REF Decision Statement

Dinawan 330 kV Substation – Phase 2 Synchronous Condenser

Transgrid is the proponent for the Dinawan 330 kV Substation – Phase 2 Synchronous Condenser and associated equipment at Transgrid's existing Dinawan 330 kV substation (the proposed activity). The proposed activity would include an internal access road within the substation property boundary, new bench immediately northeast of the existing Dinawan 330 kV substation and 330kV busbar extension and installation of the new syncon and associated equipment.

The proposed activity is part of Phase 2 of Transgrid's broader initiative to ensure sufficient system strength services are available to maintain the stability of the NSW power system and meet system strength requirements established by the Australian Energy Market Operator (AEMO) in their 2022 System Strength Report (AEMO, 2022). The Phase 1 accelerated program involved installing syncons at five substations throughout NSW, which were assessed in 2025. The retirement of NSW's coal generators and the growth in inverter-based resources in the coming decade is driving an urgent need to add new sources of system strength to the power system.

A Review of Environmental Factors (REF) was prepared in October 2026 by AECOM to assess the potential impacts of the proposed activity.

The REF has been prepared in accordance with the *Environmental Planning and Assessment Act 1979* (EP&A Act), *the Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) and the Guidelines for Division 5.1 Guidelines approved under section 170 of the EP&A Regulation.

In considering the proposed activity, Transgrid has examined and taken into account matters affecting or likely to affect the environment by reason of that activity, as addressed in the REF.

As an authorised person on behalf of Transgrid, I discharge the duty as a determining authority under Division 5.1 of the EP&A Act and determine that:

- the proposed activity is not likely to have a significant impact on the environment and therefore an Environmental Impact Statement (EIS) is not required
- the proposed activity will not be carried out in a declared area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities, or their habitats or impact biodiversity values, meaning a Species Impact Statement (SIS) and/or Biodiversity Development Assessment Report (BDAR) is not required
- the proposed activity may proceed as it is needed to ensure sufficient system strength services are available to maintain the stability of the NSW power system and meet system strength requirements established by the AEMO.
- mitigation measures are required to eliminate, minimise or manage environmental impacts as documented in Appendix A of the REF.
- the proposed activity is not likely to have a significant impact on matters of national environmental significance, or on the environment of Commonwealth land, and therefore referral to the Minister under the EPBC Act is not required.

[redacted]

Monika Moutos
General Manager Environmental Strategy and Planning
Transgrid
Date: 30th October 2026

Transgrid

People. Power. Possibilities.

Review of Environmental Factors

Dinawan 330 kV Substation – Phase 2 Synchronous Condenser

October 2026

Document preparation history

Revision	Reviewed by	Date
0	Nicola Booth	14 August 2026
Review	Avi Thakur/Denise Lo	(28 August 2026)
1	Nicola Booth	4 September 2026
Review	Avi Thakur/Denise Lo	(25 September 2026)
2	Nicola Booth	6 October 2026
Review	Avi Thakur/Denise Lo	(21 October 2026)
3	Nicola Booth	22 October 2026

Certification

REF preparer	
I certify that I have prepared the contents of this REF document and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under section 170 of the EP&A Regulation and the information it contains is neither false nor misleading.	
Name	Ema Hagihara
Title	Environmental Scientist/Planner
Company name	AECOM
Signature	
Date	22 October 2026
REF reviewer/ endorser	
I certify that I have reviewed and endorsed the contents of this REF document and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under section 170 of the EP&A Regulation and the information it contains is neither false nor misleading.	
Name	Nicola Booth
Title	Principal Environmental Planner
Company name	AECOM
Signature	
Date	22 October 2026

Executive summary

In 2025, Transgrid assessed the installation of synchronous condensers (syncons) at five substations across NSW as part of the Phase 1 accelerated program. Transgrid is now progressing Phase 2, which involves assessing the installation of a syncon at three substations.

Transgrid is the proponent and determining authority for the installation of a new syncon at the existing Dinawan 330 kV substation (the proposed activity). In accordance with Part 5, Division 5.1 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), this Review of Environmental Factors (REF) has been prepared to consider the potential environmental impacts of the proposed activity.

The Dinawan 330 kilovolt (kV) substation was constructed as part of Transgrid's Project EnergyConnect (New South Wales Eastern Section) (PEC), a State Significant Infrastructure (SSI) project approved under SSI-9172452. Construction was completed in late 2025, with the substation commissioned and energised in 2026. The substation forms part of PEC's transmission network connecting Buronga and Wagga Wagga in New South Wales (NSW).

Transgrid is proposing to install a new synchronous condenser within and adjacent to the Dinawan 330 kV substation.

The proposed activity involves:

- Site establishment activities
- Installation of a new access road for the new syncon bench
- Demolition of redundant infrastructure
- Installation of a new bench (concrete slab, foundations and associated earthworks), with an indicative maximum footprint of around 130 by 150 metres (m), immediately northeast of the existing Dinawan 330 kV substation to house the syncon and associated infrastructure
- 330 kV busbar extension with a new switch bay
- Installation of the new syncon and associated equipment
- Installation of an auxiliary services building
- Installation of new secondary systems buildings
- Installation of new spill oil tank, secondary containment dam(s), and drainage systems
- Extension of the substation's stormwater drainage system
- Installation of new lightning protection masts within the syncon bench
- Installation of new fencing around the syncon bench, including two vehicle access gates
- Rehabilitation of the site.

The proposed activity is part of Phase 2 of a broader initiative by Transgrid to ensure sufficient system strength services are available to maintain the stability of the NSW power system and meet system strength requirements established by the Australian Energy Market Operator (AEMO) in their 2022 System Strength Report (AEMO, 2022).

Key environmental impacts from the proposed activity include:

- Minor erosion and sedimentation impacts from excavation activities during construction

- Minor temporary noise and traffic impacts generated from construction vehicles on the surrounding road network including Kidman Way during construction.

Other potential impacts are identified in Section 6 of this REF and mitigation measures to avoid and minimise these impacts are included in Appendix A.

Considering the assessment of the impacts detailed in this REF, it is concluded that:

- The proposed activity is not likely to significantly affect the environment and therefore an Environmental Impact Statement is not required.
- The proposed activity is not likely to significantly affect threatened species, ecological communities or their habitats and would not be carried out in a declared area of outstanding biodiversity value, therefore a Species Impact Statement (SIS) and/or Biodiversity Development Assessment Report (BDAR) is not required.

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1. Introduction

1.1. Proposed activity overview

The proposed activity involves installing a new synchronous condenser (syncon) at the existing Dinawan 330 kV substation (the proposed activity) in New South Wales (NSW). The Dinawan 330 kV substation was constructed as part of Transgrid's Project EnergyConnect (NSW Eastern Section) (PEC) State Significant Infrastructure project (SSI-9172452), with construction completed in late 2025 and the substation subsequently commissioned and energised in 2026. The substation forms part of PEC's transmission network connecting Buronga and Wagga Wagga in NSW. The proposed activity is located in Lot 1 of Deposited Plan (DP) 1282091 (the substation site).

The proposed activity is part of Phase 2 of Transgrid's broader initiative to ensure sufficient system strength services are available to maintain the stability of the NSW power system and meet system strength requirements established by the Australian Energy Market Operator (AEMO) in their 2022 System Strength Report (AEMO, 2022). The Phase 1 accelerated program involved installing syncons at five substations throughout NSW, which were assessed in 2025. The retirement of NSW's coal generators and the growth in inverter-based resources in the coming decade is driving an urgent need to add new sources of system strength to the power system.

The subject of this Review of Environmental Factors (REF) is the construction, commissioning and operation of a new syncon and associated infrastructure at the substation site.

The proposed activity is described in more detail in Section 3.

1.2. Purpose of the REF

For the purposes of this activity, NSW Electricity Networks Operations Pty Ltd as a trustee for NSW Electricity Networks Operations Trust (known as Transgrid) is the proponent and the determining authority under Part 5, Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The purpose of this REF is to assess the potential impacts of the proposed activity on the environment and to determine appropriate mitigation measures to reduce and manage those impacts. This REF has been prepared with consideration of the *Guidelines for Division 5.1 assessments,* section 171(1) of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The REF helps fulfil the requirements of section 5.5 of the EP&A Act, namely that Transgrid examines and takes into account matters affecting or likely to affect the environment by reason of the proposed activity, in a manner that is proportionate to the nature and risk of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposed activity is likely to have a significant impact on the environment, in which case an environmental impact statement (EIS) is required
- Whether the proposed activity will be carried out in a declared area of outstanding biodiversity value and/or is likely to significantly affect threatened species, populations, ecological communities or their

habitats, in which case a species impact statement (SIS) or biodiversity development assessment report (BDAR) is required.

2. Need for the proposed activity

2.1. Proposed activity need

Transgrid as the designated System Strength Service Provider, is responsible for ensuring sufficient system strength services are available to maintain the stability of the NSW power system. The forecast retirement of NSW coal generators in the coming decade (80% retiring by capacity) and the growth in inverter-based resources is driving an urgent need to add new sources of system strength.

To address this emerging gap, Phase 2 syncons build on the Phase 1 accelerated program, providing additional system strength in key locations across the NSW network. Modelling indicates that without these assets, there is a material risk of system strength gaps under a range of future scenarios, particularly as coal generation exits and reliance on emerging solutions such as grid-forming Battery Energy Storage Systems remains uncertain.

Transgrid's objective is to provide proven sources of fault current and voltage support to maintain secure system operation, reduce system strength constraints, and enable continued integration of inverter-based resources while mitigating broader power system security risks.

2.2. Relevant strategic plans and policies

The proposed activity has been considered in the context of the relevant strategic planning framework for the locality, including the *Riverina Murray Regional Plan 2041* (NSW Department of Planning and Environment, 2023) and the *Murrumbidgee Local Strategic Planning Statement* (Murrumbidgee Council, 2020). These documents support the provision of infrastructure that contributes to regional and local development, network reliability and economic growth.

No district plans, priority growth areas, special activation precincts or Assets of Intergenerational Significance apply to the proposed activity.

2.2.1. Riverina Murray Regional Plan 2041

The *Riverina Murray Regional Plan 2041* provides a strategic framework to guide land use planning, infrastructure investment and economic development across the region over the next 20 years. Relevant to the proposed activity, the Plan emphasises the delivery of integrated and resilient utility infrastructure and supports the transition to a net zero emissions economy through investment in and upgrading of electricity network infrastructure. The Plan recognises that a reliable and efficient electricity network is essential to supporting regional growth and the increasing integration of renewable energy generation.

The proposed activity is consistent with Objective 11: Plan for integrated and resilient utility infrastructure and Objective 13: Support the transition to net zero by 2050.

Objective 11 seeks to ensure utility infrastructure is resilient, efficient and capable of meeting future needs. The installation of a syncon and associated infrastructure within and adjacent to an existing substation will utilise established infrastructure and improve network stability and reliability, supporting the delivery of integrated and resilient electricity infrastructure across the region.

Objective 13 supports the infrastructure required to facilitate the transition to a net zero emissions economy. By providing system strength and voltage support to the transmission network, the proposed activity will assist the integration of renewable energy generation and contribute to a secure and reliable electricity system.

Accordingly, the proposed activity is consistent with the strategic intent of the *Riverina Murray Regional Plan 2041* and supports both resilient utility infrastructure and the transition to a low-carbon energy network.

2.2.2. Murrumbidgee Council Local Strategic Planning Statement

The Murrumbidgee Council Local Strategic Planning Statement (LSPS) establishes a 20 year vision for land use and development within the Murrumbidgee Local Government Area (LGA), seeking to achieve outcomes that benefit the community while minimising environmental impacts. The Statement includes a range of strategic ambitions relating to infrastructure, economic growth and environmental sustainability that guide future planning and development within the LGA.

The proposed activity is consistent with the objectives of the Statement, particularly IP4 (Civil infrastructure in urban and rural areas), which aims to ensure infrastructure adequately performs its intended purpose, and EG13 (Renewable energy projects), which seeks to support renewable energy projects within the LGA.

The installation of a syncon within and adjacent to the existing Dinawan 330 kV substation will enhance the performance, reliability and resilience of the electricity transmission network by providing system strength and voltage support, particularly for the South West Renewable Energy Zone (REZ). By upgrading existing electricity infrastructure within a developed utility site, the proposed activity will contribute to maintaining essential infrastructure services and supporting the efficient operation of the broader electricity network. In addition, the proposed activity will support the integration of renewable energy generation into the network, consistent with the Statement's objective of facilitating renewable energy development.

Accordingly, the proposed activity is consistent with the strategic intent of the LSPS and supports the provision of reliable infrastructure and the transition to a cleaner and more resilient energy system.

2.3. Alternative options considered and preferred option

A number of alternative options were considered for the proposed activity (Table 2-1) with Option 3 identified as the preferred option.

Table 2-1. Alternative options considered and preferred option

Option	Overview and justification	Preferred option
Option 1 - 'Do Nothing'	The do nothing option would be the base case where Transgrid do not progress a syncon at any site. This option would involve Transgrid operating and maintaining the transmission network in a manner that would not meet the system strength requirements published by AEMO (2022).	No
Option 2 – other sites	The following alternative sites were considered for the Phase 2 syncons: ▪ Second syncon at Kemps Creek 500 kV Substation ▪ Syncon at Tamworth 330 kV Substation ▪ Second syncon at Wellington 330 kV Substation	No

Option	Overview and justification	Preferred option
	▪ Syncon at Yass 330 kV Substation ▪ Syncon at Eraring 330 kV Substation ▪ Syncon at Vales Point 330 kV Substation. These sites were either not available for acquisition or would not provide the best system strength to the electricity network.	
Option 3 – preferred option	The preferred option would involve installing the syncon at the Dinawan 330 kV substation. This option would meet the projected system strength shortfall in the transmission network and address the system requirements established by AEMO (2022).	Yes

3. Proposed activity description

3.1. Proposed activity scope

The proposed activity involves the installation and operation of a syncon and associated infrastructure at the Dinawan 330 kV substation.

The scope of works for the proposed activity would include:

- Site establishment activities, including installation of construction offices and amenities, equipment storage and construction laydown areas
- Installation of a new access road for the new syncon bench
- Demolition of any redundant infrastructure, including existing substation fencing, as required
- Installation of a new bench (concrete slab, foundations and associated earthworks), with an indicative maximum footprint of around 130 by 150 metres (m), immediately northeast of the existing Dinawan 330 kV substation to house the syncon and associated infrastructure
- 330 kV busbar extension with a new switch bay, which comprise 330 kV circuit breakers, disconnectors, capacitive voltage transformers, current transformers, earth switches, post insulators/busbar supports and surge arresters
- Installation of the new syncon and associated equipment, including:
  - Power transformer with firewalls
  - Two auxiliary transformers
  - Syncon building and gantry crane
  - Oil lubrication and water-cooling systems
  - Generator circuit breakers
  - Protection and control systems
  - Backup diesel generator
  - Pony motor
- Installation of new syncon auxiliary services building (including battery room and low voltage AC and DC systems)
- Installation of new secondary systems buildings (including system control room)

- Installation of new spill oil tank, secondary containment dam(s), and drainage systems to cater for the new transformers, diesel generator and the syncon oil lubrication system
- Extension of the substation's stormwater drainage system, to cater for the new bench area
- Installation of new lightning protection masts within the syncon bench
- Installation of new fencing around the syncon bench, including two vehicle access gates along the northern boundary
- Rehabilitation of the site, including:
    - Removal of temporary construction facilities and equipment
    - Excavated material not reused on-site and waste materials would be disposed of at an appropriately licensed waste facility or as directed by Transgrid's Environmental Business Partner in accordance with Transgrid's Waste Management of Spoil Work Instruction
    - Disturbed areas not required for the operation of the syncon or the existing Dinawan 330 kV substation will be stabilised and rehabilitated, as required.

Details of the scope of works for the proposed activity are presented in Section 3.3.

Figure 3-1 shows an example of a building housing a syncon and the associated equipment from another Transgrid project. The exact size of the syncon building would be determined during detailed design.



Figure 3-1 Photograph of a syncon housed within a building (example only)

3.2. Proposed activity location

The substation site is located within the Murrumbidgee LGA with the nearest major townships being Coleambally, situated around 30 kilometres (km) to the north, and Jerilderie, situated around 35 km to the south. The substation site is located off Kidman Way, Bundure on Lot 1 of Deposited Plan (DP) 1282091, which is owned by the Electricity Transmission Ministerial Holding Corporation (ETMHC) and leased and managed by Transgrid. The proposed impact area is partly located in the Dinawan 330 kV substation as shown in Figure 3-2. The proposed syncon will be mostly located in an area previously disturbed by the accommodation camp and laydown areas used during construction of PEC, as shown in Figure 3-4). A small area of native groundcover vegetation (approximately 0.3 ha) within the proposed impact area occurs

adjacent to the existing substation footprint (refer to Figure 6-1) with further information provided in Section 6.4.

The substation site is located on land zoned as RU1 Primary Production under the *Jerilderie Local Environmental Plan 2012* (Jerilderie LEP). The substation site is located in a rural area surrounded by open paddocks and cleared transmission line easements. The nearest residential receiver is approximately 4.2 km southwest of the proposed impact area.

The area surrounding the proposed activity has undergone and continues to undergo significant change associated with the construction and planned development of major energy infrastructure projects. This includes the constructed PEC (including the adjoining Dinawan accommodation camp) and the planned Victoria to New South Wales Interconnector West (VNI West) project, as well as other proposed and approved projects discussed further in Section 6.14.

For the purpose of this REF, the proposed impact area is defined as an indicative maximum footprint in which the construction and operation of the syncon would be carried out (refer to Figure 3-2). The proposed impact area is located within Lot 1 of DP1282091 (owned by ETMHC) and includes areas required to facilitate connection to the proposed syncon. The proposed impact area may be reduced as the design is further developed, and the site layout is confirmed. The proposed impact area would provide sufficient space for various configurations of syncon infrastructure (including different options for the location/configuration of the syncon, associated infrastructure, asset protection zones and surrounding enclosure).

The proposed impact area would also accommodate a site compound and laydown area(s) to support construction.

The study area is defined as a 200 m area surrounding the proposed impact area and is shown in Figure 3-2. Alternative specific study areas have been adopted for ecology and Aboriginal heritage as described in Section 6.4 and Section 6.5, respectively.

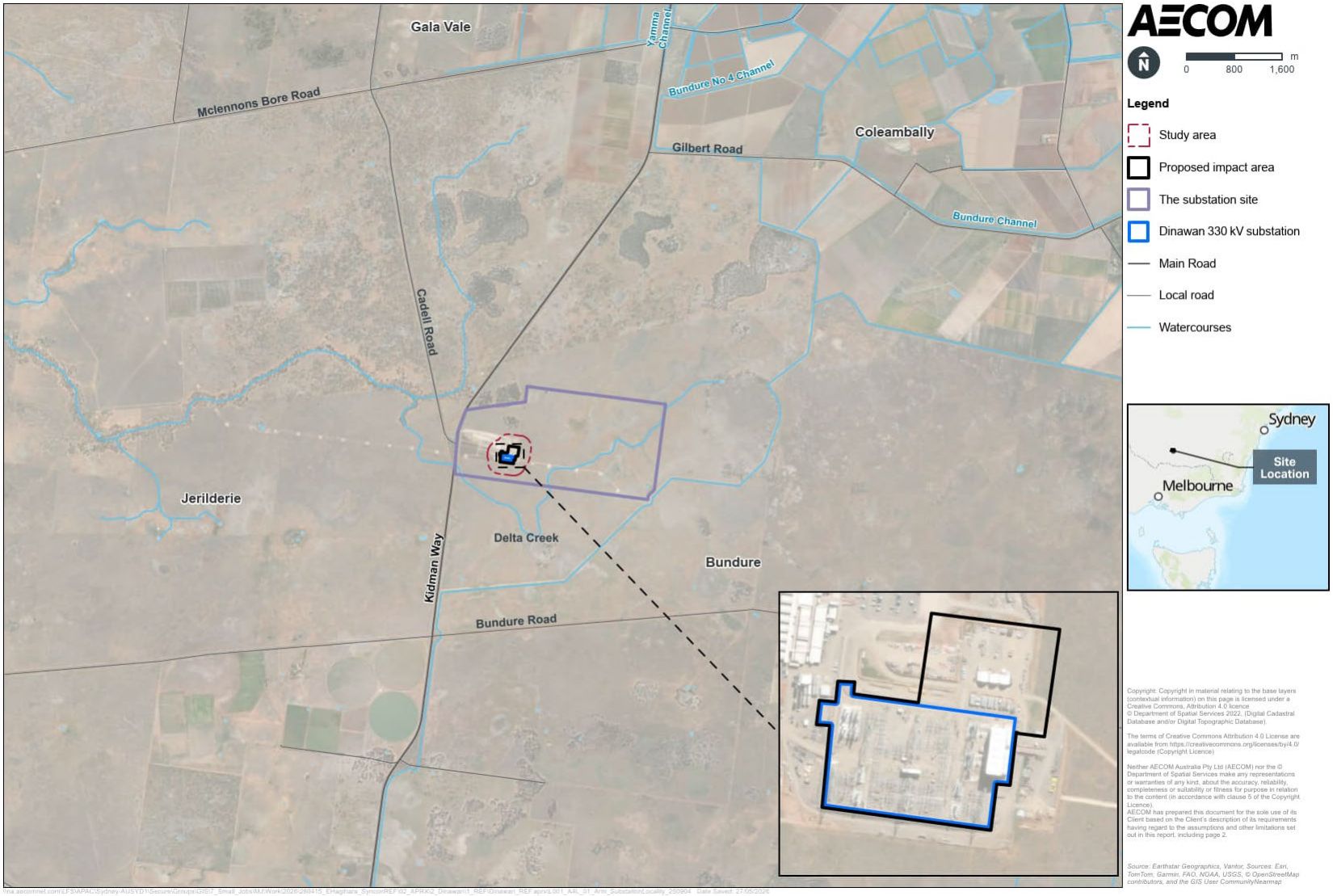


Figure 3-2 Proposed activity locality

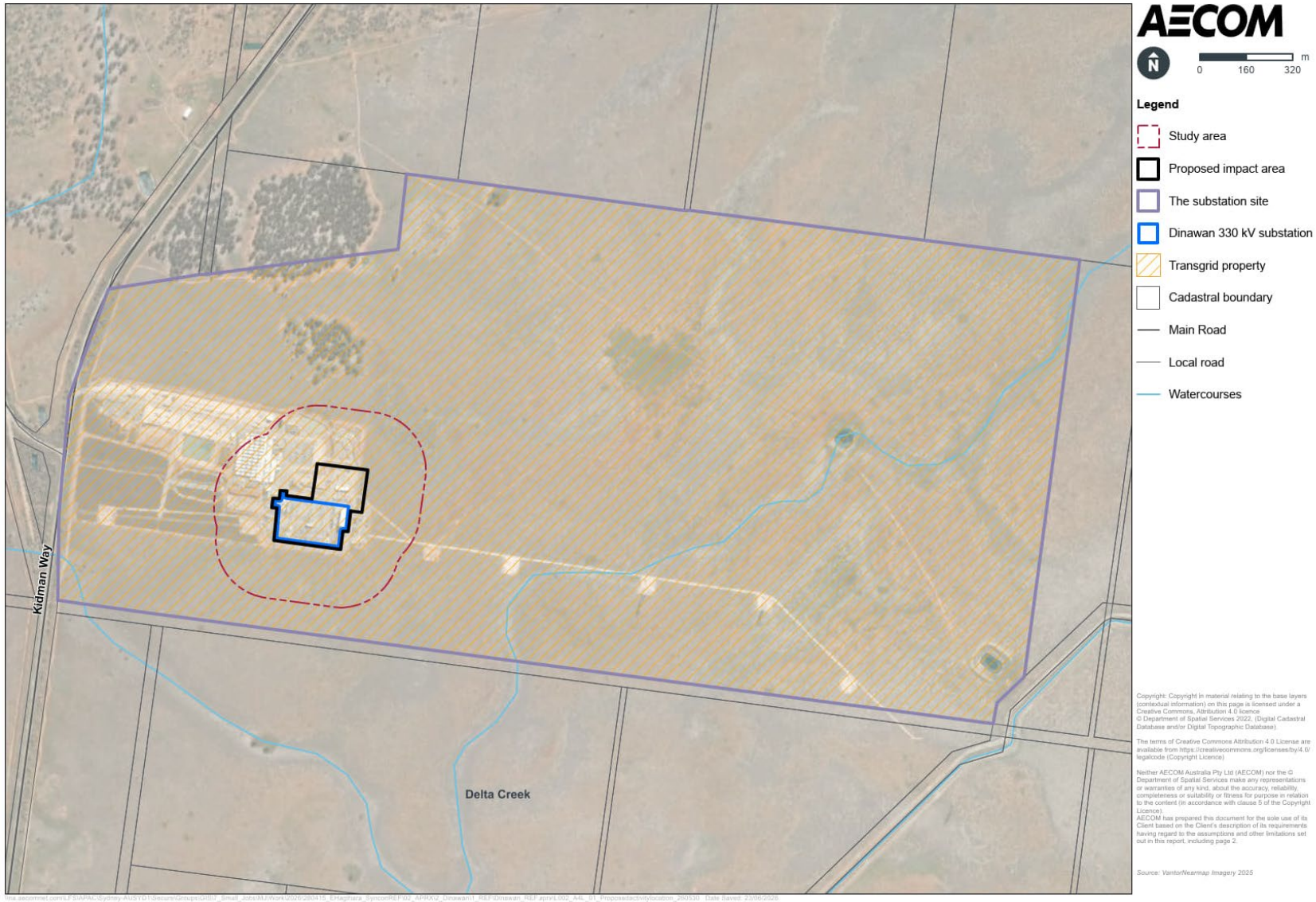


Figure 3-3 Proposed activity location

3.3. Construction activities

3.3.1. Construction methodology

An overview of the construction methodology and key activities is outlined in Table 3-1. The methodology and sequencing of activities may be subject to refinement and would be confirmed during detailed design and further construction planning. The indicative construction site layout is shown in Figure 3-4.

Table 3-1. Construction methodology and activities

Stage	Activity	Overview
Site establishment	Site area establishment	Prior to main construction works commencing, construction offices and amenities, equipment storage and the main laydown areas would be established within a suitable location in the proposed impact area. If Transgrid's VNI West project proceeds, these facilities would, where practicable, be co-located and integrated with temporary construction facilities established for that project.
Main construction works	Access road construction	A new access road leading to the new syncon and associated equipment would be constructed to facilitate delivery of equipment and materials during construction, and access for ongoing maintenance activities during operation. Construction of new access road would generally require excavation to a depth of between 150 millimetres (mm) to 300 mm followed by the infill of crushed rock and/or gravel then compacted.
	Demolition of redundant fencing	Any existing substation fencing would be demolished and replaced with new boundary fencing, as required. Two access points would be established along the northern boundary fencing.
	Syncon bench installation	New foundations, footings and/or piles would be constructed for the new bench, syncon equipment, power transformer bund and buildings. Excess spoil from associated earthworks would be tested for contamination and be stockpiled on-site if suitable for reuse or disposed of at a licensed waste facility capable of receiving the material if contamination is found. A new spill oil tank would be installed within the bench to cater for the new transformers, diesel generator and the syncon oil lubrication system. Secondary oil containment dam(s) and drainage systems would be installed within the proposed impact area to cater for the new equipment. The substation's stormwater drainage systems would be expanded if required to manage stormwater drainage for the increased impervious surfaces.

Stage	Activity	Overview
	Syncon building construction	The syncon building would be constructed on top of the new bench. The construction of the syncon building would involve the installation of metal frames and structures using mobile cranes. Cladding and roofing would be erected once all structures are complete.
	Miscellaneous civils works including drainage, cable trenches and conduits, and fencing	Sub-surface drainage systems, including pits and pipes, would be constructed. Cable trenches and/or cable pits and conduits would be constructed within the new bench and would be connected to the existing substation. Cables would be connected to the existing control building.
	Syncon and associated equipment installation	The syncon and associated equipment would be installed, including: ▪ Power transformer with firewalls ▪ Two auxiliary transformers ▪ Syncon building and gantry crane ▪ Oil lubrication and water-cooling systems ▪ Generator circuit breakers ▪ Protection and control systems ▪ Backup diesel generator ▪ Pony motor. In addition, a new syncon auxiliary services building (including a battery room and low voltage AC and DC systems) and new secondary systems building (including a system control room) would be installed. Major plant equipment, such as transformers, auxiliary services building and secondary systems building(s) including control room and battery room, would be installed using cranes. Minor plant equipment would be installed using machinery such as cranes, forklifts, telehandlers and elevated work platforms. Low voltage cables would be installed throughout the proposed impact area, and the existing substation conduits/cables and trenches would be utilised to install cables to the existing control building. The power transformer would require on-site oil filling to the required levels in order to be ready for energisation. The syncon oil lubrication system and water-cooling systems would also require on-site filling. Sulfur hexafluoride (SF_6) gas containing equipment (such as the 330 kV circuit breakers and any gas insulated switchgear) would be filled on-site.
Works within the existing 330 kV substation	Installation of control/protection panels within the existing control room buildings	Works within the existing substation communications and control room. This would not require any ground disturbance works.

Stage	Activity	Overview
	Installation of new conduits/trenches	New trenching within the existing substation. New cable trenches, approximately 0.6 m deep and 0.4 m wide, would be excavated using a small excavator.
	Switch bay works	New switch bay works, including 330 kV busbar extension comprising 330 kV circuit breakers, disconnectors, current transformers, capacitive voltage transformers, earth switches, post insulators/busbar supports, and surge arresters.
Testing and commissioning	Syncon and associated equipment testing and commissioning	The syncon and associated equipment would undergo a testing phase prior to being commissioned and connected to the Dinawan 330 kV substation. The proposed syncon connection would be off the 330 kV busbar extension and would remain disconnected until such time as the syncon is ready for connection to the grid.
Rehabilitation	Demobilisation and rehabilitation of disturbed areas	Following completion of the construction activities, the disturbed areas that are not required for the operation of the syncon or existing Dinawan 330 kV substation would be stabilised, as required. Excavated material not reused on-site and waste materials would be disposed of at an appropriately licensed waste facility or as directed by Transgrid's Environmental Business Partner in accordance with Transgrid's Waste Management of Spoil Work Instruction. Temporary construction facilities and equipment would be removed. Any demobilisation and rehabilitation activities would also consider any future work associated with VNI West project, should it proceed.

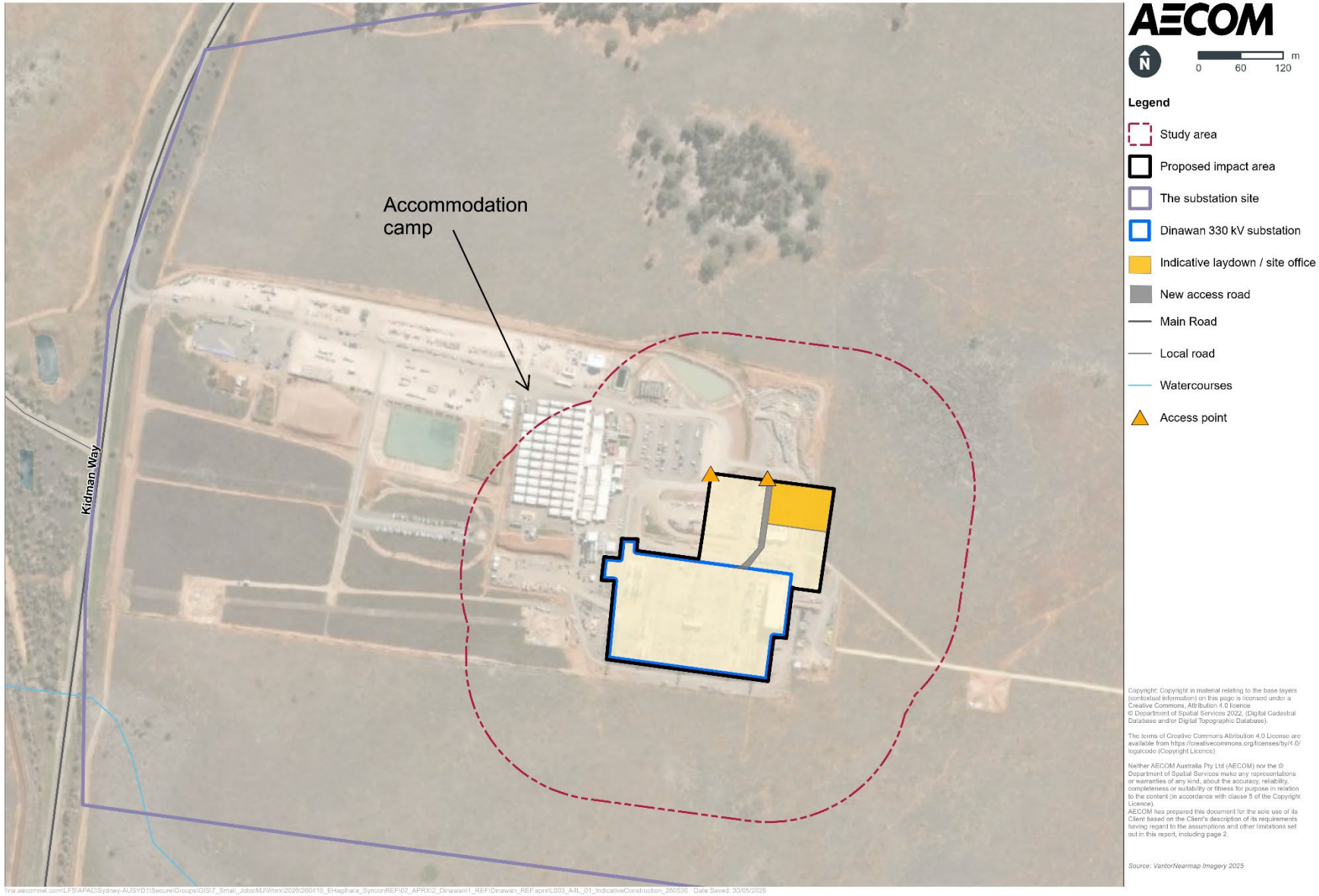


Figure 3-4 Indicative construction site layout

3.3.2. Construction plant, material and equipment

Typical key construction materials, vehicles and equipment that would be used during construction include:

- Excavators
- Vacuum truck
- Concrete trucks
- Concrete saw
- Cranes
- Forklift/Telehandler
- Light vehicles
- Heavy vehicles
- Oversize/Overmass vehicles
- Steel and structural supports
- Roller
- Bore piling rig
- Electrical conduit and cables
- Elevated work platforms
- Hiab truck
- General hand tools (powered and unpowered)
- Welder
- Pumps
- Oil storage and pumping plant
- Erosion and sediment controls
- Diesel storage tanks/generators
- On-site concrete mixing plant
- Imported fill and aggregate, as required
- Concrete
- Pavement laying machine
- Asphalt truck and sprayer.

3.3.3. Construction schedule

Construction of the proposed activity is expected to commence in early 2028 and take approximately 30 months to complete. Dates may vary with Transgrid's program, but construction duration would generally remain similar. The final construction program would be confirmed during detailed design and further construction planning.

3.3.4. Construction hours

Noise generating works would be limited to the recommended standard hours for construction work outlined in the *Interim Construction Noise Guideline* (ICNG) (DECC, 2009) which are:

- Monday to Friday 7:00am to 6:00pm.
- Saturday 8:00am to 1:00pm.
- No works on Sundays or public holidays.

Work outside standard hours would only comprise:

- The delivery of materials outside standard hours requested by police or other authorities for safety reasons.
- Emergency work to avoid the loss of lives and/or property.
- Work timed to correlate with system planning outages
- Vacuum and oil filling of equipment.

If the need for additional noise generating works outside standard construction hours is identified following the determination of this REF, the works would require justification in accordance with the ICNG and the prior formal written consent of Environmental Business Partner/Delivery.

3.4. Operation and maintenance

The proposed activity would result in additional operational and maintenance activities at the Dinawan 330 kV substation. The syncon would typically operate continuously 24/7, as required by the electricity network

requirements for minimum fault levels. In specific circumstances, the syncon would be switched on/off automatically as needed by the control system in response to electricity network conditions, such as changes in demand, generation availability or network requirements. Ongoing maintenance for the equipment would include daily and weekly visual inspections, as well as routine planned maintenance for the associated systems.

However, these activities are not expected to result in a significant change to the number of personnel accessing the substation.

An indicative operational site layout is shown in Figure 3-5.

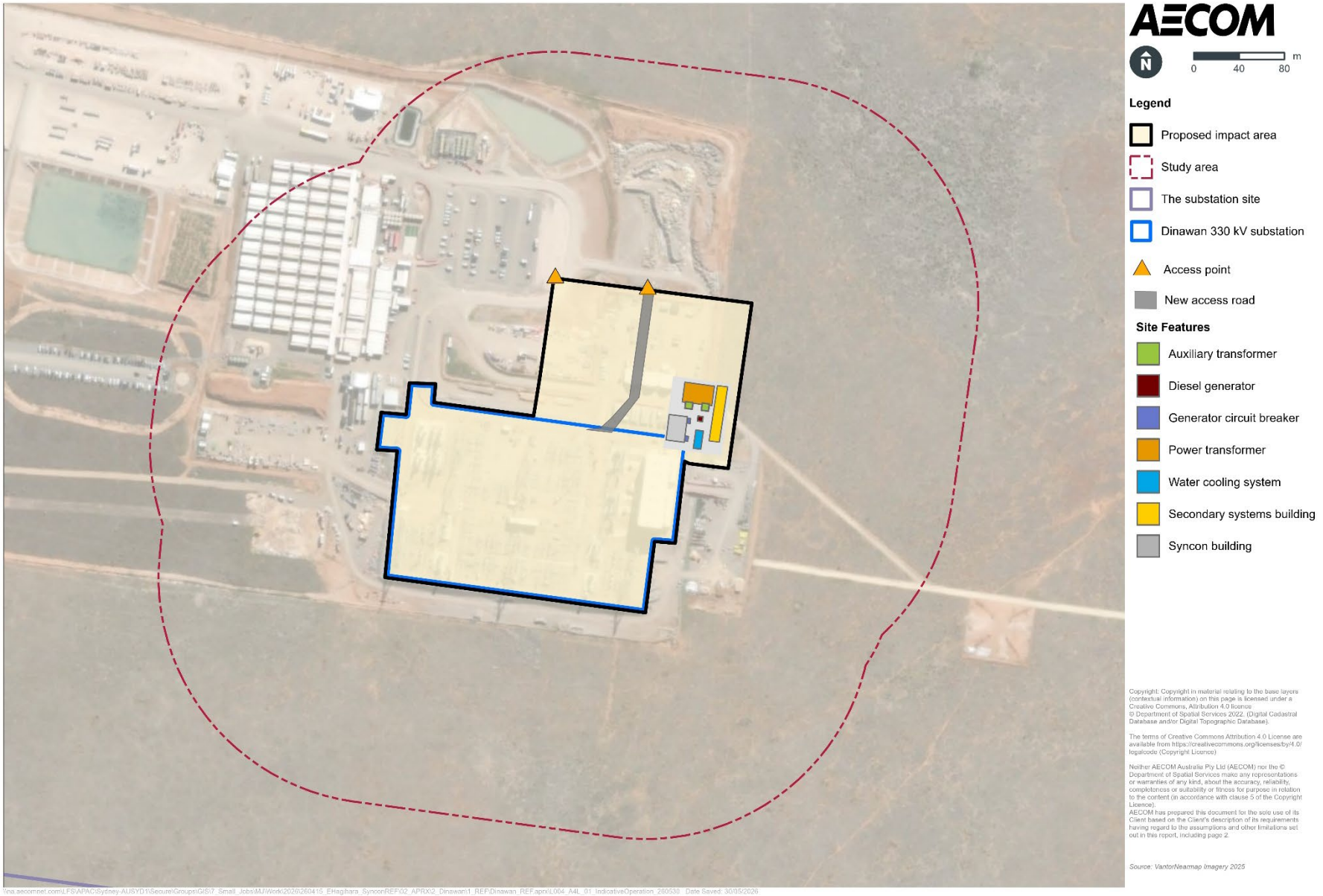


Figure 3-5 Indicative operational site layout

4. Statutory context

4.1. Approvals pathway

4.1.1. Environmental Planning and Assessment Act 1979

The EP&A Act and the EP&A Regulation provide the framework for development assessment in NSW. The EP&A Act contains a number of different planning approval pathways for the assessment of development proposals in NSW and is determined by relevant environmental planning instruments such as Local Environmental Plans (LEPs) and SEPPs.

As described below, the proposed activity would be permitted without development consent in accordance with the Transport and Infrastructure SEPP, and the proposed activity is therefore subject to the assessment requirements of Division 5.1 of the EP&A Act.

Transgrid is an ANO under *the Electricity Network Assets (Authorised Transactions) Act 2015*. Transgrid is also a prescribed determining authority under Section 5.6 of the EP&A Act and Clause 3(3) and Schedule 1(4) of the EP&A Regulation, for development for the purposes of an electricity transmission or distribution network that is permitted without consent (within the meaning of the Transport and Infrastructure SEPP) and is operated or to be operated by the ANO. Accordingly, Transgrid is the proponent and determining authority for this proposed activity.

4.1.2. State Environmental Planning Policy (Transport and Infrastructure) 2021

The Transport and Infrastructure SEPP aims to facilitate the delivery of infrastructure across NSW. Section 2.44 of the Transport and Infrastructure SEPP provides that development for the purpose of an electricity transmission or distribution network may be carried out by or on behalf of an electricity supply authority or public authority without development consent on any land.

As this proposed activity meets the definition of development for the purposes of an electricity transmission or distribution network under Section 2.44 of the Transport and Infrastructure SEPP and would be carried out by Transgrid (an ANO), the proposed activity is permitted without consent.

4.2. Other relevant Commonwealth and NSW legislation

Other Commonwealth and NSW environmental legislation relevant to the assessment or determination of the proposed activity is outlined in Table 4-1.

Table 4-1. Relevant Commonwealth and NSW legislation

Legislation	Potential approval requirements	Relevance to the proposed activity	Permit/ approval/ licence requirement
Commonwealth legislation			
Environment Protection and Biodiversity	The EPBC Act protects Matters of National Environmental Significance (MNES). An action that has, will have, or is likely to have a	MNES have been considered in Section 7.4 (Table 7-3). As no significant impacts are	None required

Legislation	Potential approval requirements	Relevance to the proposed activity	Permit/ approval/ licence requirement
Conservation Act 1999 (EPBC Act)	significant impact on an MNES may require referral to the National Environmental Protection Agency for a determination as to whether approval is required.	likely, the proposed activity has not been referred to National Environmental Protection Agency.	
NSW legislation			
Biodiversity Conservation Act 2016 (BC Act)	The BC Act lists a number of threatened species, populations, ecological communities and declared areas of outstanding biodiversity value to be considered in deciding whether there is likely to be a significant impact on threatened biota, or their habitats. If any of these could be impacted by the proposed activity, an assessment of significance that addresses the requirements of Section 7.3 of the BC Act must be completed to determine the significance of the impact. Under Section 7.3 of the BC Act, the determining authority (being Transgrid) has a duty to take into account whether there is likely to be a significant effect on threatened species, ecological communities, or their habitats or whether the activity is to be carried out on a declared area of outstanding biodiversity value.	The proposed activity would not impact any threatened species, populations, ecological communities or be carried out on a declared area of outstanding biodiversity value as listed under the BC Act.	None required
Heritage Act 1977 (Heritage Act)	Approval under Section 57(1) is required for works to a place, building, work, relic, moveable object, precinct, or land listed on the State Heritage Register. Section 57(2) provides that an exemption from the approval requirements of Section 57(1) can be sought in certain circumstances. An excavation permit is required under Sections 139(1) and (2) to disturb or excavate any land containing or likely to contain a relic. Section 139(4) provides that exceptions from the approval requirements of Sections 139(1) and	There are no heritage listed items near the proposed activity, and the activity would not involve disturbing or excavating land on which a relic is located or likely to be located (see Section 6.6). Therefore, no permits or approvals are required under the Heritage Act.	None required

Legislation	Potential approval requirements	Relevance to the proposed activity	Permit/ approval/ licence requirement
	(2) can be sought in certain circumstances.		
National Parks and Wildlife Act 1974 (NPW Act) and National Parks and Wildlife Regulation 2019 (NPW Regulation)	An Aboriginal heritage impact permit (AHIP) under Section 90 of the NPW Act is required to harm or desecrate an Aboriginal heritage object. If works are located in land reserved under the NPW Act, consent from NSW Department of Climate Change, Energy, the Environment and Water (National Parks and Wildlife Service) is required. The NPW Regulation includes provisions for Assets of Intergenerational Significance (AIS). An AIS can be any area of exceptional value, natural or cultural, that warrants special protection, including dedicated management measures. If works are located on land (or within close proximity of) identified as an Asset of Intergenerational Significance (AIS), a proposed activity must be consistent with the purpose of the AIS's declaration and Conservation Action Plan (CAP) (if relevant).	The proposed activity would not impact any registered Aboriginal heritage sites and therefore a permit under Section 90 of the NPW Act is not required. The proposed activity would not impact any land reserved under the NPW Act or on AIS land and therefore would not require approval from NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) and National Parks and Wildlife Service.	None required

5. Consultation

5.1. Consultation undertaken to date

Transgrid has consulted with relevant government agencies and occupiers of adjoining land in accordance with relevant legislation and Transgrid's Division 5.1 Consultation Guideline as summarised in this section.

5.1.1. Electricity Supply Act 1995

Section 45(4) of the *Electricity Supply Act 1995* requires that the local council be given a reasonable opportunity (no less than 40 days notification from the date on which the notice was given) to make submissions on the proposed activity.

Notification was provided to Murrumbidgee Council on 26 August 2026 in accordance with the *Electricity Supply Act 1995*. Council was provided with 40 days to provide a submission in accordance with Section 45(4) of the *Electricity Supply Act 1995*.

5.1.2. State Environmental Planning Policy (Transport and Infrastructure) 2021

Section 2.45 of the Transport and Infrastructure SEPP requires that written notification must be given to the local council and occupiers of adjoining land for the development for the purpose of a new or existing electricity substation of any voltage.

In accordance with Section 2.45 of the Transport and Infrastructure SEPP, written notice of the intention to carry out the proposed activity was given to adjoining landowners on 26 August 2026, as occupiers of the land adjoining the substation site, inviting submissions within 21 days from the date on which the notice was given. No responses were received.

5.1.3. Community consultation

Broader community consultation was not considered necessary because the proposed activity is expected to have minimal impacts on the community.

5.1.4. Issues raised

Table 5-1 details the issues raised during consultation and how they have been addressed.

Table 5-1. Issues raised during consultation and how addressed

Stakeholder	Issues raised	How addressed
Murrumbidgee Council	**1. Potential traffic impacts** **a. Construction Traffic Management Plan** Given the proposed activity is anticipated to take approximately 30 months to complete, Council's primary concerns relate to the management of construction traffic on the local road network. Council requests that Transgrid prepare a Construction Traffic Management Plan in consultation with Council prior to the commencement of works. The plan should clearly identify the roads to be used for: • general construction traffic • workforce travel to and from the site • oversize and heavy vehicle movements, including concrete truck movements between the batching plant and the site.	A Traffic and Transport Management Plan (TTMP) would be prepared and implemented in accordance with mitigation measure TA2. The TTMP would address construction traffic and access arrangements, including equipment and material deliveries, nominated roads and site access tracks, parking and speed limits. Movements on public roads would be undertaken in accordance with Transport for NSW and Council requirements under TA1, with access track works managed in accordance with TA3. Refer to Section 6.8.
	b. Projected vehicle volumes Council requests that Transgrid provide projected vehicle movements per day for each stage of construction, disaggregated by vehicle type, including concrete trucks and other heavy vehicles, and by proposed route. Council advises that this information is required to assess the likely impact of the proposed activity on the condition of Council's road pavements.	Construction traffic volumes are provided in Section 6.8.2. During peak construction, the proposed activity is anticipated to generate up to 55 light vehicle movements and 70 heavy vehicle movements per day, with up to six oversize overmass vehicle movements over the construction period. These volumes represent a conservative peak scenario, with actual daily movements expected to be lower during much of the construction period. Traffic routes and access arrangements would be further refined through the TTMP in accordance with TA1 and TA2.
	c. Road User Agreement Council notes that the scope of the proposed activity has changed from that previously presented to Council. Council requests that Transgrid confirm whether a new Road User Agreement is required or whether the existing agreement can be varied to reflect the current scope, and requests Transgrid's proposed approach.	Given the limited construction traffic associated with the proposed activity and the use of the existing site access and established road network, significant impacts to the local road network are not anticipated. Transgrid would consult with Council to confirm whether the existing Road User Agreement remains applicable to the proposed activity or requires amendment. Construction traffic would be managed in accordance with TA1 and TA2. Refer to Section 6.8.

Stakeholder	Issues raised	How addressed
	d. Dilapidation reports Council requests that dilapidation surveys be undertaken, at Transgrid's cost, on all roads, including intersections, culverts, causeways and table drains, proposed to be used by construction traffic. Council requests that surveys be undertaken before the commencement of works and following completion, and that damage attributable to the proposed activity be rectified at Transgrid's cost.	The proposed activity would generate relatively limited construction traffic and significant impacts to the condition of the local road network are not anticipated. Accordingly, specific pre- and post-construction dilapidation surveys are not proposed as part of the REF. Construction traffic and potential impacts to the road network would be managed through the TTMP in accordance with TA1 and TA2. Refer to Section 6.8.
	e. Contribution towards pavement wear Council advises that, should the projected vehicle movement data indicate a material impact on the condition of Council's road pavements, Council will seek a financial contribution from Transgrid towards the cost of the resulting pavement wear.	Based on the anticipated construction traffic volumes and temporary nature of the proposed activity, significant impacts to Council road pavements are not anticipated. A contribution towards pavement wear is therefore not proposed. Construction traffic would be managed in accordance with TA1 and TA2. Refer to Section 6.8.
	2. Erosion, sedimentation and watercourse protection Noting the watercourses identified within and adjacent to the study area, Council requests details of the erosion and sediment controls proposed to be implemented and maintained for the duration of construction, together with confirmation of the monitoring and maintenance regime.	A Soil and Water Management Plan (SWMP) would be prepared, implemented and maintained in accordance with mitigation measure GS1 and the relevant requirements of the Blue Book. Erosion and sediment controls would be installed and maintained during construction, with water management and sediment controls implemented in accordance with HW2, HW3 and HW4. Environmental controls would be monitored and maintained throughout construction through implementation of the CEMP, with environmental oversight undertaken in accordance with EM3. Refer to Sections 6.2, 6.3 and 8.

Stakeholder	Issues raised	How addressed
	3. Construction environmental management Council requests a copy of the Construction Environmental Management Plan, or equivalent, once available, including proposed construction hours and noise mitigation measures, to allow Council to be satisfied that impacts on nearby land uses would be appropriately managed. Council expects construction noise to be managed in accordance with the relevant NSW Environment Protection Authority guidelines and identifies the following construction hours: • Monday to Friday, 7.00 am to 6.00 pm • Saturday, 8.00 am to 4.00 pm • no activities on Sundays or public holidays.	A Construction Environmental Management Plan (CEMP) would be prepared prior to construction in accordance with mitigation measure EM1 and would be reviewed and endorsed by Transgrid. The approved CEMP would be provided to the Council for their information. Noise-generating works would generally be undertaken between 7.00 am and 6.00 pm Monday to Friday and 8.00 am and 1.00 pm Saturday, with no work on Sundays or public holidays, subject to the exceptions identified in NV1. Construction noise would also be managed through the measures in NV2. Refer to Sections 3.3.4, 6.7 and 8.
	4. Voluntary community contribution Council notes that the proposed activity is being assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* rather than as development requiring consent. Council states that its section 7.12 contributions plan does not apply and that there is no trigger for a formal planning agreement under section 7.4 of that Act. Council identifies unmet local infrastructure needs, including medical facilities at Jerilderie, childcare facilities at Coleambally and Darlington Point, essential-worker housing and residential subdivision capacity across the local government area. Council requests that Transgrid consider a voluntary funding arrangement in the order of 1 per cent of the proposed activity's estimated capital cost, identified by Council as approximately $3.24 million.	The requested voluntary community contribution is a funding and community-benefit matter that is separate from the environmental mitigation measures required to manage the impacts assessed in this REF. Transgrid has considered Council's request but is unable to support the proposed voluntary contribution. This does not alter the environmental impact assessment presented in the REF. No specific mitigation measure applies.
	5. Ongoing consultation Council requests to be kept informed as the Part 5 environmental assessment progresses and welcomes the opportunity to meet with Transgrid representatives to discuss the matters raised in its submission before finalisation of the assessment.	Council's submission has been considered in preparing the REF. Transgrid would continue to engage with Council, as required, during detailed design and construction planning, particularly in relation to traffic and road use arrangements. Transgrid would also remain available to meet with Council to discuss the proposed activity and matters raised in its submission. Refer to Sections 5 and 6.8.

6. Environmental impact assessment

6.1. Land use

6.1.1. Existing environment

The proposed activity is located within the Murrumbidgee LGA, in the suburb of Bundure. The proposed impact area is situated within Lot 1 DP1282091, which is owned by ETMHC and leased and managed by Transgrid.

The proposed impact area is located within the existing substation site, which is currently used for electricity transmission purposes. The proposed impact area is partly located within the existing Dinawan 330 kV substation, with the new syncon bench extending beyond the current substation footprint in an area partially disturbed by the previous accommodation camp and laydown areas used during construction of PEC (which will be removed and rehabilitated) (refer to Figure 3-4). Approximately 0.3 hectares (ha) of native groundcover vegetation remains undisturbed from previous accommodation camp activities.

The surrounding locality is predominantly rural in character and is characterised by agricultural grazing land and other primary production activities. The Kidman Way is located immediately west of the substation site, while the Newell Highway is located approximately 21 km south of the substation site. The nearest residential dwelling is located approximately 4.2 km southwest of the proposed impact area.

6.1.2. Impact assessment

Construction

Construction of the proposed activity would be undertaken entirely within the existing substation site and within land owned by ETMHC and leased to Transgrid. No access to privately owned land would be required.

The proposed activity would utilise land that is already disturbed from the establishment of Dinawan accommodation camp (for PEC) or designated for electricity transmission infrastructure and would not result in the loss or fragmentation of agricultural land or alter existing land use arrangements in the surrounding area. Accordingly, no impacts on existing or surrounding land uses are anticipated during construction.

Operation

The proposed activity would be located within the existing Dinawan substation site and would not require the acquisition of additional land. While the proposed activity would extend beyond the existing substation footprint, it would remain on land previously disturbed for the Dinawan accommodation camp for PEC and on land owned by ETMHC and leased to Transgrid for electricity transmission purposes. As the proposed activity would be located within the existing electricity transmission corridor and on previously disturbed land, it would not affect the ongoing use of surrounding land for primary production, fragment resource lands, or introduce any new or incompatible land uses. Accordingly, no adverse operational land use impacts are anticipated.

6.2. Geology and soils

6.2.1. Existing environment

The topographic landscape of the proposed impact area is typically flat, with an elevation of 110 m Australian height datum (AHD). The broader study area generally remains level with the proposed impact area. The

study area is located on alluvial floodplain deposits. The soil is characterised by silts, clays and very fine to medium-grained lithic to quartz-rich sand.

A summary of the existing geology and soils environment is provided in Table 6-1.

Table 6-1. Existing geology and soils environment

Geology and soils	Existing environment
Acid sulfate soils	A review of the NSW Government's Central Resource for Sharing and Enabling Environmental Data in NSW (SEED map) on 30 April 2026 found that acid sulfate soils are unlikely to be present in the study area.
Contaminated land	A review of the NSW Environment Protection Authority's (EPA) contaminated land register and list of notified sites on 30 April 2026 found that there is no known contaminated land within the study area. Contamination may be present associated with the historical use of the substation site and recent construction activities for the Dinawan 330 kV substation. However, this would be managed through mitigation measures in Appendix A.
Naturally occurring asbestos	A review of the NSW Government's SEED map on 30 April 2026 found that the study area is not identified as having a risk of naturally occurring asbestos.
Salinity	A review of the NSW Government's SEED map on 30 April 2026 found that the study area is unlikely to present a salinity risk.
Mine subsidence	A review of the NSW Government's Planning Portal Spatial Viewer on 30 April 2026 found that study area is not located within a mine subsidence district.

6.2.2. Impact assessment

Construction

During construction, the key potential impacts associated with geology and soils relate to:

- The potential erosion of disturbed or excavated soils by surface water flows or wind
- Accidental spills or leaks from construction plant and equipment contaminating the ground
- Unexpected ground conditions.

The proposed activity would result in the disturbance, excavation, handling and storage of soils. The key activities that would disturb or handle soils relate to the excavation of the proposed impact area for syncon bench installation, installation/upgrade of oil and stormwater drainage systems, and activities associated with the construction of the bench. If not properly managed, surface water flows and high winds could result in the mobilisation of excavated soils and the erosion of stockpiles, excavations and areas of bare ground. These risks are expected to increase during high wind and rainfall events.

Whilst soil erosion could occur, the potential impacts would be localised to the proposed impact area. Whilst potential erosion impacts would be minor, the mitigation measure presented in Appendix A would be sufficient to avoid and/or mitigate these impacts.

Soil contamination may occur due to accidental spills or leaks of fuels, oils and other chemicals from plant, equipment and vehicles used during construction works. Spill kits would be required during the construction works. The use of these kits and other management measures and controls would be implemented to reduce

the likelihood of spills or leaks occurring or the consequence of these impacts in the unlikely event they occur (refer to Appendix A).

Contamination may be present associated with the historical use of the substation site and recent construction activities for the Dinawan 330 kV substation. Contaminated soils excavated during construction would be managed in accordance with mitigation measure GS4 in Appendix A. An unexpected finds procedure would be developed as part of the Construction Environmental Management Plan (CEMP) for the proposed activity. This procedure would outline how potential contamination risks, including potentially contaminated soils, would be identified and managed during construction.

As described in Section 6.2.1, it is unlikely that acid sulfate soils, salinity risks, and naturally occurring asbestos would be encountered during the construction of the proposed activity.

Operation

The main risk to geology and soils during operation would be oil contamination caused by faulty equipment, namely the new power transformer. To mitigate this, a new spill oil tank, drainage system and possible secondary containment dam would be installed to cater for the new power and auxiliary transformers, diesel generator and the syncon oil lubrication system. With these safeguards in place, the operation of the proposed activity is unlikely to result in significant impacts on geology and soils. Notwithstanding, maintenance activities may pose a risk of accidental spills of fuels, oils and other chemicals from plant and equipment, which would be managed through standard environmental management procedures.

The risk to the underlying geology and soils as part of the ongoing operation of the new syncon is considered to be low with the implementation of mitigation measures outlined in Appendix A.

6.3. Hydrology and water quality

6.3.1. Existing environment

The proposed activity is located within the Murrumbidgee catchment, which covers an area of 84,000 square kilometres and consists of mountainous terrain in the Snowy Mountains to flat Riverina plains. It is located within the southern half of the Murray-Darling basin catchment.

The study area is located in a sparsely vegetated rural area, including cleared transmission lines extending east and west from the Dinawan 330 kV substation and infrastructure for electricity storage and generation. There is one watercourse within the substation site, Delta Creek located between the southwestern and southeastern corner of the site. The drainage line is located approximately 600 m from the proposed impact area at its closest point (refer to Figure 3-2). There is an artificial drainage channel, Bundure No 4 Channel, around 2.5 km south of the Dinawan 330 kV substation. This channel appears to be used for industrial purposes and is connected to Yanco Creek, located 9.5 km south of the study area, which is mapped as key fish habitat.

The Yanco Creek system's water quality has been determined to be within acceptable levels (Cth DCCEEW, 2024).

The study area is located within the Water Sharing Plan for the Murrumbidgee Alluvial Groundwater Sources 2020.

A search of groundwater bores in the study area was completed using the NSW Department of Primary Industries and Regional Development's Minview Seamless Geology tool on 17 June 2026. The search found six groundwater bores within 2 km of the study area. The status of all the groundwater bores is listed as 'functioning'. The groundwater depth in one bore located around 1.5 km northeast of the study area has been recorded to be 15 m below ground level (bgl) in 2007. No groundwater depths have been recorded in any of the other bores.

Geotechnical investigations conducted by Douglas Partners between 17 and 22 May 2026, to inform the design of the proposed activity, found that no groundwater was observed in boreholes installed for the investigation, which were drilled from 20.95 to 29.95 m below ground level.

The study area is not located within a drinking water catchment. Flood modelling undertaken for the Dinawan substation for the VNI West project has identified that the surrounding area is subject to flooding associated with overland flow and flood ponding (Transgrid, 2025). The existing Dinawan 330 kV substation is located on an elevated bench, while surrounding land may be inundated during flood events, including the 1% AEP and PMF events (Transgrid, 2025).

6.3.2. Impact assessment

Construction

During construction, the key risks to hydrology and water quality primarily relate to stormwater runoff during wet weather events and potential contamination of the receiving environment. Potential impacts may include:

- Discharge of sediment-laden runoff from exposed surfaces and stockpiled materials into receiving waterways, particularly Delta Creek between the southwestern and southeastern corner of the substation site, resulting in increased turbidity and deterioration of water quality
- Elevated concentrations of dissolved nutrients (nitrogen and phosphorous) in runoff which may stimulate nuisance plant, algal, or cyanobacterial growth in downstream watercourses
- Leaks or spills of fuels, oils, petroleum hydrocarbons, heavy metals or other chemicals from machinery or equipment, with potential transport to downstream ecosystems via surface water runoff
- Accidental release of alkaline concrete wash water used to clean concrete off equipment or plant, resulting in localised soil, surface water or groundwater contamination and possible downstream ecological impacts
- Leaching and groundwater migration of contaminants (fuels, oils, petroleum hydrocarbons, heavy metals or chemicals) into downstream waterbodies from accidental leaks/spills.

The risk of surface water contamination during construction could increase in the event of a major flood (between the 1% AEP and probable maximum flood event), where flood waters within surrounding flood-affected areas could mobilise contaminants into downstream waterways. Flood modelling indicates that surrounding land is subject to inundation during the 1% AEP and more extreme flood events. During the 1% AEP flood event, flood depths would vary across the substation site, however during an extreme flood event most of the substation site would be inundated, including flood depths of up to 1 m in areas adjacent to Kidman Way. However, with the implementation of mitigation measures recommended in Appendix A, the likelihood of contamination occurring in receiving waterways would be low.

The construction of the proposed activity would not alter flood patterns to more than a minor extent. Erosion and sediment controls would be installed and maintained throughout construction to prevent potential degradation of drainage lines and flood-prone areas.

Excavations of up to 20 m deep are unlikely to intercept groundwater, as the geotechnical investigations recorded no groundwater at a depth of 20.95 to 29.95 m bgl. Localised perched water may be encountered during excavation works.

Groundwater quality risks include potential contamination from accidental spills or leaks infiltrating soil and entering groundwater. With implementation of the mitigation measures described in Appendix A, the likelihood of significant impacts to groundwater quality is considered low.

Groundwater levels may be temporarily affected where inflows are intercepted during excavation. Any accumulated groundwater would be managed in accordance with the CEMP and mitigation measures in Appendix A. Dewatering requirements are expected to remain below three megalitres per year (including construction inflows and managed discharges), which, under advice from the NSW DCCEEW Water, does not require a licence. Given the short-term nature of dewatering and limited flow volume, no long-term impacts on regional groundwater levels are anticipated.

Operation

Notwithstanding the presence of existing impervious surface areas within the proposed impact area, any new impervious surface areas may result in the following potential impacts during operation of the proposed activity:

- Increased surface water runoff due to an increase in impervious area and compacted surfaces
- Changes to flow rates and volumes entering receiving waterways, leading to potential scouring/erosion
- Increase in contaminants and litter in runoff that would discharge to the receiving waterways.

Permanent on-site oil and stormwater drainage systems would be installed/upgraded if required during construction, which would largely mitigate the above potential impacts during operation.

Noting the location of the new syncon and associated bench relative to overland flow paths including Delta Creek and the proposed drainage system, it is unlikely that the proposed activity would worsen existing flooding conditions for flood events up to, and including the 1% AEP during operation.

As such, potential hydrology and water quality impacts as a result of the proposed activity are considered to be negligible.

6.4. Ecology

6.4.1. Existing environment

This ecology assessment has adopted a ‘biodiversity study area’ which includes the proposed impact area and a surrounding 500 m buffer.

The proposed impact area is located within and immediately adjacent to the existing Dinawan 330 kV substation. The majority of the proposed impact area has been highly modified through the construction and operation of the substation and is largely devoid of any vegetation.

A small area of native groundcover vegetation (approximately 0.3 ha) within the proposed impact area occurs adjacent to the existing substation footprint (refer to Figure 6-1). This groundcover vegetation is associated with Plant Community Type (PCT) 26 - Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion (Transgrid, 2022). It is not associated with any threatened ecological communities (TECs).

A desktop ecological due diligence assessment was undertaken in accordance with Transgrid's *Ecological Due Diligence Assessment Procedure* (June 2023). Further to Transgrid's internal spatial system (TSS), the assessment also included a review of the NSW BioNet Atlas records, the Biodiversity Values Map (BVM), recent aerial imagery, and ecological assessments prepared for PEC and VNI West. No ecology field surveys were undertaken for this REF.

Previous ecological assessments undertaken in the substation site for PEC (Transgrid, 2022) and VNI West (Transgrid, 2025) identified several Commonwealth and NSW-listed TECs, threatened flora and fauna species, and areas of threatened species habitat within the biodiversity study area.

The BDAR prepared for the VNI West project (Transgrid, 2025) identified the Natural Grasslands of the Murray Valley Plains, a Critically Endangered Ecological Community (CEEC) listed under the EPBC Act within the biodiversity study area. However, this CEEC does not occur in the proposed impact area.

Within the biodiversity study area, the PEC and VNI West BDARs identified species polygon mapping for the following threatened fauna species:

- Grey Snake (*Hemiaspis damelii*): Endangered under the EPBC Act and the NSW BC Act
- Pink Cockatoo (*Lophochroa leadbeateri*): Endangered under the EPBC Act and Vulnerable under the NSW BC Act
- Superb Parrot (*Polytelis swainsonii*): Vulnerable under the EPBC Act and the NSW BC Act.

Species polygons represent mapped habitat or potential distribution and do not confirm the presence. No species polygon mapping for these species occurs within the proposed impact area.

The VNI West BDAR (Transgrid, 2025) also identified suitable habitat for Austral Pillwort (*Pilularia novae-hollandiae*), an Endangered threatened flora species under the NSW BC Act, within the biodiversity study area.

A review of available ecological mapping indicates that no TECs, threatened flora populations, threatened fauna records, BVM land, or mapped threatened species habitat occur within the proposed impact area. Biodiversity values identified by these previous assessments are associated with relatively undisturbed native vegetation located outside the existing substation and generally remote from the proposed impact area.

The proposed impact area is therefore characterised by existing substation infrastructure, highly disturbed land from the establishment of the Dinawan accommodation camp and a small area of native groundcover vegetation associated with PCT 26 and does not contain identified threatened biodiversity values.

6.4.2. Impact assessment

Construction

Construction would occur predominantly within the existing Dinawan 330 kV substation and adjacent disturbed land used for the Dinawan accommodation camp. Approximately 0.3 ha of native groundcover vegetation adjacent to the substation would be disturbed (refer to Figure 6-1).

Desktop assessments identified no TECs, threatened flora populations, threatened species, Biodiversity Values Map land, or mapped threatened species habitat within the proposed impact area. No listed threatened species or other threatened biodiversity values were identified within the proposed impact area. While threatened biodiversity values have been identified within the broader biodiversity study area, these

are associated with native vegetation outside the substation and generally remote from the proposed impact area.

Approximately 0.3 ha of vegetation clearing would be required for the proposed activity. Indirect impacts on native fauna would occur from traffic, noise and dust associated with vehicle movements and construction noise. Indirect impacts such as weed spread and vegetation degradation would be managed through the implementation of the mitigation and biosecurity measures in Appendix A.

Given the highly disturbed nature of the proposed impact area, the limited extent of vegetation disturbance outside the existing substation, and the absence of identified threatened biodiversity values within the proposed impact area, construction is unlikely to result in significant impacts on TECs, threatened species, biodiversity values or habitat connectivity.

Operation

Operation of the proposed activity is not expected to result in ecological impacts beyond those associated with the existing operation of the Dinawan 330 kV substation. The proposed activity would not affect habitat connectivity, fragment native vegetation, or adversely affect threatened species or ecological communities.

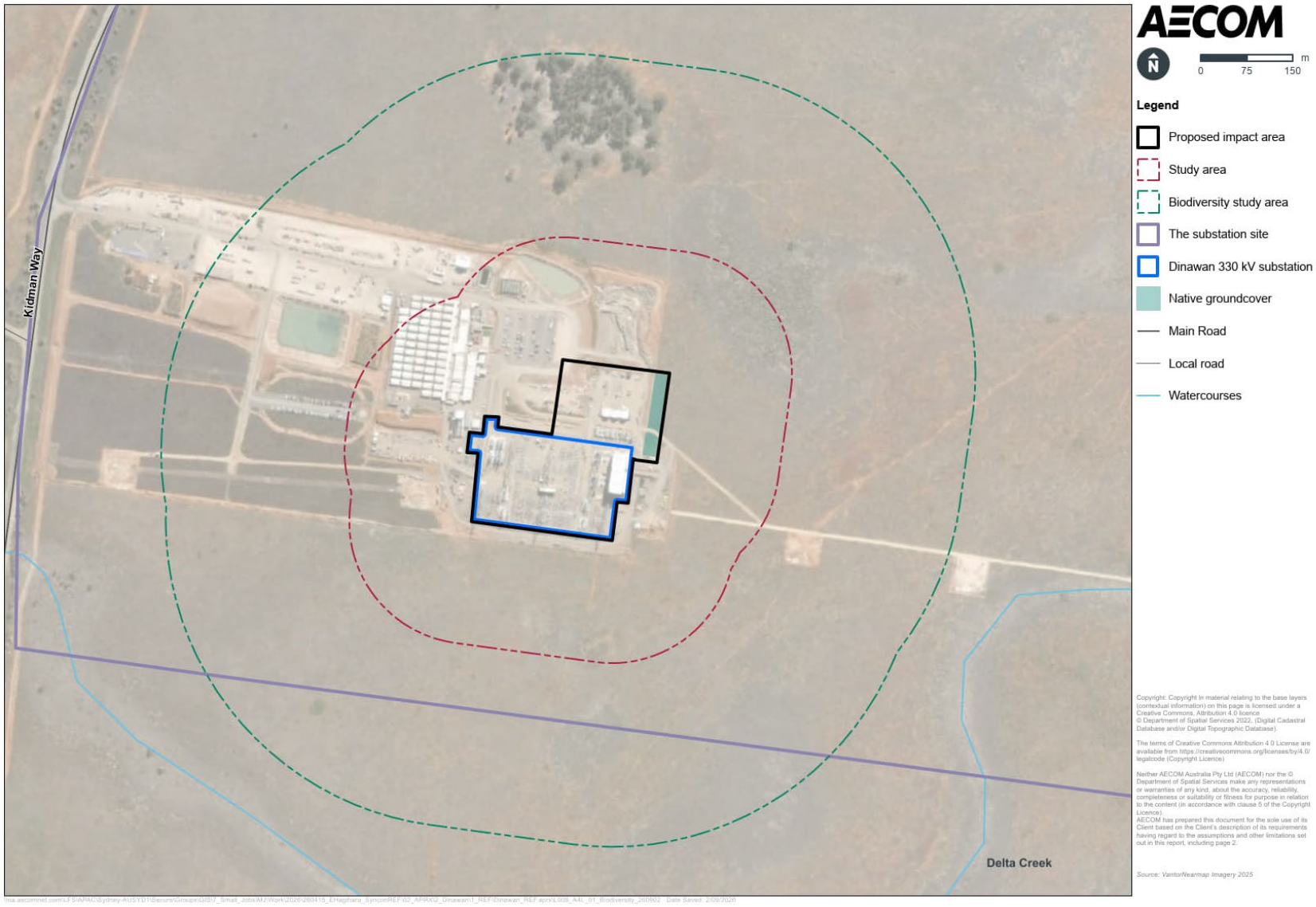


Figure 6-1 Existing vegetation within the proposed impact area

6.5. Aboriginal heritage

6.5.1. Existing environment

The majority of the proposed impact area has been highly modified for its initial construction and the purpose of its use as an electrical substation. During the substation's establishment, naturally occurring soils within the proposed impact area would have been disturbed and replaced with fill material as part of its initial construction, indicating the unlikely presence of Aboriginal heritage potential.

A desktop Aboriginal heritage due diligence assessment was undertaken in accordance with Transgrid's *Aboriginal Heritage Due Diligence Assessment Procedure* (December 2025). No Aboriginal heritage field surveys were undertaken for this REF.

As part of the desktop assessment, an Aboriginal Heritage Information Management System (AHIMS) search was undertaken on 12 August 2026 for the proposed impact area and a surrounding 150 m buffer. The search identified no Aboriginal objects or declared Aboriginal Places within the search area. The AHIMS search results are provided in Appendix B.

The assessment also included a review of the Aboriginal heritage assessments prepared for PEC (NOHC, 2021) and VNI West (NOHC, 2025). These assessments identified no Aboriginal heritage sites within the proposed impact area or 150 m study area.

A review of the National Native Title Tribunal's 'Native Title Vision' mapping tool, the National Native Title Register and the Register of Native Title Claims relevant to the proposed impact area was undertaken on 17 June 2026. The search indicated a Native Title claim by the Southern West Yiradyuri/Wiradyuri/Wiradjuri People (NC2025/004) within the broader region, lodged on 1 October 2025. The proposed activity is located on freehold land owned by ETMHC. As native title is generally extinguished by the grant of freehold title, the proposed activity is not expected to affect Native Title rights or interests.

The proposed impact area is located within and immediately adjacent to the existing Dinawan 330 kV substation and comprises land that has been substantially disturbed by the construction and operation of the substation and PEC (refer to Section 3.2).

The proposed activity is not located within 200 m of a major watercourse and does not intersect or occur in proximity to any sensitive landscape features, reflecting the highly modified nature of the existing environment.

Given the extent of previous ground disturbance, the archaeological sensitivity of the proposed impact area is considered low and the potential for intact subsurface Aboriginal cultural heritage deposits to occur is considered limited.

6.5.2. Impact assessment

Construction

No recorded Aboriginal objects or declared Aboriginal Places have been identified within or adjacent to the proposed impact area. The proposed activity would be undertaken predominantly within the existing Dinawan 330 kV substation and adjacent previously disturbed areas.

Construction would also require disturbance of a small area (approximately 0.3 ha) of native groundcover vegetation adjacent to the existing substation. This area is contiguous with land previously disturbed during the construction of PEC and does not represent an intact or undisturbed landform. Given its proximity to existing disturbed areas and the extent of historical ground disturbance within the surrounding landscape, the archaeological sensitivity of the area is considered low.

Accordingly, the potential for intact subsurface Aboriginal cultural heritage deposits to occur within the proposed impact area is considered limited. Construction of the proposed activity is therefore unlikely to impact Aboriginal objects, Aboriginal Places, or other Aboriginal cultural heritage values, including previously unidentified archaeological material.

The mitigation measures provided in Appendix A, including procedures for the management of unexpected finds, would further minimise the potential for impacts to Aboriginal heritage values. Accordingly, no significant impacts on Aboriginal cultural heritage are anticipated.

Operation

Operation of the proposed activity would occur within the existing substation and would not involve additional ground disturbance beyond that undertaken during construction. As such, operation of the proposed activity would not impact Aboriginal cultural heritage values.

6.6. Historic heritage

6.6.1. Existing environment

A search of the following databases was undertaken on 28 April 2026 to identify historic heritage items and places within the study area:

- World Heritage List
- National Heritage List
- Commonwealth Heritage List
- NSW State Heritage Register and State Heritage Inventory
- Section 170 Heritage and Conservation Registers (NSW Government Agencies)
- Jerilderie LEP heritage listings.

No items or places of historic heritage significance listed on the above databases were identified within the study area.

The proposed impact area is located within and immediately adjacent to the existing Dinawan 330 kV substation and comprises operational electricity transmission infrastructure, previously disturbed land from the establishment of the accommodation camp and laydown areas used during construction of Transgrid's PEC and a small area of native groundcover vegetation adjoining the substation. No known historic heritage values have been identified within the proposed impact area.

6.6.2. Impact assessment

Construction

No listed historic heritage items or places occur within or adjacent to the proposed impact area. As such, construction of the proposed activity would not result in direct or indirect impacts to known historic heritage values, and a Statement of Heritage Impact is not required.

Construction would occur predominantly within the existing substation and previously disturbed areas, with disturbance of approximately 0.3 ha of adjacent native groundcover vegetation. Given the absence of identified historic heritage items within the proposed impact area and the extent of previous disturbance across the site, the potential to encounter unidentified historic heritage relics is considered low.

Notwithstanding, the possibility of unexpected historic heritage finds during construction cannot be entirely excluded. Mitigation measures provided in Appendix A, including an Unexpected Heritage Finds Procedure, would be implemented should any potential heritage items or relics be encountered during works.

Subject to the implementation of these measures, construction of the proposed activity is not expected to result in significant impacts on historic heritage values.

Operation

Operation of the proposed activity would occur within and adjacent to the existing Dinawan 330 kV substation and is not anticipated to affect any identified historic heritage items or places. Accordingly, operation of the proposed activity would not result in impacts to historic heritage values.

6.7. Noise and vibration

6.7.1. Existing environment

The existing acoustic environment is characterised by noise associated with the operation of the existing Dinawan 330 kV substation and broader operational infrastructure within the substation site, intermittent traffic movements on Kidman Way, and typical rural background noise sources such as bird noises and agricultural operations.

The nearest identified residential receiver is located approximately 4.2 km southwest of the proposed impact area. No non-residential noise-sensitive receivers have been identified within 2 km of the proposed impact area.

6.7.2. Impact assessment

Construction

Construction activities would generate temporary noise associated with the operation of construction plant and equipment, vehicle movements and general construction activities. However, given the substantial distance between the proposed impact area and the nearest noise-sensitive receiver, construction noise impacts are expected to be negligible.

Construction is expected to generate up to 70 heavy vehicle movements per day during the peak construction period and six oversized and overmass (OSOM) vehicle movements over the project duration (refer to Section 6.8.2), potentially including during night-time hours. Given the limited number of sensitive receivers along the construction haulage routes and the temporary nature of construction traffic, significant construction traffic noise impacts are not anticipated.

Construction activities are not expected to involve significant vibration-generating works. In addition, the nearest sensitive receiver is located approximately 4.2 km from the proposed impact area. Accordingly, vibration impacts are not expected.

Construction noise and vibration would be managed through the implementation of standard mitigation measures outlined in Appendix A.

Operation

The proposed activity would introduce a syncon and associated infrastructure that would typically operate continuously to support electricity network requirements. Potential operational noise sources would include the syncon unit, power transformer, cooling systems, auxiliary equipment and occasional operation of the backup diesel generator during testing or emergency situations.

The syncon unit and associated cooling equipment would be housed within the proposed syncon building, which would provide attenuation of operational noise emissions. Other noise-generating equipment would be located within the existing operational Dinawan 330 kV substation, which already contains electrical infrastructure that generates low levels of operational noise such as other power transformers.

The nearest residential receiver is located approximately 4.2 km southwest of the proposed activity. Given this substantial separation distance, the rural setting of the site and the enclosure of the primary noise-generating equipment within the syncon building, operational noise impacts are expected to be negligible and unlikely to be perceptible at nearby sensitive receivers.

Operation of the proposed activity is not expected to generate vibration levels that would affect surrounding land uses due to the distances involved and the nature of the proposed equipment. Any vibration associated with the operation of the syncon and ancillary equipment would not affect off-site receivers.

The proposed activity would result in periodic operational and maintenance visits; however, these activities are not expected to substantially increase traffic volumes relative to existing operations. Accordingly, operational traffic noise impacts are not anticipated.

6.8. Traffic and access

6.8.1. Existing environment

Access to the existing Dinawan 330 kV substation is provided via an existing site access from Kidman Way. Kidman Way is a sealed State road with a posted speed limit of 100 km per hour and provides connectivity between the A39 Newell Highway near Jerilderie and the A20 Sturt Highway near Darlington Point.

The Dinawan 330 kV substation is accessed by Transgrid personnel, contractors and maintenance vehicles associated with the operation and maintenance of the existing substation. Internal access roads and off-street parking are available within the substation site.

There are no public transport stops in the immediate vicinity of the proposed impact area. A regional V/Line coach service operates along Kidman Way between Shepparton (in Victoria) and Griffith.

6.8.2. Impact assessment

Construction

Construction of the proposed activity would utilise the existing site access from Kidman Way. Two access points along the northern side of the proposed impact area would be constructed to access the proposed impact area. One access point joins an existing internal access road from the construction of Transgrid PEC. The other access point connects with a new internal access road. The new internal access road would be

constructed within the proposed impact area to facilitate the movement of construction personnel, equipment and materials, and would subsequently support operational and maintenance access.

Up to 50 personnel may be present on site during peak construction periods. Construction activities are expected to generate a temporary increase in traffic on the surrounding road network, including Kidman Way, the A39 Newell Highway and the A20 Sturt Highway. During peak construction periods, up to 55 light vehicle movements and 70 heavy vehicle movements per day are anticipated. Heavy vehicles would be used for the delivery of construction materials and equipment, spoil removal (if required), and the transport of syncon components.

The proposed activity would require the delivery of OSOM electrical equipment, including major plant components that cannot be transported using conventional heavy vehicle arrangements. Up to six OSOM vehicle movements may occur over the duration of the proposed activity. On days when OSOM deliveries occur, the number of standard heavy vehicle movements would be reduced. The traffic volumes presented represent a conservative worst-case scenario, and actual daily vehicle movements are expected to be lower for much of the construction period.

Consistent with the transport planning undertaken for VNI West, delivery of OSOM equipment is expected to utilise existing approved and gazetted OSOM freight routes from either the Port of Melbourne or Port of Newcastle to the substation site. The VNI West assessment identified that routes to the site are located entirely on the approved OSOM network and are capable of accommodating the transport of large electrical infrastructure subject to applicable permit and traffic management requirements.

For movements originating from Victoria, the preferred route to the Dinawan 330 kV substation would generally utilise the approved OSOM network and would include travel from Port of Melbourne along the Hume Freeway / Hume Highway (M31), Goulburn Valley Freeway (M39), Goulburn Valley Highway (A39), Newell Highway (A39) and Kidman Way (B87) to access the proposed activity. These roads were specifically reviewed as part of the VNI West OSOM route assessment and associated road condition surveys.

OSOM deliveries for the proposed activity would be undertaken in accordance with the Heavy Vehicle National Law and relevant requirements of the National Heavy Vehicle Regulator (NHVR). Prior to transport, the haulage contractor would obtain all necessary OSOM permits and approvals, and would prepare a project-specific Traffic and Transport Management Plan. Consultation would also be undertaken with Transport for NSW and relevant local road authorities such as Council where movements affect state or local roads.

During OSOM vehicle movements, temporary impacts may include short-term traffic delays, reduced road network efficiency at intersections, temporary lane closures, escorted vehicle movements and restrictions on opposing traffic where oversized loads pass through constrained sections of the route.

Given the relatively low frequency of OSOM deliveries and the use of established approved OSOM corridors, these impacts are expected to be temporary and localised. Impacts would be minimised through detailed route planning, scheduling of deliveries outside peak traffic periods where practical, advance notification to relevant stakeholders, use of escort vehicles, and implementation of traffic control measures in accordance with NHVR permit conditions and road authority requirements.

A regional V/Line coach service operates along Kidman Way; however, there are no bus stops in the vicinity of the proposed impact area. Construction traffic, including heavy vehicle and OSOM movements, would temporarily share sections of the road network used by this service. Given the low frequency of bus services,

the capacity of the surrounding road network and the temporary nature of construction activities, impacts on bus operations are expected to be negligible. Any temporary traffic management measures associated with OSOM deliveries would be coordinated to minimise disruption to all road users, including public transport services.

Traffic, access and transport impacts would be managed through the implementation of the mitigation measures outlined in Appendix A, including traffic management measures, stakeholder consultation and compliance with relevant permit and approval requirements for OSOM movements. Any works with the potential to affect traffic on public roads would be undertaken in consultation with Transport for NSW and Murrumbidgee Council, as required, and managed through the CEMP.

Subject to the implementation of these measures, construction of the proposed activity is not expected to result in significant traffic, access, transport or public transport impacts.

Operation

During operation, access to the syncon facility would be provided via the existing site access from Kidman Way and the new internal access road constructed as part of the proposed activity.

The proposed activity would result in periodic operational and maintenance visits; however, these activities are not expected to substantially increase the number of personnel or vehicle movements associated with the existing operation of the Dinawan 330 kV substation. Accordingly, operational traffic volumes are expected to remain consistent with existing conditions.

The proposed activity would not alter access arrangements on the surrounding road network and would not affect existing public transport routes or services operating along Kidman Way.

Operation of the proposed activity is therefore expected to have negligible impacts on traffic, access, transport or public transport services.

6.9. Air quality

6.9.1. Existing environment

The proposed impact area is located within and immediately adjacent to the existing Dinawan 330 kV substation in a predominantly rural and agricultural landscape.

The Murrumbidgee region is characterised by a semi-arid climate with hot summers and cool winters. The nearest Bureau of Meteorology (BOM) weather stations providing relevant climate data are Urana Post Office, located approximately 53 km southeast of the proposed impact area, and Narrandera Airport AWS, located approximately 76 km northeast. Average annual rainfall in the region is approximately 425 mm, with rainfall occurring on around 53 days per year (BOM, 2026).

Air quality in the locality is generally considered to be typical of a rural environment. Existing sources of air emissions include agricultural activities, vehicle traffic on Kidman Way, wind-blown dust from exposed ground, hazard reduction burning and bushfire smoke during relevant seasons.

A search of the National Pollutant Inventory (NPI) (Cth DCCEEW, 2026) undertaken on 28 April 2026 identified no reported pollutant-emitting facilities within 5 km of the proposed impact area.

The nearest residential receiver is located approximately 4.2 km southwest of the proposed impact area. Given the isolated nature of the proposed impact area and the substantial separation distance to sensitive receivers, there are limited air quality-sensitive receivers in the locality.

6.9.2. Impact assessment

Construction

Construction activities have the potential to generate temporary air quality impacts, primarily in the form of dust generated by earthworks, excavation, filling activities, vehicle movements on unsealed surfaces, and the construction of the syncon bench and associated infrastructure.

Construction activities would also generate exhaust emissions from construction vehicles, plant and equipment, including excavators, cranes, concrete trucks, generators and other machinery required for the works. These emissions would be temporary, localised and consistent with those typically associated with infrastructure construction activities.

Given the relatively small scale of the proposed works, the broader rural setting of the proposed activity, and the substantial distance to the nearest residential receiver (approximately 4.2 km), significant air quality impacts are not anticipated. Air quality impacts would primarily be limited to the immediate construction area and surrounding substation site.

Air quality impacts would be managed through the implementation of the mitigation measures outlined in Appendix A, which would be incorporated into the CEMP, including dust suppression measures, maintenance of vehicles and equipment, minimisation of vehicle and plant idling, management of exposed soils and stockpiles, and appropriate housekeeping practices during construction.

Subject to the implementation of these measures, construction of the proposed activity is not expected to result in significant air quality impacts.

Operation

Operation of the proposed activity is not expected to generate significant emissions to air. Routine operation and maintenance activities would result in negligible vehicle emissions and would be consistent with the existing operation of the Dinawan 330 kV substation.

The proposed activity would include gas-insulated electrical equipment containing sulfur hexafluoride (SF_6), a commonly used insulating gas in high-voltage infrastructure. The SF_6 would be contained within sealed equipment designed to minimise leakage during normal operation. While an unplanned release of SF_6 could occur in the event of equipment failure, such events are expected to be infrequent.

Air quality impacts during operation would be managed through the implementation of the mitigation measures outlined in Appendix A, including routine inspection, maintenance and monitoring of equipment containing SF_6 and the management of any accidental releases in accordance with Transgrid's operational procedures.

Accordingly, operation of the proposed activity is not expected to result in significant impacts on local or regional air quality. Subject to the implementation of mitigation measures in Appendix A, the proposed activity is not expected to result in significant adverse air quality impacts during operation.

6.10. Hazards and risks

6.10.1. Existing environment

Electric and Magnetic Fields

Electric and Magnetic Fields (EMF) are part of the natural environment and are also produced wherever electricity or electrical equipment is used. Electric fields are stronger with higher voltage and are greatest closest to wires and equipment, decreasing rapidly with distance. Most materials can block or reduce electric fields. Magnetic fields are also strongest near wires and electrical equipment and diminish quickly with distance, however, most materials do not shield magnetic fields.

Transgrid designs and maintains its assets in accordance with relevant Australian and International standards for EMF. In particular, Transgrid follows the International Commission on Non-Ionizing Radiation Protection (ICNIRP) 2010 Guidelines for limiting exposure to EMF (ICNIRP, 2010). The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), the federal agency responsible for EMF-related human and environmental health, has adopted the ICNIRP guidelines which set exposure limits for various types of electrical equipment and the nature of the exposure.

Existing sources of EMF within the proposed impact area include the operational Dinawan 330 kV substation, associated transmission infrastructure, transformers, switchgear, busbars and underground cables.

Bushfire prone land

The study area is not mapped as bushfire prone land on the NSW Rural Fire Service Bush Fire Prone Land Mapping (NSW RFS, 2026), with the nearest area of mapped bushfire prone land located approximately 11.6 km northwest of the proposed impact area.

As an operational electricity transmission facility, the Dinawan 330 kV substation is already subject to established operational and maintenance procedures relating to fire prevention and emergency response.

6.10.2. Impact assessment

Construction

Electric and Magnetic Fields

Construction activities are not expected to generate significant electric or magnetic fields. While minor and temporary EMF may be associated with the use of electrical equipment and machinery during construction, these would be localised and comparable to those commonly encountered in everyday environments. Construction personnel working within the existing Dinawan 330 kV substation would continue to be managed in accordance with Transgrid's existing safety procedures and relevant EMF exposure guidelines. Accordingly, construction of the proposed activity is not expected to result in significant EMF impacts.

Bushfire

Construction activities have the potential to generate hazards associated with the use of construction plant and equipment, fuel and chemical storage, vehicle movements, excavation works and hot works. Activities such as welding, cutting, grinding and the use of mechanical equipment have the potential to generate ignition sources that could result in a fire.

The proposed impact area is located within and adjacent to an existing operational substation and predominantly comprises previously disturbed land that has been cleared of vegetation, including areas

disturbed during construction of PEC. A small area of native groundcover vegetation (approximately 0.3 ha) is present adjacent to the existing substation footprint within the proposed impact area. Although the proposed impact area is not mapped as bushfire prone land, an uncontrolled fire originating from construction activities could potentially affect surrounding agricultural land, infrastructure and construction personnel if not appropriately managed.

Construction hazards and bushfire risks would be managed through the implementation of the mitigation measures outlined in Appendix A, including compliance with Transgrid's *Hot Works and Fire Risk Procedure*, appropriate storage and handling of fuels and hazardous substances, maintenance of firefighting equipment, management of ignition sources, and monitoring of weather and fire danger conditions. These measures would be incorporated into the CEMP.

Operation

Electric and Magnetic Fields

Operation of the proposed activity would introduce additional electrical infrastructure, including the syncon, power transformer and associated electrical equipment. This equipment would generate EMF in the immediate vicinity of the proposed infrastructure, consistent with the existing operational characteristics of the Dinawan 330 kV substation.

The proposed activity would only result in localised changes to EMF in the immediate vicinity of the equipment. This level of EMF would be consistent with the existing 330 kV Dinawan substation, and it is not considered that the EMF levels would negatively impact the local community. All designs would be in accordance with the ICNIRP Guidelines for limiting exposure to EMF (ARPANSA, 2010).

Bushfire

Operation and maintenance activities have the potential to involve occasional hot works and other activities capable of generating ignition sources. These activities would be undertaken in accordance with Transgrid's *Hot Works and Fire Risk Procedure* and relevant operational procedures.

An uncontrolled bushfire also has the potential to affect substation infrastructure and interrupt network operations. The proposed activity includes provision for asset protection zones and appropriate separation distances between infrastructure and surrounding vegetation. Routine vegetation management and maintenance activities would further assist in reducing bushfire risk.

Operational hazards and risks would be managed through the implementation of the mitigation measures outlined in Appendix A. Subject to the implementation of these measures, operation of the proposed activity is not expected to result in significant hazards or risks to people, property, infrastructure or the environment.

6.11. Visual amenity

6.11.1. Existing environment

The proposed impact area is located within and immediately adjacent to the existing Dinawan 330 kV substation in a rural landscape characterised by agricultural land uses, electricity transmission infrastructure and recent energy infrastructure development.

The visual character of the locality is dominated by the existing substation, transmission lines and towers, access tracks and associated infrastructure. Areas immediately surrounding the Dinawan 330 kV substation comprise predominantly cleared agricultural land and disturbed areas from the construction of PEC.

Views towards the proposed impact area are available from sections of Kidman Way, local access tracks and surrounding rural properties. The nearest residential receiver is located approximately 4.2 km southwest of the proposed impact area. Other visual receptors in the locality predominantly comprise road users travelling along Kidman Way and personnel accessing the existing substation.

6.11.2. Impact assessment

Construction

Construction of the proposed activity would result in temporary changes to visual amenity associated with the presence of construction plant, equipment, vehicles, laydown areas, site offices, stockpiles and construction personnel.

The proposed impact area is primarily located within the existing Dinawan 330 kV substation and adjoining area that has been subject to recent disturbance associated with PEC. As such, construction activities would be viewed in the context of an existing infrastructure environment and are not expected to substantially alter the visual character of the locality.

Views of construction activities would primarily be available to road users travelling along Kidman Way and personnel accessing the Dinawan 330 kV substation. Any visual impacts would be temporary and limited to the construction period.

Visual amenity impacts would be managed through the implementation of the mitigation measures outlined in Appendix A, including the appropriate management of construction compounds, laydown areas, waste materials and site rehabilitation.

Subject to the implementation of these measures, construction of the proposed activity is not expected to result in significant visual amenity impacts.

Operation

Operation of the proposed activity would introduce new infrastructure within and adjacent to the existing Dinawan 330 kV substation, including the syncon building, transformers, associated electrical equipment, lightning protection masts, fencing and ancillary infrastructure.

While the proposed infrastructure would increase the amount of built form within the substation site, it would be viewed in the context of the existing Dinawan 330 kV substation, which was constructed as part of PEC, and surrounding transmission infrastructure. Accordingly, the proposed activity would comprise an additional component within an established electricity transmission facility rather than a new visual element within the landscape. The proposed activity would not introduce a new land use and would be consistent with the established visual character of the site and surrounding locality.

Given the remote location of the substation, the substantial distance to the nearest residential receiver and the limited opportunities for public views, visual impacts during operation are expected to be minor. The proposed infrastructure would primarily be visible to road users travelling along Kidman Way and would generally be viewed as an extension of the existing substation environment.

Subject to the implementation of the mitigation measures outlined in Appendix A, operation of the proposed activity is not expected to result in significant visual amenity impacts.

6.12. Waste

6.12.1. Existing environment

The Dinawan 330 kV substation generates relatively small volumes of waste associated with routine operation and maintenance activities. Typical waste streams include general waste, packaging materials, replacement equipment components, and minor quantities of regulated waste such as used oils and lubricants generated during maintenance activities.

6.12.2. Impact assessment

Construction

Construction of the proposed activity would generate a range of waste streams, including:

- General construction waste, such as packaging materials and surplus construction materials
- Surplus excavated material that cannot be reused on-site
- Waste oils, greases and lubricants from the maintenance of construction plant and equipment
- Demolition waste associated with the removal of redundant infrastructure, where required
- Domestic and putrescible waste generated by construction personnel (including food scraps, bottles, cans and paper)
- Green waste generated during vegetation disturbance and site preparation activities.

Waste generation would be managed in accordance with the waste hierarchy, with opportunities for waste avoidance, reuse and recycling prioritised wherever practicable. Excavated material suitable for reuse would be retained on site where possible, with surplus material and other waste streams transported to appropriately licensed recycling or waste disposal facilities.

Waste management measures outlined in Appendix A would be implemented through the CEMP, including appropriate waste segregation, storage, handling and disposal procedures.

Operation

Operation of the proposed activity would generate small quantities of waste associated with routine operation and maintenance activities, including general waste, packaging materials, replacement equipment components, and minor quantities of regulated wastes such as used oils, lubricants and filters.

The volume and type of waste generated during operation are expected to be consistent with those associated with the existing operation of the Dinawan 330 kV substation. Operational waste would be managed in accordance with Transgrid's waste management procedures and the mitigation measures outlined in Appendix A.

Accordingly, operation of the proposed activity is not expected to result in significant waste management impacts.

6.13. Social and economic considerations

6.13.1. Existing environment

The proposed impact area is located within the Murrumbidgee LGA, which is characterised by a predominantly rural economy centred on agriculture, including grain production and livestock farming. The locality has also experienced increased infrastructure development associated with the energy sector, including the construction of PEC and future solar and wind farms planned for the surrounding region as part of South West REZ.

The existing Dinawan 330 kV substation forms an important part of the NSW electricity transmission network and supports the transfer of electricity across the National Electricity Market.

According to the 2021 Census, the Murrumbidgee LGA had a population of 3,353 people and a median age of 45 years (ABS, 2022). The population is dispersed across rural communities and townships, including Coleambally and Jerilderie. Employment within the LGA is strongly associated with agricultural industries, particularly grain and livestock production, as well as local government and community services.

The locality surrounding the proposed impact area is sparsely populated and comprises predominantly agricultural land and electricity transmission infrastructure. The nearest residential receiver is located approximately 4.2 km southwest of the proposed impact area.

6.13.2. Impact assessment

Construction

Construction of the proposed activity would generate temporary employment opportunities for construction personnel and contractors and may provide indirect economic benefits to local and regional businesses through the procurement of goods, services, accommodation, fuel and other supplies.

Temporary impacts on the local community may occur as a result of increased construction traffic, noise, dust and other construction-related activities. However, these impacts would be localised, temporary in nature, and limited by the remote location of the proposed impact area, the substantial distance to the nearest residential receiver, and the presence of existing and recently completed major energy infrastructure projects within the locality.

The proposed activity is not expected to adversely affect local businesses, agricultural activities, community facilities, emergency services, or key industries within the Murrumbidgee LGA. Given the relatively small workforce and the location of the proposed impact area within and adjacent to the existing Dinawan 330 kV substation, demand for local housing, social infrastructure and community services is expected to be minimal.

Any social and economic impacts during construction would be managed through the implementation of the mitigation measures outlined in Appendix A. Subject to the implementation of these measures, construction of the proposed activity is not expected to result in significant adverse social or economic impacts.

Operation

Operation of the proposed activity would require only periodic maintenance and inspection activities and is not expected to materially increase workforce numbers or place additional demand on local infrastructure, services or community facilities.

The proposed activity would contribute to the ongoing reliability, security and stability of the NSW and National Electricity Market transmission network, particularly for the South West REZ, through the provision of a syncon and associated infrastructure within and adjacent to the Dinawan 330 kV substation. This would provide a long-term positive benefit to electricity consumers and support the broader transition of the electricity network.

Accordingly, operation of the proposed activity is expected to result in a minor positive social and economic benefit and is not expected to result in significant adverse social or economic impacts. Subject to the implementation of the mitigation measures outlined in Appendix A, the social and economic impacts of the proposed activity are not considered significant.

6.14. Cumulative impacts

6.14.1. Existing environment

The proposed impact area is located within a rapidly developing renewable energy and transmission infrastructure precinct centred on the Dinawan 330 kV substation. The locality has experienced substantial recent infrastructure development associated with PEC and may continue to experience change associated with proposed transmission, generation and energy storage projects.

The assessment of cumulative impacts considered other major projects located in the vicinity of the proposed impact area where construction and/or operational timeframes may overlap with the proposed activity.

A review of the NSW Department of Planning, Housing and Infrastructure's Major Projects Register undertaken on 29 April 2026 identified four major projects within approximately 1 km of the proposed impact area that have the potential to contribute to cumulative environmental effects. These projects are summarised in Table 6-2 and shown in Figure 6-2.

Table 6-2. Projects identified as contributing to potential cumulative impacts

Project and status	Relative location	Proposed timeframes	Project details
VNI West Response to submissions	Adjacent to the proposed impact area	Construction is expected to start in 2027 and may overlap with construction of the proposed activity. Operational timeframes are also expected to overlap.	Construction and operation of a new 500 kV double-circuit transmission line between the NSW-Victoria border near Murrabit and the Dinawan 330 kV substation.
Yanco Delta Wind Farm MOD 2 (Worker accommodation facility and infrastructure changes) Response to submissions	Adjacent to the proposed impact area	Construction is anticipated to commence in 2027 and continue for approximately 17 months. Construction and operational timeframes may overlap with the proposed activity.	Modifications to the approved Yanco Delta Wind Farm, including worker accommodation and associated infrastructure, with connection infrastructure to the Dinawan 330 kV substation.

Project and status	Relative location	Proposed timeframes	Project details
Dinawan Wind Farm Under assessment	Adjacent to the proposed impact area	Construction is anticipated to commence in 2026 and continue for approximately 60 months. Construction and operational timeframes would overlap with the proposed activity.	Construction and operation of a wind farm comprising up to 200 wind turbines and associated infrastructure.
Dinawan Solar Farm Determined	Adjacent to the proposed impact area	Construction is anticipated to commence in 2027 for a duration of 36 months. Construction and operational timeframes would overlap with the proposed activity.	Development and operation of an 800 MW solar farm, battery energy storage system and associated infrastructure.

6.14.2. Impact assessment

Cumulative impacts are the combined effects of past, present and reasonably foreseeable future activities that may interact spatially or temporally with the proposed activity. Given the location of the proposed activity within an established and expanding energy infrastructure precinct, there is potential for cumulative effects where construction or operational periods overlap with nearby projects.

Construction

Potential cumulative impacts are summarised in Table 6-3.

Table 6-3. Potential cumulative construction impacts

Environmental factor	Construction impact
Noise and vibration	Concurrent construction activities associated with nearby projects may result in elevated noise levels within the broader substation site. However, the nearest residential receiver is located approximately 4.2 km from the proposed impact area and construction noise impacts from the proposed activity have been assessed as negligible. Accordingly, significant cumulative noise or vibration impacts on sensitive receivers are not anticipated.
Traffic and access	The greatest potential for cumulative impacts relates to increased construction traffic associated with multiple projects using shared transport routes, including Kidman Way, the A20 Sturt Highway and the A39 Newell Highway. Concurrent heavy vehicle and OSOM movements may result in temporary increases in traffic volumes, travel delays and road user interactions. These impacts would be managed through project coordination, consultation with Transport for NSW and Murrumbidgee Council, transport planning, traffic management measures and communication with road users and the local community.
Air quality	Concurrent earthworks and construction activities associated with nearby projects have the potential to increase dust generation within the broader locality, particularly during dry and windy conditions. However, the proposed activity would be undertaken primarily within an existing disturbed environment and is expected to make only a minor contribution to cumulative air quality impacts.

Environmental factor	Construction impact
Visual amenity	Construction activities associated with multiple infrastructure projects may result in a temporary increase in the visibility of construction plant, equipment and vehicles within the locality. Visual impacts would primarily be experienced by road users travelling along Kidman Way and are expected to be temporary in nature.
Social and economic considerations	Concurrent project construction may increase demand for skilled labour, accommodation, fuel, goods and services within the region. While this may contribute to pressure on local resources, the proposed activity would involve a relatively small workforce compared with other major projects proposed in the Dinawan area. The proposed activity would also contribute minor positive economic benefits through employment and procurement opportunities.

The proposed activity is located within an area that has been identified for major energy infrastructure development and would represent a relatively small component of the broader development occurring within the locality. With the implementation of the mitigation measures outlined in Appendix A and ongoing coordination with adjacent projects where required, cumulative construction impacts are expected to be minor and are not considered significant.

Operation

Once operational, the proposed activity would form part of the Dinawan 330 kV substation within the broader electricity transmission network to support existing and future transmission and energy generation projects as part of the South West REZ.

Operational impacts associated with the proposed activity have been assessed as negligible to minor across the relevant environmental factors in Section 6.1 to Section 6.13. While the operation of surrounding transmission and renewable energy projects may contribute to broader cumulative changes in the character of the locality, the proposed activity would be contained within an established substation environment and would make only a minor contribution to those changes.

The proposed activity would provide network support services that complement the operation of other existing and proposed energy infrastructure in the region and would contribute to the reliability, stability and security of the electricity transmission network.

Accordingly, no significant cumulative operational impacts are anticipated.

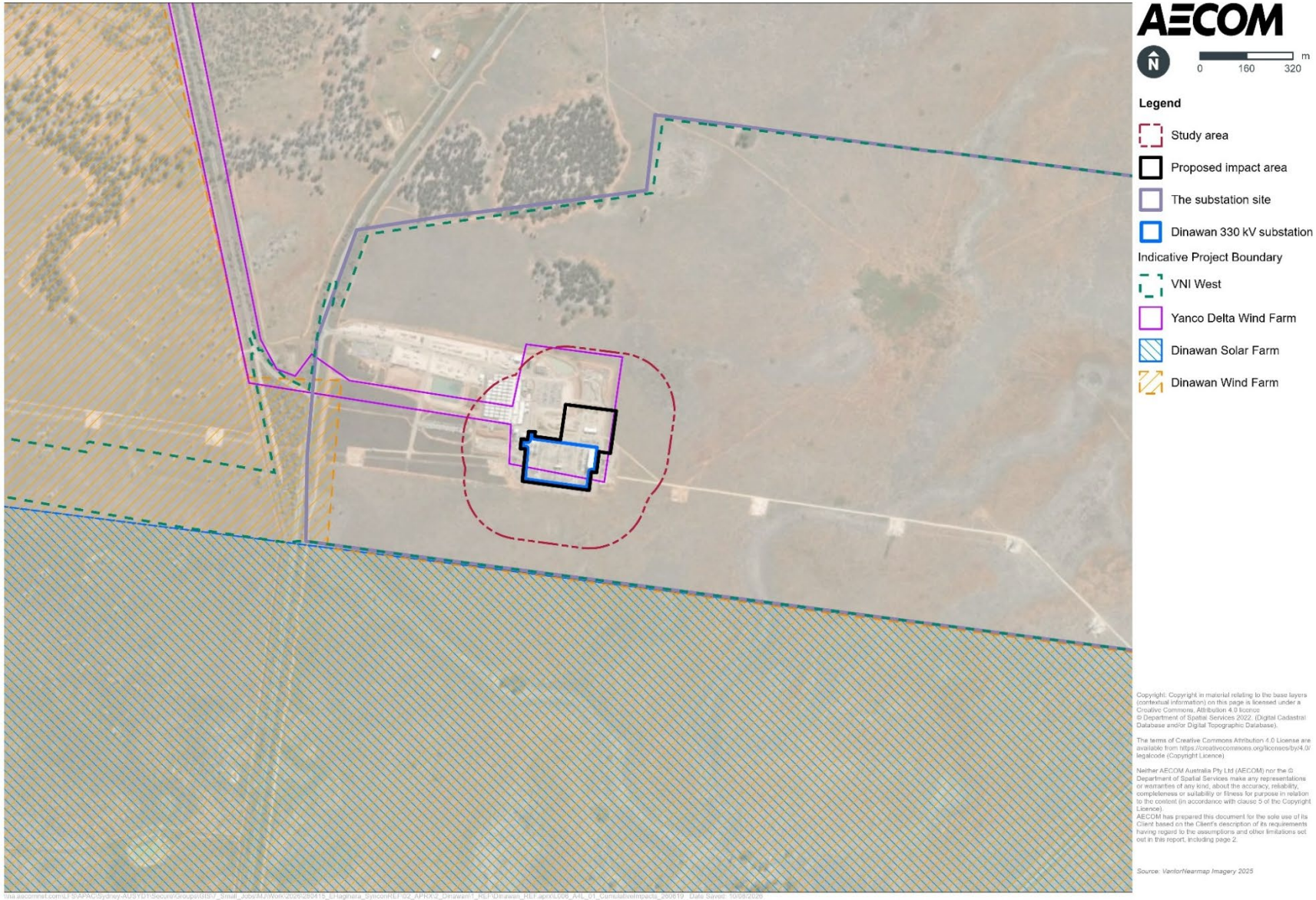


Figure 6-2 Cumulative projects

7. Consideration of statutory factors

7.1. Section 5.5 of the EP&A Act

Under Section 5.5 of the EP&A Act, the determining authority (being Transgrid) has a duty to consider the effect of the proposed activity on the environment and the effects on any wilderness areas. Table 7-1 provides a summary of how each factor has been considered.

Table 7-1. Consideration of Section 5.5 of the EP&A Act

Factor	Comment
5.5 (1). Examine and take into account matters affecting or likely to affect the environment by reason of that activity.	All potential environmental impacts have been considered and assessed in Section 6.
5.5 (3). Consider the effect of an activity on any wilderness area (within the meaning of the *Wilderness Act 1987*) in the locality in which the activity is intended to be carried on.	The proposed activity would not affect any wilderness area.

Under Section 7.3 of the BC Act, the determining authority (Transgrid) must consider whether the proposed activity is likely to significantly affect threatened species, ecological communities or their habitats, or whether the activity is proposed to be carried out within a declared Area of Outstanding Biodiversity Value.

As detailed in Section 6.4, the proposed activity is not located and would not be carried out within a declared Area of Outstanding Biodiversity Value. The proposed activity would not significantly affect any TECs, threatened species, populations or their habitats. No TECs, threatened flora populations, threatened species habitat or Biodiversity Values Map land have been identified within the proposed impact area.

Taking into account the nature and scale of the proposed activity, the disturbed condition of the majority of the proposed impact area, and the mitigation measures outlined in Appendix A, the proposed activity is unlikely to have a significant effect on threatened species, ecological communities or their habitats. Accordingly, the preparation of a BDAR under the BC Act is not required.

7.2. Section 171 of the EP&A Regulation

The *Guidelines for Division 5.1 assessments* and Section 171(2) of the EP&A Regulation details environmental factors that must be taken into account when considering the likely impact of an activity on the environment. Table 7-2 provides a summary on how each environmental factor has been considered.

Table 7-2. Consideration of Section 171(2) factors

Factor	Potential impact
(a) any environmental impact on a community.	As detailed in Section 6, the proposed activity may result in temporary impacts on the local community during construction, including increased traffic, noise, dust and construction activity. These impacts would be localised, temporary in nature and managed through the implementation of mitigation measures outlined in Appendix A. Operation of the proposed activity is not

Factor	Potential impact
	expected to result in significant adverse impacts on the community.
(b) any transformation of a locality.	The proposed activity would be undertaken within and adjacent to the existing Dinawan 330 kV substation and would not alter the established land use or character of the locality. The proposed activity would represent an extension of existing electricity transmission infrastructure and would not result in a substantial transformation of the locality.
(c) any environmental impact on the ecosystems of the locality.	As outlined in Section 6.4, the proposed activity would be undertaken predominantly within disturbed land associated with the existing substation and adjacent areas previously disturbed by construction activities. The proposed activity is unlikely to significantly affect ecosystems, biodiversity values, threatened species, threatened ecological communities or habitat connectivity within the locality.
(d) any reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality.	The proposed activity would result in a minor change to the visual character of the existing substation environment through the introduction of the syncon and associated infrastructure. Given the existing infrastructure setting and limited viewing opportunities, impacts on visual amenity are expected to be minor (refer to Section 6.11). No recreational, scientific or other environmental values would be significantly affected.
(e) any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations.	As detailed in sections 6.5 and 6.6, no significant impacts on Aboriginal cultural heritage, historic heritage items or places of heritage significance are anticipated. Appropriate unexpected finds procedures would be implemented during construction.
(f) any impact on the habitat of protected animals (within the meaning of the *Biodiversity Conservation Act 2016*).	The proposed activity is not expected to significantly affect the habitat of protected animals. No mapped threatened species habitat has been identified within the proposed impact area and mitigation measures outlined in Appendix A would further minimise potential impacts (refer to Section 6.4.2).
(g) any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air.	The proposed activity is unlikely to endanger any species of animal, plant or other form of life. The ecological assessment in Section 6.4 concluded that the proposed activity is not expected to significantly affect TEC, threatened species or biodiversity values.
(h) any long-term effects on the environment.	The proposed activity would permanently introduce additional infrastructure within the existing substation site. However, no significant long-term adverse environmental effects have been identified following the implementation of mitigation measures outlined in Appendix A.

Factor	Potential impact
(i) any degradation of the quality of the environment.	Construction activities would result in temporary and localised disturbance associated with earthworks, vehicle movements, vegetation disturbance and construction activities. These impacts would be managed through mitigation measures outlined in Appendix A and are not expected to result in significant degradation of environmental quality.
(j) any risk to the safety of the environment.	Potential risks to the environment, including fire, pollution incidents and accidental spills, would be managed through the mitigation measures outlined in Appendix A and Transgrid's environmental and operational procedures. The proposed activity is not expected to present a significant risk to the safety of the environment.
(k) any reduction in the range of beneficial uses of the environment.	The proposed activity would be undertaken within and adjacent to the existing Dinawan 330 kV substation and would not reduce the range of beneficial uses of the surrounding environment. Existing agricultural land uses in the locality would continue.
(l) any pollution of the environment.	Construction and operation of the proposed activity have the potential to generate dust, noise, waste, emissions and accidental spills. These potential impacts would be managed through the mitigation measures outlined in Appendix A and are not expected to result in significant pollution of the environment.
(m) any environmental problems associated with the disposal of waste.	Waste generated during construction and operation would be managed in accordance with the waste hierarchy and Transgrid procedures. Waste would be reused, recycled or disposed of at appropriately licensed facilities, and significant environmental impacts associated with waste disposal are not anticipated (refer to Section 6.12).
(n) any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply.	The proposed activity would require construction materials, fuel, water and labour resources; however, the demand is not expected to place significant pressure on resources that are, or are likely to become, in short supply.
(o) any cumulative environmental effect with other existing or likely future activities.	As discussed in Section 6.14, the proposed activity is located within an area of existing and proposed energy infrastructure development. While minor cumulative impacts may occur, particularly during construction, the proposed activity is not expected to contribute to significant cumulative environmental impacts.
(p) any impact on coastal processes and coastal hazards, including those under projected climate change conditions.	The proposed impact area is located inland within the Murrumbidgee LGA. The proposed activity would not affect coastal environments, coastal processes or coastal hazards.
(q) applicable local strategic planning statements, regional strategic plans or	The proposed activity is consistent with the strategic intent of applicable State, regional and local planning

Factor	Potential impact
district strategic plans made under the Act, Division 3.1.	frameworks, including the continued provision of essential electricity transmission infrastructure.
(r) other relevant environmental factors.	No other relevant environmental factors have been identified that would alter the conclusions of this REF. Subject to the implementation of mitigation measures outlined in Appendix A, the proposed activity is not expected to result in significant adverse environmental impacts.

7.3. Section 171A of the EP&A Regulation

Section 171A of the EP&A Regulation outlines environmental matters that must be taken into account when considering the likely impact of a proposed activity within a regulated catchment (being Sydney Drinking Water Catchment, Sydney Harbour Catchment, Georges River Catchment and Hawkesbury-Nepean Catchment).

No works would be carried out within a regulated catchment and therefore Section 171A has not been considered further.

7.4. Matters of National Environmental Significance (MNES) under the EPBC Act

Under the EPBC Act, Transgrid is required to consider matters of national environmental significance (MNES), to assist in determining whether the proposed activity should be referred to the National Environmental Protection Agency. Table 7-3 provides a summary of how MNES have been considered.

Table 7-3. MNES under EPBC Act

MNES / Commonwealth Land	Potential impact
Any impact on a World heritage property?	No. The proposed activity is not located within or near any World Heritage properties.
Any impact on a National heritage place?	No. The proposed activity is not located within or near any National heritage properties.
Any impact on any wetlands of international importance?	No. Four Ramsar wetlands were identified within the broader Murray-Darling Basin catchment; however, none occur within or adjacent to the proposed impact area. The proposed activity is unlikely to affect any Wetland of International Importance.
Any impact on a Commonwealth listed threatened species or ecological communities?	No. Five EPBC Act-listed TEC and 36 EPBC Act-listed threatened species were identified that may occur within the broader locality. However, desktop investigations and previous ecological assessments indicate that no listed TEC, threatened flora populations or mapped threatened species habitat occur within the proposed impact area. As discussed in Section 6.4, the proposed activity is unlikely to significantly affect any Commonwealth-listed TEC or threatened species.

MNES / Commonwealth Land	Potential impact
Any impacts on a Commonwealth listed migratory species?	No. Seven Commonwealth-listed migratory species may occur within the broader locality; however, the proposed impact area comprises predominantly existing substation infrastructure and disturbed land and does not provide important habitat for listed migratory species. The proposed activity is unlikely to significantly affect any Commonwealth-listed migratory species (refer to Section 6.4).
Any impact on a Commonwealth marine area?	No. The proposed activity is located inland and would not affect any Commonwealth marine area. No Commonwealth marine areas were identified within the locality.
Any impact on the Great Barrier Reef Marine Park?	No. The proposed activity is not located within or near the Great Barrier Reef Marine Park.
Does the proposed activity involve a nuclear action (including uranium mines)?	No. The proposed activity does not involve a nuclear action.
Does the proposed activity involve a water resource, in relation to unconventional gas development and large coal mining development?	No. The proposed activity does not involve unconventional gas development or large coal mining development.
Is the proposed activity likely to have a significant impact on the environment on Commonwealth land?	No. The proposed activity is located on land owned by the ETMHC and is not Commonwealth land.

7.5. Consideration of Ecologically Sustainable Development

Obligations under the EP&A Act require that Transgrid protects the environment by conducting its operations in compliance with the principles of ecologically sustainable development (ESD), namely:

- The precautionary principle
- Intergenerational equity
- Conservation of biological diversity and ecological integrity
- Improved valuation, pricing and incentive mechanisms.

The principles of ESD have been applied during the proposed activity design and assessment. Mitigation measures (Appendix A) would be applied to avoid or minimise impacts.

8. Environmental management

Transgrid is committed to carrying out its activities and services, including the proposed activity, in a manner that minimises pollution and environmental impacts, and complies with relevant legislation, industry standards and codes of practice. To support this commitment, Transgrid maintains an Environmental Management System (EMS) that is certified under the international standard ISO 14001. All works undertaken for the activity would be consistent with the EMS. Environmental mitigation measures have been included in Appendix A to avoid and minimise environmental impacts identified in this REF.

A Construction Environmental Management Plan (CEMP) shall be prepared and submitted to an Environmental Business Partner/ Delivery for review and endorsement four weeks prior to the commencement of works, including site establishment. The CEMP shall be prepared in accordance with Transgrid's *Preparation and Approval of Environmental Management Plans* Procedure.

In addition to the Contractor's Environmental Supervisor, Transgrid shall appoint an Environmental Business Partner to regularly check that the proposed activity is being carried out in compliance with all environmental approval and legislative conditions.

The operation of the activity would be managed in accordance with Transgrid's certified Environmental Management System. Due diligence environmental checks, including environmental information generated from GIS where relevant, would be undertaken before any maintenance works are carried out. No new environmental constraints or mitigation measures have been identified as part of this REF that are relevant to the ongoing operation and maintenance of the asset.

9. Conclusion

The Dinawan 330 kV substation new synchronous condenser (Phase 2) has been assessed under Part 5, Division 5.1 of the EP&A Act. This REF has examined and taken into account matters affecting or likely to affect the environment by reason of the proposed activity, including consideration of other NSW and Commonwealth legislation. The REF has considered and assessed environmental impacts in accordance with Section 171 of the EP&A Regulation.

The key environmental impacts identified as part of this REF include:

- Minor erosion and sedimentation impacts from excavation activities during construction
- Minor temporary noise and traffic impacts generated from construction vehicles on the surrounding road network including Kidman Way during construction.

All other impacts were assessed as negligible to minor.

Mitigation measures to avoid, minimise and/or manage potential environmental impacts for the proposed activity have been included in Appendix A.

Considering the assessment of the impacts detailed in this REF, it is concluded that:

- The proposed activity is not likely to significantly affect the environment and therefore an Environmental Impact Statement is not required.
- The proposed activity is not likely to significantly affect threatened species, ecological communities or their habitats and would not be carried out in a declared area of outstanding biodiversity value, therefore a SIS and/or BDAR is not required.

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Appendix A Mitigation measures

Mitigation measures	
Environmental management and incident response	
EM1	A Construction Environmental Management Plan (CEMP) shall be prepared and submitted to the Environmental Business Partner/Delivery (Transgrid Environmental Business Partner) for review and endorsement four weeks prior to the commencement of works, including site establishment. The CEMP shall be prepared in accordance with Transgrid's *Preparation and Approval of Environmental Management Plans* Procedure and include all environmentally sensitive areas identified in Section 6. Where works are near identified sensitive areas, a specific site plan shall be prepared.
EM2	All workers shall be inducted onto the CEMP, including the environmental mitigation measures and sensitive areas identified in this REF. Training shall be given to workers, as appropriate. Records shall be kept of this induction and training.
EM3	An Environmental Supervisor shall be included as part of the construction staff to oversee implementation of the CEMP and ensure that all mitigation measures are effectively applied. In addition to the Environmental Supervisor, Transgrid shall appoint an Environmental Business Partner to ensure that the work is being carried out in accordance with all environmental approval and legislative conditions.
EM4	All refuelling activities shall be within designated refuelling zones that are bunded and impervious. The location of the refuelling zones shall be shown on the site plans. Environmental spill kits containing spill response materials suitable for the works being undertaken shall be kept on-site at all times and be used in the event of a spill. Any spills shall be contained, cleaned up promptly and immediately reported to the Transgrid site representative.
EM5	All chemicals or other hazardous substances shall be stored in a bunded area and away from any drainage lines/pits. The capacity of the bunded area shall be at least 130% of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s shall be documented and shown on the site plans.
EM6	All environmental incidents and near misses must be reported to Transgrid. All pollution incidents that threaten or harms the environment must be reported immediately to relevant authorities, in accordance with the *Protection of the Environment Operations Act 1997* (POEO Act).
Geology and soils	
GS1	A Soil and Water Management Plan (SWMP) shall be prepared by a suitably qualified and experience person and implemented and maintained in accordance with relevant sections of Managing Urban Stormwater: Soil and Construction Volume 1 (Landcom, 2004) ('the Blue Book) (particularly Section 2.2) and Managing Urban Stormwater: Soil and Construction Volume 2A – Installation of Services (DECC, 2008a) and submitted to the Transgrid Environment Business Partner for endorsement prior to commencement of works.
GS2	Vehicles and equipment shall remain on existing roads and nominated site access. Vehicles and equipment shall be free of mud, soil or vegetated matter prior to access onto public roads.

Mitigation measures	
GS3	Any imported fill shall be certified at source location (e.g. Quarrymaster or landholder) as pathogen and weed free Excavated Natural Material (ENM) or Virgin Excavated Natural Material (VENM) in accordance with the Protection of the *Environment Operations Act 1997* (POEO Act) and the Waste Regulation.
GS4	Any excavated material suspected of showing evidence of contamination shall be sampled and analysed by a National Association of Testing Authorities (NATA) Registered laboratory and managed in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014), the Guidelines on the Duty to Report Contamination (NSW EPA, 2015) and the *Contaminated Land Management Act 1997*.
GS5	The CEMP shall include an unexpected finds process that outlines how to identify and manage contaminated soils (including acid sulfate soils and naturally occurring asbestos), material and groundwater.
GS6	All oil handling shall be undertaken in accordance with *Transgrid's Oil Management Procedure*.
Hydrology and water quality	
HW1	No refuelling or bulk herbicide preparation shall occur within 40 metres of natural or constructed drainage lines or water bodies.
HW2	Water management for excavations shall be documented in the CEMP and implemented on-site. Controls may include: ▪ Use of diversion drains (or similar) to reduce water flow into excavations and off-site ▪ Separation of clean and dirty water, where possible ▪ Methodology for intercepted/collected water (e.g. regular monitoring, treatment and discharge) ▪ Installation of appropriate erosion control devices (sediment fence, coir logs, sandbags, etc), including monitoring and maintenance ▪ Record dewatering volumes if large amounts of groundwater is encountered (ensuring no water licence is required) ▪ Water quality testing will be required if suspected contamination is encountered (odour, sheen, visual contaminants) to inform disposal and/or discharge requirements.
HW3	Spoil shall be stockpiled in a manner to avoid the possibility of sediments entering stormwater drains, waterways or migrating off-site.
HW4	Flood preparedness measures shall be documented in the CEMP and may include, but are not limited to, the identification of flood evacuation routes and procedures for moving equipment to higher ground, or elevating equipment where necessary.
Ecology	
EC1	Vegetation disturbance and removal shall be minimised as far as practicable.

Mitigation measures	
EC2	All properties with known biosecurity issues shall be identified and included in the CEMP. Controls may include: ▪ Wash down procedures to reduce the spread of weeds via vehicles and machinery ▪ Cleaning of vehicle tyres, undersides and radiator grills before leaving a property ▪ Cleaning of footwear and minimising soil movement between locations (either on machines, plant, equipment or materials) ▪ Importing weed-free material ▪ Working from clean areas towards weedy areas to reduce the spread of weeds ▪ Selecting and using pesticides in accordance with Transgrid's *Use of Pesticides and Schedule of Approved Pesticides* ▪ Maintaining communication records with landowners regarding biosecurity requirements.

EC3	All workers would be provided with an environmental induction prior to commencing work. This induction would include information on the protection measures to be implemented to protect vegetation, penalties for breaches and locations of areas of sensitivity. Key points would include:
	▪ Maintaining all construction activities within the designated and demarcated or fenced off boundaries
	▪ Identification of weeds and biosecurity threats on-site and appropriate actions to prevent their spread (see detail below)
	▪ Identification of threatened animals, and what to do in case of encountering these (see detail below). While no threatened species or mapped threatened species habitat were identified within the proposed impact area, the following threatened fauna species have the potential to occur within the broader biodiversity study area:
	  ▪ Grey Snake (*Hemiaspis damelii*)
	  ▪ Pink Cockatoo (*Lophochroa leadbeateri*)
	  ▪ Superb Parrot (*Polytelis swainsonii*).
	▪ The threatened flora species Austral Pillwort (*Pilularia novae-hollandiae*) also has the potential to occur within the broader biodiversity study area and should be avoided where encountered during construction activities.

EC4	If native fauna is encountered it would be allowed to move off site of its own accord, as far as it is safe to do so. If the animal does not move works are to stop in that area and a person qualified in wildlife handling must be called in to safely relocate the animal.
EC5	If any threatened flora is located within the clearing footprint works are to stop in that area and the Transgrid Environmental Business Partner contacted for further advice.
EC6	Lighting of the proposed activity would be designed in accordance with relevant standards and directed inwards, and away from adjacent vegetated areas as far as practicable.
EC7	Disturbed areas not required for the operation of the syncon or the existing Dinawan 330 kV substation shall be stabilised and rehabilitated, as required. This would include removal of spoil, soil stabilisation and revegetation using a native seed mix approved by the Transgrid Environmental Business Partner. Any demobilisation and rehabilitation activities shall also consider any future work associated with VNI West project, should it proceed.

Mitigation measures	
EC8	Should the detailed design or on-site works determine the need to remove or trim any additional vegetation that has not been identified in this report, additional approval from Transgrid's environmental team would be required.
Heritage	
HE1	In the event that a site or artefact (as defined by the *National Parks and Wildlife Act 1974* or *Heritage Act 1977*) is identified during construction works, works shall cease at the location and no further harm to the object shall occur. The find shall be immediately reported to Transgrid, and the regulator in accordance with legislation. No work shall commence in the vicinity of the find until any required approvals have been given by the regulator. In the event that skeletal remains are encountered during the activity, works shall stop immediately, the area secured to prevent unauthorised access and the NSW Police, Department of Planning, Housing and Infrastructure (DPHI) and Transgrid contacted.
Noise and vibration	
NV1	Noise generating works shall be in accordance with the *Interim Construction Noise Guideline* (DECC, 2009): ▪ 7:00am – 6:00pm Monday to Friday ▪ 8:00am – 1:00pm Saturdays ▪ No work on Sundays or Public Holidays. Work outside normal hours, on Sundays and public holidays shall only comprise: ▪ The delivery of materials outside normal hours requested by police or other authorities for safety reasons ▪ Emergency work to avoid the loss of lives and/or property ▪ Work timed to correlate with system planning outages ▪ Vacuum and oil filling of equipment. Other noise generating works outside of the standard construction hours shall require the prior formal written consent of Transgrid's Environmental Business Partner and require justification in accordance with the Guideline.
NV2	Construction equipment shall be maintained regularly as per manufacturer's recommendations, and less noise-emitting equipment shall be selected where possible.
Traffic and access	
TA1	Transportation and equipment delivery movements on public roads shall be in accordance with TfNSW and Council requirements. Consultation with Council shall be undertaken prior to commencement of works, including site area establishment.
TA2	Traffic, transportation and access mitigation and management strategies shall be documented in a Traffic and Transport Management Plan and implemented on-site. These may include: ▪ The management of the delivery of equipment and materials. ▪ Access to and from the site including nominated roads and site access tracks. ▪ Parking. ▪ Speed limits. ▪ Coordination with other projects, such as VNI-West, to manage cumulative traffic impacts, particularly heavy and OSOM movements.

Mitigation measures	
TA3	Access track works shall be constructed in accordance with the *Soils and Construction Volume 2C Unsealed Roads* (DECC, 2008b).
Air quality	
AQ1	Air quality mitigation and management strategies shall be documented in the CEMP and implemented on-site. This may include: ▪ Avoiding vehicle and machinery idling as much as possible ▪ Reducing vehicle speeds when in the vicinity of residences to minimise the generation of nuisance dust ▪ Progressively revegetating and/or rehabilitating disturbed areas as works are completed ▪ Dust suppression including water spraying of unsealed surfaces, covering stockpiles and materials during transportation.
Hazards and risk	
HR1	All designs shall be in accordance with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF (ARPANSA, 2010).
HR2	Transgrid's *Hot Works and Fire Risk Procedure* shall be adhered to for planning and undertaking all hot and fire risk works. This process shall be documented and implemented in accordance with the CEMP.
HR3	All SF_6 handling shall be undertaken in accordance with Transgrid's *Management of SF_6 Gas – Work Instruction*.
Visual amenity	
VA1	All construction plant, equipment, waste and excess materials shall be contained within the designated boundaries of the work site and shall be removed from the site following the completion of construction.
VA2	The syncon building and associated equipment would be designed generally in accordance with the visual amenity and context of the existing substation equipment.
Waste	
WA1	Waste mitigation and management strategies shall be documented in the CEMP and be in accordance with Transgrid's Waste Management Procedures and associated Work Instructions. The CEMP shall include the following: ▪ All waste streams and how they will be managed (e.g. segregation and storage on-site and reuse/ recycling opportunities taking into account where waste will be generated and the location of recycling/reuse facilities) shall be identified prior to construction commencing and included in the CEMP or separate Waste Management Plan ▪ All waste, including surplus soils, which cannot be reused would be classified in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014), removed from the site and disposed of at a facility that can lawfully accept the waste in accordance with the POEO Act and POEO Waste Regulation ▪ All waste generated during construction would be maintained in a waste register in accordance with Transgrid's Waste Management Procedure and entered into Transgrid's Compliance, Audit, Risk and Safety Management System (CAMMS) ▪ Any waste that requires tracking under State or Commonwealth legislation would be authorised in Transgrid's CAMMS waste management system, prior to waste being transported and leaving the site.

Mitigation measures	
WA2	Concrete trucks would be permitted to flick wet wipe their discharge chutes with the effluent discharged into prepared bored holes, prepared excavations/formwork or a watertight receptacle for recycling or disposal. No concrete washout or agitators is permitted.

Appendix B Aboriginal Heritage Information Management System (AHIMS) Search Results

Official

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Dinawan 150m

Client Service ID : 1170440

AECOM

l8/6 Stewart Ave
Newcastle West New South Wales 2302

Attention: Ema Hagihara

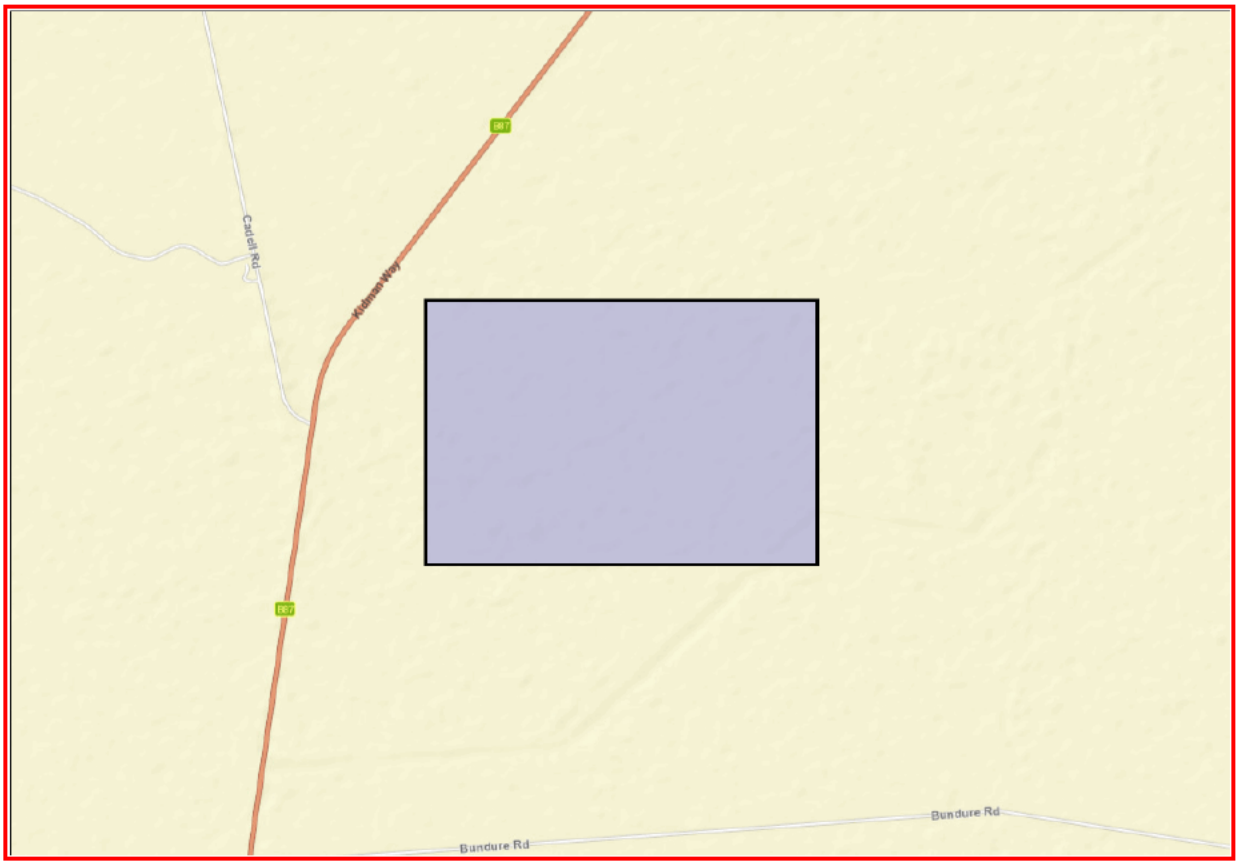
Email: ema.hagihara@aecom.com

Date: 12 August 2026

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -35.0662, 145.8005 - Lat, Long To : -35.0487, 145.8314, conducted by Ema Hagihara on 12 August 2026.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.



A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	**Aboriginal sites are recorded in or near the above location.**
0	**Aboriginal places have been declared in or near the above location. ***