



# Mount Piper to Wallerawang Transmission Line Upgrade





## Technical Report 4 – Land Use and Agriculture Assessment

Transgrid

August 2025

→ The Power of Commitment



<b>Project name</b>		Mount Piper to Wallerawang Transmission Line Upgrade					
<b>Document title</b>		Mount Piper to Wallerawang Transmission Line Upgrade   Technical Report 4 – Land Use and Agriculture Assessment					
<b>Project number</b>		12612502					
<b>File name</b>		MP2W_Land use and Agriculture.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	0	P. Dellow B. James	J. McKinney		G Marshall		31/07/25
S4	1	P. Dellow B. James	J. McKinney		G Marshall		18/08/25

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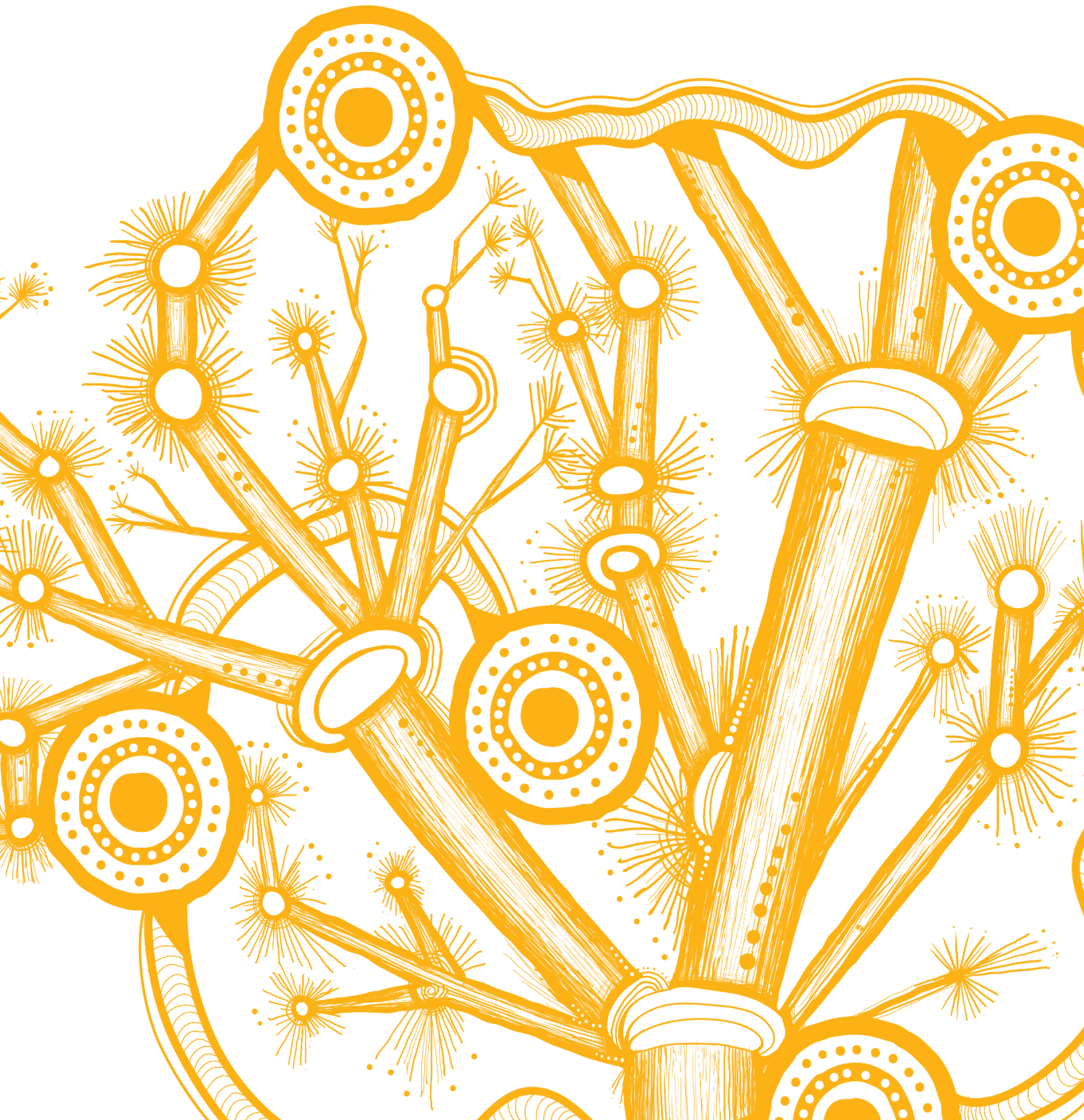
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## Acknowledgement of Country

Transgrid and GHD acknowledge Aboriginal and Torres Strait Islander peoples as the Traditional Custodians of the land, water and sky throughout Australia on which we do business. We recognise their strength, diversity, resilience and deep connections to Country. We pay our respects to Elders of the past, present and future, as they hold the memories, knowledges and spirit of Australia. Transgrid and GHD are committed to learning from Aboriginal and Torres Strait Islander peoples in the work we do.



# Executive summary

## The project

Transgrid proposes to deliver approximately eight kilometres (km) of new 330 kilovolt (kV) transmission line and double circuit transmission structures located between the Mount Piper and Wallerawang 330 kV substations (the project). The project would incorporate sections of an existing, single-circuit 132 kV transmission line, where the two transmission lines would share a widened easement and transmission structures. The project is located within the Central West region of NSW within the Lithgow Local Government Area (Lithgow LGA).

The project is identified in the NSW Network Infrastructure Strategy (EnergyCo, 2023) and also supports the key tenets of the NSW Electricity Infrastructure Roadmap (DPIE, 2020). The Roadmap identifies that the expansion of renewable generation must be accompanied by increased transmission capacity to transfer power from Renewable Energy Zones (REZ) in inland NSW to key demand centres. The Mount Piper to Wallerawang Transmission Line Upgrade Project would provide the additional capacity required to reliably transmit power from the Central West Orana REZ to the Greater Sydney region.

## Purpose of this report

This land use and agriculture assessment has been prepared as part of the Environmental Impact Statement (EIS) to assess potential land use impacts from the construction and operation of the project. The assessment has been undertaken in accordance with the environmental assessment requirements of the Planning Secretary of the Department of Planning, Housing and Infrastructure (the SEARs).

## Methodology

The study area adopted for this assessment is the Lithgow LGA. The assessment has been undertaken with reference to the Infrastructure proposals on rural land (DPI, 2013) guideline and the SEARs. A land use conflict risk assessment (LUCRA) has also been prepared with reference to the Land Use Conflict Risk Assessment Guide (DPI, 2011).

## Existing environment

The dominant land uses in the Lithgow LGA include conservation (43 per cent), agricultural grazing activities (31 per cent) and forestry (12 per cent). The project is surrounded by a variety of land uses and has been positioned to utilise the existing transmission line easements as much as possible. As a result, the project footprint includes sections where existing easements are widened or shared, and the creation of new easements is minimised. Importantly, key land use constraints have been considered in selecting the alignment of the proposed new transmission line. This has included the Gardens of Stone State Conservation Area (Gardens of Stone SCA), Centennial Springvale Coal Services facility mining operations and infrastructure, agricultural activities, proposed mixture of land uses at the former Wallerawang Power Station site including predominately commercial development in the vicinity of the project, private land ownership, existing transmission infrastructure and Coxs River.

Most of the study (that is, the Lithgow LGA) is dominated by steep terrain, rocky outcrops and poor soils, particularly associated with the conservation areas, which limit more intensive land uses. Over 63 per cent of the study area is classed as land and soil capability Classes 6 – 8 with very severe or extreme limitations for the use of the land.

## Impacts from the project

### Construction

Construction of the project would result in temporary changes to land use within the project footprint. Impacts on key land uses along the project during construction would include:

- Impacts to 19.2 ha of the Gardens of Stone SCA, with five hectares (ha) of this consisting of land not already impacted by the existing 132 kV transmission line easement. Impacts would involve the loss of these areas for recreational purposes; however, this portion of the SCA is infrequently used by the public.

- Impacts to 38.2 ha of low-productivity agricultural land, with 23.2 ha of this consisting of land not already impacted by the existing 132 kV transmission line easement. Access to this land would be restricted during construction and increase the biosecurity risks due to an increase in people and vehicle movements through agricultural land.

Impacts to other land uses are considered minimal or not present.

### **Operation**

The siting of the operational elements of the project primarily within the existing 132 kV transmission easement has minimised new land use impacts. New land use impacts would be limited to areas where new easements are established primarily at the eastern end of the project and where the existing easement is widened.

The operation of the project is not expected to result in any change to agricultural land as existing agricultural practices within the project footprint would continue, subject to safety considerations. Maintenance activities for the transmission line are unlikely to impact upon any agricultural operations due to their infrequency and minor nature.

The project would result in 3.9 ha of new easement within the Gardens of Stone SCA. Access track upgrades would improve access to this portion of the Gardens of Stone SCA. However, given the lack of designated recreational areas or facilities in this portion of the SCA, the project is not expected to impact the use of the area for recreational purposes.

### **Cumulative impacts**

The project is not expected to contribute to any large-scale land use change in the surrounding area. Other projects identified to be in proximity to the project footprint and with potential cumulative impacts, have relatively small footprints and/or they do not impact upon the same land uses affected by the project, being conservation or agricultural land. Any cumulative impact on agricultural land is expected to represent only about 0.3 per cent of the study area's agricultural land.

### **Recommended mitigation measures**

The potential impacts on land use and agriculture identified and assessed in this report would be managed and mitigated through a range of measures, including those recommended by other technical reports prepared for the EIS, such as the air quality, noise and vibration, and traffic impact assessments. Mitigation measures specific to managing the potential impacts on land use and agriculture would largely involve consultation with specific landowners, including National Parks and Wildlife Service, to ensure any impacts can be managed in a way to ensure impacts on the use of their land is minimised.

### **Conclusion**

The project has been developed to avoid and minimise potential impacts on land use and agriculture, via the route selection and design process which has sought to utilise existing easements where possible and to minimise impacts on previously unaffected land. All management of impacts have and will continue to be informed by consultation with landowners. Appropriate mitigation and management measures have been provided to further reduce and minimise potential impacts on land use and agriculture.

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# Key terms, acronyms and abbreviations

Term	Definition
ABS	Australian Bureau of Statistics
AIS	Agricultural impact statement
AWS	Automated weather station
BESS	Battery Energy Storage System
BoM	Australian Bureau of Meteorology
bn	Billion
BSAL	Biophysical Strategic Agricultural Land
CCL	Consolidated Coal Lease
CEMP	Construction environmental management plan
CWO REZ	Central-West Orana Renewable Energy Zone
°C	degrees Celsius
DPE	Department of Planning and Environment (NSW) (former)
DPI	Department of Primary Industries
DPIE	Department of Planning, Infrastructure and Environment (former)
DSE	Dry Sheep Equivalent
Easement	<p>A legal property right attached to a parcel of land that enables the use of an identified part of the land by a third party other than the owner. For transmission lines, an easement defines the corridor area where the lines are located and that allows access, construction and maintenance work to take place. The easements for the 330 kV transmission lines would typically be 60 metres wide. The easement grants a right of access and for construction, maintenance and operation of the transmission line and other operational assets.</p> <p>For the project some easements may overlap with existing easements may overlap with existing easements such that the final easement width for the new easement would be narrower than 60 metres (e.g. where paralleling the existing transmission line north of the Wallerawang 330 kV substation) and in other areas it may be wider to accommodate diverging transmission lines (e.g. in the south of the Mount Piper 330 kV substation).</p>
EIS	Environmental impact statement
EL	Exploration license
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
GHD	GHD Pty Ltd
GIS	Geographic information system
GM	Gross Margin
GVAP	Gross value of agricultural production
ha	
Hazard tree	
LEP	
LGA	Local government area
LLS	Local Land Services
LSC	Land and soil capability
LUCRA	Land Use Conflict Risk Assessment
ML	Mining lease
MPL	Mining Purpose Lease

<b>Term</b>	<b>Definition</b>
NPWS	National Parks and Wildlife Service
NSW	New South Wales
OEH	Office of Environment and Heritage
Permanent easement	The permanent easement that would be established to facilitate ongoing access and maintenance.
Project	Construction and operation of the Mount Piper to Wallerawang Transmission Line.
Project footprint	The area that would be directly disturbed by construction and the location of operational infrastructure. The disturbance area would include clearing areas, construction activity zones and access tracks.
REZ	Renewable Energy Zones
SCA	State Conservation Area
SEARs	Secretary's Environmental Assessment Requirements
SEPPs	State Environmental Planning Policy
Study area	The area investigated which includes the footprint of the project footprint and surrounding area, with the potential to be directly or indirectly affected by the project. The area of investigation covered by this land use and agriculture assessment comprises of the Lithgow City Council LGA.
TSRs	Travelling stock reserves

# 1. Introduction

## 1.1 Background

The Commonwealth and NSW governments have both established targets to achieve net-zero emissions by 2050. Achieving these targets requires low emissions technologies to be deployed at scale across all sectors of the economy, including the electricity generation sector, currently Australia's largest source of greenhouse gas emissions.

The NSW Transmission Infrastructure Strategy (DPE, 2018) aims to engage the private sector to invest in priority energy infrastructure projects, which can deliver low-cost, clean and reliable energy to consumers.

As part of the Transmission Infrastructure Strategy, the NSW Government has developed a plan to establish five Renewable Energy Zones (REZs) to increase renewable energy generation, reduce carbon emissions, and help deliver lower wholesale electricity costs to consumers. The Central-West Orana REZ (CWO REZ), being the first REZ established, is planned to generate at least 4.5 gigawatt by the late-2020s.

The NSW Government's Electricity Infrastructure Roadmap (DPIE, 2020) identifies that the expansion of renewable generation must be accompanied by increased transmission capacity to transfer power from REZs in inland NSW to key demand centres. Interest in new energy generation projects in the CWO REZ is forecasted to exceed the existing transmission network capacity in several locations. The existing infrastructure located between the Mount Piper 550/330 kilovolt (kV) substation (Mount Piper 330 kV substation) and the Wallerawang 330/132 kV substation (Wallerawang 330 kV substation) has been identified in the NSW Network Infrastructure Strategy (EnergyCo, 2023) as requiring upgrades. The Mount Piper to Wallerawang Transmission Line Upgrade Project (the project) would provide the additional capacity required to reliably transmit power from the CWO REZ to the Greater Sydney region.

## 1.2 Location

The project is located within the Central West region of NSW within the Lithgow City Council Local Government Area (LGA). It is located approximately 14 kilometres (km) north-west of Lithgow situated on the western fringes of the Blue Mountains (Figure 1.1).

The area that is to be directly affected by the construction and operation of the project, is referred to as the project footprint and is shown in Figure 1.1. The project footprint is approximately 87 hectares (ha) in size and is generally bounded by the following:

- Castlereagh Highway to the north
- Former Wallerawang Power Station site to the east
- Gardens of Stone State Conservation Area (SCA) to the south
- Mount Piper Power Station to the northwest.

Land uses within and adjacent to the project footprint include:

- electricity generation at Mount Piper Power Station
- electricity transmission, including the Mount Piper and Wallerawang 330 kV substations, and associated transmission lines
- mining activities, with several Centennial Coal operations including the former Ivanhoe Mine and Springvale Coal Services overlapping the project footprint
- agriculture, primarily livestock grazing
- conservation, notably the Gardens of Stone SCA
- state and local road reserves including the Castlereagh Highway, Boulder Road and Brays Lane
- rail corridors including the Main Western Rail Line and a disused railway line near Brays Lane.

A mixture land uses are proposed at the former Wallerawang Power Station site. This may include commercial and industrial land use. Development of a Battery Energy Storage System is also proposed by others at the site.



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Red lines shown on figure are areas of the project footprint associated with proposed access tracks to be upgraded as part of the project

- |                           |                             |                |
|---------------------------|-----------------------------|----------------|
| <b>Project components</b> | <b>Existing environment</b> | <b>Railway</b> |
| Project footprint         | Gardens of Stone SCA        | Railway        |
| Roads                     | Watercourse                 |                |

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 Grid: GDA2020 MGA Zone 56

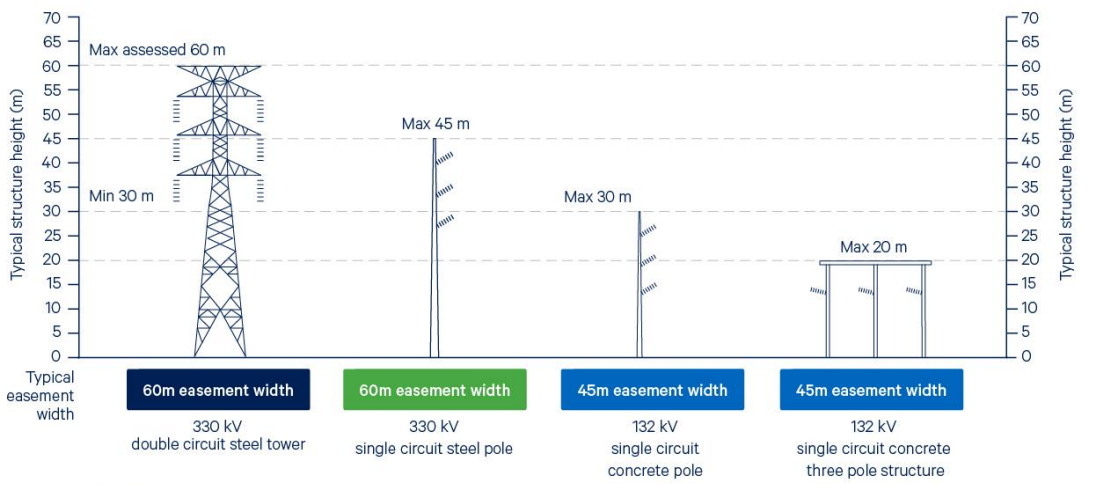
**Figure 1.1** Project location and regional context

# 1.3 The project

The project would involve construction and operation of approximately 8 km of new 330 kV transmission line between the Mount Piper and Wallerawang 330 kV substations as shown in Figure 1.2. The project would also include the replacement of transmission structures, partial adjustment of existing transmission lines, permanent and temporary access tracks, construction compounds and laydown areas.

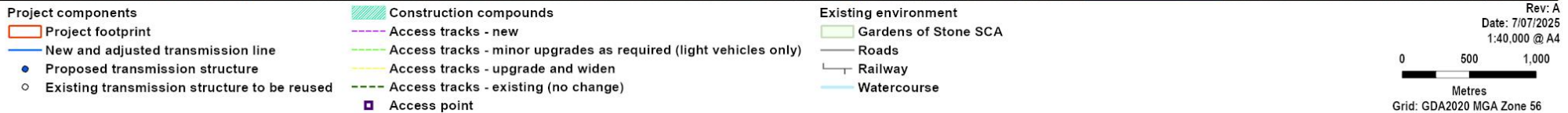
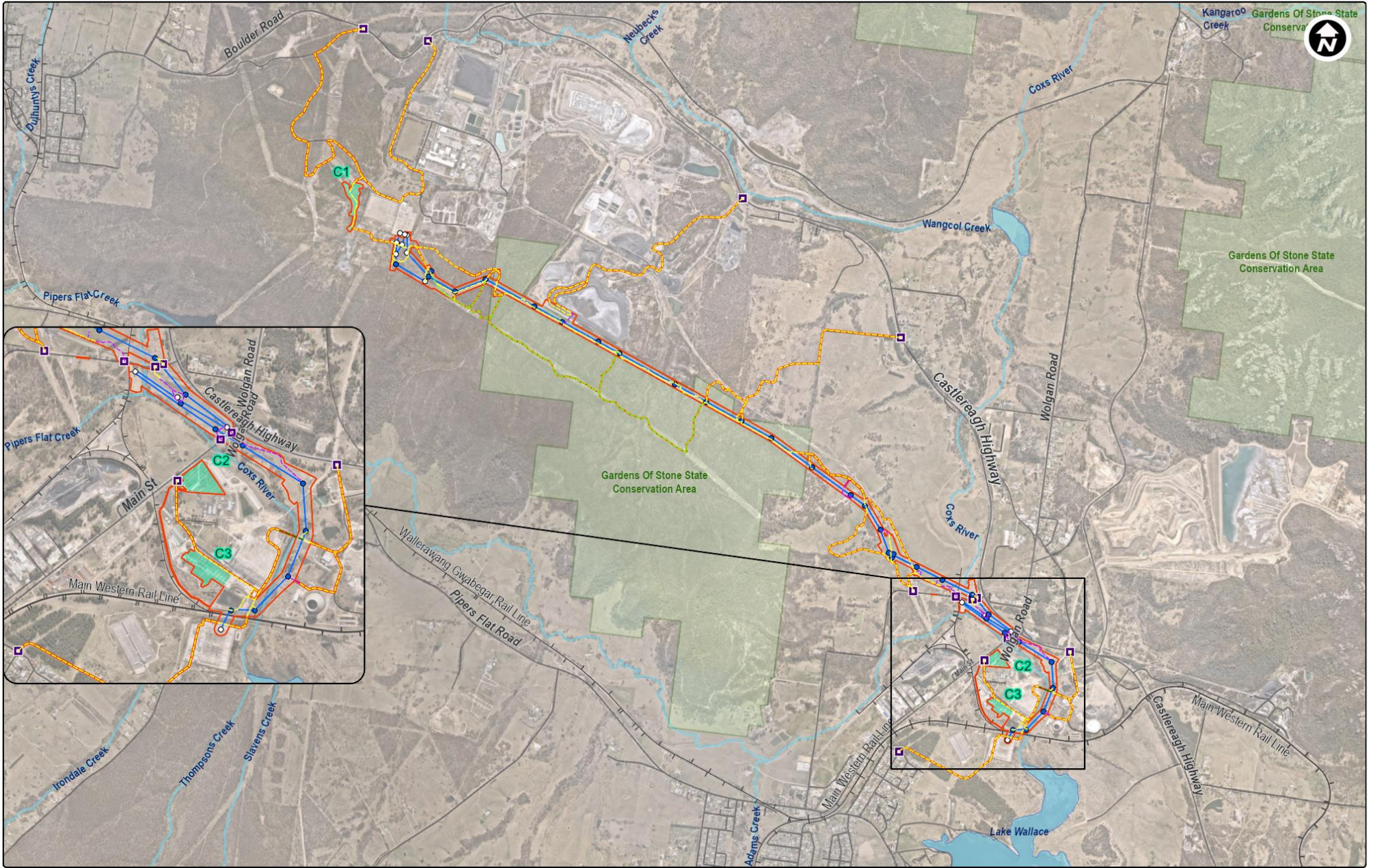
Table 1.1 outlines the key features of the project. The description of the project in Table 1.1 is based on the current concept design. Further detail is provided in Chapter 3 of the Environmental Impact Statement (EIS). The project will continue to be refined as part of detailed design.

Table 1.1 The project

Feature	Description
<b>Design</b>	
Transmission line and easement	<p>Approximately 8 km of new 330 kV transmission line between the existing Mount Piper 330 kV and Wallerawang 330 kV substations that would include (from west to east):</p> <ul style="list-style-type: none"> <li>– widening of approximately 0.5 km of existing easements in the vicinity of the Mount Piper 330 kV substation by up to 40 metres (m) to accommodate the new 330 kV transmission line and adjustments to existing 132 kV and 330 kV transmission lines</li> <li>– widening of the existing 132 kV easement from 45 m to 60 m for 4.8 km to accommodate double circuit transmission structures for the existing 132 kV transmission line and the new 330 kV transmission line</li> <li>– installation of two 132 kV pole structures where the existing 132 kV transmission line is restrung onto the new double circuit transmission structures</li> <li>– construction of 1.2 km of new 330 kV transmission line from the existing 132 kV transmission line south-east to the intersection of Main Street and the Castlereagh Highway on a 60 m easement</li> <li>– construction of 1.5 km of new 330 kV transmission line on a 40 m easement running parallel to existing 330 kV transmission lines for approximately 1.1 km and then diverging and widening to 60 m for the remaining 0.4 km to the Wallerawang 330 kV substation.</li> </ul> <p>The standard easement widths for 132 kV and 330 kV transmission lines are 45 m and 60 m respectively. However, easements may vary in width where multiple transmission lines converge/diverge or where they overlap with an existing easement.</p>
Transmission structures	<p>Transmission structures for the project include approximately 28 new steel lattice towers and four steel and/or concrete pole structures. Transmission structures would range in height from approximately 14 to up to 60 m, however these heights would be subject to detailed design. The image below presents an indicative illustration of the types of structures proposed for the project and their maximum heights.</p>  <p>Figure not to scale.</p> <p>The steel transmission structures would generally be spaced between 100 m to 550 m apart and the pole structures about 30 m to 50 m apart.</p> <p>New conductors, earth wires and optical ground wire (OPGW) would be installed on the new transmission structures for the new 330 kV and existing 132 kV lines.</p>

Feature	Description																																																																																																																														
	<p>Local adjustment of existing transmission structures would be required in the vicinity of the Mount Piper 330 kV substation to minimise crossover of transmission lines.</p> <p>Redundant transmission structures, including the gantry immediately north of the Main Western Rail Line, would be removed and recycled, where possible.</p>																																																																																																																														
<b>Construction</b>																																																																																																																															
Program	<p>Construction of the project would commence once all necessary approvals are obtained. It is anticipated that construction would commence in late 2026.</p> <p>Construction would be undertaken in stages over a period of approximately 20 months. The key activities and their indicative durations shown in the below table.</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> <th>9</th> <th>10</th> <th>11</th> <th>12</th> <th>13</th> <th>14</th> <th>15</th> <th>16</th> <th>17</th> <th>18</th> <th>19</th> <th>20</th> </tr> </thead> <tbody> <tr> <td>Site establishment</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Civil works</td> <td></td> <td></td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Assembly of structures</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> <td>█</td> </tr> <tr> <td>Testing and commissioning</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>De-mobilisation</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>█</td> </tr> </tbody> </table>	Activity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Site establishment	█	█	█	█																	Civil works			█	█	█	█	█	█	█												Assembly of structures										█	█	█	█	█	█	█	█	█	█	█	Testing and commissioning																					De-mobilisation																				█
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Construction methodology	<p>Construction of the project would include:</p> <ul style="list-style-type: none"> <li>– site establishment including vegetation removal, construction compound establishment, access track construction and upgrade</li> <li>– removal of existing transmission structures where required</li> <li>– civil works involving earthworks and establishment of construction benches for each transmission structure, and establishment of brake and winch sites</li> <li>– construction of footings and foundation work for the new transmission structures</li> <li>– assembly and erection of new transmission structures</li> <li>– stringing of conductors.</li> </ul>																																																																																																																														
Construction hours	<p>The proposed construction working hours for the project are 7 am to 7 pm Monday to Sunday. Out-of-hours construction work will likely be required between 7 pm to 7 am Monday to Sunday and public holidays, to align with scheduled outages.</p> <p>Justification for the out-of-hours works includes:</p> <ul style="list-style-type: none"> <li>– proximity to live transmission lines requiring the work to be completed under a scheduled outage for network and personnel and contractor safety</li> <li>– the need to complete works within a limited time window to meet a timeframe to re-energise the transmission line to avoid disruption to customers</li> <li>– minimising disruptions to the use of the Main Western Rail Line during stringing.</li> </ul>																																																																																																																														
Construction workforce	Expected to peak at about 150 personnel and contractor, with an average workforce of about 60 personnel and contractor.																																																																																																																														
Construction compounds and laydown areas	<p>A total of three construction compounds would support the construction of the project. One would be located at the western end of the project near the Mount Piper 330 kV substation and two located at the eastern end of the project within the former Wallerawang Power Station site. The locations of these compounds are shown in Figure 1.2.</p> <p>Laydown of materials (e.g. poles, cable drums, other large equipment, etc.) would also occur at specified locations along the easement within the project footprint, particularly at transmission structure locations.</p>																																																																																																																														
Access	<p>To facilitate efficient construction access, the following is required:</p> <ul style="list-style-type: none"> <li>– upgrading and widening of approximately 25 km of existing access tracks to at least 6 m, with some sections widened up to 10 m due to local topography</li> <li>– construction of approximately 2 km of new 6 m wide access tracks.</li> </ul> <p>In addition to those tracks, approximately 4 km of existing track would be used only by light vehicles. The light vehicle tracks may require minor repairs (for example, filling potholes), but would not be graded or widened.</p> <p>The project footprint would be accessed from public roads at 13 access points, with the majority of these being existing property access points.</p>																																																																																																																														

Feature	Description
	<p>Existing access tracks would be used in preference to new tracks wherever possible. Access track upgrades and widening would include required drainage.</p> <p>Access points and access tracks established for the construction of the project that are not required for future operation and maintenance activities would be returned to pre-project conditions, subject to agreement with landowners.</p>
<p>Utility adjustments and infrastructure crossings</p>	<p>The new transmission line would need to cross the following utilities and infrastructure:</p> <ul style="list-style-type: none"> <li>– water pipeline operated by WaterNSW</li> <li>– distribution lines operated by Endeavour Energy</li> <li>– rail signal power supply</li> <li>– council drainage and other assets</li> <li>– public roads at Brays Lane and Main Street</li> <li>– rail lines at the Main Western Rail Line and the disused rail line travelling north of Brays Lane.</li> </ul> <p>It is not currently anticipated that the project would require the adjustment of any nearby utilities. Further investigations and consultation with asset owners would be undertaken during detailed design.</p>
<p>Vegetation clearing</p>	<p>The project would require the removal of vegetation for a number of activities including but not limited to building new access tracks and widening existing ones, establishment of construction compounds, laydown areas, and brake and winch sites, construction of the transmission structures, and establishing and maintaining the vegetation clearance requirement for the transmission lines.</p> <p>Vegetation clearing would be undertaken either with the use of machinery or manually, where it is unsafe to operate machinery, or when access is limited. Root balls would be retained where possible. Clearing methods would be determined with consideration to vegetation type or structure, slope and terrain, and environmental and ecological constraints. Removed vegetation, which is weed free, would be mulched for beneficial reuse, where appropriate.</p> <p>Areas cleared for construction, that are not needed for operation of the project, would be rehabilitated to a stable and weed free condition.</p>
<p>Testing and commissioning</p>	<p>Testing and structure checks would form part of the final construction and installation work. These activities would ensure the project has been installed in accordance with the design and statutory standards and is safe to proceed to commissioning which would include, but not be limited to:</p> <ul style="list-style-type: none"> <li>– transmission line cut-in and connection to the electrical network</li> <li>– protection, control and metering checks</li> <li>– high voltage equipment operation and energisation</li> <li>– post commissioning testing and verification.</li> </ul>
<p>Demobilisation and rehabilitation</p>	<p>Upon completion of the construction works, all construction equipment, temporary fencing and waste would be removed.</p> <p>All disturbed areas would be rehabilitated to a stable, weed-free condition, unless designated as a permanent access track. This would include spreading topsoil, cleared and stockpiled at the beginning of construction, across the disturbed area to stabilise it to a state where natural regrowth can occur.</p>
<p><b>Operation</b></p>	
<p>Design life</p>	<p>About 50 years.</p>
<p>Maintenance</p>	<p>All project infrastructure would require regular maintenance to maintain serviceability and maximise its operational life. Maintenance activities would include:</p> <ul style="list-style-type: none"> <li>– transmission structure monitoring</li> <li>– annual aerial inspection</li> <li>– routine vegetation management on the easement and in the hazard tree zone</li> <li>– access tracks would be maintained in a trafficable condition.</li> </ul> <p>Should any irregularities be identified following routine inspections, a work crew would be dispatched from existing Transgrid maintenance depots to rectify any defects found.</p> <p>Periodic inspection and maintenance work would be managed by Transgrid as part of existing operations, with no additional personnel requirements.</p>



**Figure 1.2 Key features of the project**

## 1.4 Environmental assessment requirements

This land use and agriculture assessment has been prepared to address the Secretary’s Environmental Assessment Requirements (SEARs) which were issued on 22 May 2025. Table 1.2 outlines the requirements relevant to this assessment.

Table 1.2 Relevant SEARs

Requirements	Where addressed in this report
<b>Land</b>	
An assessment of impacts of the project on soils and land capability of the site and surrounds;	Refer to section 4.2.2 for assessment of impacts on soils and land capability and sections 6.1 and 6.2 for impacts during construction and operation respectively.
Assessment of impact of the project on agricultural land, land reserved under the <i>National Parks and Wildlife Act 1974</i> , Crown lands including State Forests, travelling stock reserves, mineral resources and exploration licenses, rail reserves and pipeline corridors, including the WaterNSW Fish River Pipeline.	Sections 6.1.3 and 6.2.3 (agricultural land) Sections 6.1.2 and 6.2.2 (land reserved under the National Parks and Wildlife Act 1974) Sections 6.1.6 and 6.2.6 (Crown Lands) Section 4.1.1 (State Forests) Section 4.1.3 (Travelling Stock Reserves) Sections 6.1.4 and 6.2.4 (Mineral resources and exploration licences) Section 6.1.7 and 6.2.7 (Pipeline corridors including WaterNSW Fish River Pipeline) Sections 6.1.8 and 6.2.8 (Rail reserves)

## 1.5 Purpose and structure of this report

This report has been prepared by GHD Pty Ltd (GHD) as part of the EIS for the project.

The purpose of this report is to assess potential land use (including agriculture) issues from the construction and operation of the project, and where required, identify feasible and reasonable mitigation and management measures.

The report is structured as follows:

- section 1 – provides an introduction to the project and the assessment
- section 2 – describes the legislative and policy background to the assessment
- section 3 – describes the methodology of the assessment
- section 4 – describes the existing conditions
- section 5 – estimates the land requirements for the project
- section 6 – assesses the impacts of the construction and operation of the project
- section 7 – provides mitigation measures for the impacts identified
- section 8 – conclusion.

## 2. Legislation and policy

### 2.1 Legislation

Commonwealth and state legislation relevant to the assessment of land use and agricultural impacts is provided in Table 2.1.

Table 2.1 Relevant legislation to the assessment of land use and agricultural impacts

Guideline/policy	Relevance to this assessment
<b>Commonwealth</b>	
<i>Native Title Act 1993</i>	<p>The <i>Native Title Act 1993</i> (Cth) recognises the rights and interests of Aboriginal and Torres Strait Islander people in land and waters. It provides recognition and protection of native title and establishes ways in which future dealings affecting native title may proceed. If a native title claim is recognised under the Act, any actions on that land must be consistent with the claim.</p> <p>Searches of the register maintained by the National Native Title Tribunal on the June 2025 indicate there are no determined Native Title claims registered with respect to the land within the project footprint. There is, however, a registered claim by the Warrabinga-Wiradjuri #7 (NC2018/022) which is yet to be determined that includes land within the project footprint (see section 4.1.3 for further details).</p> <p>Notification requirements under section 24KA of the <i>Native Title Act 1993</i> apply where construction work is required on Crown land and where the land has not been acquired by Transgrid. Transgrid have issued a section 24KA notice to NTSCorp and the Native Title claimants.</p> <p>Native title is discussed in section 4.1.3, with construction impacts considered in section 6.1.6 and operational impacts in section 6.2.6.</p>
<b>New South Wales</b>	
<i>Aboriginal Lands Rights Act 1983</i>	<p>The <i>Aboriginal Lands Rights Act 1983</i> provides for land rights for Aboriginal people in NSW and mechanisms to create Aboriginal Land Councils, and for land to be vested in those Councils. The project footprint and the study area of Lithgow City Council LGA occurs within the land of the Bathurst Local Aboriginal Land Council.</p>
<i>Biosecurity Act 2015</i>	<p>The NSW <i>Biosecurity Act 2015</i> provides a framework for the prevention, elimination and minimisation of biosecurity risks and it is administered by the NSW Department of Primary Industries (DPI). The Act defines the meaning of biosecurity matter, carrier, biosecurity impact, biosecurity risk and pests and specifies a wide range of prohibited matter including pests and diseases of plants and animals. Importantly, the Act applies to all lands in NSW.</p> <p>The Biosecurity Act outlines the shared responsibility for biosecurity risk between the NSW Government, industry and the community. Regional biosecurity strategies are developed by DPI and Local Land Services for regions across NSW. Strategies covering the study area include:</p> <ul style="list-style-type: none"> <li>– <i>NSW Invasive Species Plan 2018-2021</i> (DPI, 2018)</li> <li>– <i>Central Tablelands Regional Strategic Pest Animal Management Plan 2024-2028</i> (LLS, 2024)</li> <li>– <i>Central Tablelands Regional Strategic Weed Management Plan 2023-2027</i> (LLS, 2022)</li> <li>– <i>NSW Animal Biosecurity &amp; Welfare Strategic Plan 2019-2023</i> (NSW DPI, 2019).</li> </ul> <p>These strategies are considered in sections 4.2.5.</p>
<i>Crown Land Management Act 2016</i>	<p>The <i>Crown Land Management Act 2016</i> provides for the ownership, use and management of Crown land in NSW. Ministerial approval is required to grant a 'lease, licence, permit, easement or right of way over a Crown Reserve'. The project footprint contains some Crown Land and therefore the licenses or agreements may be required to use and establish an easement over Crown land during construction and operation. Refer to sections 6.1.6 and 6.2.6 for further discussion of impacts on Crown land during construction and operation respectively.</p>
<i>Land Acquisition (Just Terms Compensation) Act 1991</i>	<p>The <i>Land Acquisition (Just Terms Compensation) Act 1991</i> applies to the acquisition of any land by an Authority of the State which is authorised to acquire the land by compulsory process. This project will require acquisition of land (property) from landowners. Transgrid's approach is discussed in section 5.1.1.</p>

Guideline/policy	Relevance to this assessment
<i>Local Land Services Act 2013</i>	<p>The <i>Local Land Services Act 2013</i> aims to ensure the proper management of natural resources in the social, economic and environmental interests of the State, and to provide a framework for financial assistance and incentives to landowners. The Act is administered by NSW Local Land Services (LLS).</p> <p>In addition to the above, the Local Land Services Act 2013 provides the legislative framework for the management of travelling stock reserves (TSRs), as discussed in section 4.1.3.</p>
<i>Mining Act 1992</i>	<p>The <i>Mining Act 1992</i> (NSW) aims to facilitate the exploration and development of NSW's mineral resources. It provides the assessment framework and consent authority for mining exploration licences and mining leases in NSW.</p> <p>Mining leases and mining exploration licenses within the study area and the project footprint are outlined in section 4.1.3 with any impacts discussed in sections 6.1.4 and 6.2.4 for construction and operation respectively.</p>
<i>National Parks and Wildlife Act 1974</i>	<p>The <i>National Parks and Wildlife Act 1974</i> (NSW) (NPW Act) outlines the management of the natural environment in NSW with the objectives of conservation of nature, objects, places or features, and landscapes of cultural value, fostering public appreciation, and managing ecologically sustainable places for public recreation.</p> <p>The National Parks and Wildlife Service (NPWS) administer the Act through Plans of Management. NPWS has established the Gardens of Stone State Conservation Area Plan of Management (NPWS, 2022). This plan is a legal document which provides specific management objectives to align with the key principles of the Act.</p> <p>The project footprint involves direct impacts on the Gardens of Stone SCA. This is further discussed in sections 6.1.2 and 6.2.2.</p>
<i>State Environment Planning Policy (Primary Production) 2021</i>	<p>The Primary Production SEPP aims to manage primary production and rural development, including supporting sustainable agriculture.</p> <p>The relevant part of the Primary Production SEPP is 'Chapter 2 – Primary production and rural development', which includes the following relevant aims:</p> <p>(a) to facilitate the orderly economic use and development of lands for primary production</p> <p>(b) to reduce land use conflict and sterilisation of rural land by balancing primary production, residential development and the protection of native vegetation, biodiversity and water resources</p> <p>Part 2.2 deals with State significant agricultural land, development on such land and its protection; however, there is no such land identified by the SEPP in the project footprint.</p> <p>Agricultural land within the study area and the project footprint are outlined in section 4.2, with impacts on this land during construction and operation discussed in sections 6.1.3 and 6.2.3 respectively.</p>

## 2.2 Guidelines and policies

Guidelines and policies relevant to this assessment are outlined in Table 2.2 .

Table 2.2 Relevant guidelines and policies

Guideline/policy	Relevance to this assessment
<i>Infrastructure proposals on rural land</i> (NSW DPI 2013)	<p>The purpose of the guideline is to help consent authorities maintain sustainable primary production and development opportunities and minimise land use conflict when assessing infrastructure projects affecting rural resource lands. The guideline provides advice on agricultural issues that consent authorities must address relating to infrastructure projects affecting rural resource lands. The assessment in this report has been prepared with reference to these guidelines.</p>
<i>Land Use Conflict Risk Assessment Guide</i> (NSW DPI 2011)	<p>Land Use Conflict Risk Assessment (LUCRA) is a system to identify and assess the potential for land use conflict to occur between neighbouring land uses. It helps land managers and consent authorities assess the possibility for, and potential level of, future land use conflict.</p> <p>The Guide provides guidance on the practical measures to use when conducting a LUCRA to assist landowners, developers and regulators with improved knowledge to avoid and manage land use conflicts. A LUCRA has been developed (included in Appendix A) and has been used to inform the assessment in sections 6.1.5 and 6.2.5.</p>

Guideline/policy	Relevance to this assessment
The land and soil capability assessment scheme – second approximation (NSW OEH, 2012)	Land capability is the inherent physical capacity of the land to sustain a range of land uses and management practices in the long-term without degradation of soil, land, air and water resources. This guide was developed to provide guidance on the physical capability of the land to support different agricultural land uses and was used to verify the soil class as described in section 4.2.2.
Biosecurity Risk Management in Land Use Planning and Development	The Guide to Biosecurity Risk Management in Land Use Planning and Development outlines steps to be considered to ensure biosecurity is appropriately addressed during the planning and assessment of development projects, particularly for proposed agricultural enterprises and activities and projects that may impact on agricultural enterprises or industries. This guide has been used to inform the biosecurity management measures in section 7.
Central West and Orana Regional Plan 2041 (DPE, 2022)	<p>The plan aims to direct regional strategic planning from a centralised position, and was developed in collaboration with government agencies, councils, industry, and local communities.</p> <p>The Plan contains a range of objectives that are relevant to the project in relation to land use with these as follows:</p> <ul style="list-style-type: none"> <li>– Objective 2: Support the States transmission to Net Zero by 2050 and deliver the Central-West Orana Renewable Energy Zone.</li> <li>– Objective 3: Sustainably manage extractive resource land and grow the critical minerals sector.</li> <li>– Objective 5: Identify, protect and connect important environmental assets.</li> <li>– Objective 19: Protect agricultural production values and promote agricultural innovation, sustainability and value-add opportunities.</li> </ul> <p>The project contributes to meeting Objective 2 as the upgrade is required to ensure the benefits of the Central West Orana Renewable Energy Zone can be achieved through reliable transfer of electricity to the Greater Sydney region.</p> <p>The project took into account Objectives 3, 5, and 19 during the route selection process and stakeholder engagement to minimise land use impacts.</p>
Lithgow 2040 Local Strategic Planning Statement (Lithgow City Council, 2020)	<p>This plan outlines the long-term vision and direction for land uses planning in Lithgow. The key planning priorities as they relate to the project in relation to land use are as follows:</p> <ul style="list-style-type: none"> <li>– Planning priority 8: Protect the Economic Values of Rural Areas Through Managing Land Use Conflict.</li> <li>– Planning priority 11: Protect Areas of High Environmental Value and Significance.</li> </ul> <p>The project has been developed through primarily route selection with consideration of the land uses considered as part of the above planning priorities as follows:</p> <ul style="list-style-type: none"> <li>– Minimising impacts on agricultural land through a route that impacts on low value agricultural and where possible land already impacted by transmission infrastructure, as well as where existing agricultural land uses would be able to continue during operation of the project.</li> <li>– Minimising impacts on areas of high environmental value and significance such as the Gardens of Stone SCA through use of an existing transmission line easement and where impacts to the SCA are required are considered to have lower environmental value due to the existing transmission line easement and adjacent industrial land uses.</li> </ul>

## 3. Methodology

### 3.1 Study area

For the purposes of the assessment, the study area for the assessment consists of the Lithgow City Council LGA as shown in Figure 3.1.

### 3.2 Assessment approach

The assessment was undertaken with reference to the *Infrastructure proposals on rural land* (NSW DPI, 2013) guideline and the SEARs. The key tasks included:

- review of relevant guidelines and policies (see section 2.1 and 2.2)
- site visit undertaken to identify key land uses along the project in August 2023
- research and describe the characteristics of the existing environment, including desktop review of aerial imagery and relevant spatial mapping (see section 4)
- scoping of additional potential risks through the completion of a LUCRA (see section 3.3 and Appendix A)
- review the proposed construction activities and methods, as described in Chapter 3 (Project description) of the EIS
- confirmation of the project's estimated temporary and permanent land requirements based on the project footprint (see section 5)
- identification of the properties located within the project footprint, including reviewing cadastral data in GIS, and how these may be affected by the project's land requirements
- consideration of the potential impacts of construction and operation (including maintenance) on land use and agricultural resources and productivity, including temporary and permanent land use changes, property impacts and potential impacts based on the estimated land requirements (see sections 5 and 6)
- investigation of the soil properties in the project footprint in accordance with the NSW Land and Soil Capability Scheme to verify the soil class (see section 4.2.2)
- consideration of the potential for cumulative impacts on land use (see section 6.3)
- recommendation of measures that could avoid, substantially reduce and or mitigate the likelihood, extent and or duration of the potential land use and agricultural impacts identified (see section 7).

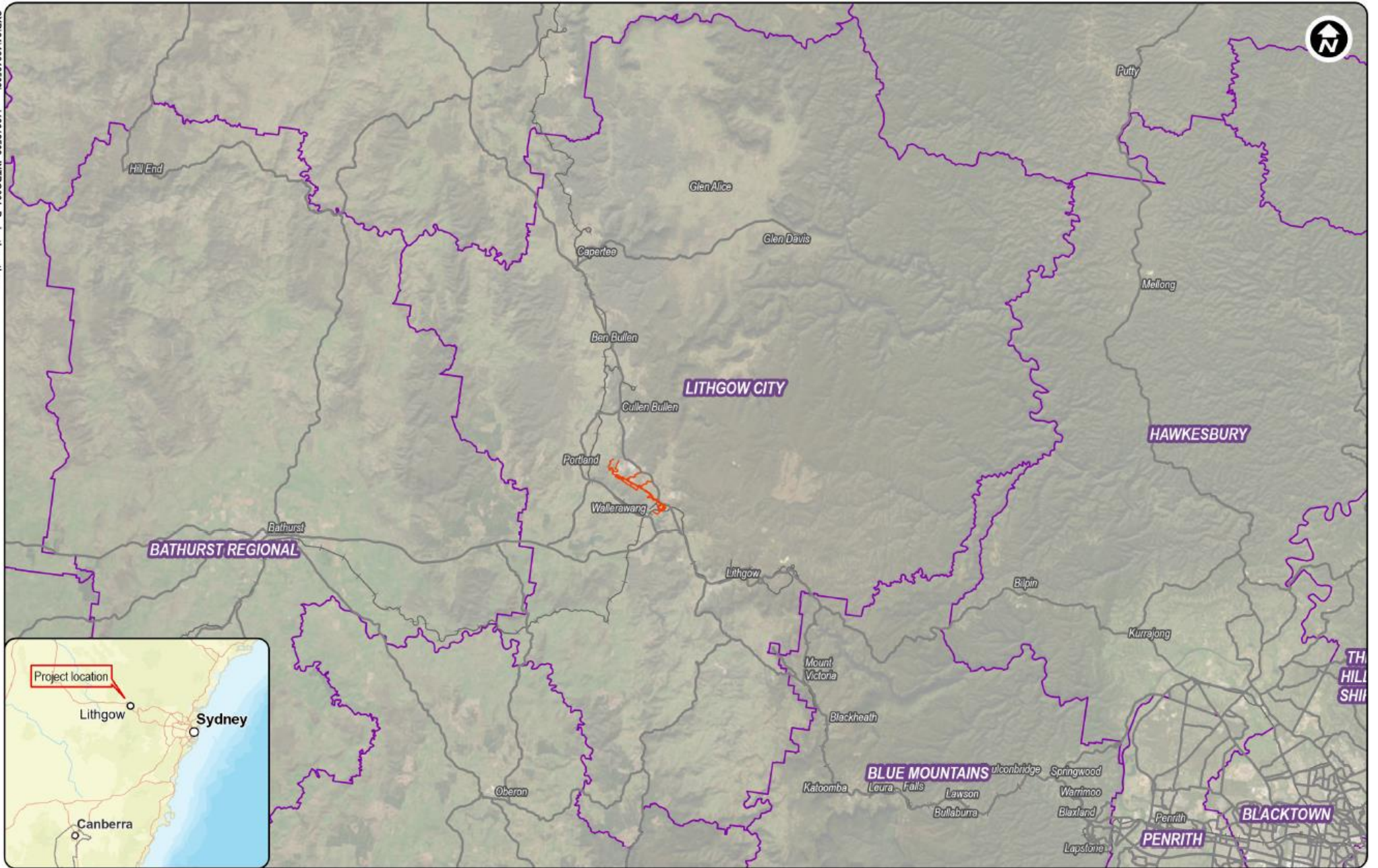
### 3.3 Land use conflict risk assessment

A LUCRA has been prepared with reference to the *Land Use Conflict Risk Assessment Guide* (DPI,2011) (the 'LUCRA Guide') (see Appendix A). The findings of the LUCRA also informed the assessment of potential impacts on agricultural land (see sections 6.1.3 and 6.2.3).

Undertaking a LUCRA involves four key steps:

1. Gather information about proposed land use change and associated activities for a project.
2. Evaluate the risk level of each activity on neighbouring land use.
3. Identify risk reduction management strategies.
4. Record LUCRA results.

The risk ranking matrix in the *Land Use Conflict Risk Assessment Guide* outlined in Appendix A has been adopted to assess potential land use conflict risks from the project. It has been used to identify the effects of the proposed land use on neighbouring land uses and identifies a risk rating of each impact based on the probability of occurrence and the consequence of the impact. Mitigation measures to address the identified risks have been identified and an assessment of the potential risk to adjacent land uses and activities has been provided in Appendix A.



- Project components
- Existing environment
- Railways
- Major Roads
- Local Government Area

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Figure 3.1 Land use and agriculture assessment study area – Lithgow City Council LGA

# 4. Existing environment

## 4.1 Land use

### 4.1.1 Overview

The former NSW Department of Planning and Environment (DPE) produced land use mapping for the state of NSW, which captures how the land across the state is generally used. This mapping was created using satellite imagery acquired in September 2017 to identify the land uses present at the time.

Table 4.1 outlines the key land uses mapped within the study area (Lithgow City Council LGA) and the project footprint. Land uses occupying less than one per cent of the study area and outside the project footprint have been excluded from this table. Figure 4.1 shows the land uses within and in proximity to the project footprint.

Across the study area, nature conservation areas account for 43 per cent of all land use. Agricultural land accounts for over 32 per cent of land use in the study area, of which the majority is used for livestock grazing. Production native forestry accounts for 10 per cent of all land uses located throughout the study area. In 2022, the Newnes, Wolgan and parts of Ben Bullen state forests became part of the Gardens of Stone SCA, decreasing the production native forestry land use in the study area from 10 per cent to approximately four per cent. Impacts on State Forests are not considered any further in this report due to the absence of such land uses within the project footprint.

The project footprint covers an area of about 86.6 ha with diverse land uses. Agriculture accounts for 44 per cent of all land use with this land being used primarily for livestock grazing. As noted above, the 19.6 ha of production native forestry land use (or 23 per cent of the project footprint) is now used for nature conservation purposes as part of the Gardens of Stone SCA.

Other key land uses include utilities associated with the extensive electricity infrastructure in the area (such as substations, transmission lines and power stations), mining uses and transport and communication infrastructure. A majority of the utilities land use located at the former Wallerawang Power Station site no longer exists, with this to be redeveloped for a range of uses described further in section 4.1.4.

**Table 4.1** Land use for the project footprint and study area

Land use	Project footprint		Study area	
	Area (ha)	% of project footprint	Area (ha)	% of study area
1.1.0 Nature conservation	-	-	194,933	43.16%
1.3.0 Other minimal use	7.5	8.6	35,858	7.94%
2.1.0 Grazing native vegetation	22.1	25.6	76,059	16.84%
2.2.0 Production native forestry	19.6	22.6	46,930	10.39%
3.1.0 Plantation Forests	-	-	10,245	2.27%
3.2.0 Grazing modified pastures	16.0	18.5	63,392	14.04%
3.3.0 Cropping	-	-	5,454	1.21%
5.4.0 Residential and farm infrastructure	<0.1	<0.05	6,415	1.42%
5.5.0 Services	0.1	0.1	1,389	0.31%
5.6.0 Utilities	11.9	13.7	361	0.08%
5.7.0 Transport and communication	5.1	5.9	2,793	0.62%
5.8.0 Mining	4.0	4.6	1,668	0.37%
6.3.0 River	0.3	0.4	4,944	1.09%
<b>Total</b>	<b>86.6</b>	<b>-</b>	<b>451,602<sup>1,3</sup></b>	<b>-</b>

- Note:
1. Land uses accounting for less than 1% of the study area and not present in the project footprint were excluded from the table.
  2. Data is based on NSW Department of Planning and Environment (DPE) land use mapping of 2017.
  3. Total based on total in study area with rounding for individual land uses undertaken resulting in different total.
  4. The land uses above do not reflect the expansion of the Gardens of Stone SCA in 2022. When the DPE database is updated, there will be a decrease in "Production native forestry" and a corresponding increase in "Nature conservation".

## 4.1.2 Land zoning

Figure 4.2 shows the land use zoning within and in proximity to the project footprint as outlined under the *Lithgow Local Environmental Plan 2014* (Lithgow LEP). Table 4.2 outlines the land uses zones that are in the study area and the project footprint. Land use zoning occupying less than one per cent of the study area and not within the project footprint have been excluded from this table.

C1 National Parks and Nature Reserves zoned land dominates the north-east portion of the LGA with these areas linked to various national parks including Wollombi and Gardens of Stone National Parks. In addition to the currently zoned C1 land, additional land currently zoned as RU3 Forestry is expected to be rezoned to C1 National Parks and Nature Reserves. This change is expected to result in an additional about 28,300 ha of C1 National Parks and Nature Reserves zoned land, which would result in about 49 per cent of the study area being zoned C1.

Outside the C1 and RU3 zoned land, the dominant land use is RU1 Primary Production which aligns with the use of the land for various agricultural purposes.

Land within the project footprint largely consists of the following land use zones:

- RU1 Primary Production (45 per cent of project footprint) – includes existing agricultural land but also includes some vegetated land south of Mount Piper Power Station which formerly was a Centennial Springvale Coal Services facility
- RU3 Forestry (22 per cent of project footprint) – aligns with the boundary of the now Gardens of Stone SCA and is expected to be rezoned to C1 National Parks and Nature Reserves to align with the land use
- SP2 Infrastructure (26 per cent of project footprint) – includes the area surrounding the Mount Piper and former Wallerawang power station sites.

**Table 4.2** Land zoning for the project footprint and study area under the Lithgow LEP

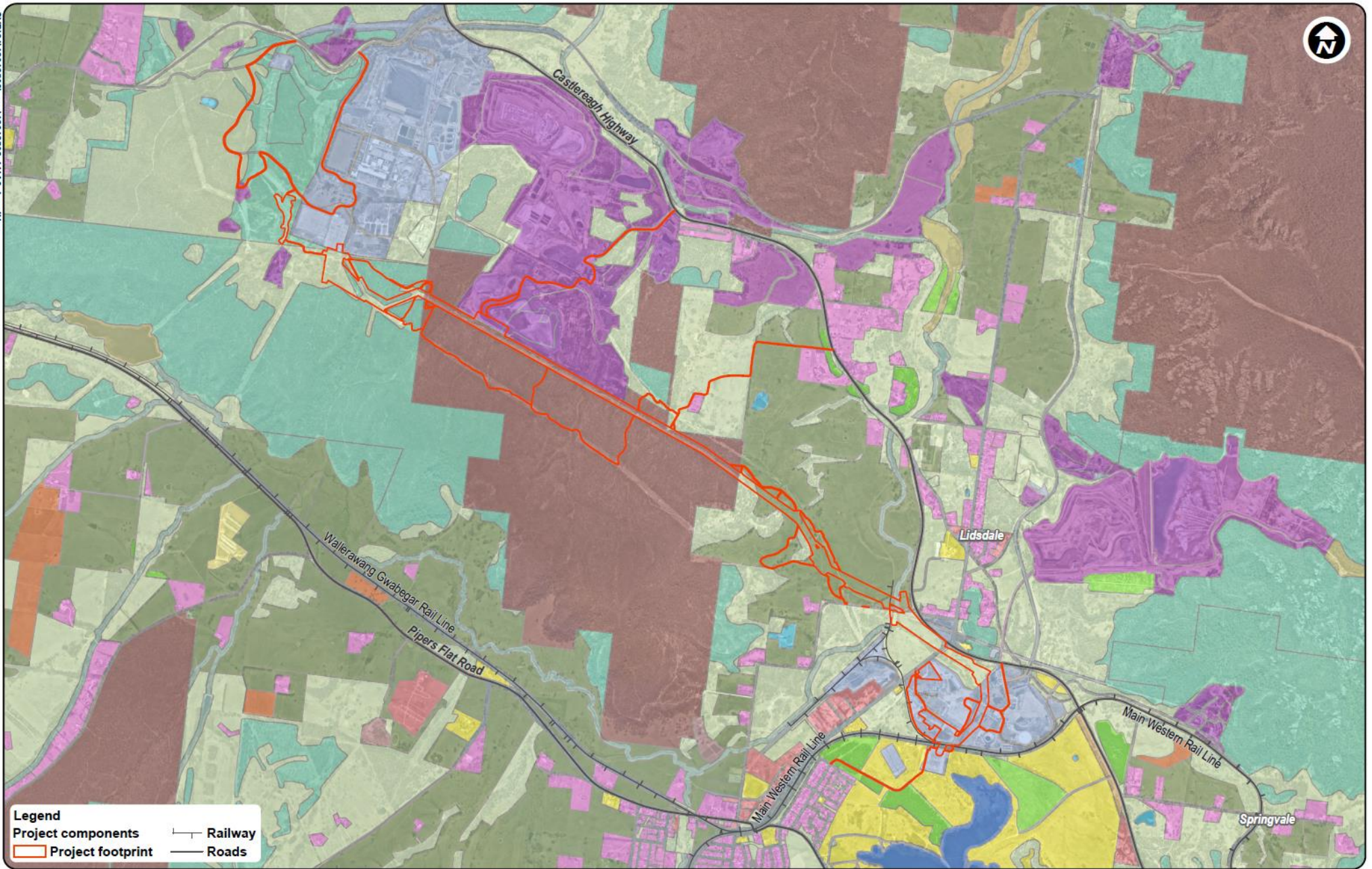
Zone	Project footprint		Study area <sup>1</sup>	
	Area (ha)	% of project footprint	Area (ha)	% of study area
C1 – National Parks and Nature Reserves	-	-	190,845	42.3
C3 – Environmental Management	-	-	9,230	2.1
E4 – General Industrial	5.3	6.1	222	0.1
RU1 – Primary Production	39.0	45.0	103,655	23.0
RU2 – Rural Landscape	-	-	76,616	17.0
RU3 – Forestry	19.5	22.5	57,221	12.7
SP2 – Infrastructure	22.8	26.4	6,540	1.5
<b>Total</b>	<b>86.6</b>	-	<b>451,222<sup>2</sup></b>	-

Note: 1. The study area for land use zoning using the boundary of the Lithgow LGA as defined by the Lithgow LEP 2014 which is noted to not match the Lithgow LGA boundary used for all other calculations.

2. Consists of total area of the study area including areas excluded from the table for display purposes.

3. LEP rezoning of RU3 has not yet occurred to recognise the creation of the Gardens of Stone SCA under the NPW Act on 6 May 2022, over land previously zoned as RU3 Forestry. The rezoning from RU3 to C1 National Parks and Nature Reserves is expected to occur to align with the objectives of the Gardens of Stone SCA.

The owners of the former Wallerawang Power Station site (eastern end of the project footprint), Greenspot Wallerawang Pty Ltd, are currently in the process of lodging a planning Project to rezone the site from the SP2 Infrastructure zoning to SP4 Enterprise. Based on available information, the proposed land use surrounding the project footprint would be primarily commercial. Further information regarding this rezoning and subsequent development is provided in section 4.1.4.



**Legend**

Project components    Railway

Project footprint    Roads

<b>Secondary</b>	3.1.0 Plantation forests	5.4.0 Residential and farm infrastructure	5.9.0 Waste treatment and disposal
1.2.0 Managed resource protection	3.2.0 Grazing modified pastures	5.5.0 Services	6.1.0 Lake
1.3.0 Other minimal use	3.3.0 Cropping	5.6.0 Utilities	6.2.0 Reservoir/dam
2.1.0 Grazing native vegetation	5.2.0 Intensive animal production	5.7.0 Transport and communication	6.3.0 River
2.2.0 Production native forestry	5.3.0 Manufacturing and industrial	5.8.0 Mining	6.5.0 Marsh/wetland

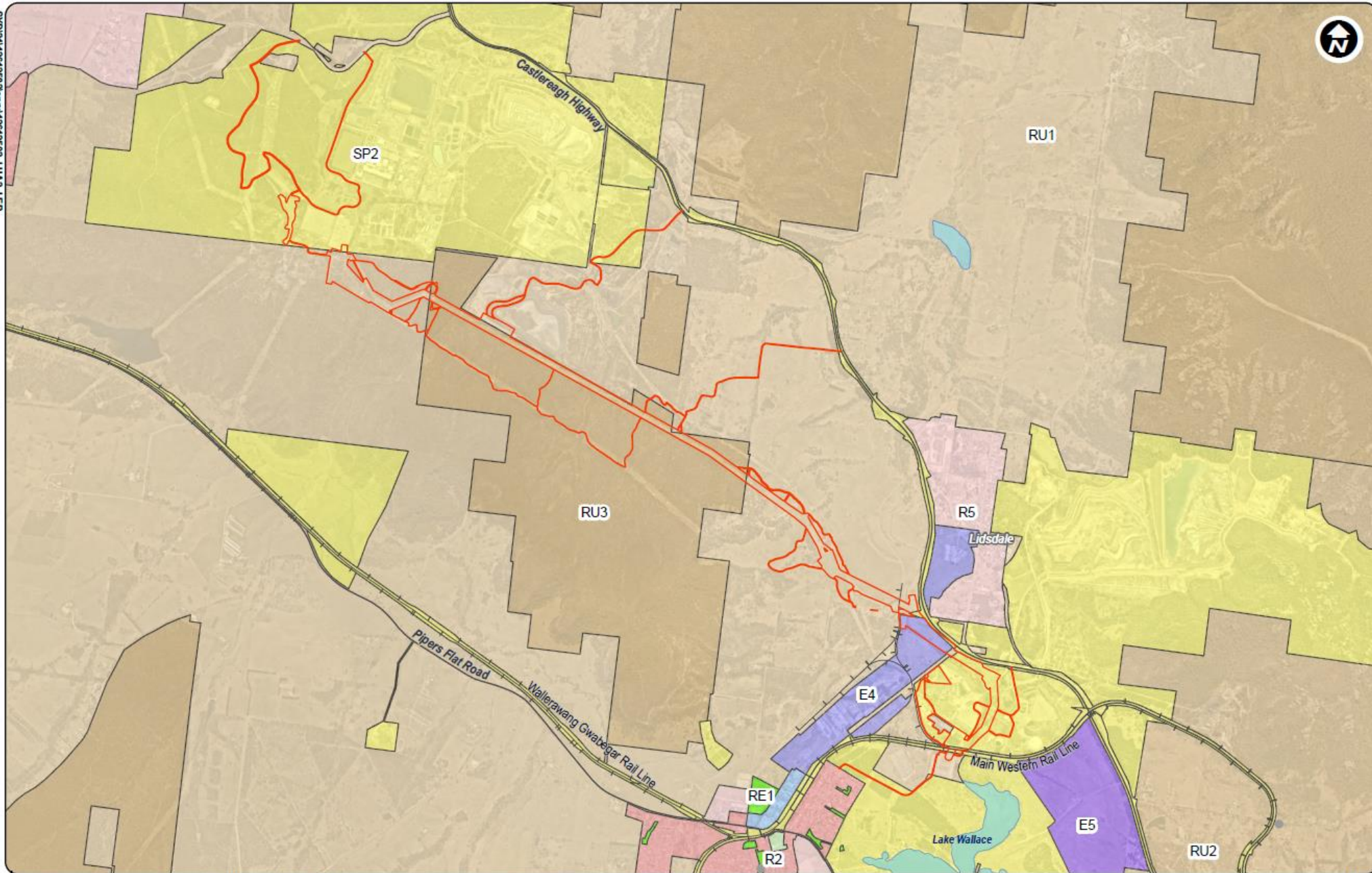
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Figure 4.1 Land use categories

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<b>Project components</b>	Railway	<b>Land zoning under Lithgow LEP</b>	R5 - Large Lot Residential	RU3 - Forestry
Project footprint	Roads	E1 - Local Centre	RE1 - Public Recreation	SP2 - Infrastructure
		E4 - General Industrial	RE2 - Private Recreation	
		E5 - Heavy Industrial	RU1 - Primary Production	
		R2 - Low Density Residential	RU2 - Rural Landscape	

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Figure 4.2 Land use zoning

### 4.1.3 Existing land use

Land uses within and around the project footprint are generally similar to those in the broader study area. However, there is a higher concentration of electricity and mining infrastructure in the immediate vicinity of the project footprint.

The nearest urban area within the study area is Lithgow which is located about 16 km south-east of the project footprint. Other smaller towns and villages in proximity to the project footprint include Wallerawang, Lidsdale and Portland.

The following sections provide details of the specific land uses within and in close proximity to the project footprint.

#### **Electricity infrastructure**

The study area, in particular the areas in proximity to the project, have a long history of coal mining activity which then led to the establishment of coal power stations at Wallerawang (commissioned in 1957) and at Mount Piper (constructed in the 1980s but only commissioned in 1992). Wallerawang Power Station ceased operations in 2014 with the plant demolished by the early 2020s.

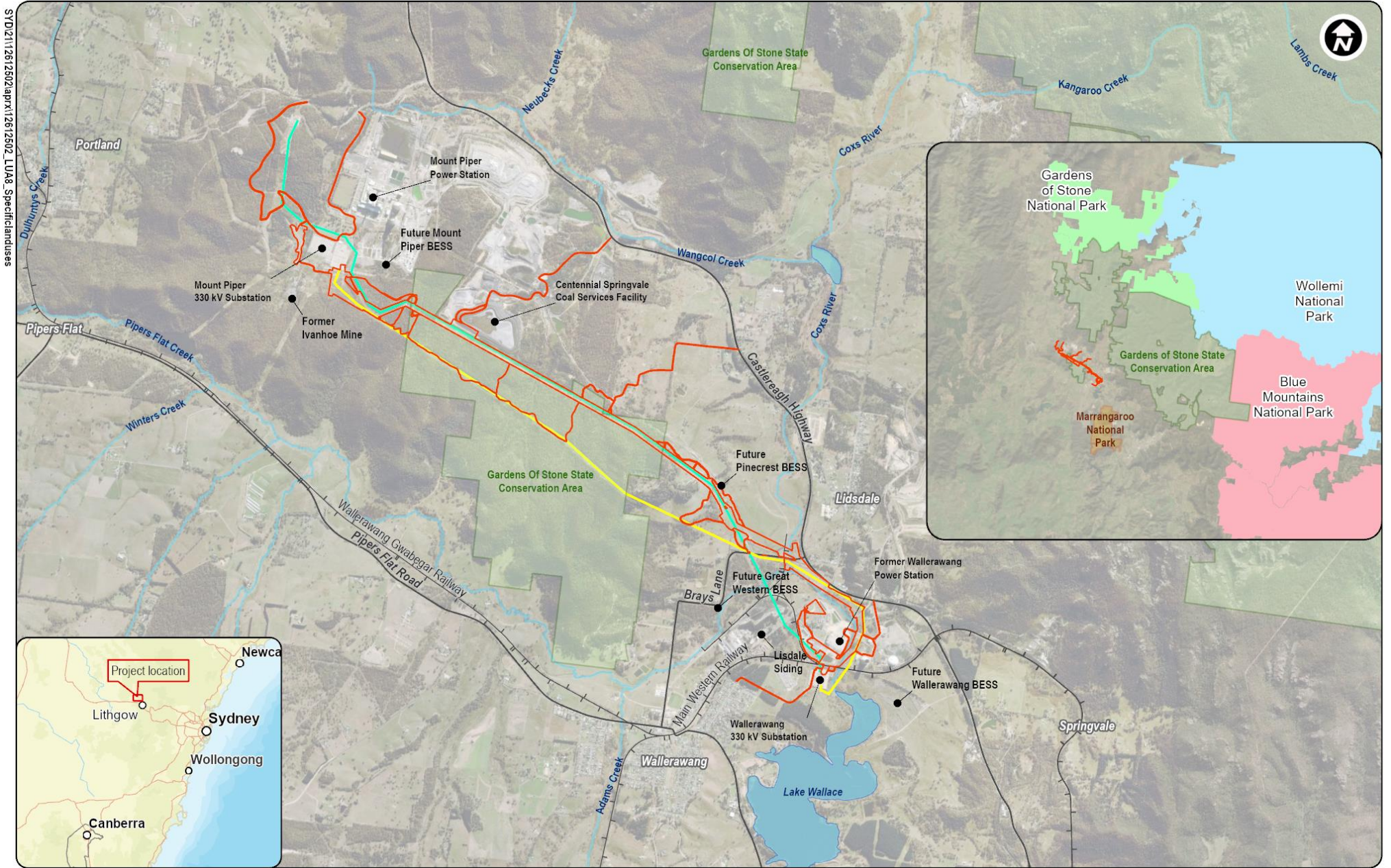
The presence of these two power stations has led to the development of an extensive network of transmission infrastructure including transmission lines and substations in close proximity to the project footprint. Transmission infrastructure is generally more prolific around the Mount Piper and Wallerawang 330 kV substations.

While there are a number of existing transmission lines in the project footprint and wider study area, two existing transmission lines connect the abovementioned substations, as follows:

- Transmission Line 94E (TL94E) is an existing 132 kV line which the project would seek to upgrade for the proposed new 330 kV/132 kV transmission line.
- Transmission Line 70/71 consists of a double circuit 330kV line which runs parallel to where they cross, about 300 m south of TL94E.

The location of this existing infrastructure is shown in Figure 4.3.

The study area also includes other high voltage transmission infrastructure including 500 kV lines located at the western end of the project footprint.



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- |   |   |  |
|---|---|--|
| <b>Project components</b>   | <b>Existing environment</b>   | <b>National Parks</b>  |
| <span style="border: 1px solid orange; display: inline-block; width: 20px; height: 10px;"></span> Project footprint | <span style="background-color: #d9ead3; border: 1px solid #c3c6cb; display: inline-block; width: 20px; height: 10px;"></span> Gardens of Stone SCA      | <span style="background-color: #f4cccc; border: 1px solid #e6b89c; display: inline-block; width: 20px; height: 10px;"></span> Blue Mountains National Park   |
|   | <span style="background-color: #d9ead3; border: 1px solid #c3c6cb; display: inline-block; width: 20px; height: 10px;"></span> Marrangaroo National Park | <span style="background-color: #d9ead3; border: 1px solid #c3c6cb; display: inline-block; width: 20px; height: 10px;"></span> Gardens of Stone National Park |
|   | <span style="border-bottom: 1px solid orange; width: 20px; display: inline-block;"></span> Existing 132kV transmission line                             | <span style="border-bottom: 1px solid blue; width: 20px; display: inline-block;"></span> Wollemi National Park   |
|   | <span style="border-bottom: 1px solid yellow; width: 20px; display: inline-block;"></span> Existing 330kV transmission line                             | <span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Railway  |
|   |   | <span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Roads  |

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**Figure 4.3** Specific land uses within and nearby to the project

## National Parks and Wildlife Service estate

The study area includes a number of conservation areas reserved under the *National Parks and Wildlife Act 1974* as National Parks and SCAs. The project traverses the Gardens of Stone SCA, which was established on the 6 May 2022, consisting of the former Newnes, Ben Bullen (part) and Wolgan State forests. The Gardens of Stone SCA covers an area of 28,322 ha (NSW DCCEE, 2025).

The Gardens of Stone SCA was established to assist in protecting the landscape which has the following significant features:

- Significant importance to First Nations people
- Nationally significant pagoda landscape (complex rock formations)
- Rich biodiversity including diversity of habitats
- Historic heritage values due to evidence of early European exploration
- Opportunities for recreation and tourism.

The Gardens of Stone SCA also provides a connection between the Blue Mountains National Park (located about 17 km east of the project footprint) and Wollemi National Park (located about 18 km north-east of project footprint) to the Gardens of Stone National Park which is located about 13 km north of the project. The positioning of these National Parks are shown in Figure 4.3. It is noted that the portion of the SCA impacted by the project does not form part of this link between the National Parks. Marrangaroo National Park is also located approximately 8 km south of the Gardens of Stone SCA as shown in Figure 4.3.

The larger separate portions of the Gardens of Stone SCA are located approximately 3 km north of the project footprint with these areas containing many of the significant landscapes. These portions of the SCA are shown on Figure 4.3. The project is located within and adjacent to a smaller portion of the SCA which is located south and west of the Castlereagh Highway. The broader SCA is used for several recreational activities including hiking, biking (mountain biking and trail bike riding), 4WD driving, horse riding and camping.

The portion of the SCA in which the project is located does not contain any designated recreational areas such as lookouts, picnic areas or formal trails. Access to the portion of the SCA within the project footprint is available to the public, however no dedicated access points are provided. Usage of the SCA in the vicinity of the project is considered to be low due to the presence of the existing easement, the distance to the project footprint from public roads, and lack of designated recreational areas and formal bushwalking tracks. The *Gardens of Stone State Conservation Area Masterplan* produced in 2025 (NPWS, 2025) does not identify any existing or opportunity for visitor activities/infrastructure within the impacted portion of the SCA.

## Gardens of Stone State Conservation Area Plan of Management

The *Gardens of Stone State Conservation Area Plan of Management* (NPWS, 2022) outlines the following management outcomes:

- Supporting Wiradjuri aspiration of Country
- Setting a sound foundation for conservation of biodiversity
- Assisting the recovery of a landscape under stress
- Establishing a major new visitor destination in the Blue Mountains.

For each of these outcomes a number of actions have been developed to meet these outcomes. Those outcomes relevant to the project are discussed further in sections 6.2.2.

The management plan also identifies the granting of easements for utility infrastructure as an authorised activity within the SCA. With the granting of such easements undertaken on a case by case basis. Transgrid has been consulting with NPWS throughout the development of the project with these discussions including requirements to establish an easement.

## Agricultural land

Within the project footprint, there is a 2 km section of land used for agricultural activity located east of the Gardens of Stone SCA (shown as production native forest in Figure 4.1) and north of Brays Lane. This area of agricultural land is primarily shown as grazing native pasture in Figure 4.1. This land is owned by Centennial Coal (through its subsidiary Ivanhoe Coal) and used for livestock grazing under a lease agreement.

Further detail about the use of agricultural land is provided in section 4.2.

## Mining infrastructure and mineral resources

### Mineral resources

A search of the Department of Primary Industries and Regional Development's Minview mapping was undertaken on 26 June 2025 to identify any active exploration and mining titles. The project footprint intersects a number of mining and mineral licences, leases and areas subject to lease applications which are outlined in Table 4.3 and shown in Figure 4.4. Further licences are located beyond the extent of the project footprint.

**Table 4.3** Existing mineral, petroleum and coal licences and leases within the project footprint

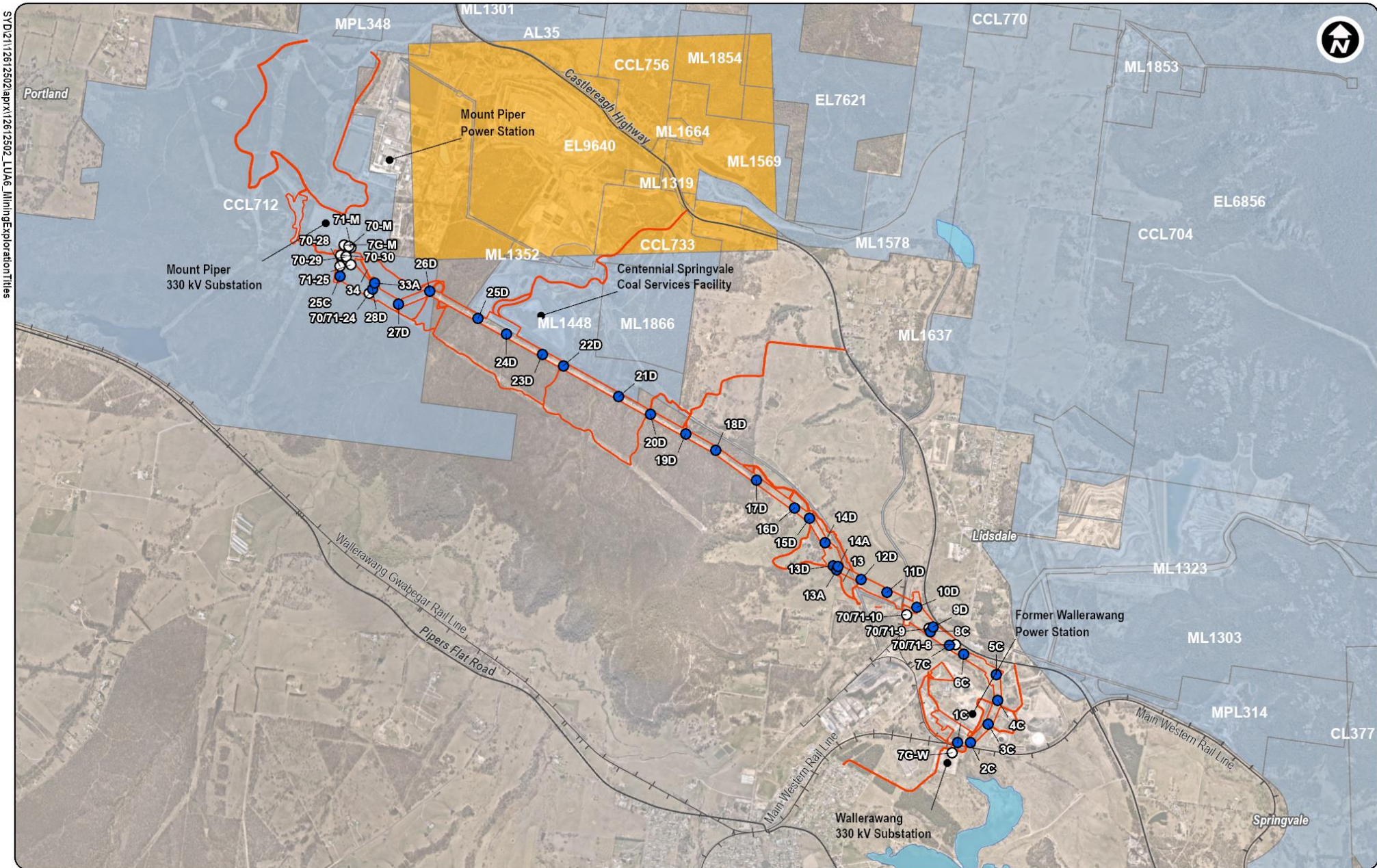
Number	Owner	Status	Resource type	Element of project
<b>Exploration Licence</b>				
EL9640	Strategic Rare Earths Pty Ltd	Current Expiry date 25 March 2026	Minerals (Groups 1 and 10)	Access track
<b>Consolidated Coal Lease</b>				
CCL 712	Ivanhoe Coal Pty Limited	Current Expiry date 28 June 2027	Coal	Easement Compound 1 Access tracks
CCL 733	Centennial Springvale Pty Ltd Boulder Mining Pty Ltd	Current Expiry date 3 July 2027	Coal	Access track
<b>Mining Lease</b>				
ML1448	Centennial Springvale Pty Ltd Boulder Mining Pty Ltd	Current Expiry date 31 May 2043	Coal	Transmission line Access tracks
ML1352	Centennial Springvale Pty Ltd Boulder Mining Pty Ltd	Current Expiry date 23 June 2043	Coal	Access tracks
ML1866	Centennial Springvale Pty Ltd Boulder Mining Pty Ltd	Current Expiry date 15 November 2044	Coal	Access tracks
<b>Mining Purpose Lease</b>				
MPL314	Centennial Springvale Pty Ltd Boulder Mining Pty Ltd	Current Expiry date 3 August 2035	Coal (section of aboveground conveyor)	Transmission line

### Mining infrastructure

There are a number of coal mines in operation and former coal mines undergoing rehabilitation in the vicinity of Lithgow and Wallerawang. The majority of these coal mines are operated by Centennial Springvale Coal Services facility (or one of its subsidiaries) with those located in close proximity to the project footprint described below.

Centennial Springvale Coal Services facility (via Ivanhoe Coal Pty Ltd) is responsible for a number of former mine workings (contained within CCL 712 (see Table 4.3 and Figure 4.4)) which are located at the western end of the project. These consist of a mixture of open cut and underground mining. Some rehabilitation of land in this area is currently underway.

Centennial Coal also operate Springvale Coal Services (located across ML1448 and ML 1866) (see Figure 4.3), which is located to the north of the project in the vicinity of transmission structures 22D to 25D. This site processes coal from Centennial's Springvale operations and from coal received via the loading facility at the Lidsdale Rail Siding. Coal is transported to the siding via conveyor which runs through Centennial-owned land located just west of the Castlereagh Highway. This conveyor is crossed by the project footprint. The majority of the processed coal is then used at the Mount Piper Power Station, with any excess returned to Lidsdale Siding for export.



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- Project components**
- Project footprint
  - Transmission line structure
  - Existing transmission line structure to be reused

- Railway
- Roads
- Coal
- Minerals

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**Figure 4.4 Mineral licences and leases**

## Crown Land

### Road reserves

There is a network of trafficable roads in the study area, including the Castlereagh Highway, Boulder Road and Main Street. Land reservations for these roads provide for public movement and as a corridor for utilities and services.

There are a number of Crown or 'paper' roads within and in close proximity to the project footprint. Paper roads were established during the settlement of NSW and are part of the state's public road network. They are often referred to as paper roads as they are shown on maps, however have not been constructed. Many are not used or required for public access. Three of these paper roads intersect the project footprint as identified in Table 4.4 and shown in Figure 4.6.

One of the Crown roads that intersect the project footprint is currently subject to enclosure permits, which allows adjacent landowners to utilise these reserves as part of their properties for grazing. Land subject to an enclosure permit can also be fenced into the adjacent landholder's land. An enclosure permit does not grant ownership of the subject land or allow the landholder to restrict public access along the Crown road.

### Crown waterway

As shown in Figure 4.9, a small piece of Crown land is located along the Coxs River corridor. This portion of Crown land is consistent with the former alignment of the river prior to its realignment in the late 1970s/early 1980s and is therefore generally located north of the current river alignment.

Table 4.4 Crown land within the project footprint

Crown land registration/ reserve number	Location on project footprint	Type	Leases/permits/ vesting of land
No identifier	Northern edge of existing and proposed widened easement west of structure 19D	Crown Road	-
No identifier	Across existing and proposed widened easement west of structure 17D	Crown Road	-
659019	Along part of access track from Karrawatha Drive (access point 3)	Crown Road	Enclosure permit
No identifier	Former alignment of Coxs River between about structure 4C to 6C	Crown waterway	-

### Travelling Stock Reserves

The project footprint does not contain any travelling stock reserves and there are no reserves located in within about 7 km of the project. Impacts to travelling stock reserves have therefore not been considered any further in this report.

### Native Title

There is one Native Title claim that overlaps the entire the project footprint. The Warrabinga-Wiradjuri #7 claim (NC2018/022) extends across the project footprint from just south of the project footprint to extensive areas to the north. The claim has been accepted for registration and is awaiting determination.

In the event Native Title is determined to exist limited land within the project footprint would be subject to Native Title with only two Crown Road portions as shown on Figure 4.9 potentially subject to Native Title.

A search of the Register of Aboriginal Land Claims was undertaken on the 20 February 2025 for the project footprint and identified no Aboriginal Land Claims under the *Aboriginal Land Rights Act 1983* (NSW) are present within the project footprint. Such claims are therefore not considered any further in this report.

## Utilities

Existing utilities located within and in proximity to the project footprint include:

- water pipeline and associated water tank operated by WaterNSW (see Fish River System below)
- distribution lines operated by Endeavour Energy including 11kV and 66kV lines
- Council water pipeline in the vicinity of proposed transmission structure 15D.

These utilities are shown on Figure 4.5 to Figure 4.8. Transgrid has consulted with asset owners, including for underground power supply for signalling services in the area. This consultation, together with the database search of Before You Dig Australia, has confirmed no signalling services and no underground signal power supply exist within or in the immediate vicinity of the project footprint.

## Fish River System

WaterNSW operate a water storage tank which is located west of transmission structure 14D to the north of Brays Lane at the eastern end of the project. This tank is fed by a pipeline which comes from the south where water is transferred from Rydal Dam for use as part of the water supply for Wallerawang and Lidsdale. A section of pipeline is also present near transmission structure 27D and within the construction compound 1 near the Mount Piper 330 kV substation where the pipeline connects to some water tanks located west of the Mount Piper Power Station.

Figure 4.5 to Figure 4.8 shows the location of the pipeline in relation to the project footprint.

## Transport infrastructure

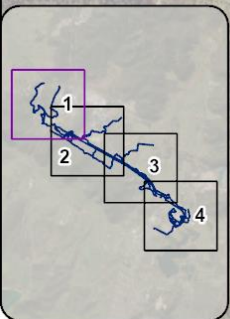
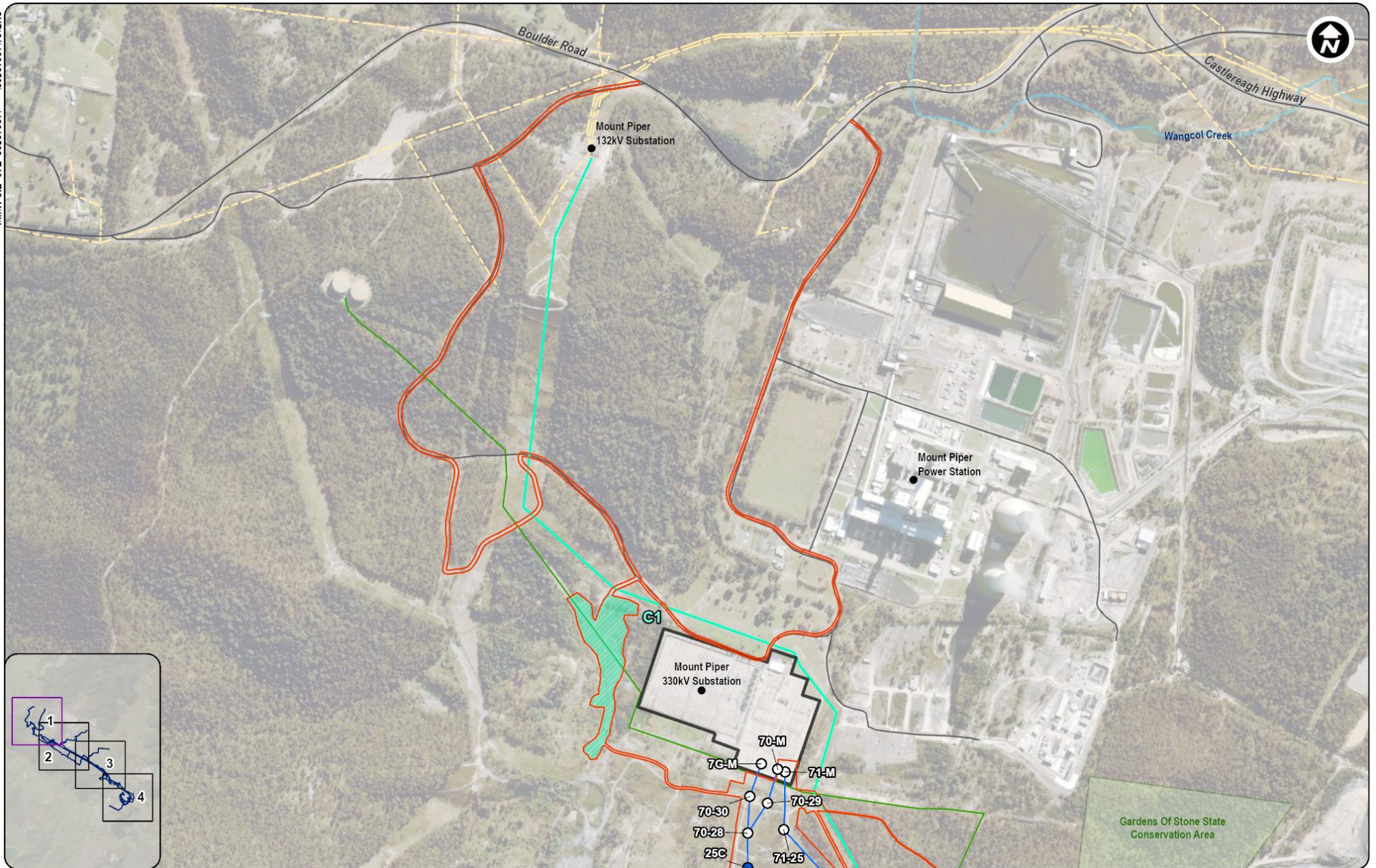
The project footprint crosses a number of existing public roads including classified roads such as Main Street, Wallerawang, as well as local roads (such as Brays Lane, Frankfort Road, Karawatha Drive) and access tracks managed by NPWS within the Gardens of Stone SCA. The project footprint also encroaches on the Castlereagh Highway near Main Street where the proposed widened easement includes part of the road reserve.

The project footprint also crosses the Main Western Rail Line to the north of Wallerawang 330 kV substation. It also crosses a disused railway line near Brays Lane.

## Other land uses

The eastern portion of the project is located within the former Wallerawang Power Station site which is now owned by Greenspot Wallerawang Pty Ltd (Greenspot). Greenspot have lodged a planning Project to rezone the site as a multi-use precinct and currently the site does not contain any specific land uses at this point in time, with the majority of the former power station being demolished in preparation for future development (see section 4.1.4).

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- Project components**
- Project footprint
  - Existing substation
  - New and adjusted transmission line
  - Existing 132kV transmission line to be retained

- Construction compound
- Transmission structure
- Existing transmission structure to be reused

- Fish river pipeline
- Distribution lines (Endeavour Energy)

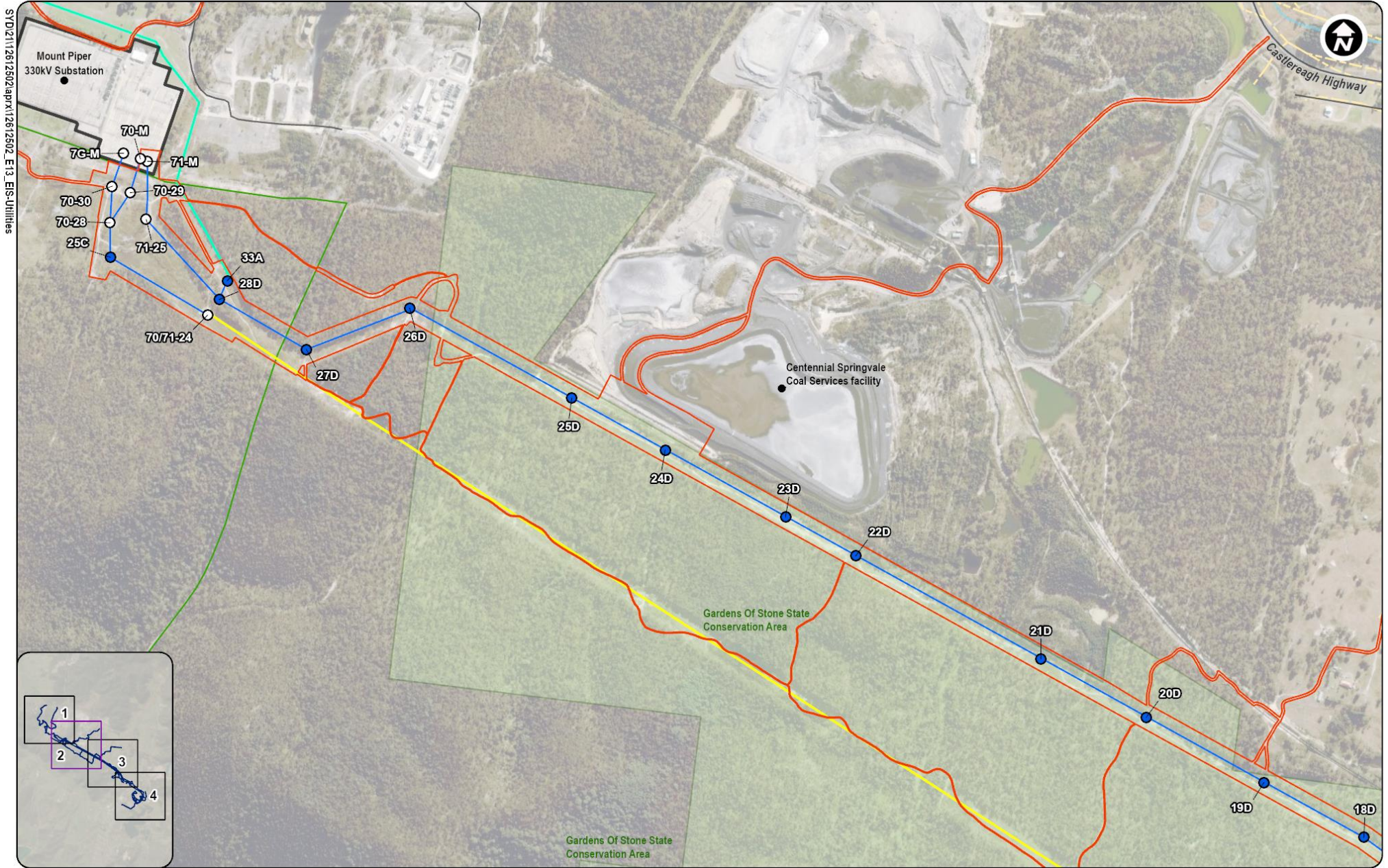
- Gardens of Stone SCA
- Roads
- Watercourse

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**Figure 4.5** Utilities and infrastructure within and in proximity to the project footprint – map 1



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Castlereagh Highway

<b>Project components</b>	<span style="color: blue;">●</span> Transmission structure	<span style="color: green;">—</span> Fish river pipeline	<span style="border: 1px solid green; padding: 2px;"> </span> Gardens of Stone SCA
<span style="border: 2px solid orange; padding: 2px;"> </span> Project footprint	<span style="border: 1px solid orange; border-radius: 50%; padding: 2px;">○</span> Existing transmission structure to be reused	<span style="color: yellow;">—</span> Distribution lines (Endeavour Energy)	<span style="border-bottom: 1px solid black; width: 20px; display: inline-block;"></span> Roads
<span style="border: 1px solid black; padding: 2px;"> </span> Existing substation	<span style="color: blue;">—</span> New and adjusted transmission line	<span style="color: lightblue;">—</span> Watercourse	
<span style="color: cyan;">—</span> Existing 132kV transmission line to be retained			
<span style="color: yellow;">—</span> Existing 330kV transmission line to be retained			

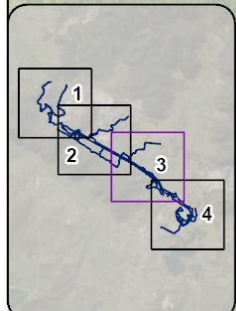
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Figure 4.6 Utilities and infrastructure within and in proximity to the project footprint – map 2

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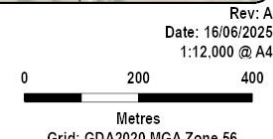
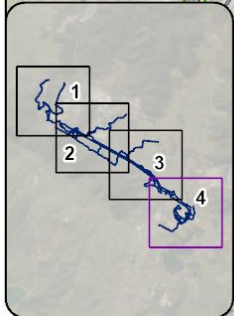
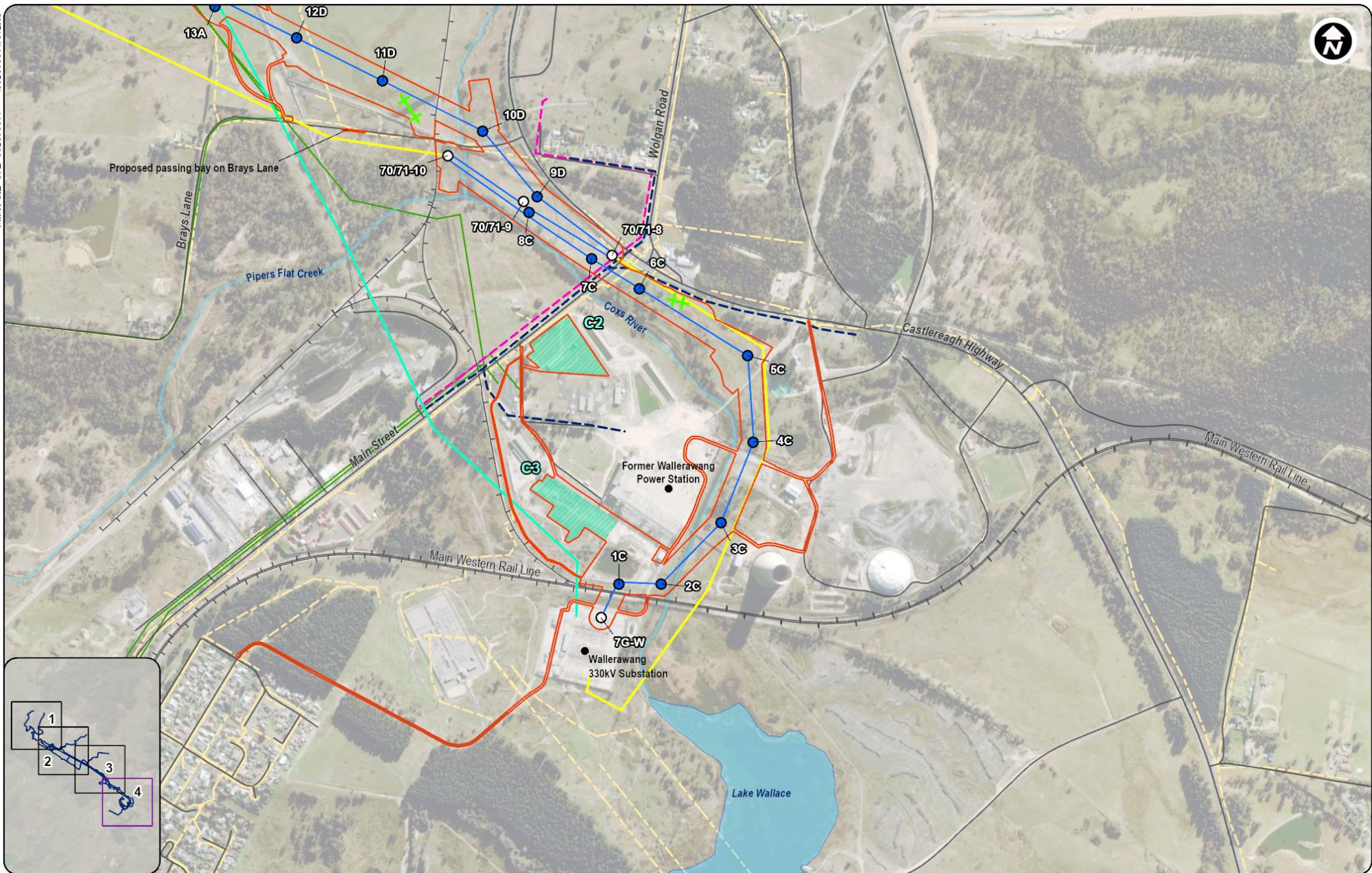


<p><b>Project components</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">—</span> Project footprint</li> <li><span style="color: blue;">—</span> New and adjusted transmission line</li> <li><span style="color: cyan;">—</span> Existing 132kV transmission line to be retained</li> <li><span style="color: yellow;">—</span> Existing 330kV transmission line to be retained</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: blue;">+</span> Upgraded culvert crossing</li> <li><span style="color: blue;">●</span> Transmission structure</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: green;">—</span> Fish river pipeline</li> <li><span style="color: yellow;">—</span> Distribution lines (Endeavour Energy)</li> </ul>	<ul style="list-style-type: none"> <li><span style="border: 1px solid green; display: inline-block; width: 10px; height: 10px;"></span> Gardens of Stone SCA</li> <li><span style="color: grey;">—</span> Roads</li> <li><span style="color: grey;">—</span> Railway</li> <li><span style="color: lightblue;">—</span> Watercourse</li> </ul>
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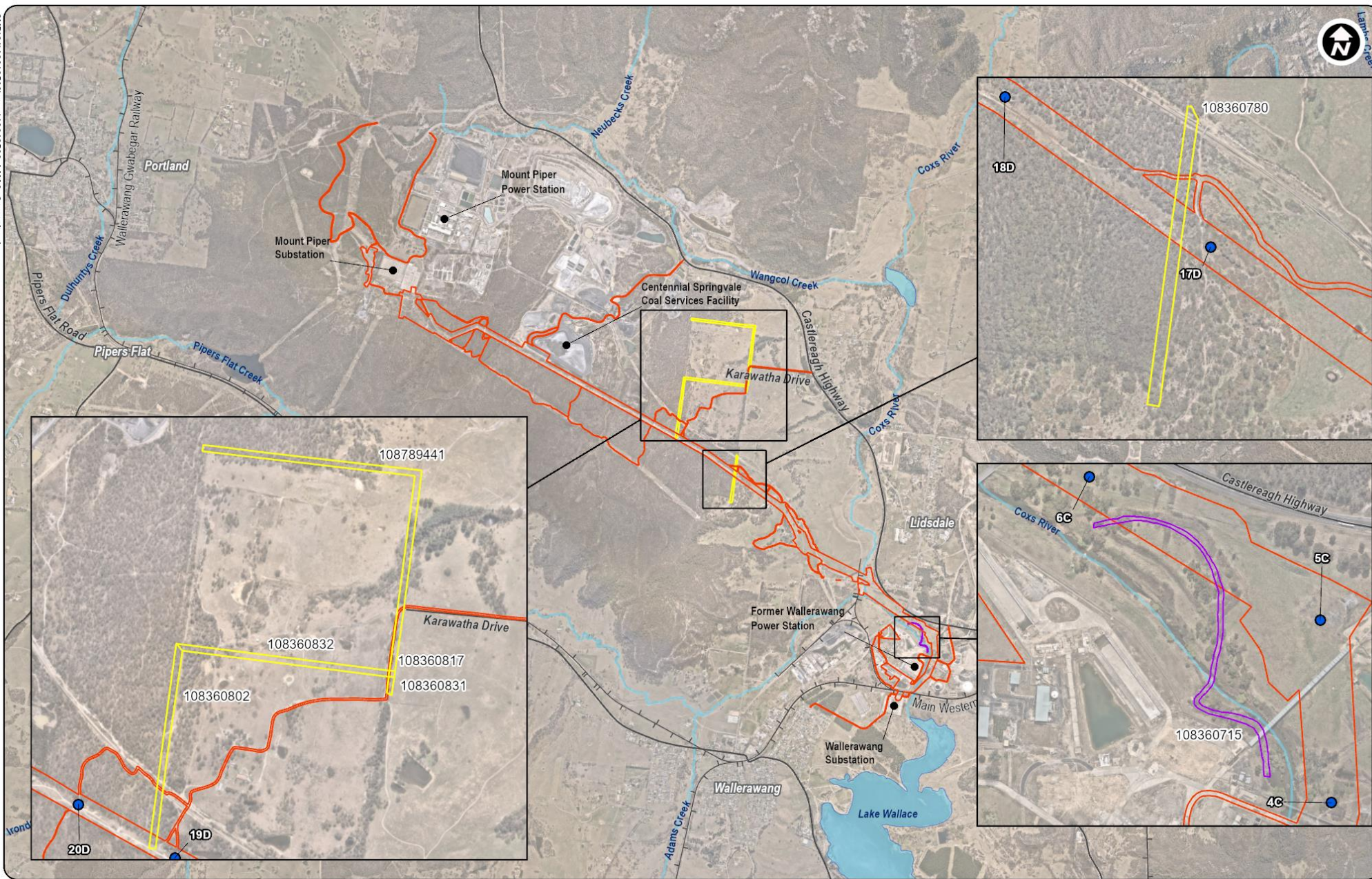
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Figure 4.7 Utilities and infrastructure within and in proximity to the project footprint – map 3



**Figure 4.8 Utilities and infrastructure within and in proximity to the project footprint – map 4**



- |   |                |             |
|---|----------------|-------------|
| <b>Project components</b>                         | Crown Waterway | Railway     |
| Project footprint                                 | Crown Road     | Roads       |
| Transmission line structure                       |                | Watercourse |
| Existing transmission line structure to be reused |                |             |

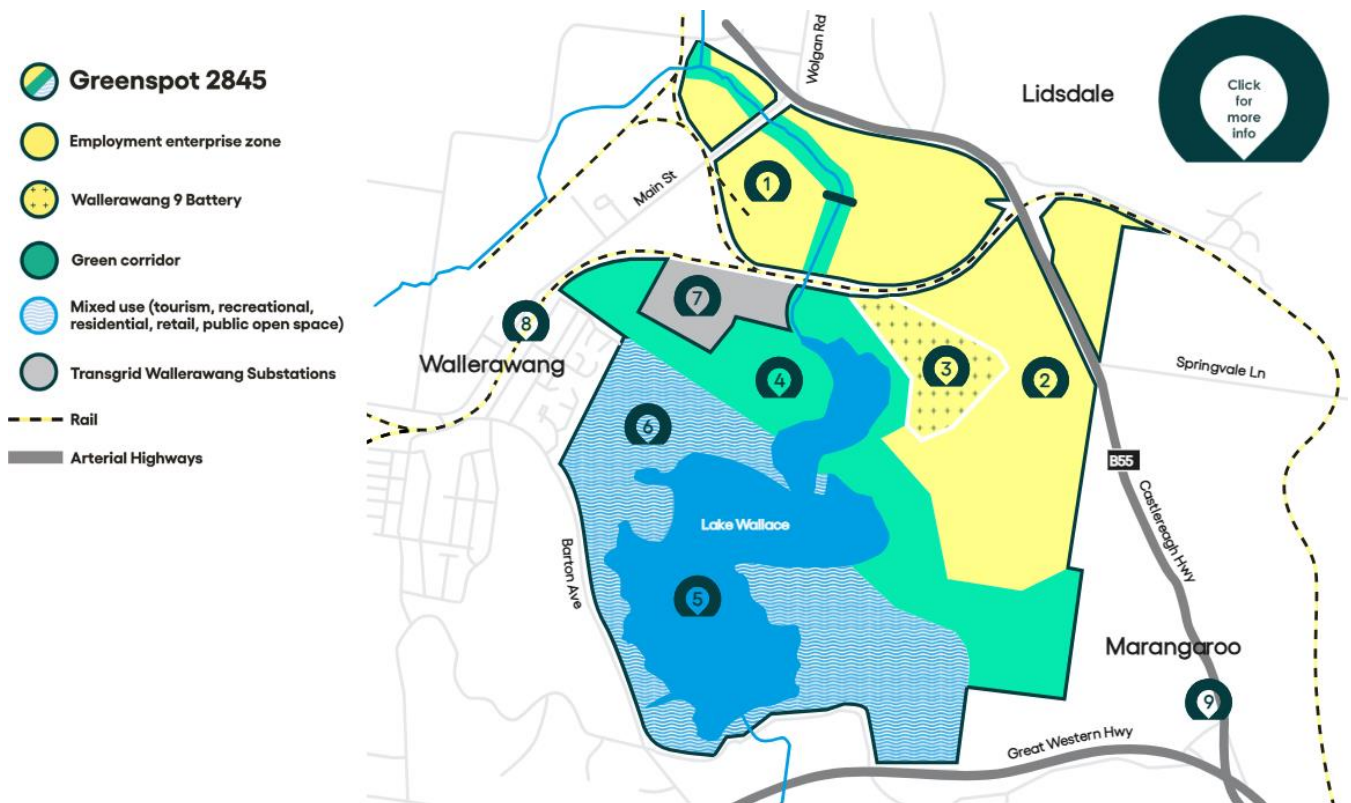
Figure 4.9 Crown land

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## 4.1.4 Future land use

### Rezoning of former Wallerawang Power Station

As outlined in section 4.1.3, the former Wallerawang Power Station site (industrial use) located at the eastern end of the project footprint is being currently being rezoned to enable the site to be developed to an 'employment enterprise zone' which would enable a range of primarily commercial uses to be developed in the vicinity of the project as shown in Figure 4.10.



Source: Greenspot 2025

Figure 4.10 Indicative proposed land uses at the former Wallerawang Power Station site

### Renewable energy development

The shift towards renewable energy and the presence of existing electricity infrastructure has resulted in several proposed Battery Energy Storage System (BESS) projects in the study area. The following BESS projects are proposed in the vicinity of the project footprint and represent a change in land use:

- Pinecrest BESS – located directly north of easement with final position to be confirmed with developer with current location positioned within proposed easement in the vicinity of Brays Lane (see Figure 4.3)
- Mount Piper BESS – located about 100 m east of Transgrid's Mount Piper Substation at the western end of the project footprint (see Figure 4.3)
- Great Western BESS – located about 900 m south-west of the project footprint at Brays Lane (see Figure 4.3)
- Wallerawang BESS – located at the site of the former Wallerawang Power Station redevelopment, about 500 m east of the Transgrid Wallerawang Substation (see Figure 4.3).

## 4.2 Agricultural land

### 4.2.1 Climate variability

Climate variability at a seasonal level has a significant impact on agricultural production. This particularly includes seasons with below average rainfall or anomalies in temperatures that can impact on the growth of pastures both in the affected season and into following seasons. The climate of the study area is generally suitable for a range of agricultural enterprises including permanent and annual horticulture, broadacre cropping enterprises, and improved perennial and native pastures.

Climatic conditions have been analysed using the Bureau of Meteorology (BoM) Lidsdale (Maddox Lane) Station for rainfall (BOM Station No. 063132, 1959-, located about 1.5 km north-east of project footprint at Lidsdale) and Lithgow (Cooerull) Station for temperature (BOM Station No. 063226, 1878-, located about 9 km south of project footprint in Lithgow). The parameters were selected as they provide a representation of climatic conditions for the project footprint which have an influence on the land's potential to produce certain agricultural products.

The study area experiences a temperate climate characterised by mild summers and cool winters. Mean monthly maximum temperatures range from 11.4 degrees Celsius (°C) in winter to 26.2 °C in summer, while mean monthly minimum temperatures range from 1.1 °C to 13.7 °C throughout the year. The study area receives approximately 758 mm of rainfall annually with higher rainfall recorded in late spring and summer. The study area also receives a number of frosts and the occasional snowfall in winter months.

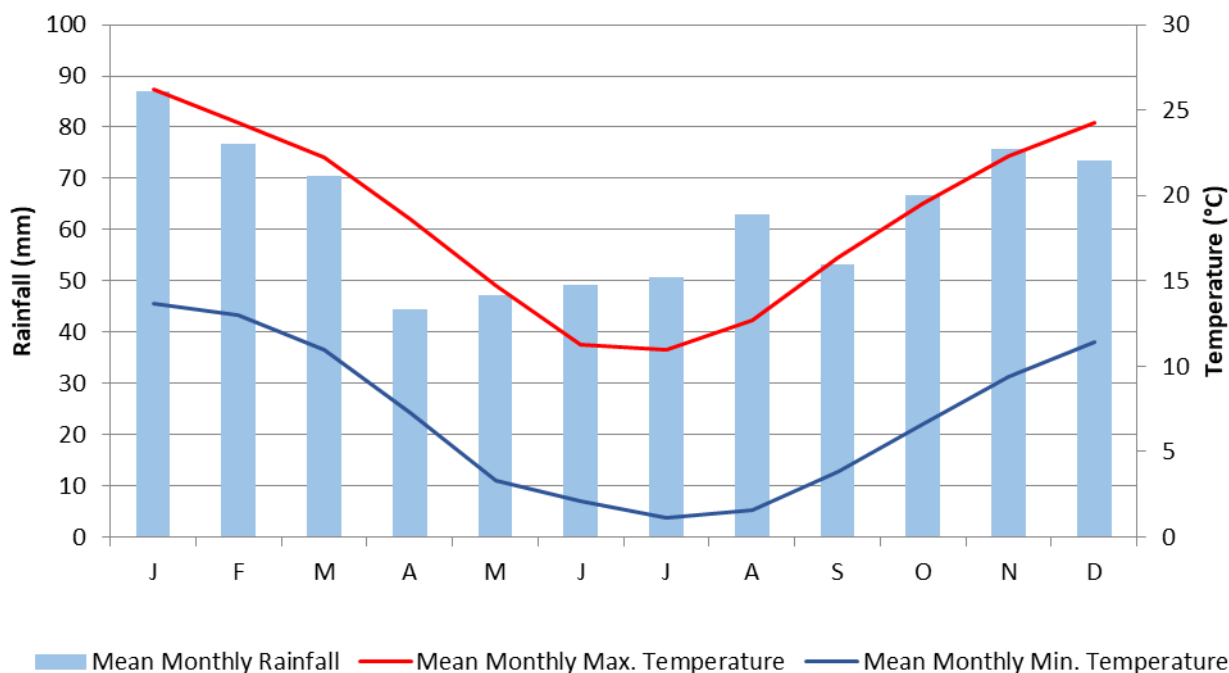


Figure 4.11 Climatic characteristics for Lithgow from BoM Lidsdale and Lithgow weather stations

### 4.2.2 Land and soil capability

Land and soil capability significantly influences agricultural production and land use across NSW. Most agricultural enterprises depend on the local natural resource base that determines the suitability of a location for a specific enterprise. There is a range of natural resources that need to be considered including soil type, topography, vegetation, geomorphology, climate and water availability. The land and soil capability assessment scheme (NSW OEH 2012) uses the biophysical features of the land and soil including landform, slope gradient, drainage, climate and soil properties to provide a broad-scale assessment of land capability.

Land in NSW is commonly classified according to the capability of land to remain stable under particular land uses. Land capability systems classify land in terms of inherent physical characteristics or constraints and consider the optimum use of land rather than the maximum use and in general, will not change over time. The eight-class classification (OEH, 2012) is shown in Table 4.5 and indicates that Class 1 to Class 3 are considered capable of

being regularly cultivated while the remaining classes are not capable of being regularly cultivated and are suitable for grazing. It should be noted, however, that the adoption of nil-till or minimum till cropping technology can extend the capability of Class 4 and above land as suitable for cultivation. Class 6 to Class 8 land is considered to be low capability land and land use is restricted and protected for its ecological and recreational value. Land and soil capability provides an overview of the limitations of the land for sustainable land management and ensures that each area is used in a way that maximises its potential while minimising environmental impact.

**Table 4.5 Land and soil capability**

Broad category	LSC Class	General definitions
Land capable of being regularly cultivated and used for a wide variety of land uses (cropping, grazing, horticulture, forestry, nature conservation) (Slope <10%)	1	Extremely high capability land: Land has no limitations. No special land management practices required. Land capable of all rural land uses and land management practices.
	2	Very high capability land: Land has slight limitations. These can be managed by readily available, easily implemented management practices. Land is capable of most land uses and land management practices, including intensive cropping with cultivation.
	3	High capability land: Land has moderate limitations and is capable of sustaining high-impact land uses, such as cropping with cultivation, using more intensive, readily available and widely accepted management practices. However, careful management of limitations is required for cropping and intensive grazing to avoid land and environmental degradation.
Land capable of a variety of land uses (cropping with restricted cultivation, pasture cropping, grazing, some horticulture, forestry, nature conservation) (Slope 10%-20%)	4	Moderate capability land: Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.
	5	Moderate–low capability land: Land has high limitations for high-impact land uses. Will largely restrict land use to grazing, some horticulture (orchards), forestry and nature conservation. The limitations need to be carefully managed to prevent long-term degradation.
Land capable for a limited set of land uses (grazing, forestry and nature conservation, some horticulture) (Slope 20%-33%)	6	Low capability land: Land has very high limitations for high-impact land uses. Land use restricted to low-impact land uses such as grazing, forestry and nature conservation. Careful management of limitations is required to prevent severe land and environmental degradation.
Land generally incapable of agricultural land use (selective forestry and nature conservation) (Slope > 33%)	7	Very low capability land: Land has severe limitations that restrict most land uses and generally cannot be overcome. On-site and off-site impacts of land management practices can be extremely severe if limitations not managed. There should be minimal disturbance of native vegetation.
	8	Extremely low capability land: Limitations are so severe that the land is incapable of sustaining any land use apart from nature conservation. There should be no disturbance of native vegetation.
Other	98	Rock and disturbed terrain
	99	Water

Source: The land and soil capability assessment scheme – second approximation (NSW OEH, 2012)

Table 4.6 summarises the land and soil capability within the project footprint and includes a comparison with the study area (Lithgow City Council LGA). Figure 4.12 shows the land and soil capability of land within the project footprint. The study area comprises a diverse landscape and the land and soil capability is influenced by its topography, geology and climate. The majority of the study area is dominated by steep terrain, rocky outcrops and poor soils, particularly associated with the conservation areas which limit more intensive land uses. Over 63 per cent of the study area is classed as land and soil capability Classes 6 – 8 with very severe or extreme limitations for the use of the land. None of the project footprint is within Classes 1 – 3 which are the classes considered capable of regularly cultivated (i.e. high to extremely high capability).

Table 4.6 Land and soil capability (LSC) at the project footprint and study area

LSC Class	Project footprint		Study area		% of study area occupied by project footprint
	Area (ha)	% of project footprint	Area (ha)	% of study area	
3 – High capability land	-	-	225	0.05	0
4 – Moderate capability land	34.8	40.2	80,083	17.7	0.04
5 – Moderate-low capability land	8.8	10.2	88,348	19.6	0.01
6 – Low capability land	1.4	1.6	59,171	13.1	<0.01
7 – Very low capability land	-	-	101,725	22.5	0
8 – Extremely low capability land	17.0	19.7	119,839	26.5	0.01
98 – Not assessed <sup>1</sup>	20.4	23.5	1,692	0.4	1.2
99 – Water	4.1	4.7	519	0.1	0.8
<b>Total</b>	<b>86.6</b>	<b>-</b>	<b>451,602</b>	<b>-</b>	<b>-</b>

Note: 1. Not assessed includes land uses associated with Mount Piper and the former Wallerawang power station sites within the project footprint and other mining activities in the broader study area.

## 4.2.3 Strategic agricultural land

Strategic agricultural land is identified in the NSW Government's Strategic Regional Land Use Policy (2012). Strategic agricultural land is highly productive land that has unique natural resource characteristics (such as soil and water resources) and socio-economic value (such as high productivity, infrastructure availability and access to markets). The NSW Government has identified two categories of strategic agricultural land described below.

### 4.2.3.1 Biophysical strategic agricultural land

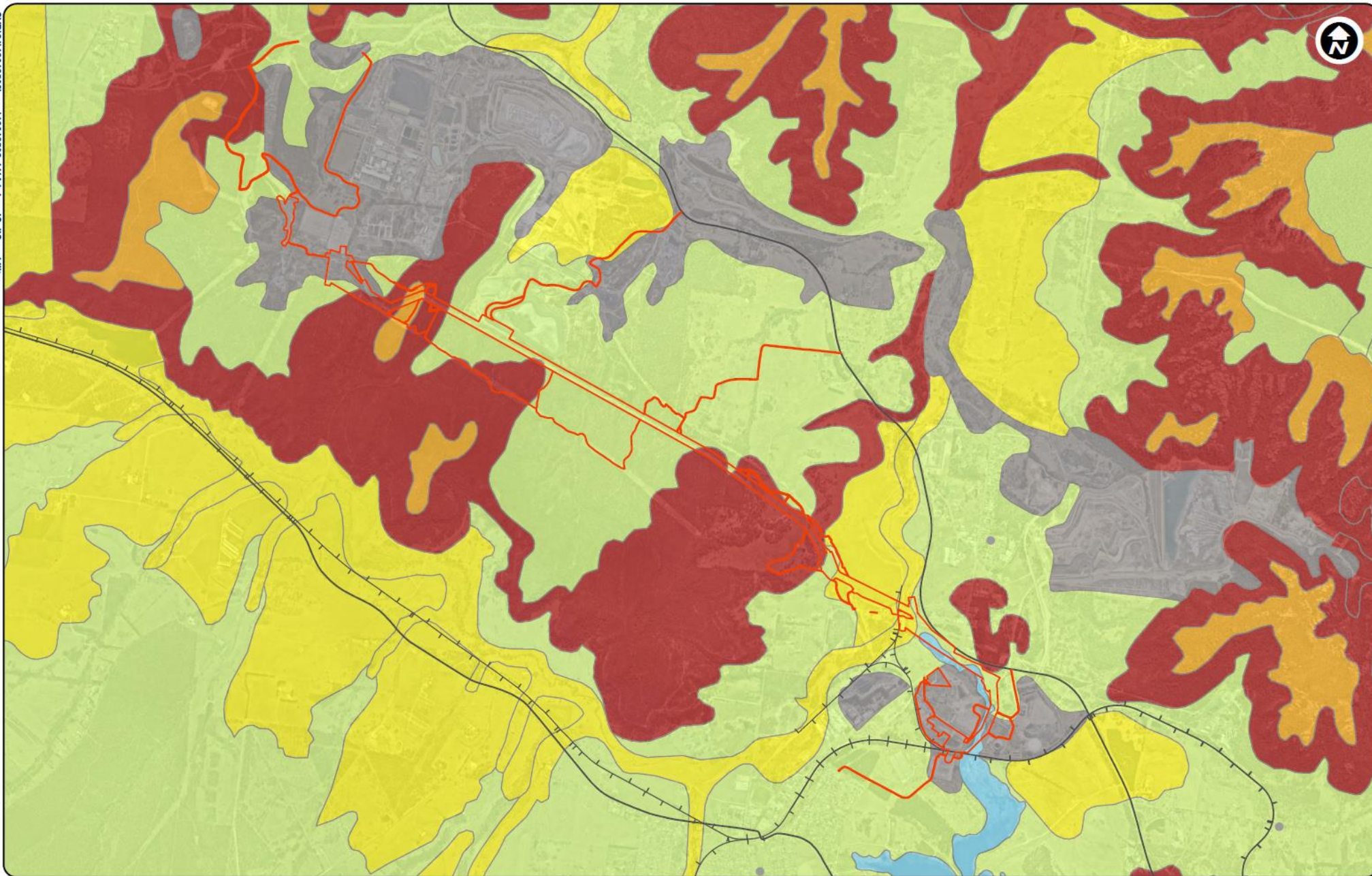
Biophysical strategic agricultural land (BSAL) is land with high quality soil and water resources capable of sustaining high levels of productivity. A total of about 225 ha of BSAL has been identified and mapped within the Lithgow City Council LGA. The project footprint does not intersect any mapped BSAL, with the closest mapped BSAL over 15 km to the north of the project footprint.

### 4.2.3.2 Critical industry clusters

Critical industry clusters are concentrations of highly productive agricultural industries within a region that are related to each other, contribute to the identity of that region and provide significant employment opportunities. Two critical industry clusters exist in NSW – for equine and viticulture industries in the Upper Hunter region.

No critical industry clusters have been identified within or close to the study area.

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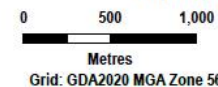


Figure 4.12 Land and soil capability

## 4.2.4 Agricultural production

### Agricultural history of the study area and project footprint

The project footprint is located within the Central Tablelands region of NSW. Agricultural activities commenced in the early 19<sup>th</sup> century with the grazing of sheep and cattle in the fertile valleys. The cooler climates and consistent rainfall made the study area well suited for extensive livestock grazing activities which are the predominant agricultural activities today. As outlined in section 4.2.2, the land and soil capability of the study area have restricted the large-scale cultivation of agricultural crops. The expansion of mining and the development of the Main Western Rail Line and the Great Western Highway allowed for the development of the agricultural sector as produce could be easily transported to key markets. A section of the project footprint located east of the Gardens of Stone SCA and north of Brays Lane (see Figure 4.3 in vicinity of Future Pinecrest BESS label) is currently used for extensive livestock grazing with cattle agisted through a lease arrangement with Centennial Springvale Coal Services facility (through its subsidiary Ivanhoe Coal).

### Agricultural production

There is a total of 26 broadacre cropping related agricultural business within the study area producing a variety of wheat, oats, barley, hay, fruits, and nurseries (Table 4.7). Hay and silage production is the most common throughout the study area covering 587 ha. Hay production supports key feedstocks for other livestock industries in the area (NSW DPI, 2020a). In comparison, wheat production is smaller with two businesses operating across 295 ha of land. Barley and nurseries or cultivated turf are the smallest by size, occupying 3 ha each.

**Table 4.7** Total area of major crops within the Lithgow City Council LGA and the number of businesses (2021)

Crop variety	Study area	
	Area (ha)	Number of businesses
Wheat	295	2
Oats	62	2
Barley	3	1
Hay and silage	587	19
Nurseries, cut flowers or cultivated turf	3	1
Fruit and nuts (excluding grapes)	6	1

Source: ABS (2022a) Agricultural Commodities Produced, 2020-21, Estimates by Local Government Areas

The study area includes significant numbers of different livestock types, though sheep and cattle are the dominant types (see Table 4.8). Merinos are bred for wool production and prime lamb production is focused on meat production. Beef enterprises across the study area are focused on both cattle trading and beef production. There is extensive livestock grazing (sheep and beef) in Lithgow with production carried out by small-scale farmers and a relatively low number of heads. Beef production has the largest number of enterprises (103) followed by lambs (46 enterprises). Despite significant beef production, there is only one dairy business operating in the LGA. This may be attributed to the technical expertise, access to refrigeration and other equipment, and high start-up costs (NSW DPI, 2020a). Additionally, there are a few enterprises that also produce poultry meat and eggs.

**Table 4.8** Total number of livestock and number of livestock businesses in the Lithgow City Council LGA, 2021

Livestock type	Study area	
	Total (no. of head)	No. of businesses
Sheep and lambs	30,873	46
Cattle (beef)	26,981	103
Cattle (dairy)	8	1
Pigs	8	2
Poultry (layers)	125,127	1
Poultry (meat)	108	3
All other livestock	992	25

Source: ABS (2022a) Agricultural Commodities Produced, 2020-21, Estimates by Local Government Areas

## Value of agricultural production

The value of agricultural production in Lithgow City Council local government area in 2020-21 was about \$31.4 million as shown in Table 4.9, with the majority of the value attributed to cattle and calves livestock (53 per cent) and livestock products such as eggs (26 per cent).

Livestock production is prominent across the Central Tablelands region (NSW DPI, 2020a). The Lithgow City Council LGA alone produces a total of \$29.5 million in livestock meat and products. Beef production is the most dominant industry by gross value of agricultural production (GVAP) contributing over \$16 million followed by eggs (\$8.1 million) and poultry (\$1.97 million). Beef production is popular in the LGA given the high amenity landscape of Lithgow (NSW DPI, 2020a) and the number of small-scale farms (Table 4.9).

Several factors such as slope, land capability, and of rainfall have led to low broadacre cropping and horticulture production in the LGA. The total GVAP of broadacre crops in 2020-21 was \$340,354 of which hay was the main crop followed by wheat. According to Australian Bureau of Statistics (ABS) (2022b), there is no fruit, nuts, or grapes production in the LGA, vegetables being the biggest horticultural product with a GVAP of \$1.9 million produced by small area farmers for local consumption through markets and restaurants.

**Table 4.9** Gross value of agricultural commodities produced within the Lithgow City Council LGA 2020-21

Agricultural commodity	Value of agricultural commodities produced (\$)
<b>Broadacre crops</b>	
Wheat	264,754
Barley	4,888
Hay	849,163
Other	70,711
<b>Total</b>	<b>1,189,517</b>
<b>Horticulture</b>	
Nurseries (cut flowers or cultivated turf)	661,013
<b>Total</b>	<b>661,013</b>
<b>Livestock products</b>	
Wool	1,051,680
Eggs	8,116,382
<b>Total</b>	<b>9,168,062</b>
<b>Livestock meat</b>	
Sheep and lambs	1,596,005
Cattle and calves	16,787,981
Pigs	3,824
Poultry	1,967,203
Other	13,951
<b>Total</b>	<b>20,368,964</b>
<b>Total agriculture</b>	<b>31,387,556</b>

Source: ABS (2022b) Value of Agricultural Commodities Produced, Australia, Gross and local value estimates by 2021 Local Government Areas

## 4.2.5 Biosecurity

The productivity and profitability of agricultural production depends in part on the management of pests and diseases, including the prevention of incursion of pests and diseases onto properties. Biosecurity is a term that is commonly used for such management and the set of measures adopted to protect a property from the entry and spread of pests, diseases and weeds.

### Pest animals

Under the NSW *Biosecurity Act 2015*, pest animals are not defined by species. Pest species can be considered as any species (other than native species) that present a biosecurity threat. The *Central Tablelands Regional Strategic Pest Animal Management Plan 2024-2028* (LLS, 2024) lists the priority pest species within the Central Tablelands region as: feral deer, feral cat, wild dog, European red fox, feral rabbit, feral goat and feral pig. Wild dogs in particular can pose a threat to agricultural production as they may target and attack livestock, resulting in negative economic impacts.

### Weeds

Weeds cause a significant negative impact on agricultural land with total annual cost of weeds in NSW ranging from \$1.67 bn to \$1.9 bn (LLS, 2022). The *Central Tablelands Regional Strategic Weed Management Plan 2023-2027* provides an outline of important weeds within the Central Tablelands LLS region. The most common weeds recorded within the study area are blackberry (*Rubus fruticosus spp. Agg*), Patterson's curse (*echium plantagineum*), St John's wort (*Hypericum perforatum*) and serrated tussock (*Nassella trichotoma*).

### Animal and plant diseases

Under NSW legislation, there are a number of pests and diseases which are notifiable because they are exotic to Australia, (such as foot and mouth disease and rabies) and if established here could impact severely on animal health, trade, livestock production, human health or the environment. Some other diseases that already exist in Australia are notifiable because there is a disease control program in place, there is a risk of zoonotic disease, the disease occurs in parts of Australia other than NSW, or because livestock, livestock products, or their property of origin needs to be certified in terms of disease.

The *NSW Animal Biosecurity & Welfare Strategic Plan 2019-2023* guides priority activities to safeguard the economy, environment and community from diseases and pests that affect animals as well as improved animal welfare outcomes (NSW DPI and LLS Animal Biosecurity and Animal Welfare Joint Strategic Plan, 2019-2023).

## 5. Estimated land requirements

The project would require the use of land temporarily and permanently. Permanent land requirements would be related to the presence of a transmission line within a permanent easement and access tracks. Construction would also require the temporary occupation and use of land for construction compounds and some other construction only areas required to facilitate construction for example brake and winch sites.

The estimated project land requirements outlined below are based on the current design, and the land that is expected to be occupied by the project. These land requirements would continue to be refined as the design is developed.

### 5.1 Permanent land requirements

The project's operational footprint consists of the land that would be permanently required for the project's operational infrastructure. The operational footprint consists of an easement in which the new transmission line infrastructure would be located. An easement for transmission would be registered on the underlying land title. The new easement requirements for the project would consist of:

- widening of approximately 0.5 km of existing easements in the vicinity of the Mount Piper 330 kV substation by up to 40 m to accommodate the new 330 kV transmission line and adjustments to existing 132 kV and 330 kV transmission lines
- widening of the existing 132 kV easement from 45 m to 60 m for 4.8 km to accommodate double circuit transmission structures for the existing 132 kV transmission line and the new 330 kV transmission line
- establishing 1.2 km of new 60 m wide easement for the new 330 kV transmission line from the existing 132 kV transmission line southeast to the intersection of Main Street and the Castlereagh Highway
- establishing a variable width easement including a 1.1 km section of a new 40 m wide easement for the new 330 kV transmission line running parallel to existing 330 kV transmission lines, then diverging and widening to a new 60 m wide easement for 0.4 km to the Wallerawang 330 kV substation.

The project's operational easement includes a section of the existing 45 m easement held by Transgrid for Line 94E as well as part of the existing Line 70/71 easement. Table 5.1 outlines the land requirements and current owners of land for the project.

In total, it is estimated that about 54.8 ha of land would be required for the transmission line easement during operation, with 33.1 ha accounted for by existing Transgrid held easements. The land requirements outlined in Table 5.1 excludes land located within existing road reserves or along the Coxs River that do not have a Lot/DP number.

In addition to the land required for the transmission line easement, about 9 ha of upgraded or new tracks required for construction of the project would be retained for ongoing use, subject to consultation with the relevant landholder.

**Table 5.1** Summary of estimated permanent land requirements for the easement and current ownership

Ownership	Estimate of land requirements (ha)	Number of lots	Number of properties
Private	11.8	10	2
Centennial Coal (Ivanhoe)	22.9	13	2
Centennial Coal (Springvale)	0.2	1	1
National Parks and Wildlife Services (NPWS)	17.6	1	1
Energy Australia	1.3	2	1
Transport for NSW	0.4	3	3
Transgrid	0.5	3	2
<b>Total</b>	<b>54.8</b>	<b>33</b>	<b>12</b>

## 5.1.1 Easement acquisition

An easement for transmission provides a right of access for Transgrid personnel and contractors to construct, maintain and operate the transmission line and other operational assets. The easement also typically includes provisions for access rights, permitted use of the land subject to the easement, the type and specification of the infrastructure being operated, matters of safety and compliance and descriptions of non-exclusive use. Vegetation on the easement will be cleared to the extent required to safely construct the transmission line. During operation, it will be maintained free of tall growing vegetation that could encroach on the vegetation clearing area. Vegetation management beyond the easement may occur where branches or trees have the potential to fall and breach the Vegetation Clearance Requirements (hazard trees). Along the southern side of the existing 132 kV easement vegetation would be managed in line with the procedures for the existing transmission line. Due to topography, there are few hazard trees on the north side of the easement. The project footprint includes those that have been identified using LiDAR data and they will be removed at the time of construction.

To protect landowner and community safety and provide a safe, reliable network, there are restrictions on the activities that can be carried out within the easement. The activities which are permitted and/or prohibited within the easement are outlined in Transgrid's *Easement Guidelines – Living and working with electricity transmission lines* (Transgrid, 2024). Some of the key activities that are prohibited include construction of most buildings or structures, storage of combustible materials and any development which results in obstruction of transmission structures and conductor.

All easements for the project would be acquired in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991*.

Easements on Crown Land would be acquired with the concurrence of NSW Crown Lands and in accordance with the *Crown Land Management Act 2016* (as applicable).

## 5.2 Temporary land requirements

In addition to the project's permanent land requirements, land outside the operational footprint may also be required for construction purposes. These areas may be required for:

- ancillary facilities, including the construction compound and additional temporary work areas such as brake and winch sites for conductor stringing
- accesses tracks required only for construction.

In total, it is estimated that about 29.7 ha of land would be temporarily required for the project to facilitate construction. 2.4 ha of this land is located within an existing Transgrid transmission line easement with the remainder of this land (27.3 ha) located outside the existing easements. Table 5.2 provides a summary of the ownership of land temporarily required for the project including the number of lots and properties. A total of four properties would only be impacted by temporary land requirements, with remaining properties also subject to the permanent land requirements outlined section 5.1.

Temporary use of land during construction would be via a lease, licence, agreement or a memorandum of understanding with the relevant property owner.

**Table 5.2** Summary of estimated temporary land requirements (lease) and current ownership

Ownership	Estimate of temporary land requirements (ha)	Number of lots	Number of properties
Private	7.0	8	2
Centennial Coal (Ivanhoe)	8.0	19	2
Centennial (Springvale)	4.0	5	1
National Parks and Wildlife Services (NPWS)	1.6	1	1
EnergyAustralia	6.9	3	1
Transport for NSW	0.2	4	4
Lithgow Council	<0.1	1	1
WaterNSW	<0.1	1	1
Transgrid	2.0	3	3
<b>Total</b>	<b>29.7</b>	<b>45</b>	<b>16</b>

## 6. Impact assessment

### 6.1 Construction impacts

#### 6.1.1 Overview of land use impacts

During construction, land use within the project footprint would temporarily change from the uses described in sections 4.1 and 4.2 to a construction site. Public access to this land (where it is currently available) would be restricted for the duration of its use as a construction site.

The project footprint has been developed to minimise the area of impact required to construct the project with the majority of the areas required being contained within Transgrid's existing transmission line easements with the exception of some temporary facilities such as construction compounds and brake and winch sites.

Impacts on specific land uses are discussed in the following sections.

#### 6.1.2 Gardens of Stone State Conservation Area

Construction of the project would result in the temporary loss of access to about 19.2 ha of the Gardens of Stone SCA including about 5 ha which is not already impacted by Transgrid's existing transmission line easements.

The loss of access to 19.2 ha of the Gardens of Stone SCA reduces the area available for recreational activities (as outlined in section 4.1.3). There may also be impacts to access to areas not directly impacted by the project due to the use of existing access tracks which provide access around the SCA. Overall, the impacts on the SCA are considered to be minimal due to the following:

- Portions of the SCA to be impacted by the project contain limited formal recreational facilities and high value landscapes including the rock formations which form part of the SCA value, with these areas located in large portions of the SCA to the north and east
- Recreational use of the impacted area is infrequent as confirmed by NPWS due to its distance from public roads, the presence of the existing transmission line easement and the limited formal recreational facilities.
- Impacts on access for NPWS personnel would be managed where required through the developed procedures as part of the CEMP to allow the movement along access tracks including during emergency situations.

The project is considered to be consistent with the plan of management for the SCA with the establishment of easements for utility infrastructure identified as an authorised activity which has been discussed with NPWS as part of the development of the project. The consistency of the project against the outcomes and actions outlined in the plan of management are considered in Table 6.1 for the operation phase of the project.

#### 6.1.3 Agricultural land

About 38.2 ha agricultural land would be directly impacted by the construction of the project. About 23.2 ha of this impact would occur in areas which are currently not located in Transgrid's existing transmission line easements and therefore represent a new impact resulting from the project.

Table 6.1 outlined the potential direct and indirect impacts to agricultural land and its operation.

Mitigation measures to address these impacts have been identified in section 7.

A LUCRA assessment has been prepared (Appendix A) and examines the potential land use conflicts that may arise from the project. A risk identification and ranking process has been undertaken in accordance with NSW DPI Guidelines and identified the key risks associated with the construction and operation phases of the project. Subject to the recommended management and mitigation measures being implemented, the potential impact of the project on the surrounding land use and land users will be minimal.

Table 6.1 Potential direct and indirect impacts on agricultural land during construction

Item	Potential impact
<b>Direct agricultural impacts</b>	
Impeded access to agricultural areas	<p>Livestock would either be excluded from the project footprint during construction or temporary gates and fences would be installed where required along the project, to enable the movement of construction crews across the project footprint while protecting livestock. Landowners would be consulted regarding the location of temporary gates or fences.</p> <p>Construction activities could result in landowners being unable to access areas for routine husbandry operations (e.g. weed spraying), inability for livestock to graze pastures (e.g. due to the unavailability or access to stock water), entrapment or injury to stock.</p>
Land and soil capability/ agricultural productivity	<p>Land within the project footprint is considered low-productivity land. Vegetation clearing required for the project therefore needs to be carefully managed to prevent further degradation. If not managed effectively, this could impact both land and soil capability resulting in increased soil erosion and impacting upon water quality and agricultural productivity across the project footprint.</p> <p>Clearing methods would be determined through vegetation type or structure, slope and terrain. Removed vegetation that is weed free would be mulched for beneficial reuse, where appropriate. Topsoil would be scraped off, stockpiled and used for resurfacing at end of the construction work.</p>
Impacts on use of existing on-property access tracks	<p>The project proposes to use a number of existing access tracks within agricultural land with these tracks to be upgraded. Some additional tracks will also be provided where existing tracks are not suitable for use by construction vehicles. Short term impacts on use of these tracks may occur during upgrade works however once complete access along these tracks will be improved for landowners.</p> <p>Movement of construction vehicles has the potential to restrict use of these tracks by landowners and also result in damage to these tracks. Impacts to access would be managed through consultation with landowners to confirm access requirements while damage to track would be repaired.</p> <p>Tracks not required for future maintenance activities would be restored to their previous condition, subject to agreement with landowners. Some permanent access tracks may provide improved property access which would be of greater benefit to landowners to support agricultural productivity.</p>
Fences	<p>The project may potentially remove or cause inadvertent damage to fencing which coupled with not closing any existing gates could result in livestock straying onto the project footprint, public roads or other paddocks resulting in unintended livestock mixing which in turn could disrupt planned breeding programs. Landowners would be consulted regarding the reinstatement or replacement of shared boundary fencing.</p>
Biosecurity	<p>The project would result in the increased movement of vehicles and people to, around and within the project footprint during construction. The main biosecurity risk relates to the spread of weeds that may result from the increased movement of vehicles. Weed seeds could be transported through and within the project footprint on clothing and via vehicles and machinery wheels/tracks and undercarriages. If a new pest or disease becomes established, it can affect agricultural properties through increased costs (for monitoring, production practices, additional chemical use and labour), reduced productivity (in yield and/or quality) or loss of markets.</p> <p>A Biosecurity Management Plan will be prepared and implemented Biodiversity Management Plan and will include measures to minimise the potential for biosecurity risks as a result of the project.</p>
Loss of economic production	<p>Based on the average gross value of production<sup>1</sup> of \$217 per ha, the 38.2 ha of agricultural land impacted by the project is estimated to result in a loss of about \$8,290 per annum during the construction period which represents 0.03% of the gross value of production within the study area. This likely overestimates the loss as a result of the project as it assumes that livestock would be excluded from the entire project footprint for the entire construction period. Consultation with landowners would develop exclusion methods that would seek to not reduce agricultural production across the property during the construction phase.</p>
<b>Indirect impacts</b>	
Movement of water away from agriculture	<p>Most of the water required for construction would be brought to site by tanker and therefore not result in the movement of water away from existing agricultural activities. As there is not any irrigated agricultural land within the study area, there is no risk to the availability of water for agriculture. Refer to Technical Report 1 – Water Impact Assessment for overview of water licensing and sourcing.</p>
Dust and noise (including vibration)	<p>Airborne dust from vehicle movements and construction activities can reduce the yield and quality of pastures required for livestock grazing enterprises. Dust accretions are removed at each rainfall event resulting in negligible impact. Refer to Chapter 16 – Air Quality for mitigation measures to reduce the potential for dust generation as part of the project. Pastures within the agricultural areas of the project footprint are generally unimproved and construction activities would be undertaken progressively across the footprint and therefore with the appropriate dust suppression measures, the impact of dust generated by construction activities is likely to be minor. Livestock generally become habituated to noise and although grazing patterns may be temporarily altered, impact will be temporary and is not expected to have an impact on productivity.</p>

Item	Potential impact
Labour supply	It is anticipated that the project would require a peak construction workforce of about 150 personnel/contractors, with an average workforce of about 60 personnel/contractors over a period of 24 months. Due to size and skills available in the LGA, the short-term nature of the employment and the specific skill set required, it is likely that the majority of the employment uptake will be from outside the Lithgow LGA. Given the specialist nature of these roles, it is not expected to have an impact on the ability of agricultural landowners to secure personnel and contractors to undertake seasonal or ad-hoc agricultural related activities.
Bushfires	Bushfire poses a human safety and property threat within the locality. If the bushfire spreads, it may cause damage to surrounding agricultural properties resulting in a loss of agricultural production and infrastructure. The bushfire assessment undertaken outlines the greatest potential for bushfire ignition and spread is during the construction phase. Depending on seasonal conditions, the agricultural lands may be bushfire prone. With on-site work and the influx of construction personnel temporarily increasing the on-site bushfire safety risk exposure, this has the potential to result in greater bushfire consequences that would not otherwise be present. Refer to the Bushfire Assessment undertaken as part of Technical Report 9 – Hazard and Risk for this project.
Economic impacts on regional agricultural industries	The temporary reduction in area is minimal from a study area perspective and would have insignificant impacts on volumes of production and thus minimal impact on other agricultural related industries.  Overall, the project will provide positive economic activity to the regional economy of the Lithgow LGA as well as the rest of NSW. The key employment impact will occur during the two-year construction period as post construction maintenance will be minimal.

Note: 1. An indicative value of agriculture production was derived using a combination of publicly available data from the ABS agricultural census for the gross value of agricultural production for the Lithgow LGA (Table 4.9) and divide this by the agricultural land area within the study area (Figure 1.1). The average gross value of production using this approach is \$217 per hectare.

## 6.1.4 Mining infrastructure and mineral resources

Development of the project to date has included consultation with Centennial Springvale Coal Services facility, who own all mining leases and infrastructure in the vicinity of the project, which has confirmed that the project would not encroach into any areas within their mining leases in a way which would impact upon their current or future plans within the lease area. This consultation has also confirmed that use of any access tracks on Centennial Springvale Coal Services land would not impact on their operations and that procedures would be put in place to manage the use of tracks in a way as to not restrict use of the Centennial Springvale Coal Services facility operations. The project will not impact the operation of the coal conveyor that intersects with the project footprint.

Impacts in the vicinity of Consolidated Coal Lease 712 are also considered to be limited with rehabilitation of this area currently underway. During consultation, Centennial Springvale Coal Services facility have indicated that they have no plans for further mining operations in this area.

Transgrid have commenced consultation with Strategic Rare Earths Pty Ltd who hold an exploration lease located north of the proposed easement. The project is not expected to impact on any exploration activities within this licence area the project only utilising an existing Centennial Coal track during construction. Centennial Coal's use of this track currently would limit the ability for exploration activities along this track and therefore the project is not considered to result in any additional impacts.

## 6.1.5 Future land use impacts

Transgrid is working with Greenspot Wallerawang Pty Ltd to identify and manage potential impacts on the redevelopment of the former Wallerawang Power Station site as a multi-use precinct which would include development of a BESS. While the exact details of the landowner's development program have not been made public, measures are being implemented to mitigate impacts during construction of the project including regular meetings between both parties and the exchange of construction program information.

## 6.1.6 Crown land

### Crown road reserves

The project would impact three Crown or 'paper' roads as identified in Table 4.4, with one of these Crown roads subject to an enclosure permit, and two identified as Crown road reserves.

Impacts on the paper road subject to an enclosure permit would be subject to the upgrade of an existing access track and therefore, use of this land for an access track would be consistent with the land use designation as a Crown road.

The two paper roads not subject to an enclosure permit would be subject to upgrades of access tracks and also widening of the easement. The impacts on these two paper roads would be limited to the upgrade of existing tracks and the establishment of a wider easement for the new transmission line. These activities would not restrict the future use of these areas for roads.

The impacts on Crown roads described above would require consultation with the Department of Planning, Housing and Infrastructure (Crown Lands) and negotiation of any required licences and agreements under the *Crown Land Management Act 2016*.

### Crown waterway

Impacts on the Crown waterway located within the former Wallerawang Power Station site are limited to establishment of the easement and potentially some vegetation clearing in the riparian zone. The impacts on this waterway would require consultation with the Department of Planning, Housing and Infrastructure (Crown Lands) and negotiation of any required licences and agreements under the *Crown Land Management Act 2016*.

### Native title

The project footprint is completely encompassed in the Warrabinga-Wiradjuri Native Title Claim, which has not yet been determined. Given there is limited Crown land within the project footprint (see Figure 4.9), areas potentially subject to impacts on the Native Title claim or claimants would be limited.

Transgrid has consulted and engaged with the Warrabinga Native Title Claimants as a key stakeholder for throughout the development of the project and the EIS. Transgrid has submitted a Section 24KA notice (Native Title Act 1993) to NTSCorp and the Warrabinga-Wiradjuri people and have invited submissions which will allow construction to proceed prior to the determination of the native title claim on the basis of future compensation, and therefore not requiring an Indigenous Land Use Agreement to be reached and prior to the determination of any Indigenous land claims.

Transgrid will continue to consult with the Warrabinga Native Title Claimants about potential impacts on the claim area to assist Transgrid in understanding and appropriately managing potential land use issues that may arise from the project.

## 6.1.7 Utilities

No utility conflicts have been identified that would require relocation or protection as part of the works. Further investigations would occur during detailed design and construction planning and where conflicts are identified. Consultation would be undertaken with the relevant asset owner to agree the approach to minimise any impacts. This could include relocation or protection of the asset or adjustments to the design.

Service interruptions during substation connection work and/or where work is being undertaken in close proximity to other operating transmission lines to maintain personnel safety are not considered likely. Such work would be undertaken during planned outage periods which are scheduled to avoid the need for any service disruptions. With the implementation of mitigation measures (see section 7), impacts on utilities are considered to be minimal.

The WaterNSW Fish River Pipeline crosses the project footprint at various locations as discussed in section 4.1.3. The project would not result in any direct impacts to the pipeline with it crossing the project footprint mid span (between transmission structures), where existing access tracks are proposed to be upgraded and used and at construction compound 1. Works associated with access tracks and construction compound are not expected to impact directly on the pipeline however consultation with WaterNSW would be required in relation to any protection measures required or adjustments with construction methods for the establishment of the construction compound or upgrades access tracks.

## 6.1.8 Transport infrastructure

The construction of the project would involve works occurring across a number of road reserves and rail reserves. These impacts are expected to be short term in nature would predominately be associated with the stringing of transmission lines only. Impacts on the operation of roads and rail infrastructure during construction are assessed in the Technical Report 8 – Traffic and Transport Assessment.

## 6.1.9 Amenity impacts

Properties close to the project footprint may experience changes in amenity when construction occurs close to their property. Construction may result in the following:

- increase in noise and vibration levels as a result of the operation of construction plant and equipment and construction traffic
- changes in the visual outlook for properties with views over/towards construction work areas and compounds, including light spill from any night works
- increase in dust generated during construction.

With the implementation of standard construction measures for noise, air quality and light spill, such impacts would be expected to be minimal. The potential impacts and mitigation measures are considered in Technical Report 10 – Noise and Vibration Impact Assessment, Technical Report 7 – Landscape and Visual Impact Assessment and Chapter 16 of the EIS (Air Quality).

## 6.2 Operational impacts

### 6.2.1 Availability of specific land use zones

Direct impacts on land use during operation would result from the establishment of the operational easement and any restrictions to the use of this easement for the purposes for which the land is zoned. The restrictions placed upon a specific zone may result in this zone no longer being available for its intended purpose thus representing a reduction in the availability of this zone for development which may be restricted to a particular zone.

Table 6.2 outlines the area of the impacted zones which would result in a change in land uses thus limiting the use of the lands for the purposes permitted under the relevant zones under the Lithgow LEP. With much of the operational impacts occurring within established transmission line easements, impacts on the availability of a specific land use zone is only considered to be an impact where they are outside the existing transmission line easements.

As shown in Table 6.2, the reduction in the availability of these zones is minimal within the study area and therefore is not considered to represent a substantial reduction in the availability of any of these land use zones due to the following:

- Industrial land – additional E4 General Industrial zoned land between Main Street and Brays Lane on the northern side of the Coxs River is unlikely to be used for industrial development due to the small portion of this zoned land which is not already impacted by transmission lines thus limiting its development potential
- Agricultural land – additional RU1 Primary Production zoned land impact by the project would be able to continue to be used for existing agricultural purposes with only some restriction of potential future uses as discussed further in section 6.2.3
- Forestry/conservation land – additional RU3 Forestry, considered likely to be rezoned into C1 National Parks and Nature Reserves due to the creation of Gardens of Stone SCA (refer section 4.1.2) is only to present a 0.01 per cent reduction of C1 zoned land in the study area, the impacts on the Gardens of Stone SCA discussed further in section 6.2.2
- Infrastructure land – additional impacts on SP2 zoned land are considered to be consistent with the zoning with all but 0.69 ha of the 5.6 ha of SP2 zoned land identified for electricity generating works, any impacts SP2 zoned land identified for road infrastructure are considered consistent with that zone as electricity infrastructure considered to be a common ancillary use to the corridor of a major road.

Overall, the project is not expected to reduce the availability of any specific land use zone to a level which may impact upon the ability for specific land uses to be established in the Lithgow LGA.

Table 6.2 Impacts on land zoning availability

Land use zone	Area within existing easement (ha)	Area outside existing easement (ha)	% of study area occupied by areas outside existing easement
E4 – General Industrial	3.5	1.6	0.4
RU1 – Primary Production	12.6	11.5	<0.1
RU3 – Forestry	13.8	4.0	<0.1
SP2 – Infrastructure	3.8	5.3	0.1
<b>Total</b>	<b>33.7</b>	<b>22.4</b>	-

## 6.2.2 Gardens of Stone State Conservation Area

The project would result in an additional 3.9 ha of land within the Gardens of Stone SCA to be subject to a transmission line easement, with the existing 132 kV transmission line easement currently occupying 13.8 ha of the SCA. The use of the existing easement reduces the impacts on additional land within the SCA required for the project. The additional impacts would include a narrow strip (about 15 m wide) located north of the existing easement.

While an additional 3.9 ha would be subject to a transmission line easement, the use of the SCA within the additional areas for recreational activities would remain unrestricted with access to the areas within the project footprint to be reinstated once construction has been completed.

Given the limited existing public use of this portion of the SCA due to the absence of designated access tracks or recreational facilities, the impact of the project on the SCA is considered to be minimal.

Following construction, all tracks to be used during construction would be available for ongoing use as part of operations within the SCA. Transgrid would also use these tracks for maintenance purposes, though usage would be minimal and not impact their use for NPWS operations.

### Consistency with the Gardens of Stone SCA Plan of Management

Table 6.3 provides an overview of how the project meets the outcomes outlined in the plan of management for the Gardens of Stone SCA with reference to how the project is consistent with the relevant actions outlined for each outcome in the plan of management.

Table 6.3 Project consistency with relevant actions from the Gardens of Stone SCA Plan of Management

Actions	Project's consistency with management actions
<b>Supporting Wiradjuri aspirations for Country</b>	
Wiradjuri people and NPWS working together	Consultation with Wiradjuri representatives has been undertaken as part of the development of the project and also for the Technical Report 5 – Aboriginal Cultural Heritage Assessment Report and Cultural Values Assessment. Involvement of Wiradjuri representatives has sought to ensure the project has been developed and assessed in a respectful and culturally appropriate way. Ongoing consultation would also be undertaken with regards to the construction and operation of the project.
Aboriginal cultural site protection	The project has sought to avoid known Aboriginal cultural sites present within the SCA upgrades to an existing track not proposed in the vicinity of a potential archaeological deposit (PAD). The project would also include the salvage of known artefacts currently located on the existing access track to ensure their protection.
<b>Setting a sound foundation for conservation of biodiversity</b>	
Understanding natural values/Research and monitoring	The project has undertaken biodiversity surveys which have identified the presence of a number of threatened biota or habitat for threatened biota (refer Technical Report 2 – Biodiversity Development Assessment Report). This information can be used to aid in better understanding the natural values located within the portion of the SCA impacted by the project.
Fire management	The project would include the upgrade of a number of existing tracks located within the SCA, with the upgraded track to provide improved access firefighting purposes.

Actions	Project's consistency with management actions
<b>Assisting the recovery of a landscape under stress</b>	
Feral animal and weed management	The project has identified the presence of a number of feral animals and weeds within the project footprint (refer Technical Report 2 – Biodiversity Development Assessment Report). This information provides information that can be used in the development and implementation of strategies for the management of priority weed, feral predators and other feral animals. The project will also have biosecurity protocols to ensure the further spread of weeds into the SCA is avoided.
<b>Establishing a major new visitor destination in the Blue Mountains</b>	
Access roads/Recreational track and rails	The Gardens of Stone State Conservation Area Masterplan (NPWS, 2025) does not identify any such facilities in the portion of the park impacted by the project. The project would include upgrades to a number of existing access tracks which would then continue to be used to access the operational transmission line, the ongoing use and maintenance of these tracks could be considered as part of future upgrades to recreational facilities within the SCA.

### 6.2.3 Agricultural land

The project would result in an additional 24.2 ha of agricultural land not already within an existing Transgrid transmission line easement. This would result in additional land where restrictions would be put in place on the title to ensure the safety and operational requirements can be met for the transmission line. The restrictions would allow the continued use of the land for grazing to occur and therefore impacts on existing agricultural uses are not expected during operation. Within the easement, the construction of buildings and structures is not permitted. Consultation to date with agricultural landowners has not identified any plans for future land uses which may be restricted within the widened section of the operational easement.

During operation, the main potential direct impacts on agricultural operations and biosecurity are:

- Maintenance access to private properties could result in unintended livestock management and safety issues if gates are accidentally left open.
- Maintenance vehicles accessing private properties could potentially introduce weed, pest or disease which could potentially reduce crop yield and livestock production and increase farm costs unless properly controlled.

The project would be operated in accordance with Transgrid's existing operational and maintenance procedures which would be applied to the upgraded transmission line. This would include operation of the easement in accordance with any existing or updated property agreements which would be modified for properties affected by the project. Such agreements already include procedures to ensure that agricultural properties are not impacted by biosecurity risks.

#### Land and soil capability

The operation of the project is not expected to result in any impacts on the agricultural productivity of any land within the operational easement. Any areas impacted during construction would be rehabilitated to ensure that any ongoing degradation of the soil and therefore capability of the land for agricultural purposes does not occur. The project is not expected to result in any long-term degradation of soils that reduce the capacity of the soils for any existing agricultural operations.

### 6.2.4 Mining infrastructure and mineral resources

The operation of the project would not impact upon any Centennial Springvale Coal Services facility operations as the project is positioned on land that is currently not planned for use in any future operations by Centennial Coal. The project would cross the coal conveyor located in agricultural land east of the Gardens of Stone SCA, however operational infrastructure would be suspended above the conveyor and therefore not impact upon its operation.

The operation of the project is not expected to impact the exploration licence held by Strategic Rare Earths Pty Ltd (EL9640) with no permanent infrastructure positioned within the extent of this lease. Transgrid has notified Strategic Rare Earths Pty Ltd with no response to provide to date.

The project is not expected to impact upon any other known or planned mining operations or impact upon any mineral resources.

## 6.2.5 Future land use impacts

Transgrid is working with the landowner to identify and manage potential impacts on the redevelopment of the former Wallerawang Power Station site as a multi-use precinct. By paralleling existing transmission lines, the project minimises interference with the future redevelopment of the site. While the exact details of the landowner's development program have not been made public, measures are being implemented to mitigate impacts during operation of the project.

## 6.2.6 Crown land

There would be no impact to Crown road reserves or waterways during operation, as the transmission line conductors would be suspended over these parcels of land and would not affect use of these reserves or waterways. An easement would be established on these Crown lands in accordance with the *Crown Land Management Act 2016*.

The project is not expected to result in any long-term impacts on Native Title with Crown land potentially subject to a Native Title claim would only be located within the easement and not subject to permanent infrastructure with the exception of existing access tracks to be upgraded.

## 6.2.7 Utilities

Operation of the project would not impact upon any utilities including the WaterNSW Fish River Pipeline.

## 6.2.8 Transport infrastructure

The operation of the project would not impact upon the use of any road or rail infrastructure with transmission line conductors to be suspended over this infrastructure. Maintenance activities would potentially impact upon the use of this infrastructure if re-stringing of conductors is required, however they would be minimal and infrequent.

## 6.3 Cumulative impacts

Section 21.2 of the EIS outlines the assessment methodology for cumulative impacts including the methods for identifying what projects have been considered as part of the issue-specific cumulative impact assessments for the project.

A total of 10 projects were identified for consideration as part of the cumulative impact assessment and are shown in Figure 6.1. The following projects have been considered:

- Wallerawang Battery Energy Storage System (BESS)
- Mount Piper BESS
- Great Western BESS
- Pinecrest BESS
- Lake Lyell Pumped Hydro Energy Storage
- Ben Bullen Wind Farm
- Sunny Corner Wind Farm
- Wallerawang Power Station Ash Dam
- Wallerawang residential subdivision (DA226/22)
- Wallerawang Station upgrades.

Table 6.4 outlines the potential cumulative impacts relevant to project.

The purpose of the cumulative assessment for land use, cumulative impacts have been considered with a focus on the key land uses impacted by the project, which are conservation land (that is Gardens of Stone SCA) and agricultural land uses.

Impacts on the two land use types impacted by the project are summarised in the below sections.

## **State Conservation Area**

The project is the only project identified which is expected to result in any reduction to land available within the Gardens of Stone State Conservation Area. The proposed Angus Place West expansion would include underground mining activities which encroach on the SCA. No reduction in the conservation area has been identified in the scoping report for that project with works to be underground only.

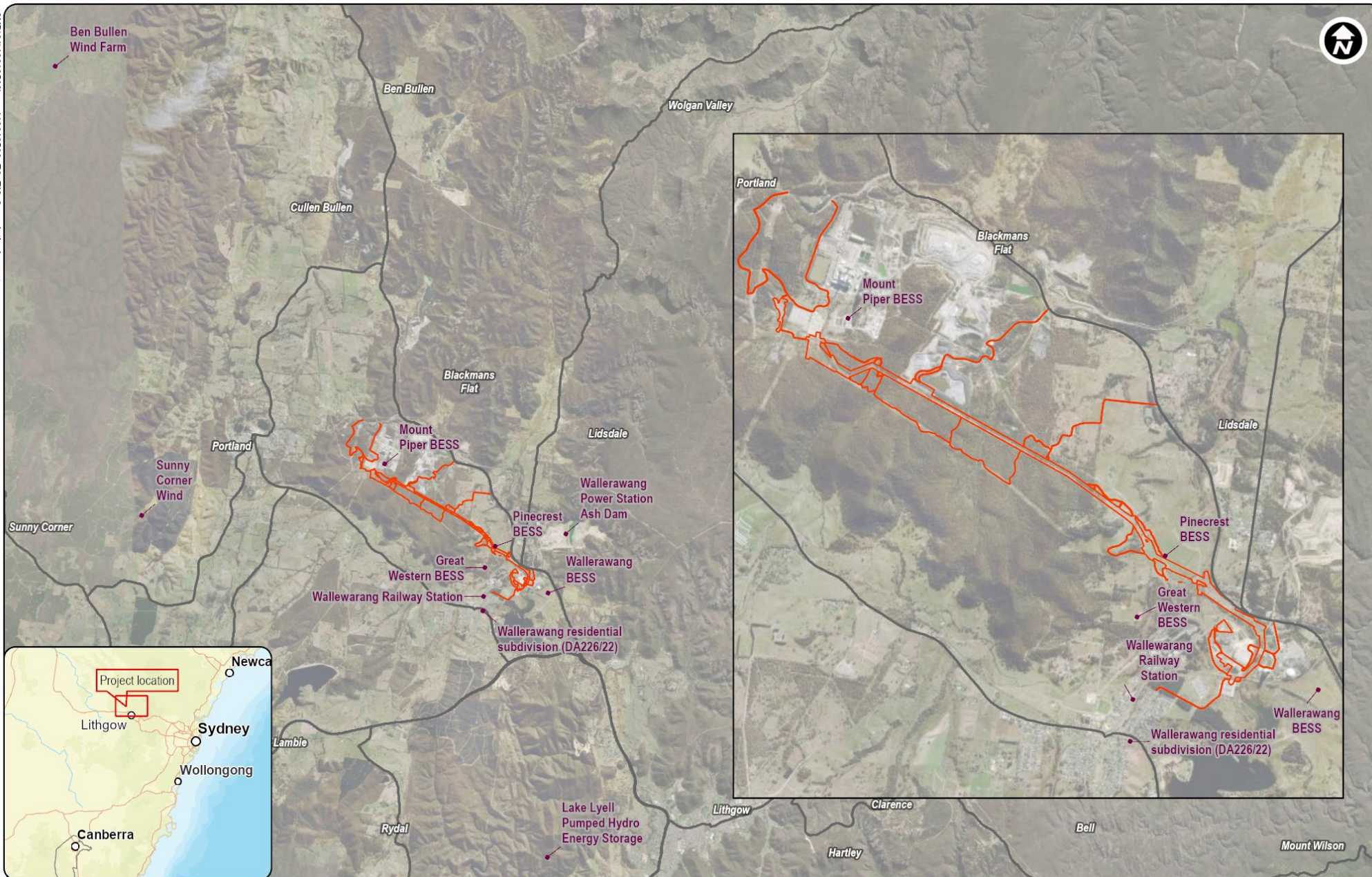
## **Agricultural land**

The project, in combination with the other major projects identified within the LGA, are expected to result in a potential cumulative reduction of up to about 462 ha of agricultural land, noting that the extent of impacts for some projects is unknown or in the case of the Ben Bullen Wind Farm impacts may be overestimated.

The loss of such land in proximity to the project only accounts for about 0.3 per cent of all agricultural land within the study area and therefore does not represent a noticeable reduction in agricultural land available.

The project's contribution to this cumulative impact is considered to be low due to low land capability and the fact that the current agricultural activity (grazing) can continue during the operation of the project.

SYD/21/1126/12502/APPX/126/12502\_E8\_EIS-CumulativeImpacts



**Project components**  
 Project footprint  
 Roads

Rev: A  
 Date: 17/07/2025  
 1:169,150 @ A4

Kilometres  
 Grid: GDA2020 MGA Zone 56

**Figure 6.1** Projects considered in the cumulative assessment

**Table 6.4** Potential cumulative impacts of relevant future projects

Relevant future project	Scope	Approximate location	Status/timeframe/operational period	Potential for cumulative impact
Wallerawang BESS	Design changes to optimise the layout of the approved Wallerawang BESS (500 MW and 1,000 MWh of battery storage capacity)	500 m east of the project footprint	Approved 4/8/2022 Current modification at response to submissions stages Construction period of 1 to 2 years, expected to commence from 2025, construction does not appear to have commenced Operational period unchanged	Footprint does not contain any agricultural or conservation lands.
Mount Piper BESS	Development of a grid-scale BESS with a capacity of up to 500 MW	Immediately north of the project footprint	Approved 15/11/2024 Construction period of 18-24 months expected to commence from mid-2026 at the earliest Potentially operational by 2027/2028 and would operate for about 20 years	Footprint does not contain any agricultural or conservation lands.
Great Western BESS	Development of a 500 MW / 1,000 MWh BESS and associated infrastructure	300 m west of the project footprint	Approved 2/11/2023 Project has not yet commenced construction and construction start date is not known however is expected to occur over 12-14 months The BESS is intended to have an operational life of up to 20 years	No specific details provided within EIS, however assumed to be about 13 ha of agricultural land based on the footprint and review of aerial to confirm what is likely agricultural land.
Pinecrest BESS	Development of 500 MW battery storage capacity and 1,000 MWh of storage with (2-hour duration) connecting to the grid via underground cabling	Layout shown in scoping report is located within project footprint, with Transgrid undertaking ongoing consultation with Banpu Energy regarding positioning of the site.	Scoping report prepared with SEARs not yet issued EIS is expected to be submitted in early 2026 Construction period of 18 months commencing in late 2026 if approved. Operations proposed to start in 2028	No footprint available however considered to result in reduction in agricultural land based on nature of site on which its proposed to be constructed. For purpose of the assessment loss of 13 ha of agricultural land assumed based on footprint required by Great Western BESS.

Relevant future project	Scope	Approximate location	Status/timeframe/operational period	Potential for cumulative impact
Lake Lyell Pumped Hydro Energy Storage	Development of the Lake Lyell Pumped Hydro Energy Storage Scheme (that will provide between 300 to 350 MW of electricity generating capacity for up to 8 hours during peak demand)	10 km south of the project footprint	EIS in preparation Technical design expected to conclude in 2025. Construction expected commence in late 2026 and to take four years with operation commencing in 2029	No details of impacts on agricultural land within scoping report however review of this report suggests main works area is not located on land which is considered agricultural land. Impacts on agricultural land has therefore been assumed to not occur, noting other areas in the project footprint could be agricultural land but it's not clear what these areas are to be used for.
Ben Bullen Wind Farm	Construction of approximately 64 wind turbine generators, a BESS and ancillary infrastructure	20 km north-west of the project footprint	EIS in preparation Construction in 2028 for 18-24 months Operational life of 35 years+	Project will result in impacts on agricultural land, however total area not identified in the scoping report. Worst case is the development footprint is 416 ha which could be assumed to be all agricultural land due to the general nature of the landscape within the development footprint.
Sunny Corner Wind Farm	Construction of approximately 80 wind turbine generators, a BESS and ancillary infrastructure	6 km west of the project footprint	EIS in preparation Construction in 2030 for 36 months Operational life of 30 years	Project is located predominately within areas of State Forest and therefore is not expected to contribute to the reduction in agricultural or conservation land at all or only to a minor degree which is currently not identified in the scoping report.
Wallerawang Power Station Ash Dam	Use of part of the lands lying north of the Castlereagh Highway that were once used by the former Wallerawang Power Station as coal ash dam repositories	Immediately north of the project footprint	Approved 13/10/2023 The modification proposes an additional ten years for the importation of capping material	No changes to land-use proposed as part of any current approvals.
Wallerawang residential subdivision (DA226/22)	Torrens Subdivision - 1 Lot into 54 Residential Allotments, 4 New Roads, 2 lots for drainage and public reserve Allotment	19 Barton Avenue Wallerawang 2 km south-west of the project footprint	Currently being re-exhibited till 13 June 2025	Lot and DP which is subject to the subdivision does not appear to be used for agricultural purposes.

Relevant future project	Scope	Approximate location	Status/timeframe/operational period	Potential for cumulative impact
Wallerawang Railway Station upgrade	Works to upgrade the existing station, closed in 1989, so that passenger services can be restated.	850 m southwest of project footprint	Project has been announced on Transport for NSW website Early enabling works will be carried out from March to August 2025. Once the design is finalised, construction will commence later in 2025, with re-opening of the station planned for late 2026	Conservation or agricultural lands unlikely to be impacted by the station upgrade works. Land uses likely to be impacted do not appear within the project footprint.

# 7. Mitigation and management of impacts

Land use impacts have been minimised through the development of the project in consultation with landowners.

Table 7.1 lists the mitigation and management measures that would be implemented to manage potential impacts to land use and agriculture identified in section 6.

**Table 7.1** Land use and agriculture mitigation and management measures

Impact	Environmental safeguard	Timing
Property impacts	<p>Property Management Plans (PMPs) will be prepared in consultation with impacted landowners. The plans will define the works required during construction, properties affected by easement acquisition and properties requiring adjustments as a result of the project. Works will include, but not be limited to, adjustments to property access, internal roads and fences (if required). The PMPs may include:</p> <ul style="list-style-type: none"> <li>– measures to reduce property impacts, including impacts on agricultural operations</li> <li>– specific requirements to ensure that disruption to operations, including the movement of livestock as agreed with landowners</li> <li>– required adjustments to and/or replacement of affected structures</li> <li>– biosecurity and rehabilitation measures to be implemented as outlined in the BMP.</li> </ul>	Pre-construction Construction Operation
Property impacts	Pre-condition assessments of assets, infrastructure and the general condition of the land at risk of impact during construction within the project footprint will be completed to inform the requirements for rectification or rehabilitation	Pre-construction
Impacts on Centennial Coal Springvale operations	Confirmation of requirements for use of internal roads within Centennial Coal's Springvale site will be sought through ongoing consultation prior to construction commencing. Details of any specific requirements would be included in the Traffic and Transport Management Plan.	Pre-construction Construction
Impacts on access within State Conservation Area	Access for NPWS personnel will be maintained, where required, and will be determined in consultation with NPWS. Details of any specific requirements would be included in the Traffic and Transport Management Plan.	Construction Operation
Impacts on Crown land	Temporary and permanent impacts and use of Crown land will be undertaken in accordance with any licences required to be obtained in accordance with the Crown Land Management Act 2016 and in consultation with Department of Planning, Housing and Infrastructure (Crown Lands).	Pre-construction
Impact on land subject to Native Title claim	Transgrid will continue to consult with the Warrabinga-Wiradjuri Native Title Claimants about potential impacts to the claim area to assist Transgrid in understanding and appropriately managing potential land use issues that may arise.	Pre-construction Construction
Impacts on utilities	<p>The location of all utilities and services, and requirements for access to, diversion, protection and/or support of utilities will be confirmed prior to construction. This will include (as required) undertaking utilities investigations, including intrusive investigations, and consultation and agreement with service providers.</p> <p>In the event that service interruptions are required, notice will be given by the relevant asset owner.</p>	Pre-construction Construction

## 8. Conclusion

This report assesses the potential land use and agricultural impacts of the project in accordance with the SEARs and has been prepared with reference to with the relevant policy and guidelines.

During construction, the project would result in a temporary change in land use within the project footprint. Approximately 75 per cent of the proposed easement is located within an existing easement and the construction and operation of the project would not represent a major change to land use. Access to this land would be temporarily restricted during construction. Upon completion of construction, existing land uses could resume with some restrictions to land use where the easement has been widened. The project would result in the following key land use impacts during construction with other land use impacts considered to be negligible:

- Loss about 38.2 ha of grazing land for the duration of the construction period.
- Introduction of weeds, pests or diseases potentially impact adjacent agricultural lands to not be impacted directly by the project which can lead to increased management costs and a reduction of production.
- Loss of access to about 19.2 ha of the Gardens of Stone SCA for recreational users as well as some access impacts due to the use of access tracks within the SCA. These impacts are considered to be limited as areas impacts are not frequently used by SCA visitors.

Following construction, about 14.4 ha and 1.6 ha of agricultural and conservation lands (Gardens of Stone SCA) respectively would be returned to existing uses as this land is only required temporarily for construction. The positioning of the project predominately within existing transmission line easements has reduced the scale and intensity of impacts of the project. The project includes impacts to 12.6 ha and 13.8 ha of agricultural and conservation zoned lands respectively which are already subject to an easement and therefore would not represent any change from the existing use of the land.

About 24.2 ha and 3.9 ha of agricultural and conservation zoned lands (Gardens of Stone SCA) respectively would represent an additional impact due to the presence of new portion of easement. The impact on these land uses are follows:

- Use of agricultural land would largely be unrestricted, with the safety and operational requirements applied to the easement unlikely to impact upon the use of the land for existing activities (grazing).
- Overall, the impact on the use of the portion of the Garden of Stone SCA in the project footprint is considered to be minimal due to limited existing use of this portion of the SCA due to the absence of designated access tracks and recreational facilities.

The project would not contribute substantially to any cumulative land use impacts within the study area in terms of agricultural and nature conservation lands primarily due to the project not resulting in complete loss of use of impacted agricultural and conservation lands.

Mitigation and management measures are recommended to avoid, minimise and manage the potential impacts identified as far as practicable.

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# Appendices

# **Appendix A**

## **Land Use Conflict Risk Assessment**

## A-1 Land use conflict risk assessment

A Land Use Conflict Risk Assessment (LUCRA) has been undertaken to inform the land use and agricultural assessment, including the development of mitigation measures.

The LUCRA has been undertaken with reference to the *Land Use Conflict Risk Assessment Guide* (NSW DPI 2011) (the 'LUCRA Guide').

The LUCRA Guide notes that land use conflicts occur when one land use is perceived to infringe upon the rights, values or amenity of another. In rural areas, land use conflicts commonly occur between agricultural and residential uses. However, land use conflicts can and also occur between different agricultural enterprises and other primary industries including mining, forestry, aquaculture and fishing rural enterprises. The project would result in an activity that differs from the agricultural activities in the study area.

LUCRA is a system to identify and assess the potential for land use conflict to occur between neighbouring land uses. It helps land managers and consent authorities assess the possibility for and potential level of future land use conflict

## A-2 Approach

In accordance with the LUCRA Guide, undertaking a LUCRA involves four key steps:

1. Gather information about proposed land use change and associated activities for the project.
2. Evaluate the risk level of each activity on neighbouring land use.
3. Identify risk reduction management strategies.
4. Record LUCRA results.

The *LUCRA Guide* describes and records the major risk activities associated with the land use change and provides definitions and/or examples of probability and measures of consequence.

The risk ranking matrix in the *Land Use Conflict Risk Assessment Guide* (see Table A.1) was used to evaluate the potential risk level for identified land use conflict risks. The matrix identifies a risk rating of identified impacts based on the probability (P) of occurrence and the consequence (C) of the impact. A risk rating of 11 to 25 (shaded in grey) is deemed to be an unacceptable risk, while a risk rating of 1 to 10 is deemed to be an acceptable risk. The objective is to identify and define controls that lower the risk rating score to 10 or below. As required, mitigation and management measures to address the identified risks have been recommended in section 7.

Table A.1 Land use conflict risk ranking matrix

		Probability				
		A	B	C	D	E
Consequence		<b>Almost certain</b>	<b>Likely</b>	<b>Possible</b>	<b>Unlikely</b>	<b>Rare</b>
	<b>1. Severe</b>	25	24	22	19	15
	<b>2. Major</b>	23	21	18	14	10
	<b>3. Moderate</b>	20	17	13	9	6
	<b>4. Minor</b>	16	12	8	5	3
	<b>5. Negligible</b>	11	7	4	2	1

## A-3 Assessment results

The results of the LUCRA assessment are outlined in Table A.2.

Table A.2 Land use conflict risk assessment

Risk activity	Identified potential conflict	Risk ranking			Mitigating factors (method of control)	Controlled ranking		
		P	C	RR		P	C	RR
<b>Dust generation</b>	During construction, there is the potential for airborne dust from vehicle movements and construction activities to settle on crops and pastures reducing the quality and/or yield. Air quality within and surrounding the project footprint is expected to be consistent with other land uses including mining, power generation and agricultural activities. The impact of dust generated by construction activities is likely to be minor due to the limited earthworks and amount and duration of traffic flow across the project footprint.	C	3	13	Chapter 16 (Air Quality) of the EIS provides an assessment of the air quality impacts of the project. The results are summarised in chapter 16 (Air quality) of the EIS. Key relevant mitigation measures include: <ul style="list-style-type: none"> <li>– Preparing a construction dust control protocol that details management measures, a method for recording dust complaints, and monitoring requirements.</li> <li>– Undertaking dust suppression measure as required using water sprays, water extension agents and soil stabilising polymers or other media as required.</li> <li>– Disturbed surfaces that do not form part of the operational footprint would be left in a stable, and weed free condition, with rehabilitation to occur as soon as practicable after completion of construction works.</li> </ul>	D	4	5
<b>Changes to fencing</b>	Construction activities may result in fences temporarily cut and/or permanently realigned to improve access efficiency. Unless repaired or appropriately planned, cut fences could result in unintended livestock mixing which in turn could disrupt planned breeding programs, require added costs to muster and draft livestock.  Work crews accessing private property could potentially leave gates open, in advertently allowing stock to stay onto private property or onto public roads.	B	4	12	Survey and fencing works (where required) would be completed prior to the commencement of main construction works to support both construction and operation access requirements.  Fences with adjoining agricultural land would need to be maintained in a condition to minimise the possibility of livestock straying onto adjoining properties or non-agricultural land. The maintenance of shared boundary fencing between landowners to be confirmed.	D	4	5
	For operational activities, continued access to the permanent easement will be necessary for inspections and to follow-up issues identified from inspections.	D	4	5	The project would be operated in accordance with Transgrid's existing operational procedures which would be applied to the upgraded transmission line. This would include operation of the easement in line with any existing property agreements which would be modified to reflect the increase width of easement on any one property.	E	4	3

Risk activity	Identified potential conflict	Risk ranking			Mitigating factors (method of control)	Controlled ranking		
		P	C	RR		P	C	RR
Bushfire	<p>Risk of igniting vegetation during construction and fire escaping and entering agricultural properties or forestry land during construction activities.</p> <p>The greatest potential for bushfire ignition and spread is during the construction phase.</p> <p>Construction activities that have the potential to initiate bushfire include:</p> <ul style="list-style-type: none"> <li>– hot works – sparks from metal grinding, cutting, welding or other works capable of producing sparks which can land in dry, fine vegetative fuels.</li> <li>– vehicle use – vehicles driven or parked off-road in long vegetation can be ignited if contact is made with hot engine parts such as exhaust system components.</li> <li>– onsite unapproved human activity (smoking) – cigarette butts discarded by smokers into vegetative fuels.</li> <li>– storage of combustible materials – combustible materials stored for use during construction can be ignited if sparks or flames are accidentally introduced to the area.</li> <li>– machinery use – the use of specialised slashers, mulching machines and bulldozers used for clearing vegetation or excavation can cause sparks from friction with rocks.</li> </ul> <p>These activities will create new risk exposure sin the landscape, both off and on-site.</p> <p>The ignition of vegetation during operation and maintenance has the potential to cause a bushfire. An additional source of a bushfire during operation and maintenance is the escalation of a loss of containment event igniting and subsequently causing a bushfire. This was rated as an intermediate risk during operation.</p>	C	3	13	<p>The Bushfire Risk Assessment appended to Technical Report 9 – Hazards and Risk Assessment provides an assessment of the potential bushfire impacts of the project. The key mitigation measures to control the bushfire risk for the project would be managed through the implementation of a Bushfire Management Plan and a Bushfire Emergency Management and Evacuation Plan as part of the CEMP.</p> <p>The Bushfire Management Plan will contain bushfire protection measures for the construction and operational phases of the project based on guidance from PBP, electrical network industry sources and Transgrid’s standard bushfire risk management procedures.</p>	D	4	5
	<p>For operational phase, the transmission line will be designed and constructed to Transgrid’s Transmission Line Design Standard, which complies with Australian Standard AS/NZS 7000:2016 Overhead Line Design. 330 kV transmission lines traversing landscapes of a similar nature to this project have low vulnerability to bushfire impact and due to their robust, non-combustible, high reliability design, it is very rare for 330 kV lines to cause fire ignition.</p>	C	4	8	<p>The project would replace the existing wood pole structures to steel and concrete transmission structures which are non-flammable by nature, improving the resilience to bushfire.</p> <p>Significant upgrades and improvements to access roads and tracks for the project results in a net benefit for local bushfire risk. This improves access for emergency services, as well as egress for local owners and occupiers in the event of a bushfire threat.</p>	D	4	5

Risk activity	Identified potential conflict	Risk ranking			Mitigating factors (method of control)	Controlled ranking		
		P	C	RR		P	C	RR
<b>Lighting</b>	<p>Construction of the project might result in lights impacting on adjoining rural properties at the end of workday during non-daylight-saving hours.</p> <p>Proposed core working hours are proposed to be 7am to 7pm Monday to Sunday.</p> <p>Extended hours and out-of-hours construction will likely be required between 7 pm to 7am Monday to Sunday and public holidays, to align with scheduled outages.</p> <p>There is no permanent lighting proposed as part of the project, hence there are unlikely to be any night lighting visual impacts during operation.</p>	D	4	5	<p>The Technical Report 7 – Landscape Character and Visual Impact Assessment provides an assessment of potential visual (including lighting) impacts of the project. The results are summarised in the assessment and key relevant mitigation measures include:</p> <p>Proposed work hours to be 7am to 7pm Monday to Sunday. However, some out of hour's work may be required during construction and would require the use of daymakers (portable construction lighting for night works). Details of times and locations of night works would be provided in later stages. Refer to the noise and vibration section below for the out of hours work protocol.</p>	E	4	3
<b>Noise and vibration</b>	<p>Construction activities as a result of site establishment, vegetation clearing and civil works could generate noise above relevant criteria affecting human amenity and/or livestock.</p> <p>During operation, there would be minimal noise from maintenance activities.</p>	C	3	13	<p>The Noise and Vibration Impact Assessment (Technical Report 10) provides an assessment of potential noise and vibration impacts of the project.</p> <p>Key relevant mitigation measures include:</p> <ul style="list-style-type: none"> <li>– Preparing and implementing a construction noise and vibration management plan as part of the CEMP.</li> <li>– Development of a project specific out-of-hours work protocol (OOHW protocol) to define the process for considering, approving and managing out-of-hours work.</li> </ul> <p>Further details on the mitigation and management measures proposed to alleviate impacts from noise and vibration are outlined in Noise and Vibration Impact Assessment.</p>	D	4	5

Risk activity	Identified potential conflict	Risk ranking			Mitigating factors (method of control)	Controlled ranking		
		P	C	RR		P	C	RR
<b>Road use (safety and access)</b>	<p>Increased traffic movements during maintenance activities could affect safety and access for surrounding agricultural landowners and their vehicle and livestock movements, while heavy vehicle use has the potential to deteriorate road conditions and access to agricultural properties during construction.</p> <p>Earthworks would require the use of excavation plant such as bulldozers, excavators, graders, and bobcats which could damage internal roads, crossings etc. and temporarily limit access to and through a property (particularly following periods of heavy rainfall).</p> <p>Operational access tracks could deteriorate over time resulting in safety and/or access issues.</p>	B	3	17	<p>The Technical Report 8 – Traffic and Transport Assessment provides an assessment of the potential traffic and transport impacts as a result of the project.</p> <p>Key relevant mitigation measures include:</p> <ul style="list-style-type: none"> <li>– A Construction Traffic Management Plan as part of the CEMP will be prepared prior to construction which will detail any required traffic management processes and responsibilities, traffic control measures and approved haulage routes to and from the site.</li> <li>– Access tracks would be upgraded (including any required drainage), and works would involve minor amounts of cut and fill, depending on the ground conditions.</li> <li>– Existing access tracks would be used in preference to new tracks wherever possible. Tracks not required for future maintenance activities would be restored to their previous condition unless otherwise agreed with landowners in accordance with individual Property Management Plans to be developed as part of mitigation outlined in section 7.</li> <li>– Further detail on the mitigation and management measures proposed to avoid unnecessary impacts and address the potential for contingency events associated with traffic and transport are outlined in Traffic and Transport Assessment (GHD 2025).</li> <li>– During operation, Transgrid would undertake inspection and maintenance activities in accordance with their standard operating procedures to allow for safe access to the transmission line and structures.</li> </ul>	D	4	5
<b>Erosion</b>	<p>Disturbance of in situ soils and removal of protective vegetation as a result of construction activities has the potential to result in erosion. Potential activities that could result in erosion include earthworks, excavation, clearing and grubbing, and any other activities where the existing surface is disturbed.</p>	C	3	13	<p>To appropriately manage erosion during construction, a Soil and Water Management Plan (SWMP) and an Erosion and Sediment Control Plan (ESCP) will be implemented in accordance with the Blue Book. This should include the staging of construction activities into manageable portions, regular inspection of these controls and maintenance activities to ensure effectiveness of these controls.</p>	D	4	5

Risk activity	Identified potential conflict	Risk ranking			Mitigating factors (method of control)	Controlled ranking		
		P	C	RR		P	C	RR
<b>Weeds and pests (Biosecurity)</b>	Vehicle and personnel movements between properties during construction have the potential to introduce or spread weeds, pests and diseases onto a property. In addition, soil disturbance could reduce competition against current weeds and necessitate increased control costs. Weed incursions or proliferation would reduce pasture and livestock production unless properly controlled.	B	3	17	<p>This report provides an assessment of the potential biosecurity impacts on agricultural land. The results are summarised in section 6.1.3.</p> <p>Key relevant mitigation measures include:</p> <ul style="list-style-type: none"> <li>– The CEMP will detail measures to minimise the potential for biosecurity risks during construction in accordance with the <i>Biosecurity Act 2015</i>.</li> <li>– Weed and pest control, including for noxious weed and pests, would be subject to ongoing routine monitoring and management and consultation with relevant regulatory bodies and landowners as required.</li> </ul>	D	4	5
	Continued access to the permanent easement would be necessary for inspections and to follow-up issues identified from inspections. This ongoing access has the potential to introduce or spread weeds, pests and diseases onto a property.	B	3	17	<p>This report provides an assessment of the potential biosecurity impacts on agricultural land. The results are summarised in section 6.2.3.</p> <p>Key relevant mitigation measures include:</p> <ul style="list-style-type: none"> <li>– Biosecurity management measures would form part of the ongoing operational management of the project to minimise the potential for biosecurity risk during maintenance activities in accordance with the General Biosecurity Duty and <i>Biosecurity Act 2015</i> and the regional weed management plans. The current agricultural leaseholder has responsibility for managing the weeds on grazing land as per their obligations in accordance with the General Biosecurity Duty.</li> <li>– The project would be operated in accordance with Transgrid's existing operational procedures which would be applied to the upgraded transmission line. This would include operation of the easement in line with any existing property agreements which would be modified to reflect the increase width of easement on any one property. Such agreements include procedures to ensure that agricultural properties are not impact by biosecurity risks which are currently mentioned along the existing transmission line.</li> </ul>	D	4	5

Risk activity	Identified potential conflict	Risk ranking			Mitigating factors (method of control)	Controlled ranking		
		P	C	RR		P	C	RR
<b>Landscape and visual amenity</b>	The project requires the removal, adjustment and replacement of existing transmission structures along the existing 330 kV transmission lines (Line 70/71) and the 132 kV transmission line (Line 94E) and therefore would have effects on amenity for surrounding landowners with views to permanent transmission infrastructure. Transmission lines are supported on a series of free-standing, steel lattice or pole structure ranging in height from 24 m to 60 m. The structures would be generally spaced between 100 to 500 m apart and the poles about 30 to 50 m apart.	C	4	8	The Technical Report 7 – Landscape Character and Visual Impact Assessment concluded that Landscape Character Zones (LCZs) except for LCZ1 have a low overall landscape character impact rating. LCZ1’s Moderate-Low rating is due primarily to the Moderate sensitivity rating associated with the Gardens of Stone SCA.  Key relevant mitigation measures include: <ul style="list-style-type: none"> <li>– Reviewing opportunities to retain and protect existing trees within the project footprint during later design stages to retain as much natural bushland character as possible. Opportunities to investigate screening vegetation on private properties in consultation with potentially affected landowners.</li> </ul>	D	4	5



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