 205 204 203 202 201 200 199 198 197 196 195A 195 194 193 192 191 190 189 188 187 186 185 184 183 182 181 180 178 177 176 175 174 173 172 171 170 169 168 167 166 164 165

2069

secureenergy
CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:61,035 (when printed at A3)

Legend

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- Towers
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ACCESS POINTS L2
MAP 44 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000

Meters

Datum: GDA2020 Projection: New South Wales Lambert
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Legend

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ACCESS POINTS L2
MAP 45 OF 56

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175 174 173 172 171 170 169 168 167 166 165 164 163 162 161 160 159 158 157 156 155 154 154A 153 152 151 2070 2071 150 148 147 146 145 144 143 142 141 140 139 138 137 136 135 134 133

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CLOUGH ELECNOR JOINT VENTURE

N

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Meters

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ACCESS POINTS L2
MAP 46 OF 56

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160 159 158 157 156 154A 153 151 2070 148 147 146 145 144 143 141 140 139 138 137 136 135 134 133 132 131 130 129 128 127 126 125 124 123 122 121 119 118
155 154 152 2071 150 142 2072 120 2073

secureenergy
CLOUGH ELECNOR JOINT VENTURE

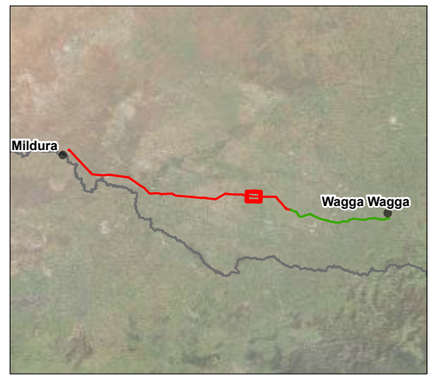
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Meters

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ACCESS POINTS L2
MAP 47 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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Legend

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- Towers
- L2



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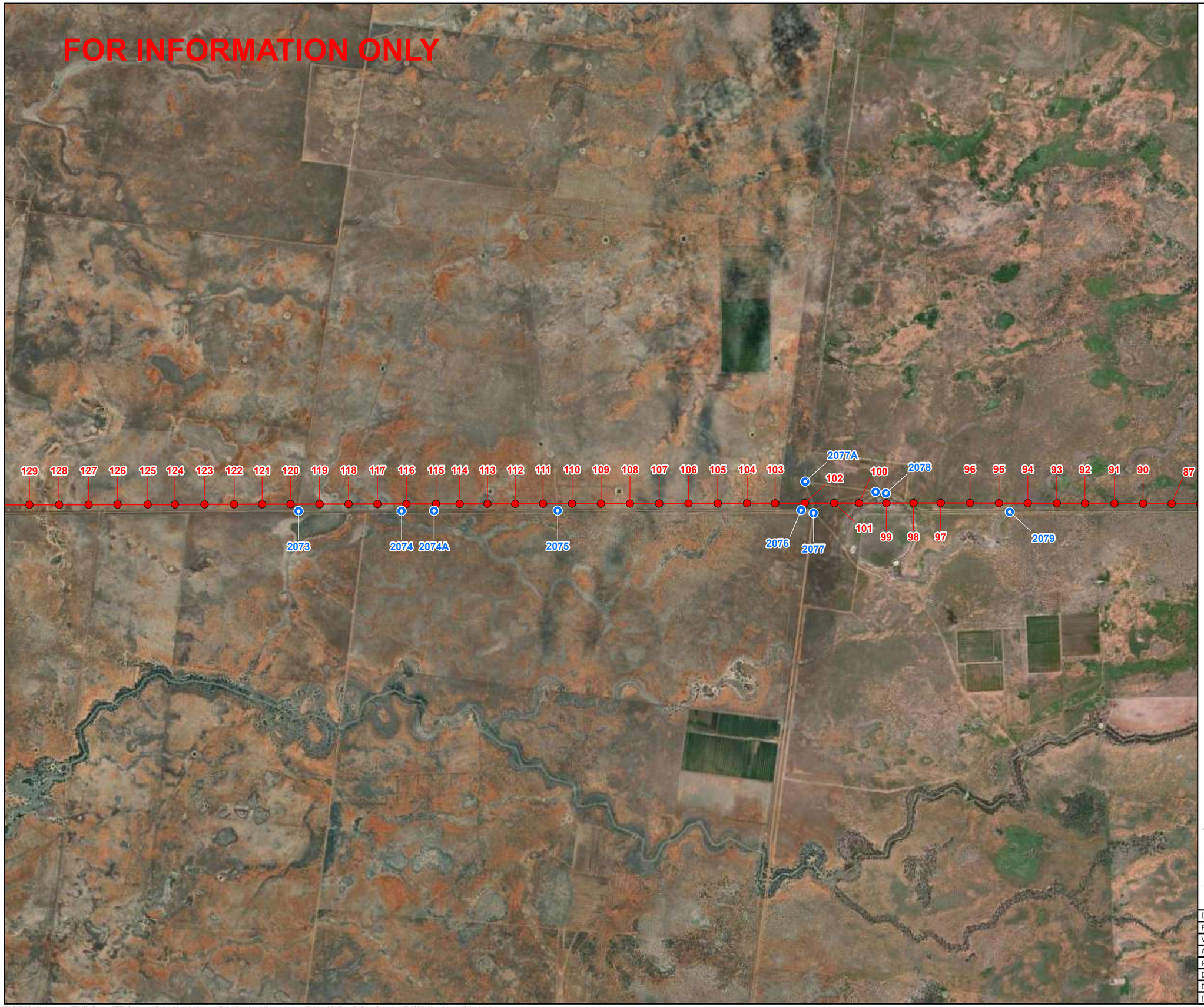
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ACCESS POINTS L2
MAP 48 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

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ACCESS POINTS L2
MAP 49 OF 56

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115 2074A 112 111 110 109 108 107 106 105 104 103 2077A 102 101 2078 96 95 94 93 92 91 90 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71

114 113 2075 2076 2077 2077B 99 98 97 2079 2080

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CLOUGH ELECNOR JOINT VENTURE

N

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Meters

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ACCESS POINTS L2
MAP 50 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

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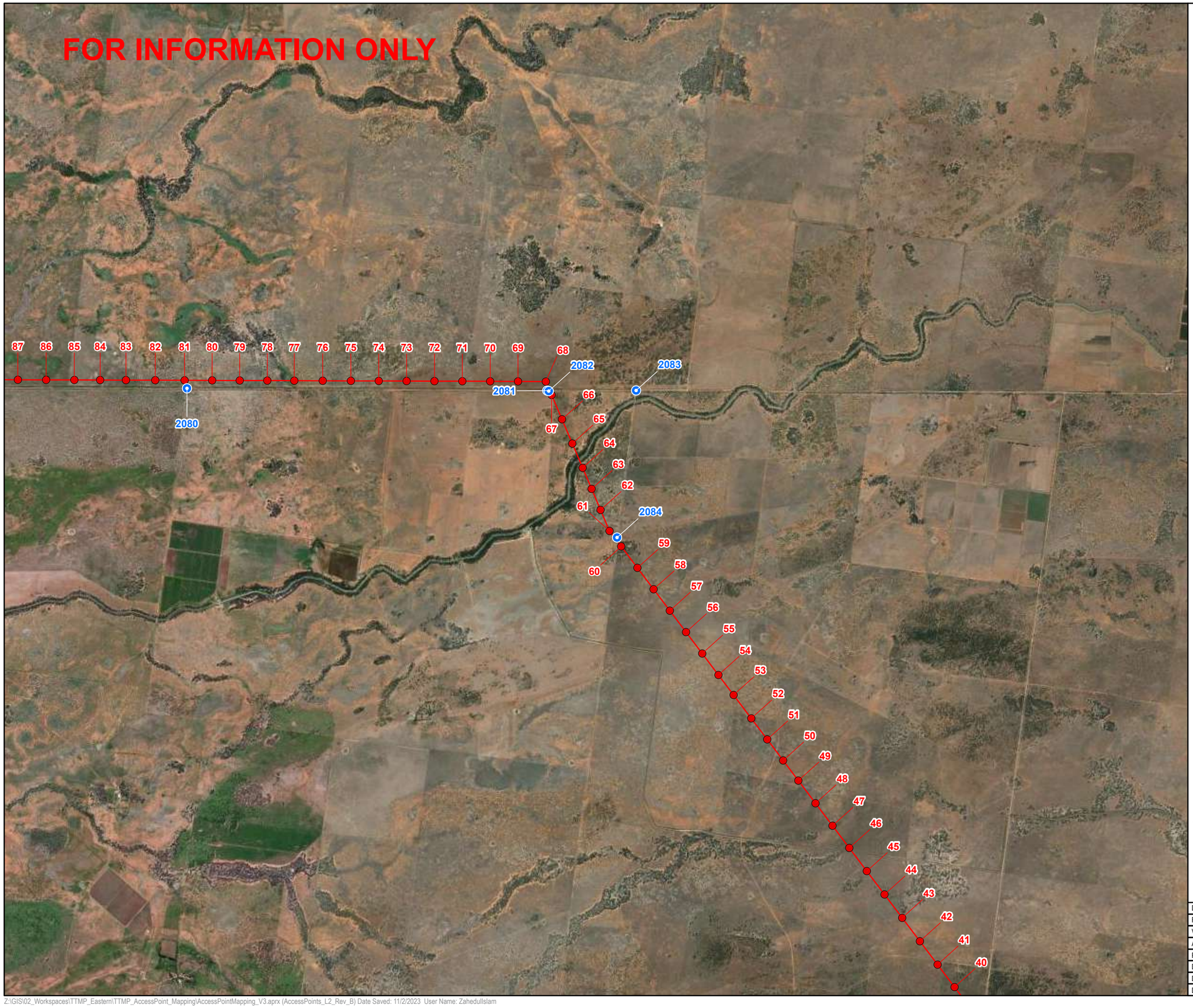
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ACCESS POINTS L2
MAP 51 OF 56

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CLOUGH ELECNOR JOINT VENTURE

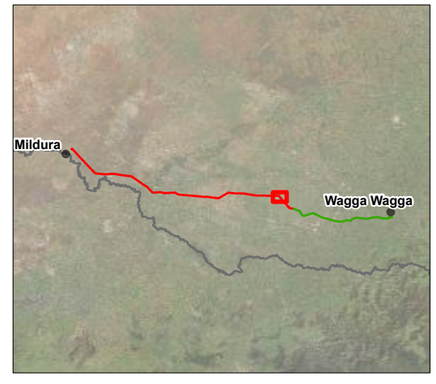
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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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ACCESS POINTS L2
MAP 52 OF 56

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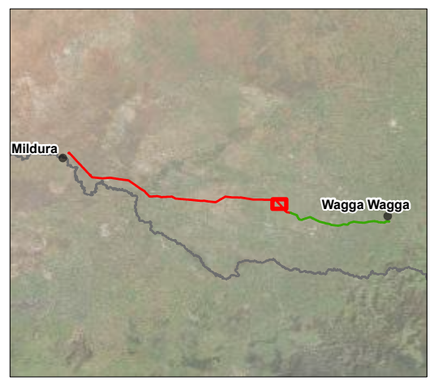
secureenergy
CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

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Legend
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ACCESS POINTS L2
MAP 53 OF 56

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CLOUGH ELECNOR JOINT VENTURE

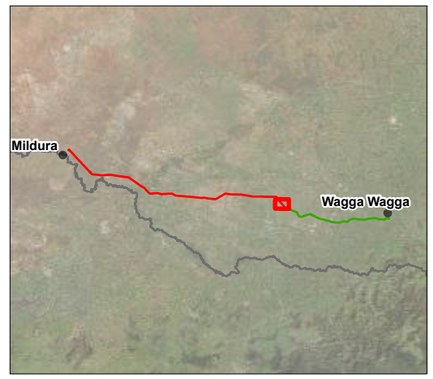
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Meters

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ACCESS POINTS L2
MAP 54 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

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Legend

- Access Track Points
- Towers
- L2
- L5



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ACCESS POINTS L2
MAP 55 OF 56

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CLOUGH ELECNOR JOINT VENTURE

N

0 500 1,000 2,000
Meters

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Legend
- Access Track Points
- Towers
- L2
- L5



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MAP 56 OF 56

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CLOUGH ELECNOR JOINT VENTURE

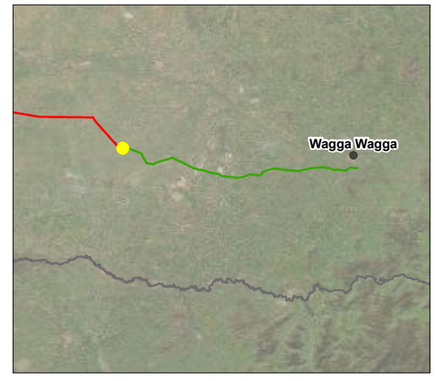
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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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Legend

- Access Track Points
- Towers
- L2
- L5



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World Imagery: Earthstar Geographics
World Imagery: Maxar

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ACCESS POINTS L5
MAP 1 OF 24

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5119
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1
DNW-6H
DNW-6G
334
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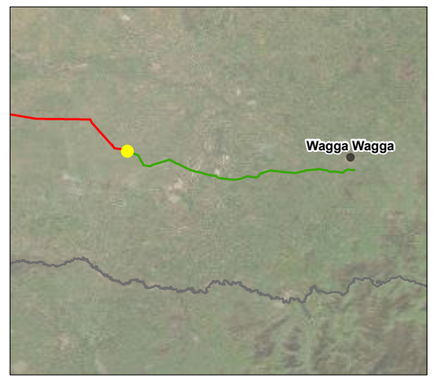
secureenergy
CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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Legend
- Access Track Points
- Towers
- L2
- L5



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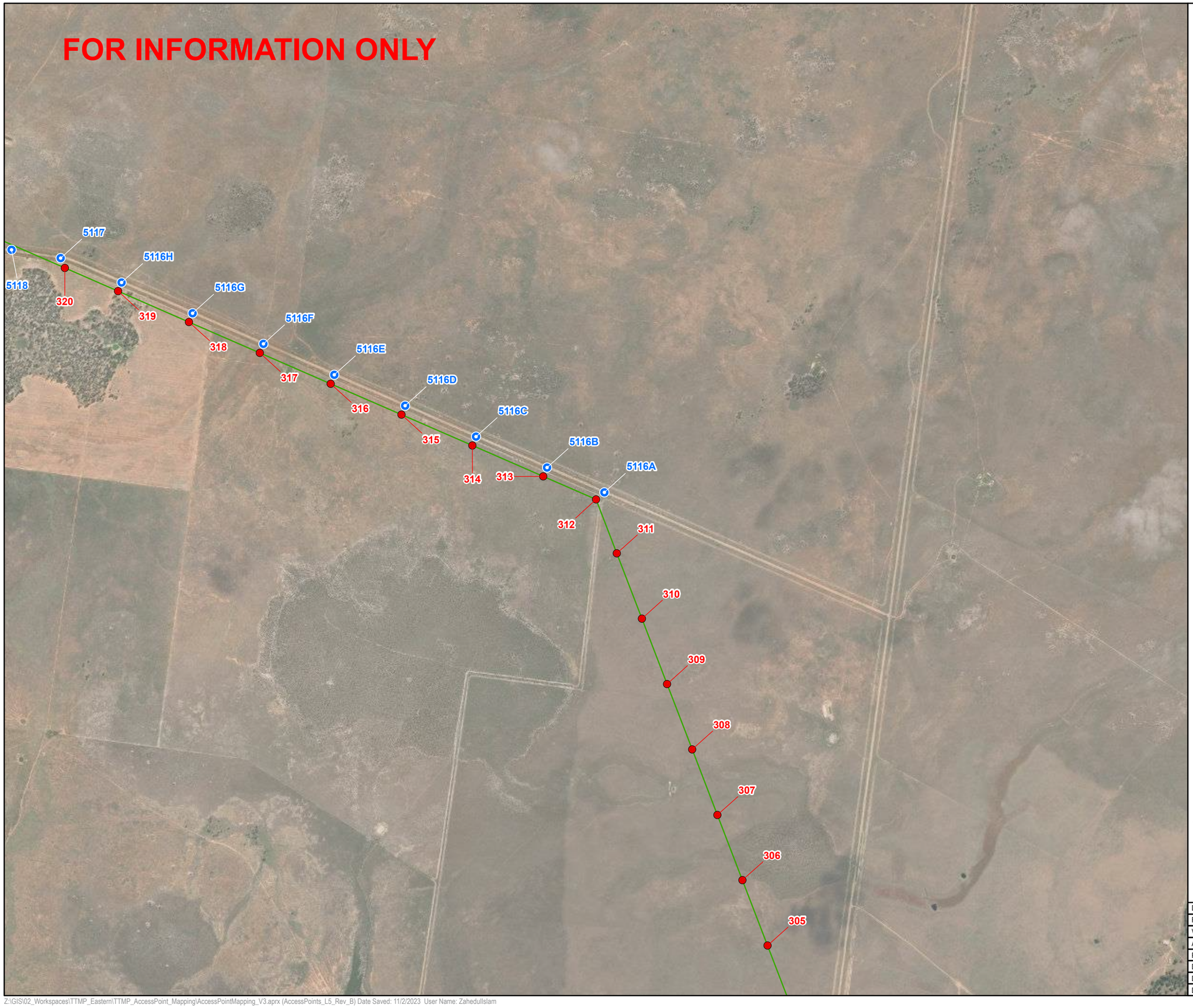
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World Imagery: Maxar

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ACCESS POINTS L5
MAP 2 OF 24

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CLOUGH ELECNOR JOINT VENTURE

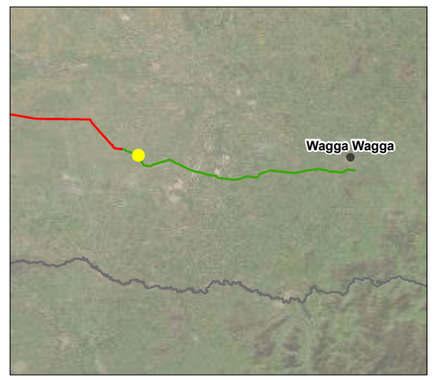
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Meters

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Legend

- Access Track Points
- Towers
- L5



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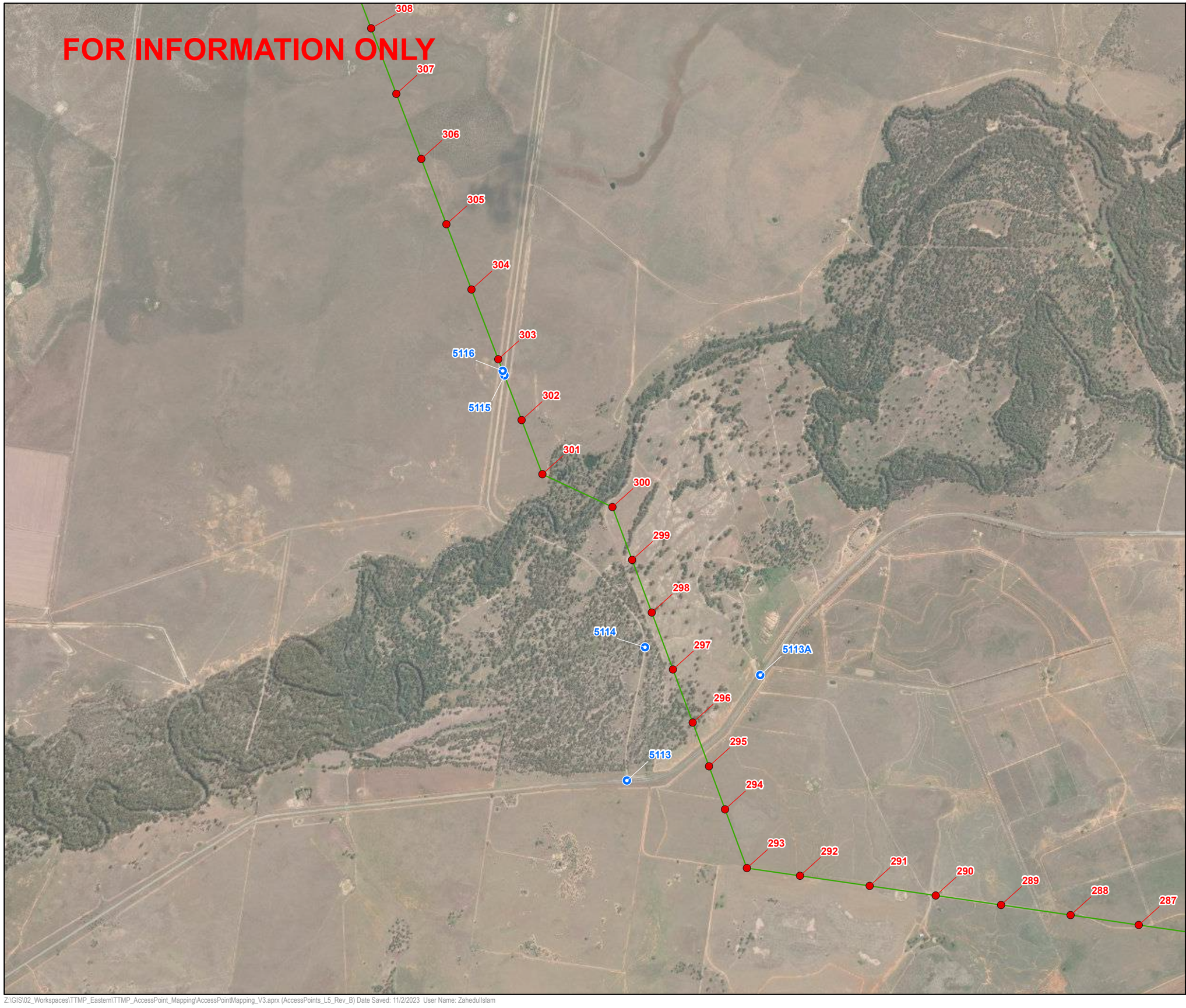
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ACCESS POINTS L5
MAP 3 OF 24

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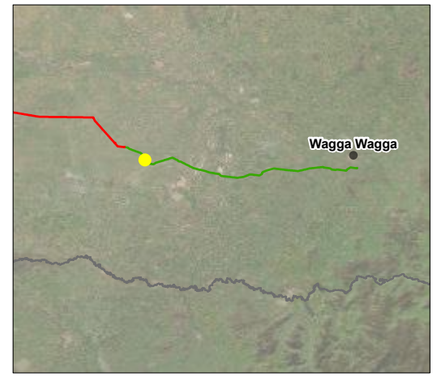
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0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
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Legend

- Access Track Points
- Towers
- L5



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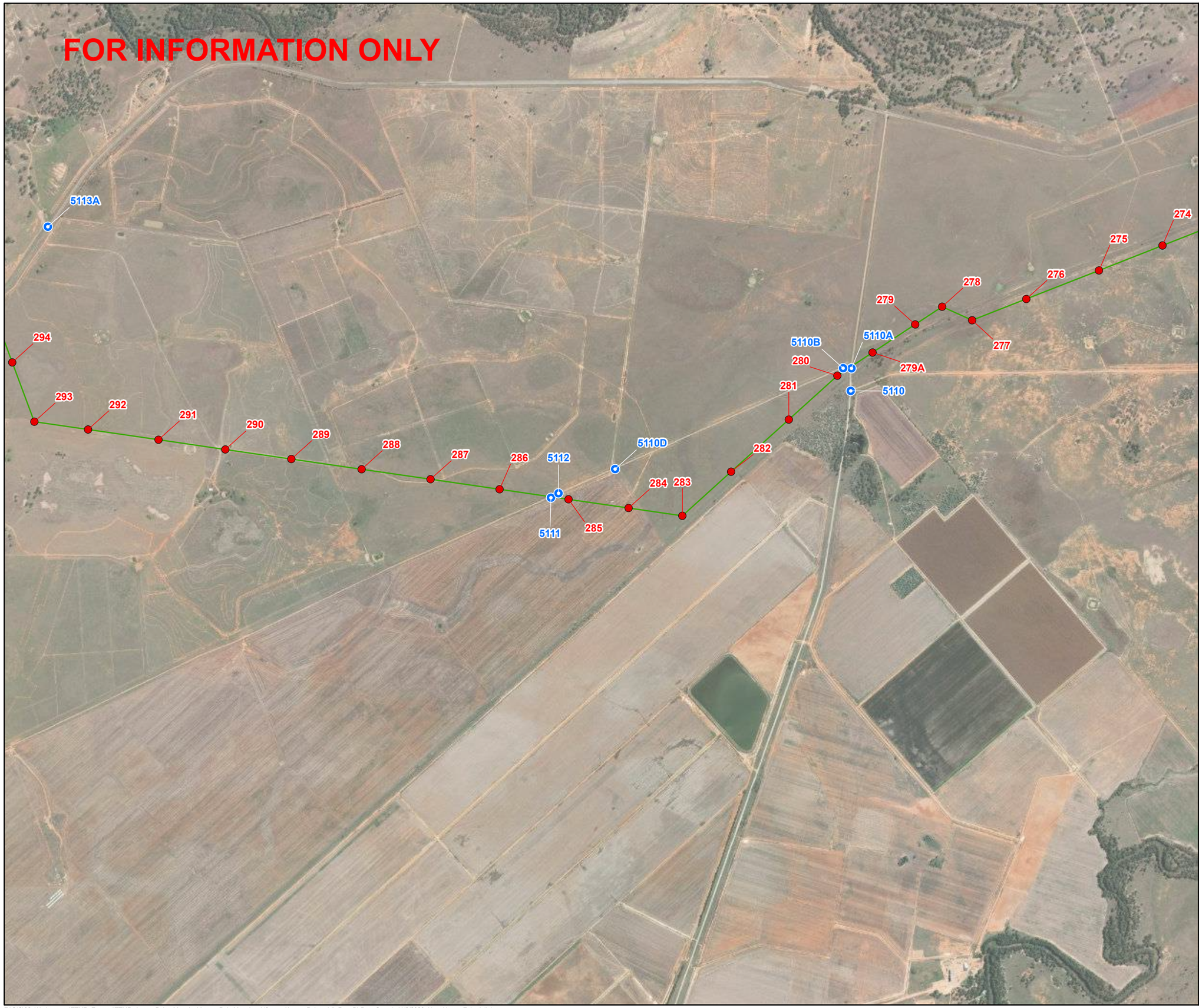
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World Imagery: Maxar

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ACCESS POINTS L5
MAP 4 OF 24

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

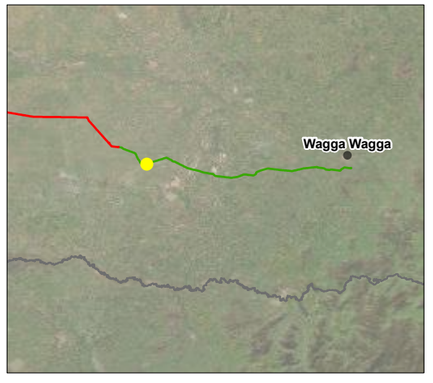
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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

Legend

- Access Track Points
- Towers
- L5



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World Imagery: Maxar

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ACCESS POINTS L5
MAP 5 OF 24

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CLOUGH ELECNOR JOINT VENTURE

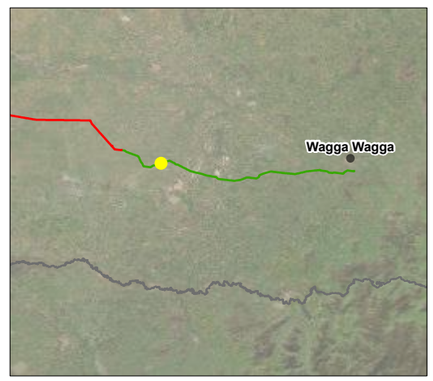
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ACCESS POINTS L5
MAP 6 OF 24

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

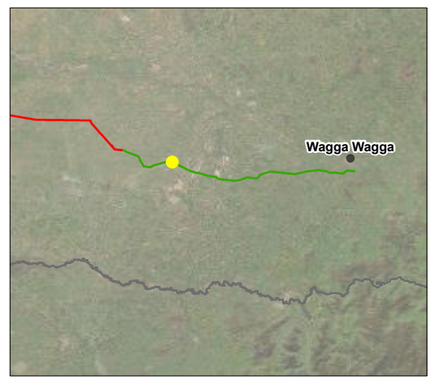
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ACCESS POINTS L5
MAP 7 OF 24

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CLOUGH ELECNOR JOINT VENTURE

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0 250 500 1,000
Meters

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ACCESS POINTS L5
MAP 8 OF 24

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CLOUGH ELECNOR JOINT VENTURE

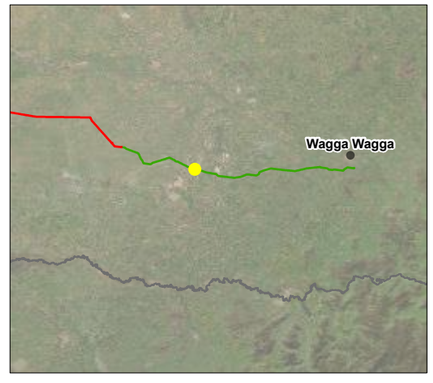
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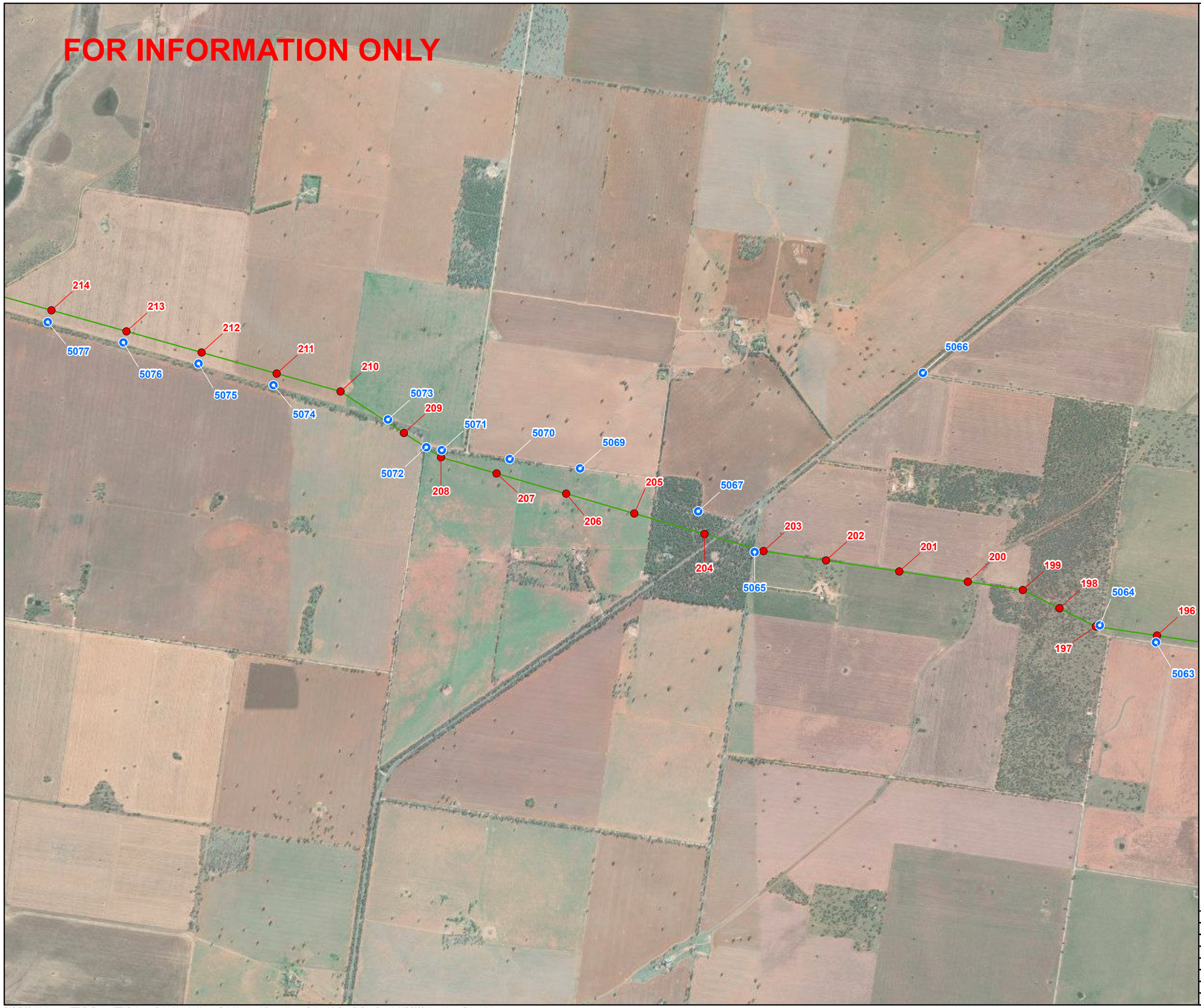
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ACCESS POINTS L5
MAP 9 OF 24

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CLOUGH ELECNOR JOINT VENTURE

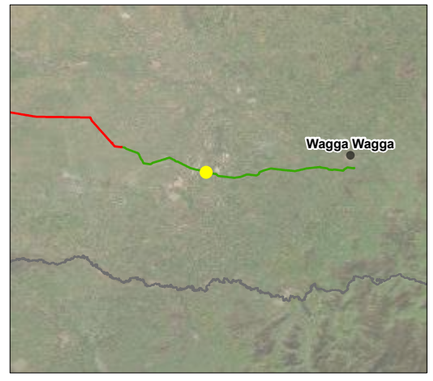
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ACCESS POINTS L5
MAP 10 OF 24

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CLOUGH ELECNOR JOINT VENTURE

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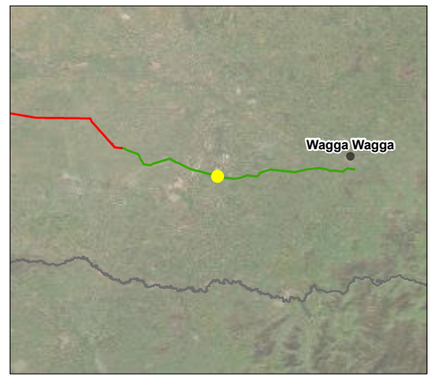
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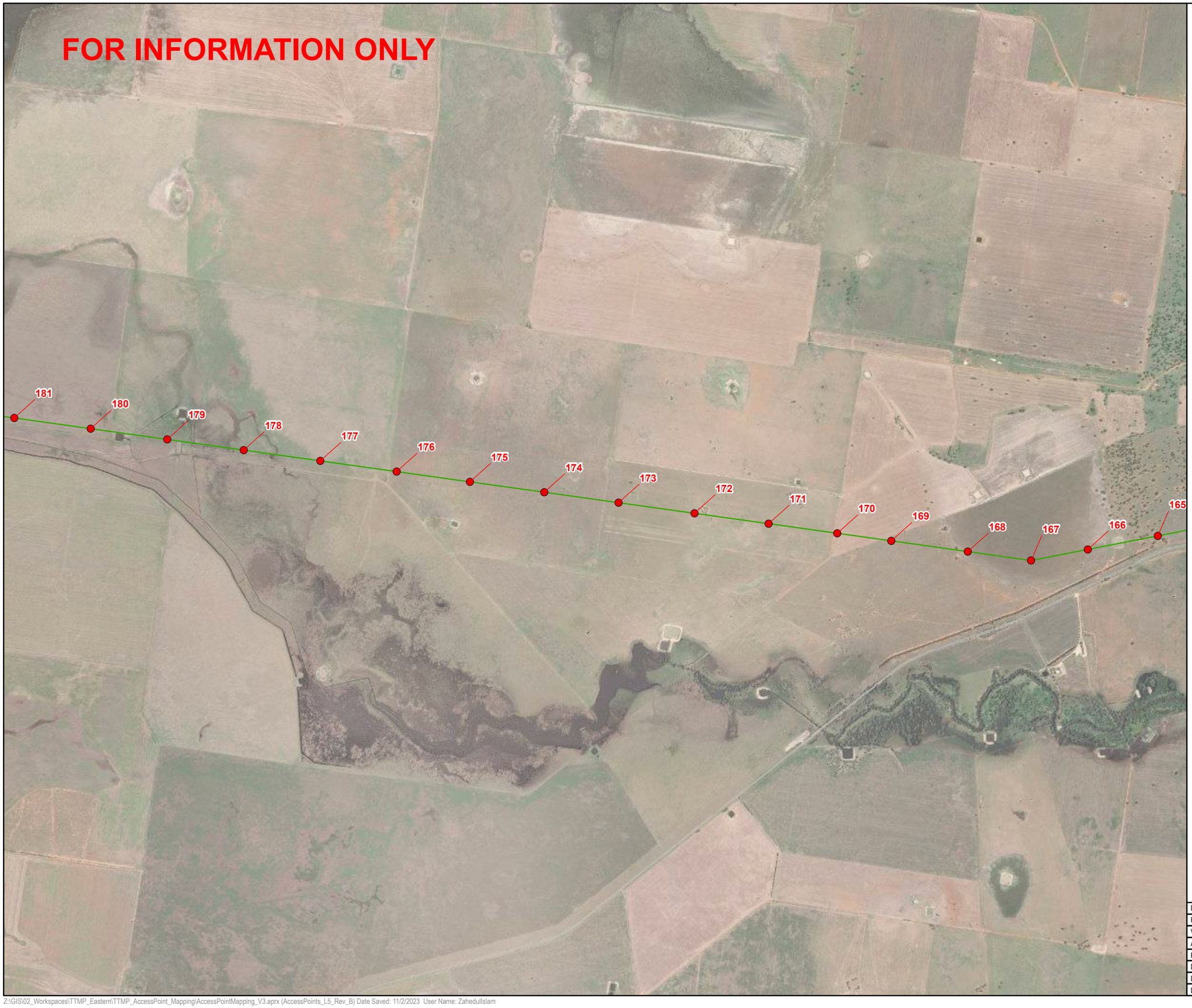
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ACCESS POINTS L5
MAP 11 OF 24

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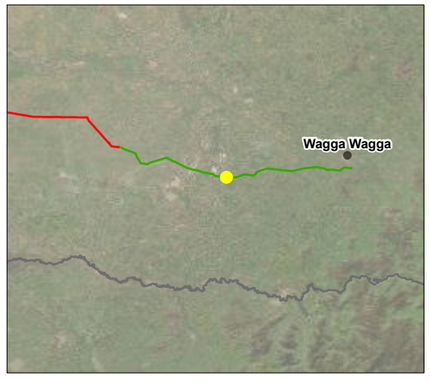
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ACCESS POINTS L5
MAP 12 OF 24

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CLOUGH ELECNOR JOINT VENTURE

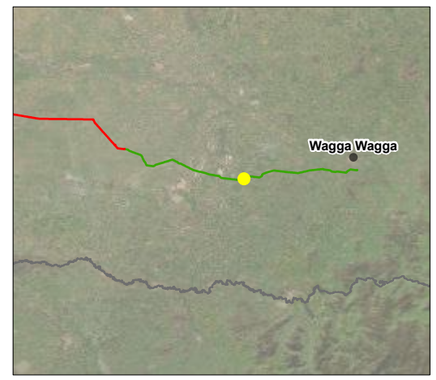
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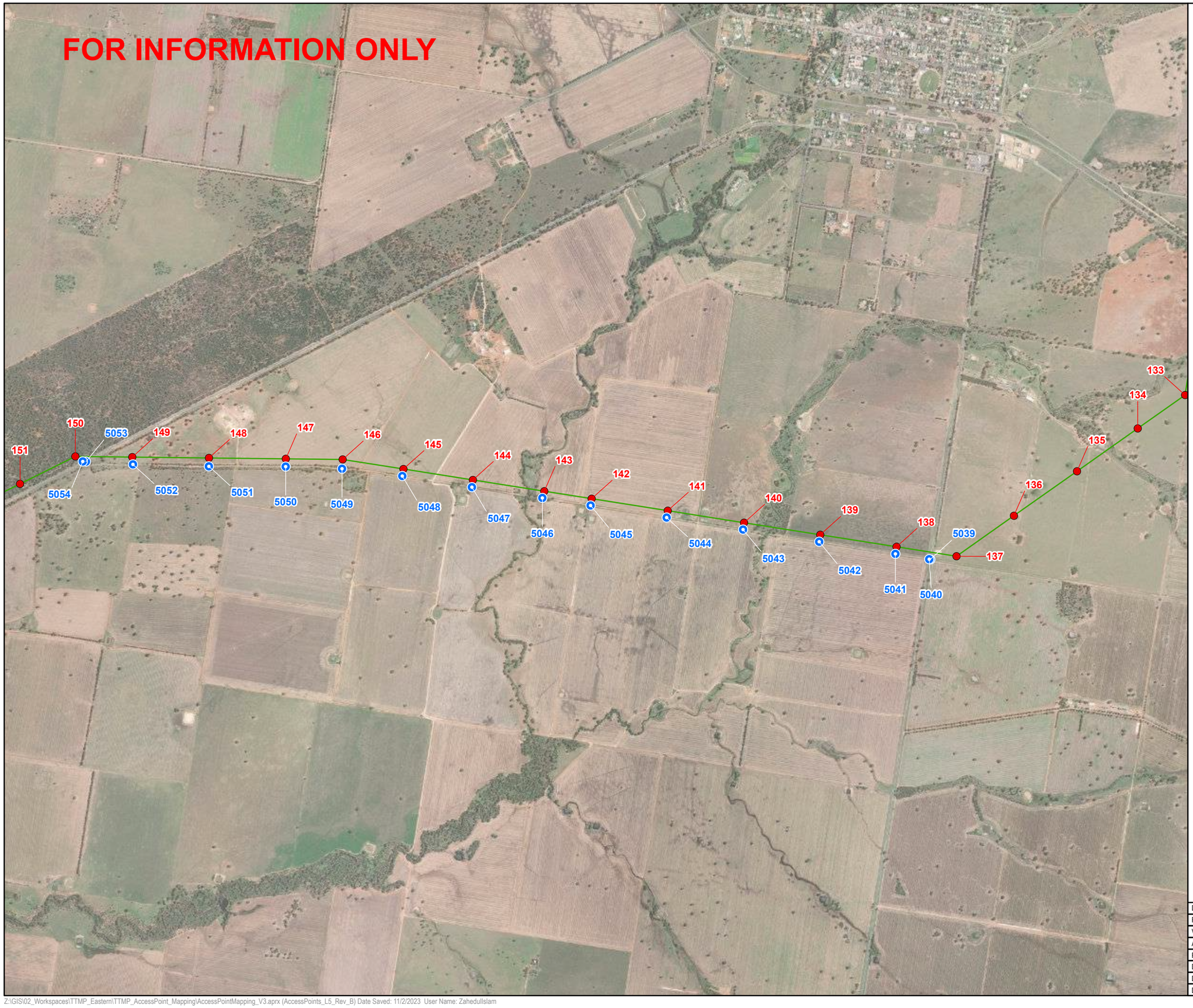
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ACCESS POINTS L5
MAP 13 OF 24

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CLOUGH ELECNOR JOINT VENTURE

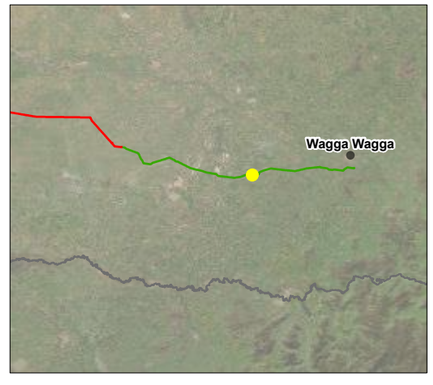
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ACCESS POINTS L5
MAP 14 OF 24

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CLOUGH ELECNOR JOINT VENTURE

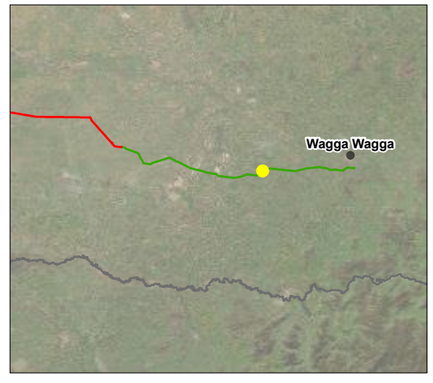
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ACCESS POINTS L5
MAP 15 OF 24

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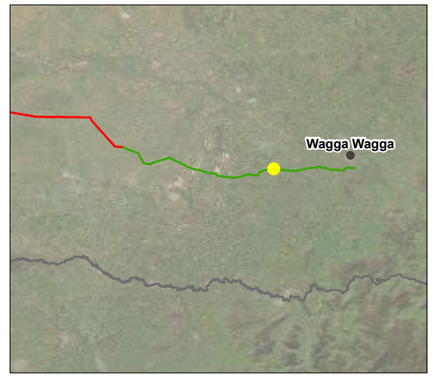
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ACCESS POINTS L5
MAP 16 OF 24

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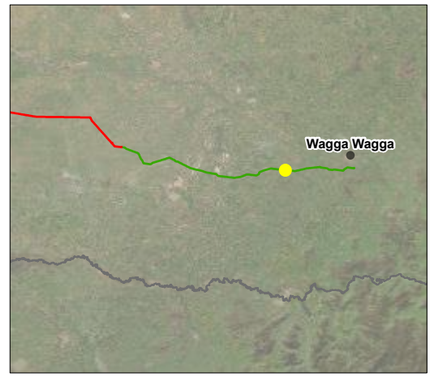
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ACCESS POINTS L5
MAP 17 OF 24

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CLOUGH ELECNOR JOINT VENTURE

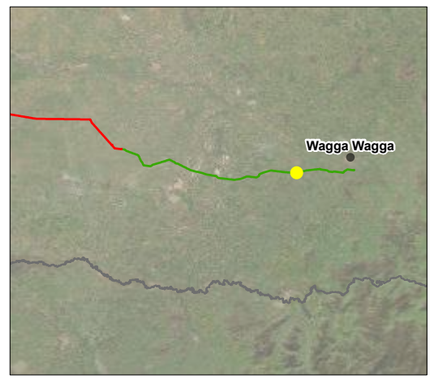
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ACCESS POINTS L5
MAP 18 OF 24

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CLOUGH ELECNOR JOINT VENTURE

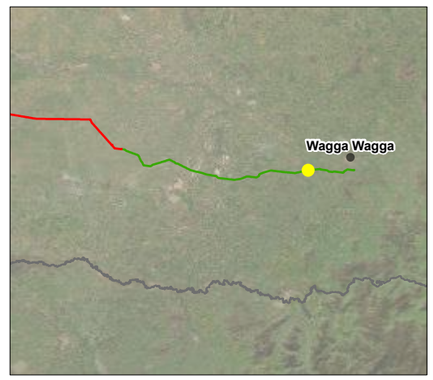
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ACCESS POINTS L5
MAP 19 OF 24

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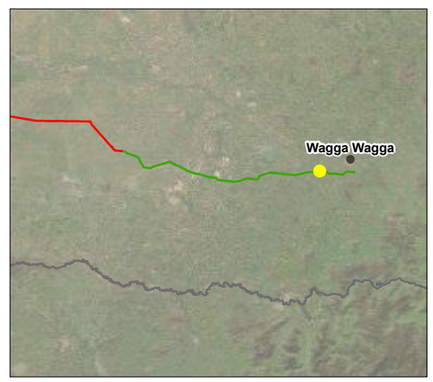
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ACCESS POINTS L5
MAP 20 OF 24

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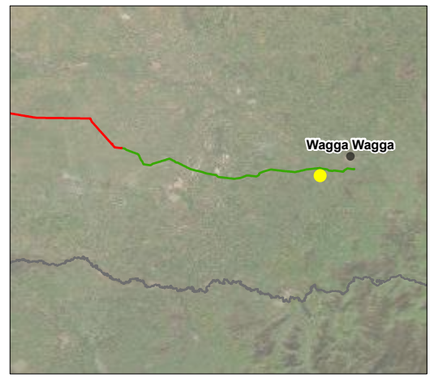
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CLOUGH ELECNOR JOINT VENTURE

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Meters

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ACCESS POINTS L5
MAP 21 OF 24

FOR INFORMATION ONLY



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CLOUGH ELECNOR JOINT VENTURE

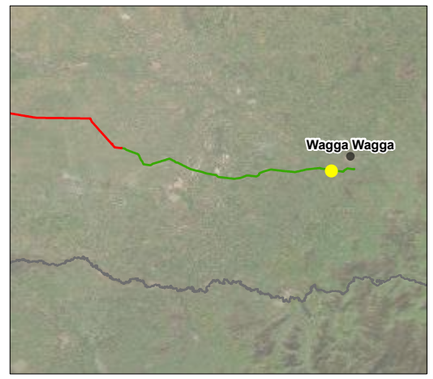
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0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

Legend

- Access Track Points
- Towers
- L5



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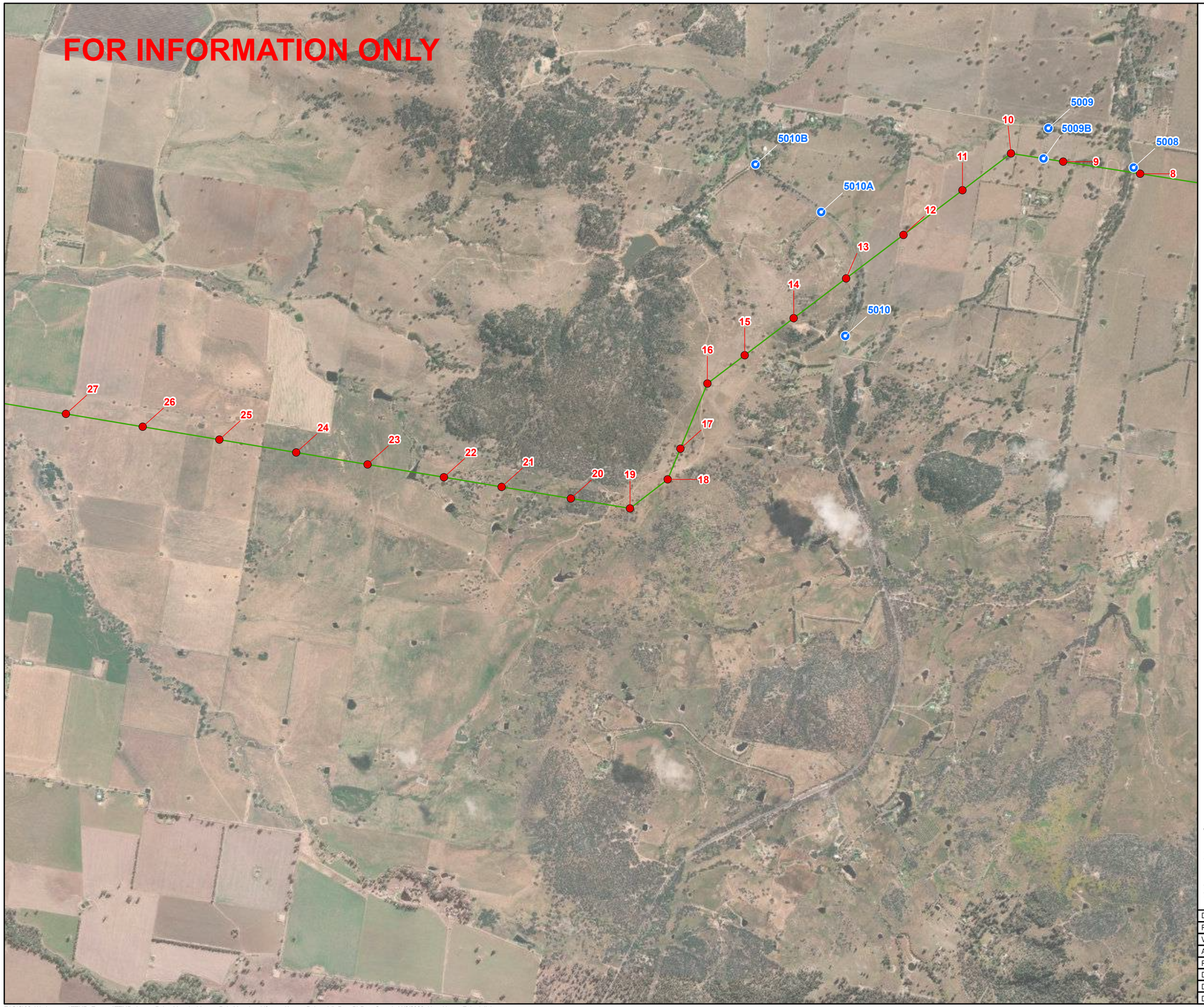
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ACCESS POINTS L5
MAP 22 OF 24

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CLOUGH ELECNOR JOINT VENTURE

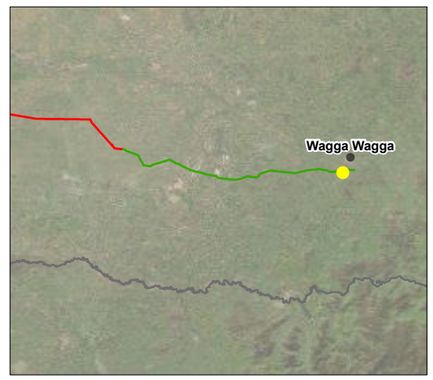
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Legend

- Access Track Points
- Towers
- L5



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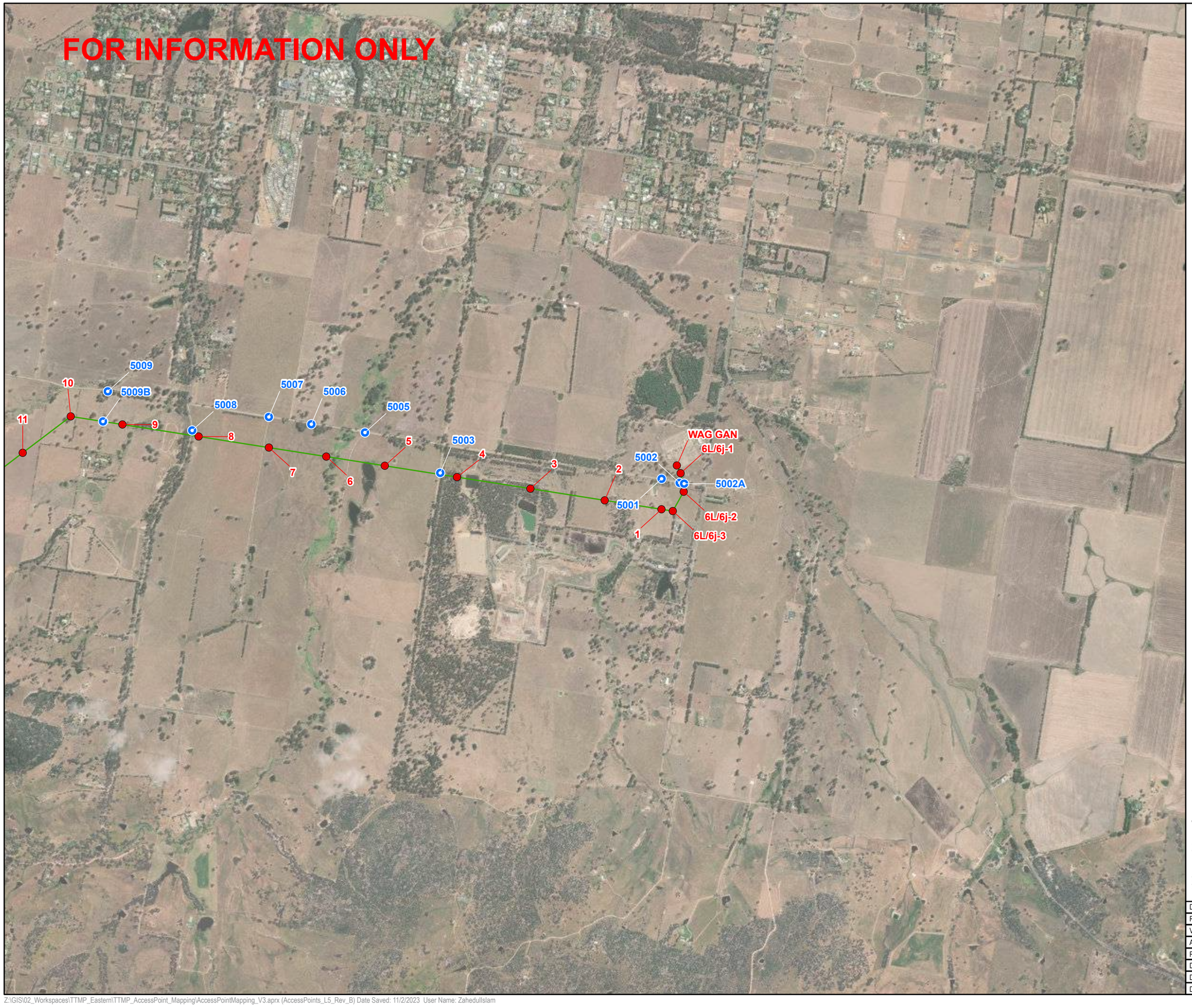
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ACCESS POINTS L5
MAP 23 OF 24

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CLOUGH ELECNOR JOINT VENTURE

N

0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
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Legend

- Access Track Points
- Towers
- L5



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ACCESS POINTS L5
MAP 24 OF 24

Appendix E - Primary and secondary access routes, water supply routes and additional access routes

FOR INFORMATION ONLY

Private Rd

Ivanhoe Rd

McGabe St

Mayall St

L5 - Laydown 5 - Balranald

secureenergy

0 10,000 20,000

Meters

N

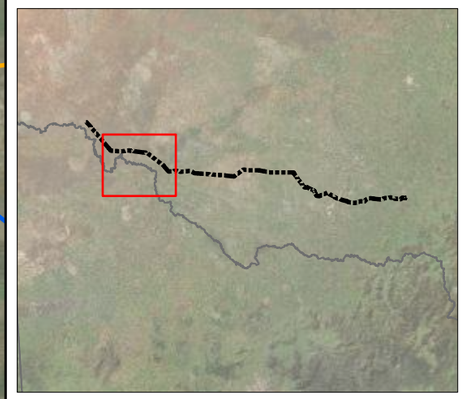
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Legend

- Camps and Laydowns
- Water Supply Location
- Additional access routes (not yet approved)

Approved Access Routes

- Primary Route
- Secondary Route
- Water Supply Route
- Transmission Alignment
- LGA Boundary



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Approved Only Access Routes
Balranald LGA
Map 1 of 3

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FOR INFORMATION ONLY

Private Rd

Ivanhoe Rd

McCabe St

Mayall St

secureenergy

0 2,000 4,000

Meters

N

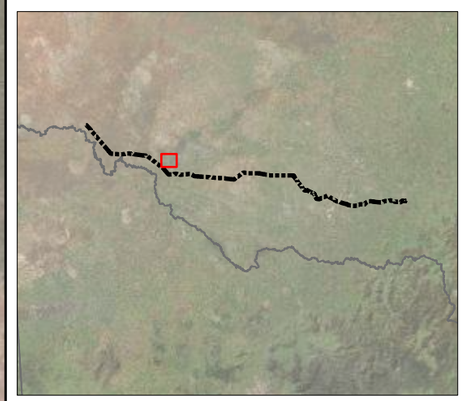
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Legend

- Water Supply Location
- Additional access routes (not yet approved)

Approved Access Routes

- Primary Route
- Secondary Route
- Water Supply Route
- Transmission Alignment
- LGA Boundary



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Approved Only Access Routes
Balranald LGA
Map 2 of 3

FOR INFORMATION ONLY

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0 1,500 3,000

Meters

N

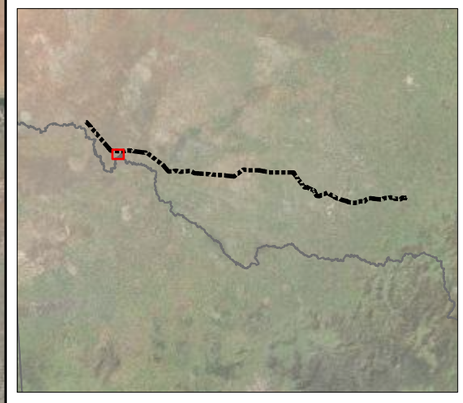
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Legend

- Water Supply Location

Approved Access Routes

- Primary Route
- Secondary Route
- Water Supply Route
- Transmission Alignment
- LGA Boundary



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Approved Only Access Routes
Balranald LGA
Map 3 of 3

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secureenergy

0 4,000 8,000

Meters

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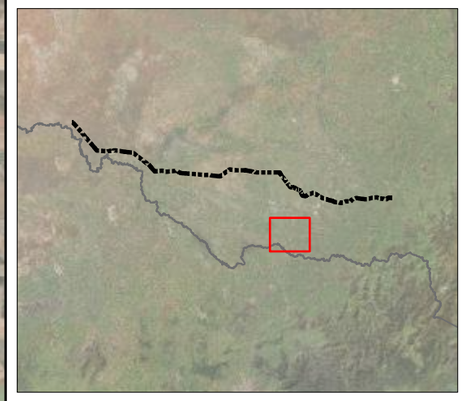
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Legend

Haulage_Ro

Primary Route

LGA Boundary



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Access Routes
Berrigan LGA
Map 1 of 2

FOR INFORMATION ONLY

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0 500 1,000
Meters

N

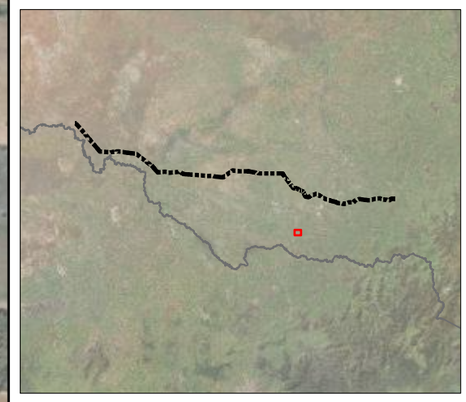
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Legend

Haulage_Ro

Primary Route

LGA Boundary



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Access Routes
Berrigan LGA
Map 2 of 2

FOR INFORMATION ONLY

Cobb Hwy accommodation camp and construction compound

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0 12,500 25,000

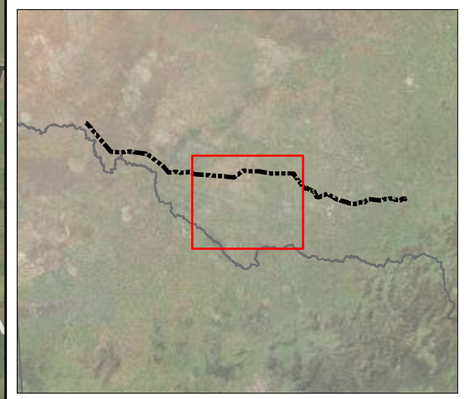
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Legend

- Camps and Laydowns
- Water Supply Location
- Primary Route
- Secondary Route
- Transmission Alignment
- LGA Boundary



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Access Routes
Edward River LGA
Map 1 of 2

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0 1,250 2,500

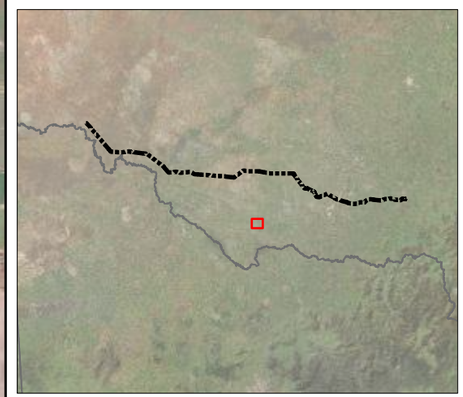
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Legend

- Water Supply Location
- Primary Route
- Secondary Route
- LGA Boundary



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Access Routes
Edward River LGA
Map 2 of 2

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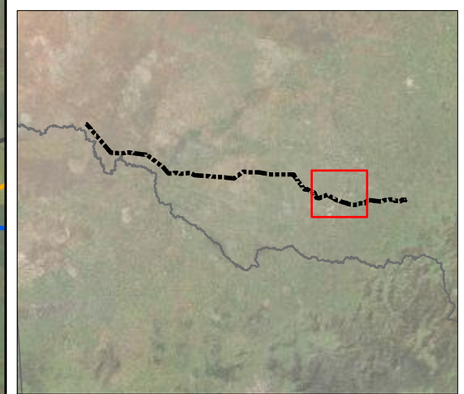
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Meters

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Legend

- Water Supply Location
- Primary Route
- Secondary Route
- Light Vehicle
- Water Supply Route
- Transmission Alignment
- LGA Boundary



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Access Routes
Federation LGA
Map 1 of 2

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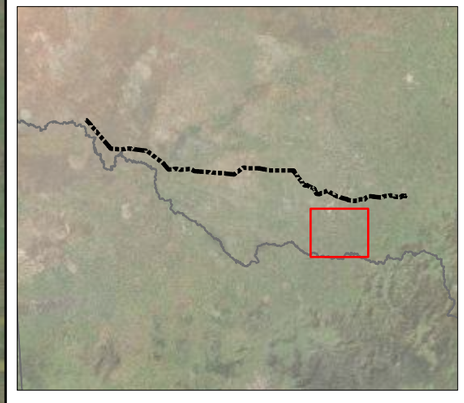
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0 5,000 10,000
Meters

N

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Legend
- Primary Route
- Secondary Route
- LGA Boundary



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Access Routes
Federation LGA
Map 2 of 2

FOR INFORMATION ONLY

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0 4,500 9,000

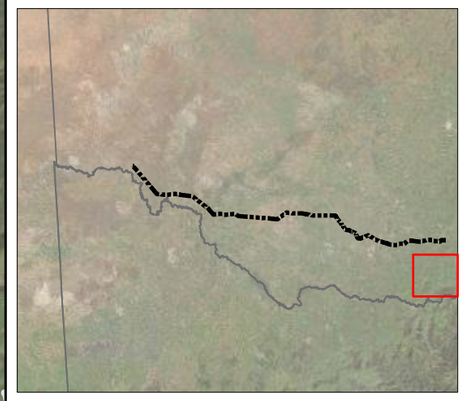
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Legend

- Primary Route
- Secondary Route
- LGA Boundary



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Access Routes
Greater Hume Shire LGA
Map 1 of 1

FOR INFORMATION ONLY

Cobb Hwy accommodation camp and construction compound

secureenergy

0 10,000 20,000

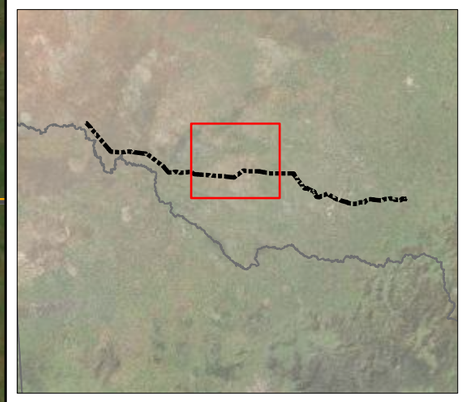
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Legend

- Camps and Laydowns
- Water Supply Location
- Primary Route
- Secondary Route
- Water Supply Route
- Transmission Alignment
- LGA Boundary



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Access Routes
Hay LGA
Map 1 of 2

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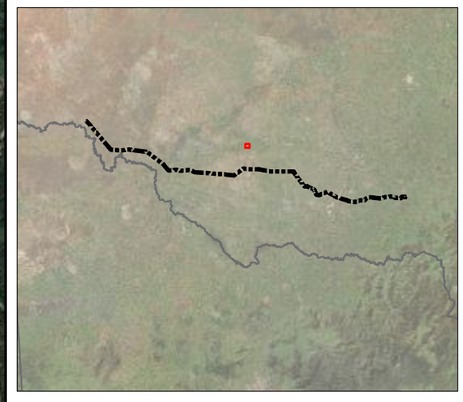
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Legend

- Water Supply Location
- Primary Route
- Water Supply Route
- LGA Boundary



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Access Routes
Hay LGA
Map 2 of 2

FOR INFORMATION ONLY



secureenergy

0 1,500 3,000

Meters

N

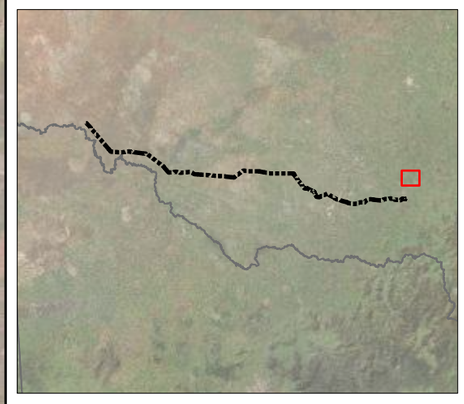
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Legend

Haulage_Ro

Primary Route

LGA Boundary



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Access Routes
Junee LGA
Map 1 of 1

FOR INFORMATION ONLY

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0 2,500 5,000
Meters

N

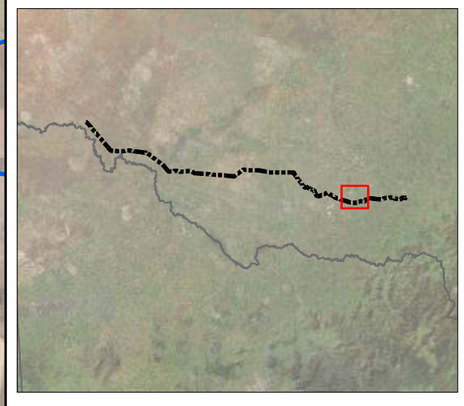
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Legend

- Water Supply Location

Haulage_Ro

- Primary Route
- Secondary Route
- Light Vehicle
- Transmission Alignment
- LGA Boundary



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Access Routes
Lockhart LGA
Map 1 of 4

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0 2,500 5,000

Meters

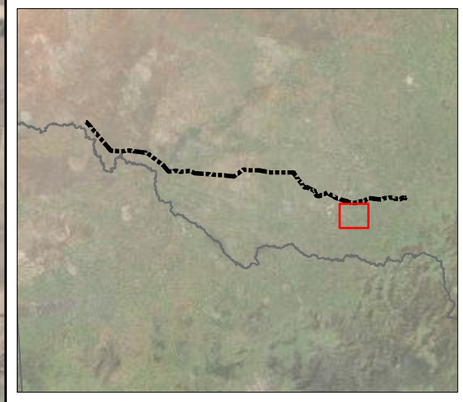
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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:130,000 (when printed at A3)

Legend

Haulage_Ro

- Primary Route
- Secondary Route
- LGA Boundary



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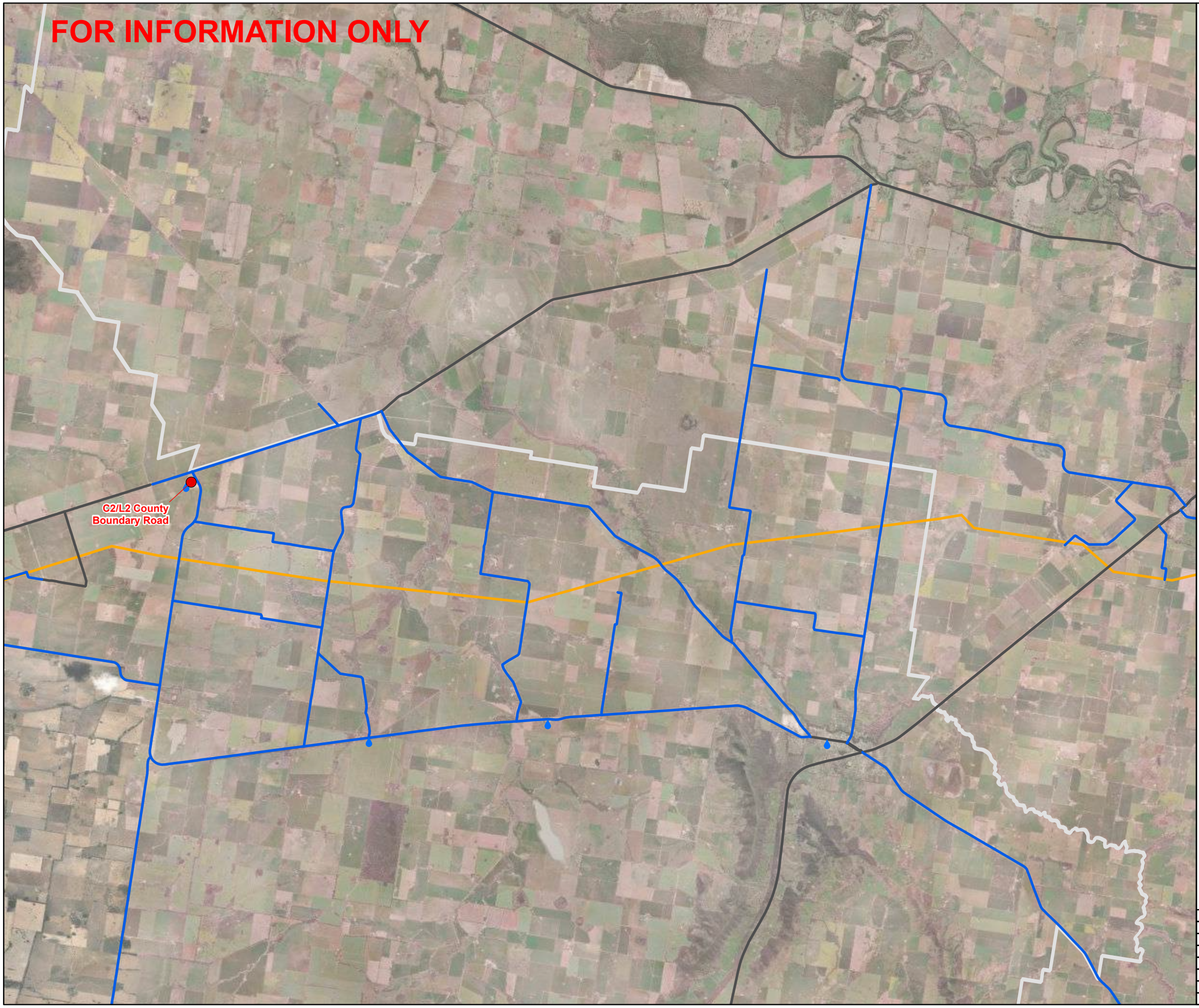
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World Imagery: Earthstar Geographics

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Access Routes
Lockhart LGA
Map 2 of 4

FOR INFORMATION ONLY



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0 2,500 5,000

Meters

N

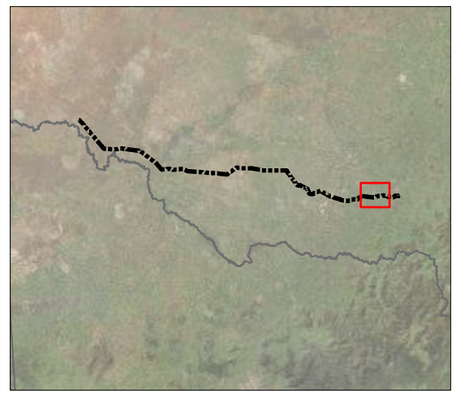
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Legend

- Camps and Laydowns
- Water Supply Location

Haulage_Ro

- Primary Route
- Secondary Route
- Transmission Alignment
- LGA Boundary



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Access Routes
Lockhart LGA
Map 3 of 4

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0 2,500 5,000

Meters

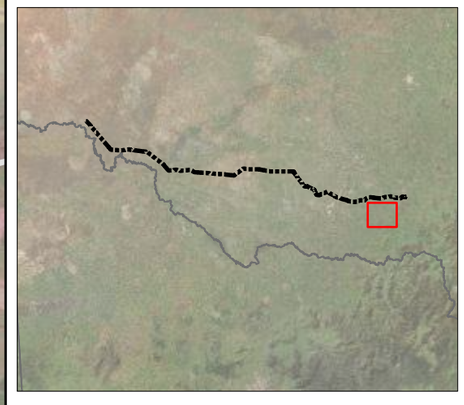
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Legend

Haulage_Ro

- Primary Route
- Secondary Route
- LGA Boundary



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Access Routes
Lockhart LGA
Map 4 of 4

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L5 - Laydown
5 - Balranald

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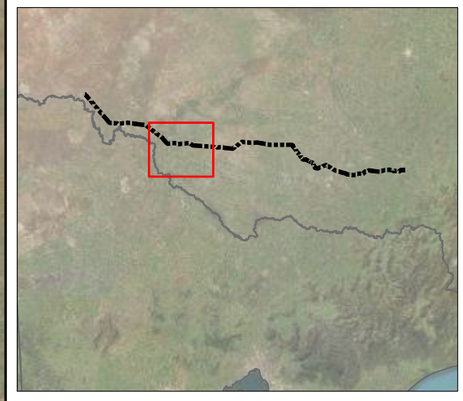
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Datum: GDA2020 Projection: New South Wales Lambert
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Legend

- Camps and Laydowns
- Water Supply Location
- Primary Route
- Secondary Route
- Water Supply Route
- Additional access routes
- Transmission Alignment
- LGA Boundary



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Access Routes
Murray River LGA
Map 1 of 4

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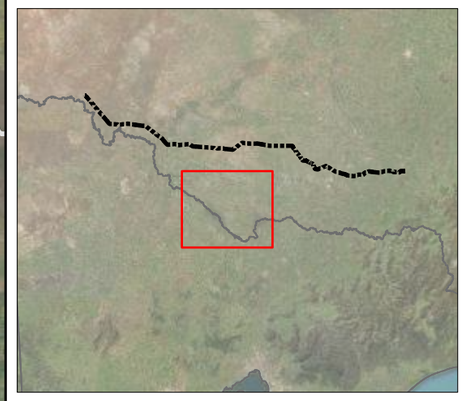
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Datum: GDA2020 Projection: New South Wales Lambert
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Legend

- Water Supply Location
- Primary Route
- Secondary Route
- LGA Boundary



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Access Routes
Murray River LGA
Map 2 of 4

FOR INFORMATION ONLY

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0 435 870

Meters

N

Datum: GDA2020 Projection: New South Wales Lambert
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Legend

- Water Supply Location
- Primary Route
- Water Supply Route
- LGA Boundary



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World Imagery: Earthstar Geographics
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Access Routes
Murray River LGA
Map 3 of 4

FOR INFORMATION ONLY

secureenergy

0 435 870

Meters

N

Datum: GDA2020 Projection: New South Wales Lambert
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Legend

- Primary Route
- Secondary Route
- Additional access routes
- LGA Boundary



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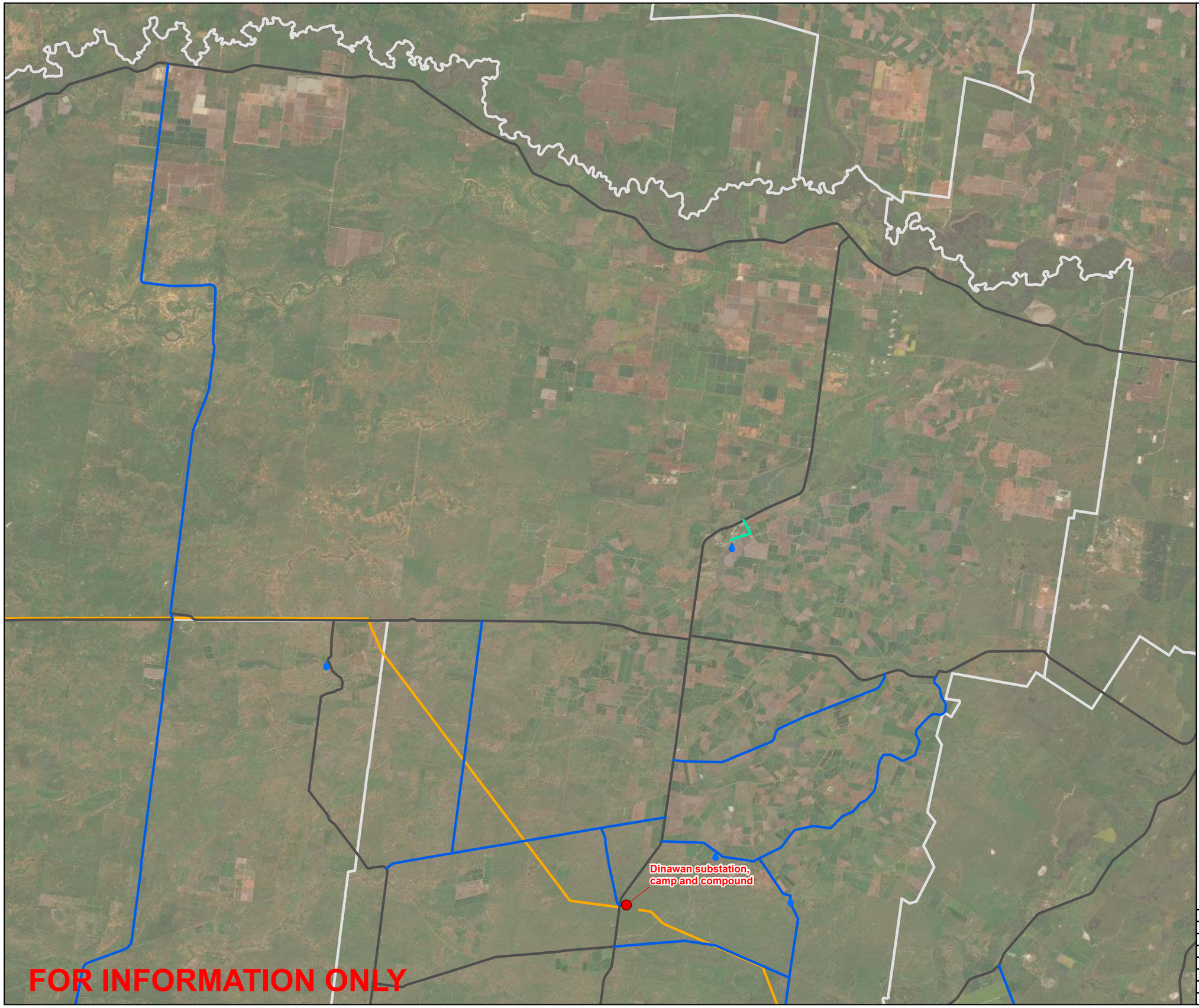
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World Imagery: Earthstar Geographics
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Access Routes
Murray River LGA
Map 4 of 4

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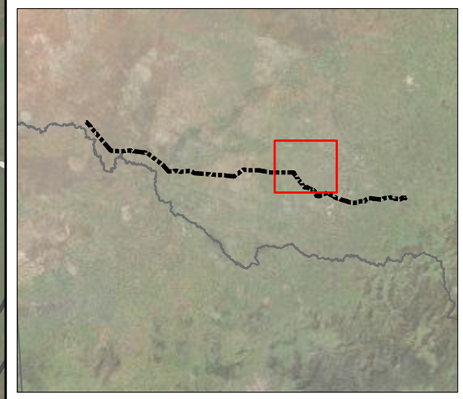
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N

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:280,000 (when printed at A3)

Legend

- Camps and Laydowns
- Water Supply Location
- Primary Route
- Secondary Route
- Water Supply Route
- Transmission Alignment
- LGA Boundary



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World Imagery: Earthstar Geographics

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Access Routes
Murrumbidgee LGA
Map 1 of 2

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Dinawan substation, camp and compound

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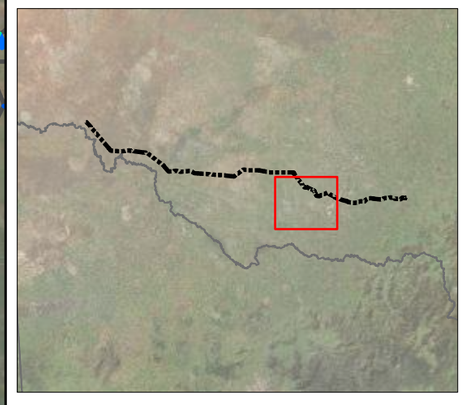
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Scale: 1:280,000 (when printed at A3)

Legend

- Camps and Laydowns
- Water Supply Location
- Primary Route
- Secondary Route
- Water Supply Route
- Transmission Alignment
- LGA Boundary



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Access Routes
Murrumbidgee LGA
Map 2 of 2

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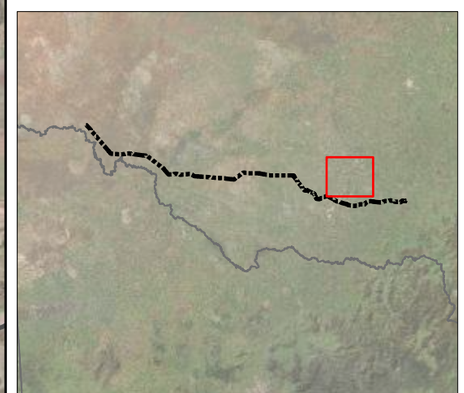
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N

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:210,000 (when printed at A3)

Legend

- Water Supply Location
- Primary Route
- Secondary Route
- Transmission Alignment
- LGA Boundary



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Access Routes
Narrandera LGA
Map 1 of 1

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C2/L2 County Boundary Road

secureenergy

0 2,500 5,000
Meters

N

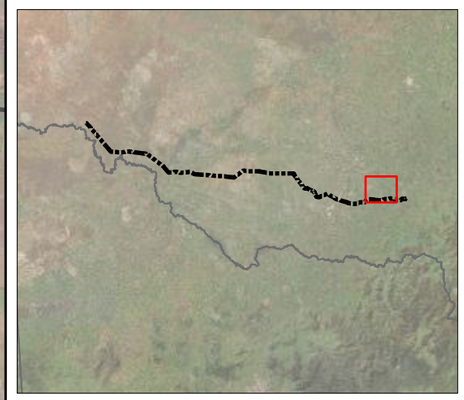
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Legend

- Camps and Laydowns
- Water Supply Location

Haulage_Ro

- Primary Route
- Secondary Route
- Transmission Alignment
- LGA Boundary



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Access Routes
Wagga Wagga LGA
Map 1 of 4

FOR INFORMATION ONLY

L1 Wagga Wagga

secureenergy

0 2,000 4,000
Meters

N

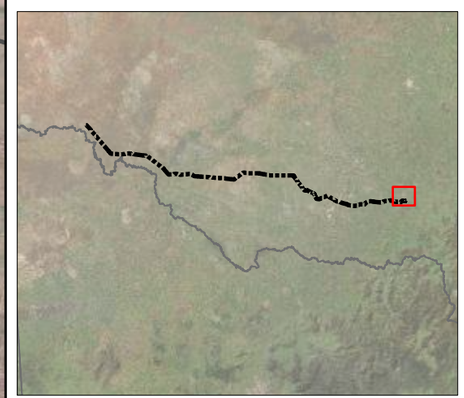
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Legend

- Camps and Laydowns
- Water Supply Location

Haulage_Ro

- Primary Route
- Secondary Route
- Light Vehicle
- Transmission Alignment
- LGA Boundary



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Access Routes
Wagga Wagga LGA
Map 2 of 4

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L1 Wagga Wagga

secureenergy

0 2,000 4,000
Meters

N

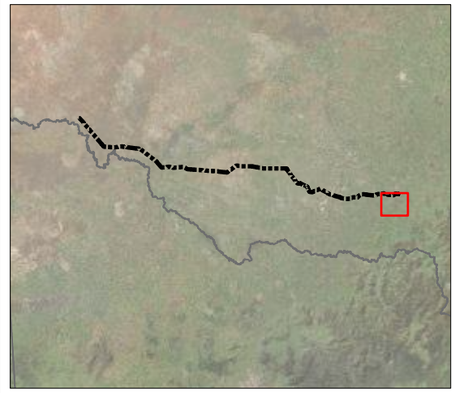
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Legend

- Camps and Laydowns

Haulage_Ro

- Primary Route
- Secondary Route
- Light Vehicle
- Transmission Alignment
- LGA Boundary



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Access Routes
Wagga Wagga LGA
Map 3 of 4

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0 3,000 6,000

Meters

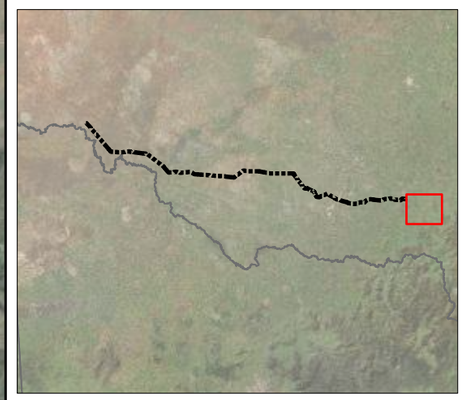
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Legend

Haulage_Ro

- Primary Route
- Secondary Route
- LGA Boundary



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Access Routes
Wagga Wagga LGA
Map 4 of 4

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Buronga

0 4,000 8,000

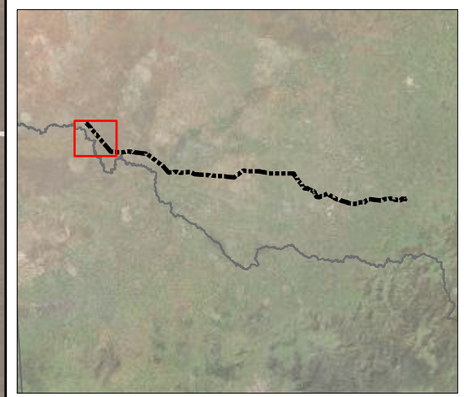
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Datum: GDA2020 Projection: New South Wales Lambert
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Legend

- Camps and Laydowns
- Water Supply Location
- Primary Route
- Secondary Route
- Water Supply Route
- Transmission Alignment
- LGA Boundary



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Access Routes
Wentworth LGA
Map 1 of 2

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0 370 740

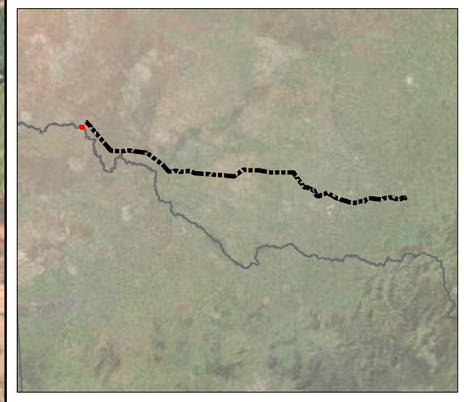
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Legend

- Water Supply Location
- Primary Route
- Water Supply Route
- LGA Boundary



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Access Routes
Wentworth LGA
Map 2 of 2

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