Transport for NSW

HW9 s1660,1665,1670, 1680,1690,1700 Sidling Hill Safety Works

Minor works review of environmental factors

January 2023

NSW GOVERNMENT

transport.nsw.gov.au

Acknowledgement of Country

Transport for NSW acknowledges the Kamilaroi people, the traditional custodians of the land on which the Sidling Hill Project is proposed.

We pay our respects to their Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Songlines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.

MW REF approval and authorisation

Approved by	Mitchel Ingram - Project Manager
Signed	
Date	14/04/2023

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1. Introduction

The purpose of the Minor Works review of environmental factors (REF) is to describe the proposal, to document the likely impacts of the proposal on the environment, to detail mitigation measures to be implemented and to determine whether or not the proposal can proceed. For the purposes of this work Transport for NSW (Transport) is the proponent and determining authority under Division 5.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The description of the proposed works and assessment of associated environmental impacts has been undertaken in the context of section 171 of the *Environmental Planning and Assessment Regulation 2021,* Guidelines for Division 5.1 Assessments (DPE, 2022), the *Biodiversity Conservation Act 2016 (NSW)* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)* (EPBC Act).

In doing so the REF helps to fulfil the requirements of section 5.5 of the EP&A Act including that Transport examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act.
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- The potential for the proposal to significantly impact a matter of national environmental significance, including nationally listed threatened biodiversity matters, or the environment of Commonwealth land. Where a significant impact is considered likely on nationally listed biodiversity matters, either the proposal must be reconsidered or a Project REF must be prepared.

2. The proposal

2.1 Description

2.1.1 Proposal location details

Table 2.1: Proposal location details

Location details	
Title	Willow Tree to Uralla Safety Works - Sidling Hill
File number	fA12608280
Road name and number	New England Highway (HW9)
Closest crossroad(s)	New England Highway (HW9), Rimbanda Road
Chainage of works	CH62863-68725, Segments 1660,1665,1670,1680,1690, and 1700
Local government area	Tamworth Regional
Transport for NSW region	North Region

2.1.2 Proposal location description

Transport for NSW (TfNSW) proposes to upgrade a 5.85 km section of the New England Highway (HW9) at Kentucky. The primary purpose of the works is to upgrade the highway to improve road safety.

Key features of the proposal include:

- Widening sealed shoulder width to a minimum of 1 m, desired up to 3 m, where achievable.
- Implementation of 1 m wide centre line treatment (WCLT) for all six segments.
- Heavy patching pavement works to reinstate surface condition prior to reseal.
- Shape correction pavement works where required to reinstate cross fall and super-elevation on curves.
- Culvert extensions, potential replacements only if required, lining treatments if required. Noting that drainage structure works are minimal for this project. Refer to below section on drainage structure works for more specific details.
- Culvert desilting, inlet/outlet desilting, and inlet/outlet re-stabilisation via rock or jute matt lining as appropriate.
- Longitudinal SO kerb (concrete dish drain) adjacent to some of the cuttings were nominated in the design, bedding on No Fines Concrete (NFC) with a trench drain for subsurface drainage. SO kerb is planned on the cut side (North-bound (NB)) on Sidling Hill to achieve a wider cross section similar to what was constructed for the Rimbanda Project. Some SO kerb is also planned on the southbound (SB) side where required.
- Installation of new flexible guardrail roadside safety barriers.
- Minor earthworks as required for SO kerb excavation, shoulder widening box out, trimming back small cut faces where needed, small embankment widenings for the overtaking lane (OTL) extension. Large scale earthworks such as high embankment widenings and widening of cuts has been avoided in the scoping of this project.
- Overtaking lanes adjustments including constructing a run-off area for existing NB overtaking lane and lengthening of the start of the SB overtaking lane by extending to the north.
- Removal of regrowth vegetation to maintain table drain functionality, maintain safe site distances, and for roadside safety hazards.

- Removal of general regrowth vegetation in the disturbed zone under what is permissible in accordance with environmental assessment for routine and minor works and applicable standard safeguards. For example, regrowth vegetation <10 years old growing within table drains and the existing disturbed zone.
- Removal of mature trees some of which are outside the existing disturbed zone, refer to vegetation scope for further details.
- Trimming of overhanging tree branches.
- Maintenance of existing table drains/catch drains involving, desilting where needed, erosion prevention treatments where needed such as geofabric and rock lining, or jute mesh as appropriate to the location considering longitudinal grade and catchment.
- New sprayed seal wearing surface and linemarking.
- Roadside signage maintenance or improvements as identified throughout the design process.

The proposal is anticipated to involve the following work methodology:

1. Establish site compound
2. Implement traffic management plans
3. Delineate no-go zones and any vegetation to be protected
4. Install sediment and erosion controls
5. Mulch long grass and regrowth vegetation within disturbed zone
6. Establish spoil site including sed and erosion controls
7. Undertake vegetation removal works
8. Extend culverts and culvert inlet/outlet treatments as per scope
9. Excavate for SO kerb and pavement widenings progressively
10. Construct SO kerbs including underlying subsoil drains
11. Construct pavement in front of SO kerbs
12. Construct the shoulder widening and pavement widening for the OTL extension
13. Reseal prep Heavy Patch the existing pavement
14. Seal the surface with a bituminous sprayed seal (primerseal)
15. Undertake any required table drain maintenance as the works progress through the sections
16. Install roadside safety barriers
17. Install new/replace/relocated roadside signage as required
18. Install pavement delineation, longitudinal, and transverse linemarking
19. Disestablish site
20. Final seal approximately 12 months later
21. Install pavement delineation, longitudinal, and transverse linemarking
22. Install retro-reflective raised pavement markers (RPMs)

Equipment/Machinery to be used include:

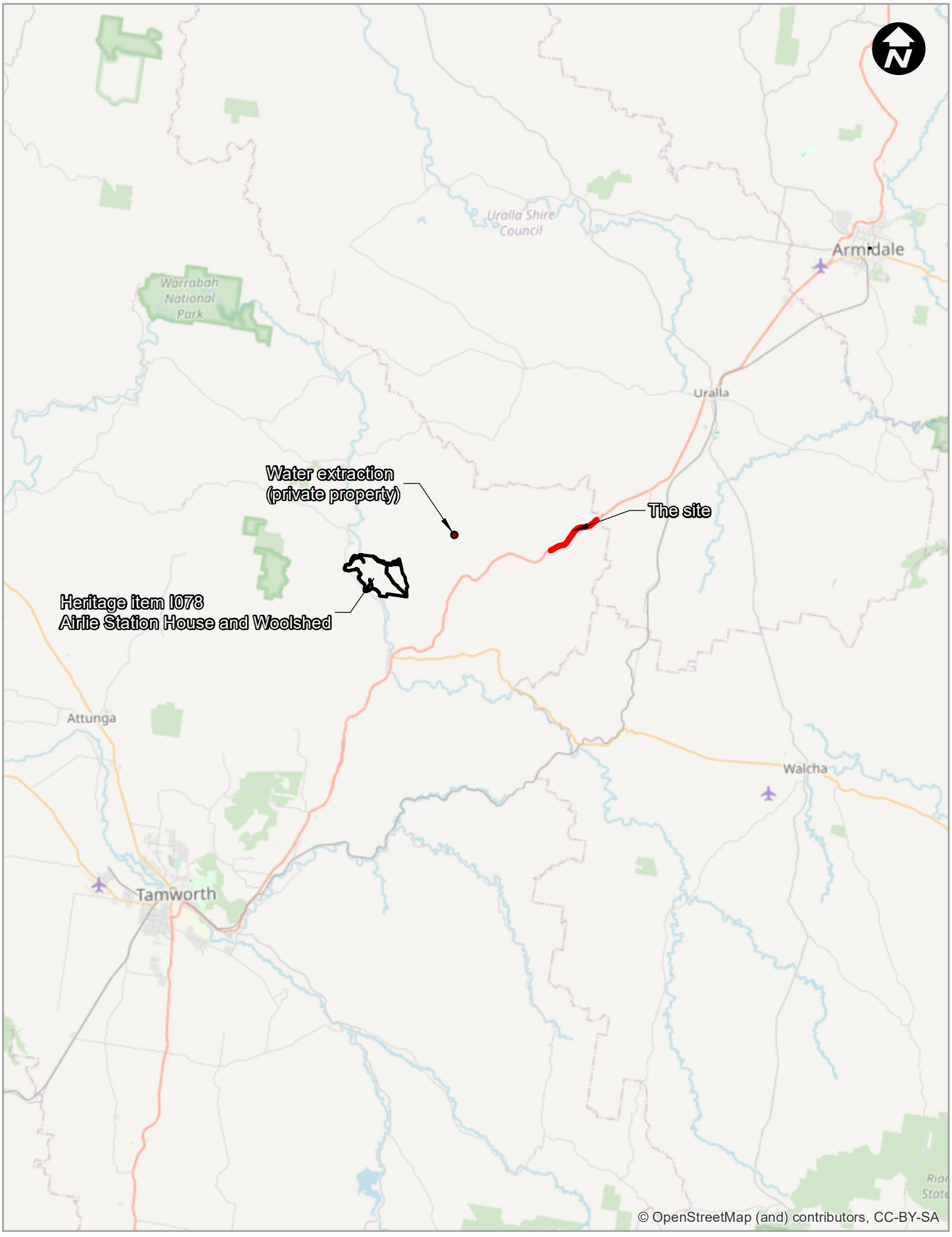
- Rollers
- Graders
- Front end loaders
- Skid steel loaders
- Backhoe
- Excavators
- Trucks – Tippers, spreaders, truck and dogs, floats
- Road Profilers
- Pulveys/Mixers
- Bitumen sprayers
- Bitumen tankers
- Watercarts
- Woodchippers
- Stump grinders
- EWPs
- Chainsaws
- Concrete saws for culvert works
- Tractor brooms
- Street sweepers and suction trucks
- Post drivers for guardrail installation
- Forklift/material handler

Work will be carried out during the below working hours:

- 7am to 6pm Monday to Fridays
- 7am to 6pm Saturdays
- Sundays and Public Holidays – No work

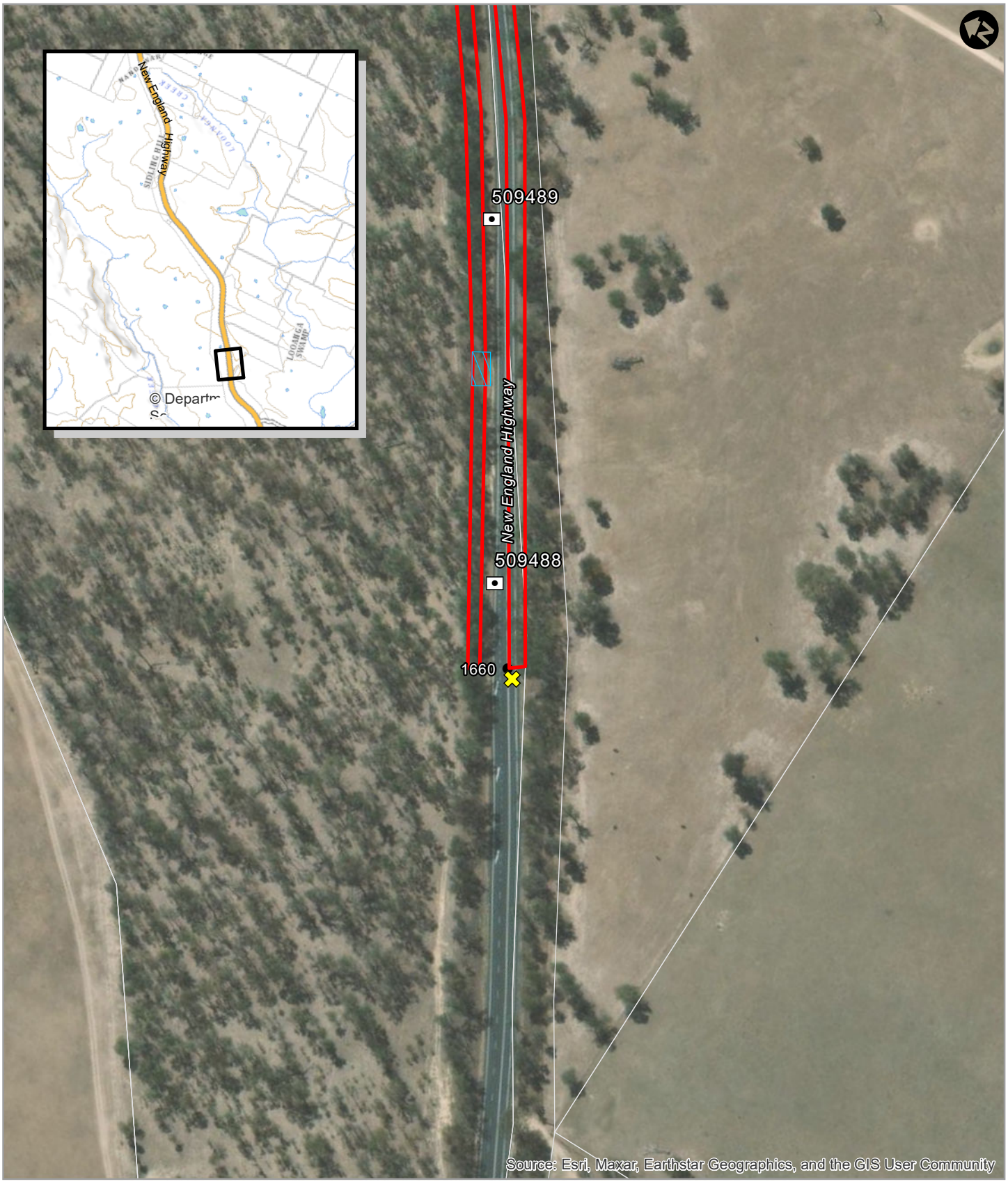
Exceptions to the above working hours include:

- Emergency works, such as that needed after heavy rainfall to restore a safe road surface
- Dust suppression which is required over weekends, public holidays, and holiday periods



0 10 km

Location of Works - Illustration 2.1



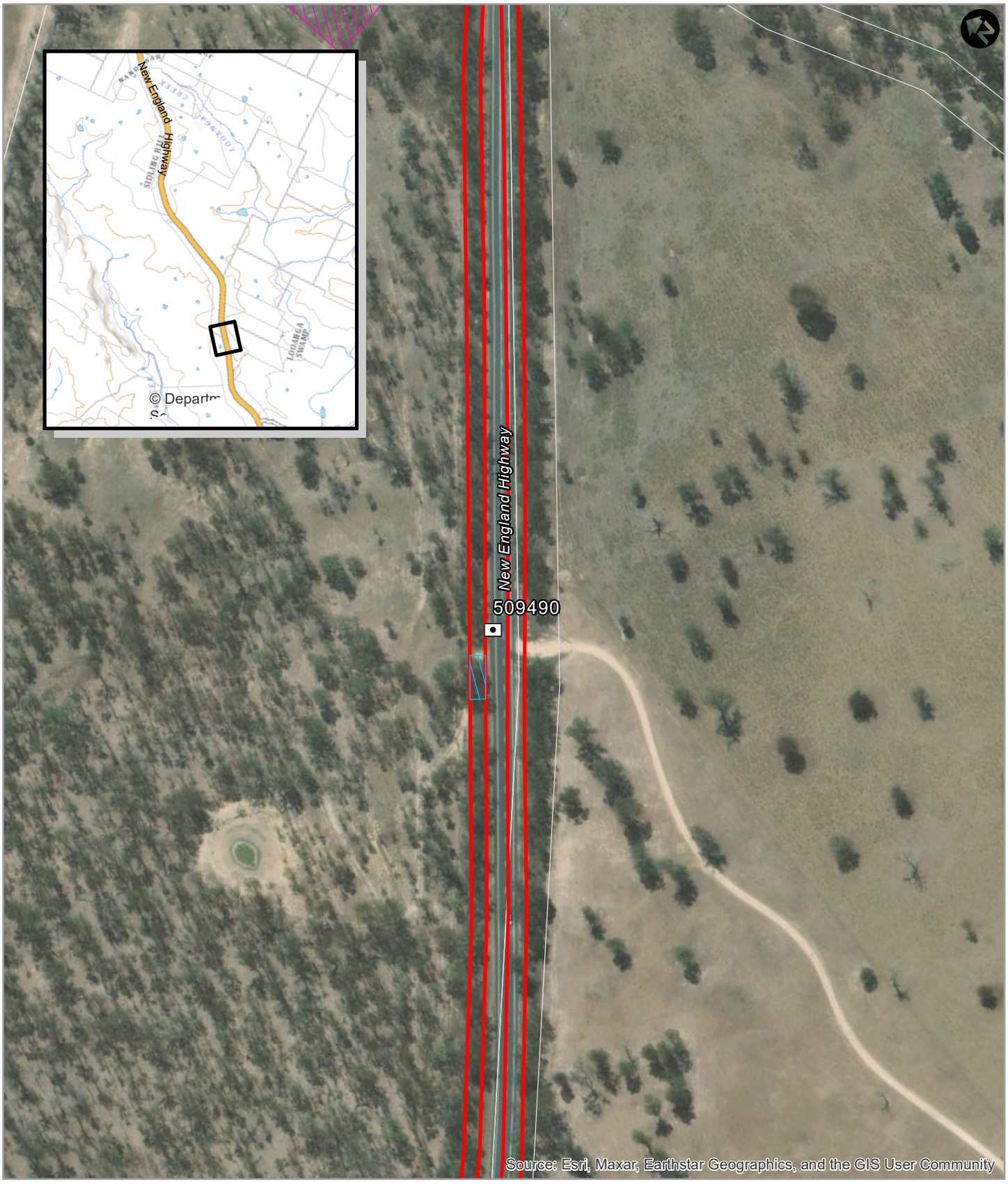
LEGEND

- Assessment area
- Cadastre
- Plant parking
- Culvert
- Sidling Hill segment start

0 50 Metres

Works Area
Illustration 2.2 - Sheet 1 of 12

Information shown is for illustrative purposes only
Drawn by: AB Checked by: RE Reviewed by: TJC
Source of base data: ESRI World Imagery
Date: 21/12/2022
Revision: A



LEGEND

- Assessment area
- Cadastre
- Compound site
- Plant parking
- Culvert

0 50 Metres

Works Area
Illustration 2.2 - Sheet 2 of 12

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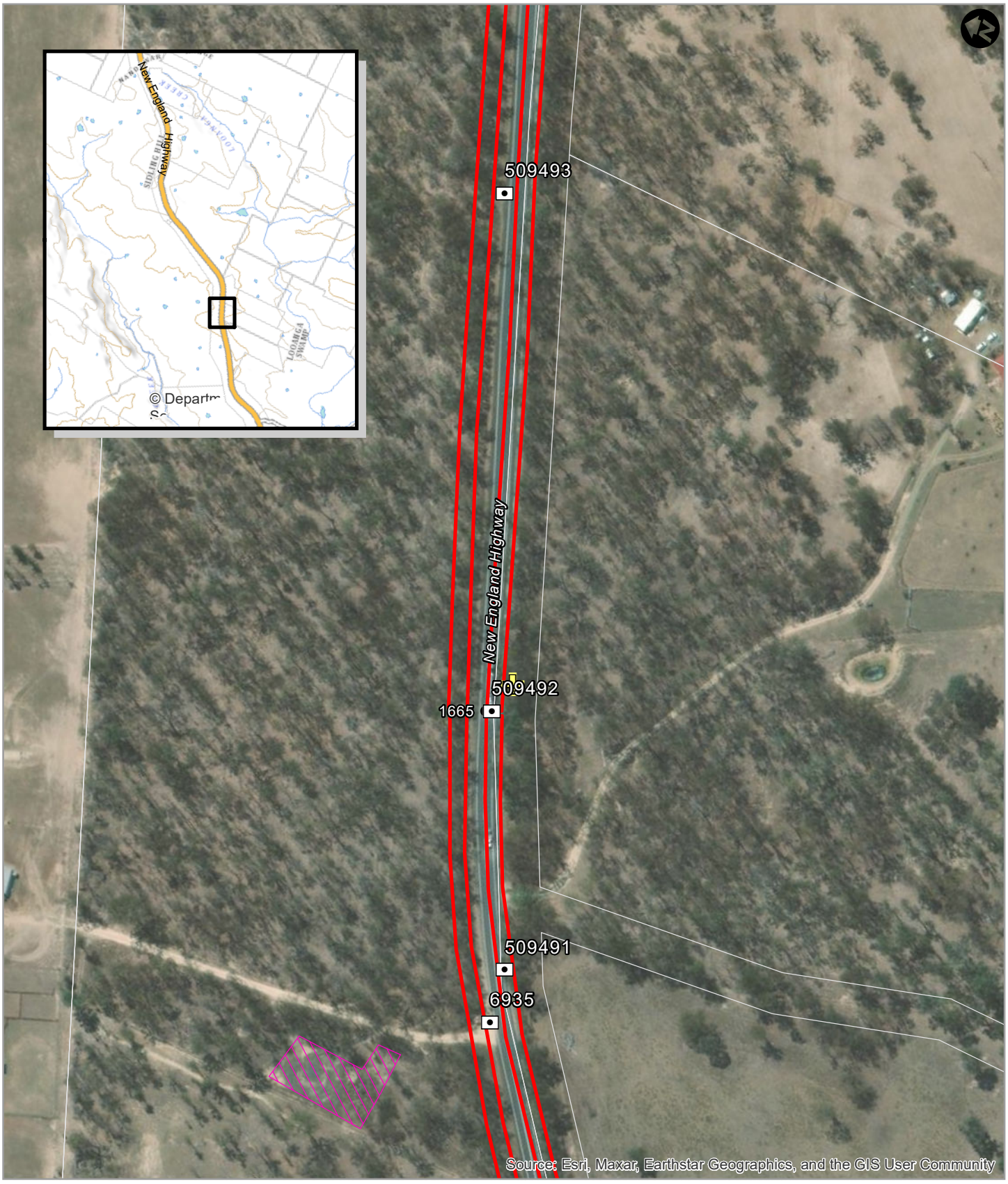

LEGEND

- Assessment area
- Cadastre
- Compound site
- Culvert
- Memorial
- Sensitive receiver

0 50 Metres

Works Area
Illustration 2.2 - Sheet 3 of 12

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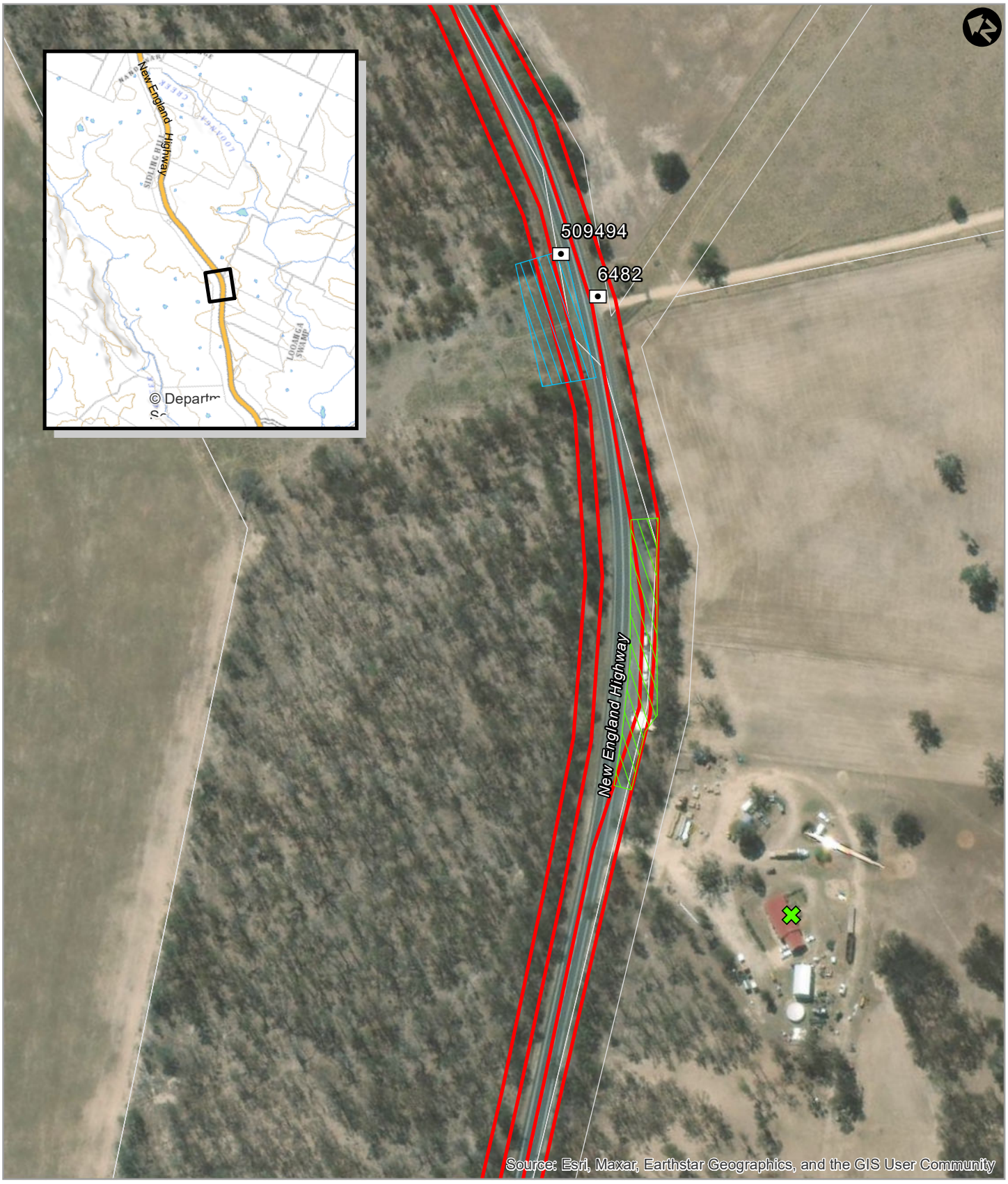

LEGEND

- Assessment area
- Cadastre
- Plant parking
- Plant parking / compound site
- Culvert
- Sensitive receiver

0 50 Metres

Works Area
Illustration 2.2 - Sheet 4 of 12

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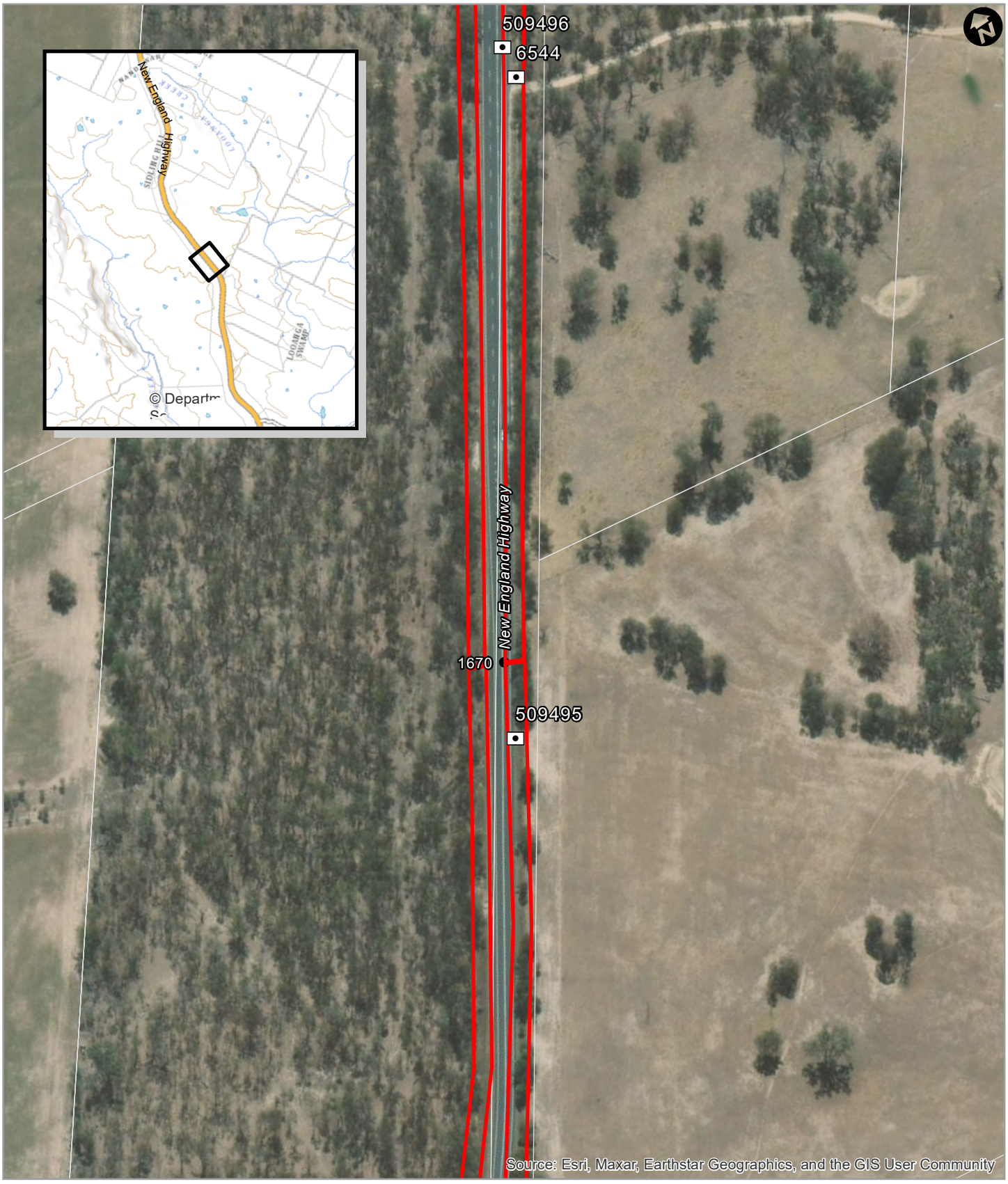

LEGEND

- Assessment area
- Cadastre
- Culvert

0 50 Metres

Works Area
Illustration 2.2 - Sheet 5 of 12

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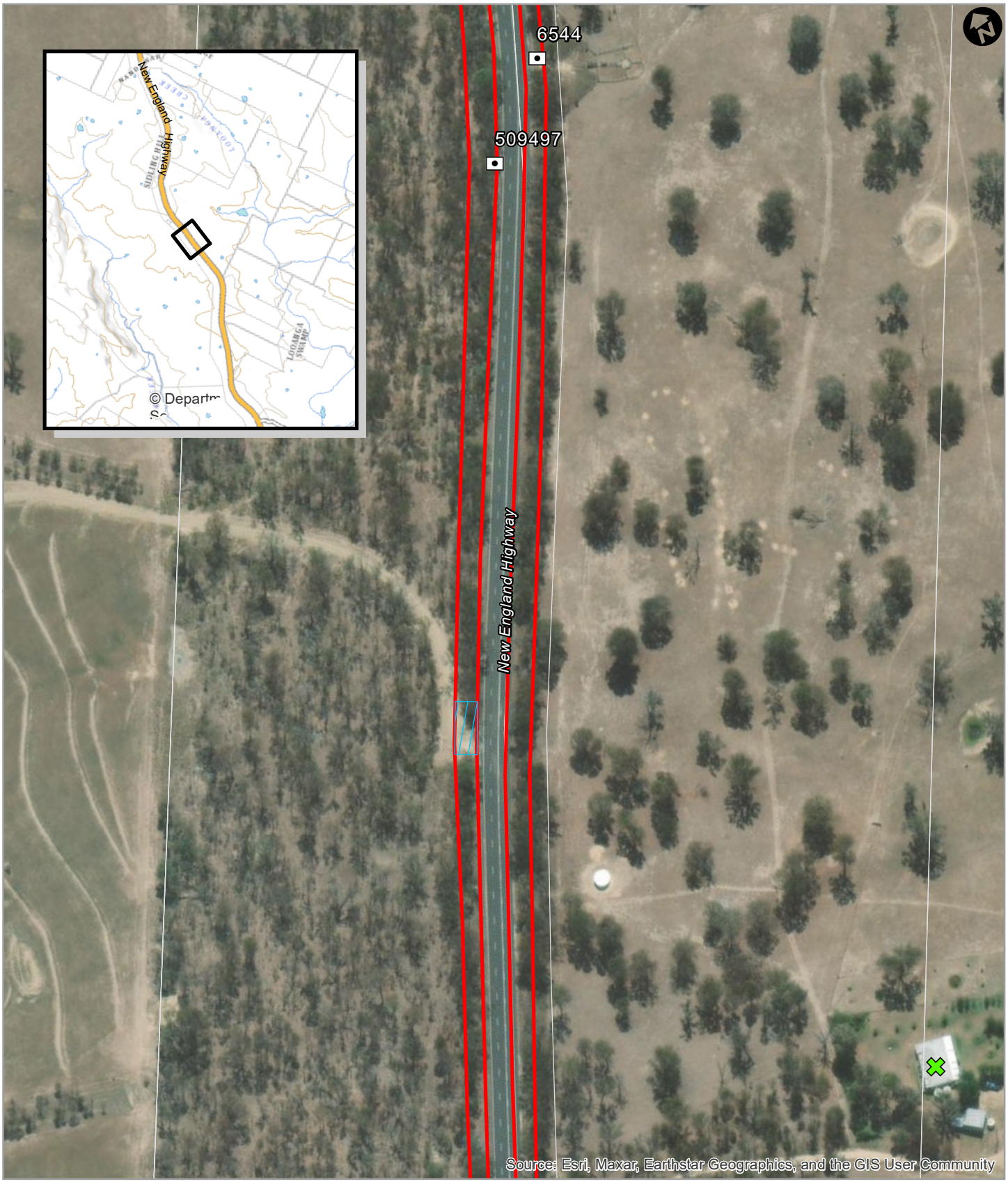

LEGEND

- Assessment area
- Cadastre
- Plant parking
- Culvert
- Sensitive receiver

0 50 Metres

Works Area
Illustration 2.2 - Sheet 6 of 12

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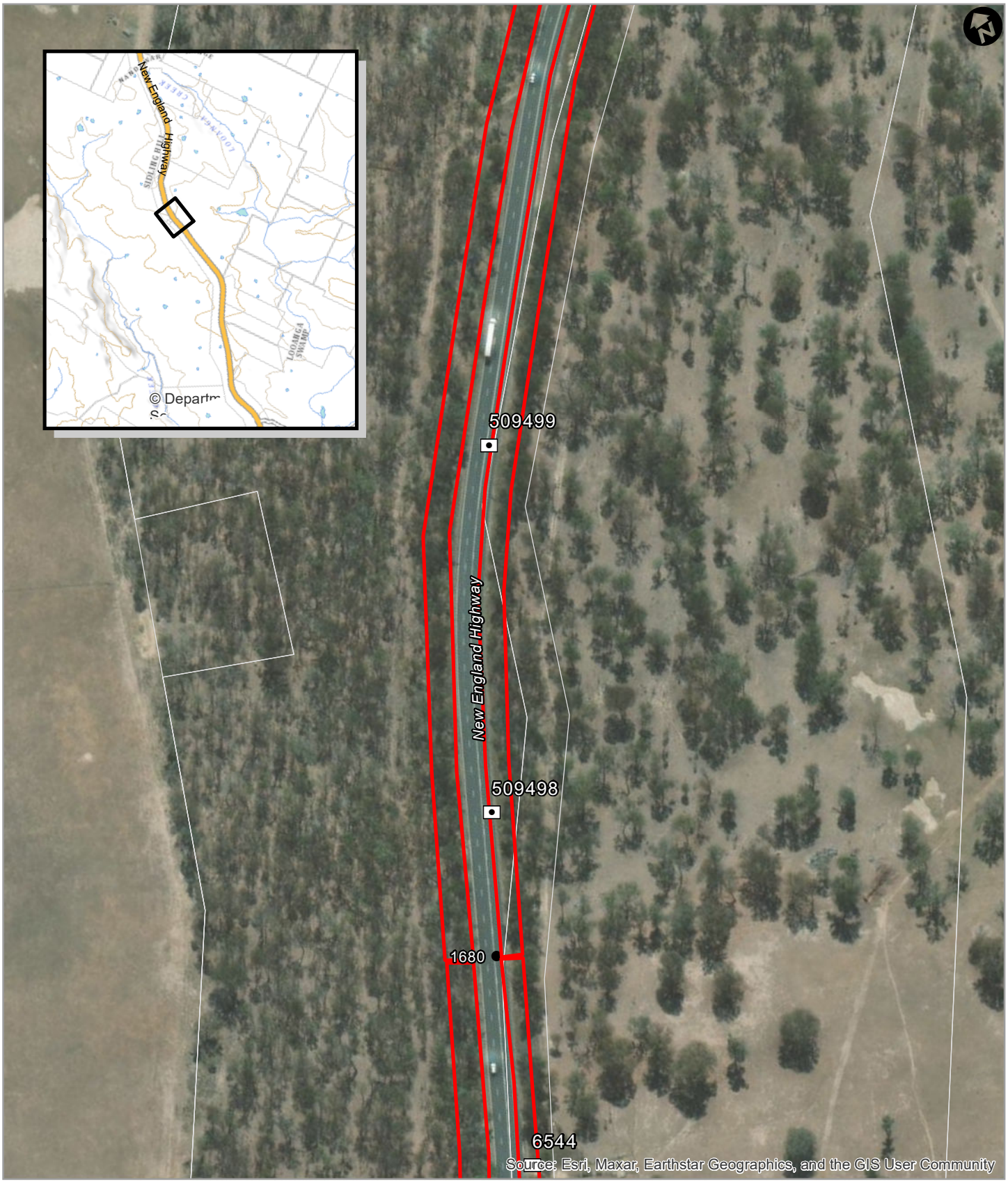

LEGEND

- Assessment area
- Cadastre
- Culvert

0 50 Metres

Works Area
Illustration 2.2 - Sheet 7 of 12

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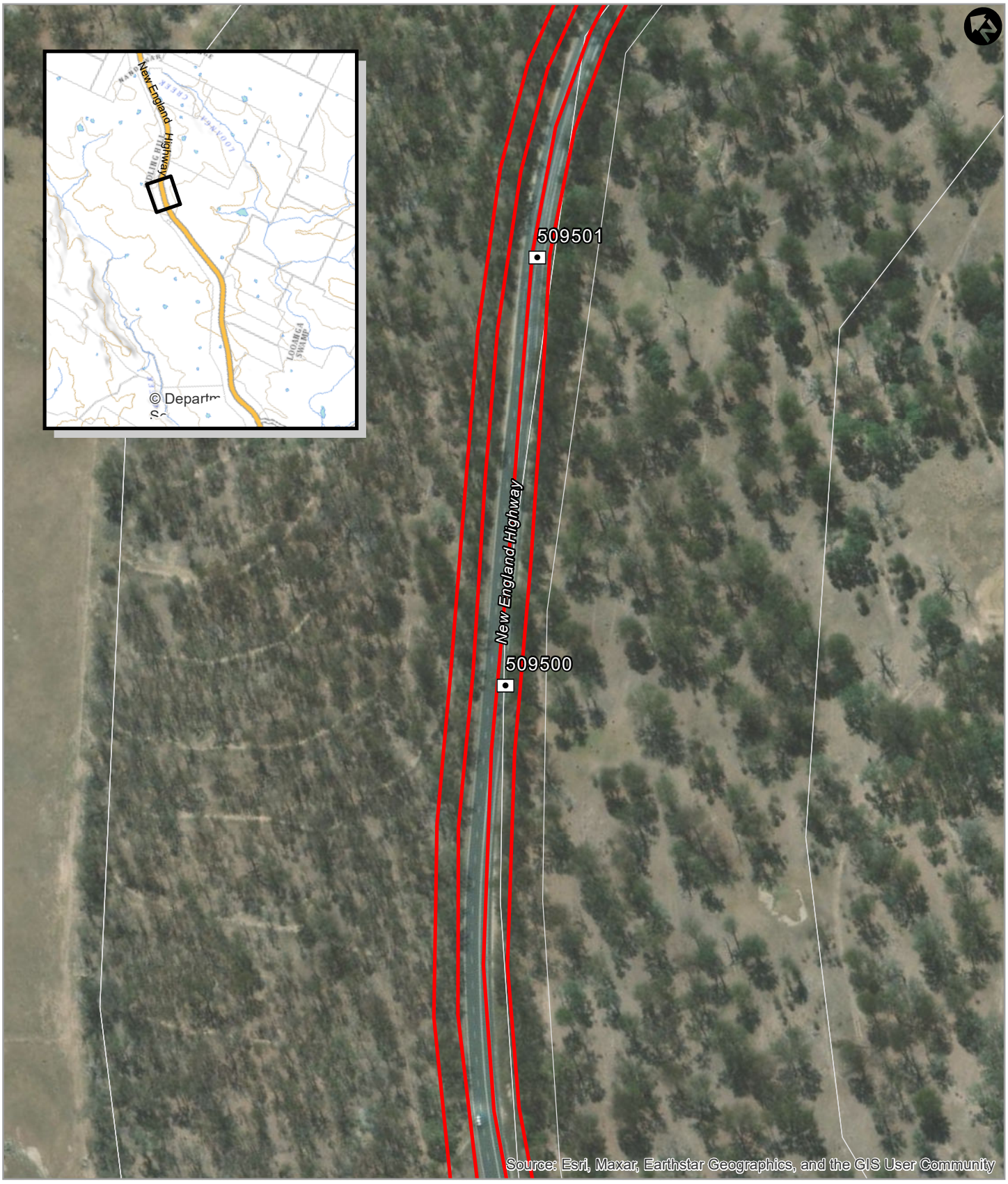

LEGEND

- Assessment area
- Cadastre
- Culvert

0 50 Metres

Works Area
Illustration 2.2 - Sheet 8 of 12

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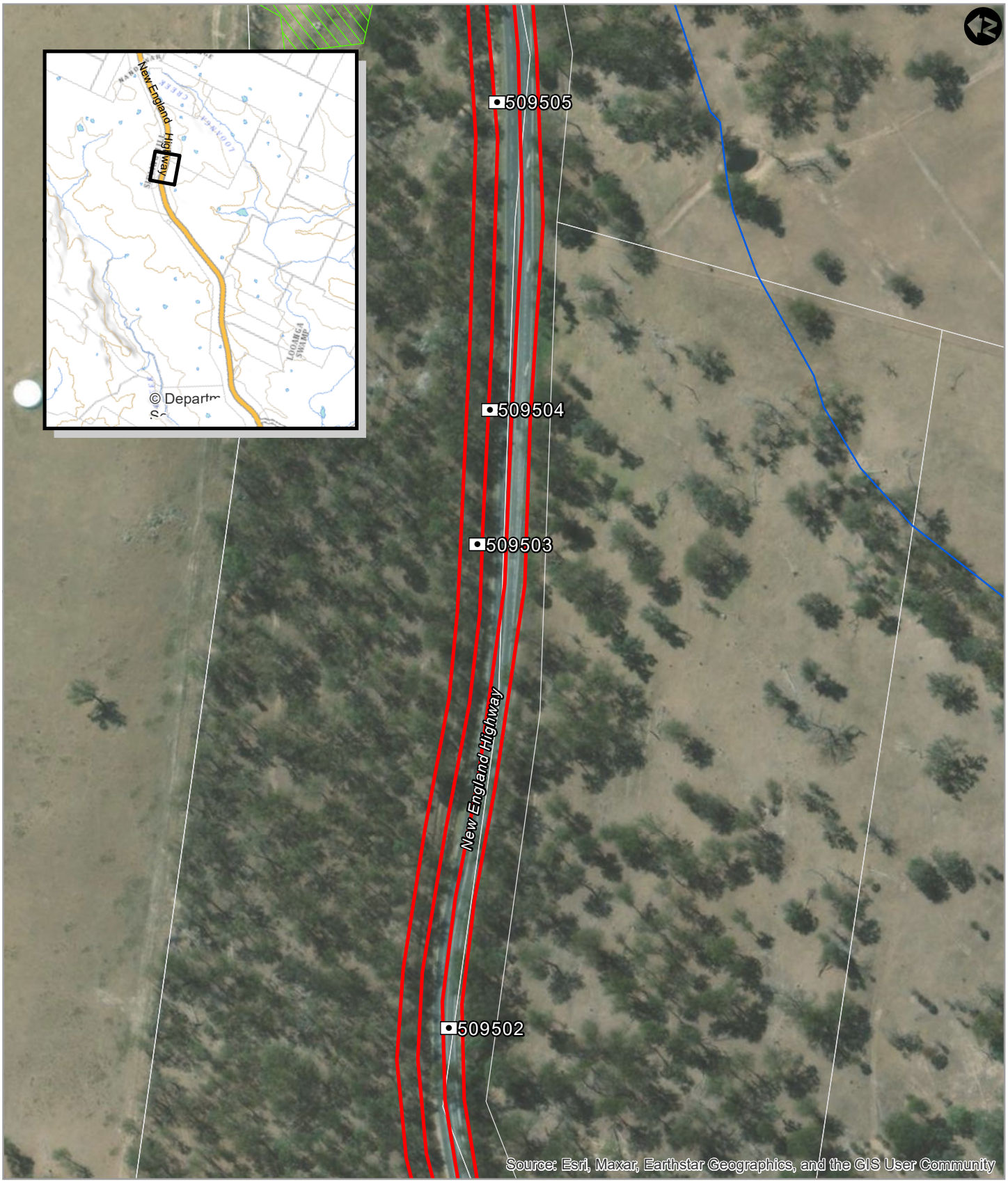

LEGEND

- Assessment area
- Cadastre
- Plant parking / compound site
- Watercourse
- Culvert

0 50 Metres

Works Area
Illustration 2.2 - Sheet 9 of 12

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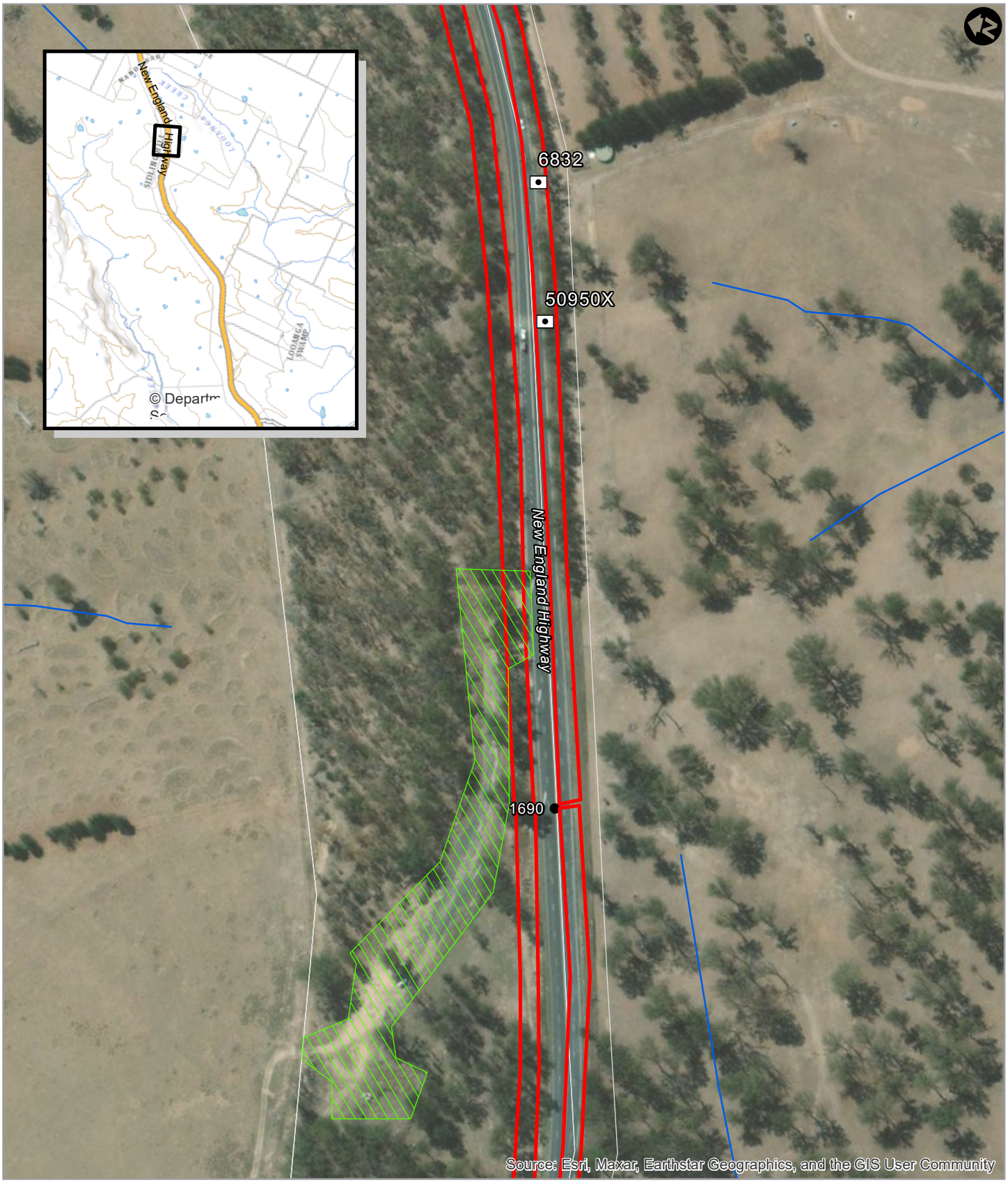

LEGEND

- Assessment area
- Cadastre
- Plant parking / compound site
- Watercourse
- Culvert

0 50 Metres

Works Area
Illustration 2.2 - Sheet 10 of 12

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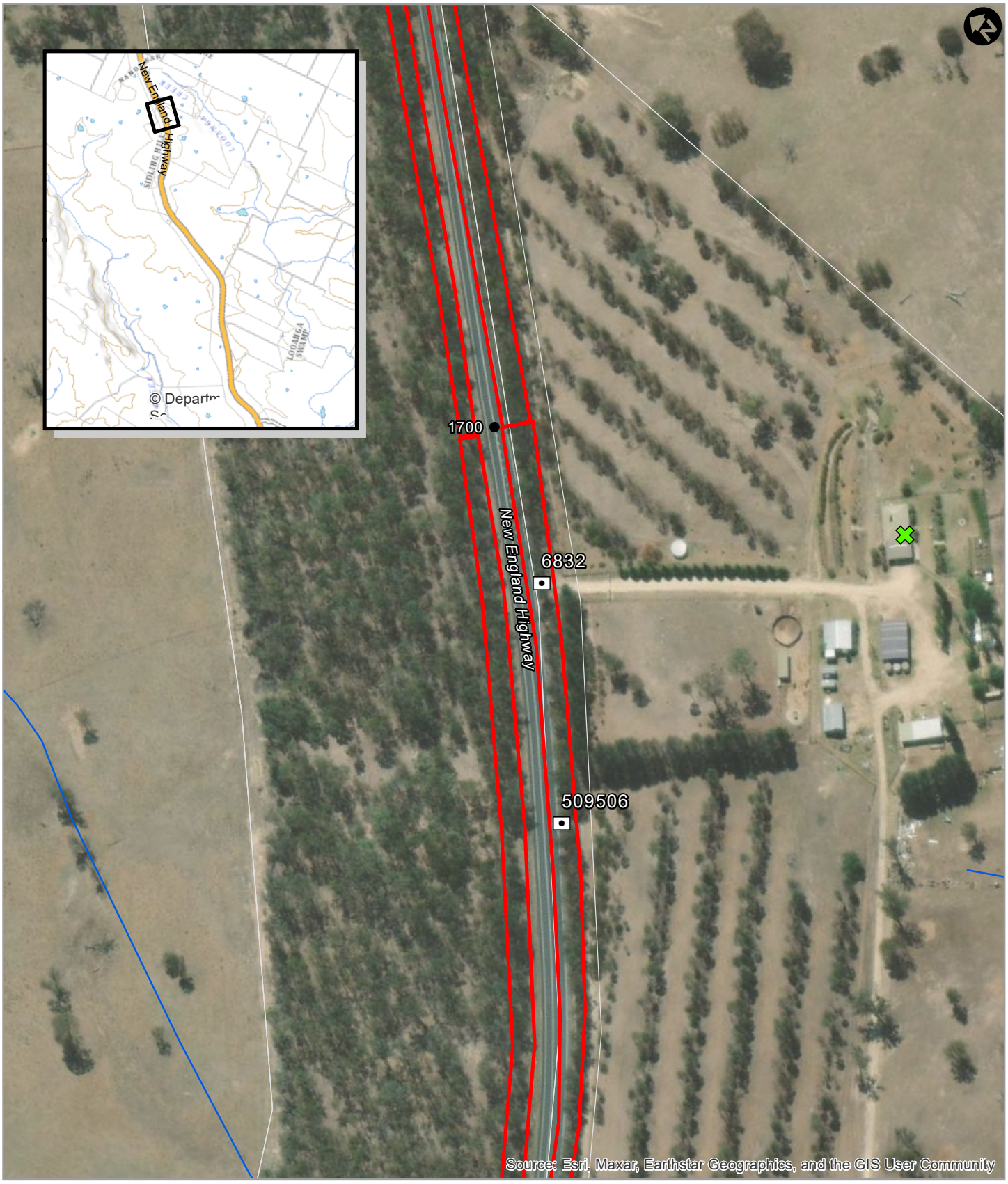

LEGEND

- Assessment area
- Cadastre
- Watercourse
- Culvert
- Sensitive receiver

0 50 Metres

Works Area
Illustration 2.2 - Sheet 11 of 12

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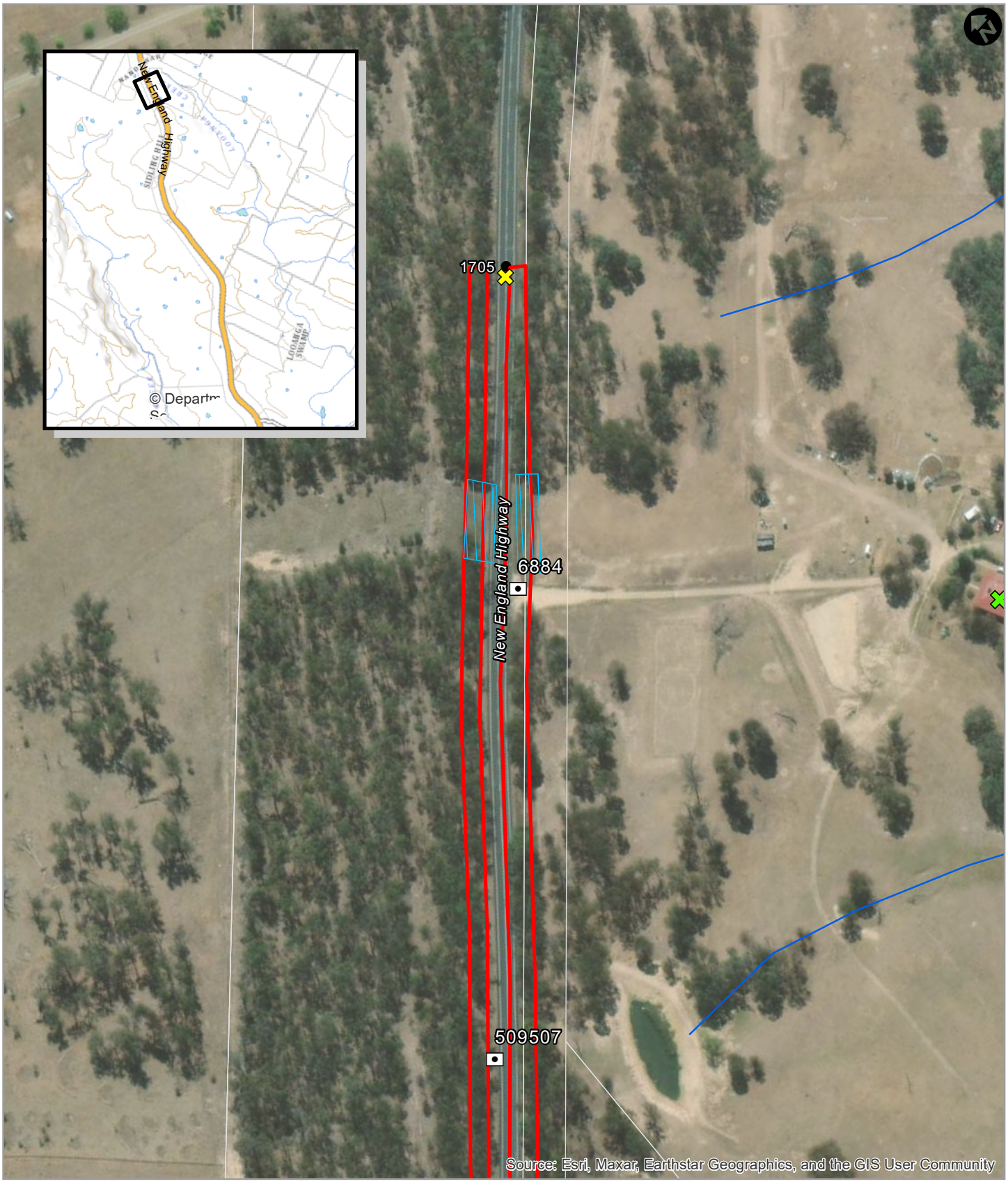

LEGEND

- Assessment area
- Cadastre
- Plant parking
- Watercourse
- Culvert
- Sidling Hill segment end
- Sensitive receiver

0 50 Metres

Works Area
Illustration 2.2 - Sheet 12 of 12

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2.1.3 Proposal objectives

The objective of the road safety improvement work is to achieve the desired safer cross section of the subject segments on New England Highway (HW9) ~~at~~ south of Kentucky. The objective would be achieved through select tree removal, pavement widening, including WCLT, installation of roadside safety barriers and wider shoulders and associated culvert works.

The improvements under this project will improve the safety of this section of highway significantly and overall contribute towards the reductions of fatalities and serious injuries on the New England Highway into the future.

2.1.4 Ancillary facilities

Table 2.2: Ancillary facilities

Ancillary facilities		
Will the proposal require the use or installation of a compound site? Three potential locations have been identified for a compound site: • Registered Stockpile Site – Kyabra Cattle Yards located in segment 1660 approximately 820 m northbound from 1660 segment marker (Lat -30.780034° Long 151.334969°) • Segment 1665 at the truck rest area halfway through the segment on the right-hand side. (Lat -30.779330° Long 151.342473°) • Segment 1690 registered Stockpile Site Nth9/027 – Sidling Hill located 150 m from the start of segment 1680/1690 (Lat -30.762881° Long 151.365430°). This is the preferred compound location as has more space to accommodate a safer compound layout for parking and workers on foot and is not directly next to the highway. The site compound will include, a site office, meal rooms, toilet blocks, shipping containers for secured storage, heavy vehicle parking, light vehicle parking, material storage, refuelling, and concrete wash out within bunded area.	Yes ☒	No ☐
Will the proposal require the use or installation of a stockpile site? The following existing and registered stockpile sites will be utilised for the project (refer to **Illustration 2.2**). • Registered Stockpile Site Nth9/026 – Old Road Carlisles Gully approximately 2.9 km south of the project site, located on NB side 150 m north of segment marker 1630/1635 (Lat -30.792601° Long 151.304281°) • Registered Stockpile Site – Kyabra Cattle Yards located in segment 1660 approximately 820 m northbound from 1660 segment marker (Lat -30.780034° Long 151.334969°) • Registered Stockpile Site Nth9/027 – Sidling Hill located in segment 1690, 150 m from the start of segment 1680/1690 (Lat -30.762881° Long 151.365430°) • Registered Stockpile site Nth9/028 – South Old Wollun Road approximately 4 km north of the project in segment 1720 on the right-hand side (Lat -30.739758° Long 151.409080°) The stockpile sites will be used for temporary storage of materials generated throughout the project. These may include: • Mulch/woodchip • Unprocessed vegetation awaiting chipping/mulching • Reclaimed road pavement material • Mill road base material • General spoil awaiting transfer to spoil site or repurposing • Sealing aggregates • Unsuitable material such as wet subgrade material awaiting further transfer	Yes ☒	No ☐

Ancillary facilities		
• General solid waste awaiting transfer to landfill • Precast concrete drainage products, pipes, headwalls, pits, etc		
Are any other ancillary facilities required (e.g., temporary plants, parking areas, access tracks)? **Spoil Sites** No suitable spoil sites were identified within the project length without required significant vegetation removal. Due to this, it planned to utilise existing nearby spoil sites which have been assessed during other environmental assessments as noted below. • Segment 1635 Carlisles Gully Spoil Site. Located on the New England Highway approximately 2.5 km south of the Project (Lat -30.793950, long 151.308694). This spoil site has been assessed as part of the Rimbanda Hill Project and has remaining capacity. • Segment 1750 and continuing into segment 1755 on the northbound side approximately 13.8 km north of the project, starting just north of Hillcrest Road and finishing at culvert 509531. This is within the existing disturbed zone. The area is approximately 4,500 m^2 and has a total capacity of approximately 6,000 m^3. This spoil site has been assessed as part of the Thunderbolts Rock Biodiversity Assessment report and approved Step 2 memo. • Segment 1756 on the northbound side approximately 15.1 km north of the project, starting approximately 30 m into segment and finishing north of culvert 509536. No works at culvert 509534 are proposed. Culverts 509535 and 509536 will be extended on the outlet sides to accommodate spoil. This spoil site is within the existing disturbed zone. The area is approximately 6,000 m^2 (500 x 12 m) and could cater for an estimated 15,000 m^3. This spoil site has been assessed as part of the Thunderbolts Rock Biodiversity Assessment report and approved Step 2 memo. **Plant Parking Areas** The following suitable plant parking locations that have been identified: • Segment 1660, 120 m into the segment on the left-hand side (Lat -30.783685° Long 151.329114°) • Segment 1660, 480 m into the segment on the left-hand side (Lat -30.782263° Long 151.332365°) • Segment 1665, 520 m into the segment on the right-hand side where the site compound will be located (Lat -30.779330° Long 151.342473°) • Segment 1665, 550 m into the segment on the left-hand side (Lat -30.778369° Long 151.343887°) • Segment 1670, 510 m into the segment on the left-hand side (Lat -30.772065° Long 151.349211°) • Any of the previously listed compound, stockpiles, and spoil sites. On the shoulder/verge within the existing road reserve if a safe location, not under dripline of trees, and does not result in any mud tracking back onto the road	Yes ☒	No ☐

Plate 2.1 View north-west of existing stockpile site and proposed compound site Nth9/027 at Segment 1680/1690

Plate 2.2 View west of Registered Stockpile Site Nth9/026 Carlisle Gully (red polygon) (Source: TfNSW 2021)

2.1.5 Proposed date of commencement

The project is currently programmed to commence delivery early 23/24 financial year subject to funding and resource availability. The works are yet to be programmed by Regional Maintenance Delivery New England (RMD NE) delivery team, but it is anticipated this work will be completed mid 2024 and will follow on from other Willow Tree to Uralla Projects including Thunderbolts Rock, Gunnalong and Glenburnie.

2.1.6 Estimated length of construction period

The project duration is expected to be 11 months, weather pending.

2.2 Need and options

2.2.1 Options considered

Option 1 - 'Do nothing'. The 'do nothing' approach does not address the issue of the road safety of the subject sections of New England Highway at Kentucky. As such, it does not address the objectives of the project.

Option 2 - 'Carry out road safety improvements'. This option is the preferred option. Constructing additional pavement width and WCLT would ensure an improvement to the safety of the subject section of the New England Highway. This provides the following benefits:

- Improved road safety for road users
- Provide a new road surface to meet the existing and future freight needs along this section of the New England Highway
- Support regional and local economic development

The preferred option is:

Option 2 - 'Carry out road safety improvements'

2.2.2 Justification for the proposal

The proposal is required because:

The existing road cross section in segments 1660-1700 is currently narrower than the desired standard for the New England Highway. There is no existing WCLT, and the existing travel lanes are narrower than the standard 3.5 m in some locations. For example, Sidling Hill climbing lane has only 3 m travel lanes and less than 1 m shoulders which is below current standards.

There are numerous un-protected roadside safety hazards including culvert headwall drop offs, embankment drops off posing roll over hazards, and non-frangible mature trees within close proximity to the edge of the road.

Within the project limits there have been 25 crashes over the last 10 years. 0 Fatal, 7 serious injuries, 7 moderate injuries, and the remainder low/non-casualty towaways. 1 Fatal crash is recorded in 2007 at the northern end of segment 1600 due to a head-on incident.

This project will address these existing issues by means of installing a 1 m WCLT with a minimum of 1 m shoulders however up to 3 m is desired, where achievable. Safety barriers will be installed, where warranted, to protect against roadside hazards such as trees, embankments, and culvert drop edge hazards. Improved shoulder width will be beneficial for all road users by creating a recoverable area outside the travel lane. Other advantages include improved safety for maintenance works and in the event of breakdowns.

It has been identified that in some locations the cross sectional shape of the pavement is below current design standards and requires addressing as part of the works to improve road safety. The existing pavement for these segments is showing some defects that will require routine heavy patching to facilitate a reseal. The pavement heavy patching works will ensure the serviceability and functionality of the pavement into the future. The reseal effectively blacks outs redundant longitudinal linemarking and allows for the clean reinstatement of linemarking in new locations to facilitate the 1 m WCLT.

These treatments will improve the safety of this section of highway and overall contribute towards the reductions of fatalities and serious injuries on the New England Highway into the future.

2.3 Statutory and planning framework

2.3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

The State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP (Transport and Infrastructure)) aims to facilitate the effective delivery of infrastructure across the state, including for roads and road infrastructure facilities. Section 2.108 of the SEPP (Transport and Infrastructure) permits development on any land for the purpose of a road or road infrastructure facilities to be carried out by or on behalf of a public authority without consent.

As the proposal is appropriately characterised as development for the purposes of a road or road infrastructure facilities and is to be carried out by or on behalf of Transport, it can be assessed under Division 5.1 of the EP&A Act. Development consent from council is not required.

The proposal is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not require development consent or approval under State Environmental Planning Policy (Resilience and Hazards) 2021, State Environmental Planning Policy (Precincts – Eastern Harbour City) 2021, State Environmental Planning Policy (Precincts – Central River City) 2021, State Environmental Planning Policy (Precincts – Western Parkland City) 2021, State Environmental Planning Policy (Precincts – Regional) 2021 or State Environmental Planning Policy (Planning Systems) 2021.

2.3.2 Other relevant legislation and environmental planning instruments

A schedule of other legislation relevant to assessment of the proposal is provided at **Table 2.3**, including comments on implications for the proposal.

Table 2.3: Relevant legislation

Legislation	Section(s)	Comment
Protection of the Environment Operations Act 1997		No Protection of the Environment Policies are relevant to the proposal. No licenses would be required pursuant to the *Protection of the Environment Operations Act 1997*. TfNSW and/or contractors working on behalf of TfNSW are required to notify the appropriate regulatory authorities, including the Environmental Protection Authority (EPA), when a 'pollution incident' occurs that is likely to impact upon the environment.

Legislation	Section(s)	Comment
	Section 143	Any stockpiling of material within private property requires a Section 143 notice. The activity does not involve stockpiling of material within private property.
National Parks and Wildlife Act 1974	Sections 87(1), 90	The provisions of the Act are unlikely to be triggered by the proposal. Searches of the Aboriginal Heritage Information Management System (AHIMS) did not return records of any declared Aboriginal heritage items at or in close proximity to the sites. Refer to **Section 3.5**.
Biodiversity Conservation Act 2016	Schedules 1, 2 and 3	The activity would not significantly impact any threatened flora or fauna species listed in the BC Act. Removal of approximately 0.17 hectares of PCT 538 Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion (low to high condition) and 0.01 hectares of PCT 567 Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion (low to high condition) would be required. The activity would incrementally contribute to the listed Key Threatening Process (KTP) *clearing of native vegetation and removal of dead wood and dead trees*. However, given the proposed extent of clearing, impacts are not considered significant. No other KTPs would be noticeably contributed to by the proposal. Section 7.3 of the BC Act requires a test of significance ('five-part test') for determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats. Five-part tests have been completed for Bluegrass, Silky Swainson-pea, *Prasophyllum* sp. *Wybong* and Small Snake Orchid (refer to **Section 3.7**). The test of significance concluded the activity would not significantly affect habitat for the threatened species.
State Heritage Act 1977		Searches of the State Heritage Register, State Heritage Inventory and LEP heritage listings were undertaken. No local or state listed heritage/archaeological items occur at the site. As discussed in **Section 3.6**, no impact to non-Aboriginal heritage, including local heritage and archaeological sites listed under the TRLEP 2010 would occur.
Water Management Act 2000	S91 (2) S56	Work within water lands or those comprising of extraction or management of water may be subject to approval if they constitute a 'controlled activity'. The works do not constitute a controlled activity.

Legislation	Section(s)	Comment
Local Land Services Act 2013	Part 5A Land Management (native vegetation)	Provisions of the Act apply to clearing native vegetation in rural parts of the State. Pursuant to Section 60O (*Clearing authorised under other legislation*), *for the purposes of this Part, the clearing of native vegetation in a regulated rural area is authorised under other legislation in any of the following cases:* *(b) Other planning authorisation - the clearing was:* *(ii) an activity carried out by a determining authority within the meaning of Part 5 of that Act after compliance with that Part, or* *(iii) authorised by an approval of a determining authority within the meaning of Part 5 of that Act granted after compliance with that Part.* As the activity is a Part 5 Activity, the vegetation clearing provisions of the *Local Land Services Act 2013* do not apply.
Environment Protection and Biodiversity Conservation Act 1999		Under the environmental assessment provisions of the EPBC Act, matters of national environmental significance are required to be considered to assist in determining whether the activity be referred to the Australian Government Department of Agriculture, Water and the Environment (DAWE). No matters of national environmental significance are considered likely to be significantly affected by the proposal, hence referral is not required (refer to **Section 4**).
Native Title (NSW) Act 1994	Section 103	The Activity is largely within the existing road reserve. The site is located within a broad area subject to an active registration for Native Title Claim of the Gomeroi People (Tribunal File No: NC2011/006; Federal Court file no. NSD37/2019). The Proponent should obtain (legal) advice as to whether the land tenure and/or the proposed activity or act require Natives Title consultation. Any required notification is to be undertaken by the Proponent in accordance with the *Native Title Act 1993*.

Is the Land Potential Koala Habitat?

Chapter 3 of the State Environmental Planning Policy (Biodiversity & Conservation) 2021 (formerly State Environmental Planning Policy (Koala Habitat Protection) 2020) aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.

The SEPP (Biodiversity & Conservation) 2021 defines potential Koala habitat as “areas of native vegetation where Schedule 1 trees constitute at least 15% of the total number of trees in the upper or lower strata of the tree component”.

No Schedule 2 listed trees were present on site. On this basis, potential Koala habitat does not occur and the Policy requires no further consideration.

Safeguards to minimise impacts on fauna, including the Koala, are provided in **Section 3.7.**

Local Environmental Plans

The sites of the proposed work occur within Tamworth Regional local government area (LGA) and Tamworth Regional Local Environmental Plans (TRLEP 2010) applies. The site is zoned as RU1 Primary Production. The objectives of this zone are:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base
- To encourage diversity in primary industry enterprises and systems appropriate for the area
- To minimise the fragmentation and alienation of resource lands
- To minimise conflict between land uses within this zone and land uses within adjoining zones
- To permit subdivision only where it is considered by the Council to be necessary to maintain or increase agricultural production
- To restrict the establishment of inappropriate traffic generating uses along main road frontages
- To ensure sound management of land which has an extractive or mining industry potential and to ensure that development does not adversely affect the extractive industry
- To permit development for purposes where it can be demonstrated that suitable land or premises are not available elsewhere

The proposed activity is not directly consistent with objectives of the zone, however as the activity affects the existing road, the activity would not hinder the achievement of the zoning objectives or its intent.

The activity, in connection with a road and road infrastructure facilities, is permitted without consent on any land under Section 2.108 of the SEPP (Transport and Infrastructure) (refer **Section 2.3.1**), and therefore the consent requirements of the TRLEP 2010 and associated development control plans do not apply.

2.4 Community and agency consultation

2.4.1 SEPP (Transport and Infrastructure) consultation

Part 2.2 of the SEPP (Transport and Infrastructure) contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development. This is detailed below:

Table 2.4: Consultation required with Council

Is consultation with Council required under sections 2.10 - 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
Are the works likely to have a substantial impact on the stormwater management services which are provided by council?	Yes ☐	No ☒
Are the works likely to generate traffic to an extent that will strain the capacity of the existing road system in a local government area?	Yes ☐	No ☒
Will the works involve connection to a council owned sewerage system? If so, will this connection have a substantial impact on the capacity of the system?	Yes ☐	No ☒
Will the works involve connection to a council owned water supply system? If so, will this require the use of a substantial volume of water? Water for construction will be sourced from mains at Uralla and Bendemeer using a standpipe. The volumes required would generally be within the range of that for similar road construction. Water may also be sourced from a dam on private property located at Lot 1 DP1141264, accessed from Green Valley Road (refer to **Illustration 2.1**).	Yes ☐	No ☒

Is consultation with Council required under sections 2.10 - 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	Yes ☐	No ☒
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	Yes ☐	No ☒
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works?	Yes ☐	No ☒
Is the proposal within the coastal vulnerability area and is inconsistent with a certified coastal management program applying to that land? Note: See interactive map at Coastal management - (nsw.gov.au). Note the coastal vulnerability area has not yet been mapped. Note: a certified coastal zone management plan is taken to be a certified coastal management program.	Yes ☐	No ☒
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent? Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the Floodplain Development Manual: the management of flood liable land (nsw.gov.au).	Yes ☐	No ☒

Table 2.5: Consultation with other public authorities

Is consultation with a public authority (other than Council) required under sections 2.13, 2.15 and 2.16 of the SEPP (Transport and Infrastructure)?		
Are the works located on flood liable land? (to any extent) (SEPP (Transport and Infrastructure) s2.13) If so, do the works comprise more than minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance? Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the Floodplain Development Manual: the management of flood liable land (nsw.gov.au).	Yes ☐	No ☒
Are the works adjacent to a national park, nature reserve or other area reserved under the National Parks and Wildlife Act 1974, or on land acquired under that Act?	Yes ☐	No ☒
Are the works on land in Zone E1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?	Yes ☐	No ☒
Do the works include a fixed or floating structure in or over navigable waters?	Yes ☐	No ☒
Are the works for the purpose of residential development, an educational establishment, a health services facility, a correctional facility or group home in bush fire prone land?	Yes ☐	No ☒
Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory)	Yes ☐	No ☒

Is consultation with a public authority (other than Council) required under sections 2.13, 2.15 and 2.16 of the SEPP (Transport and Infrastructure)?		
Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in clause 5.15 of Lockhart LEP 2012, Narrandera LEP 2013 and Urana LEP 2011).	Yes ☐	No ☒
Are the works on land in a mine subsidence district within the meaning of the *Mine Subsidence Compensation Act 1961*?	Yes ☐	No ☒

Table 2.6: Notification of council and occupiers of adjoining land

Do Council and occupiers of adjoining land need to be notified under section 2.110 of the SEPP (Transport and Infrastructure)?		
Does the proposal include a car park intended for the use by commuters using regular bus services?	Yes ☐	No ☒
Does the proposal include a bus depot?	Yes ☐	No ☒
Does the proposal include a permanent road maintenance depot or associated infrastructure, such as garages, sheds, tool houses, storage yards, training facilities and workers amenities?	Yes ☐	No ☒

2.4.2 Other agency and community consultation

The following community consultation will be undertaken, in line with standard communication process for projects with the Community and Stakeholder Engagement team:

- Letter box drops one week prior to commencement of construction to all residents within the 340 m notification radius.
- VMS messaging one week prior to commencement of construction to notify through travellers.
- Traffic Alert.
- Door knock residents with driveways adjoining the works, in particular those of which modifications to driveway culverts are required.
- Posting community notification to the Willow Tree to Uralla Project Website.

Water may be sourced from a dam on private property located at Lot 1 DP1141264, accessed from Green Valley Road (refer to **Illustration 2.1**). TfNSW is required to ensure the dam is within harvestable rights and obtain permission from the landowner.

A Native Title Vision website search indicated that the Gomeroi People have lodged a claim on 20th December 2011 (NSD 37/2019) which is still an active claim of the adjoining lands. TfNSW is required to continue to consult with the Tamworth Local Aboriginal Land Council as custodians of the land of the Gomeroi People.

Part of the works are mapped as Travelling Stock Reserve (TSR) (Reserve No. R22252), a Category 3 TSR, located in the North West Local Land Services (LLS) region. TfNSW would consult with the relevant land manager should TfNSW deem it necessary.

3. Environmental assessment

This section provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposal. All aspects of the environmental potentially impacted upon by the proposal are considered. This includes consideration of the factors specified in section 171 of the Environmental Planning and Assessment Regulation 2021.

The matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth) are also considered in section 4. Site-specific safeguards are provided to ameliorate the identified potential impacts.

3.1 Soil

Table 3.1: Soil

Description of existing environmental and potential impacts		
Are there any known occurrences of salinity or acid sulfate soils in the area?	Yes ☐	No ☒
Does the proposal involve the disturbance of large areas (e.g., >2ha) for earthworks?	Yes ☐	No ☒
Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors? Some sections of the project have longitudinal grade up to 8% which would be considered steep grade. Some excavation works are required for SO Kerb in which the surrounding terrain makes clean water diversion impractical. In line sediment and erosion controls will need to be implemented for these scenarios.	Yes ☒	No ☐
Are there any sensitive receiving environments that are located in or nearby the likely proposal area or that would likely receive stormwater discharge from the proposal? Sensitive receiving environments include (but are not limited to) wetlands, state forests, national parks, nature reserves, rainforests, drinking water catchments). The study area occurs approximately 1.1 km north of Carlisles Gully. The proposed work is for minor road works including select culvert improvements which may result in stormwater runoff. However, given the distance of the site to the waterway, this is unlikely to have a significant impact. However, work proximal to waterways could pose a risk of pollution, and erosion and sedimentation. Appropriate measures to prevent pollution and implementation of an erosion and sediment control plan, as required, would form part of the mitigation measures to minimise any potential risks and impacts (refer to **Section 5**).	Yes ☐	No ☒
Is there any evidence within or nearby the likely footprint of potential contamination? Online contamination searches were undertaken for the site on 4 April 2022 including the EPA Contaminated Land and DPI Dip Site registers (refer to **Appendix A**). The searches did not identify any registered contamination items within or adjacent to the works area.	Yes ☐	No ☒
Is the likely proposal footprint in or nearby highly sloping landform?	Yes ☐	No ☒
Is the proposal likely to result in more than 2.5ha (area) of exposed soil?	Yes ☐	No ☒
The proposed activity is likely to result in some soil disturbance during vegetation removal, machinery access and activity associated with the road works. Disturbed soils have the potential to disperse via wind and water. However, it is not expected that this would significantly impact the surrounding environment and can be readily managed with relevant mitigation measures. A progressive erosion and sediment control plan (ESCP) for each site would be in place, as required, as part of the CEMP and the safeguards below. Soil disturbance would be minimised where possible. The safeguards listed below would minimise any potential erosion or sedimentation risks at each site. The proposed activity would have positive outcomes in terms of road safety and maintenance.		

Safeguards

Safeguards to be implemented are:

1. Erosion and sediment control measures are to be implemented and maintained to:
   (a) Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets
   (b) Reduce water velocity and capture sediment on site
   (c) Minimise the amount of material transported from site to surrounding pavement surfaces
   (d) Divert clean water around the site (in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book)) [TfNSW safeguard E1].
2. Erosion and sedimentation controls are to be checked and maintained on a weekly basis or after 10 millimetres of rainfall (including clearing of sediment from behind barriers) and records kept and provided on request. [TfNSW safeguard E2].
3. Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised. [TfNSW safeguard E3].
4. Work areas are to be stabilised progressively during the works. [TfNSW safeguard E4].
5. A progressive erosion and sediment control plan is to be prepared for the works. [TfNSW safeguard E5].
6. The maintenance of established stockpile sites is to be in accordance with the Roads and Maritime Services Stockpile Site Management Guideline (EMS-TG-10). [TfNSW safeguard E6].
7. An environmental management plan is prepared in accordance with the specifications set out in the QA Specification G36 –Environmental Protection (Management System), QA Specification G38 – Soil and Water Management (Soil and Water Plan), QA Specification G40 – Clearing and Grubbing, QA Specification G10 - Traffic Management and implemented prior to the commencement of works. [TfNSW safeguard G2].
8. Parking of vehicles and storage of plant/equipment is to occur on existing paved areas. Where this is not possible, vehicles and plant/equipment are to be kept away from environmentally sensitive areas and outside the dripline of trees. [TfNSW safeguard G4].

3.2 Waterways and water quality

Table 3.2: Waterways and water quality

Description of existing environmental and potential impacts		
Is the proposal located within, adjacent to or near a waterway? The study area occurs approximately 1.1 km north of Carlisles Gully. Within the study area, no significant mapped creeks or streams occur. Approximately three mapped small unnamed ephemeral streams (stream order 1 and 2) occur within the study area and cross the existing road corridor through culverts that drain into Carlisles Gully via Looanga Creek and Kentucky Creek. The site generally occurs within the road reserve, and would involve maintenance and/or improvements to the following culverts: • S1660 Culvert 509488 • S1660 Culvert 509489 • S1660 Culvert 509490 • S1660 Culvert 509491 • S1665 Culvert 509492 • S1665 Culvert 509493 • S1665 Culvert 509494 • S1665 Culvert 509495 • S1670 Culvert 509496	Yes ☒	No ☐

Description of existing environmental and potential impacts		
• S1670 Culvert 509497 • S1680 Culvert 509498 • S1680 Culvert 509499 • S1680 Culvert 509500 • S1680 Culvert 509501 • S1680 Culvert 509502 • S1680 Culvert 509503 • S1680 Culvert 509504 • S1680 Culvert 509505 • S1680 Culvert 50950X • S1680 Culvert 509506 • S1700 Culvert 509507 • S1660 – Driveway Access 6362 New England Highway • S1660 - Existing Access NB opposite 6362 New England Highway just south of culvert 490 outlet • S1660 – Driveway Access NB 6935 New England Highway (Kyabra Station Access 1) • S1660 – Paddock Access SB 6362 New England Highway Existing about 30m north of culvert 491. • S1660 – Redundant Driveway Access SB 6400 New England Highway about 50m north of culvert 491. • S1665 - Driveway access SB 6400 New England Highway. • S1665 - Driveway access SB 6456 New England Highway (Just south of truck stop) • S1665 - Paddock Access SB 6456 New England Highway just north of truck stop • S1665 – Driveway Access SB 6482 New England Highway (Myuna) • S1670 – Driveway Access SB 6544 New England Highway (Yarrawonga) • S1670 – Driveway Access NB (Kyabra Station Access 2). • S1670 – Cattle Yards Access SB 6544 New England Highway (Yarrawonga) • S1680 – Existing Access NB to TSR land • S1690 – Cattle Yards Access SB 6832 New England Highway (Bimbi Vale) • S1690 – Driveway Access SB 6832 New England Highway (Bimbi Vale) • S1700 – Driveway Access 6884 New England Highway (Wynilbah) The proposed work is for minor road works and culvert upgrades such as desilting, scour repairs, extension, like for like replacements which may result in stormwater runoff. However, given the distance of the site to the waterways, this is unlikely to have a significant impact. However, work proximal to waterways could pose a risk of pollution, and erosion and sedimentation. Appropriate measures to prevent pollution and implementation of an erosion and sediment control plan, as required, would form part of the mitigation measures to minimise any potential risks and impacts (refer to **Section 5**).		
Is the location known to flood or be prone to water logging? The works are not mapped in Tamworth Regional Council's (TRC) Flood Studies. Given the minor nature of the works, it is expected the works would not change flooding patterns to more than a minor extent.	Yes ☐	No ☒
Is the proposal located within or immediately adjacent to the area managed by WaterNSW covered by chapter 8 of State Environmental Planning Policy (Biodiversity and Conservation) 2021? Note: See map here: *Sydney drinking water catchment map*.	Yes ☐	No ☒
Would the proposal be undertaken on a bridge or ferry?	Yes ☐	No ☒
Is the proposal likely to require the extraction of water from a local water course (not mains)? Water for construction will be sourced from mains at Uralla and Bendemeer using a standpipe. The volumes required would generally be within the range of that for similar road construction.	Yes ☐	No ☒

Description of existing environmental and potential impacts
Water may also be sourced from a dam on private property located at Lot 1 DP1141264, accessed from Green Valley Road (refer to **Illustration 2.1**).
The site occurs in the road reserve and approximately three mapped small, unnamed ephemeral streams (stream order 1 and 2) occur within the study area and cross the existing road corridor through culverts. The main threat to local waterways and water quality would be erosion and sedimentation and potential pollution of local water quality (both ground and surface water) from suspended solids and pollutants from machinery, materials and spills and any waste generated from work. These pollutants include, but are not limited to, diesel, unleaded petrol, machinery oils, and organic materials causing water turbidity. The nature of these liquids/materials and their ability to disperse away from the site means that they could have a negative impact on water quality on and adjacent to the sites/downstream. The work is for minor removal of terrestrial vegetation and road works associated with the minor realignment of the intersection and are not expected to pose a high risk to water quality if appropriate measures are in place to avoid or minimise such risk. The safeguards listed below would serve this purpose to avoid and minimise potential negative impacts to waterways and water quality.

Safeguards

Safeguards to be implemented are:

9. There is to be no release of dirty water into drainage lines and/or waterways. [TfNSW safeguard W1].

10. Visual monitoring of local water quality (i.e., turbidity, hydrocarbon spills/slicks) is to be undertaken on a regular basis to identify any potential spills or deficient silt curtains or erosion and sediment controls. [TfNSW safeguard W2].

11. Water quality control measures are to be used to prevent any materials (eg. concrete, grout, sediment etc) entering drain inlets or waterways. [TfNSW safeguard W3].

12. Measures to control pollutants from stormwater and spills would be investigated and incorporated in the pavement drainage system at locations where it discharges to the receiving drainage lines. Measures aimed at reducing flow rates during rain events and potential scour would also be incorporated in the design of the pavement drainage system. [TfNSW safeguard W4].

13. Excess debris from cleaning and washing is removed using hand tools. [TfNSW safeguard W5].

14. All fuels, chemicals and liquids are to be stored in an impervious bunded area a minimum of 50 metres away from:

    (a) Rivers, creeks or any areas of concentrated water flow

    (b) Flooded or poorly drained areas

    (c) Slopes above 10%. [TfNSW safeguard R1].

15. Refuelling of plant and equipment is to occur in impervious bunded areas located a minimum of 50 metres from drainage lines or waterways. Double bunding is required where it is not possible to locate refuelling areas a minimum of 50 metres from drainage lines or waterways. [TfNSW safeguard R2].

16. Cleaning of spray bars (or equivalent equipment) is to occur in suitable areas (e.g., not table drains) and not cause water pollution. [TfNSW safeguard R4].

17. Vehicle wash down and/or cement truck washout is to occur in a designated bunded area. [TfNSW safeguard R5].

18. An emergency spill kit is to be kept on site at all times and maintained throughout the construction work. The spill kit must be appropriately sized for the volume of substances at the work site. [TfNSW safeguard R6].

19. If an incident (e.g., spill) occurs, the Transport for New South Wales Environmental Incident Classification and Reporting Procedure is to be followed and the Transport for New South Wales Contract Manager notified as soon as practicable. [TfNSW safeguard R7].

20. Emergency contacts will be kept in an easily accessible location on vehicles, vessels, plant, and site office. All workers will be advised of these contact details and procedures. [TfNSW safeguard R8].

21. All workers will be advised of the location of the spill kit and trained in its use. [TfNSW safeguard R10].

22. Vehicles, vessels, and plant must be properly maintained and regularly inspected for fluid leaks. [TfNSW safeguard R11].

3.3 Noise and vibration

Are there any residential properties or other noise sensitive areas near the location of the proposal that may be affected by the work (i.e., church, school, hospital)?

Table 3.3: Noise and vibration

Description of existing environmental and potential impacts		
During construction? Noise would be associated with the construction phase of the project and would not endure for the long-term. Noise is expected from general construction activity and the use of a variety of construction vehicles and machinery as part of the Activity (refer to **Section 2.1.2**). The noisiest activities are considered to be operation of concrete saws for culvert works. The TfNSW Construction and Maintenance Noise Estimator Tool – Distance Based Assessment (Noisiest Plant) was used based on the noisiest plant being a concrete saw in the noise area category R1 (refer to **Appendix B**). The results suggest all sensitive receivers within 340 m of the work should be notified. Five sensitive receivers occur. No other residents, offices or retail outlets occur within this distance (refer to **Table 3.4**). Table 3.4: Sensitive receivers **Distance (m)** / **Direction from works footprint** / **Lot/DP** / **Address** 75 / South / 3/826692 / 6456 New England Highway Kentucky 2354 160 / South-east / 2/581543 / New England Highway Kentucky 2354 185 / East / 305/753849 / New England Highway Kentucky 2354 218 / South / 2/826692 / 6400 New England Highway Kentucky 2354 225 / South-east / 3/630955 / 6884 New England Highway Kentucky 2354	Yes ☒	No ☐
During operation?	Yes ☐	No ☒
Is the proposal going to be undertaken only during standard working hours? Standard working hours: • Monday-Friday: 7:00am to 6:00pm • Saturday: 8:00am to 1:00pm • Sunday and Public Holidays: No work Work will be carried out during the below working hours: • Monday-Friday: 7:00am to 6:00pm • Saturday: 7:00am to 6:00pm • Sunday and Public Holidays: No work Exceptions to the above working hours include: • Emergency works, such as that needed after heavy rainfall to restore a safe road surface • Dust suppression which is required over weekends, public holidays, and holiday periods The safeguards listed below would avoid and minimise potential negative impacts of noise from works scheduled to be undertaken outside the standard working hours. Extended working hours are planned on Saturdays due to being a remote rural environment with minimal sensitive receivers. Appropriate safeguards will be implemented and working hours communicate with nearby residents via letter box drop prior to commencement of construction.	Yes ☐	No ☒

Description of existing environmental and potential impacts		
Is any explosive blasting required for the proposal?	Yes ☐	No ☒
Would construction noise or vibration from the proposal affect sensitive receivers? As outlined above, no significant noise or vibration impacts are expected. Where possible, noise generating machinery would be minimised. Identified safeguards would aim to minimise potential impacts and ensure that noise and vibration from the proposed activity would not adversely impact nearby residents and the community.	Yes ☐	No ☒
Would operation of the proposal alter the noise environment for sensitive receivers? This might include, but not be limited to, altering the line or level of an existing carriageway, changing traffic flow, adding extra lanes, increasing traffic volume, increasing the number of heavy vehicles, removing obstacles that provide shielding including changing the angle of view of the traffic, changing the type of pavement, increasing traffic speeds by more than 10km/hour or installing audio-tactile line markings.	Yes ☐	No ☒
Would the proposal result in vibration being experienced by any surrounding properties or infrastructure during operation? Vibration would be associated with the construction phase of the project and would not endure for the long-term. Vibration is expected from general construction activity and the use of a variety of construction vehicles and machinery as part of the Activity (refer to **Section 2.1.2**). The activities that may contribute to vibration are considered to be operation of excavators, asphalt plant and graders. The impact is expected to be minor in nature and temporary. Additionally, all structures close to the works are outside the radius that required building condition inspections to be undertaken.	Yes ☐	No ☒
Noise and vibration resulting from the proposed activity is expected to occur during proposed road works due to the use of machinery. The TfNSW Construction and Maintenance Noise Estimator Tool – Distance Based Assessment (Noisiest Plant) was used based on the noisiest plant being a concrete saw in the noise area category R1 (refer to **Appendix B**). The results suggest all sensitive receivers within 340 m of the work should be notified. Five sensitive receivers, located within 340 m from works footprint occur. No other residents, offices and retail outlets occur within this distance. Additionally, the temporary duration and context of the environment (near relatively busy roads) would mean that noise impacts would be both relatively minor and temporary. No significant noise or vibration impacts are expected. Identified safeguards would aim to minimise potential impacts and ensure that noise and vibration from the proposed activity would not adversely impact nearby residents and the community.		

Safeguards

Safeguards to be implemented are:

23. Works to be carried out during work hours (i.e. 7am to 6pm Monday to Friday; 7am to 6pm Saturdays). Any work that is performed outside normal work hours or on Sundays or public holidays must have measures in place to minimise noise impacts [Additional safeguard].
24. Noise impacts are to be minimised in accordance with TfNSW Construction Noise Estimator. [TfNSW safeguard N2].
25. Measures, including allowing adequate distance that rollers and other vibration producing equipment can come to adjacent buildings and/or using non vibration producing equipment, to minimise or prevent vibration impacts. [TfNSW safeguard N3].

3.4 Air quality

Table 3.5: Air quality

Description of existing environmental and potential impacts		
Is the proposal likely to result in large areas (>2ha) of exposed soils?	Yes ☐	No ☒
Are there any dust-sensitive receivers located within the vicinity of the proposal during the construction period? The nearest sensitive receiver is located approximately 73 m south of the works (refer to **Illustration 2.2**). The minor nature and extent of the work is not expected to generate large dust emissions and would not significantly impact nearby sensitive receivers.	Yes ☐	No ☒
Is there likely to be an emission to air during construction? The proposed activity would generate minor amounts of dust as part of the work due to road works, machinery operation, operation of stockpiles and minor clearing of vegetation. Significant dust is not expected, and standard measures can readily reduce dust generation, such as use of watercarts for dust suppression. Exhaust emissions would also be generated through the use of machinery and equipment which burn fossil fuels.	Yes ☒	No ☐
There are no other anticipated air quality impacts.		

Safeguards

Safeguards to be implemented are:

26. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust. [TfNSW safeguard A1].
27. Vegetation or other materials are not to be burnt on site. [TfNSW safeguard A3].
28. Vehicles and vessels transporting waste or other materials that may produce odours or dust are to be covered during transportation. [TfNSW safeguard A4].
29. Stockpiles or areas that may generate dust are to be managed to suppress dust emissions in accordance with the Transport for New South Wales Stockpile Site Management Guideline (EMS-TG-10). [TfNSW safeguard A5].

3.5 Aboriginal heritage

Table 3.6: Aboriginal heritage

Description of existing environmental and potential impacts		
Would the proposal involve disturbance in any area that has not been subject to previous ground disturbances? The work would occur within the road reserve and has been subject to past disturbance.	Yes ☐	No ☒
Has an online Aboriginal Heritage Information Management System (AHIMS) search been completed? A search of the AHIMS Web Services was conducted in February 2022 by TfNSW. The search indicated no Aboriginal sites were recorded in the vicinity of the proposed works. The results of the AHIMS search is provided in **Appendix D**.	Yes ☒	No ☐
Is there potential for the proposal to impact on any items of Aboriginal heritage? The works occur on land that is disturbed due to previous road construction activities. Therefore, the project is unlikely to harm known Aboriginal objects or places.	Yes ☐	No ☒

Description of existing environmental and potential impacts		
Would the proposal involve the removal of mature native trees? The removal of tree and vegetation has been outlined in **Section 3.7**. 0.18 ha of native vegetation would be removed. No scarred trees were identified within the survey area.	Yes ☒	No ☐
Is the proposal consistent with the requirements of the legacy *Roads and Maritime Procedure for Aboriginal cultural heritage consultation and investigation* (PACHCI)? Refer to **Appendix D** for PACHCI Assessment	Yes ☒	No ☐
A Native Title Vision website search indicated that the Gomeroi People have lodged a claim on 20th December 2011 (NSD 37/2019) which is still an active claim of the adjoining lands. TfNSW is required to continue to consult with the Tamworth Local Aboriginal Land Council as custodians of the land of the Gomeroi People. No other Aboriginal heritage issues or impacts are relevant to the proposed activity.		

Safeguards

Safeguards to be implemented are:

30. If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport for New South Wales Aboriginal cultural heritage officer and regional environment manager contacted immediately. Steps in the TfNSW Standard Management Procedure: Unexpected Heritage Items must be followed. [TfNSW safeguard B1].

3.6 Non-Aboriginal heritage

Table 3.7: Non-Aboriginal heritage

Description of existing environmental and potential impacts		
Have online heritage database searches been completed? • Transport (including legacy Roads and Maritime) section 170 register • NSW Heritage database • Commonwealth Heritage List, established under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) • Australian Heritage Places Inventory • Local Environmental Plan(s) heritage items No state, national or world heritage listed items/places occur at or near the site. No locally listed heritage items occur at the site. Overall, no impact to non-Aboriginal heritage would occur.	Yes ☒	No ☐
Are there any items of non-Aboriginal heritage or heritage conservation areas listed on relevant heritage databases/registers that are located within the vicinity of the proposal?\	Yes ☐	No ☒
Is the proposal likely to impact trees that form part of a heritage listing or have other heritage value?	Yes ☐	No ☒
Is the proposal likely to occur in or near features that indicate potential archaeological remains?	Yes ☐	No ☒
Overall, the proposed activity would not impact any listed heritage items, their value, character, or integrity. Appropriate measures would be in place for unexpected finds as identified in the safeguards below.		

Safeguards

Safeguards to be implemented are:

31. Works to be carried out in accordance with the approved Conservation Management Plan for the heritage item (where available). [TfNSW safeguard H1].

32. If unexpected heritage items are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the Transport for New South Wales Standard Management Procedure: Unexpected Heritage Items must be followed. Transport for New South Wales Senior Environment Specialist - Heritage must be contacted immediately. [TfNSW safeguard H2].

3.7 Biodiversity

Table 3.8: Biodiversity

<table>
<tr><th colspan="3">Description of existing environmental and potential impacts</th></tr>
<tr><td>Have relevant database searches been carried out?

Biodiversity database search results were completed in September 2021 and are provided in the Biodiversity Assessment Report in Appendix E.

BioNet Atlas results indicate 13 threatened flora species and 44 threatened fauna species have been recorded within the search area and potential habitat occurs for up to 12 threatened ecological communities (TECs). Relevant species/ communities are included in the potential occurrence assessments in the BAR.

PMST results identified habitat for 18 threatened flora species and five threatened ecological communities within the search area (refer to BAR in Appendix E).

A search of the Priority Weeds for the Northern Tablelands and North West regions in NSW Weedwise was undertaken in September 2021.</td><td>Yes ☒</td><td>No ☐</td></tr>
<tr><td>Did the database searches identify any endangered ecological communities, threatened flora and/or threatened or protected fauna, or migratory species in or within the vicinity of the proposed works? Both Commonwealth and State listed matters must be considered.

Database searches and the potential for threatened species to occur within habitat at or adjacent to the site has been considered in the Biodiversity Assessment Report in Appendix E. A summary is provided below and refer to Illustration 3.1 of Appendix E.

Based on the impact of 0.18 ha of vegetation comprising PCT 538 and PCT 567, which corresponds to White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered) and associated threatened species habitat, the proposal does trigger the TfNSW offset guidelines, offsets are required.
<table>
<tr><th>Common name</th><th>Status *</th><th>Type of listing (BC Act or EPBC Act)</th><th>Distance from works</th><th>Potential impacts</th></tr>
<tr><td>White Box - Yellow Box - Blakely’s Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions</td><td>CE, CE</td><td>BC Act and EPBC Act</td><td>Within the assessment area</td><td>Removal of 0.18 ha</td></tr>
<tr><td>Bluegrass</td><td>V</td><td>BC Act</td><td>Within site</td><td rowspan="3">Removal of 0.18 ha</td></tr>
<tr><td>Small Snake Orchid</td><td>E</td><td>BC Act</td><td>Within site</td></tr>
<tr><td>Silky Swainson-pea</td><td>V</td><td>BC Act</td><td>Within site</td></tr>
<tr><td>Brown Treecreeper</td><td>V</td><td>BC Act</td><td>Within site</td><td rowspan="3">Loss of up to 0.18 ha of potential</td></tr>
<tr><td>Dusky Woodswallow</td><td>V</td><td>BC Act</td><td>Within site</td></tr>
<tr><td>Speckled warbler</td><td>V</td><td>BC Act</td><td>Within site</td></tr>
</table>
</td><td>Yes ☒</td><td>No ☐</td></tr>
</table>

Description of existing environmental and potential impacts						
Varied Sittella	V	BC Act	Within site	foraging habitat		
Little Lorikeet	V	BC Act	Within site			
Scarlet Robin	V	BC Act	Within site			
Flame Robin	V	BC Act	Within site			
Square-tailed Kite	V	BC Act	Within site			
Little Eagle	V	BC Act	Within site			
Corben's Long-eared Bat	V, V	BC Act and EPBC Act	Within site	Loss of up to 0.18 ha of potential foraging habitat. Impacts to opportunistic roost habitat in the form of up to five culverts.		
Large Bent-winged Bat	V	BC Act	Within site			
Yellow-bellied Sheathtail-bat	V	BC Act	Within site			
Squirrel Glider	V	BC Act	Within site	Loss of up to 0.18 ha of potential foraging habitat		
Koala	V,E	BC Act and EPBC Act	Within site			

**V= vulnerable, E = endangered, CE = critically endangered, VEC = vulnerable ecological community EEC = endangered ecological community, CEEC = critically endangered ecological community M = Migratory*

Does the proposal involve pruning, trimming or removal of any tree/s? Select trees would be removed and/or pruned for the works (refer to **Appendix E**). A total of 1,243 trees are planned for removal under the planned works which is required in order to improvement road safety and for maintenance of the road corridor. Of the 1,243 trees, 432 are within the existing disturbed zone and less than 10 years old. These are exempt from offsetting under TfNSW 'No Net Loss' Biodiversity Guidelines'. The remaining 811 trees are of various sizes including less than 10 years old, and are outside the exiting disturbed zone. These 811 trees requiring offsetting. The removal of mature native trees would be kept to the minimum required to meet the objective of the road work.	Yes ☒	No ☐
Is the proposal likely to impact nationally listed threatened species, ecological communities or migratory species? The proposal would result in the removal of 0.18 ha of the following TECs: • White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (BC Act) • White Box - Yellow Box -Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions (EPBC Act) No threatened flora species were recorded during the surveys. No threatened fauna species were recorded at the site. However, there is potential for 14 threatened fauna species to occur based on available site habitats. It was determined that the proposal is unlikely to significantly affect any species, communities or their habitat listed under the BC Act or the EPBC Act (refer to **Appendix E** and **Section 4.2**). Based on the impact of 0.17 ha of PCT 538 and 0.01 ha of PCT 567, of which a subset corresponds to White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered) and associated threatened species habitat, the proposal does trigger the TfNSW offset guidelines, offsets are required.	Yes ☒	No ☐
Would the proposal require the removal of any other vegetation?	Yes ☒	No ☐

Description of existing environmental and potential impacts		
The proposal would result in removal of approximately 0.17 hectares of PCT 538 Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion (low to high condition) and 0.01 hectares of PCT 567 Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion (low to high condition). This is based on the footprint as shown in **Illustration 2.2**.		
Would the proposal require the removal of any tree hollows? One hollow-bearing tree containing one medium limb hollow has been identified for removal (refer to Table 3-3 in **Appendix E**). This hollow-bearing tree identified for removal within the study area has potential to be used as nesting or roosting habitat for seven woodland birds, two predatory birds, three microbats or two arboreal mammals (refer to Section 4.3 of **Appendix E**). Based on the impact of 0.17 ha of PCT 538 and 0.01 ha of PCT 567, which corresponds to White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered) and associated threatened species habitat, the proposal does trigger the TfNSW offset guidelines, offsets are required.	Yes ☒	No ☐
Are there any known areas of outstanding biodiversity value or areas mapped as 'littoral rainforest' or 'coastal wetland' under chapter 2 of SEPP (Resilience and Hazards) in or within the vicinity of the proposed work?	Yes ☐	No ☒
Would the proposal provide any additional barriers to the movement of wildlife? The proposed roadside clearing of vegetation within a modified landscape would not result in any significant increase in the fragmentation of fauna and flora habitats	Yes ☐	No ☒
Would the proposal disturb any natural waterways or aquatic habitat? Approximately three mapped small ephemeral streams (stream order 1 and 2) occur within the study area and cross the existing road corridor through culverts. Potential impacts from erosion or sedimentation are unlikely with relevant Safeguards implemented.	Yes ☐	No ☒
Would the proposal impact (directly or indirectly) any potential microbat roosting or breeding habitat such as on bridges and culverts? The following culverts have been identified as a potential, opportunistic roosting (non-breeding) site for microbats: • 509489 • 6935 Kyabra station access 1 • 509494 • 509495 • 509496 • 6544 Yarrawonga cattle yards access • 509498 • 509501 • 509506 With the implementation of relevant safeguards, the proposed Activity is expected to minimise the risk of injury/mortality to native fauna during culvert works.	Yes ☒	No ☐
Threatened flora: No threatened flora species were recorded within the work footprint at any of the sites. ***Weeds:*** One weed species identified in the study area during field surveys is listed as a priority weed under the *Biosecurity Act 2015* for the North West and Northern Tablelands regions occur; blackberry (*Rubus fruticosus* sp. *aggregate*) Roadside weed management (including poisoning) would be undertaken by TfNSW as part of the proposed activity. Weeds would be managed as per the safeguards below. ***Threatened fauna:*** No threatened fauna species were recorded.		

Description of existing environmental and potential impacts
Statutory assessment: Based on the results of the field assessment and potential occurrence assessments, tests of significance ('five-part tests') under Section 7.3 of the *Biodiversity Conservation Act 2016* have been completed (refer to **Appendix E**). The test of significance concluded that the activity would not significantly impact on any threatened species or ecological communities.

Safeguards

Safeguards to be implemented are:

33. There is to be no disturbance or damage to threatened species or areas of outstanding value. [TfNSW safeguard F1].

34. Works are not to harm threatened fauna (including where they inhabit bridges or other structures e.g., timber fence posts or maritime piles). [TfNSW safeguard F2].

35. If unexpected threatened fauna or flora species are discovered, stop works immediately and follow the Transport for New South Wales Unexpected Threatened Species Find Procedure in the Transport for New South Wales Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process). [TfNSW safeguard F3].

36. Vegetation that has been protected or planted as part of offset works provided as part of an approved project (e.g., in association with fauna crossings) is not to be removed. [TfNSW safeguard F4].

37. All pathogens (e.g., Chytid, Myrtle Rust and Phytophthora) are to be managed in accordance with the Transport for New South Wales Biodiversity Guidelines - Guide 7 (Pathogen Management) and DECC Statement of Intent 1: Infection of native plants by *Phytophthora cinnamomi* (for Phytophthora). Machinery, plant, and equipment is to be cleaned prior to entering the site. [TfNSW safeguard F5].

38. Declared noxious weeds are to be managed according to requirements under the *Biosecurity Act, 2015* and Guide 6 (Weed Management) of the Roads and Maritime Services Biodiversity Guidelines 2011. [TfNSW safeguard F6].

39. Fauna handling must be carried out in accordance with the requirements in the Transport for New South Wales Biodiversity Guidelines - Guide 9 (Fauna Handling) [TfNSW safeguard F7].

40. Works are not to create an ongoing barrier to the movement of wildlife. [TfNSW safeguard F8].

41. Pruning of mature trees is to be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees. [TfNSW safeguard F9].

~~42. All activities are to be carried out to avoid spreading marine pests including:~~

- ~~Removal of weeds, animals or sediment from equipment and disposal to an appropriate waste receptacle or facility~~
- ~~Disposal of sewage and bilge water at an approved pump out facility [TfNSW safeguard F12].~~

43. Exclusion zones will be set up at the limit of clearing and pathogens will be managed in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011). [additional safeguard from BAR].

44. Undertake pre-culvert removal/replacement works survey to determine extent and presence/absence of microbats prior to construction. If present, microbats are to be excluded by an ecologist as follows:

    (a) Installing exclusion devices (such as valves, curtains) prior to culvert removal/replacement works to discourage microbats from returning to the culvert/s

    (b) Filling empty gaps within the culverts while microbats are out foraging for the night (if access inside the culvert is permitted)

    (c) Daytime inspections immediately prior to works at each culvert, attempting to capture any remaining bats

    (d) Consideration of provision alternative roosting habitat. [additional safeguard from BAR].

45. Pre-clearing surveys will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR].

46. Native vegetation will be re-established in accordance with Guide 3: Re-establishment of native vegetation of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR].

47. The unexpected species find procedure is to be followed under *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA, 2011) if threatened ecological communities, not assessed in the biodiversity assessment, are identified in the proposal site [additional safeguard from BAR].

48. Habitat removal will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR].

49. Habitat will be replaced or re-instated (where required) in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Nest boxes of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR].

50. Parking of vehicles and storage of plant/equipment is to occur on existing paved areas. Where this is not possible, vehicles and plant/equipment are to be kept away from environmentally sensitive areas and outside the dripline of trees [TfNSW safeguard G4].

51. Pruning of mature trees is to be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees. [TfNSW safeguard F9].

52. An environmental management plan is prepared in accordance with the specifications set out in the QA Specification G36 –Environmental Protection (Management System), QA Specification G38 – Soil and Water Management (Soil and Water Plan), QA Specification G40 – Clearing and Grubbing, QA Specification G10 - Traffic Management and implemented prior to the commencement of works. [TfNSW safeguard G2].

3.8 Traffic and transport

Table 3.9: Traffic and transport

Description of existing environmental and potential impacts		
Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during construction? The majority of the work would occur on the existing roadway, shoulders and road reserve. During construction, traffic would be reduced to the following: • During construction hours: one lane alternate flow with 40/60 roadwork speed limits. • Out of construction hours: both lanes open (continuous flow) with 60 km/h speed limit (due to unsealed surfaces or other hazards). Traffic delays of up to five minutes may be experienced, as per standard condition of the road occupancy licence (ROL). This would be of minor impact and inconvenience to road users. Traffic control and the movement of machinery and personnel would be undertaken under an approved Traffic Management Plan (TMP).	Yes ☒	No ☐
Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation? There are no practical detours/alternative routes for this location on the New England Highway.	Yes ☐	No ☒
Is the proposal likely to affect any other transport nodes or transport infrastructure (e.g., bus stops, bus routes) in the surrounding area? Or result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?	Yes ☐	No ☒
Only minor and temporary traffic disruptions, in the form of traffic control, may occur where required for the works. Such impacts would be minor and temporary, and all work would be undertaken under an approved Traffic Management Plan (TMP).		

Safeguards

Safeguards to be implemented are:

53. Where possible, current traffic movements and property accesses are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays. [TfNSW safeguard T1].

54. A traffic management plan will be prepared in accordance with the 'Traffic Control at Worksites Manual (TfNSW issue 6.1 2022) and *Australian Standard 1742.3 Manual of uniform control devices*. [TfNSW safeguard T3].

3.9 Socio-economic

Table 3.10: Socio-economic

Description of existing environmental and potential impacts		
Is the proposal likely to impact on local business? The existing roadway provides a valued traffic route option for local residences, businesses, schools, and agricultural activities in the region. The works would cause some minor temporary disruption to vehicular traffic flow along these subject roads. Some minor temporary disruption to vehicular traffic access for residences is possible, including for vehicles entering/leaving New England Highway. This is not expected to be significant and would be of a temporary nature. Potential impacts can be managed through the implementation of safeguards.	Yes ☐	No ☒
Is the proposal likely to require any property acquisition?	Yes ☐	No ☒
Is the proposal likely to alter any access for properties (either temporarily or permanently)? Some driveway accesses will be impacted temporarily during upgrades of their culvert drainage structures. TfNSW will directly liaise with any impacted residents during the works.	Yes ☒	No ☐
Is the proposal likely to alter any on-street parking arrangements (either temporarily or permanently)?	Yes ☐	No ☒
Is the proposal likely to change pedestrian movements or pedestrian access (either temporarily or permanently)?	Yes ☐	No ☒
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)? A roadside memorial is located in segment 1665 southbound (see **Plate 3.1**). Given the minor nature of the activity, impacts to this memorial would be minimal.  Plate 3.1 Memorial located in segment 1665 southbound	Yes ☐	No ☒

Description of existing environmental and potential impacts		
Is the proposal likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)?	Yes ☐	No ☒
Is the proposal likely to impact trees planted by a community group, Landcare group or by council or a tree that is a memorial or part of a memorial group e.g., has a plaque?	Yes ☐	No ☒
Is the proposal likely to impact trees that form part of a streetscape, an avenue or roadside planting?	Yes ☐	No ☒
Potential socio-economic impacts associated with the proposed activity would be very minor and temporary at worst. The work relates to improving road safety. This would be of benefit to local and regional road users.		

Safeguards

Safeguards to be implemented are:

55. Notification is to be given to affected community members prior to the works taking place. The notification is to include:
    - Details of the proposal
    - The duration of works and working hours
    - Any changed traffic or access arrangements
    - How to lodge a complaint or obtain more information
    - Contact name and details.

    Notification should be a minimum of 7 calendar days prior to the start of works. [TfNSW safeguard C1].
56. All complaints are to be recorded on a complaints register and attended to promptly. [TfNSW safeguard C2].
57. Existing access for nearby and adjoining properties is to be maintained at all times during the works unless otherwise agreed to by the affected property owner. [TfNSW safeguard C3].
58. The community must be notified of all work outside standard hours which have the potential to impact noise sensitive receivers. Notification zones must be determined using the TfNSW Maintenance Noise Estimator. Notification requirements must comply with the RMS Construction Noise and Vibration Guideline. [TfNSW safeguard C4].

3.10 Landscape character and visual amenity

Table 3.11: Landscape character and visual amenity

Description of existing environmental and potential impacts		
Is the proposed work over or near an important physical or cultural element or landscape? (For example, heritage items and areas, distinctive or historic built form, National Parks, conservation areas, scenic highways etc.)?	Yes ☐	No ☒
Would the proposal obstruct or intrude upon the character or views of a valued landscape or urban area? For example, locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark?	Yes ☐	No ☒
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced? Trees and vegetation would be removed as detailed in **Section 3.7** and **3.8**. The proposed activity is part of road works and associated work and is limited to the road reserve, with the exception of private property access where required. No significant landscape or visual amenity impact is expected.	Yes ☒	No ☐

Description of existing environmental and potential impacts		
Would the proposal result in large areas of shotcrete visible from the road or adjacent properties?	Yes ☐	No ☒
Would the proposal involve new noise walls or visible changes to existing noise walls?	Yes ☐	No ☒
Would the proposal involve the removal or reuse of large areas of road corridor, landscape, either verges or medians?	Yes ☐	No ☒
Would the proposal involve substantial changes to the appearance of a bridge (including piers, girders, abutments and parapets) that are visible from the road or residential areas?	Yes ☐	No ☒
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)?	Yes ☐	No ☒
Would any new structures or features to be constructed, result in over shadowing to adjoining properties or areas?	Yes ☐	No ☒
Select removal of mature trees along the roadside would result in some minor and localised visual change. However, this would be limited and would not be detrimental to the surrounding landscape character or visual amenity.		

Safeguards

Safeguards to be implemented are:

59. If the scope of the works changes at any time, review under the Roads and Maritime Services Environmental assessment procedure for routine and minor works (EIAPO5- 1) and complete any further requirements prior to undertaking works associated with the changed scope. [TfNSW safeguard G1].

60. No new access tracks to be created for the works. [TfNSW safeguard G3].

3.11 Waste

Table 3.12: Waste

Description of existing environmental and potential impacts		
Is the proposal likely to generate >200 tonnes of waste material (contaminated and /or non-contaminated material)? Spoil disposal locations would be existing nearby spoil sites as described in Section 2.1.4, Table 2.2.	Yes ☒	No ☐
Is the proposal likely to require a licence from EPA?	Yes ☐	No ☒
Is the proposal likely to require the removal of asbestos?	Yes ☐	No ☒
The proposed activity would result in construction waste from the removal of the existing road base and culverts, including unsalvageable headwalls, as well as packaging and general waste. It is anticipated that the waste would be taken to a licensed waste facility (e.g., Tamworth waste resource management facility). A Waste Management Plan must be prepared prior to works, which would address the characterisation of waste in accordance with EPA guidelines prior to disposal, particularly for culvert desilting, wet material, and potential contaminants if hydrocarbon sheen/odour detected. There would also be vegetation removal as part of the work, including mulching of regrowth vegetation. It is anticipated that most vegetation that is removed would be retained on site and be used: • As large logs for supplementary habitat, distributed randomly within the road reserve. • To aid with rehabilitation around any access tracks created and/or used. Vegetation that is mulched and/or chipped may be spread under retained trees in road reserve or used during vegetation offset plantings in nearby areas. • Large logs and tree stumps may be salvaged and retained for future use as snags for riverbank restorations projects in the interests of WaterNSW.		

Description of existing environmental and potential impacts
Any vegetative waste that cannot be reused on site would be chipped and taken to a licensed green waste processing facility. Vegetative waste potentially contaminated with weeds would be identified, stockpiled separately, and transported for disposal. No significant waste management issues are anticipated.

Safeguards

Safeguards to be implemented are:

61. A Waste Management Plan must be prepared that follows the TfNSW Technical Guide: Management of road construction and maintenance waste. [TfNSW safeguard M1].

62. Resource management hierarchy principles are to be followed:

    - Avoid unnecessary resource consumption as a priority
    - Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery)
    - Disposal is undertaken as a last resort (in accordance with the Waste Avoidance & Resource Recovery Act 2001). [TfNSW safeguard M3].

63. If vegetation is to be mulched and transported off site for beneficial reuse, it is to be assessed for the presence of weeds, pest, and other disease and a Mulch Management Plan prepared in accordance with the TfNSW Technical Procedure: Mulch Management. [TfNSW safeguard M4].

64. Bulk project waste (e.g., fill) sent to a site not owned by the Roads and Maritime Services (excluding EPA licensed landfills and resource recovery facilities) is to have prior formal written approval from the landowner, in accordance with Environmental Direction No. 20 – Legal Off-site Disposal of Roads and Maritime Services Waste. This includes waste transported for reuse, recycling, disposal, or stockpiling. [TfNSW safeguard M5].

65. If coal tar asphalt is identified and is to be removed, it is to be disposed of to landfill in accordance with TfNSW Environmental Direction No.21 – Coal Tar Asphalt Handling and Disposal. [TfNSW safeguard M6].

66. There is to be no disposal or re-use of construction waste on to other land. [TfNSW safeguard M7].

67. Waste is not to be burnt on site. [TfNSW safeguard M8].

68. Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed. [TfNSW safeguard M9].

69. Working areas are to be maintained, kept free of rubbish, and cleaned up at the end of each working day. [TfNSW safeguard M10].

70. Standard RMD Waste Management Processes to apply including waste register where applicable (Additional safeguard)

4. Consideration of State and Commonwealth environmental factors

4.1 Environmental Planning and Assessment Regulation 2021 factors

The following factors, listed in section 171(2) of the Environmental Planning and Assessment Regulation 2021, have been considered to assess the likely impacts of the proposal on the natural and built environment. This consideration is required to comply with sections 5.5 and 5.7 of the EP&A Act.

Table 4.1: Consideration of section 171 of the EP&A Regulation factors

Environmental factor	Impact
a) Any environmental impact on a community? The proposed activity may cause minor temporary environmental impacts on the community (e.g., if temporary traffic control is required resulting in minor delays), however the potential impacts would be minimised with the implementation of the safeguards as detailed in this REF. The work would have no environmental impact on a community in the long-term and road users would benefit from this maintenance.	The proposed activity could have minor negative temporary impacts The proposed activity would also have moderate long-term positive impacts
b) Any transformation of a locality? Temporary transformations comprise of general construction work, machinery on site and select tree clearing activities. After completion of the work, permanent transformations comprise of a wider pavement, including WCLT and wider shoulders. Safety barriers would also be installed. No significant transformation of the locality is likely.	Minor negative short-term impacts Minor long-term impact
c) Any environmental impact on the ecosystems of a locality? The proposed activity would have potential minor environmental impacts on the ecosystems of a locality as a result of minor vegetation removal and minor culvert works, however the potential impacts would be minimised with the implementation of the safeguards given in **Section 3** of this REF.	Minor and long-term decline in amount of native vegetation. Minor and short-term impacts to waterways.
d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? Effective implementation of the mitigation measures provided in **Section 3** would ensure that the minor negative effects of the proposed activity (ie minor removal of roadside vegetation, road and culvert improvements) would not significantly affect the aesthetic, recreational, scientific or other environmental quality or value of the locality.	Minor short-term during construction. Negligible to minor long-term impact
e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? The proposed activity is largely confined to the road reserve. The site does not exhibit the above values. The proposed activity would not adversely affect any of the above listed values. The relevant aboriginal group would be consulted as part of the proposed work.	Nil
f) Any impact on habitat of any protected animals (within the meaning of the *Biodiversity Conservation Act 2016*)? As outlined in **Section 3.7**, the proposed activity would result in the minor loss/modification of some native vegetation, which provides habitat of varying value for native fauna. Based on the impact of 0.17 ha of PCT 538 and 0.01 ha of PCT 567, which corresponds to White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered) and associated threatened species habitat, the proposal does trigger the TfNSW offset guidelines, offsets are required. However, the activity is unlikely to have a significant negative impact on habitats of protected fauna. The work would be undertaken following the safeguards provided in **Section 3** of this REF and BAR in **Appendix D**.	Mitigation measures available to minimise potential impacts

Environmental factor	Impact
g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? Given the nature of the proposed methods and safeguards in **Section 5** of this REF, such impacts are considered unlikely and not of a level that would endanger any species of animal, plant, or other form of life.	Nil
h) Any long-term effects on the environment? The proposed activity would result in some long-term effects from minor vegetation removal, though this would not significantly affect the local environment. Based on the impact of 0.17 ha of PCT 538 and 0.01 ha of PCT 567, which corresponds to White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered) and associated threatened species habitat, the proposal does trigger the TfNSW offset guidelines, offsets are required. Other long-term environmental effects would not be substantial with implementation of the mitigation measures detailed in **Section 3** of this REF. The work would ensure the long-term safety of road infrastructure.	Minor negative Positive
i) Any degradation of the quality of the environment? The minor negative environmental impacts associated with the proposed activity would not significantly degrade the quality of the local environment, especially with effective implementation of the safeguards in **Section 3** of this REF	Minor negative
j) Any risk to the safety of the environment? All impacts associated with the proposed activity would be minimised with the implementation of the safeguards in **Section 3**. Overall, the activity is considered unlikely to pose any significant risk to the safety of the local environment. The proposed activity would have a positive impact for motorists and road users as it would support the safety of road infrastructure.	Potential short-term minor Negative Long-term positive socioeconomic outcome
k) Any reduction in the range of beneficial uses of the environment? No short or long-term reduction in the range of beneficial uses of the environment is expected as a result of the proposed activity.	Nil
l) Any pollution of the environment? Waste materials, fuel spills, particulate matter and sediment have the potential to cause pollution to the environment. However, given the proposed safeguards detailed in **Section 3** of this REF and the nature and methodology proposed for the work, pollution to the environment is unlikely to occur.	Potential minor negative Mitigation measures available to avoid and minimise potential risks/ impacts
m) Any environmental problems associated with the disposal of waste? All waste generated by the proposed activity would be disposed of in a manner which would not damage or disturb any native flora or fauna or the physical environment. The disposal of waste would be in accordance with EPA approved methods of waste disposal. Any reuse of vegetative waste would be done in a manner that does not pose a risk to the environment or receiving waters. Safeguards detailed in **Section 3** of this REF would protect the environment from problems associated with all waste disposal.	Potential minor negative Mitigation measures available to avoid and minimises potential risks/ impacts
n) Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply? The proposed activity does not create any demand for resources that are in short supply nor is it likely to result in an increased demand on any natural resources that are likely to become in short supply.	Nil
o) Any cumulative environmental effect with other existing or likely future activities? The work would have a minor cumulative negative effect due to the required road improvement works and associated clearing of select trees. However, the impacts of the proposed activity are not substantial and would not impose a significant effect locally or	Minor negative

Environmental factor	Impact
regionally. Additionally, the mitigation measures detailed in **Section 3** would ensure such impacts are minimised.	
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The proposed activity would not affect nor be affected by coastal processes or coastal hazards.	Nil
q) Any impact on applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1? The proposal broadly supports the following regional and local plans by providing a reliable and safe road network within the Tamworth LGA: Regional plans • New England North West Regional Plan • Namoi Unlimited Strategic Regional Plan • A 20-Year Economic Vision for Regional NSW • Lower North West Economic Development Strategy • Namoi Region Road Network Strategy • The Namoi Catchment Sustainability Plan Local plans • The 2017-2027 Community Strategic Plan (CSP) • City Growth Corridor Plan • Sports/Entertainment Precinct Plan • Tamworth Global Gateway Park Draft Structure Plan • Tamworth Tomorrow 2016-2021	Positive
r) Any impact on other relevant environmental factors? There are no other relevant environmental factors.	Nil

4.2 Matters of National Environmental Significance

Under the environmental assessment provisions of the EPBC Act, the following matters of national environmental significance are required to be considered to:

- Assist in determining whether the proposal should be referred to the Australian Government Department of Agriculture, Water and the Environment
- For nationally listed threatened species, ecological communities, and migratory species, whether the impacts are significant and should be assessed via a Project REF.

Table 4.2: Matters of national environmental significance

Environmental factor	Impact
a) Any impact on a World Heritage property? No World Heritage Property occurs near the site.	Nil
b) Any impact on a National Heritage place? No National Heritage Property occurs near the site.	Nil
c) Any impact on a wetland of international importance (often called 'Ramsar' wetlands)? No Wetlands of International Importance are listed within 10 km of the site or would be affected by the activity. Three Wetlands of International significance (Banrock station wetland complex, Riverland and The Coorong, and Lakes Alexandrina and Albert Wetland)	Nil

Environmental factor	Impact
occur more than 10 km from the site. The Activity is distant from all these areas and as such does not impact on any Wetlands of International Significance.	
d) Any impact on nationally threatened species, ecological communities or migratory species? The proposal would result in the removal of 0.18 ha of the following TECs: • White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (BC Act) • White Box - Yellow Box -Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions (EPBC Act) No threatened flora species were recorded during the surveys. No threatened fauna species were recorded at the site. However, there is potential for 14 threatened fauna species to occur based on available site habitats. It was determined that the proposal is unlikely to significantly affect any species, communities or their habitat listed under the BC Act or the EPBC Act (refer to **Appendix D**). No listed threatened species or communities are likely to be significantly affected by the activity (refer to **Section 3.7**).	Minor
e) Any impact on a Commonwealth marine area? The nature of the activity is such that no significant impact on a Commonwealth marine area is considered likely.	Nil
f) Does the proposal involve a nuclear action (including uranium mining)? The activity does not involve a nuclear action.	Nil
Additionally, any impact (direct or indirect) on the environment of Commonwealth land? No Commonwealth Land would be directly or indirectly affected by the activity.	Nil

5. Summary of safeguards and environmental management measures

This section provides a summary of the site-specific environmental safeguards and management measures identified in described in chapters 3 and 4 of this REF. These safeguards will be implemented to reduce potential environmental impacts throughout construction and operation. A framework for managing the potential impacts is provided with reference to environmental management plans and relevant Transport QA specifications. Any potential licence and/or approval requirements required prior to construction are also listed.

Table 5.1: Summary of site-specific safeguards for proposed work

Factor	Impact
Soil	1. Erosion and sediment control measures are to be implemented and maintained to: (a) Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets (b) Reduce water velocity and capture sediment on site (c) Minimise the amount of material transported from site to surrounding pavement surfaces (d) Divert clean water around the site (in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book)) [TfNSW safeguard E1]. 2. Erosion and sedimentation controls are to be checked and maintained on a weekly basis or after 10 millimetres of rainfall (including clearing of sediment from behind barriers) and records kept and provided on request. [TfNSW safeguard E2]. 3. Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised. [TfNSW safeguard E3]. 4. Work areas are to be stabilised progressively during the works. [TfNSW safeguard E4]. 5. A progressive erosion and sediment control plan is to be prepared for the works. [TfNSW safeguard E5]. 6. The maintenance of established stockpile sites is to be in accordance with the Roads and Maritime Services Stockpile Site Management Guideline (EMS-TG-10). [TfNSW safeguard E6]. 7. An environmental management plan is prepared in accordance with the specifications set out in the QA Specification G36 –Environmental Protection (Management System), QA Specification G38 – Soil and Water Management (Soil and Water Plan), QA Specification G40 – Clearing and Grubbing, QA Specification G10 - Traffic Management and implemented prior to the commencement of works. [TfNSW safeguard G2]. 8. Parking of vehicles and storage of plant/equipment is to occur on existing paved areas. Where this is not possible, vehicles and plant/equipment are to be kept away from environmentally sensitive areas and outside the dripline of trees. [TfNSW safeguard G4].
Waterways and water quality	9. There is to be no release of dirty water into drainage lines and/or waterways. [TfNSW safeguard W1]. 10. Visual monitoring of local water quality (i.e., turbidity, hydrocarbon spills/slicks) is to be undertaken on a regular basis to identify any potential spills or deficient silt curtains or erosion and sediment controls. [TfNSW safeguard W2]. 11. Water quality control measures are to be used to prevent any materials (eg. concrete, grout, sediment etc) entering drain inlets or waterways. [TfNSW safeguard W3]. 12. Measures to control pollutants from stormwater and spills would be investigated and incorporated in the pavement drainage system at locations where it discharges to the receiving drainage lines. Measures aimed at reducing flow rates during rain events and potential scour would also be incorporated in the design of the pavement drainage system. [TfNSW safeguard W4]. 13. Excess debris from cleaning and washing is removed using hand tools. [TfNSW safeguard W5]. 14. All fuels, chemicals and liquids are to be stored in an impervious bunded area a minimum of 50 metres away from: (a) Rivers, creeks or any areas of concentrated water flow (b) Flooded or poorly drained areas

Factor	Impact
	(c) Slopes above 10%. [TfNSW safeguard R1]. 15. Refuelling of plant and equipment is to occur in impervious bunded areas located a minimum of 50 metres from drainage lines or waterways. Double bunding is required where it is not possible to locate refuelling areas a minimum of 50 metres from drainage lines or waterways. [TfNSW safeguard R2]. 16. Cleaning of spray bars (or equivalent equipment) is to occur in suitable areas (e.g., not table drains) and not cause water pollution. [TfNSW safeguard R4]. 17. Vehicle wash down and/or cement truck washout is to occur in a designated bunded area. [TfNSW safeguard R5]. 18. An emergency spill kit is to be kept on site at all times and maintained throughout the construction work. The spill kit must be appropriately sized for the volume of substances at the work site. [TfNSW safeguard R6]. 19. If an incident (e.g., spill) occurs, the Transport for New South Wales Environmental Incident Classification and Reporting Procedure is to be followed and the Transport for New South Wales Contract Manager notified as soon as practicable. [TfNSW safeguard R7]. 20. Emergency contacts will be kept in an easily accessible location on vehicles, vessels, plant, and site office. All workers will be advised of these contact details and procedures. [TfNSW safeguard R8]. 21. All workers will be advised of the location of the spill kit and trained in its use. [TfNSW safeguard R10]. 22. Vehicles, vessels, and plant must be properly maintained and regularly inspected for fluid leaks. [TfNSW safeguard R11].
Noise and vibration	23. Works to be carried out during work hours (i.e. 7am to 6pm Monday to Friday; 7am to 6pm Saturdays). Any work that is performed outside normal work hours or on Sundays or public holidays must have measures in place to minimise noise impacts [Additional safeguard]. 24. Noise impacts are to be minimised in accordance with TfNSW Construction Noise Estimator. [TfNSW safeguard N2]. 25. Measures, including allowing adequate distance that rollers and other vibration producing equipment can come to adjacent buildings and/or using non vibration producing equipment, to minimise or prevent vibration impacts. [TfNSW safeguard N3].
Air quality	26. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust. [TfNSW safeguard A1]. 27. Vegetation or other materials are not to be burnt on site. [TfNSW safeguard A3]. 28. Vehicles and vessels transporting waste or other materials that may produce odours or dust are to be covered during transportation. [TfNSW safeguard A4]. 29. Stockpiles or areas that may generate dust are to be managed to suppress dust emissions in accordance with the Transport for New South Wales Stockpile Site Management Guideline (EMS-TG-10). [TfNSW safeguard A5].
Aboriginal heritage	30. If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport for New South Wales Aboriginal cultural heritage officer and regional environment manager contacted immediately. Steps in the TfNSW Standard Management Procedure: Unexpected Heritage Items must be followed. [TfNSW safeguard B1].
Non-Aboriginal heritage	31. Works to be carried out in accordance with the approved Conservation Management Plan for the heritage item (where available). [TfNSW safeguard H1]. 32. If unexpected heritage items are uncovered during the works, all works must cease in the vicinity of the material/find and the steps in the Transport for New South Wales Standard Management Procedure: Unexpected Heritage Items must be followed. Transport for New South Wales Senior Environment Specialist - Heritage must be contacted immediately. [TfNSW safeguard H2].
Biodiversity	33. There is to be no disturbance or damage to threatened species or areas of outstanding value. [TfNSW safeguard F1]. 34. Works are not to harm threatened fauna (including where they inhabit bridges or other structures e.g., timber fence posts or maritime piles). [TfNSW safeguard F2].

Factor	Impact
	35. If unexpected threatened fauna or flora species are discovered, stop works immediately and follow the Transport for New South Wales Unexpected Threatened Species Find Procedure in the Transport for New South Wales Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process). [TfNSW safeguard F3]. 36. Vegetation that has been protected or planted as part of offset works provided as part of an approved project (e.g., in association with fauna crossings) is not to be removed. [TfNSW safeguard F4]. 37. All pathogens (e.g., Chytid, Myrtle Rust and Phytophthora) are to be managed in accordance with the Transport for New South Wales Biodiversity Guidelines - Guide 7 (Pathogen Management) and DECC Statement of Intent 1: Infection of native plants by *Phytophthora cinnamomi* (for Phytophthora). Machinery, plant, and equipment is to be cleaned prior to entering the site. [TfNSW safeguard F5]. 38. Declared noxious weeds are to be managed according to requirements under the *Biosecurity Act, 2015* and Guide 6 (Weed Management) of the Roads and Maritime Services Biodiversity Guidelines 2011. [TfNSW safeguard F6]. 39. Fauna handling must be carried out in accordance with the requirements in the Transport for New South Wales Biodiversity Guidelines - Guide 9 (Fauna Handling) [TfNSW safeguard F7]. 40. Works are not to create an ongoing barrier to the movement of wildlife. [TfNSW safeguard F8]. 41. Pruning of mature trees is to be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees. [TfNSW safeguard F9]. 42. All activities are to be carried out to avoid spreading marine pests including: – Removal of weeds, animals or sediment from equipment and disposal to an appropriate waste receptacle or facility – Disposal of sewage and bilge water at an approved pump out facility [TfNSW safeguard F12]. 43. Exclusion zones will be set up at the limit of clearing and pathogens will be managed in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011). [additional safeguard from BAR]. 44. Undertake pre-culvert removal/replacement works survey to determine extent and presence/absence of microbats prior to construction. If present, microbats are to be excluded by an ecologist as follows: (a) Installing exclusion devices (such as valves, curtains) prior to culvert removal/replacement works to discourage microbats from returning to the culvert/s (b) Filling empty gaps within the culverts while microbats are out foraging for the night (if access inside the culvert is permitted) (c) Daytime inspections immediately prior to works at each culvert, attempting to capture any remaining bats (d) Consideration of provision alternative roosting habitat. [additional safeguard from BAR]. 45. Pre-clearing surveys will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR]. 46. Native vegetation will be re-established in accordance with Guide 3: Re-establishment of native vegetation of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR]. 47. The unexpected species find procedure is to be followed under *Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects* (RTA, 2011) if threatened ecological communities, not assessed in the biodiversity assessment, are identified in the proposal site [additional safeguard from BAR]. 48. Habitat removal will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR]. 49. Habitat will be replaced or re-instated (where required) in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Nest boxes of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR].

Factor	Impact
	50. Parking of vehicles and storage of plant/equipment is to occur on existing paved areas. Where this is not possible, vehicles and plant/equipment are to be kept away from environmentally sensitive areas and outside the dripline of trees [TfNSW safeguard G4]. 51. Pruning of mature trees is to be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees. [TfNSW safeguard F9]. 52. An environmental management plan is prepared in accordance with the specifications set out in the QA Specification G36 –Environmental Protection (Management System), QA Specification G38 – Soil and Water Management (Soil and Water Plan), QA Specification G40 – Clearing and Grubbing, QA Specification G10 - Traffic Management and implemented prior to the commencement of works. [TfNSW safeguard G2].
Traffic and transport	53. Where possible, current traffic movements and property accesses are to be maintained during the works. Any disturbance is to be minimised to prevent unnecessary traffic delays. [TfNSW safeguard T1]. 54. A traffic management plan will be prepared in accordance with the 'Traffic Control at Worksites Manual (TfNSW issue 6.1 2022) and *Australian Standard 1742.3 Manual of uniform control devices*. [TfNSW safeguard T3].
Socio-economic	55. Notification is to be given to affected community members prior to the works taking place. The notification is to include: – Details of the proposal – The duration of works and working hours – Any changed traffic or access arrangements – How to lodge a complaint or obtain more information – Contact name and details. Notification should be a minimum of 7 calendar days prior to the start of works. [TfNSW safeguard C1]. 56. All complaints are to be recorded on a complaints register and attended to promptly. [TfNSW safeguard C2]. 57. Existing access for nearby and adjoining properties is to be maintained at all times during the works unless otherwise agreed to by the affected property owner. [TfNSW safeguard C3]. 58. The community must be notified of all work outside standard hours which have the potential to impact noise sensitive receivers. Notification zones must be determined using the TfNSW Maintenance Noise Estimator. Notification requirements must comply with the RMS Construction Noise and Vibration Guideline. [TfNSW safeguard C4].
Landscape character and visual amenity	59. If the scope of the works changes at any time, review under the Roads and Maritime Services Environmental assessment procedure for routine and minor works (EIAPO5- 1) and complete any further requirements prior to undertaking works associated with the changed scope. [TfNSW safeguard G1]. 60. No new access tracks to be created for the works. [TfNSW safeguard G3].
Waste	61. A Waste Management Plan must be prepared that follows the TfNSW Technical Guide: Management of road construction and maintenance waste. [TfNSW safeguard M1]. 62. Resource management hierarchy principles are to be followed: – Avoid unnecessary resource consumption as a priority – Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery) – Disposal is undertaken as a last resort (in accordance with the Waste Avoidance & Resource Recovery Act 2001). [TfNSW safeguard M3]. 63. If vegetation is to be mulched and transported off site for beneficial reuse, it is to be assessed for the presence of weeds, pest, and other disease and a Mulch Management Plan prepared in accordance with the TfNSW Technical Procedure: Mulch Management. [TfNSW safeguard M4]. 64. Bulk project waste (e.g., fill) sent to a site not owned by the Roads and Maritime Services (excluding EPA licensed landfills and resource recovery facilities) is to have prior formal written approval from the landowner, in accordance with Environmental Direction No. 20 – Legal Off-site Disposal of Roads and Maritime Services Waste. This includes waste transported for reuse, recycling, disposal, or stockpiling. [TfNSW safeguard M5].

Factor	Impact
	65. If coal tar asphalt is identified and is to be removed, it is to be disposed of to landfill in accordance with TfNSW Environmental Direction No.21 – Coal Tar Asphalt Handling and Disposal. [TfNSW safeguard M6]. 66. There is to be no disposal or re-use of construction waste on to other land. [TfNSW safeguard M7]. 67. Waste is not to be burnt on site. [TfNSW safeguard M8]. 68. Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed. [TfNSW safeguard M9]. 69. Working areas are to be maintained, kept free of rubbish, and cleaned up at the end of each working day. [TfNSW safeguard M10]. 70. Standard RMD Waste Management Processes to apply including waste register where applicable (Additional safeguard)

5.1 Licensing and approvals

No licences and/or approvals are required for the proposal.

5.2 Other requirements

Table 5.2: Other requirements

Requirement		
Environmental management plan sent to SMES for review. Note – Environmental Management Plan (CEMP) to be sent to the Senior Environmental and Sustainability Officer (SESO) for review and endorsement prior to commencement of works	Yes ☐	No ☒

6. Certification, review and decision

6.1 Certification

This minor works REF provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses, to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the proposal.

Prepared by:

Signature 

Name: Theresa Choi

Position: Environmental Scientist

Company name: GeoLINK Consulting

Date: 13/01/2023

Minor Works REF reviewed by:

Signature 

Name: Simon Williams

Position: Director

Company name: GeoLINK Consulting

Date: 13/01/2023

6.2 Environment staff review

The Minor Works REF has been reviewed and considered against the requirements of sections 5.5 and 5.7 of the EP&A Act.

In considering the proposal this assessment has examined and taken into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of that activity as addressed in the Minor Works REF and associated information. This assessment is considered to be in accordance with the factors required to be considered under section 171 of the Environmental Planning and Assessment Regulation 2021.

The assessment has considered the potential impacts of the activity on areas of outstanding value and on threatened species, ecological communities or their habitats for both terrestrial and aquatic species as defined by the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994*.

The proposal described in the Minor Works REF will not affect areas of outstanding value. The activity described in the Minor Works REF will not significantly affect threatened species ecological communities or their habitats. Therefore, a species impact statement is not required.

The assessment has also addressed the potential impacts on the activity on matters of national environmental significance and any impacts on the environment of Commonwealth land and concluded that there will be no significant impacts. Therefore, there is no need for a referral to be made to the Australian Government Department of Agriculture, Water and the Environment for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Minor Works REF is considered to meet all relevant requirements.

Reviewed by:

Signature

X 

Chris Wicks
Senior Environment and Sustainability Officer

Date: 20/4/23

6.3 Environment staff recommendation

It is recommended that the proposal to upgrade a 5.85 km section of the New England Highway (HW9) at Kentucky as described in this Minor Works REF proceed subject to the implementation of all safeguards identified in the Minor Works REF and compliance with all other relevant statutory approvals, licences, permits and authorisations.

The Minor Works REF has examined and taken into account to the fullest extent possible all matters likely to affect the environment by reason of the activity and established that the activity is not likely to significantly affect the environment or threatened species, ecological communities or their habitats.

The Minor Works REF has concluded that there will be no significant impacts on matters of national environmental significance or any impacts on the environment of Commonwealth land.

The Minor Works REF determination will remain current for five years from date of determination at which time it shall lapse if works have not been physically commenced. The pre-construction checklist must be completed prior to the commencement of any works.

Recommended by:

Signature

X pers comms 11/05/23

Greg Collins
Environmental and Sustainability Manager

Date: 11/5/23

Noted by:

Signature

X

Mitchel Ingram
Project/Contract Manager

Date: 15/5/23

6.4 Determination

In accordance with the above recommendation, I certify that I have reviewed and endorsed the contents of this Minor Works REF, and to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under Section 170 of the EP&A Regulation, and the information is neither false nor misleading.

I determine that Transport for NSW may:

- proceed with the activity

Signature

X

David Pattison
Senior Manager Project Services North

Date: 25/05/2023

6.5 EP&A Regulation publication requirement

Table 6.1: EP&A Regulation publication requirement

Requirement		
Does this Minor Works REF need to be published under section 171(4) of the EP&A Regulation? Note – Publication decision checklist has been completed by TfNSW and this Minor Work REF meets the requirements of publishing on the basis of the works being valued at over $5m	Yes ☒	No ☐

7. Definitions

Table 7.1: Definitions

Term	Definition
AEC	Area of Environmental Concern
AHD	Australian Height Datum
AHIP	Aboriginal Heritage Impact Permit
AHIMs	Aboriginal Heritage Information Management System BC Regulation
AMG	Australian Map Grid
BC Act 2016	*Biodiversity Conservation Act 2016*
BC Act 2017	*Biodiversity Conservation Act 2017*
BC Regulation	Biodiversity Conservation Regulation 2017
CA	Certifying Authority
CE	Chief Executive
CM Act	*Coastal Management Act 2016*
CMP	Construction Management Plan
CWC	Connecting with Country
CRA	Conservation Risk Assessment
DPC	Department of Premier and Cabinet
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EES	Environment, Energy and Science
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Regulation 2021
EPBC Act (Cwth)	*Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Planning Instrument
EPL	Environment Protection License
FM Act	*Fisheries Management Act 1994*
Ha	Hectares
HHIMS	Historic Heritage Information Management System
HI	Health Infrastructure
LEP	Local Environmental Plan
LGA	Local Government Area
MNES	Matters of National Environmental Significance
NPW Act	National Parks and Wildlife Act 1974
NPW Regulation	National Parks and Wildlife Regulation 2009
NPWS	National Parks and Wildlife Service (part of EES)
NT Act (Cth)	*Commonwealth Native Title Act 1993*
OEH	(Former) Office of Environment and Heritage
POEO Act	*Protection of the Environment Operations Act 1997*
Proponent	NSW Health Infrastructure

Term	Definition
REF	Review of Environmental Factors
RF Act	*Rural Fires Act 1997*
RFS	Rural Fire Service
Resilience and Hazards SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
TISEPP	State Environmental Planning Policy (Transport and Infrastructure) 2021
WM Act	*Water Management Act 2000*

Appendix A: Contamination Searches

Department of Primary Industries

Cattle dip site locator

This search retrieved 0 dip sites.

For more information about each dip site, click on the name below.

Dip name	Road	Town/Locality	Council

Find dip sites

Dip name

Road

Town/Locality Bendemeer

Council ---select all---

Search

The information contained in this web page is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Industry& Investment NSW or the user's independent adviser.

Search results

Your search for:LGA: TAMWORTH REGIONAL COUNCIL

Matched 11 notices relating to 5 sites.

Search Again

Refine Search

Suburb	Address	Site Name	Notices related to this site
DURI	13 Railway AVENUE	Duri Store	1 current
SOUTH TAMWORTH	251 - 253 Goonoo Goonoo ROAD	Coles Express Tamworth	4 current
TAMWORTH	115 Marius STREET	Elgas Depot (former gasworks)	2 current
TAMWORTH	49 GUNNEDAH ROAD	Gunnedah Road Site	2 former
WOOLOMIN	65 Nundle ROAD	Woolomin Gold Rush Store	2 former

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4 April 2022

Appendix B: TfNSW Construction and Maintenance Noise Estimator Tool – Distance Based Assessment (Noisiest Plant) Results

Distanced Based Assessment (Noisiest Plant)

Please pick from drop-down list in orange cells

Noise area category		R1
RBL or L_{A90} Background level (dB(A))	Day	40
	Evening	35
	Night	30
$L_{Aeq(15minute)}$ Noise Mangement Level (dB(A))	Day	50
	Day (OOHW)	45
	Evening	40
	Night	35
Noisiest plant		Concrete Saw
Is there line of sight to receiver?		Yes

Steps for Screening Assessment:
1. Schedule noisy works to occur in standard hours where possible or before 11pm and implement Standard Measures.
2. Select the representative noise area category (cell C8). The worksheet titled 'Representative Noise Environ.' provides a number of examples to help select the noise area category.
3. Select the noisiest plant (cell C15). If not found in drop-down list, refer to 'Source List' and select a representative plant with equivalent sound power level.
4. Is there line of sight to receiver? Select the appropriate scenario from the drop down list (cell C17). Solid barrier can be in the form of road cutting, solid construction hoarding, acoustic curtain, timber lapped and capped fence, shipping container, site office, etc. Please note that vegetation and trees are not considered to be a form of solid barrier.
5. Determine if there are any receivers within the affected distance (undeveloped or developed areas) for each relevant time period (cells C24 to C33 for residential receiver or cells F40 to F89 for non-residential receivers)
   (a) If there are no affrected receivers within the affected distance and the project's impact duration is less than 3 weeks: document the background noise levels, noise management levels and the affected distances for the noisiest plant in an internal memo or letter.
   (b) if there are no affected receivers within the affected distance and the project's impact duration is more than 3 weeks: proceed to use the estimator to predict noise levels at the worst affected receiver, then document background noise levels, noise management levels and the predicted noise levels from the noisiest plant at the worst affected receiver in an internal memo or letter.
   (c) if there are a few affected receivers and the project's impact duration is greater than three and less than six weeks: proceed to use the estimator to predict noise levels and mitigation measures at all receivers to inform the consultation.
   (d) proceed with the following steps to undertake a distance based assessment if there are a few affected receivers or many affected receivers and the project's impact duration is less than 3 weeks .
   (e) undertake a detailed noise assessment if there are a few affected receivers and the project's impact duration is greater than 6 weeks or there are many receivers and the project's impact duration is greater than 3 weeks.

(Note that suitable noise management levels for other noise-sensitive businesses not identified in the Construction Noise Estimator should be

Steps for Distance Based Assessment:
6. Identify the affected distance corresponding to the NML (see step #5).
7. Identify and implement standard mitigation measures where feasible and reasonable. Include any shielding implemented as part of the standard mitigation measures by changing the selection in the 'Is there line of sight to receiver' drop-down list.
8. Identify if there are any receivers that are within the additional mitigation measures distances and identify feasible and reasonable measures at each receiver (rows 24 to 33 & columns D to columns R for residential receiver or rows 40 to 89 & columns G to R for non residential receiver).
9. Where night works are involved, identify sleep disturbance affected distance (cells S27 and S32).
10. Document the outcomes of these steps.

Abbreviation	Measure
N	Notification (letterbox drop or equivalent
SN	Specific notifications
PC	Phone calls
IB	Individual briefings
RO	Respite offer
R1	Respite period 1
R2	Respite period 2
DR	Duration respite
AA	Alternative accommodation
V	Verification

Note that spot check verification of noise levels and individual briefings are not required for projects with less than 3 weeks impact duration

Note: If the subject plant cannot be found on the drop down list of noisiest plant (cell C16), then choose one with equivalent sound power level and make a note in the assessment memo / report. See 'Sources' worksheet for all plant contained in the database.

Residential receiver

			$L_{Aeq(15minute)}$ noise level above background (L_{A90})												$L_{Aeq(15minute)}$ 75 dB(A) or greater (Highly affected)			Sleep disutrbance L_{Amax} 65 dB(A)
			5 to 10 dB(A)			10 to 20 dB(A)			20 to 30 dB(A)			> 30 dB(A)						
			Noticeable			Clearly audible			Moderately intrusive			Highly intrusive						
		Affected distance (m)	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Measures	Within distance (m)	Mitigation level (dB(A))	Affected distance (m)
Undeveloped green fields, rural areas with isolated dwellings	Day	340							N	160	60	N	70	70	N, PC, RO	40	75	
	Day (OOHW)	490				N, R1, DR	340	50	N, R1, DR	160	60	N, R1, DR, PC, SN	70	70	N, PC, RO	40	75	
	Evening	705				N, R1, DR	490	45	N, R1, DR	235	55	N, R1, DR, PC, SN	110	65	N, PC, RO	40	75	
	Night	1010	N	1010	35	N, R2, DR	705	40	N, PC, SN, R2, DR	340	50	AA, N, PC, SN, R2, DR	160	60	N, PC, RO	40	75	160
	Highly Affected	40													N, PC, RO	40	75	
Developed settlements (urban and suburban) or over water	Day	425							N	185	60	N	75	70	N, PC, RO	45	75	
	Day (OOHW)	635				N, R1, DR	425	50	N, R1, DR	185	60	N, R1, DR, PC, SN	75	70	N, PC, RO	45	75	
	Evening	940				N, R1, DR	635	45	N, R1, DR	280	55	N, R1, DR, PC, SN	120	65	N, PC, RO	45	75	
	Night	1355	N	1355	35	N, R2, DR	940	40	N, PC, SN, R2, DR	425	50	AA, N, PC, SN, R2, DR	185	60	N, PC, RO	45	75	185
	Highly Affected	45													N, PC, RO	45	75	

Non-residential receiver
Undeveloped green fields, rural areas with isolated dwellings

			$L_{Aeq(15minute)}$ noise level above NML						LAeq(15minute) 75 dB(A) or greater (Highly affected)		
	Standard hours		<10 dB(A)			10 to 20 dB(A)					
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Classroom at schools and other educational institutions	Day	55	235				N	110	65	N, PC, RO	40	75
Hospital wards and operating theatres	Day	65	110							N, PC, RO	40	75
Place of worship	Day	55	235				N	110	65	N, PC, RO	40	75
Active recreation	Day	65	110							N, PC, RO	40	75
Passive recreation	Day	60	160				N	70	70	N, PC, RO	40	75
Industrial premise	Day	75	40							N, PC, RO	40	75
Offices, retail outlets	Day	70	70							N, PC, RO	40	75

			$L_{Aeq(15minute)}$ noise level above NML											
	OOHW		< 5 dB(A)			5 to 15 dB(A)			15 to 25 dB(A)			> 25 dB(A)		
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Hospital wards and operating theatres	Evening	65	110				N, R1, DR	70	70	N, R1, DR	22	80	N, R1, DR, PC, SN	7	90
	Night	65	110	N	110	65	N, R2, NR	70	70	N, PC, SN, R2, DR	22	80	AA, N, PC, SN, R2, DR	7	90
Place of worship	Evening	55	235				N, R1, DR	160	60	N, R1, DR	70	70	N, R1, DR, PC, SN	22	80
	Night	55	235	N	235	55	N, R2, NR	160	60	N, PC, SN, R2, DR	70	70	AA, N, PC, SN, R2, DR	22	80
Active recreation	Evening	65	110				N, R1, DR	70	70	N, R1, DR	22	80	N, R1, DR, PC, SN	7	90
Passive recreation	Evening	60	160				N, R1, DR	110	65	N, R1, DR	40	75	N, R1, DR, PC, SN	13	85
Industrial premise	Evening	75	40				N, R1, DR	22	80	N, R1, DR	7	90	N, R1, DR, PC, SN	2	100
	Night	75	40	N	40	75	N, R2, NR	22	80	N, PC, SN, R2, DR	7	90	AA, N, PC, SN, R2, DR	2	100
Offices, retail outlets	Evening	70	70				N, R1, DR	40	75	N, R1, DR	13	85	N, R1, DR, PC, SN	4	95
	Night	70	70	N	70	70	N, R2, NR	40	75	N, PC, SN, R2, DR	13	85	AA, N, PC, SN, R2, DR	4	95

Non-residential receiver
Developed settlements (urban and suburban) or over water

			$L_{Aeq(15minute)}$ noise level above NML						LAeq(15minute) 75 dB(A) or greater (Highly affected)		
	Standard hours		<10 dB(A)			10 to 20 dB(A)					
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Classroom at schools and other educational institutions	Day	55	280				N	120	65	N, PC, RO	45	75
Hospital wards and operating theatres	Day	65	120							N, PC, RO	45	75
Place of worship	Day	55	280				N	120	65	N, PC, RO	45	75
Active recreation	Day	65	120							N, PC, RO	45	75
Passive recreation	Day	60	185				N	75	70	N, PC, RO	45	75
Industrial premise	Day	75	45							N, PC, RO	45	75
Offices, retail outlets	Day	70	75							N, PC, RO	45	75

			$L_{Aeq(15minute)}$ noise level above NML											
	OOHW		< 5 dB(A)			5 to 15 dB(A)			15 to 25 dB(A)			> 25 dB(A)		
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Hospital wards and operating theatres	Evening	65	120				N, R1, DR	75	70	N, R1, DR	25	80	N, R1, DR, PC, SN	8	90
	Night	65	120	N	120	65	N, R2, NR	75	70	N, PC, SN, R2, DR	25	80	AA, N, PC, SN, R2, DR	8	90
Place of worship	Evening	55	280				N, R1, DR	185	60	N, R1, DR	75	70	N, R1, DR, PC, SN	25	80
	Night	55	280	N	280	55	N, R2, NR	185	60	N, PC, SN, R2, DR	75	70	AA, N, PC, SN, R2, DR	25	80
Active recreation	Evening	65	120				N, R1, DR	75	70	N, R1, DR	25	80	N, R1, DR, PC, SN	8	90
Passive recreation	Evening	60	185				N, R1, DR	120	65	N, R1, DR	45	75	N, R1, DR, PC, SN	14	85
Industrial premise	Evening	75	45				N, R1, DR	25	80	N, R1, DR	8	90	N, R1, DR, PC, SN	3	100
	Night	75	45	N	45	75	N, R2, NR	25	80	N, PC, SN, R2, DR	8	90	AA, N, PC, SN, R2, DR	3	100
Offices, retail outlets	Evening	70	75				N, R1, DR	45	75	N, R1, DR	14	85	N, R1, DR, PC, SN	5	95
	Night	70	75	N	75	70	N, R2, NR	45	75	N, PC, SN, R2, DR	14	85	AA, N, PC, SN, R2, DR	5	95

Appendix C: Heritage Searches

Search Results

56 results found.

ANZ Bank 429-433 Peel St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Attunga Geological Site Attunga Halls Creek Rd	Attunga, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Attunga State Forest Ornithological Area Inlet Rd	Attunga, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Australia Arms Hotel Group Holroyd St	Moore, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Ben Halls Gap State Forest Morrisons Gap Rd	Ben Halls Gap via Nundle, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Ben Halls Gap State Forest (part) Morrisons Gap Rd	Nundle, NSW, Australia	(Removed from Register or IL) Register of the National Estate (Non-statutory archive)
Bendemeer Public Cemetery Bendemeer Watsons Creek Rd	Bendemeer, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Black Snake Gold Mine Nundle Rd	Hanging Rock via Nundle, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Blair Graves 7 Aurora St	Bendemeer, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Borah Creek Rail Bridge Tamworth Barraba Railway Line	Upper Manilla, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Bowling Alley Point Geological Site		Bowling Alley Point, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Calala Cottage	138-144 Denison St	West Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Carinya Garden	156 Carthage St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Church of England School and School Masters Residence (former)	63 Bridge St	WestTamworth, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Dominican Convent Group	223-227 Marius St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Dominican Convent School	223-227 Marius St	Tamworth, NSW, Australia	(Removed from Register or IL) Register of the National Estate (Non-statutory archive)
Dominican Convent and Chapel	223-227 Marius St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Goonoo Goonoo Chapel	New England Hwy	Goonoo Goonoo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Goonoo Goonoo Complex	New England Hwy	Goonoo Goonoo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Goonoo Goonoo Fountain	New England Hwy	Goonoo Goonoo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Goonoo Goonoo Post Office and Old Store	New England Hwy	Goonoo Goonoo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Goonoo Goonoo Woolshed New England Hwy	Goonoo Goonoo, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Horsley Private Cemetery Glenbarra Rd	Horsley via Manilla, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Indigenous Place	Glendon via Bendemeer, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Moonbi, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Moore Creek, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Lands Office 25 Fitzroy St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Linton Nature Reserve Barraba Kingstown Rd	Barraba, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Macdonald River Road Bridge New England Hwy	Bendemeer, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Mechanics Institute (former) 87-93 Brisbane St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Mount Kaputar National Park Narrabri Bingara Rd	Narrabri, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Namoi River Road Bridge Manilla St	Manilla, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Nundle Courthouse (former) and Police Station Jenkins St	Nundle, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Oaky Creek Rail Bridge Tamworth Barraba Railway Line	Barraba, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Oxley Park Endeavour Dr	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Peel River Rail Bridge Peel St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Power House Monument 248 Marius St	Tamworth, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Royce Cottage Museum 197 Manilla St	Manilla, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Somerton Road Travelling Stock Route (part) Lower Somerton Rd	Manilla, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
St Nicholas Catholic Church 18 White St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Tamworth Council Chambers and Town Hall (former) 214 Peel St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Tamworth Gaol (former) 154 Johnston St	Tamworth, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)

Tamworth Hospital (Main Block only) 31 Dean St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Tamworth Post Office 402A Peel St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Tamworth Post Office 402A Peel St	Tamworth, NSW, Australia	(Listed place) Commonwealth Heritage List
Tamworth Primary School Upper St	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Tamworth Town Hall 28-30 Fitzroy St	Tamworth, NSW, Australia	(Rejected Place) Register of the National Estate (Non-statutory archive)
Upper Dungowan Uniting Church Nowendal Rd	Dungowan, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Warrabah National Park Namoi River Rd	Kingstown, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Warrabah Nature Reserve (former) Namoi River Rd	Kingstown, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Watsons Creek Nature Reserve	Watsons Creek, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Weabonga Geological Site	Woolomin, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Wesley Uniting Church 144 Marius St	Tamworth, NSW, Australia	(Rejected Place) Register of the National Estate (Non-statutory archive)

Winton Cemetery Woodland Remnant New Winton Rd	Tamworth, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Woolomin Geological Site	Woolomin, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Report Produced: Mon Apr 4 11:03:24 2022

Heritage Search Result

Date: 04/04/2022

Item Name	Location	LGA	SHR Id	Item Type	Record Owner
Abbey, The	43-45 Rowan Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Airlie House at Airlie Station	Airlie Station Road BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Airlie Station Fireplace	Airlie Station Road BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Airlie Station Woolshed	Airlie Station Road BENDEMEER NSW 2355	Tamworth Regional		Unknown	LGOV
All Saints Church of England	70 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
'Angelsea' Residence	Woodsreef Road BARRABA NSW 2347	Tamworth Regional		Built	LGOV
ANZ Bank Building	429 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Anzac Park Gates	Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Anzac Park Gazebo	Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Attunga Cemetery	Ridge Street ATTUNGA NSW 2345	Tamworth Regional		Archaeological-Terrestrial	LGOV
Attunga Hall	Attunga Street ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Attunga Hotel	1-3 Attunga Street ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Attunga Silos	Attunga Street ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Attunga Youth Hall	11-15 Attunga Street ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Australian Winter Cereal Collection	Calala Lane TAMWORTH NSW 2340	Tamworth Regional		Movable / Collection	SGOV

Bank	129 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Bank of New South Wales Building	147 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Baptist Church	86 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Barraba Cemetery	West Street BARRABA NSW 2347	Tamworth Regional		Archaeological-Terrestrial	LGOV
Barraba Central School - Buildings B001, B002 and B004	Gotha Street BARRABA NSW 2347	Tamworth Regional		Built	SGOV
Barraba Central School - Buildings B001, B002 and B004	Gotha Street BARRABA NSW 2347	Tamworth Regional		Built	SGOV
Barraba Creek Bridge	Secondary Road 63 BARRABA NSW 2347	Tamworth Regional		Built	SGOV
Barraba District Hospital	Gotha Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Barraba Primary School	Gotha Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Barraba Senior Citizens Centre	50 Fitzroy Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Barraba Showground and Racecourse	Mulwaree Road BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Bective Station	Oxley Highway BECTIVE NSW 2340	Tamworth Regional		Complex / Group	LGOV
Bective Station - Laundry	Oxley Highway BECTIVE NSW 2340	Tamworth Regional		Built	LGOV
Bective Station - Salt Shed and Butchers Hut	Oxley Highway BECTIVE NSW 2340	Tamworth Regional		Built	LGOV
Bective Station - Shearing Shed and Herefed Stud Sheds	Oxley Highway BECTIVE NSW 2340	Tamworth Regional		Built	LGOV
Bendemeer Café	141-143 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Unknown	LGOV
Bendemeer Hotel	112-130 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Bendemeer Police Station	157 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV

Bendemeer Police Station and Official Residence	Aurora Street and Caroline Street, corner Of BENDEMEER NSW 2355	Tamworth Regional		Built	SGOV
Bendemeer Public Cemetery	Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Archaeological-Terrestrial	LGOV
Bendemeer Public School	Charles Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Bendemeer Public School - Building B00A	17-27 Charles Street BENDEMEER NSW 2355	Tamworth Regional		Built	SGOV
Bendemeer Public School - Building B00A	17-27 Charles Street BENDEMEER NSW 2355	Tamworth Regional		Built	SGOV
Bendemeer Station	New England Highway BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Bendemeer Station - Blacksmiths Store	New England Highway BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Bendemeer Station - Grave of Thomas Perry	New England Highway BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Bendemeer Station - Woolshed	New England Highway BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Bendemeer Town Hall	87-89 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Bendemeer Uniting Church	135-139 Caroline Street (Corner) BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Black Snake Gold Mine	Nundle Road HANGING ROCK NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Blair Graves - Within Haning	155 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Archaeological-Terrestrial	LGOV
Bon Accord	Oxley Highway BECTIVE NSW 2340	Tamworth Regional		Built	LGOV
Bowling Alley Point Dungowan Parish General Cemetery	BOWLING ALLEY POINT NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV

Bowling Alley Point Geological Site	BOWLING ALLEY POINT NSW 2340	Tamworth Regional		Landscape	LGOV
Bowling Alley Point School	BOWLING ALLEY POINT NSW 2340	Tamworth Regional		Built	LGOV
Bowling Alley Point Union Church	BOWLING ALLEY POINT NSW 2340	Tamworth Regional		Built	LGOV
Brick Culvert	461.579km West Tamworth to Uralla Railway NEMINGHA NSW 2340	Tamworth Regional		Built	SGOV
Brick Culvert	490.809km West Tamworth to Uralla Railway WOOLBROOK NSW 2354	Tamworth Regional		Built	SGOV
Bridges Over Railway at Tintinhull	New England Highway South TINTINHULL NSW 2352	Tamworth Regional		Built	LGOV
Brigalow Reserve	Oxley Highway BECTIVE NSW 2340	Tamworth Regional		Landscape	LGOV
Burkes Bridge Loders Gully Creek	New England Highway NEMINGHA NSW 2340	Tamworth Regional		Built	SGOV
Butcher Shop	195 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Catholic Church	Britten Street WEABONGA NSW 2340	Tamworth Regional		Built	LGOV
Cellar Storeroom for Coach and Horses Inn	New England Highway MOONBI NSW 2353	Tamworth Regional		Built	LGOV
Central Hotel	330-334 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Chaffey Dam	Peel River TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Chinese Pioneers Memorial Garden	197 Manilla Street MANILLA NSW 2346	Tamworth Regional		Archaeological-Terrestrial	LGOV
Christ Church Anglican	Ridge Street ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Church	63 Gill Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Clifton Hall	100 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV

Commercial Building	226 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Commercial Hotel	136 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Commonwealth Bank Building	404 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Community Centre	214 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Cottage	37 Griffin Avenue EAST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Cottage	39 Griffin Avenue EAST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Cottage	46 Griffin Avenue EAST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Cottage	47 Griffin Avenue EAST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Cottage	48 Griffin Avenue EAST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Cottage	51 Griffin Avenue EAST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Cottage	56 Griffin Avenue EAST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Courthouse Hotel	232 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Courthouse Hotel	85 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Courthouse Museum	38-40 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Dalblair Homestead	Dalblair Lane WINTON NSW 2344	Tamworth Regional		Built	LGOV
Daruka Station	80 Wyndham Close DARUKA NSW 2340	Tamworth Regional		Built	LGOV
Dingley Dell Uniques	Main Road UPPER MANILLA NSW 2346	Tamworth Regional		Built	LGOV

Dominican Roman Catholic Convent	Marius Street TAMWORTH NSW 2340	Tamworth Regional	00122	Built	HNSW
Dungowan Cemetery	Ogunbil Road DUNGOWAN NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Dungowan Memorial Hall	Nowendoc Road DUNGOWAN NSW 2340	Tamworth Regional		Built	LGOV
Dungowan Public School	137 Ogunbil Road DUNGOWAN NSW 2340	Tamworth Regional		Built	SGOV
Dungowan Public School	137 Ogunbil Road DUNGOWAN NSW 2340	Tamworth Regional		Built	SGOV
Dungowan Public School	Dungowan Creek Road DUNGOWAN NSW 2340	Tamworth Regional		Built	LGOV
Dungowan Store, Post Office and Residence	Nundle Road DUNGOWAN NSW 2340	Tamworth Regional		Unknown	LGOV
Durham	Calala Lane TAMWORTH NSW 2340	Tamworth Regional		Movable / Collection	SGOV
Duri Community Hall	2 Duri Street DURI NSW 2344	Tamworth Regional		Built	LGOV
Duri Public School - Buildings B00B and B00E and Movable Item	Duri-Dungowan Road DURI NSW 2344	Tamworth Regional		Built	SGOV
Duri Silos	Duri Street DURI NSW 2344	Tamworth Regional		Built	LGOV
Dwelling	30-32 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
East Tamworth Station Pedestrian Bridge	Bourke Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Eastern Railway Viaduct	Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Entrance to Endeavour Drive, Street Lights	Endeavour Drive TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Factory	Corner Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Farrer Memorial Agricultural High School - Buildings B00A-B00E, B00G, B00H, B00K, B00R, B00W, B0DA, B0SB and Landscape	585 Calala Lane CALALA NSW 2340	Tamworth Regional		Built	SGOV

Five Head Stamping Battery	Niangala Common NIANGALA NSW 2354	Tamworth Regional		Built	LGOV
Former Anglican Church	Mitchell Street WEABONGA NSW 2340	Tamworth Regional		Built	LGOV
Former Bendemeer Butchery and Residence	113 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Former Brewery Building	130-138 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Former Butchery	Nundle Road DUNGOWAN NSW 2340	Tamworth Regional		Built	LGOV
Former Catholic Church	Cnr Tangaratta and Warral Streets DURI NSW 2344	Tamworth Regional		Built	LGOV
Former Commonweath Bank - Curlew	11 Singh Street WOOLBROOK NSW 2354	Tamworth Regional		Built	LGOV
Former Court House	127 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Former Manvell's Bakery	Nundle Road DUNGOWAN NSW 2340	Tamworth Regional		Built	LGOV
Former Post Office - Craiggwan	Lower Watsons Creek Road WATSONS CREEK NSW 2355	Tamworth Regional		Built	LGOV
Former Square Man Hotel and Old Flour Mill	165-169 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Former Store - Gunadoo	Corner of Glen Barra Road WATSONS CREEK NSW 2355	Tamworth Regional		Built	LGOV
Former Store and Old Butcher Shop	Healy Street NIANGALA NSW 2354	Tamworth Regional		Built	LGOV
General Store and Stable	109-111 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
German Machine Gun, Rotary Park	Manilla Street MANILLA NSW 2346	Tamworth Regional		Movable / Collection	LGOV
Gidley Storage (wheat silos)	Wallamore Road GIDLEY NSW 2340	Tamworth Regional		Built	LGOV

Girl Guides Manilla	68 Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Glen Innes Courthouse	Grey Street GLEN INNES NSW 2370	Tamworth Regional		Built	SGOV
Glenview - Residence	Garthowen Road ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Goonoo Goonoo Station - Group of Buildings	Goonoo Goonoo New England Highway TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Grandstand (at race track)	Britten Road TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Great War Memorial (Clock Tower)	Queen and Maude Streets Intersection BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Group of Shops	235-237 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Group of Shops	239 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Group of Shops	164 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Hallsville Hall	Manilla Road HALLSVILLE NSW 2340	Tamworth Regional		Built	LGOV
Hallsville Methodist Church (Former)	Manilla Road HALLSVILLE NSW 2340	Tamworth Regional		Built	LGOV
Hallsville Methodist Church Cemetery	Manilla Road HALLSVILLE NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Hallsville Public School	Manilla Road HALLSVILLE NSW 2340	Tamworth Regional		Built	LGOV
Hanging Rock Historic Cemetery	Forest Way HANGING ROCK NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Haning	Longford Retreat Road BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Herbarium	Calala Lane TAMWORTH NSW 2340	Tamworth Regional		Movable / Collection	SGOV
Hospital - Allambie	100 Marius Street NORTH TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV

Hotel	117-123 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Hotel & Shops	395-401 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Hotel Tattersalls	146-148 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	29 Parry Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	48-50 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	66A Napier Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	King George V Avenue TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	116 North Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	130 North Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	132 North Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	144 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	50 White Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	204-208 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	29 Napier Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	31 Napier Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	28 Piper Street NORTH TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV

House	42 Raglan Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	64 Raglan Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	10 Rawson Avenue TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	14 Rawson Avenue TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	19 Rawson Avenue TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	21 Rawson Avenue TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	23 Rawson Avenue TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	62 Rawson Avenue TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	35 Roderick Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	65 Roderick Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	79 Roderick Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	24 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	86 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	123 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	2-24 King George V Avenue TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV

House	16 Macquarie Street NORTH TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	18 Macquarie Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	68 Griffin Avenue EAST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	94 Griffin Avenue TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	96 Griffin Avenue TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	59 Fitzroy Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	76 Fitzroy Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	96 Fitzroy Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	98 Fitzroy Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	122 Fitzroy Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	33 Hill Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	43 Hill Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	65 Hill Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	123 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	129 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	38 Bourke Street NORTH TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV

House	100-102 Bourke Street NORTH TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	141A-141B Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	149 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	43 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	45 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	47 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	64 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	75 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	77 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	79 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	81 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	134 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	138 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	140 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	142 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV

House	150 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	153 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	170 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	178 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	15 Church Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	65 Church Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	75 Church Street WEST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	77 Church Street WEST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	79 Church Street WEST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	95 Crown Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	97 Crown Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	61 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	63 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	65 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	67 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	69 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV

House	67 Denison Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	89 Denison Street WEST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	91 Denison Street WEST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	99 Denison Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	89 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	102 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	92 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	94-96 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	95 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	100 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	8 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	10 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	16 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	93 Denne Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	95 Denne Street WEST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV

House	115 Denne Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	98 Goonan Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	14 Gipps Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	15 Gipps Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	17 Gipps Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	48 White Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	19 Gipps Street WEST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	21 Gipps Street WEST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	22 Gipps Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	26 Gipps Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	38 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	40 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	44 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	55 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	57 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	59 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	83 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV

House	89 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	117 Upper Street TAMWORTH NS	Tamworth Regional		Built	LGOV
House	119 Upper Street TAMWORTH NS	Tamworth Regional		Complex / Group	LGOV
House	121 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	King George V Avenue TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	34 White Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	46 White Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	46A White Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	47 White Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	52 White Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House	56 White Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	77 White Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House	79 White Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Avondale	66 Napier Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Broms-grove	72 White Street EAST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Calala	138-144 Denison Street WEST TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
House - Carrick	120 Denison Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Girrawilla	62 Napier Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV

House - Glen Evilly	53-55 White Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Glen Moor	106 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Glenbrook	28 Nundle Road TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Marius Cottage	112 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Minna-murra	69 White Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Salona	90 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - St Austel	130 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - Strathmore	11 Gipps Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - The Cottage	141 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House - The Pines	28 Hill Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House beside Retreat Theatre	63 Bridge Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
House -Shield Hill	32 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Houses	51 & 53 Upper Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Imperial Hotel	181-195 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Imperial Hotel	230 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Insect and Associates Collection	Calala Lane TAMWORTH NSW 2340	Tamworth Regional		Movable / Collection	SGOV

Ivanhoe Residence	37 Edward Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Jacob's Building (Barraba Information Centre)	114-116 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Jenkins St Antiques	83 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Jenkins St Guest House	85 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Junction of Manilla And Namoi Rivers	River Street MANILLA NSW 2346	Tamworth Regional		Complex / Group	LGOV
King George V Avenue of Memorial English Oaks	King George V Memorial Avenue TAMWORTH NSW 2340	Tamworth Regional	01922	Landscape	HNSW
Kissing Gate	Limbri Village - Railway Land LIMBRI NSW 2352	Tamworth Regional		Built	LGOV
Kootingal Hotel	18-20 Gate Street KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
Kootingal Police Station	Denman Avenue KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
Kootingal Public School	Denman Avenue KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
Kootingal Public School - Buildings B00B-B00G	Denman Avenue KOOTINGAL NSW 2352	Tamworth Regional		Built	SGOV
Kootingal Public School - Buildings B00B-B00G	Denman Avenue KOOTINGAL NSW 2352	Tamworth Regional		Built	SGOV
Kootingal War Memorial	Gate Street KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
Kootingal/ Moonbi Cemetery	Limbri Road (Corner) KOOTINGAL NSW 2352	Tamworth Regional		Archaeological-Terrestrial	LGOV
Lands Office	25 Fitzroy Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Limbri Church	17 Church Street LIMBRI NSW 2352	Tamworth Regional		Built	LGOV

Limbri Gatehouse	Limbri Road (Corner) LIMBRI NSW 2352	Tamworth Regional		Built	LGOV
Limbri School	Limbri Road KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
Limbri Store and Post Office (Former)	Corner of Limbri Road LIMBRI NSW 2352	Tamworth Regional		Built	LGOV
Longford Station	Lonngford Retreat Road BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Loomberah War Memorial Hall	Dungowan Road (Corner) LOOMBERAH NSW 2340	Tamworth Regional		Built	LGOV
Main Block	Dean Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Main Group of Hospital Buildings	31 Dean Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Main School Building - Calrossy	140 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Manilla And District Soldiers Memorial Hall	193 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Manilla Cemetery	Namoi River Road MANILLA NSW 2346	Tamworth Regional		Archaeological-Terrestrial	LGOV
Manilla Central School	Arthur Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Manilla Central School - Buildings B00A, B00B, B00D and B00F	Arthur Street MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Manilla Central School - Buildings B00A, B00B, B00D and B00F	Arthur Street MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Manilla Courthouse	Corner Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Manilla Courthouse	Court Street MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Manilla Historical Cemetery	River Street MANILLA NSW 2346	Tamworth Regional		Archaeological-Terrestrial	LGOV
Manilla Masonic Centre	56 Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Manilla Motors	240 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV

Manilla Official Residence 1	27 Court Street MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Manilla Official Residence 2	62 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Manilla Pharmacy Building	204-206 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Manilla Post Office	164 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Manilla railway underbridges	Tamworth-Barraba railway MANILLA NSW 2346	Tamworth Regional	01045	Built	HNSW
Manilla River Bridge	Fossickers Way UPPER MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Manilla River Bridge	Main Road 63 BARRABA NSW 2347	Tamworth Regional		Built	SGOV
Manilla RSL	Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Manilla Showground	River Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Manilla Street Clock	Cross Manilla and Strafford Sts MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Manilla, Namoi River Underbridge and timber floodplain viaducts	Railway Location, Barraba Line, 501.047 Kms. MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Marius Cottage (disposed 2004)	112 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Marius Cottage (disposed 2004)	112 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Masonic Temple	462-464 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Matilda Park	Appleby Lane APPLEBY NSW 2340	Tamworth Regional		Complex / Group	LGOV
Mechanics Institute	87 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV

Monument	Peel Street TAMWORTH NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Monuments at the Tamworth Cemetery	Showground Road TAMWORTH NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Moonbi Lookout	New England Highway MOONBI NSW 2353	Tamworth Regional		Unknown	LGOV
Moonbi War Memorial Hall	Gill Street MOONBI NSW 2353	Tamworth Regional		Built	LGOV
Moonby House	New England Highway North, Located Within Moonbi Retirement Village KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
Moonby House	New England Highway KOOTINGAL NSW 2352	Tamworth Regional	00061	Built	HNSW
Moonby House Graves	New England Highway North Located Within Moonbi Retirement Village KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
Moonby House Out House	New England Highway North, Located Within Moonbi Retirement Village KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
Moore Creek Dam	Moore Creek (4Wd Access Only Off Upper Moore Creek Road and Access (4Wd?) Off New England Highway - Gully Road) MOORE CREEK NSW 2340	Tamworth Regional		Built	LGOV
Moore Creek War Memorial Hall	Upper Moore Creek Road MOORE CREEK NSW 2340	Tamworth Regional		Built	LGOV
Morrow's Row (Group)	1-21 Savoy Street BARRABA NSW 2347	Tamworth Regional		Complex / Group	LGOV

Namoi River Bridge	Secondary Road 63 MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Namoi River Bridge	63 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Namoi River Bridge at Manilla	Secondary Road 63 MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Nandewar Historical Society Building	71 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
National Australia Bank Building	400-402 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Nemingha Anglican Church	Nundle Road NEMINGHA NSW 2340	Tamworth Regional		Built	LGOV
Nemingha School (Former)	Nundle Road NEMINGHA NSW 2340	Tamworth Regional		Built	LGOV
Nemingha War Memorial Hall/Nemingha Reserve	Kootingal Road NEMINGHA NSW 2340	Tamworth Regional		Built	LGOV
New England Credit Union Building	168 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Niangala Cemetery	Niangala - Weabonga Road NIANGALA NSW 2354	Tamworth Regional		Archaeological-Terrestrial	LGOV
Niangala War Memorial Hall and Reserve	Niangala Road NIANGALA NSW 2354	Tamworth Regional		Built	LGOV
Niangala Weir	Niangala - Weabonga Road NIANGALA NSW 2354	Tamworth Regional		Built	LGOV
Nundle Cemetery	Nundle Creek Road NUNDLE NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Nundle Memorial Hall	101 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Nundle Police Station	Gill Street, Corner Durban Street and Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	SGOV
Nundle Post Office	91 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Nundle Public School	Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV

Nundle Public School - Buildings B00A, B00E and B00G	93-97 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	SGOV
Nundle Public School - Buildings B00A, B00E and B00G	93-97 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	SGOV
Nundle Shire Office	58 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Oaky Creek Bridge	Secondary Road 63 COBBADAH NSW 2347	Tamworth Regional		Built	SGOV
Odgers and McClelland Exchange Stores	81 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Office Building	12A Bourke Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Ogunbil Brick Shearing Shed and Silo	Ogunbil Road OGUNBIL NSW 2340	Tamworth Regional		Built	LGOV
Old Baker and Residence	62 Attunga Street ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Old Church Boutique	92 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Old Convent Building	223-227 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Old Cottage (To rear of Trainview WOO-008)	Daisy Street WOOLBROOK NSW 2354	Tamworth Regional		Built	LGOV
Old Courthouse Building	212 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Old Courthouse Kitchen	Frappell Street WEABONGA NSW 2340	Tamworth Regional		Built	LGOV
Old Flour Mill	175-179 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Old Gowrie School Site	Gowrie Road GOWRIE NSW 2340	Tamworth Regional		Built	LGOV
Old Hotel Building	143-145 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Old Piallamore School Residence	Nundle Road PIALLAMORE NSW 2340	Tamworth Regional		Built	LGOV
Old Post Office, Glenlui	1265 Manilla Road HALLSVILLE NSW 2340	Tamworth Regional		Built	LGOV

Old School	Bithramere Lane BITHRAMERE NSW 2340	Tamworth Regional		Built	LGOV
Old St. Joseph's School Site [Site Plan also indicating relationship between old	Nundle Road DUNGOWAN NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Original Bendemeer Post Office (Former)	99-102 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Unknown	LGOV
Original building	Court Street MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Original Manilla Hospital Building	Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Oxley Memorial Anchor	Manilla Road (Corner) HALLSVILLE NSW 2340	Tamworth Regional		Built	LGOV
Peel Inn	89 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Police Station (Former)	40 Attunga Street ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Port Stephens Cutting, Hand Laid Stone	Nowendoc Road NIANGALA NSW 2354	Tamworth Regional		Built	LGOV
Post Office	402A Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Post Office Hotel	146 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Power House Motel	248 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Quirindi Courthouse	George Street QUIRINDI NSW 2343	Tamworth Regional		Built	SGOV
Railway Bridge	Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Railway House	20 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Regent Cinema	3-5 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Residence	72 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV

Residence	50 Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Residence	14 Hill Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	5 Hill Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	8 Hill Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	272 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	105 Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	113 Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	78 Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	92 Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	94 Court Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	98 River Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	83 River Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	67 Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	50 Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	751 Barry Road HANGING ROCK NSW 2340	Tamworth Regional		Built	LGOV
Residence	Ratcliffe Avenue MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	227 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	125 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	119-121 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV

Residence	44 Market Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	78 Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	79 Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	68 Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	57 Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	80 Rowan Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	42 Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	94 Rowan Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	106 Rowan Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	64 Namoi Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	104 Namoi Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	67 Namoi Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	73 Namoi Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	96 Arthur Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	94 Arthur Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	79 Jenkins Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
Residence	194-196 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence	48 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	86-88 Nundle Road WOOLOMIN NSW 2340	Tamworth Regional		Built	LGOV

Residence	Munroo Street WOOLOMIN NSW 2340	Tamworth Regional		Built	LGOV
Residence	69 Cherry St BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	43 Gotha Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	25 Cooper Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	11 Alice Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	34 Maude Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	38 Maude Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	97 Fitzroy Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	63 Fitzroy Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	53 Fitzroy Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	24 Alice Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	29 Rodney Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	31 Henry Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	55 Edward Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence	26 Savoy Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Residence - Police Station	62 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence - The Church	Gowrie Road GOWRIE NSW 2340	Tamworth Regional		Built	LGOV
Residence 'Avonlea'	13 Railway Parade MANILLA NSW 2346	Tamworth Regional		Built	LGOV

Residence 'Mayvale'	Mayvale, Rushes Creek Road MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Residence 'Ngundi'	64 Rowan Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Retreat Main House	Kingstown Road RETREAT NSW 2355	Tamworth Regional		Built	LGOV
Retreat Old Granite Store	Kingstown Road RETREAT NSW 2355	Tamworth Regional		Built	LGOV
Riverview - Residence	14 Singh Street WOOLBROOK NSW 2354	Tamworth Regional		Built	LGOV
Roman Catholic Church	Ridge Street ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Royal Hotel	153-159 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Royce Cottage	197 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Royce Cottage, Yarramanbully School and Chinese Pioneer Memorial Gardens	197 Manilla Street MANILLA NSW 2346	Tamworth Regional		Unknown	LGOV
School Residence	327 Meldorn Lane HALLSVILLE NSW 2340	Tamworth Regional		Built	LGOV
Scout Hall	Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Service Station	73 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Sheba Dam Gatekeeper's Slab Cottage	Barry Road Sheba Dam HANGING ROCK NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Shop	83 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Shop	200 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Shop	99 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Shop	92-94 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Shop	79 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV

Shop	265-267 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Shop	277 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Shop and Library	102-108 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Shopfront Glass	78-80 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Shops	465-469 Peel Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Shops	103-105 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Silverweir Homestead	Appleby Lane APPLEBY NSW 2340	Tamworth Regional		Built	LGOV
Slab Hut	Bloomfield Street SOMERTON NSW 2340	Tamworth Regional		Built	LGOV
Slab Hut near Calala	138-144 Denison Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Somerton Cemetery	Being Point SOMERTON NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Somerton Police Station	Bloomfield Street SOMERTON NSW 2340	Tamworth Regional		Built	LGOV
Somerton Post Office and General Store (Former)	Scotland Street SOMERTON NSW 2340	Tamworth Regional		Built	LGOV
Somerton Public School	Milkmaid Streets (Corner) SOMERTON NSW 2340	Tamworth Regional		Built	LGOV
Somerton Public School - Buildings B00A-B00C	Scotland Road SOMERTON NSW 2340	Tamworth Regional		Built	SGOV
Somerton Public School - Buildings B00A-B00C	Scotland Road SOMERTON NSW 2340	Tamworth Regional		Built	SGOV
Somerton Racecourse	Racecourse Road SOMERTON NSW 2340	Tamworth Regional		Built	LGOV

Somerton War Memorial Hall	Scotland Street (Corner) SOMERTON NSW 2340	Tamworth Regional		Built	LGOV
Split Rock Dam	Manilla River MANILLA NSW 2346	Tamworth Regional		Built	SGOV
St Andrews Anglican Church	Denman Avenue (Corner) KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
St Andrews Church	152-154 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
St Andrews Presbyterian Church	Rowan Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
St Joseph's Catholic Convent (Former)	Nundle Road DUNGOWAN NSW 2340	Tamworth Regional		Unknown	LGOV
St Martins Anglican Church	Nundle Road PIALLAMORE NSW 2340	Tamworth Regional		Built	LGOV
St Nicholas Church	18 White Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
St. Johns Anglican Parish	Woodsreef Road WOODSREEF NSW 2347	Tamworth Regional		Built	LGOV
St. John's Catholic Church Hall and Residence	58-64 Fitzroy Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
St. John's Church	102 Carthage Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
St. Laurence's Church of England, Church Vicarage, Parish Hall	52-54 Fitzroy Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
St. Luke's Uniting Church	Sandy Road (Corner) KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
St. Mark's Anglican Church	Scotland Street SOMERTON NSW 2340	Tamworth Regional		Built	LGOV
St. Mary's Anglican Church	50-52 Frederick Street WOOLOMIN NSW 2340	Tamworth Regional		Built	LGOV
St. Mathew's Presbyterian Church	Scotland Road SOMERTON NSW 2340	Tamworth Regional		Built	LGOV
St. Michaels Church (Roman Catholic)	Nundle Road DUNGOWAN NSW 2340	Tamworth Regional		Built	LGOV

St. Paul's Church	63 Bridge Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
St. Peter's Catholic Church	15 Innes Street NUNDLE NSW 2340	Tamworth Regional		Built	LGOV
St. Stevens Anglican Church	Caroline Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
St. Thomas Anglican Church	Nowendoc Road DUNGOWAN NSW 2340	Tamworth Regional		Built	LGOV
Stratharlie	Oxley Highway West SOMERTON NSW 2340	Tamworth Regional		Built	LGOV
Sulcor Limestone Mine Kilns	Sulcor Road ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Swamp Creek Bridge	New England Highway GOONOO GOONOO NSW 2340	Tamworth Regional		Built	SGOV
Tamworth Centre for Crop Improvement	Calala Lane TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	SGOV
Tamworth Correctional Centre	Dean Street, corner 154 Johnston Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	SGOV
Tamworth Correctional Centre	152-160 Johnston Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Tamworth Correctional Centre - Administration	Dean Street, corner 154 Johnston Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth Correctional Centre - Cell Block	Dean Street, corner 154 Johnston Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth Correctional Centre - Dry Cell	Dean Street, corner 154 Johnston Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth Correctional Centre - Gatehouse & Visitors	Dean Street, corner 154 Johnston Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV

Tamworth Correctional Centre - Internal Administration Buildings	Dean Street, corner 154 Johnston Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth Correctional Centre - Walls & Towers	Dean Street, corner 154 Johnston Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth Court House	Marius and Fitzroy Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth East Zone Substation	Cockburn Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	SGOV
Tamworth Gatekeeper's residence	20 Darling Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth Hotel	147 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Tamworth House	34 Bourke Street NORTH TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Tamworth Peel Barracks	Peel Street (cnr) TAMWORTH NSW 2340	Tamworth Regional	00550	Built	HNSW
Tamworth Post Office	Fitzroy Street TAMWORTH NSW 2340	Tamworth Regional	01421	Built	HNSW
Tamworth Primary School and Residence	Upper Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Tamworth Public School - Buildings B00D and B00M	Upper Street EAST TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth Public School - Buildings B00D and B00M	Upper Street EAST TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth rail bridge over Peel River	Main Northern railway 454.125 km TAMWORTH NSW 2340	Tamworth Regional	01058	Built	HNSW
Tamworth Railway Footbridge	455.040km Northern Railway Line, Bourke Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth Railway Station	Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV

Tamworth Railway Station	100 Brisbane Street TAMWORTH NSW 2340	Tamworth Regional		Complex / Group	LGOV
Tamworth Railway Station, yard group and movable relics	Main Northern railway TAMWORTH NSW 2340	Tamworth Regional	01260	Complex / Group	HNSW
Tamworth West Public School - Buildings B00A, B00F, B00H and B00J	65 Bridge Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth West Public School - Buildings B00A, B00F, B00H and B00J	65 Bridge Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth West Public School - Buildings B00A, B00F, B00H and B00J	65 Bridge Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth, Former Station Master's Residence	34 Bourke Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth, Peel River Underbridge	454.125km Northern Railway Line TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tamworth, Peel Street Underbridge	454.187km Northern Line, Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
Tarpoly Creek Railway Bridge	Main Road 63 BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Tarpoly Creek Railway Underbridge	Manilla Road BARRABA NSW 2347	Tamworth Regional		Built	SGOV
The Claypan and Fuller Gallery	74 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Timber Bridge over Macdonald River	Havannah Street BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Timbumburi Public School - Building B00D	542 Kia Ora Lane TIMBUMBURI NSW 2340	Tamworth Regional		Built	SGOV
Timbumburi Public School - Building B00D	542 Kia Ora Lane TIMBUMBURI NSW 2340	Tamworth Regional		Built	SGOV
Timbumburi School	RMB 539 New England Highway South TIMBUMBURI NSW 2340	Tamworth Regional		Built	LGOV

Tintinhull Public School	Tintinhull Road TINTINHULL NSW 2352	Tamworth Regional		Built	LGOV
Tintinhull Public School - Building B00A and B00F (Residence)	85 Tintinhull Road TINTINHULL NSW 2352	Tamworth Regional		Built	SGOV
Tintinhull Public School - Building B00A and B00F (Residence)	85 Tintinhull Road TINTINHULL NSW 2352	Tamworth Regional		Built	SGOV
Tobacco Kiln	73-95 King George Avenue TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Tobacco Kiln	119-139 King George Avenue TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Tobacco Kiln	Scott Road TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Town Hall	26-28 Fitzroy Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Trainview - Residence	Back Woolbrook Road WOODSREEF NSW 2347	Tamworth Regional		Built	LGOV
Treloar Building	85-87 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Tyrone Residence	10 Limbri Road KOOTINGAL NSW 2352	Tamworth Regional		Built	LGOV
Uniting Church	53-55 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Uniting Church	Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Uniting Church Hall	Strafford Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Upper Manilla, Borah Creek Underbridge	516.834km, West Tamworth To Barraba Railway UPPER MANILLA NSW 2346	Tamworth Regional		Built	SGOV
Victoria Hotel	82 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Walcha Courthouse	Apsley Street WALCHA NSW 2354	Tamworth Regional		Built	SGOV

War Memorial	Gipps Street TAMWORTH NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Weabonga Cemetery	Weabonga Road WEABONGA NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Weabonga Hall	Mitchell Street WEABONGA NSW 2340	Tamworth Regional		Unknown	LGOV
Weabonga School	Mitchell Street Mitchell Street Mitchell Street WEABONGA NSW 2340	Tamworth Regional		Built	LGOV
Wells	Scott Road TAMWORTH NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Wells and Pumping Station off Peel River	Scott Road TAMWORTH NSW 2340	Tamworth Regional		Archaeological-Terrestrial	LGOV
Wesleyan Church and House	144 Marius Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
West Retreat	Longford Retreat Road RETREAT NSW 2355	Tamworth Regional		Built	LGOV
West Retreat Bridge	Retreat Road RETREAT NSW 2355	Tamworth Regional		Built	LGOV
West Tamworth Railway Station	In Street WEST TAMWORTH NSW 2340	Tamworth Regional		Built	SGOV
West Tamworth Railway Station	In and Outs Streets WEST TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Western Railway Viaduct	Peel Street TAMWORTH NSW 2340	Tamworth Regional		Built	LGOV
Winton Cemetery	Old Winton Road WINTON NSW 2344	Tamworth Regional		Archaeological-Terrestrial	LGOV
Wold's Buildings	84-88 Queen Street BARRABA NSW 2347	Tamworth Regional		Built	LGOV
Woodsreef Cemetery	Old Bundarra Road WOODSREEF NSW 2347	Tamworth Regional		Archaeological-Terrestrial	LGOV
Woolbrook rail bridge over McDonald River	Main Northern Railway WOOLBROOK NSW 2354	Walcha	01067	Built	HNSW

Woolbrook War Memorial Hall	Limbri-woolbrook Road WOOLBROOK NSW 2354	Tamworth Regional		Built	LGOV
Wyaralong Homestead	Manilla Road ATTUNGA NSW 2345	Tamworth Regional		Built	LGOV
Yaccamunda - Airlie Station	Property - Airlie Station Rocky Gully Road BENDEMEER NSW 2355	Tamworth Regional		Built	LGOV
Yarramanbully School Building	197 Manilla Street MANILLA NSW 2346	Tamworth Regional		Built	LGOV
Yellow Box Stand	Calala Lane TAMWORTH NSW 2340	Tamworth Regional		Unknown	SGOV

Appendix D: PACHCI Assessment

Transport
Roads & Maritime
Services

Date:29/09/2022

Attention: Mitchel Ingram.
Project Manager
76 Victoria Street
Grafton, NSW 2460.

Dear Mitchel,

Preliminary assessment results for the proposed HW9 Segment 1660 to Segment 1700 Sidling hill.

Based on Stage 1 of the *Procedure for Aboriginal cultural heritage consultation and investigation* (PACHCI). Resource 3

The recommended works will be improved road safety via treatments such as wide centreline treatment, wider shoulders and safety barriers which was assessed as being unlikely to have an impact on Aboriginal Cultural Heritage.

The assessment is based on the following due diligence considerations:

- The project is unlikely to harm known Aboriginal objects or places.
- The AHIMS search **did not** indicate any known Aboriginal objects or places in the immediate project areas therefore, there will be no direct impacts to any identified Aboriginal items or sites that may have been highlighted in the area.
- The study area **does not** contain landscape features that indicate the presence of Aboriginal objects, based on the Office of Environment and Heritage's ***Due diligence Code of Practice for the Protection of Aboriginal objects in NSW*** and the Roads and Maritime Services' procedure.
- The cultural heritage potential of the study area appears to be reduced due to past disturbance.
- There is an absence of sandstone rock outcrops likely to contain Aboriginal art.

Safeguards: Please be vigilant for potential Aboriginal objects when work commences.

Your project may proceed in accordance with the environmental impact assessment process, as relevant, and all other relevant approvals.

If there are any changes, please contact me and your environmental team to reassess any potential impacts on Aboriginal cultural heritage.

If any potential Aboriginal objects (including skeletal remains) are discovered during the course of the project, all works in the vicinity of the find must cease.

Follow the steps outlined in the Roads and Maritime Services ***Unexpected Heritage Items, Heritage Procedure 02, November 2015.***

Background.

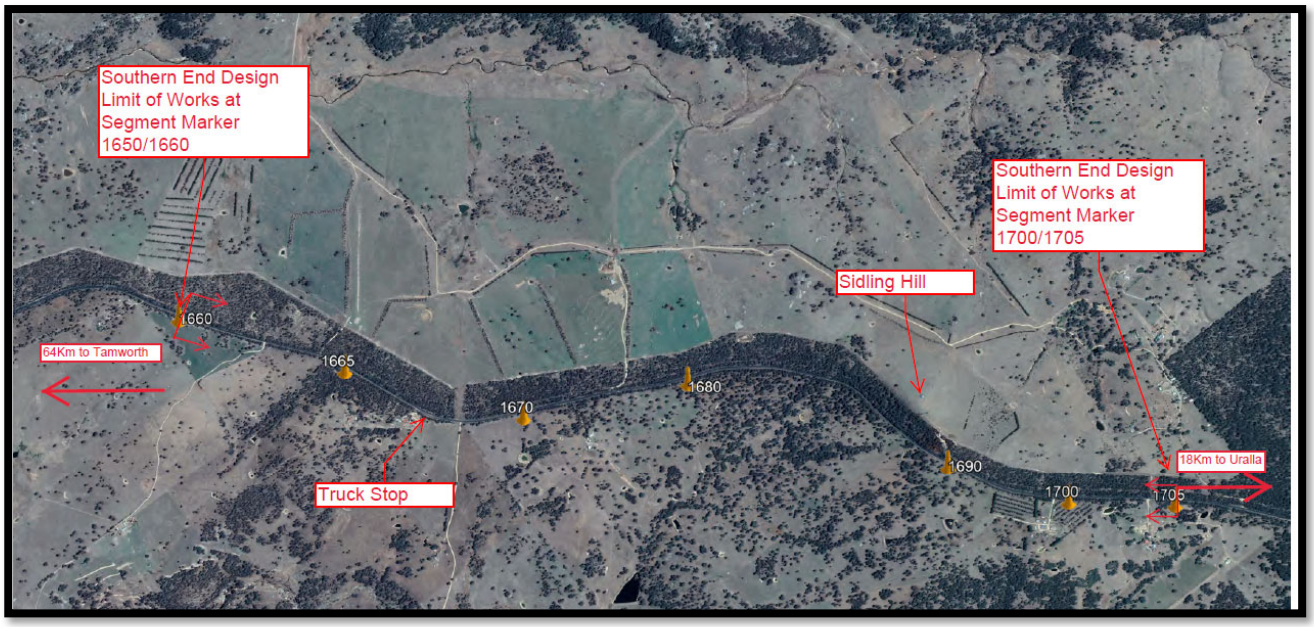
Project Location

Segments 1660/1665/1670/1680/1690/1700 are located on the New England Highway approximately18 kilometres South of Uralla.

The overall length of the job is 5.85 kilometres and includes approximately 69,445m² of existing pavement surface area.

The road configuration is 2 lane 2 way in segments 1660/1665/1700 and then transitions to 3 lane 2 way in segments 1670/1680/1690.

Figure:1. Project location: Seg 1660, Seg 1665, Seg 1670, Seg 1680, Seg 1690, Seg 1700 Sidling Hill.



The project is funded through the safety funding from the Willow Tree to Uralla program.

The safety funding will go towards safety improvement such as enhanced line marking, Wide Centreline Treatment (WCLT), new and or altered roadside safety barriers, and shoulder widening.

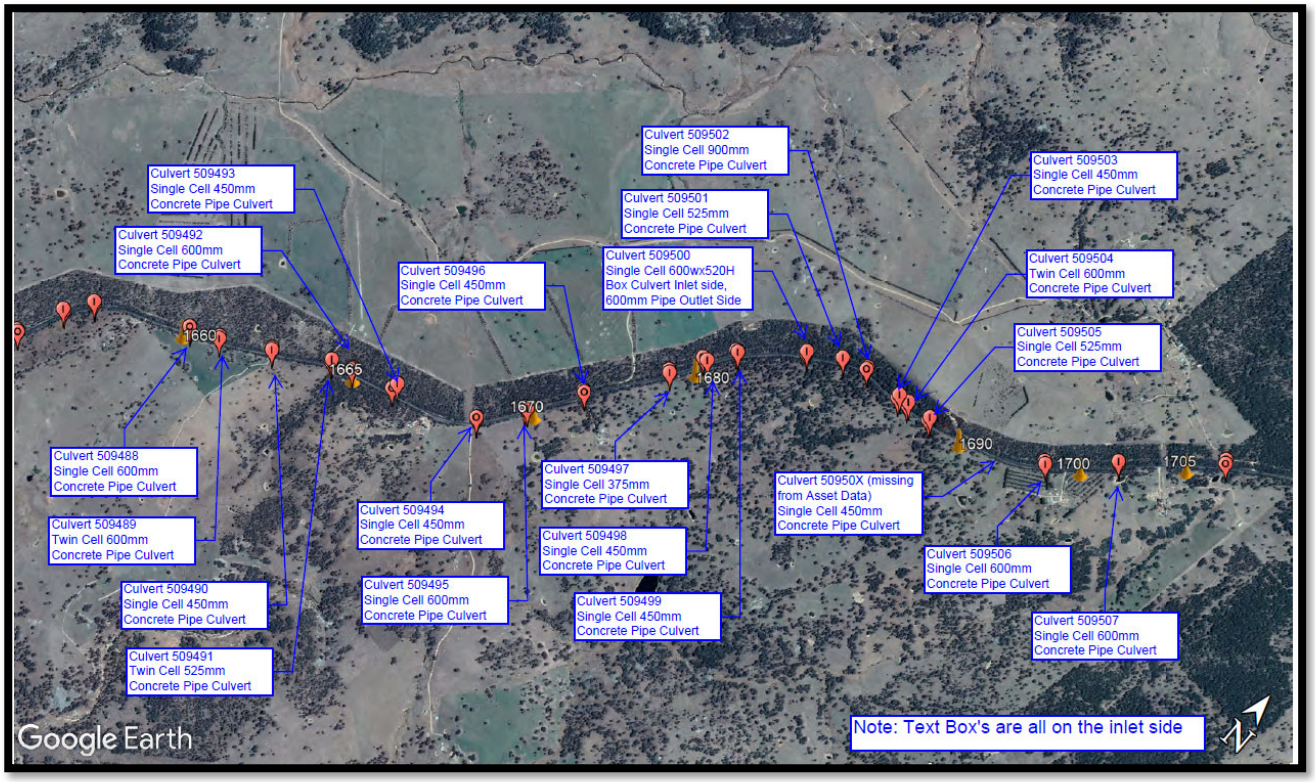
The SB overtaking lane (OTL) is to be modified due to existing safety concerns with the existing end location being on steep decline and leading into a substandard left curve.

It is proposed to pull the end point back North so the overtaking lane ends approximately 150 metres North of Segment Marker 1680/1690.

To maintain similar overtaking length as existing (1km) it is proposed to start the overtaking lane just south of driveway 6884 New England Highway (Wynilbah) 400 metres into the start of segment 1700.

This will result in approximately 400 metres of full depth pavement widening SB side to accommodate the OTL extension to the North.

Figure:2. Tranverse Culverts.



Project Justification

The existing road cross section in segments 1660-1700 is currently narrower than the desired standard for the New England Highway. There is no existing WCLT and the existing travel lanes are narrower than the standard 3.5 metres in some locations. For example Sidling Hill climbing lane has only 3.0 metre travel lanes and less than 1.0 metres shoulder which is below current standards.

There are numerous un-protected roadside safety hazards including culvert headwall drop offs, embankment drops off posing roll over hazards, and non-frangible mature trees within close proximity to the edge of the road.

Within the project limits there has been 25 crashes over the last 10 years. 0 Fatal, 7 serious injuries, 7 moderate injuries, and the remainder low/non-casualty towaways.

1 Fatal crash is recorded in 2007 at the northern end of segment 1600 due to a head on incident.

This project will address these existing issues by means of installing a 1.0 metre WCLT with a minimum of 1.0 metre shoulders however up to 3.0 metre is desired where achievable.

Safety barriers will be installed where warranted to protect against roadside hazards such as trees, embankments, and culvert drop edge hazards.

Improved shoulder width will be beneficial for all road users by creating a recoverable area outside the travel lane.

Other advantages include improved safety for maintenance works and in the event of break downs.

The existing road cross section in segments 1660-1700 is currently narrower than the desired standard for the New England Highway.

There is no existing WCLT, and the existing travel lanes are narrower than the standard 3.5 metres in some locations.

For example: Sidling Hill climbing lane has only 3.0 metre travel lanes and less than 1.0 metre shoulders which is below current standards.

There are numerous un-protected roadside safety hazards including culvert headwall drop offs, embankment drops off posing roll over hazards, and non-frangible mature trees within proximity to the edge of the road.

Within the project limits there has been 25 crashes over the last 10 years. 0 Fatal, 7 serious injuries, 7 moderate injuries, and the remainder low/non-casualty towaways. 1 Fatal crash is recorded in 2007 at the northern end of segment 1600 due to a head on incident.

This project will address these existing issues by means of installing a 1.0 metre WCLT with a minimum of 1.0 metre shoulders however up to 3.0 metre is desired where achievable.

Safety barriers will be installed where warranted to protect against roadside hazards such as trees, embankments, and culvert drop edge hazards.

Improved shoulder width will be beneficial for all road users by creating a recoverable area outside the travel lane.

Other advantages include improved safety for maintenance works and in the event of break downs.

The existing pavement for these segments is showing some defects that will require routine heavy patching to facilitate a reseal.

The pavement heavy patching works will ensure the serviceability and functionality of the pavement into the future.

The reseal effectively blacks outs redundant longitudinal line marking and allows for the clean reinstatement of line marking in new locations to facilitate the 1.0 metre WCLT.

These treatments will improve the safety of this section of highway and overall contribute towards the reductions of fatalities and serious injuries on the New England Highway into the future.

Figure:3.Segment 1660 Compound Site.

Project Objectives

- Achieve the desired safer cross section.
- Improved road safety via treatments such as wide centreline treatment, wider shoulders and safety barriers.

Figure:4.Compound Site& Plant parking S1665.

Project Scope

The scope for the project includes:

- Widening sealed shoulder width to min 1m, desired up to 3.0 metres where achievable
- Implementation of 1.0 metre WCLT for all 6 segments.
- Culvert extensions, potential replacements only if required, lining treatments if required. Noting that drainage structure works are minimal for this project. Refer to below section on drainage structure works for more specific details.
- Culvert desilting, inlet/outlet desilting, and inlet/outlet re-stabilisation via rock or jute matt lining as appropriate.
- Longitudinal SO kerb (concrete dish drain) adjacent to some of the cuttings where nominated in the design, bedding on a No Fines Concrete (NFC) with trench drain for subsurface drainage. SO kerb is planned on the cut side (NB) on Sidling Hill to achieve a wider cross section similar to what was constructed for the Rimbanda Project. Some SO kerb is also planned on SB side where required.

- Installation of new flexible guardrail roadside safety barriers.
- Minor earthworks as required for SO kerb excavation, shoulder widening box out, trimming back small cutfaces where needed, small embankment widenings for the OTL extension. Large scale earthworks such as high embankment widenings and widening of cuts has been avoided in the scoping of this project.
- Overtaking lanes adjustments including constructing a run off area for existing NB Overtaking lane and lengthening of the start of the SB overtaking lane by moving to the North.
- Removal of regrowth vegetation to maintain table drain functionality, maintain safe site distances, and for roadside safety hazards.
- Removal of general regrowth vegetation in the disturbed zone under what is permissible In accordance with environmental assessment for routine and minor works and applicable standard safeguards. For example, regrowth vegetation <10 years old growing within table drains and the existing disturbed zone.
- Removal of mature trees some of which are outside the existing disturbed zone, refer to Veg scope for further details.
- Trimming of overhanging tree branches.
- Maintenance of existing table drains/catch drains involving, desilting where needed, Erosion prevention treatments where needed such as geofabric and rock lining, or jute mesh as appropriate to the location considering longitudinal grade and catchment.
- New sprayed seal wearing surface and linemarking.
- Roadside signage maintenance or improvements as identified throughout the design Process.

Work Methodology

Below is a summary of the general work methodology:

1. Establish site compound.
2. Implement traffic management plans.
3. Delineate no go zones and any vegetation to be protected.
4. Install sediment and erosion controls.
5. Mulch long grass and regrowth vegetation within disturbed zone.

6. Establish spoil site including sed and erosion controls.

7. Undertake vegetation removal works.

8. Extend culverts and culvert inlet/outlet treatments as per scope.

9. Excavate for SO kerb and pavement widenings progressively.

10. Construct SO kerbs including underlying subsoil drains.

11. Construct pavement in front of SO kerbs.

12. Construct the shoulder widening and pavement widening for the OTL extension.

13. Reseal prep Heavy Patch the existing pavement.

14. Seal the surface with a bituminous sprayed seal (primerseal).

15. Undertake any required table drain maintenance as the works progress through the sections.

16. Install roadside safety barriers.

17. Install new/replace/relocated roadside signage as required.

18. Install pavement delineation, longitudinal, and transverse linemarking.

19. Disestablish site.

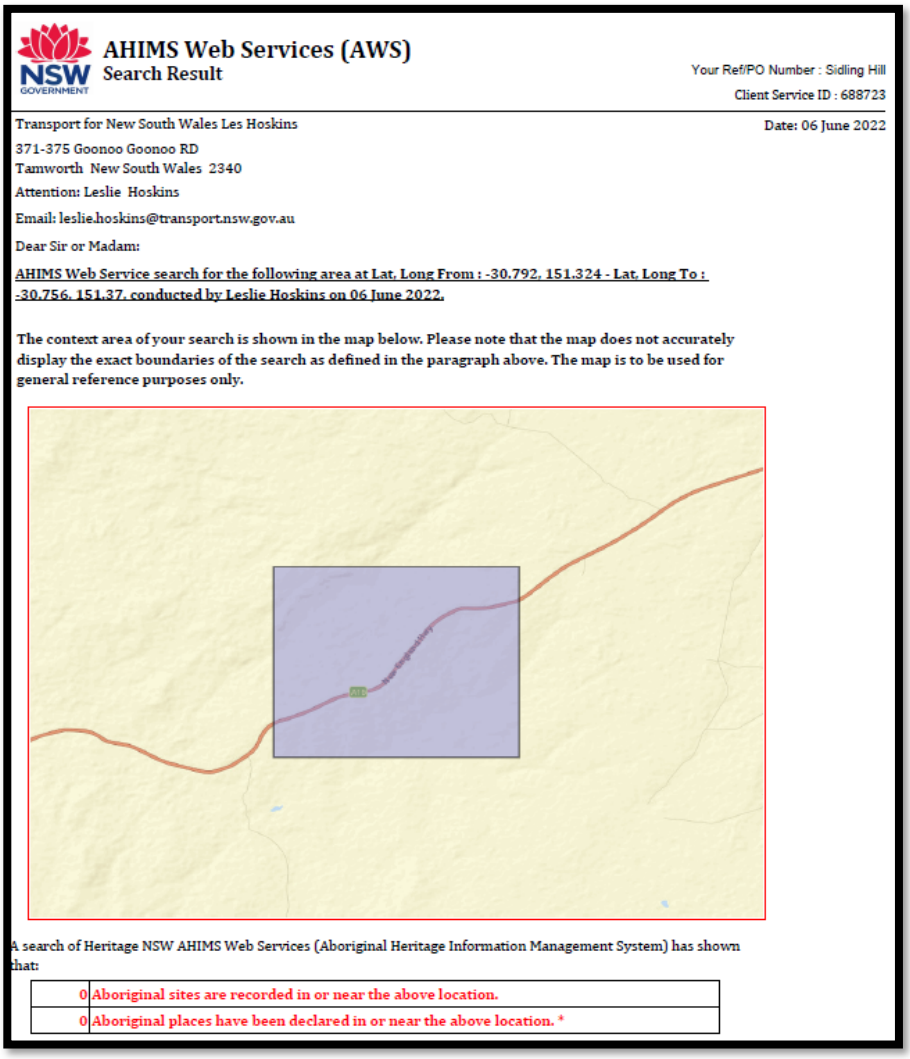
20. Final seal approximately 12 months later.

21. Install pavement delineation, longitudinal, and transverse linemarking.

22. Install retro-reflective raised pavement markers (RPMs).

Figure:5. Native Title Vision Search.

Figure:6. Basic AHIMS search.



AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Sidling Hill
Client Service ID : 688723

Transport for New South Wales Les Hoskins
371-375 Goonoo Goonoo RD
Tamworth New South Wales 2340
Attention: Leslie Hoskins
Email: leslie.hoskins@transport.nsw.gov.au

Date: 06 June 2022

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -30.792, 151.324 - Lat, Long To : -30.756, 151.37, conducted by Leslie Hoskins on 06 June 2022.

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

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

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

A Native Title Vision search ***(Figure:5)*** has indicated that there has been an application lodged by the Gomeroi People on 20th December 2011.

The Basic AHIMS Search (***Figure:6***) indicates that there are no Aboriginal sites or artefacts in or near the project area which would be harmed by the proposed project works.

Due to TransportfNSW's consultation requirements and the fact that there has not been a Native Title determination Transport will continue to consult with the Armidale Local Aboriginal Land Council as the custodians of their country.

The work was assessed as being unlikely to have an impact on Aboriginal Cultural Heritage.

For further assistance regarding Aboriginal Cultural Heritage matters please contact me on (02) 66443135.

Yours sincerely

Lance Randall
Acting Aboriginal Cultural Heritage Officer
Aboriginal Engagement Team

Northern Region.
Attachment A

Activity checklist
Procedure for Aboriginal cultural heritage consultation and investigation - Resource 1

1. Project details

Project name: HW9 Segment 1660 to Segment 1700 Sidling Hill Project.

Name of Project Manager: Mitchel Ingram.

Name of Environment Officer: Lester Piggott.

Name of Aboriginal Cultural Heritage Advisor: Lance Randall.

Project WBS#: P.0066021.04.001.004

2. Purpose of this assessment

This resource provides a checklist of actions associated with the four stages of the ***Procedure for Aboriginal cultural heritage consultation and investigation.***

It can be used to:

- Assist Roads and Maritime Services staff to ensure that the appropriate actions have been completed for a particular project.
- Demonstrate that the Roads and Maritime Services have been duly diligent in considering potential harm to Aboriginal cultural heritage prior to project implementation.

A copy of this checklist must be kept on the project file.

3. Project Works

Project Location

Segments 1660/1665/1670/1680/1690/1700 are located on the New England Highway approximately18 kilometres South of Uralla.

The overall length of the job is 5.85 kilometres and includes approximately 69,445m² of existing pavement surface area.

The road configuration is 2 lane 2 way in segments 1660/1665/1700 and then transitions to 3 lane 2 way in segments 1670/1680/1690.

Project Justification

The existing road cross section in segments 1660-1700 is currently narrower than the desired standard for the New England Highway.

There is no existing WCLT, and the existing travel lanes are narrower than the standard 3.5 metres in some locations.

For example, Sidling Hill climbing lane has only 3.0 metre travel lanes and less than 1.0 metres shoulder which is below current standards.

There are numerous un-protected roadside safety hazards including culvert headwall drop offs, embankment drops off posing roll over hazards, and non-frangible mature trees within proximity to the edge of the road.

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The existing pavement for these segments is showing some defects that will require routine heavy patching to facilitate a reseal.

The pavement heavy patching works will ensure the serviceability and functionality of the pavement into the future.

The reseal effectively blacks outs redundant longitudinal line marking and allows for the clean reinstatement of line marking in new locations to facilitate the 1.0 metre WCLT.

These treatments will improve the safety of this section of highway and overall contribute towards the reductions of fatalities and serious injuries on the New England Highway into the future.

Project Scope

The scope for the project includes:

- Widening sealed shoulder width to min 1m, desired up to 3.0 metres where achievable.

- Implementation of 1.0 metre WCLT for all 6 segments.

- Culvert extensions, potential replacements only if required, lining treatments if required. Noting that drainage structure works is minimal for this project.

Refer to below section on drainage structure works for more specific details.

- Culvert desilting, inlet/outlet desilting, and inlet/outlet re-stabilisation via rock or jute matt lining as appropriate.

- Longitudinal SO kerb (concrete dish drain) adjacent to some of the cuttings were nominated in the design, bedding on a No Fines Concrete (NFC) with trench drain for subsurface drainage.

  SO kerb is planned on the cut side (NB) on Sidling Hill to achieve a wider cross section similar to what was constructed for the Rimbanda Project. Some SO kerb is also planned on SB side where required.

- Installation of new flexible guardrail roadside safety barriers.

- Minor earthworks as required for SO kerb excavation, shoulder widening box out, trimming back small cutfaces where needed, small embankment widenings for the OTL extension.

  Large scale earthworks such as high embankment widenings and widening of cuts has been avoided in the scoping of this project.

- Overtaking lanes adjustments including constructing a runoff area for existing NB Overtaking lane and lengthening of the start of the SB overtaking lane by moving to the North.

- Removal of regrowth vegetation to maintain table drain functionality, maintain safe site distances, and for roadside safety hazards.

- Removal of general regrowth vegetation in the disturbed zone under what is permissible In accordance with environmental assessment for routine and minor works and applicable standard safeguards.

  For example, regrowth vegetation <10 years old growing within table drains and the existing disturbed zone.

- Removal of mature trees some of which are outside the existing disturbed zone, refer to Veg scope for further details.

- Trimming of overhanging tree branches.

- Maintenance of existing table drains/catch drains involving, desilting where needed, Erosion prevention treatments where needed such as geofabric and rock lining, or jute mesh as appropriate to the location considering longitudinal grade and catchment.

• New sprayed seal wearing surface and line marking.

• Roadside signage maintenance or improvements as identified throughout the design Process.

Work Methodology

Below is a summary of the general work methodology:

1. Establish site compound.
2. Implement traffic management plans.
3. Delineate no go zones and any vegetation to be protected.
4. Install sediment and erosion controls.
5. Mulch long grass and regrowth vegetation within disturbed zone.
6. Establish spoil site including sed and erosion controls.
7. Undertake vegetation removal works.
8. Extend culverts and culvert inlet/outlet treatments as per scope.
9. Excavate for SO kerb and pavement widenings progressively.
10. Construct SO kerbs including underlying subsoil drains.
11. Construct pavement in front of SO kerbs.
12. Construct the shoulder widening and pavement widening for the OTL extension.
13. Reseal prep Heavy Patch the existing pavement.
14. Seal the surface with a bituminous sprayed seal (primerseal).
15. Undertake any required table drain maintenance as the works progress through the sections.
16. Install roadside safety barriers.
17. Install new/replace/relocated roadside signage as required.
18. Install pavement delineation, longitudinal, and transverse line marking.
19. Disestablish site.
20. Final seal approximately 12 months later.
21. Install pavement delineation, longitudinal, and transverse line marking.
22. Install retro-reflective raised pavement markers (RPMs).

Glossary

The following terms are used in this resource:

ACHA – Aboriginal cultural heritage advisor
AFG – Aboriginal focus group meeting
AHIMS – OEH's Aboriginal heritage information management system
CHAR – Cultural heritage assessment report
OEH – Office of Environment and Heritage
PM – Project manager
RES – Regional environmental staff
SES(H) – Senior Environmental Specialist (Heritage)

4. Action checklist

Stage	Action	Completed ☑	Date completed and signature
Stage 1	**Action 1:** Is the activity exempt development in accordance with the ***Environmental assessment procedure for routine and minor works*****?** If **yes**, the project may proceed in accordance with all other relevant approvals. If **no**, proceed to Action 2.	☐	No Proceeded to Action 2.
	Action 2: Undertake a Basic Search of AHIMS. Are sites located in the study area? If **yes**, undertake an Extensive Search.	☑	06/06/2022 Completed by Leslie Hoskins.
	Action 3: Provide project details and AHIMS results to ACHA and RES.	☑	Emailed 06/06/2022
	Action 4: ACHA and RES to advise PM whether the project is likely to harm Aboriginal objects or places.	☑	Received 29/09/2022
	Outcomes: Are known or potential impacts to objects or places likely? If **no**, proceed in accordance with all other relevant approvals and environmental impact assessment processes. If **yes**, proceed to Stage 2. <u>Note:</u> For large or complex projects, it may not be feasible to do a Stage 2 survey. Has a cultural heritage constraints mapping been suggested instead? If **yes**, engage an archaeologist and Aboriginal stakeholders to prepare this.	**No impacts – works to proceed.**	29/09/2022  Lance Randall

Appendix E: Biodiversity Assessment Report

Willow Tree to Uralla – Sidling Hill

Biodiversity Assessment Report

Transport for NSW | January 2023

NSW GOVERNMENT

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Willow Tree to Uralla – Sidling Hill

Biodiversity Assessment Report

Transport for NSW | January 2023

Prepared by GeoLINK

Executive summary

Transport for NSW (TfNSW) proposes to undertake pavement widening works to improve traffic safety along a section of New England Highway. The proposal involves formation widening and curve correction within segment 1660 - 1700 of New England Highway.

The objectives of the proposed works are to:

- Achieve a desired safer cross section.
- Improve road safety via treatments such as wide centreline treatment, wider shoulders and safety barriers.

Based on the site assessment and consideration of the work required, the following biodiversity matters are relevant to the proposal:

- The study area comprises remnant vegetation associated with New England Highway road reserve. This vegetation is in low to high condition however has been historically disturbed by grazing, current road operations and maintenance, and is subject to roadside weed incursions.
- The proposal would result in removal of approximately 0.17 hectares of PCT 538 Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion (low to high condition) and 0.01 hectares of PCT 567 Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion (low to High condition).
- PCT 538 and PCT 567 (moderate and high condition only) within the study area is representative of a Threatened Ecological Community (TEC) listed under the BC Act and EPBC Act (White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions (BC Act) and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (EPBC Act)). The proposal would result in removal of approximately 0.18 hectares of TEC.
- No threatened flora species were recorded during the surveys, however considering the limitations of the survey, Bluegrass, Silky Swainson-pea, *Prasophyllum* sp. *Wybong* and Small Snake Orchid are considered potential occurrences at the site.
- No threatened fauna species were recorded at the site, however there is potential for several threatened fauna species to occur based on available site habitats.
- A number of mitigation measures have been recommended to manage potential impacts relating to biodiversity.
- It was determined that the proposal is unlikely to significantly affect any species, communities or their habitat listed under the *Biodiversity Conservation Act 2016* (BC Act) or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Therefore, a Species Impact Statement (SIS) or a Biodiversity Development Assessment Report (BDAR) is not required, nor is the proposal subject to the EPBC Act Strategic Assessment.
- The proposal does trigger TfNSW offset thresholds and therefore offsets are required.

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Annexure B Likelihood of occurrence

Annexure C Assessments of significance

Annexure D Species Recorded

Annexure E Vegetation Loss Spreadsheet

Glossary of terms

Definitions	
Biodiversity offsets	Management actions that are undertaken to achieve a gain in biodiversity values on areas of land in order to compensate for losses to biodiversity values from the impacts of development (OEH 2017).
Construction footprint	The area to be directly impacted by the proposal during construction activities. Analogous with subject land (see definition for subject land).
Cumulative impact	The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Refer to Clause 228(2) of the EP&A Regulation 2000 for cumulative impact assessment requirements.
Direct impact	Direct impacts on biodiversity values include those related to clearing native vegetation and threatened species habitat, and impacts on biodiversity values prescribed by the Biodiversity Conservation Regulation 2017 (the BC Regulation) (BAM 2017)
Habitat	An area or areas occupied, or periodically or occasionally occupied, by a species, population or ecological community, including any biotic or abiotic component.
Indirect impact	Indirect impacts include but not limited to: (a) indirect impacts on adjacent vegetation and habitat during construction (b) indirect impacts on adjacent vegetation and habitat during operation (c) impacts on adjacent vegetation and habitat arising from a change in land-use patterns (BAM 2017)
Local population	The population that occurs in the study area. In cases where multiple populations occur in the study area or a population occupies part of the study area, impacts on each subpopulation must be assessed separately (OEH 2017).
MNES	A matter of national environmental significance (MNES) protected by a provision of Part 3 of the EPBC Act
Mitchell landscape	Landscapes with relatively homogeneous geomorphology, soils and broad vegetation types, mapped at a scale of 1:250,000 (OEH 2014).
Mitigation	Action to reduce the severity of an impact (OEH 2014).
Mitigation measure	Any measure that facilitates the safe movement of wildlife and/or prevents wildlife mortality or injury.

Definitions	
Native vegetation	(a) trees (including any sapling or shrub or any scrub), (b) understorey *plants*, (c) groundcover (being any type of herbaceous vegetation), (d) *plants* occurring in a wetland. A *plant* is native to New South Wales if it was established in New South Wales before European settlement (BC Act).
OEH BAM Calculator	An online application of the Biodiversity Assessment Method (BAM). The calculator uses the rules and calculations outlined in the BAM, and allows the user to apply the BAM at a site and observe the results of the assessment.
Operational footprint	The area that will be subject to ongoing operational impacts from the proposal. This includes the road, surrounding safety verges and infrastructure, fauna connectivity structures and maintenance access tracks and compounds.
Population	A group of organisms, all of the same species, occupying a particular area (BAM 2017).
Proposal area/ proposal site/ development footprint	The area of land that is directly impacted on by the proposal that is being assessed under the EP&A Act, including access roads, and areas used to store construction materials (OEH 2014). It includes the construction and operational areas for the proposal.
Study area	The area directly affected by the development and any additional areas likely to be affected by the development, either directly or indirectly (OEH 2014).
Target species	A species has been identified within the study area or is considered to have a moderate to high likelihood of occurrence and may be impacted by the proposal.

Abbreviations	
BC Act	Biodiversity Conservation Act 2017
BOS	Biodiversity Offset Scheme under the BC Act
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environmental Management Plan
DoEE	Department of Environment and Energy
DP&E	Department of Planning and Environment
DPI	Department of Primary Industries

Abbreviations	
EEC	Endangered ecological community
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth).
FM Act	Fisheries Management Act 1994 (NSW)
GDE	Groundwater dependent ecosystems
IBRA	Interim Biogeographically Regionalisation of Australia
MNES	Matters of National Environmental Significance
OEH	Office of Environment and Heritage
PCT	Plant Community Type
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy
TECs	Threatened Ecological Communities
TBDC	Threatened Biodiversity Data Collection
VEC	Vulnerable Ecological Community
VIS	Vegetation information system

1. Introduction

1.1 Proposal background

Transport for NSW (TfNSW) proposes to undertake road widening works to improve traffic safety along a section of New England Highway (A15) approximately 18km South of Uralla (refer to **Illustration 1-1**) comprising segments 1660 - 1700.

There are six segments that make up this site:

- S1660
- S1665
- S1670
- S1680
- S1690
- S1700

The objectives of the proposed works are to:

- Achieve the desired safer cross section.
- Improve road safety via treatments such as wide centreline treatment, wider shoulders and safety barriers.

The proposal involves formation widening, guardrail installation, earthworks, SO kerb installation, and general maintenance/repairs within the segments. The overall length of the site is 5.85 km and includes approximately 69445 m² of existing pavement surface area. The road configuration of the site is two lane, two way for segments 1660, 1665, and 1700 and then transitions into a three lane, two way for segments 1670, 1680, and 1690. This site is generally bordered by native regrowth vegetation and farmland.

The improvements under this proposal will improve the safety of this section of highway significantly and overall contribute towards the reductions of fatalities and serious injuries on the New England Highway into the future.

1.2 The proposal

The proposal includes undertaking the following works within the subject segments:

- Widening sealed shoulder width to min 1m, desired up to 3m where achievable.
- Implementation of 1m WCLT for all 6 segments.
- Heavy patching pavement works to reinstate surface condition prior to reseal.
- Shape correction pavement works where required to reinstate cross fall and super-elevation on curves.
- Culvert extensions, potential replacements only if required, lining treatments if required; noting that drainage structure works are minimal for this project.
- Culvert desilting, inlet/outlet desilting, and inlet/outlet re-stabilisation via rock or jute mat lining, as appropriate.
- Longitudinal SO kerb (concrete dish drain) adjacent to some of the cuttings where nominated in the design, bedding on a No Fines Concrete (NFC) with trench drain for subsurface drainage. SO kerb is planned on the cut side (NB) on Sidling Hill to achieve a wider cross section. SO kerb is also planned on SB side where required.
- Installation of new flexible guardrail roadside safety barriers.

- Minor earthworks as required for SO kerb excavation, shoulder widening box out, trimming back small cut-faces where needed, and small embankment widenings for the OTL extension. Large scale earthworks such as high embankment widenings and widening of cuts has been avoided in the scoping of this project.
- Overtaking lane adjustments including constructing a run off area for existing NB overtaking lane and lengthening of the start of the SB overtaking lane by moving to the north.
- Removal of regrowth vegetation to maintain table drain functionality, maintain safe site distances, and for roadside safety hazards.
- Removal of general regrowth vegetation in the disturbed zone under what is permissible in accordance with environmental assessment for routine and minor works and applicable standard safeguards. For example, regrowth vegetation <10 years old growing within table drains and the existing disturbed zone.
- Removal of mature trees some of which are outside the disturbed zone (refer to vegetation removal scope).
- Trimming of overhanging tree branches
- Maintenance of existing table drains/catch drains involving desilting where needed, erosion prevention treatments where needed such as geofabric and rock lining, or jute mesh as appropriate to the location considering longitudinal grade and catchment.
- New sprayed seal wearing surface and linemarking.
- Roadside signage maintenance or improvements as identified throughout the design process.

A summary of the general work methodology is as follows:

- Establish site compound
- Implement traffic management plans
- Delineate no go zones and any vegetation to be protected
- Install sediment and erosion controls
- Mulch long grass and regrowth vegetation within disturbed zone
- Establish spoil site including erosion and sediment controls
- Undertake vegetation removal works
- Extend culverts and culvert inlet/outlet treatments as per scope
- Excavate for SO kerb and pavement widenings progressively
- Construct SO kerbs and trench drains below SO kerbs
- Construct pavement in front of SO kerbs
- Construct the shoulder widening and pavement widening for the OTL extension
- Reseal preparation and Heavy Patch the existing pavement
- Seal the surface with a bituminous sprayed seal (primerseal)
- Undertake any required table drain maintenance as the works progress through the sections
- Install roadside safety barriers
- Install new/replace/relocated roadside signage as required
- Install pavement delineation, longitudinal, and transverse linemarking
- Disestablish site
- Final seal approximately 12 months later
- Install pavement delineation, longitudinal, and transverse linemarking
- Install retro-reflective raised pavement markers (RPMs) and ATLM.

For this assessment, the proposal site (the site) is considered to be the entire fenced road reserve within the subject segment of the New England Highway (refer to **Illustration 1-2**). The study area consists of the site and any adjacent areas that are likely to be impacted, either directly or indirectly by the proposal within the road reserve. The construction footprint of the proposal is based on the outer extents of the road design (refer to **Illustration 1-2**).

Temporary Stockpile Sites

The following existing and registered stockpile sites will be utilised for the project:

- Registered Stockpile Site Nth9/026 – Old Road Carlisles Gully approximately 2.9 km south of the site, located on NB side 150 m north of segment marker 1630/1635 (Lat -30.792601° Long 151.304281°)
- Registered Stockpile Site – Kyabra Cattle Yards located in segment 1660 approximately 820 m from the start of the job (Lat -30.780034° Long 151.334969°)
- Registered Stockpile Site Nth9/027 – Sidling Hill located in segment 1690 150 m from the start of segment 1680/1690 (Lat -30.762881° Long 151.365430°)
- Registered Stockpile site Nth9/028 – South Old Wollun Rd approximately 4 km north of the site in segment 1720 on the right hand side (Lat -30.739758° Long 151.409080°)

1.3 Legislative context

A Step 2 memo is to be prepared to satisfy TfNSW duties under s.5.5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to *"examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity"* and s.5.7 in making decisions on the likely significance of any environmental impacts. This biodiversity impact assessment forms part of the Step 2 memo being prepared for the project and assesses the biodiversity impacts of the proposal to meet the requirements of the EP&A Act.

Sections 7.2 A of the *Biodiversity Conservation Act 2016* (BC Act) and Part 7A of the *Fisheries Management Act 1994* (FM Act) require that the significance of the impact on threatened species and endangered ecological communities is assessed using a test of significance. Where a significant impact is likely to occur, a species impact statement (SIS) must be prepared in accordance with the Director-General's requirements or a Biodiversity Development Assessment Report (BDAR) must be prepared by an accredited assessor in accordance with the Biodiversity Assessment Method (BAM).

In September 2015, a "strategic assessment" approval was granted by the Federal Minister in accordance with the EPBC Act. The approval applies to TfNSW activities being assessed under Part 5.1 (formerly Part 5) of the EP&A Act with respect to potential impacts on nationally listed threatened species, ecological communities and migratory species.

As a result, TfNSW proposals assessed via a Step 2 Memo:

- must address and consider potential impacts on nationally listed threatened species, populations, ecological communities and migratory species, including application of the "avoid, minimise, mitigate and offset" hierarchy
- do not require referral to the Federal Department of Agriculture, Water and the Environment for these matters, even if the activity is likely to have a significant impact.

To assist with this, assessments are required in accordance with the *Matters of National Environmental Significance: Significant impact guidelines 1.1. Environment Protection and Biodiversity Conservation Act 1999* (DoE 2013).

1.4 Definitions used in this report

The following definitions have been used throughout this BAR:

The proposal – as described in **Section 1.2** and shown in **Illustration 1-2.**

Impact area – this includes all areas to be directly impacted by the proposal, including the direct impact area of proposed design and construction footprint (i.e. associated ancillary infrastructure and laydown areas).

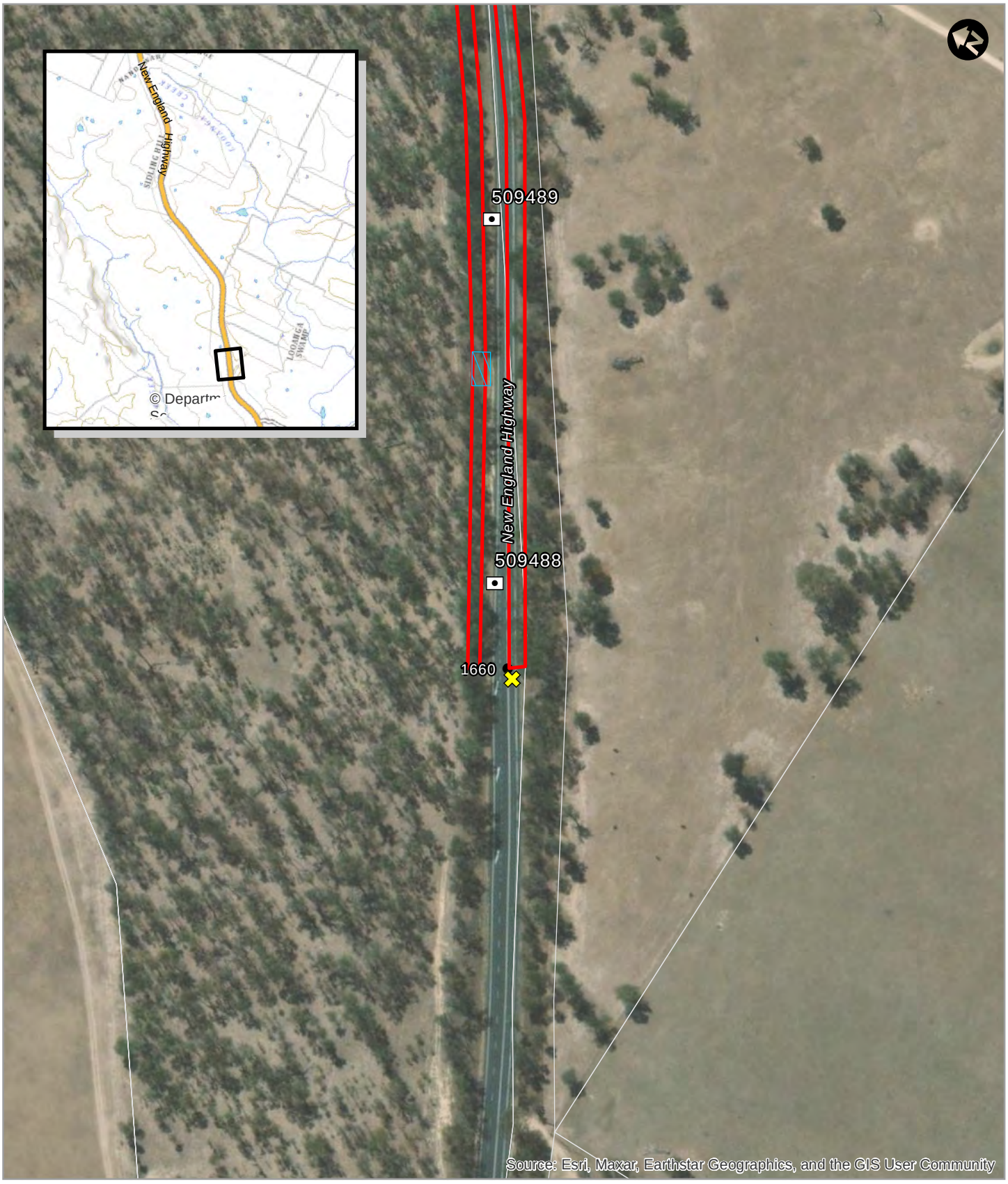
Study area – the impact area and adjacent areas of vegetation and associated habitat surveyed as part of this investigation that may be subject to direct or indirect impacts as a result of the proposal.

The locality – 10 km buffer of the study area (database area search buffers are detailed in **Table 2-2**).

0 10 km

Proposal Context - Illustration 1.1

Information shown is for illustrative purposes only
Drawn by: TJC Checked by: AB Reviewed by: BJM
Source of base data: OpenStreetMap
Date: 28/02/2022



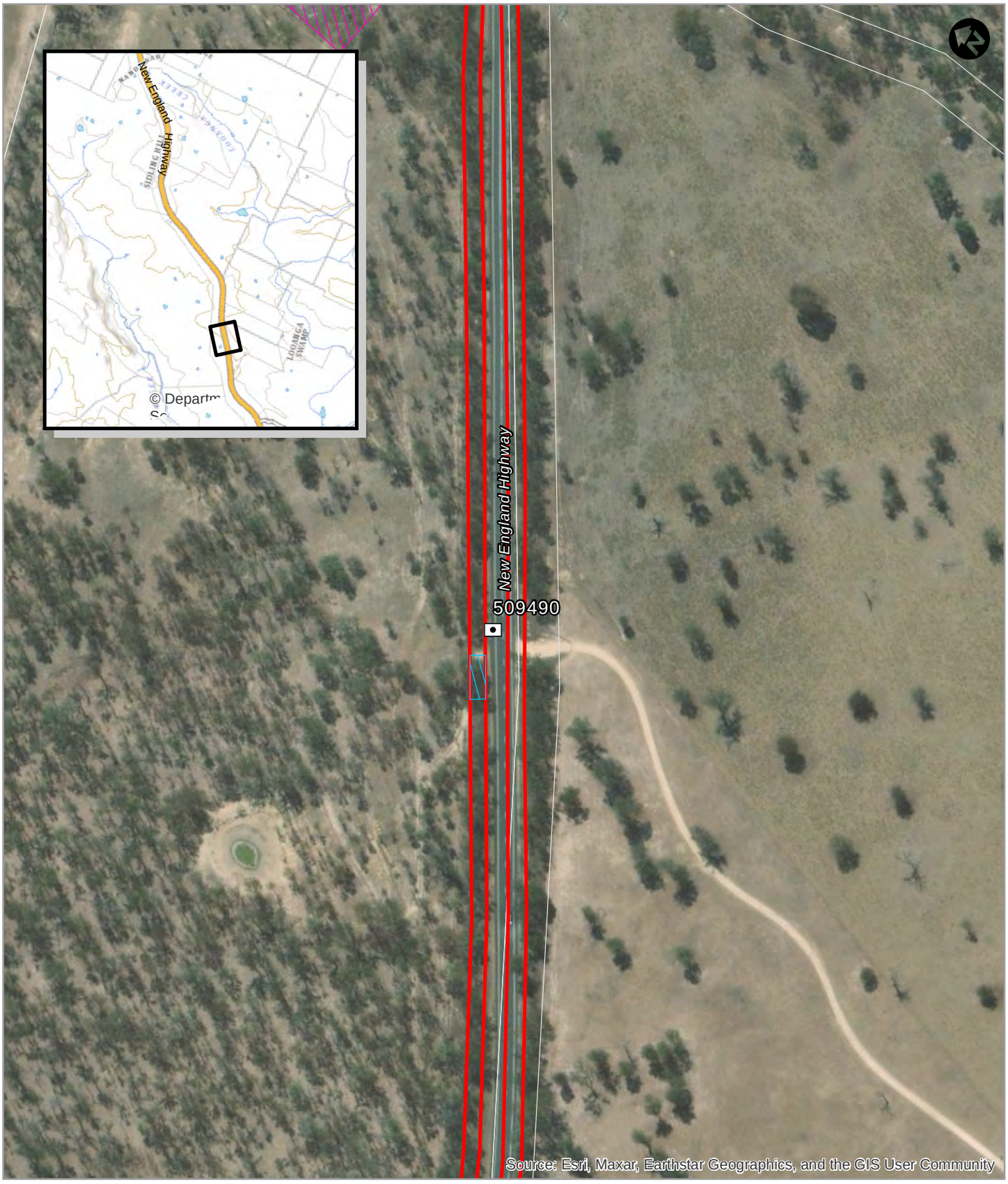
LEGEND

- Assessment area
- Cadastre
- Plant parking
- Culvert
- Sidling Hill segment start

0 50 Metres

The Proposal - Illustration 1.2
Sheet 1 of 12

Information shown is for illustrative purposes only
Drawn by: AB Checked by: TJC
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



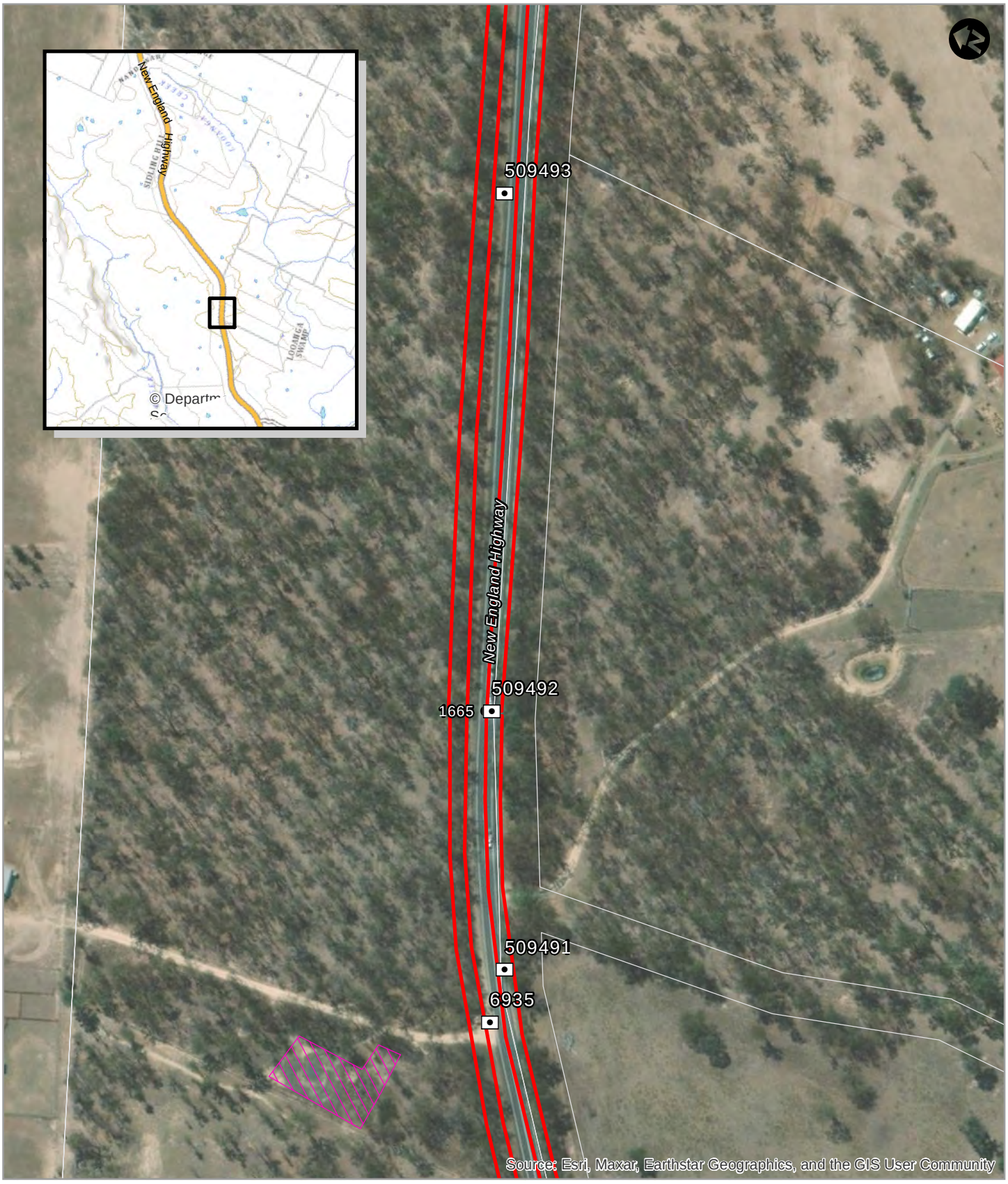
LEGEND

- Assessment area
- Cadastre
- Compound site
- Plant parking
- Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 2 of 12

Information shown is for illustrative purposes only
Drawn by: AB Checked by: TJC
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



LEGEND

- Assessment area
- Cadastre
- Compound site
- Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 3 of 12

Information shown is for illustrative purposes only
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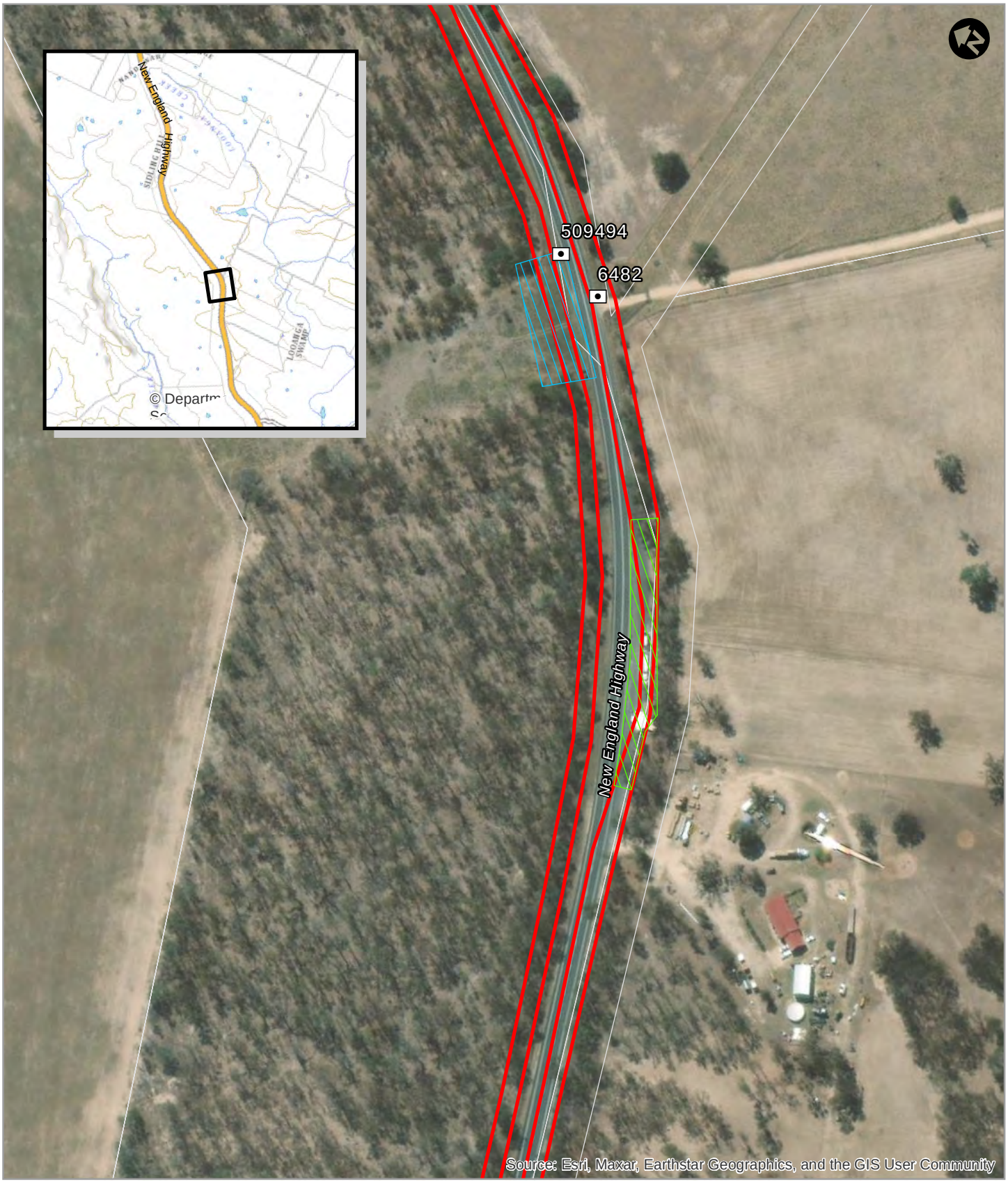
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



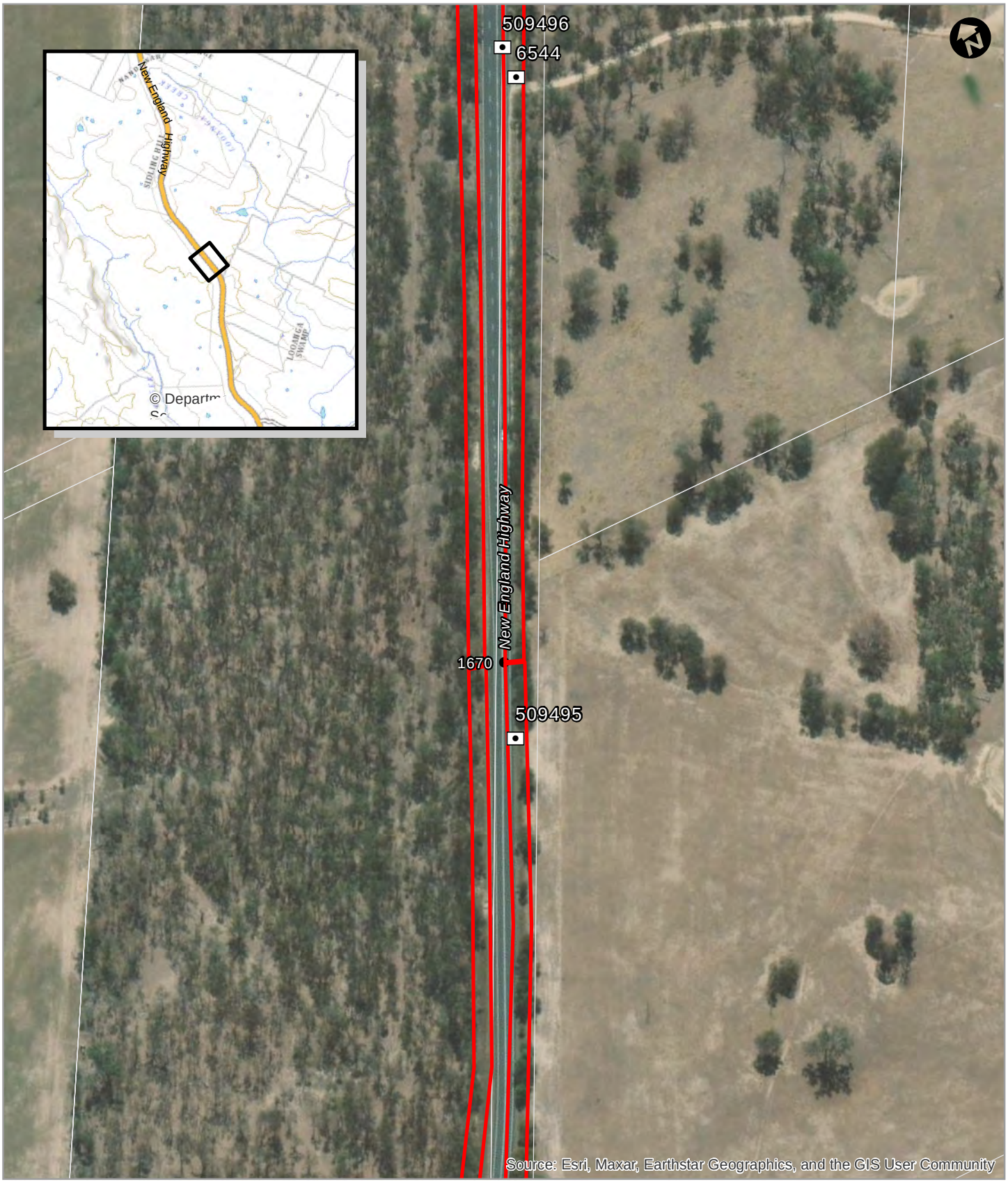
LEGEND

- Assessment area
- Cadastre
- Plant parking
- Plant parking / compound site
- Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 4 of 12

Information shown is for illustrative purposes only
Drawn by: AB Checked by: TJC
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



LEGEND

Assessment area
Cadastre
Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 5 of 12

Information shown is for illustrative purposes only
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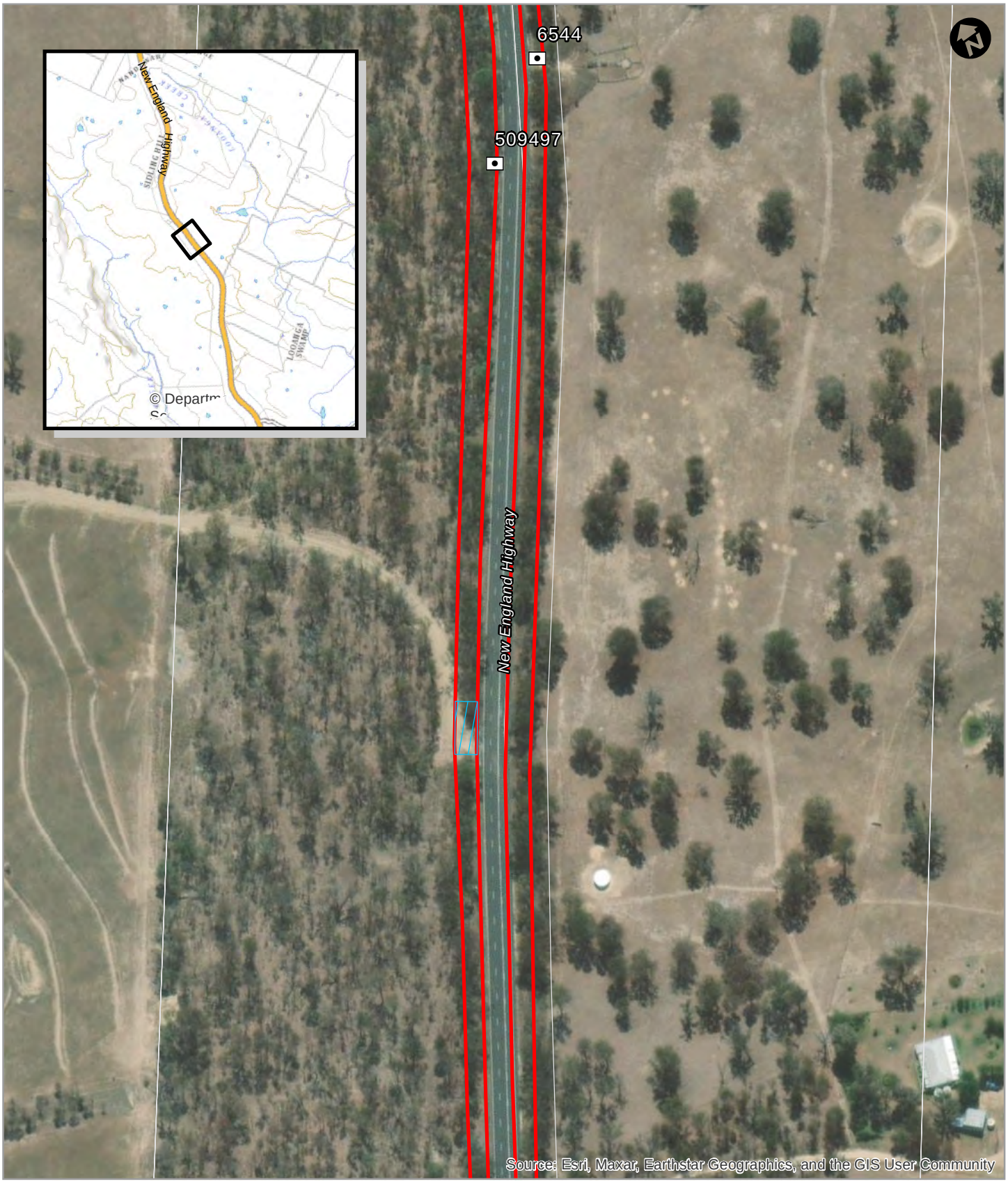
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



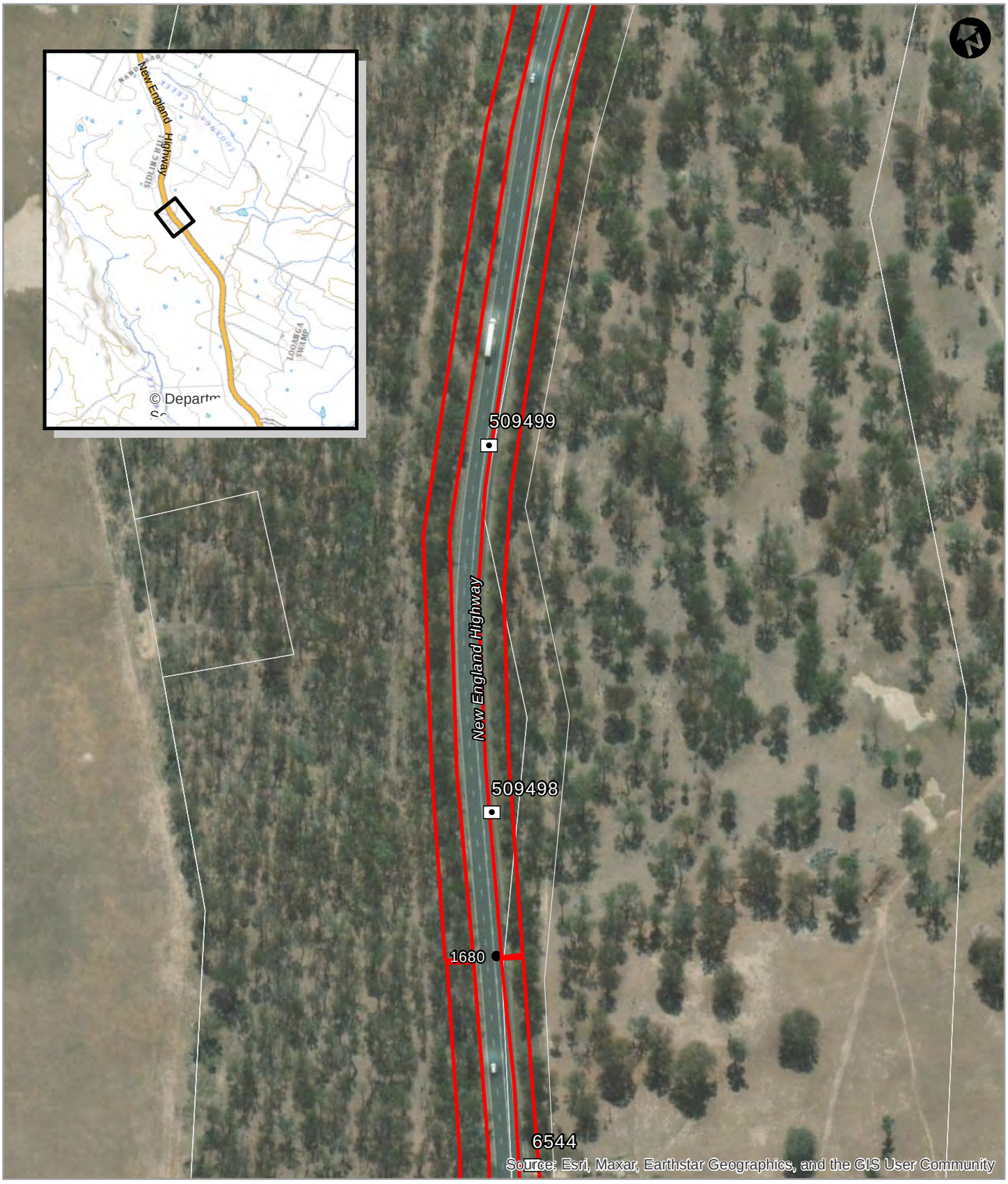
LEGEND

- Assessment area
- Cadastre
- Plant parking
- Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 6 of 12

Information shown is for illustrative purposes only
Drawn by: AB Checked by: TJC
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



LEGEND

Assessment area

Cadastre

Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 7 of 12

Information shown is for illustrative purposes only
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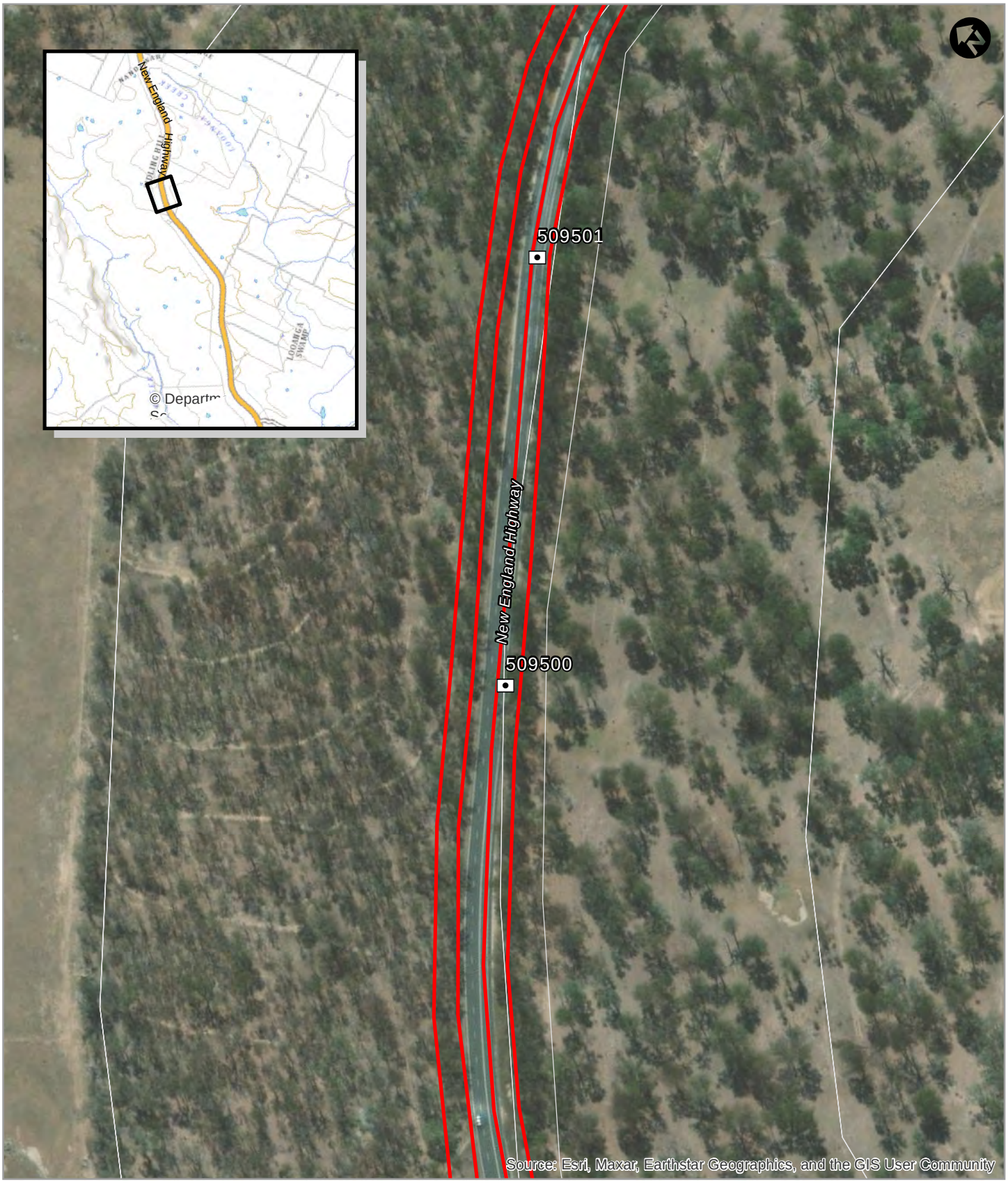
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



LEGEND

Assessment area

Cadastre

Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 8 of 12

Information shown is for illustrative purposes only
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Source of base data: ESRI World Imagery
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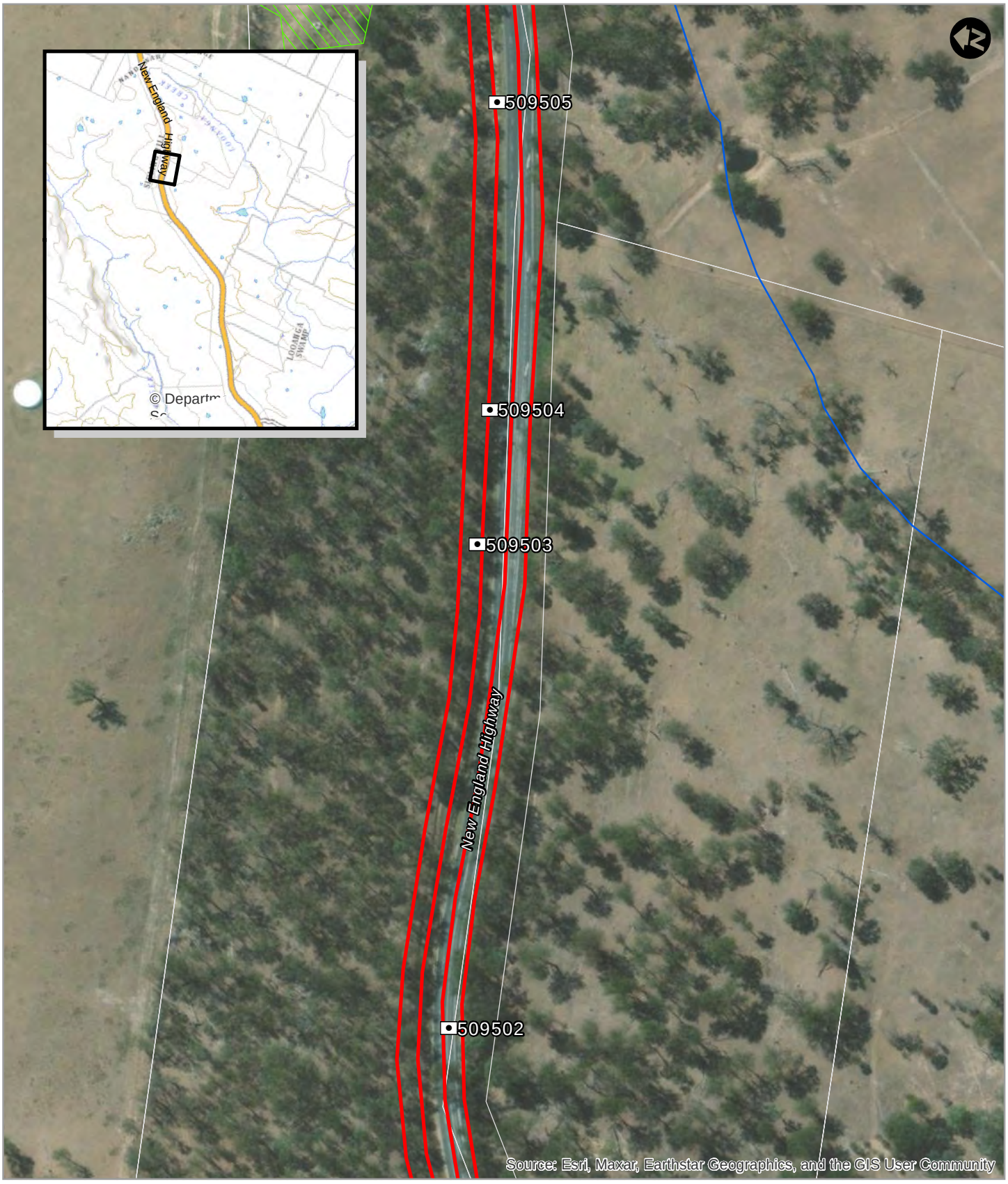
Revision: A



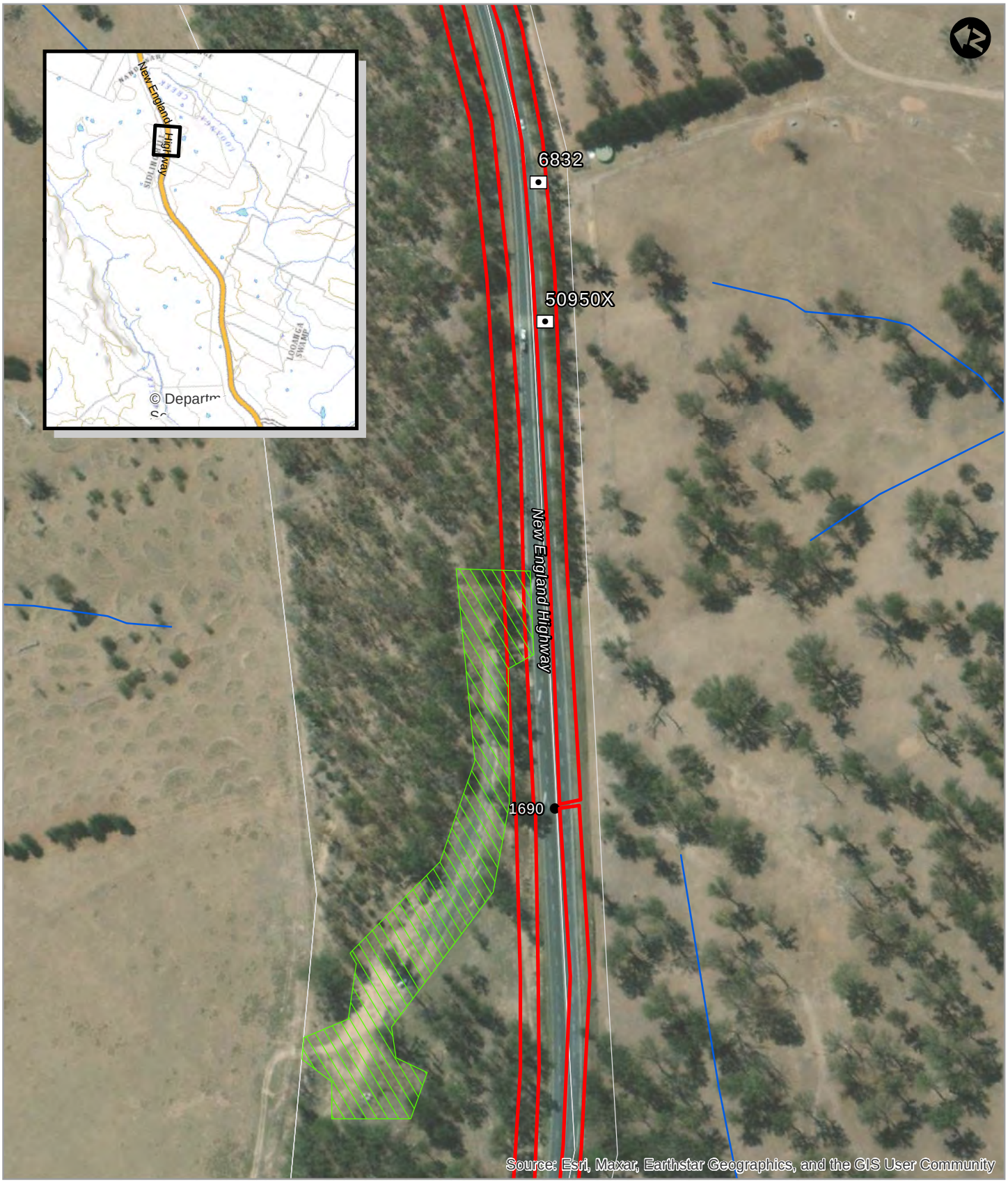
LEGEND

- Assessment area
- Cadastre
- Plant parking / compound site
- Watercourse
- Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 9 of 12

Information shown is for illustrative purposes only
Drawn by: AB Checked by: TJC
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



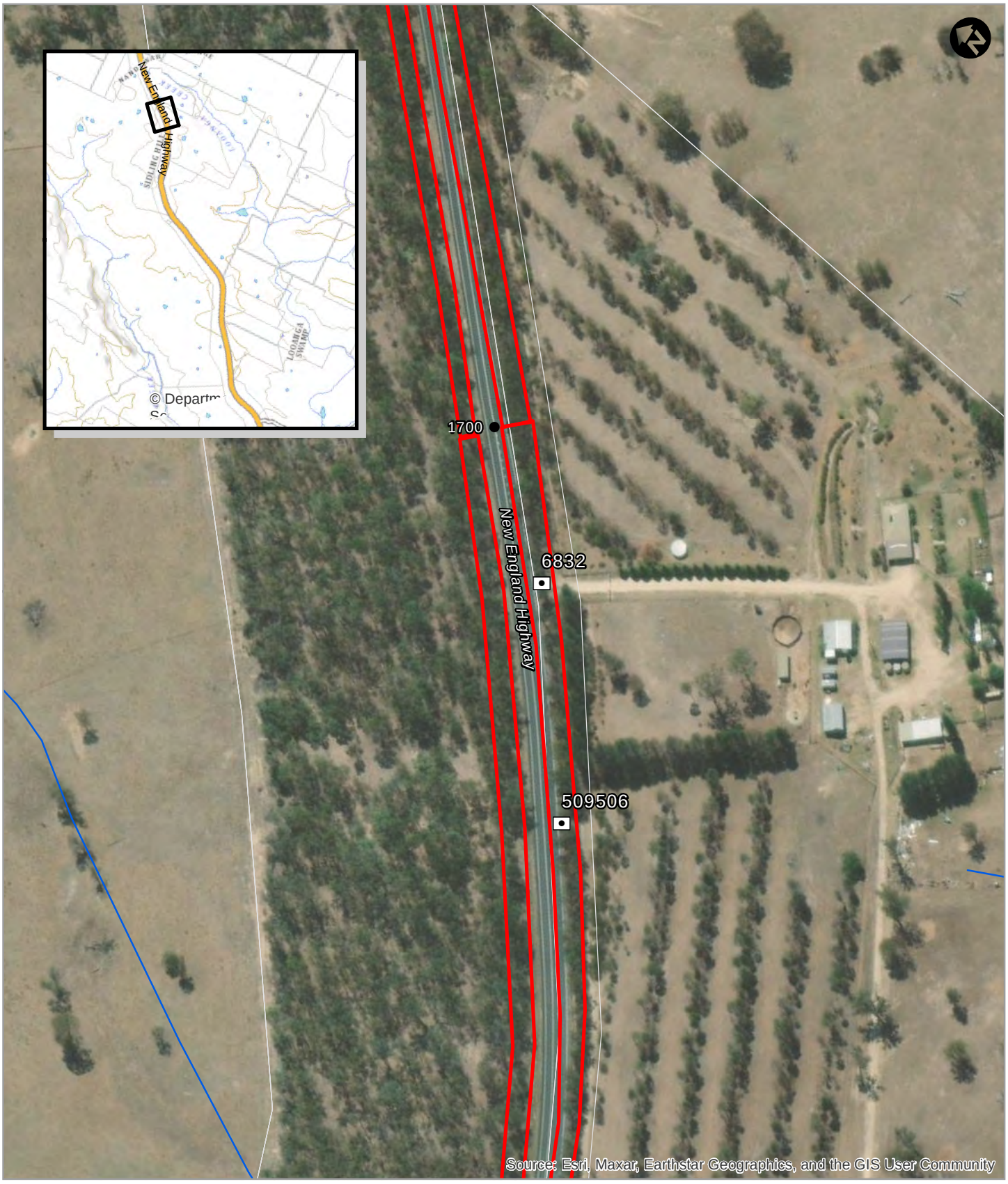
LEGEND

- Assessment area
- Cadastre
- Plant parking / compound site
- Watercourse
- Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 10 of 12

Information shown is for illustrative purposes only
Drawn by: AB Checked by: TJC
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



LEGEND

- Assessment area
- Cadastre
- Watercourse
- Culvert

0 50 Metres

The Proposal - Illustration 1.2
Sheet 11 of 12

Information shown is for illustrative purposes only
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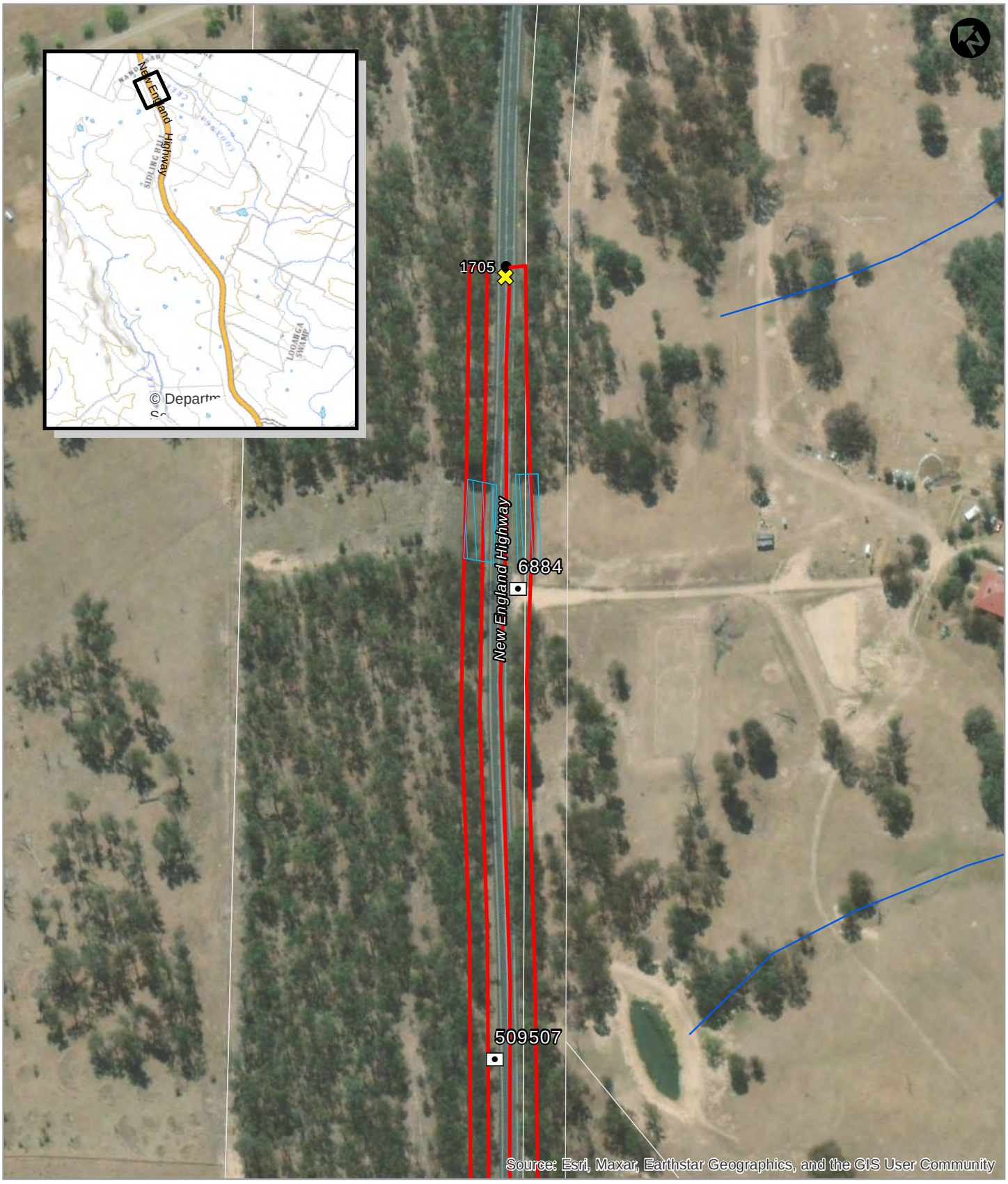
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A



LEGEND

- Assessment area
- Cadastre
- Plant parking
- Watercourse
- Culvert
- Sidling Hill segment end

0 50 Metres

The Proposal - Illustration 1.2
Sheet 12 of 12

Information shown is for illustrative purposes only
Drawn by: AB Checked by: TJC
Source of base data: ESRI World Imagery
Date: 12/01/2023
Revision: A

2. Methods

2.1 Personnel

Qualifications and experience of personnel involved in the assessment is provided in **Table 2-1**.

Table 2-1: Qualifications and experience of personnel

Name	Qualifications	Position	Role
Theresa Choi	Bachelor of Environmental Science (Biology)	Environmental Scientist	Field surveys and BAR content
Ben Millan	Bachelor of Zoology	Ecologist	Field surveys and BAR content
David Havilah	Bachelor of Science (Biology)	Senior Ecologist	Review of BAR

2.2 Background research

To guide targeted field surveys, searches of the databases listed in **Table 2-2** were completed. Database search results are provided at Annexure A.

Table 2-2: Summary of database searches undertaken

Source	Database name	Accessed	Search areas	Date conducted
DPIE/OEH	BioNet	*http://www.bionet.nsw.gov.au/*	20 km x 20 km grid centred on the site	14/09/2021
	Areas of Outstanding Biodiversity Value	*https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity*	Tamworth Regional Council	14/09/2021
	Vegetation Information System	*http://www.environment.nsw.gov.au/NSWVCA20PRapp/LoginPR.aspx*	Yarrowyck-Kentucky Downs/Eastern Nandewar subregion	14/09/2021
NSW Department of Primary Industries (DPI)	Fisheries Spatial Data Portal	*https://webmap.industry.nsw.gov.au/Html5Viewer/index.html?viewer=Fisheries_Data_Portal*	Tamworth Regional Council	20/09/2021
	Key Fish habitat mapping	*https://webmap.industry.nsw.gov.au/Html5Viewer/index.html?viewer=Fisheries_Data_Portal*	Tamworth Regional Council	20/09/2021
	NSW Weedwise	*http://weeds.dpi.nsw.gov.au/*	Tamworth Regional Council	14/09/2021

Source	Database name	Accessed	Search areas	Date conducted
	Register of critical habitat	*http://www.dpi.nsw.gov.au/fisheries/species-protection/conservation/what/register*	NSW	14/09/2021
Australian Government Department of Agriculture, Water and the Environment	Protected Matters Search Tool (PMST) for Matters of National Environmental Significance (MNES)	*http://www.environment.gov.au/epbc/protected-matters-search-tool*	10 km radius of the site	14/09/2021
	Directory of important wetlands	*http://www.environment.gov.au/cgi-bin/wetlands/search.pl?smode=DOIW*	20 km x 20 km grid centred on the site	14/09/2021
Australian Government Bureau of Meteorology	Atlas of Groundwater Dependent Ecosystems (GDE)	*http://www.bom.gov.au/water/groundwater/gde/map.shtml*	20 km x 20 km grid centred on the site	20/09/2021
DPIE/OEH Seed datasets	Coastal Wetlands (SEPP Coastal Management 2018)	*https://mapprod1.environment.nsw.gov.au/arcgis/rest/services/Planning/SEPP/MapServer*	The site	20/09/2021
	Littoral Rainforests (SEPP Coastal Management 2018)	*https://mapprod1.environment.nsw.gov.au/arcgis/rest/services/Planning/SEPP/MapServer*	The site	20/09/2021

2.3 Habitat assessment

A preliminary evaluation of the likelihood of occurrence of threatened flora, fauna and populations within the study area based on background research was undertaken. This evaluation considers the broad habitat types within the study area, ecology of threatened species/populations and occurrence of local records. The initial habitat assessment forms the basis for targeted surveys and consideration of potential impacts of the proposal and was revised upon completion of the field surveys.

2.4 Field survey

The site was assessed on 2 March 2022 by environmental scientist Theresa Choi and ecologist Ben Millan. The assessment utilised the following methodology over nine hours in the field:

- Recording trees within the site.
- Mapping vegetation communities on the site and where possible assigning a Plant Community Type (PCT) in accordance with the DPIE/BCD BioNet Vegetation Classification database.
- Random meander of the site and compilation of a flora inventory.
- Targeted survey for any threatened flora and/or Threatened Ecological Communities (TEC) following threatened species searches).
- Record the occurrence and extent of any priority weeds listed in the NSW Biosecurity Act 2015.

- Survey by visual inspection using binoculars of hollow-bearing trees.
- Opportunistic survey of all fauna based on visual or aural observations.

Weather conditions during the surveys were mild and fine, with 0.8 millimetres of rain recorded in the previous 24 hours for the 2 March 2022 (Bureau of Meteorology, 2022b).

Areas assessed included all vegetation within the fenced road reserve with broader consideration of adjoining vegetation outside this area (refer **Illustration 1-2**).

2.4.1 Vegetation surveys

The vegetation surveys focused on mapping native and non-native vegetation types and assessing the likelihood of threatened flora species to utilise habitats available within the study area. This was completed using a combination of the following methods:

- random meanders; and
- rapid point assessments.

No plot-based surveys were undertaken given the disturbed nature of vegetation present and the linear nature of vegetation within the road reserve. Data on geology, dominant canopy species, native species richness, vegetation structure and condition was collected across the study area during field surveys to validate and refine this existing vegetation classifications to determine their associated PCT (if possible) in accordance with the BioNet Vegetation Classification System (Environment Energy and Science, 2021b).

2.4.2 Targeted flora surveys

Targeted searches were completed for threatened flora species identified by the potential occurrence assessment (refer to **Annexure B**) as having a moderate to high likelihood of occurrence within areas of suitable habitat. Any species that could not be reliably identified/or may have been overlooked in the survey was presumed to occur at the site and therefore subject to a test of significance (refer to **Annexure C**).

Where possible, surveys followed methods described in OEH's NSW Guideline for surveying threatened plants (OEH 2016), and the Draft survey guidelines for Australia's threatened orchids *http://www.environment.gov.au/resource/draft-survey-guidelines-australias-threatened-orchids*.

2.4.3 Targeted fauna surveys

Subject species for targeted fauna surveys were identified as those threatened fauna species that have a moderate to high likelihood of occurrence at the site (refer to **Annexure B**).

Fauna habitat assessments

Fauna habitat assessments were undertaken to assess the likelihood of threatened species of animal (those species known or predicted to occur within the locality from the literature and database review) occurring within the study area.

Fauna habitat assessments were the primary assessment tool in assessing whether threatened species were likely to occur within the study area. Fauna habitat characteristics assessed included:

- structure and floristics of the canopy, understorey and ground vegetation, including the presence of flowering and fruiting trees providing potential foraging resources;
- presence of hollow-bearing trees providing roosting and breeding habitat for arboreal mammals, large forest owls, birds and reptiles;

- presence of the ground cover vegetation, leaf litter, rock outcrops and fallen timber and potential to provide protection for ground-dwelling mammals, reptiles and amphibians;
- presence of waterways (ephemeral or permanent) and water bodies; and
- presence of man-made structures (e.g. culverts) for roosting/breeding microbats.

The site comprises a previously disturbed and modified roadside environment that is generally lacking in key habitat attributes required to sustain a local breeding population of threatened forest fauna. Consequently, only limited targeted fauna surveys were completed. Any species that could not be adequately surveyed according to threatened species survey guidelines was assumed to occur.

Diurnal bird survey

Diurnal bird surveys were completed within the study area by actively walking through the site (transect) over a period of 20 minutes. All birds were identified to the species level, either through direct observation or identification of calls. Birds were also recorded opportunistically during all other surveys.

Koala assessment

The preferred Koala feed trees, Blakely's Red Gum (*Eucalyptus blakelyi*) and Rough-barked Apple (*Angophora floribunda*) occurs within the proposal footprint. Scattered trees within the proposal area provide a potential foraging and refuge resource for any dispersing animals in the locality.

Opportunistic recording of fauna species and evidence of fauna activity

Opportunistic sightings of animals were recorded during field surveys. Evidence of animal activity, such as scats, diggings, scratch marks, nests/dreys, burrows etc, was also noted. This provided indirect information on animal presence and activity. During these surveys, a hand-held GPS was used to record the locations of:

- hollow-bearing trees
- active nest trees
- important aquatic habitat

Fauna survey efforts included visual canopy searches using binoculars and inspections of potential roosting habitat for threatened microbats within culverts.

2.4.4 Aquatic Surveys

The habitat value of each waterway (ie habitat sensitivity and classification of waterways for fish passage) was characterised in accordance with NSW DPI (Fisheries) document Policy and Guidelines for fish habitat conservation and management (NSW DPI (Fisheries) 2013).

2.4.5 Summary of survey effort and limitations

The survey effort undertaken for the fieldwork is summarised below in **Table 2-3**.

Table 2-3: Survey effort

Field technique	Species	Location	Person hours	Date
Habitat assessment	Threatened species habitat	Entire site	8	02/03/2022
Random meander	Target threatened flora species (refer to **Annexure B**) and veg mapping	Entire site	8	02/03/2022
Targeted diurnal bird survey	Potentially occurring threatened bird species (refer to **Annexure B**)	Entire site	1	02/03/2022
Canopy inspection using binoculars	Koala	Preferred food trees	Random searches while conducting site inspection	02/03/2022

The assessment of trees proposed for removal were limited to trees of DBH >10 cm.

While aspects of the fauna survey effort were not in accordance with the (working) draft, Threatened Biodiversity Survey and Assessment Guidelines (DEC 2004), the modified nature of the roadside environment justify the effort expended. While the survey only provides a 'snapshot' of fauna usage during the spring period, the techniques utilised provide suitable sampling for a range of fauna occurring within a modified roadside environment. Based on local fauna records and vegetation/habitat mapping, predictions of fauna usage can be made with a reasonable level of confidence.

Although every effort was made to undertake a full flora inventory, there is a possibility that occurrences of some of the smaller cryptic threatened flora species potentially occurring in the locality were inadvertently overlooked. Consequently, these species were assumed to be present.

3. Existing environment

This section provides an overview of the existing environment and potential ecological constraints of the study area based on the desktop analysis and field assessment completed.

3.1 Landscape context

An overview of landscape features associated with the study area are presented in **Table 3-1**.

Table 3-1: Landscape features and planning information

Landscape feature	Occurrence in study area
IBRA bioregion	New England Tablelands
IBRA subregion	Eastern Nandewar, Yarrowyck-Kentucky Downs
NSW landscape regions (Mitchell landscapes)	Moonbi – Walcha Granites
Local Government Area (LGA)	Tamworth Regional Council
Local Land Service (LLS) region	Northern Tablelands
Botanical subregion	Northern Tablelands
Rivers, streams and estuaries	Within the study area no significant mapped creeks or streams occur. One mapped small ephemeral stream (stream order 1) occurs within the study area and crosses the existing road corridor through culverts.
Important and local wetlands	No important or local wetlands in study area
Connectivity features	The site partially occurs within a potential subregional fauna corridor in the Nandewar region as per Scotts (2003). Overall, the landscape has been fragmented due to agricultural practices (i.e. cropping and clearing for livestock) and road construction. The proposal will not be exacerbating fragmentation within the study area.
Areas of geological significance and soil hazard features	No areas of geological significance and soil hazard features occur in the study area
Areas of outstanding biodiversity value	There are no declared areas of outstanding biodiversity value located in the Tamworth LGA.

3.2 Vegetation (plant community types)

3.2.1 PCT 538 Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion (low to high condition)

Vegetation formation: Dry Sclerophyll Forests

Vegetation class: Northern Tableland Dry Sclerophyll Forests

PCT: 538

Conservation status:

- Moderate and high condition: White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (BC Act) and White box - yellow box - Blakely's red gum grassy woodlands and derived native grasslands (EPBC Act)
- Low condition: N/A

Estimate of percent cleared: 45 percent

Condition:

- High: Structurally intact system with native understory and overstorey.
- Moderate: Derived native grassland with predominantly native groundcover and canopy absent or low canopy cover.
- Low: Derived native grassland with predominately exotic groundcover and canopy absent or low canopy cover.

Description:

- High condition: The overstorey comprises Silver-top Stringybark (*Eucalyptus laevopinea*), Rough-barked Apple (*Angophora floribunda*), and Blakely's Red Gum (*Eucalyptus blakelyi*) with less frequent patches of Apple Box (*Eucalyptus bridgesiana*), Bendemeer White Gum (*Eucalyptus elliptica*), Yellow Box (*Eucalyptus melliodora*), Black Cypress Pine (*Callitris endlicheri*) and Cherry Ballart (*Exocarpos cupressiformis*). The mid-storey comprises Hickory Wattle (Acacia implexa) and *Cassinia quinquefaria*. The understorey is dominated by Kangaroo Grass (*Themeda triandra*), with a diverse mixture of Bluebell (*Wahlenbergia* spp.), Spiny-headed Mat-rush (*Lomandra longifolia*), *Dianella* spp., Barbed Wire Grass (*Cymbopogon refractus*), Weeping Grass (*Microlaena stipoides*), Wild Sorghum (*Sorghum leiocladum*), Rock Fern (*Cheilanthes austrotenuifolia*), and Native Raspberry (*Rubus parvifolius*).

  Exotic species present in this community include Cobblers Pegs (*Bidens pilosa*)*, Lamb's Tongues (*Plantago lanceolata*)*, Quaking Grass (*Briza maxima*)*, Shivery Grass (*Briza minor*)*, African Lovegrass (*Eragrostis curvula*)*, Sweet Briar (*Rosa rubiginosa*)*, Blackberry (*Rubus fruticosus sp. aggregate*)**, Great Mullein (*Verbascum thapsus subsp. thapsus*)* and Purpletop (*Verbena bonariensis*)*.
- Moderate condition: The overstorey comprises Silver-top Stringybark (*Eucalyptus laevopinea*), Rough-barked Apple (*Angophora floribunda*), and Blakely's Red Gum (*Eucalyptus blakelyi*) with less frequent patches of Apple Box (*Eucalyptus bridgesiana*), Bendemeer White Gum (*Eucalyptus elliptica*), and Yellow Box (*Eucalyptus melliodora*).The mid-storey comprises Hickory Wattle (*Acacia implexa*) and *Cassinia quinquefaria*. The understorey is dominated by Kangaroo Grass (*Themeda triandra*), with a

diverse mixture of Bluebell (*Wahlenbergia* spp.), *Dianella* spp., Barbed Wire Grass (*Cymbopogon refractus*), Weeping Grass (*Microlaena stipoides*), Wild Sorghum (*Sorghum leiocladum*), Rock Fern (*Cheilanthes austrotenuifolia*), and Native Raspberry (*Rubus parvifolius*).

Exotic species present this community include Cobblers Pegs (*Bidens pilosa*)*, Lamb's Tongues (*Plantago lanceolata*)*, Sweet Vernal Grass (*Anthoxanthum odoratum*)*, Quaking Grass (*Briza maxima*)*, Shivery Grass (*Briza minor*)*, African Lovegrass (*Eragrostis curvula*)*, Tall Fescue (*Festuca elatior*)*, Pale Pigeon Grass (*Setaria pumila*)*, Sweet Briar (*Rosa rubiginosa*)*, Blackberry (*Rubus fruticosus sp. aggregate*)**, Great Mullein (*Verbascum thapsus subsp. thapsus*)*, Black-berry Nightshade (*Solanum nigrum*)*, and Purpletop (*Verbena bonariensis*)*.

- Low condition: The overstorey and mid-storey are absent in this community. The understorey is dominated by Kangaroo Grass (*Themeda triandra*), with a diverse mixture of Bluebell (*Wahlenbergia* spp.), *Dianella* spp., Barbed Wire Grass (*Cymbopogon refractus*), Weeping Grass (*Microlaena stipoides*), Wild Sorghum (*Sorghum leiocladum*), Rock Fern (*Cheilanthes austrotenuifolia*), and Native Raspberry (*Rubus parvifolius*).

  Exotic species present this community include Cobblers Pegs (*Bidens pilosa*)*, Lamb's Tongues (*Plantago lanceolata*)*, Sweet Vernal Grass (*Anthoxanthum odoratum*)*, Quaking Grass (*Briza maxima*)*, Shivery Grass (*Briza minor*)*, African Lovegrass (*Eragrostis curvula*)*, Tall Fescue (*Festuca elatior*)*, Pale Pigeon Grass (*Setaria pumila*)*, Sweet Briar (*Rosa rubiginosa*)*, Blackberry (*Rubus fruticosus sp. aggregate*)**, Great Mullein (*Verbascum thapsus subsp. thapsus*)*, Black-berry Nightshade (*Solanum nigrum*)*, and Purpletop (*Verbena bonariensis*)*.

3.2.2 PCT 567 Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion (low to high condition)

Vegetation formation: Grassy Woodlands

Vegetation class: New England Grassy Woodlands

PCT: 538

Conservation status:

- Moderate and high condition: White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (BC Act) and White box - yellow box - Blakely's red gum grassy woodlands and derived native grasslands (EPBC Act)
- Low condition: N/A

Estimate of percent cleared: 62 percent

Condition:

- High: Structurally intact system with native understory and overstorey.
- Moderate: Derived native grassland with predominantly native groundcover and canopy absent or low canopy cover.
- Low: Derived native grassland with predominately exotic groundcover and canopy absent or low canopy cover.

Description:

- High condition: The overstorey comprises Broad-leaved Stringybark (*Eucalyptus caliginosa*), Silver-top Stringybark (*Eucalyptus laevopinea*), Blakely's Red Gum (*Eucalyptus blakelyi*), and Rough-barked Apple (*Angophora floribunda*) with less frequent patches of Apple Box (Eucalyptus bridgesiana) and Yellow Box (*Eucalyptus melliodora*). The mid-storey comprises Hickory Wattle (*Acacia implexa*), Australian Indigo (*Indigofera australis*), and Bitter-pea (*Daviesia latifolia*). The understorey comprises Chocolate Lily (*Dichopogon strictus*), Common Fringe-lily (*Thysanotus tuberosus*), Bluebell (*Wahlenbergia spp.*), Bracken (*Pteridium esculentum*), Spiny-headed Mat-rush (*Lomandra longifolia*), Blady Grass (*Imperata cylindrica*), Kangaroo grass (*Themeda triandra*), and Native Raspberry (*Rubus parvifolius*).

  Exotic species present in this community include a minor occurrence of Quaking Grass (*Briza maxima*)*.
- Moderate condition: The overstorey comprises occasional Rough-barked Apple, White Box (*Eucalyptus albens*), Blakely's Red Gum, Broad-leaved Stringybark, Silver-top Stringybark and Yellow Box. The mid-storey comprises scattered Bitter-pea. The understorey comprises approximately 50% native species, dominated by Kangaroo Grass, with moderate occurrences of Chocolate Lily, Common Fringe-lily, Bluebell, Bracken, Blady Grass, and Native Raspberry.

  Exotic species present in this community include Wild Carrot (*Daucus carota*)*, White Clover (*Trifolium repens*)*, Lamb's Tongues (*Plantago lanceolata*)*, Quaking Grass*, African Lovegrass (*Eragrostis curvula*)*, Blackberry (*Rubus fruticosus sp. agg.*)**, and Purpletop (*Verbena bonariensis*)*.
- Low condition: The overstorey is largely absent but occasional, scattered regrowth Rough-barked Apple, Blakely's Red Gum, Broad-leaved Stringybark, Silver-top Stringybark, and Yellow Box occurs. The mid-storey comprises occasional Tea Tree (*Leptospermum spp.*) with weedy incursions of Apple (*Malus domestica*)* and Blackberry (*Rubus fruticosus* sp. *aggregate*)**. The understorey mainly comprises exotic weeds such as Wild Carrot*, White Clover*, Lamb's Tongues*, Wild Oats* (*Avena fatua*)*, Quaking Grass*, African Lovegrass*, Tall Fescue (*Festuca elatior**), Great Mullein (*Verbascum thapsus subsp. thapsus*)* and Purpletop* with occasional Chocolate Lily, Bluebell, Bracken, Blady Grass, and Kangaroo Grass.

Plate 3-1: PCT 538 (high condition) in study area

Plate 3-2: PCT 538 (moderate condition) in study area

Plate 3-3: PCT 538 (Low condition) in study area

Plate 3-4 PCT 567 (high condition) in study area

Plate 3-5: PCT 567 (moderate condition) in study area

Plate 3-6: PCT 567 (low condition) in study area

3.2.3 Weeds

Blackberry (*Rubus fruticosus sp. aggregate*) listed under the Biosecurity Act for the Tamworth LGA occurs on-site as minor infestations associated with grassy roadside areas.

Biosecurity measures for Blackberry: Tamworth LGA

Prohibition on certain dealings. Must not be imported into the state, sold, bartered, exchanged or offered for sale. All species in the *Rubus fruticosus* species aggregate have this requirement, except for the varietals Black Satin, Chehalem, Chester Thornless, Dirksen Thornless, Loch Ness, Murrindindi, Silvan, Smooth Stem, and Thornfree.

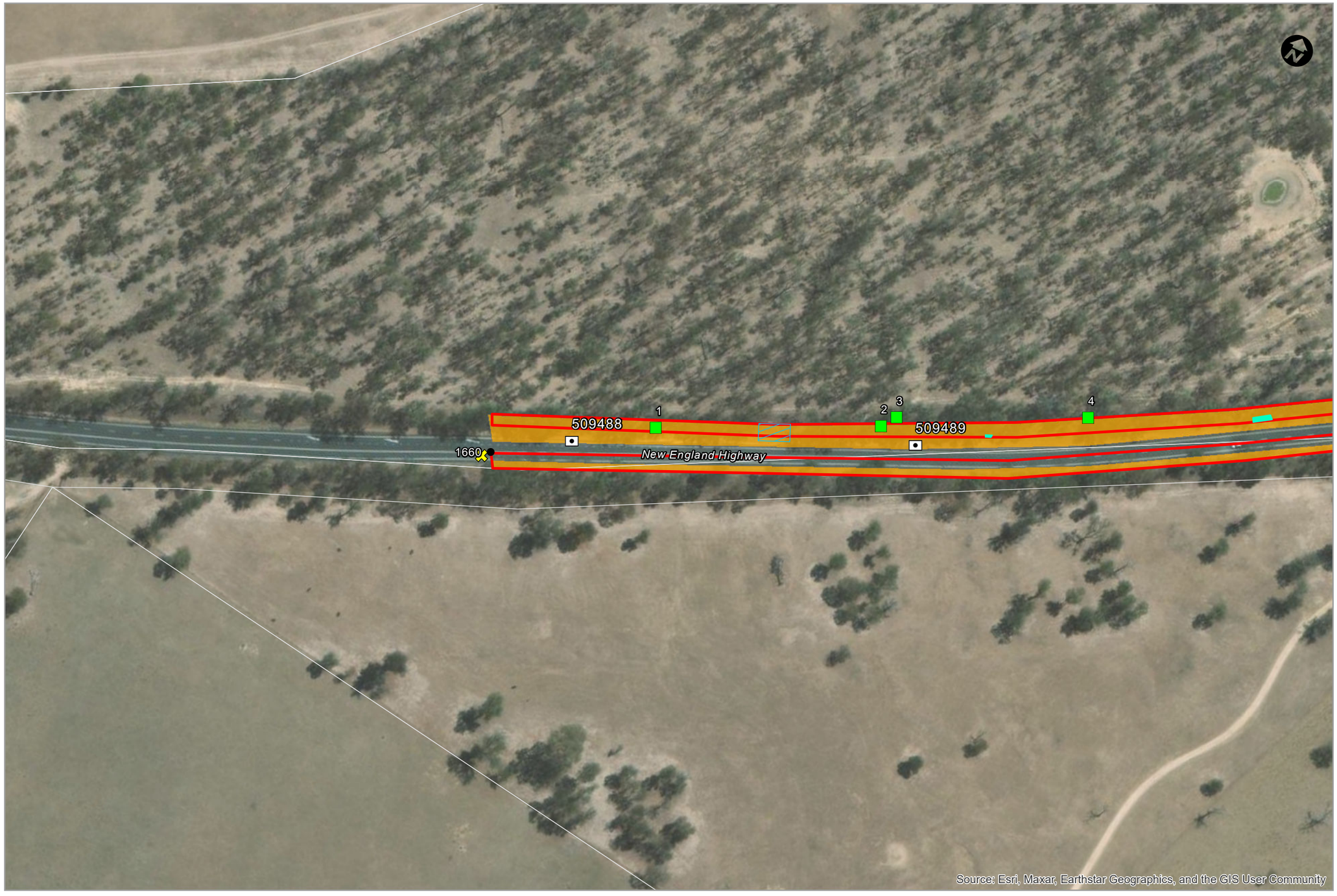
Regional Recommended Measure:

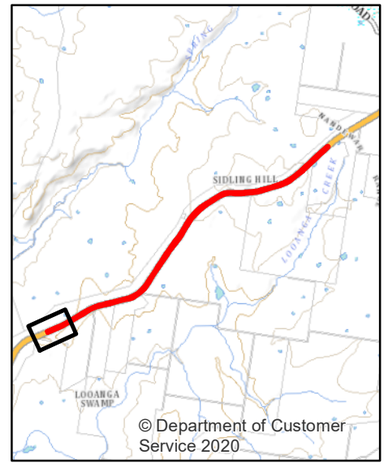
An exclusion zone is established for all lands in the region, except the core infestation area comprising the Gwydir Shire council, Liverpool Plains Shire council and Tamworth Regional council.

Whole of region: The plant should not be bought, sold, grown, carried or released into the environment.

Exclusion zone: Land managers should mitigate the risk of new weeds being introduced to their land; land managers should mitigate spread from their land.

Core infestation: Land managers reduce impacts from the plant on priority assets.





Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- Plant parking
- PCT 538 high
- Blackberry infestation
- Segment marker
- Hollow-bearing tree
- Sidling Hill segment start
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 1 of 10

Information shown is for illustrative purposes only
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Source of base data: ESRI World Imagery
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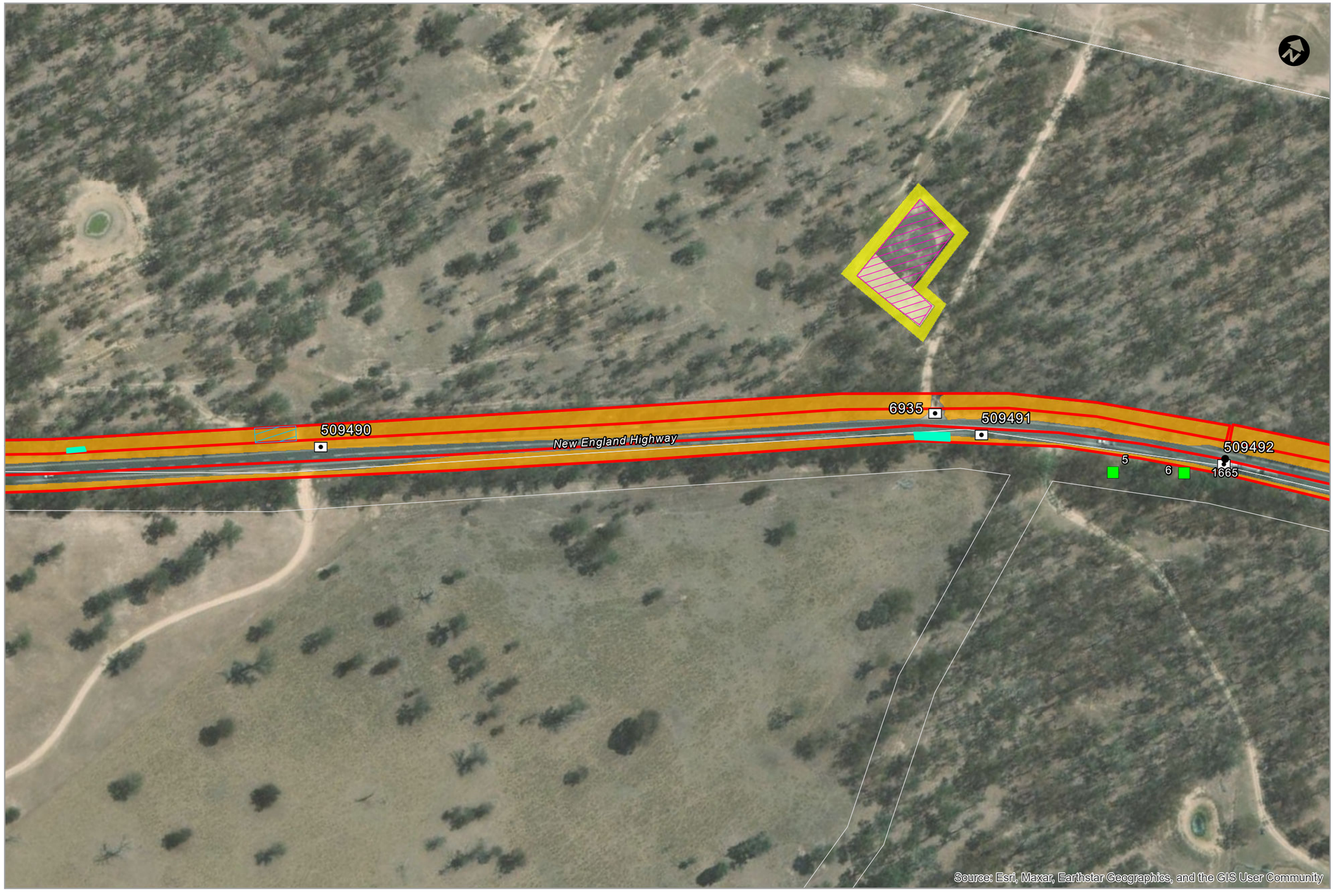

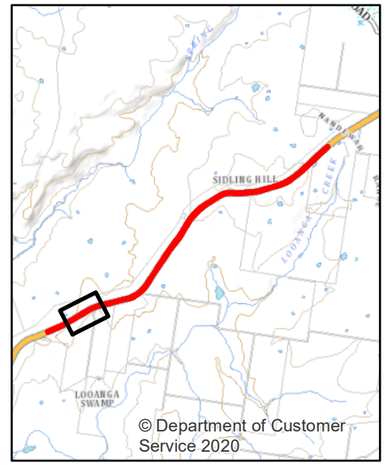

Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- Compound site
- Plant parking
- PCT 538 high
- PCT 538 moderate
- PCT 538 low
- Blackberry infestation
- Segment marker
- Hollow-bearing tree
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 2 of 10

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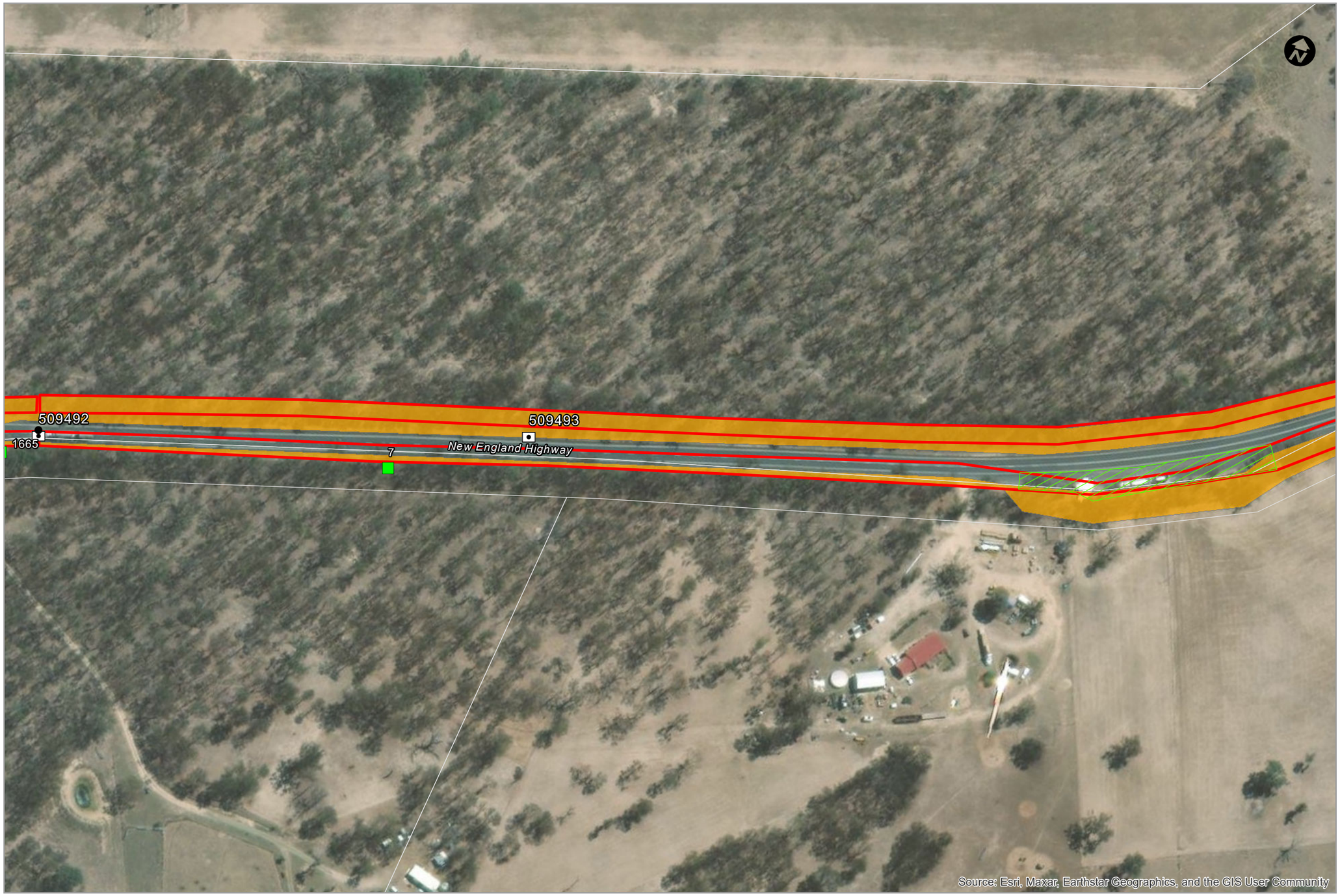

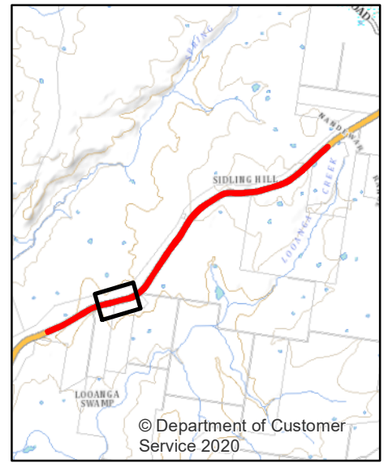

Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- Plant parking / compound site
- PCT 538 high
- Segment marker
- Hollow-bearing tree
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 3 of 10

Information shown is for illustrative purposes only
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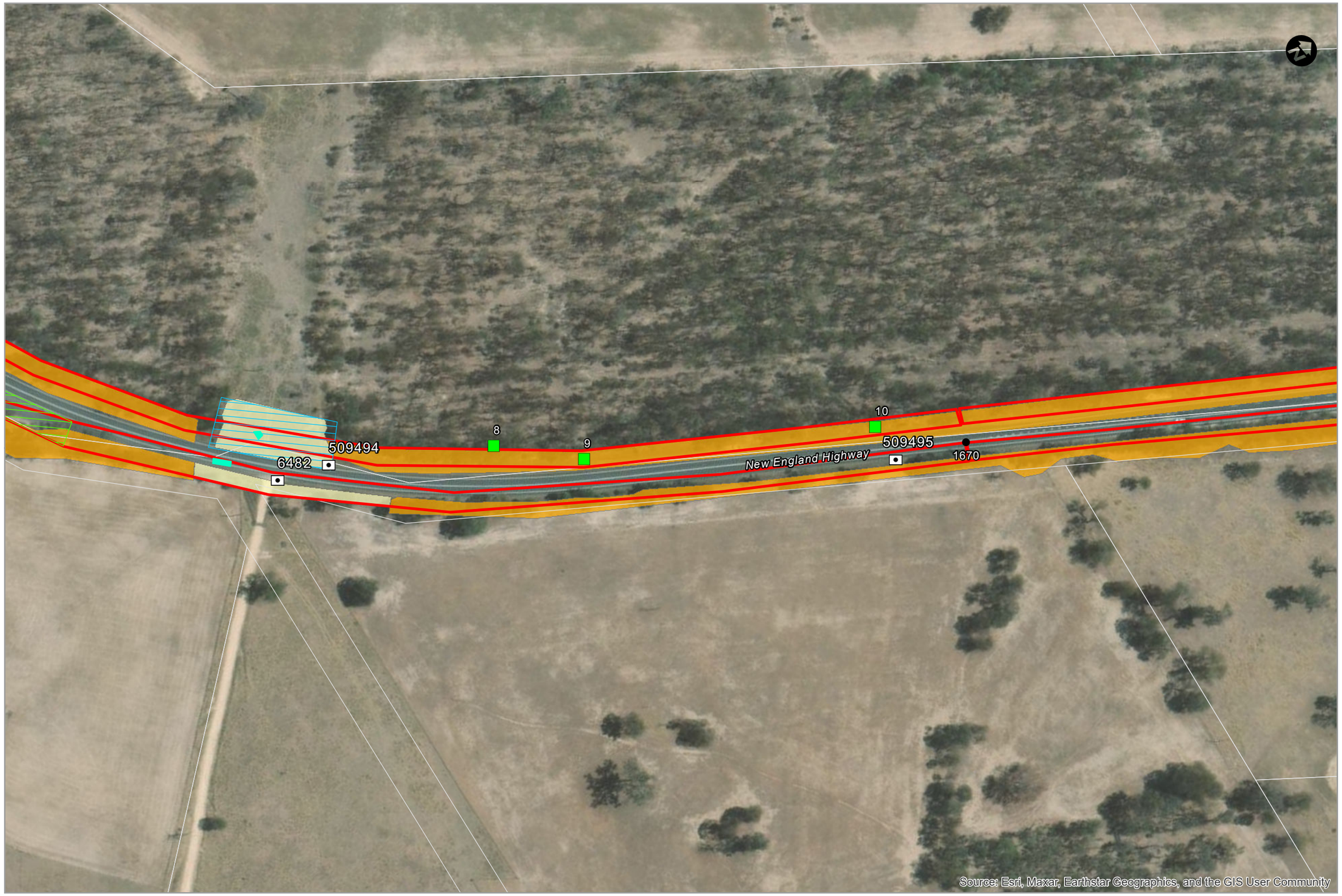

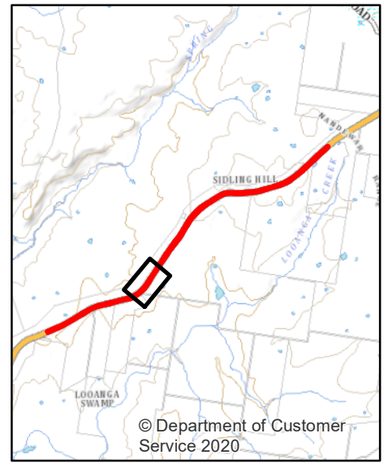

Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- Plant parking
- Plant parking / compound site
- PCT 538 high
- PCT 538 low
- Blackberry infestation
- Segment marker
- Hollow-bearing tree
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 4 of 10

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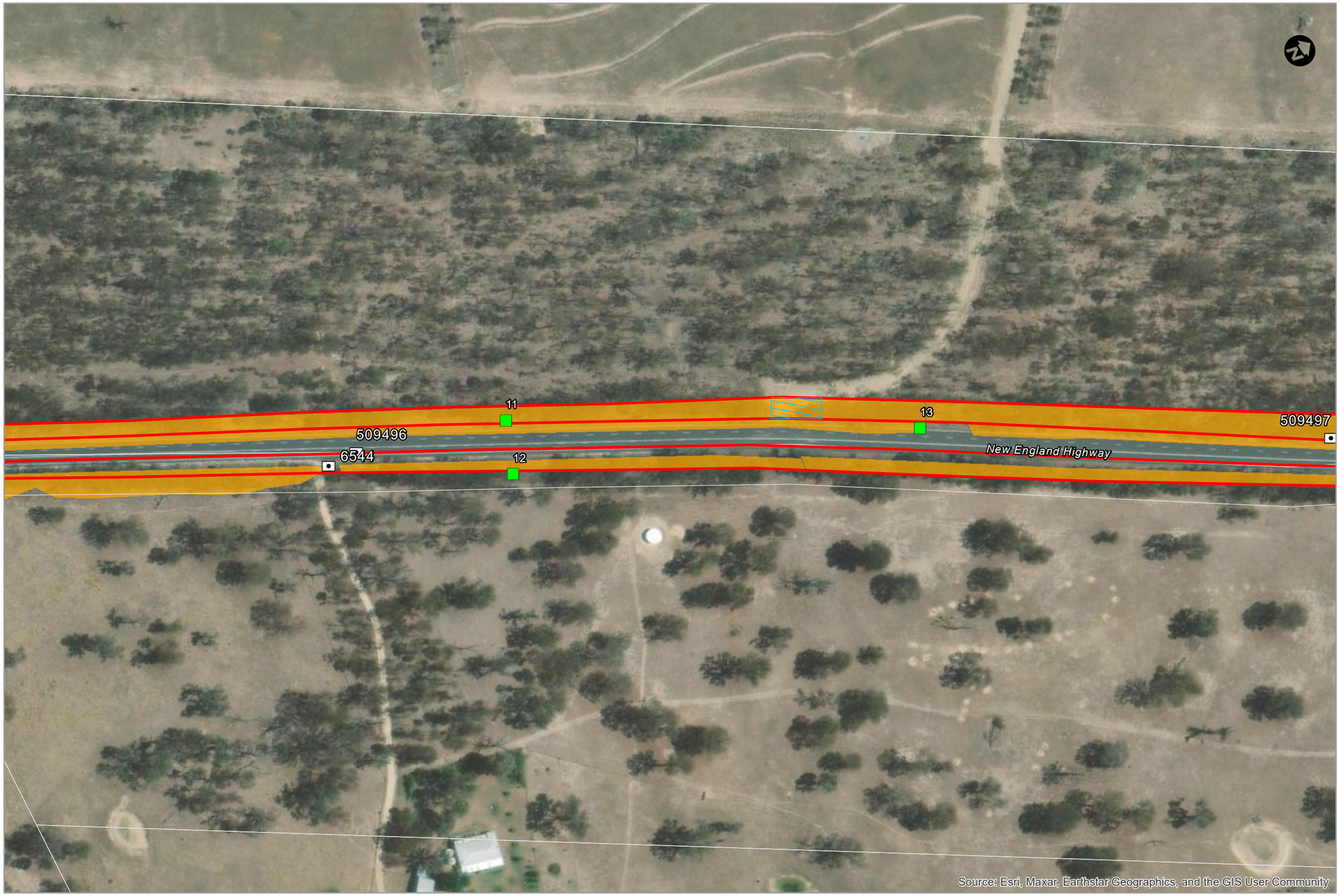

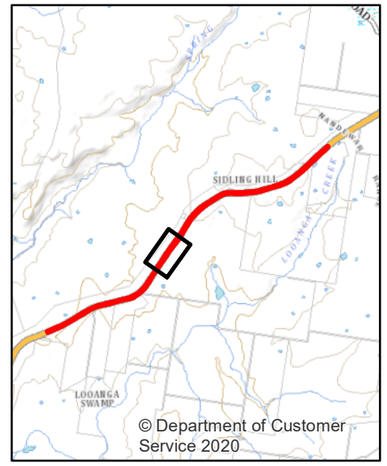

Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- Plant parking
- PCT 538 high
- Hollow-bearing tree
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 5 of 10

Information shown is for illustrative purposes only
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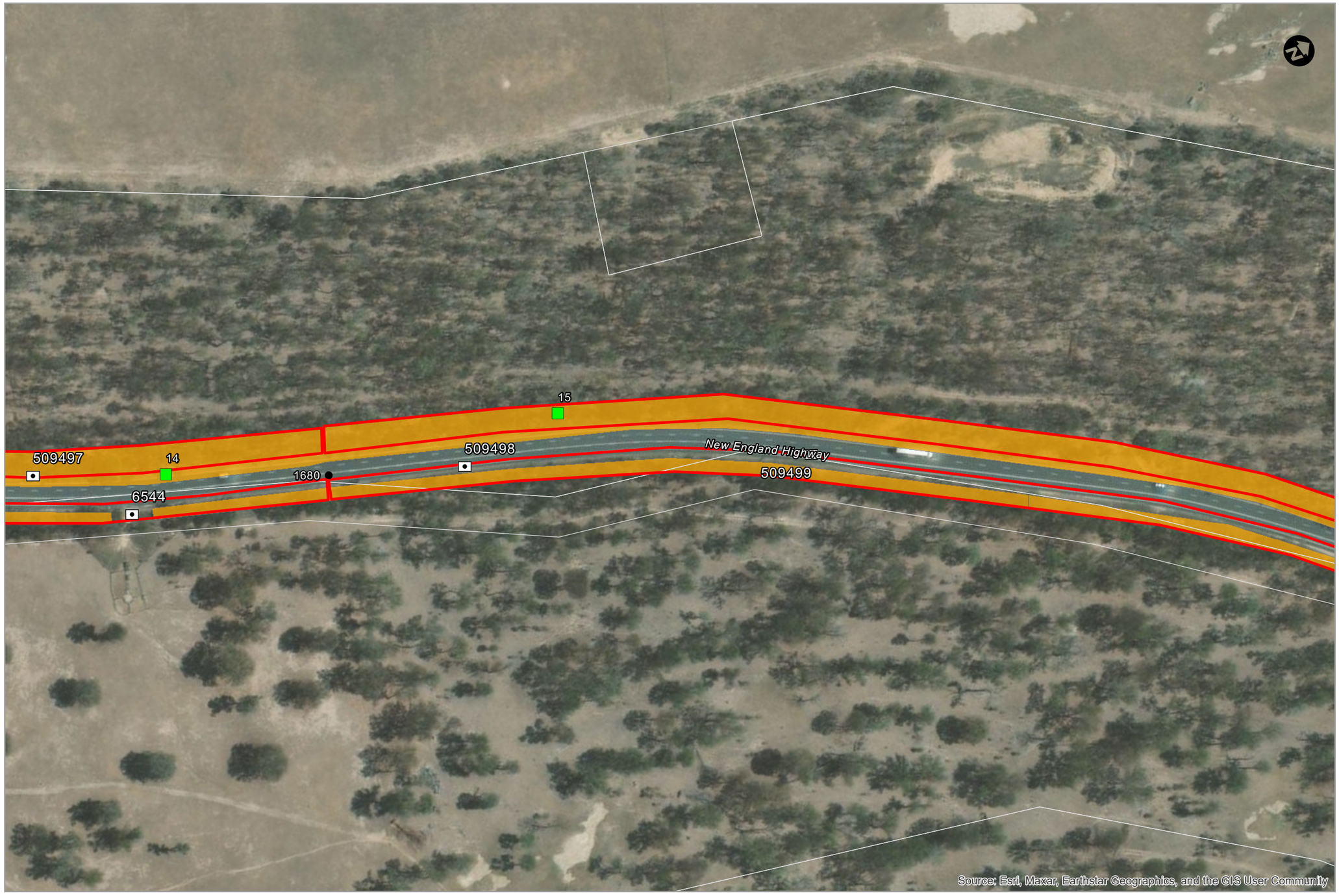

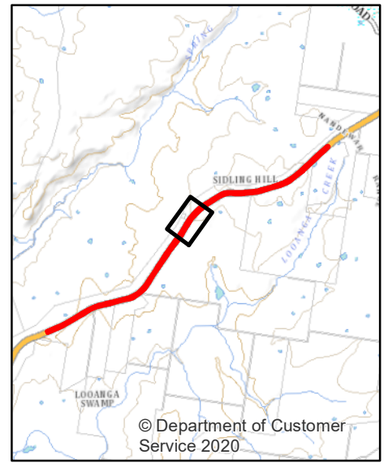

Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- PCT 538 high
- Segment marker
- Hollow-bearing tree
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 6 of 10

Information shown is for illustrative purposes only
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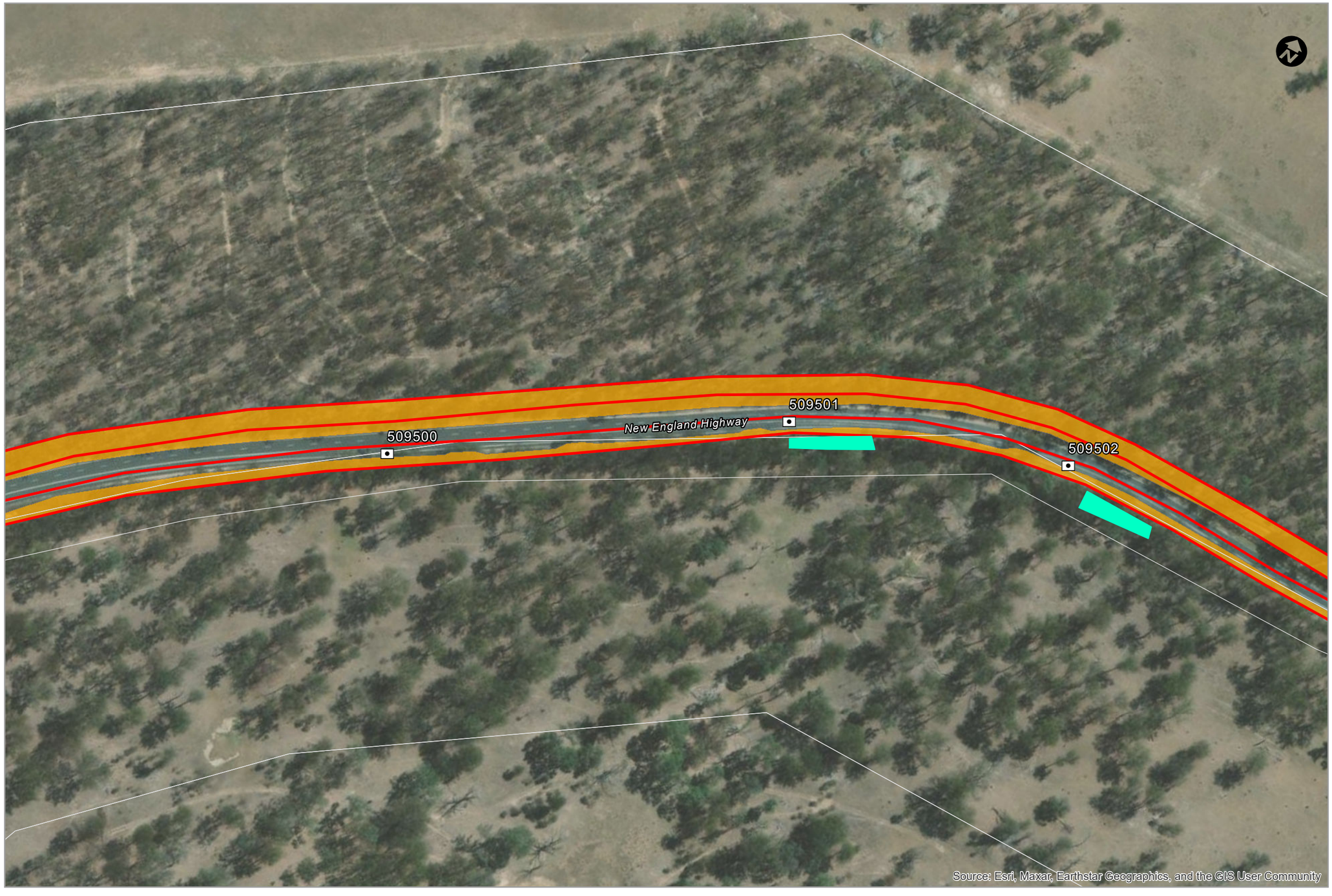

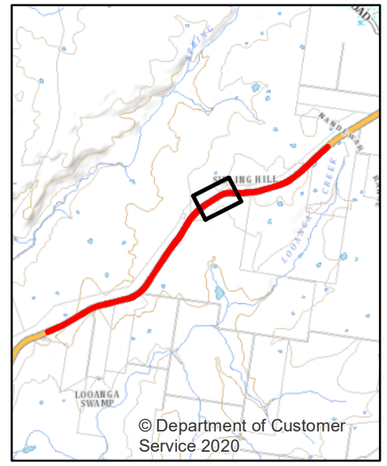

Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- PCT 538 high
- Blackberry infestation
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 7 of 10

Information shown is for illustrative purposes only
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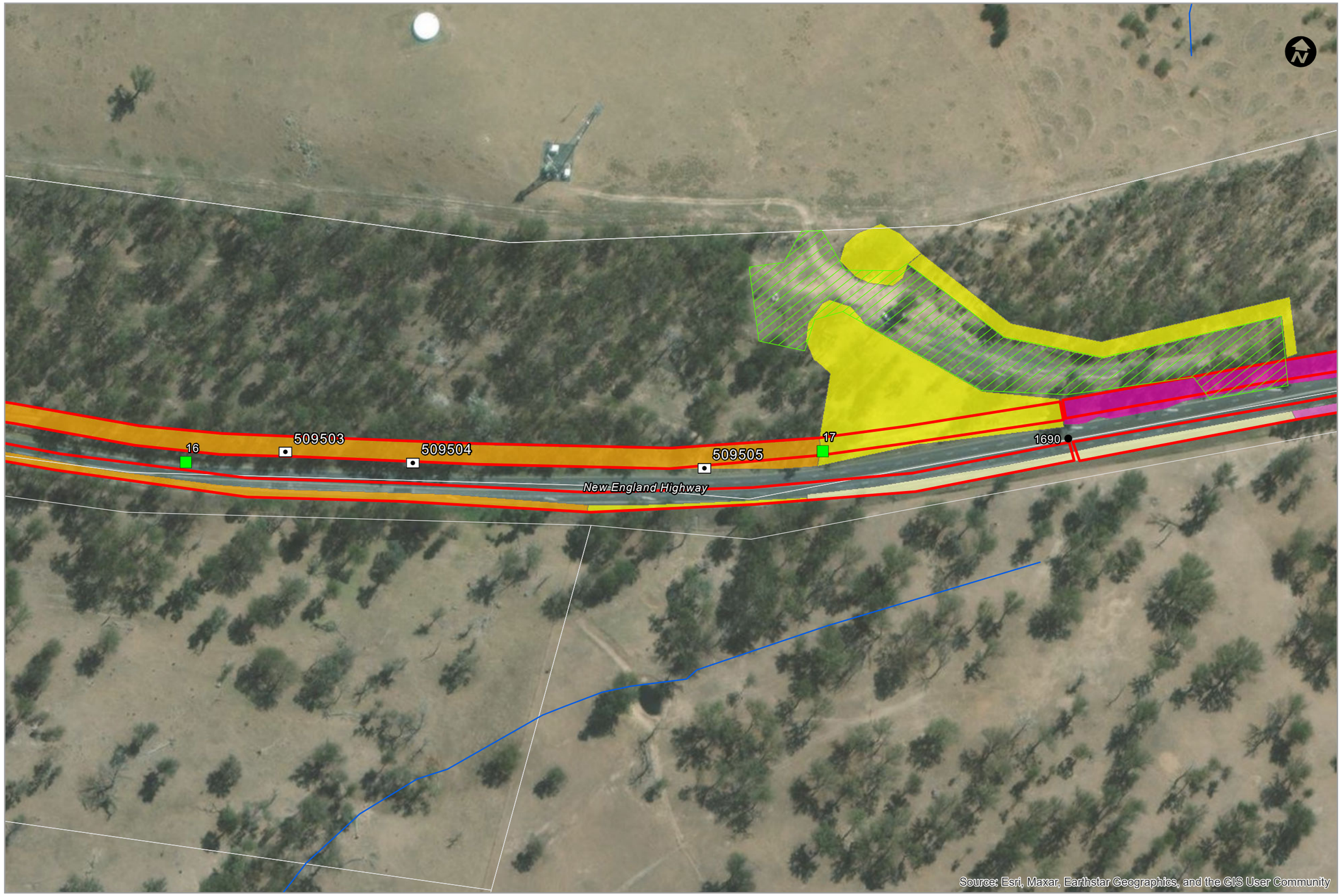

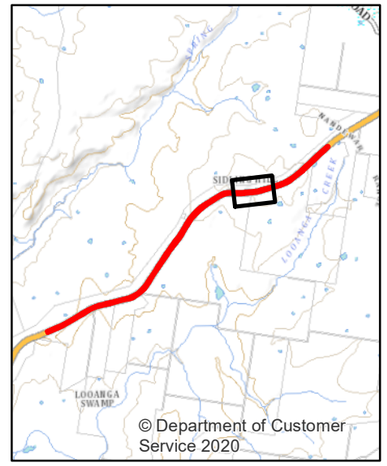

Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- Plant parking / compound site
- PCT 538 high
- PCT 538 moderate
- PCT 538 low
- PCT 567 high
- PCT 567 moderate
- Watercourse
- Segment marker
- Hollow-bearing tree
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 8 of 10

Information shown is for illustrative purposes only
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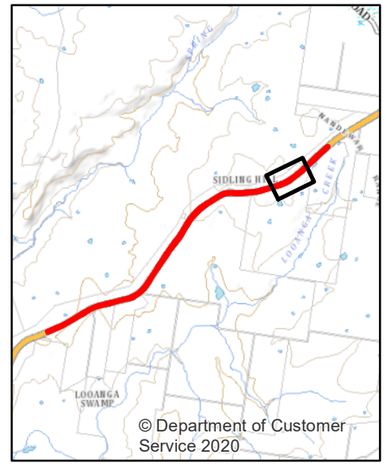

Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- Plant parking / compound site
- PCT 538 moderate
- PCT 567 high
- PCT 567 moderate
- Watercourse
- Segment marker
- Hollow-bearing tree
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 9 of 10

Information shown is for illustrative purposes only
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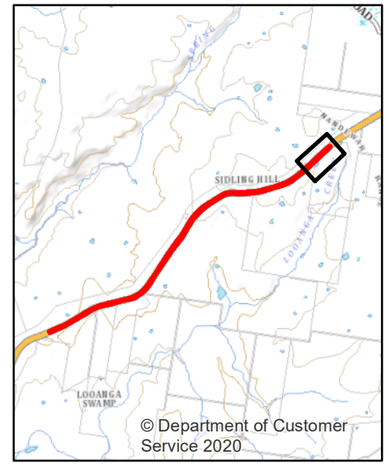

Map Sheet Index

LEGEND

- Assessment area
- Cadastre
- Plant parking
- PCT 567 high
- PCT 567 moderate
- PCT 567 low
- Blackberry infestation
- Watercourse
- Segment marker
- Hollow-bearing tree
- Sidling Hill segment end
- Culvert

0 40 Metres

Vegetation Map
Illustration 3.1 - Sheet 10 of 10

Information shown is for illustrative purposes only
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3.3 Fauna habitat

The site provides low to moderate quality habitat for some fauna species due to the patches of native vegetation, presence of fallen timber, and feeding resources. However, the study area does have some disturbance, particularly the immediate roadside verge and the vegetation is largely new regrowth with very little hollow-bearing trees. Habitat values of the site are summarised as follows:

- The study area is predominantly made up of native regrowth vegetation and is partially disturbed (particularly the immediate road verge) with exotic vegetation occurring in areas due to the road reserve and historical clearing in the locality. Areas of vegetation patches where trees and shrubs occur provide potential shelter and foraging (fruit, nectar, pollen, insect) opportunities for birds, reptiles and terrestrial mammals, however, due to the site's limited connectivity to larger vegetation patches, these patches are likely utilised more often by highly mobile species (i.e. birds or large macropods) or species which are well adapted to disturbed environments.
- Culverts within the construction footprint were assessed for the potential of microbat habitat. Six of these may be used opportunistically by microbats, however are unlikely to provide significant roosting habitat (refer to **Table 3-2**). These culverts and an additional three culverts require inspection as a precaution, as they were not able to be surveyed.
- Presence of Myrtaceous trees (i.e. *Eucalyptus* species), provide potential foraging (fruit, nectar, pollen, insect) resources for locally occurring birds, microbats and arboreal mammals. Multiple trees were identified to contain limb and trunk hollows of both medium and large size (refer to **Table 3-3**), which may be utilised by hollow dependant fauna species (i.e. microbats, birds and small mammals). The site's lack of connectivity from large patches of remnant native vegetation, may limit the potential for large arboreal mammals to regularly occur or rely on these areas, but instead may still be utilised by hollow-dependant fauna species on an intermittent basis.
- Exotic vegetation dominated by the presence of exotic grasses and herbaceous weeds, surrounding the ancillary areas and laydown areas. Disturbed habitat is predominately utilised by open country bird and mammal species for foraging purposes. These patches were comprised of mostly exotic species and as a result were in degraded condition as they lacked the important microhabitat features such as native tussocks, open rocky patches, fallen timber and old growth trees with large hollows.

With the implementation of relevant safeguards, the proposed Activity is expected to minimise the risk of injury/mortality to native fauna during works.

Table 3-2: Culvert Features

TfNSW culvert number / Culvert ID	Feature	No. Cells	Culvert Diameter (mm)	Microbat Roosting Features and/or Evidence of Occurrence	Inspection required prior to works	Culverts impacted by works	Latitude	Longitude
509488	Pipe culvert	1	600	Nil	No	Yes	-30.7840597	151.3282501
509489	Pipe culvert	2	600	Medium joint gaps	Yes	Yes	-30.7834498	151.32991
509490	Pipe culvert	1	450	Nil	No	Yes	-30.7822001	151.33267
6935 Kyabra station access 1	Pipe culvert	1	-	Could not locate	Yes	Yes	-	-
509491	Pipe culvert	2	525	Small joint gaps	No	Yes	-30.7808198	151.3357601

TfNSW culvert number / Culvert ID	Feature	No. Cells	Culvert Diameter (mm)	Microbat Roosting Features and/or Evidence of Occurrence	Inspection required prior to works	Culverts impacted by works	Latitude	Longitude
509492	Pipe culvert	1	600	Small joint gaps	No	Yes	-30.78045	151.3369702
509493	Pipe culvert	1	450	Small joint gaps	No	Yes	-30.77987	151.3394501
6482 Myuna driveway culvert	Pipe culvert	1	450	Small joint gaps	No	Yes	-30.7784807	151.3441377
509494	Pipe culvert	1	450	Could not inspect	Yes	Yes	-30.77826	151.3442502
509495	Pipe culvert	1	600	Medium joint gaps	Yes	Yes	-30.7762901	151.3461502
6544 Yarrawonga driveway access	Pipe culvert	1	300	Nil	No	Yes	-30.7739671	151.3480223
509496	Pipe culvert	1	450	Medium joint gaps	Yes	Yes	-30.7738297	151.3480501
509497	Pipe culvert	1	375	Nil	No	Yes	-30.7702199	151.3509802
6544 Yarrawonga cattle yards access	Pipe culvert	1	450	Medium joint gaps	Yes	Yes	-30.769965	151.351455
509498	Pipe culvert	1	450	Medium joint gaps	Yes	Yes	-30.7686301	151.3523001
509499	Pipe culvert	1	450	Nil	No	Yes	-30.7673399	151.3533401
509500	Pipe culvert	1	600	Small joint gaps	No	Yes	-30.76518	151.3564
509501	Pipe culvert	1	525	Could not inspect	Yes	Yes	-	-
509502	Pipe culvert	1	900	Small joint gaps	No	Yes	-30.7638399	151.3596401
509503	Pipe culvert	1	450	Small joint gaps	No	Yes	-30.7637398	151.3620399
509504	Pipe culvert	2	600	Nil	No	Yes	-30.7637298	151.36271
509505	Pipe culvert	1	525	Small joint gaps	No	Yes	-30.7636196	151.36423
50950X	Pipe culvert	1	450	Nil	No	Yes	-30.7626244	151.368375
6832 Bimbi Vale cattle yards access	Pipe culvert	1	300	Nil	No	Yes	-30.7626381	151.369112
509506	Pipe culvert	1	600	Small joint gaps	Yes	Yes	-30.7616169	151.3711384

TfNSW culvert number / Culvert ID	Feature	No. Cells	Culvert Diameter (mm)	Microbat Roosting Features and/or Evidence of Occurrence	Inspection required prior to works	Culverts impacted by works	Latitude	Longitude
6832 Bimbi Vale driveway access	Pipe culvert	1	300	Nil	No	Yes	-30.7610523	151.3720059
509507	Pipe culvert	1	600	Small joint gaps	No	Yes	-30.7592097	151.37417
6884 Wynilbah driveway access	Pipe culvert	1	300	Nil	No	Yes	-30.7579525	151.3760667

Table 3-3: Hollow-bearing trees in Assessment Area

ID	Common name	Other name	Hollow	Remove	Tree Height (m)	DBH (cm)	Total Hollows	Limb Hollow			Trunk Hollow			Nests	Comments
								Small	Medium	Large	Small	Medium	Large		
1	Stag	-	Yes	No	10	30	1	-	-	-	1	-	-	-	-
2	Silver Top Stringybark	*Eucalyptus laevopinea*	No	No	16	40	-	-	-	-	-	-	-	1	Medium bark nest
3	Rough Barked Apple	*Angophora floribunda*	No	No	14	70	-	-	-	-	-	-	-	1	-
4	Stag	-	Yes	No	16	60	1	-	1	-	-	-	-	-	-
5	Stag	-	Yes	No	8	30	1	-	-	-	-	-	1	-	-
6	Bendemeer White Gum	*Eucalyptus elliptica*	Yes	No	16	40	4	-	2	-	-	-	2	-	-
7	Stag	-	Yes	No	8	40	1	-	1	-	-	-	-	-	-
8	Stag	-	Yes	No	4	40	1	-	-	-	-	-	1	-	-
9	Stag	-	Yes	No	8	30	2	-	2	-	-	-	-	-	-
10	Stag	-	Yes	No	8	120	3	2	1	-	-	-	-	-	-
11	Stag	-	Yes	No	12	50	2	-	-	1	-	-	1	-	-
12	Stag	-	Yes	No	2	50	1	-	-	-	-	-	1	-	-
13	Silver Top Stringybark	*Eucalyptus laevopinea*	No	No	10	30	-	-	-	-	-	-	-	1	Medium stick nest
14	Stag	-	Yes	No	10	40	1	1	-	-	-	-	-	-	-
15	Stag	-	Yes	No	10	40	1	-	-	-	1	-	-	-	-

ID	Common name	Other name	Hollow	Remove	Tree Height (m)	DBH (cm)	Total Hollows	Limb Hollow			Trunk Hollow			Nests	Comments
								Small	Medium	Large	Small	Medium	Large		
16	Silver Top Stringybark	*Eucalyptus laevopinea*	Yes	No	16	50	1	-	-	-	-	1	-	-	-
17	Stag	-	Yes	No	8	30	1	-	1	-	-	-	-	-	-
18	Silver Top Stringybark	*Eucalyptus laevopinea*	No	No	8	20	-	-	-	-	-	-	-	1	Medium mud nest
19	Silver Top Stringybark	*Eucalyptus laevopinea*	Yes	No	8	30	1	-	-	1	-	-	-	-	-
20	Silver Top Stringybark	*Eucalyptus laevopinea*	Yes	No	10	50	1	-	-	-	-	-	1	-	-
21	Stag	-	Yes	No	8	40	1	1	-	-	-	-	-	-	-
22	Stag	-	Yes	Yes	8	30	1	-	1	-	-	-	-	-	-
23	Stag	-	Yes	No	10	40	1	-	-	-	-	1	-	-	-

3.4 Aquatic habitat

One ephemeral first order stream, a tributary to Looanga Creek, traverses the site.

The watercourse is unlikely to provide any significant habitat for FM Act listed threatened aquatic species due to their ephemeral nature and poor quality. While no mapped KFH occurs in the study area, general consideration of safeguards around sedimentation and erosion control should be undertaken. A review of the fisheries spatial data portal did not indicate any potential habitat for threatened fish species in any waterways in the study area.

3.5 Groundwater dependent ecosystems

Groundwater dependent ecosystems (GDEs) are communities of plants, animals and other organisms whose extent and life processes are dependent on groundwater (NSW Department of Planning Industry and Environment, 2021). When considering GDEs, groundwater is generally defined as the saturated zone of the regolith (the layer of loose rock resting on bedrock, constituting the surface of most land) and its associated capillary fringe, however it excludes soil water held under tension in soil pore spaces (the unsaturated zone or vadose zone) (Eamus et al., 2006).

GDEs include a diverse range of ecosystems from those entirely dependent on groundwater to those that may use groundwater while not having a dependency on it for survival (i.e. ecosystems or organisms that use groundwater opportunistically or as a supplementary source of water)(Hatton & Evans, 1998). Eamus et al., (2006) considers the following broad classes of these ecosystems:

- Aquifer and cave ecosystems, where stygofauna (groundwater-inhabiting organisms) may reside within the groundwater resource. The hyporheic zones (see ecosystem 5 in Figure 3-1) of rivers and floodplains are also included in this category because these ecotones often support stygobites (obligate groundwater inhabitants).
- All ecosystems dependent on the surface expression of groundwater. This category includes base-flow rivers and streams, wetlands (see ecosystems 2 and 3 in Figure 3-1), some floodplains and mound springs and estuarine seagrass beds. While it is acknowledged that plant roots are generally below ground, this class of groundwater dependant ecosystems requires a surface expression of groundwater, which may, in many cases, then soak below the soil surface and thereby become available to plant roots.
- All ecosystems dependent on the subsurface presence of groundwater, often accessed via the capillary fringe (non-saturated zone above the saturated zone of the water table) when roots penetrate this zone. This class includes terrestrial ecosystems such as River Red Gum (*Eucalyptus camaldulensis*) forests on the Murray–Darling basin (see ecosystems 1 and 4 in Figure 3-1). No surface expression of groundwater is required in this class of groundwater dependant ecosystems.

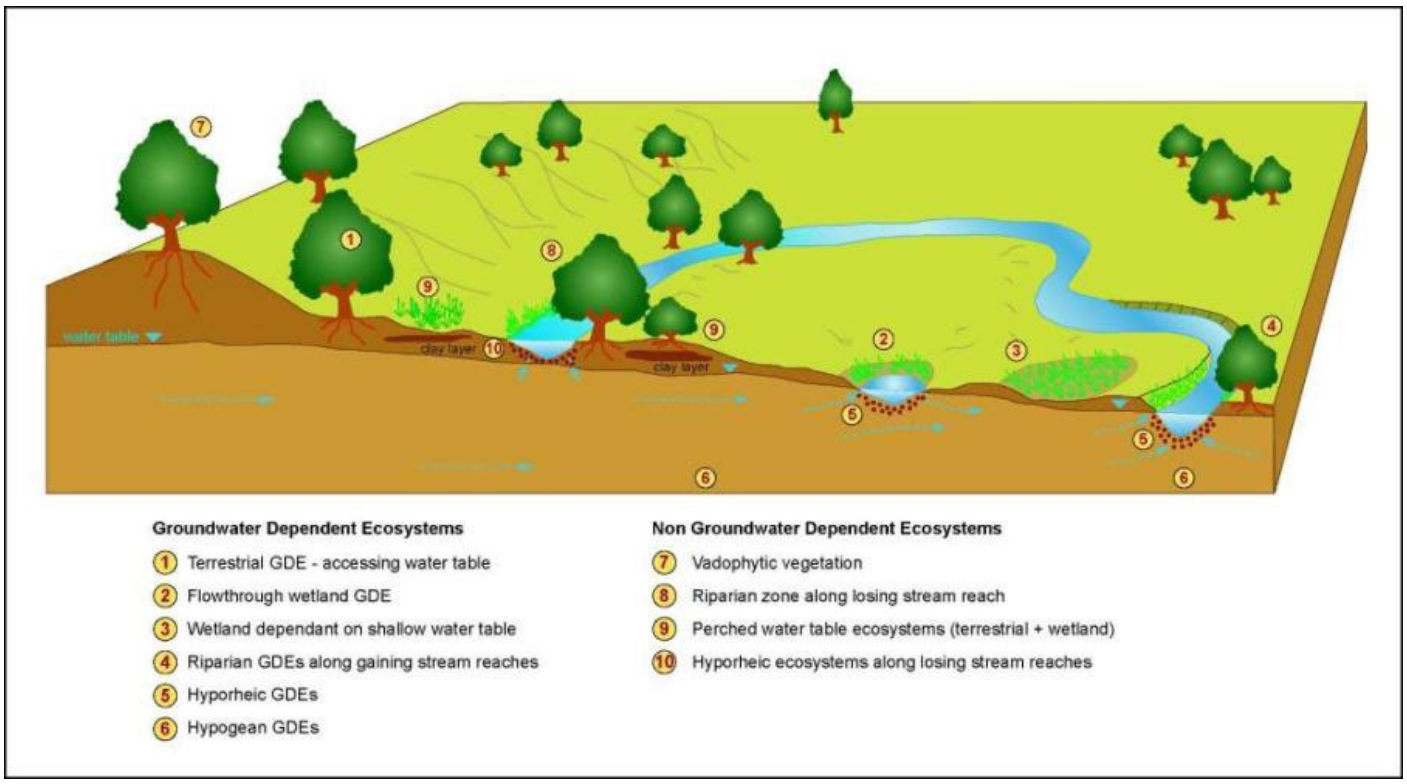


Figure 3-1: Conceptual biophysical model of groundwater dependent ecosystems

GDEs possess a range of values, including being important and sometimes rare ecosystems in themselves, as well as providing important ecosystem services such as water purification (NSW Department of Planning Industry and Environment, 2021).

The dependence (or interaction) of the vegetation communities identified within the proposal footprint, on groundwater was determined by aligning them with the groundwater dependant ecosystem types identified by Eamus *et al*. (2006) (Figure 3-1).

The site is located within the Namoi River catchment with ecosystems most likely fed by surface rather than groundwater. This is supported by groundwater dependent ecosystem (GDE) mapping covering the locality that indicates that the vegetation communities present are a low probability of being GDEs (Bureau of Meteorology 2018).

4. Threatened biodiversity

This section provides an overview of the threatened species, populations and communities recorded or considered likely to use habitat in the study area. Threatened biodiversity is listed as Protected, Vulnerable, Endangered or Critically Endangered under the NSW BC Act and FM Act. Threatened biodiversity listed under the Commonwealth EPBC Act is detailed in **Section 5**.

4.1 Threatened ecological communities

One vegetation community, PCT 538 (moderate and high condition only) within the study area is representative of a Threatened Ecological Community (TEC) listed under the BC Act (**Table 4-1**). The location of the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland TEC is shown in **Illustration** 3-1.

The areas mapped as PCT 538 (low condition) were not determined to be a TEC (BC Act) due to a predominately exotic groundcover and low natural regeneration potential (DECC 2007).

Table 4-1: Plant community types listed under the BC Act

Name of plant community	Condition	BC Act	Area (ha) within assessment area
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions	High	Critically Endangered	7.24 ha
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions	Moderate	Critically Endangered	1.34 ha

4.2 Threatened flora

No threatened flora species listed under the BC Act or EPBC Act were recorded within the study area.

With the exception of Bluegrass, Small Snake Orchid, and Silky Swainson-pea potentially occurring threatened flora species were readily identifiable at the time the site survey was conducted and therefore were assigned a low likelihood of occurrence on the basis that they were not recorded in this site survey (refer to **Annexure B**).

The aforementioned species are cryptic and often difficult to detect so have been assumed to be present at the site. It is noted that habitat for these species on the site is associated with areas of PCT 538 and PCT 567.

Table 4-2 Threatened flora listed under BC Act with moderate or higher likelihood of occurrence in study area

Scientific name	Common name	BC Act status	Potential occurrence
Dichanthium setosum	Bluegrass	V	Moderate (assumed present)
Diuris pedunculata	Small Snake Orchid	E	Moderate (assumed present)
Swainsona sericea	Silky Swainson-pea	V	Moderate (assumed present)

1) V = Vulnerable under the BC Act
2) E = Endangered under the BC Act

4.3 Threatened fauna

No threatened fauna species listed under the BC Act or EPBC Act were recorded in the study area during the site assessment. Based on the desktop analysis and habitat present, fourteen species assessed as having a moderate or higher likelihood of occurrence within the study area were further considered (refer to **Table 4-3** and **Annexure B**).

Table 4-3: Threatened fauna listed under BC Act with moderate or higher likelihood of occurrence in study area

Scientific name	Common name	BC Act[1]	Likelihood of occurrence
Woodland Birds (7)			
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	**Moderate** – potential foraging habitat. Recorded within locality.
Chthonicola sagittata	Speckled Warbler	V	
Climacteris picumnus victoriae	Brown Treecreeper	V	
Daphoenositta chrysoptera	Varied Sittella	V	
Glossopsitta pusilla	Little Lorikeet	V	
Petroica boodang	Scarlet Robin	V	
Petroica phoenicea	Flame Robin	V	
Predatory birds (2)			
Lophoictinia isura	Square-tailed Kite	V	**Moderate** – potential foraging habitat. Recorded within locality.
Hieraaetus morphnoides	Little Eagle	V	
Mammals – microbats (3)			
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	**Moderate** – potential foraging and roosting habitat. Recorded within locality.
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	
Nyctophilus corbeni	Corben's Long-eared Bat	V	
Mammals - arboreal (2)			
Petaurus norfolcensis	Squirrel Glider	V	**Moderate** – potential foraging habitat. Recorded within locality.
Phascolarctos cinereus	Koala	V	**Moderate** – likely to utilise parts of the site on occasion as part of broader foraging areas

1) V = Vulnerable under the BC Act

4.4 Areas of outstanding biodiversity value

There are no declared areas of outstanding biodiversity value located in the Tamworth LGA.

4.5 Wildlife connectivity corridors

The site partially occurs within a potential subregional fauna corridor in the Nandewar region as per Scotts (2003). There are no listed focal species listed for this mapped corridor. As the works occur within a previously disturbed road corridor, the minor extent of the works would not significantly affect the movement of fauna within the corridor.

4.6 State Environmental Planning Policy (Biodiversity & Conservation) 2021 (formerly SEPP Koala Habitat Protection 2021)

State Environmental Planning Policy (Biodiversity & Conservation) 2021 (formerly State Environmental Planning Policy (Koala Habitat Protection) 2021) aims to encourage the conservation and management of areas of natural vegetation that provide habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline.

Chapter 4 of State Environmental Planning Policy (Biodiversity & Conservation) 2021 (formerly the Koala SEPP 2021) reinstates the policy framework of SEPP Koala Habitat Protection 2019 to 83 Local Government Areas (LGA) in NSW. Chapter 4 only applies to all zones in the following LGAs: Metropolitan Sydney (Blue Mountains, Campbelltown, Hawkesbury, Ku-Ring-Gai, Liverpool, Northern Beaches, Hornsby, Wollondilly) and the Central Coast LGA. In all other identified LGAs, Koala SEPP 2021 does not apply to land zoned RU1 Primary Production, RU2 Rural Landscape or RU3 Forestry. For all RU1, RU2 and RU3 zoned land outside of the Sydney Metropolitan Area and the Central Coast, Chapter 3 applies.

Land at the site is zoned as RU1 and hence Chapter 3 applies. The SEPP states that the SEPP applies only to land ‘in relation to which a development application has been made’. Section 2.108 of TISEPP precludes the proposal from requiring consent therefore Chapter 3 of State Environmental Planning Policy (Biodiversity & Conservation) 2021 does not apply to the proposal. It is TfNSW policy, however, to consider environmental issues relating to their work to the fullest extent possible, including impacts on Koalas.

The policy defines potential Koala habitat as areas of native vegetation where Schedule 2 trees constitute at least 15 per cent of the total number of trees in the upper or lower strata of the tree component. No Schedule 2 listed tree was present on site and only two koala feed tree (Blakely’s Red Gum and Rough-Barked Apple) occurred at the site. Consequently, potential Koala habitat does not occur and the Policy requires no further consideration.

5. Matters of National Environmental Significance

Matters of National Environmental Significance (MNES), listed under the EPBC Act, are addressed in this section. The following biodiversity MNES protected under the EPBC Act were considered for their relevance to the proposal:

- wetlands of international importance (Ramsar) (EPBC Act sections 16 and 17B);
- listed threatened species and communities (EPBC Act sections 18 and 18A); and
- listed migratory species (EPBC Act sections 20 and 20A).

5.1 Wetlands of international importance

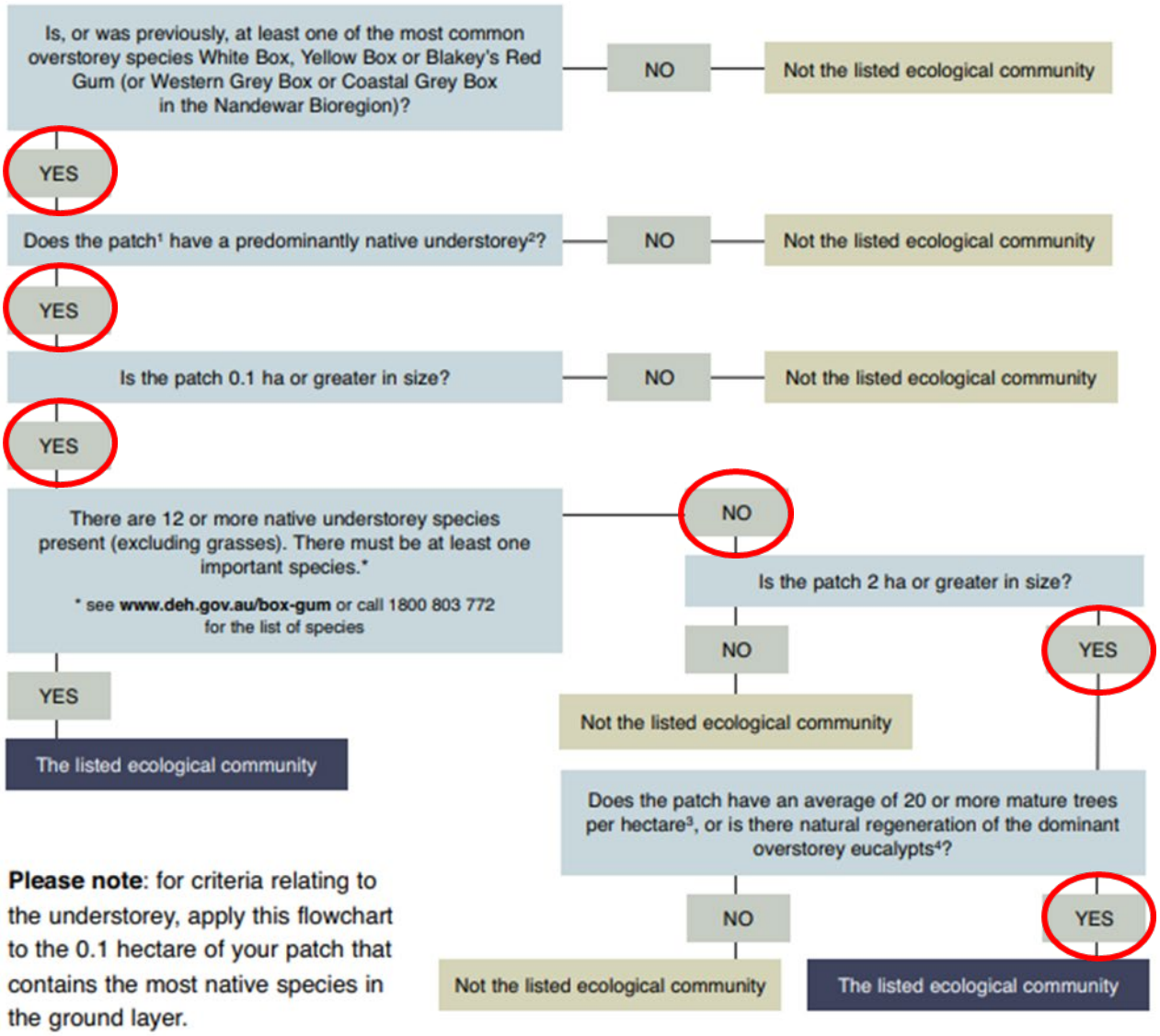
No wetlands of international importance occur within the study area or broader locality.

5.2 EPBC listed Threatened Ecological Communities

Results of the protected matters database search identified five TECs listed under the EPBC Act as being likely to occur within the locality as follows:

- Natural grasslands on basalt and fine-textured alluvial plains of norther NSW and southern Queensland (listed as Critically Endangered).
- New England Peppermint (*Eucalyptus nova-anglica*) Grassy Woodlands (Listed as Critically Endangered).
- Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion) (listed as Endangered).
- Weeping Myall Woodlands (listed as Endangered).
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered).

Of these five TECs, the study area contained vegetation corresponding to the EPBC Act listed White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC. Within the study area PCT 538 *Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion* (high and moderate condition) and PCT 567 *Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion* (high and moderate condition) forms part of this TEC and are considered consistent with the Critically Endangered listing as they support Blakely's Red Gum as a dominate tree species and were 2 ha or greater (DEH 2006). To be considered consistent with the Critically Endangered listing under the EPBC Act, the vegetation must be consistent with the criteria outlined in the EPBC Act policy statement 3.5 – White box – Yellow box – Blakely's Red Gum Grassy Woodlands and Derived Native Grasslands (Department of the Environment and Heritage, 2006) and as summarised in **Figure 5-1**.



1 Patch – a patch is a continuous area containing the ecological community (areas of other ecological communities such as woodlands dominated by other species are not included in a patch). In determining patch size it is important to know what is, and is not, included within any individual patch. The patch is the larger of:

- an area that contains five or more trees in which no tree is greater than 75 m from another tree, or
- the area over which the understorey is predominantly native.

Patches must be assessed at a scale of 0.1 ha (1000m²) or greater.

2 A predominantly native ground layer is one where at least 50 per cent of the perennial vegetation cover in the ground layer is made up of native species. The best time of the year to determine this is late autumn when the annual species have died back and have not yet started to regrow. (At other times of the year, you can determine whether something is perennial or not is if it is difficult to pull out of the soil. Annual species pull out very easily.)

3 Mature trees are trees with a circumference of at least 125 cm at 130 cm above the ground.

4 Natural regeneration of the dominant overstorey eucalypts when there are mature trees plus regenerating trees of at least 15 cm circumference at 130 cm above the ground.

Figure 5-1: Commonwealth White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland criteria

5.3 EPBC listed threatened species

5.3.1 Threatened flora species

The database searches identified 18 threatened flora species listed under the EPBC Act that have the potential to occur in the locality of the study area (refer to **Annexure B**).

Field surveys were undertaken in March 2022 which occurs during acceptable survey period for the majority of cryptic flowering species. Field investigations did not record any threatened flora species within the study area, however, as a precaution, the following threatened flora species listed under the EPBC Act were assumed present:

- Bluegrass
- Small Snake Orchid
- *Prasophyllum* sp. *Wybong*

5.3.2 Threatened fauna species

Results of the PMST identified 25 threatened fauna species listed as threatened under the EPBC Act as occurring or considered likely to occur in the proposal locality (refer to **Annexure B**). Of these, two threatened fauna species were assessed as having a moderate – high likelihood of occurring in the study area based on available habitat, mobility and known occurrences in the wider locality (**Table 5-1**).

Table 5-1: Threatened fauna species listed under the EPBC Act with a moderate or higher likelihood of occurrence

Scientific Name	Common Name	EPBC Act[1]	Likelihood of occurrence
Phascolarctos cinereus	Koala	E	**Moderate** – likely to utilise parts of the site on occasion as part of broader foraging areas.
Nyctophilus corbeni	Corben's Long-eared Bat	V	**Moderate** – likely to utilise parts of the site on occasion as part of broader foraging areas. Potential opportunistic roosting habitat on site.

1) V = Vulnerable under the EPBC Act
E = Endangered under the EPBC Act

EPBC Koala Habitat Assessment

The Koala was not recorded in the study area during the field assessment informing this report, however, several records in the greater locality for this species were returned from the Atlas of NSW Wildlife database(Environment Energy and Science, 2021a). Despite not recording any individuals within the study area, due to records of the species within the locality and as a precautionary measure an EPBC Koala Habitat Assessment was undertaken.

Koala Habitat Assessment Tool

The Koala Habitat Assessment Tool within the '*EPBC Act referral guidelines for the vulnerable Koala'* (Department of the Environment, 2014) was used to determine whether Koala habitat in the study area classifies as 'habitat critical to the survival of the Koala' (**Figure 5-1**). To be classified as habitat critical to the survival of the Koala vegetation must score 5 or above using the habitat assessment tool. A summary of the key assessment criteria (inland population criteria) and scoring for the study area against the referral guidelines is provided in **Table 5-2** and shown in **Figure 5-1**.

It should be noted that Koala SEPP 2020 is applicable to the land zoning and LGA in which the proposal occurs in and therefore was used as the determination for Koala Schedule 2 feed tree species.

Koala habitat in the study area scored 3 out of 10 (**Table 5-2**) using the Koala Habitat Assessment Tool. Therefore, habitat in the study area is not likely to constitute habitat critical to the survival of the species.

Table 5-2: EPBC Koala habitat assessment tool

Attribute	Score	Habitat appraisal	
Koala occurrence	2	Desktop	Two recent records (<5 yrs) exist within the locality (10 km) of the site (BioNet 2021). Records also occur within the greater locality (10-20 km) and are either >5 yrs or occur >10 km from the impact area.
		On-site	No Koala individuals or traces of Koalas (scats, scratching etc.) were recorded in the study area during field surveys
Vegetation structure and composition	0	Desktop	Not applicable
		On-site	Koala SEPP 2020 is applicable to the land zoning and LGAs in which the proposal occurs in and therefore was used as the determination for Koala Schedule 2 feed tree species. Field assessment did not identify any Schedule 2 Koala SEPP 2020 food tree species within the study area.
Habitat connectivity	0	The study area is not part of contiguous landscape ≥300 ha.	
Key existing threats	1	Desktop	Evidence of infrequent or irregular Koala mortality from vehicle strike or dog attack in locality (10 km)
		On-site	The status of wild dog populations and level of predation is not known. No evidence of Koala activity or mortality from vehicle strike was observed in the study area during field surveys.

Attribute	Score	Habitat appraisal
Recovery value	0	The study area occurs as vegetation along the existing New England Highway and consists of a *Eucalyptus* dominant open forest. The study area is subject to existing edge effects and fragmentation, with large expanses of habitat cleared in the locality for agricultural land use, effectively isolating the study area from large habitat remnants. It is unlikely that the study area is of sufficient size to provide habitat that is reliant for a sub-population of Koalas or breeding individuals. It is also unlikely that the proposal would further exacerbate fragmentation than what already occurs and therefore unlikely to further limit the movement of Koalas throughout the locality. Therefore, it is unlikely the habitat within the study area is important for the recovery actions for Koalas.
Total score	**3**	**Decision: a score of 3 obtained, therefore study area is not likely to contain critical habitat for Koala.**

Attribute	Score	Inland	Coastal
Koala occurrence	+2 (high)	Evidence of one or more koalas within the last 5 years.	Evidence of one or more koalas within the last 2 years.
	+1 (medium)	Evidence of one or more koalas within 2 km of the edge of the impact area within the last 10 years.	Evidence of one or more koalas within 2 km of the edge of the impact area within the last 5 years.
	0 (low)	None of the above.	None of the above.
Vegetation composition	+2 (high)	Has forest, woodland or shrubland with emerging trees with 2 or more known koala food tree species, **OR** 1 food tree species that alone accounts for >50% of the vegetation in the relevant strata.	Has forest or woodland with 2 or more known koala food tree species, **OR** 1 food tree species that alone accounts for >50% of the vegetation in the relevant strata.
	+1 (medium)	Has forest, woodland or shrubland with emerging trees with only 1 species of known koala food tree present.	Has forest or woodland with only 1 species of known koala food tree present.
	0 (low)	None of the above.	None of the above.
Habitat connectivity	+2 (high)	Area is part of a contiguous landscape ≥ 1000 ha.	Area is part of a contiguous landscape ≥ 500 ha.
	+1 (medium)	Area is part of a **contiguous landscape** < 1000 ha, but ≥ 500 ha.	Area is part of a contiguous landscape < 500 ha, but ≥ 300 ha.
	0 (low)	None of the above.	None of the above.
Key existing threats	+2 (high)	Little or no evidence of koala mortality from vehicle strike or dog attack at present in areas that score 1 or 2 for koala occurrence. Areas which score 0 for koala occurrence and have no dog or vehicle threat present	
	+1 (medium)	Evidence of infrequent or irregular koala mortality from vehicle strike or dog attack at present in areas that score 1 or 2 for koala occurrence, **OR** Areas which score 0 for koala occurrence and are likely to have some degree dog or vehicle threat present.	
	0 (low)	Evidence of frequent or regular koala mortality from vehicle strike or dog attack in the study area at present, **OR** Areas which score 0 for koala occurrence and have a significant dog or vehicle threat present.	
Recovery value	+2 (high)	Habitat is likely to be important for achieving the interim recovery objectives for the relevant context, as outlined in Table 1.	
	+1 (medium)	Uncertain whether the habitat is important for achieving the interim recovery objectives for the relevant context, as outlined in Table 1.	
	0 (low)	Habitat is unlikely to be important for achieving the interim recovery objectives for the relevant context, as outlined in Table 1.	

Figure 5-1: Assessment of habitat critical to the survival of the Koala

A comparison of the Proposal's potential impacts was assessed against Figure 2 of the '*EPBC Act referral guidelines for the vulnerable Koala'* (Department of the Environment, 2014) to determine where impacts were likely to be adverse. As illustrated in **Figure 5-1**, it was concluded that the proposal is unlikely to have

habitat that is critical to the species. It is also unlikely that the proposal would have an adverse impact on the species due to the following:

- Study area does not occur in an '*Area of Regional Koala Significance*' (Department of Planning Industry and Environment, 2018).
- The study area is partially disturbed within the immediate road reserve and habitat is fragmented, with large expanses of habitat cleared in the proposal locality for agricultural land use, partially isolating the majority of the study area from large habitat remnants.
- The proposal will not fragment or impact habitat that is important to the recovery objectives for the species within the locality.
- The proposal impacts to vegetation largely involve minor widening of the existing road corridor and trimming and removal of selected Eucalypt trees which pose a danger to road users and operation.

The EPBC Act significant impact assessment concluded that the proposal is unlikely to have a significant impact on the Koala (**Annexure C**).

5.4 Listed Migratory species

Migratory species are protected under international agreements to which Australia are a signatory, including JAMBA, CAMBA, RoKAMBA and the Bonn Convention on the Conservation of Migratory Species of Wild Animals. Migratory species are considered MNES and are protected under the EPBC Act.

Based on the PMST and other desk-top database searches, 14 migratory species have been recorded or have suitable habitat within the wider locality of the study area (**Annexure A**).

The PMST retrieved a number of bird species that are estuarine or freshwater wetland frequenting species and for which there was no suitable habitat within the study area.

Whilst terrestrial, and marine migratory species of bird may potentially use the study area, the site would not be classed as 'important habitat' as defined by the '*Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*' (Department of the Environment, 2013b) as the site did not contain:

- habitat utilised by a migratory species occasionally or periodically within a region that supports an ecological significant proportion of the population of the species;
- habitat utilised by a migratory species which is at the limit of the species range; or
- habitat within an area where the species is declining.

As such, it is not likely that the proposal would significantly affect migratory species and therefore this group has not been considered further.

6. Impact assessment

This section contains a description of the potential impacts of the proposal on biodiversity.

6.1 Avoidance and minimisation

Efforts have been made to ensure that the hierarchy of avoid and minimise was undertaken for the proposal.

- Avoid in the first instance - eg positioning of ancillary sites to utilise cleared and disturbed areas and avoid areas of native vegetation.
- Minimise impacts - minimising impacts by way of implementing proposed biodiversity mitigation measures.

The construction process for the proposal would continue to apply the principles of avoid and minimise. Any residual biodiversity impacts would be offset according to the RMS Guideline for Biodiversity Offsetting (TfNSW 2016).

6.2 Construction impacts

6.2.1 Removal of native vegetation

A total of 1,243 trees are planned for removal under the planned works which is required in order to improvement road safety and for maintenance of the road corridor.

Of the 1,243 trees, 432 are within the existing disturbed zone and are less than ten years old. These are exempt from offsetting under TfNSW 'No Net Loss' Biodiversity Guidelines'. The remaining 811 trees are of various sizes including less than ten years old, and are outside the existing disturbed zone. These 811 trees requiring offsetting.

Ancillary and stockpile areas are predominately situated in cleared and disturbed areas, however, small disturbances to native vegetation are likely to occur within some sites.

Overall, the works would result in the removal and disturbance of two native vegetation communities, being PCT 538 and PCT 567 as detailed in **Table 6-1**.

Table 6-1 Impacts on vegetation

Plant community type (PCT)	Status		Proposal area (ha)
	BC Act	EPBC Act	
PCT 538 Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	0.17
PCT 567 Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions	0.01
Total			**0.18 ha**

6.2.2 Removal of threatened fauna habitat

The results of the threatened fauna potential occurrence assessment in **Annexure B** indicated several threatened fauna species were considered potential occurrences within the study area and therefore have potential to be impacted by the proposal. These species are detailed in **Table 6-2**.

The proposal would remove approximately 0.18 hectares of native vegetation comprising PCT 538 and PCT 567. A portion of this vegetation provides potential habitat for potentially occurring threatened fauna species, including:

- Potential foraging habitat for a number of threatened bird species.
- Potential foraging habitat for predatory birds (opportunistic usage only).
- Foraging habitat for the Koala (likely to be non-breeding, opportunistic usage only).
- Potential foraging habitat for the Squirrel Glider.
- Impacts to opportunistic roost habitat for a number for threatened microbat species in the form of up to five culverts

- Potential foraging and roosting habitat for microbats (opportunistic roosting only, no overwintering/breeding habitat) in the form of two hollow-bearing trees proposed for removal (refer to **Section 3.3**).

The construction footprint generally comprises only limited threatened fauna habitat value in higher quality patches. There are a limited number of mature trees present (>50 cm DBH) and only 19 hollow-bearing trees were recorded within the construction footprint. The fauna habitat directly affected by the proposal is negligible in a local context.

Table 6-2: Impacts on threatened fauna and fauna habitat

Scientific name	Likelihood of occurrence	Impacted by proposal?	Potential impact
Woodland Birds (7)			
Brown Treecreeper	**Moderate** – potential foraging habitat. Recorded within locality.	Yes	Loss of potential foraging habitat comprising 0.17 ha of PCT 538 and 0.01 ha of PCT 567.
Dusky Woodswallow		Yes	
Speckled warbler		Yes	
Varied Sittella		Yes	
Little Lorikeet		Yes	
Scarlet Robin		Yes	
Flame Robin		Yes	
Predatory birds (2)			
Square-tailed Kite	**Moderate** – potential foraging habitat. Recorded within locality.	Yes	Loss of potential foraging habitat comprising 0.17 ha of PCT 538 and 0.01 ha of PCT 567.
Little Eagle		Yes	
Mammals – microbats (3)			
Corben's Long-eared Bat	**Moderate** – potential foraging and roosting habitat. Recorded within locality.	Yes	Loss of potential foraging habitat comprising 0.17 ha of PCT 538 and 0.01 ha of PCT 567.Impacts to opportunistic roost habitat in the form of up to five culverts
Large Bent-winged Bat		Yes	
Yellow-bellied Sheathtail-bat		Yes	
Mammals - arboreal (2)			
Squirrel Glider	**Moderate** – potential foraging habitat. Recorded within locality.	Yes	Loss of potential foraging habitat comprising 0.17 ha of PCT 538 and 0.01 ha of PCT 567.
Koala	**Moderate** – likely to utilise parts of the site on occasion as part of broader foraging areas	Yes	

6.2.3 Removal of threatened flora

Although no threatened flora species were recorded in the site survey, based on available site habitats and detectability, Bluegrass, Silky Swainson-pea, *Prasophyllum* sp. *Wybong* and Small Snake Orchid could not be discounted from occurring at the site (refer to **Annexure B**). Impacts on these species comprise removal of potential habitat (refer to **Table 6-3**), associated with areas of open forest.

Table 6-3: Impacts on threatened flora

Threatened species	Status		Habitat or individuals to be impacted	Habitat or individuals in the study area
	BC Act	EPBC Act		
Bluegrass	V	V	0.18 ha	~8.58 ha
Small Snake Orchid	E	E	0.18 ha	~8.58 ha
Silky Swainson-pea	V	-	0.18 ha	~8.58 ha
Prasophyllum sp. *Wybong*	-	E	0.18 ha	~8.58 ha

While the proposed vegetation removal constitutes the Key Threatening Process (KTP) Clearing of Native Vegetation (as listed in the BC Act) the magnitude to which the proposal contributes to this KTP is relatively minor in a local context as PCT 538 and PCT 567 are common in the road reserve locally. Mitigation measures to reduce the risk of direct impacts to threatened flora are provided in **Section 7**.

6.2.4 Aquatic impacts

Short-term minor and localised impacts during the proposed works may occur via the risk of sedimentation of waterways. Mitigation measures requiring erosion and sediment controls would limit this impact.

Mitigation measures to reduce the risk of indirect impacts to waterways from the proposal are included in **Section 7.**

6.2.5 Injury and mortality

Fauna injury or death has the greatest potential to occur during construction when vegetation clearing would occur. The extent of this impact would be proportionate to the extent of vegetation that is cleared. Less mobile species (e.g. ground dwelling reptiles and frogs), or those that are nocturnal and nest or roost in trees during the day (e.g. arboreal mammals and microchiropteran bat species), may find it difficult to rapidly move away from the clearing when disturbed.

Wildlife may also become trapped in or may choose to shelter in machinery that is stored in the study area overnight. If these animals were to remain inside the machinery, or under the wheels or tracks, they may be injured or may die once the machinery is in use.

Mitigation measures to reduce the potential for fauna mortality or injury are provided within **Section 7**.

6.3 Indirect/operational impacts

6.3.1 Wildlife connectivity and habitat fragmentation

Proposed roadside clearing of vegetation within a partially cleared and modified landscape would not result in any significant increase in the fragmentation of fauna and flora habitats within the study area and the works proposed would not result in any barriers to fauna dispersal.

Considering the relatively minor increase in the width of the cleared corridor, fauna dispersal across the New England Highway would not be substantially adversely affected by the proposal (particularly for highly mobile fauna groups such as birds and microbats). No increase in roadkill would be expected during operation, as the proposal would only result in a minor increase in the sealed pavement width (and hence distance across which fauna must traverse). Consequently, the proposal is unlikely to significantly affect the dispersal of any fauna groups and no permanent barriers to movement would occur.

Likewise, the potential for genetic transfer between sub-populations of potentially occurring threatened flora is unlikely to be negatively impacted by the proposal, given that the proposal would result in only a minor increase in the width of the existing highway corridor and that the mobility of insect pollinators for threatened flora would be unaffected.

6.3.2 Edge effects on adjacent native vegetation and habitat

The proposal would result in a minor increase in edge effects by way of vegetation removal and the resulting new fringe of exposed vegetation. Edge effects that may occur include potential for increased exposure of sensitive vegetation to wind and heat and weed infiltration.

However, considering that vegetation within the study area is currently subject to a range of edge effects from the existing cleared and modified corridor of the New England Highway, any increases relating to the proposal would not be significant.

6.3.3 Invasion and spread of weeds

Environmental and agricultural weeds are common along the disturbed roadside environment of the New England Highway throughout the study area. Blackberry (*Rubus fruticosus* sp. aggregate) listed under the Biosecurity Act for the Tamworth LGA occurs on-site as minor infestations associated with roadside grassed areas.

The works are unlikely to result in the spread of weeds provided that relevant mitigation measures relating to machinery hygiene protocols are effectively implemented (refer to **Section 7**).

6.3.4 Invasion and spread of pests

While a variety of pest species may occur in the locality (eg Feral Dog, Feral Cat, Red Fox, European Rabbit), the proposal would not result in any potential to increase conditions such that pest species would become more prevalent.

6.3.5 Invasion and spread of pathogens and disease

With the adoption of standard hygiene measures (refer to **Section 7**) for plant during construction, it is unlikely that pathogens or diseases would be introduced to the site.

6.3.6 Changes to hydrology

The works do not involve any substantial excavation or redirecting of the surface water flow to an extent that changes to hydrology would occur.

6.3.7 Noise, light and vibration

During the works, a temporary increase in noise and vibration in proximity to the site is expected in association with machinery. However, it would be expected that fauna species in close proximity to the existing road alignment are habituated to noise (and vibration to an extent) and that the proposal would not increase these impacts to a level that fauna breeding or behaviour would be significantly impacted. Once operational, there will not be an increase in these impacts above what is already experienced at the site.

No significant increase in light impacts would be expected, either during the proposed works or during future operation along New England Highway.

6.3.8 Groundwater dependent ecosystems

Groundwater dependent ecosystem (GDE) mapping covering the locality indicates that the vegetation communities present are a low probability of being GDEs (Bureau of Meteorology 2020). Furthermore, changes to groundwater flows are unlikely to occur as a result of the proposed works.

6.4 Cumulative impacts

Cumulative impacts of road upgrade and maintenance projects along New England Highway at the locality and in the broader region would mostly relate to habitat loss and modification. However, as most individual projects each generally impact on relatively small areas of the previously disturbed road reserve/adjacent areas, and that similar and better-quality habitats are relatively widespread in adjacent areas (such as travelling stock reserves (TSRs) conservation reserves) this project would be considered unlikely to cumulatively result in any significant impacts to local biodiversity.

7. Mitigation

A range of mitigation measures are presented in **Table 7-1** and would be implemented prior to construction, during construction and during post construction phases of the proposal. These measures have been developed to mitigate the potential impacts of the proposal on protected flora and fauna and threatened species and communities that occur in the study area.

Table 7-1: Mitigation measures

Impact	Mitigation measures	Timing and duration	Likely efficacy of mitigation	Residual impacts anticipated
Threatened species protection	If unexpected, threatened fauna or flora species are discovered, stop works immediately and follow the Roads and Maritime Services Unexpected Threatened Species Find Procedure in the Roads and Maritime Services Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process).	Prior to construction and during construction	Proven	None
	The works are not to harm threatened fauna (including fauna occupying bridges and other structures)	Prior to construction and during construction	Effective	
	There is to be no disturbance or damage to threatened species or areas of outstanding value.	Prior to construction and during construction	Effective	
	Undertake pre-culvert removal/replacement works survey to determine extent and presence/absence of microbats prior to construction. If present microbats are to be excluded by an ecologist as follows: a. Installing exclusion devices (such as valves, curtains) prior to culvert removal/replacement works to discourage microbats from returning to the culvert/s b. Filling empty gaps within the culverts while microbats are out foraging for the night (if access inside the culvert is permitted) c. Daytime inspections immediately prior to works at each culvert, attempting to capture any remaining bats d. Consideration of provision alternative roosting habitat.	Prior to construction	Effective	

Impact	Mitigation measures	Timing and duration	Likely efficacy of mitigation	Residual impacts anticipated
	Habitat removal will be undertaken in accordance with Guide 4: Clearing of vegetation and removal of bushrock of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011).	During construction	Effective	
	Habitat will be replaced or re-instated (where required) in accordance with Guide 5: Re-use of woody debris and bushrock and Guide 8: Nest boxes of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011).	During construction	Effective	
	Pre-clearing surveys will be undertaken in accordance with Guide 1: Pre-clearing process of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR].	Prior to construction	Effective	None
	The unexpected species find procedure is to be followed under Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) if threatened ecological communities, not assessed in the biodiversity assessment, are identified in the proposal site [additional safeguard from BAR].	During construction	Effective	
Removal of native vegetation	Vegetation that has been protected or planted during offset works provided as part of an approved project (eg in association with fauna crossings) is not to be removed.	Prior to construction and during construction	Effective	Loss of potential fauna and flora habitat comprising 0.18 ha of Vegetation comprising PCT 538 and PCT 567.
	Pruning of mature trees is to be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees.	During construction	Effective	

Impact	Mitigation measures	Timing and duration	Likely efficacy of mitigation	Residual impacts anticipated
	Native vegetation will be re-established in accordance with Guide 3: Re-establishment of native vegetation of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011) [additional safeguard from BAR].	Post construction	Effective	None
	Exclusion zones will be set up at the limit of clearing and pathogens will be managed in accordance with Guide 2: Exclusion zones of the Biodiversity Guidelines: Protecting and managing biodiversity on RTA projects (RTA, 2011). [additional safeguard from BAR].	Prior to construction	Effective	
Aquatic impacts	All activities are to be carried out to avoid spreading marine pests including: • Removal of weeds, animals or sediment from equipment and disposal to an appropriate waste receptacle or facility • Disposal of sewage and bilge water at an approved pump out facility	Prior to construction and during construction	Effective	None
Injury and mortality of fauna	Fauna handling must be carried out in accordance with the requirements the Roads and Maritime Services Biodiversity Guidelines - Guide 9 (Fauna Handling).	During construction	Effective	None
Invasion and spread of weeds	Declared noxious weeds are to be managed according to requirements under the Biosecurity Act, 2015 and Guide 6 (Weed Management) of the Roads and Maritime Services Biodiversity Guidelines 2011	During construction	Effective	None
Invasion and spread of pathogens and disease	All pathogens (e.g. Chytid, Myrtle Rust and Phytophthora) are to be managed in accordance with the Roads and Maritime Services Biodiversity Guidelines - Guide 7 (Pathogen Management) and DECC Statement of Intent 1: Infection of native plants by Phytophthora cinnamomi (for Phytophthora).	During construction	Effective	None
Wildlife movement	Works are not to create an ongoing barrier to the movement of wildlife.	During construction	Effective	None

8. Assessments of significance

The proposal is being assessed under the EP&A Act. Section 5.5 of the EP&A Act requires that a determining authority examine and consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposal, and that assessment of significance is undertaken to assess the likelihood of significant impact upon threatened species, populations or ecological communities listed under the BC Act. The test for determining whether the proposal is likely to affect threatened species, populations or ecological communities or their habitats is in Section 7.3 of the BC Act. For threatened biodiversity listed under the EPBC Act, significance assessments have been completed in accordance with the *EPBC Act Policy Statement 1.1 Significant Impact Guidelines* (Department of the Environment, 2013b).

Assessments of significance have been conducted for each threatened species, population or ecological community recorded or considered to have a moderate to high likelihood of occurrence in the study area (refer to **Annexure B**). Combined assessments of significance have been conducted for groups of species that have similar life history and habitat requirements (e.g. woodland birds) (refer to **Annexure C**).

Assessments of significance have been undertaken in accordance with the following published guidelines:

- Threatened Species Test of Significance Guidelines
- Significant Impact Guidelines 1.1 – Matters of National Environmental Significance for EPBC Act listed biodiversity (Department of the Environment, 2013b)
- Referral guidelines for species listed under the EPBC Act (Department of the Environment and Energy, 2017).

The assessments concluded that the proposal would be unlikely to significantly increase the risk of extinction for any of the subject threatened species (refer to **Table 8-1**).

Table 8-1: Summary of outcome of assessment of significance for threatened entities

Threatened species	BC Act[1]	EPBC Act[2]	Outcome of Assessment	
			BC Act	EPBC Act
Threatened woodland birds				
Dusky Woodswallow	V	-	Not significant	N/A
Speckled Warbler	V	-	Not significant	N/A
Brown Treecreeper	V	-	Not significant	N/A
Varied Sittella	V	-	Not significant	N/A
Little Lorikeet	V	-	Not significant	N/A
Scarlet Robin	V	-	Not significant	N/A
Flame Robin	V	-	Not significant	N/A
Threatened predatory birds				
Square-tailed Kite	V	-	Not significant	N/A
Little Eagle	V	-	Not significant	N/A
Threatened microbats				
Corben's Long-eared Bat	V	V	Not significant	N/A
Large Bent-winged Bat	V	-	Not significant	N/A

Threatened species	BC Act[1]	EPBC Act[2]	Outcome of Assessment	
			BC Act	EPBC Act
Yellow-bellied Sheathtail-bat	V	-	Not significant	N/A
Threatened arboreal mammals				
Squirrel Glider	V	-	Not significant	N/A
Koala	V	E	Not significant	Not significant

1) Vulnerable (V), Endangered (E) as listed under the BC Act
2) Vulnerable (V), Endangered (E) as listed under the EPBC Act.

9. Offset strategy

9.1 Quantification of impacts

Transport for NSW is committed to offsetting impacts associated with the proposal in line with its biodiversity offsetting guidelines (TfNSW, 2016) and in general accordance with the BCD principles for the use of biodiversity offsets in NSW. The quantification of vegetation loss is outlined in **Annexure E**.

Transport for NSW will provide biodiversity offsets or, where offsets are not reasonable or feasible, supplementary measures for impacts that exceed the following thresholds (refer to **Table 9-1**).

Table 9-1: Summary of TfNSW Biodiversity Offset Guidelines

Description of activity or impact	Consider offsets or supplementary measures
Activities in accordance with TfNSW Environmental assessment procedure: Routine and Minor Works (RTA 2011)	**No**
Works on cleared land, plantations, exotic vegetation where there are no threatened species or habitat present	**No**
Works involving clearing of vegetation planted as part of a road corridor landscaping program (this includes where threatened species or species comprising listed ecological communities have been used for landscaping purposes)	**No** – vegetation has not been planted as part of a road corridor landscaping program.
Works involving clearing of national or NSW listed critically endangered ecological communities (CEEC): Where there is any clearing of an CEEC in moderate to good condition	**Yes** – clearing of 0.18 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered)
Works involving clearing of nationally listed threatened ecological community (TEC) or nationally listed threatened species habitat: Where clearing >1 ha of a TEC or habitat in moderate to good condition	**Yes** – clearing of 0.18 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered)
Works involving clearing of NSW endangered or vulnerable ecological community: Where clearing > 5 ha or where the ecological community is subject to an SIS	**No**
Works involving clearing of NSW listed threatened species habitat where the species is a species credit species as defined in the OEH Threatened Species Profile Database (TSPD): Where clearing > 1ha or where the species is the subject of an SIS	**Yes** – clearing 0.18 ha of vegetation comprising PCT 538 and PCT 567 of which species credit species habitat impacted.
Works involving clearing of NSW listed threatened species habitat and the species is an ecosystem credit species as defined in OEH's Threatened Species Profile Database (TSPD): Where clearing > 5 ha or where the species is the subject of an SIS	**No** – clearing is < 5 ha

Description of activity or impact	Consider offsets or supplementary measures
Type 1 or Type 2 key fish habitats (as defined by NSW Fisheries): Where there is any net loss of habitat	**No** – no disturbance of type 1 or 2 key fish habitat.

Based on the impact of 0.18 ha of vegetation comprising PCT 538 and PCT567, which corresponds to White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (listed as Critically Endangered) and associated threatened species habitat, the proposal does trigger the TfNSW offset guidelines, offsets are required.

10. Conclusion

Based on the site assessment and consideration of the work required, the following biodiversity matters apply to the proposal:

- The study area comprises remnant vegetation associated with New England Highway road reserve. This vegetation ranges from low to high condition however has been historically disturbed by grazing, current road operations and maintenance, and is subject to roadside weed incursions.
- The proposal would result in removal of approximately 0.17 hectares of PCT 538 *Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion* (low, moderate and high condition), 0.01 ha of PCT 567 *Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion* (low, moderate and high condition), and would include the removal of 0.18 ha of White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions TEC (BC and EPBC Act)
- No threatened flora species were recorded during the surveys. However, considering the limitations of the survey, Bluegrass, *Prasophyllum* sp. Wybong, *Swainsona sericea* and Small Snake Orchid are considered potential occurrences at the site.
- No threatened fauna species were recorded at the site. However, there is potential for several threatened fauna species to occur based on available site habitats.
- A number of mitigation measures have been recommended to manage potential impacts relating to biodiversity.
- It was determined that the proposal is unlikely to significantly affect any species, communities or their habitat listed under the Biodiversity Conservation Act 2016 (BC Act) or the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Therefore, a Species Impact Statement (SIS) or a Biodiversity Development Assessment Report (BDAR) is not required, nor is the proposal subject to the EPBC Act Strategic Assessment.
- The proposal does trigger TfNSW offset thresholds and therefore offsets are required.

11. References

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Annexure A
Database search results

cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Animals in selected area [North: -30.45 West: 150.96 East: 151.69 South: -31.08] returned a total of 3,367 records of 45 species.
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Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Hylidae	3168	*Litoria booroolongensis*		Booroolong Frog	E1,P	E	80	
Animalia	Reptilia	Chelidae	2825	*Myuchelys bellii*		Western Sawshelled Turtle, Bell's Turtle	E1,P	V	1336	
Animalia	Reptilia	Carphodactylidae	2139	*Uvidicolus sphyrurus*		Border Thick-tailed Gecko	V,P	V	6	
Animalia	Aves	Megapodiidae	0008	*Alectura lathami*		Australian Brush-turkey population in the Nandewar and Brigalow Belt South Bioregions	E2,P		1	
Animalia	Aves	Anseranatidae	0199	*Anseranas semipalmata*		Magpie Goose	V,P		4	
Animalia	Aves	Anatidae	0216	*Oxyura australis*		Blue-billed Duck	V,P		12	
Animalia	Aves	Anatidae	0214	*Stictonetta naevosa*		Freckled Duck	V,P		7	
Animalia	Aves	Apodidae	0334	*Hirundapus caudacutus*		White-throated Needletail	P	V,C,J,K	6	
Animalia	Aves	Ciconiidae	0183	*Ephippiorhynchus asiaticus*		Black-necked Stork	E1,P		4	
Animalia	Aves	Accipitridae	0218	*Circus assimilis*		Spotted Harrier	V,P		5	
Animalia	Aves	Accipitridae	0226	*Haliaeetus leucogaster*		White-bellied Sea-Eagle	V,P		5	

Animalia	Aves	Accipitridae	0225	*Hieraaetus morphnoides*	Little Eagle	V,P		33
Animalia	Aves	Accipitridae	0230	*Lophoictinia isura*	Square-tailed Kite	V,P,3		8
Animalia	Aves	Falconidae	0238	*Falco subniger*	Black Falcon	V,P		6
Animalia	Aves	Burhinidae	0174	*Burhinus grallarius*	Bush Stone-curlew	E1,P		1
Animalia	Aves	Rostratulidae	0170	*Rostratula australis*	Australian Painted Snipe	E1,P	E	1
Animalia	Aves	Cacatuidae	0265	*^^Calyptorhynchus lathami*	Glossy Black-Cockatoo	V,P,2		4
Animalia	Aves	Psittacidae	0260	*Glossopsitta pusilla*	Little Lorikeet	V,P		35
Animalia	Aves	Psittacidae	0309	*Lathamus discolor*	Swift Parrot	E1,P,3	CE	8
Animalia	Aves	Psittacidae	0302	*Neophema pulchella*	Turquoise Parrot	V,P,3		1
Animalia	Aves	Strigidae	0246	*Ninox connivens*	Barking Owl	V,P,3		2
Animalia	Aves	Strigidae	0248	*Ninox strenua*	Powerful Owl	V,P,3		4
Animalia	Aves	Tytonidae	0250	*Tyto novaehollandiae*	Masked Owl	V,P,3		22
Animalia	Aves	Climacteridae	8127	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P		357
Animalia	Aves	Acanthizidae	0504	*Chthonicola sagittata*	Speckled Warbler	V,P		23
Animalia	Aves	Meliphagidae	0603	*Anthochaera phrygia*	Regent Honeyeater	E4A,P	CE	12
Animalia	Aves	Meliphagidae	0598	*Grantiella picta*	Painted Honeyeater	V,P	V	2
Animalia	Aves	Meliphagidae	8303	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P		4

Animalia	Aves	Pomatostomidae	8388	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	V,P		1	
Animalia	Aves	Neosittidae	0549	*Daphoenositta chrysoptera*	Varied Sittella	V,P		18	
Animalia	Aves	Artamidae	8519	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		38	
Animalia	Aves	Petroicidae	8367	*Melanodryas cucullata cucullata*	Hooded Robin (south-eastern form)	V,P		20	
Animalia	Aves	Petroicidae	0380	*Petroica boodang*	Scarlet Robin	V,P		27	
Animalia	Aves	Petroicidae	0382	*Petroica phoenicea*	Flame Robin	V,P		1	
Animalia	Aves	Estrildidae	0652	*Stagonopleura guttata*	Diamond Firetail	V,P		25	
Animalia	Mammalia	Dasyuridae	1008	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	17	
Animalia	Mammalia	Phascolarctidae	1162	*Phascolarctos cinereus*	Koala	V,P	V	744	
Animalia	Mammalia	Petauridae	1137	*Petaurus norfolcensis*	Squirrel Glider	V,P		4	
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	434	
Animalia	Mammalia	Emballonuridae	1321	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V,P		4	
Animalia	Mammalia	Vespertilionidae	1353	*Chalinolobus dwyeri*	Large-eared Pied Bat	V,P	V	1	
Animalia	Mammalia	Vespertilionidae	1372	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P		19	
Animalia	Mammalia	Vespertilionidae	T315	*Nyctophilus corbeni*	Corben's Long-eared Bat	V,P	V	1	
Animalia	Mammalia	Vespertilionidae	1361	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P		4	

Animalia	Mammalia	Miniopteridae	3330	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P	20

cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Plants in selected area [North: -30.45 West: 150.96 East: 151.69 South: -31.08] returned a total of 184 records of 13 species.
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Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Plantae	Flora	Brassicaceae	1822	*Lepidium hyssopifolium*		Aromatic Peppercress	E1	E	3	
Plantae	Flora	Euphorbiaceae	7735	*Bertya ingramii*		Narrow-leaved Bertya	E1	E	1	
Plantae	Flora	Fabaceae (Faboideae)	8538	*Swainsona sericea*		Silky Swainson-pea	V		5	
Plantae	Flora	Fabaceae (Mimosoideae)	9405	*Acacia pubifolia*		Velvet Wattle	E1	V	11	
Plantae	Flora	Myrtaceae	9126	*Callistemon pungens*				V	7	
Plantae	Flora	Myrtaceae	4123	*Eucalyptus mckieana*		McKie's Stringybark	V	V	28	
Plantae	Flora	Myrtaceae	4134	*Eucalyptus nicholii*		Narrow-leaved Black Peppermint	V	V	21	
Plantae	Flora	Myrtaceae	9164	*Eucalyptus rubida subsp. barbigerorum*		Blackbutt Candlebark	V	V	3	
Plantae	Flora	Myrtaceae	9522	*Homoranthus prolixus*		Granite Homoranthus	V	V	6	
Plantae	Flora	Orchidaceae	4450	*^^Diuris pedunculata*		Small Snake Orchid	E1,P,2	E	5	
Plantae	Flora	Poaceae	4895	*Dichanthium setosum*		Bluegrass	V	V	44	

Plantae	Flora	Rutaceae	14856	*Zieria odorifera subsp. warrabahensis*		E4A		40	
Plantae	Flora	Santalaceae	5871	*Thesium australe*	Austral Toadflax	V	V	10	

Australian Government

Department of Agriculture, Water and the Environment

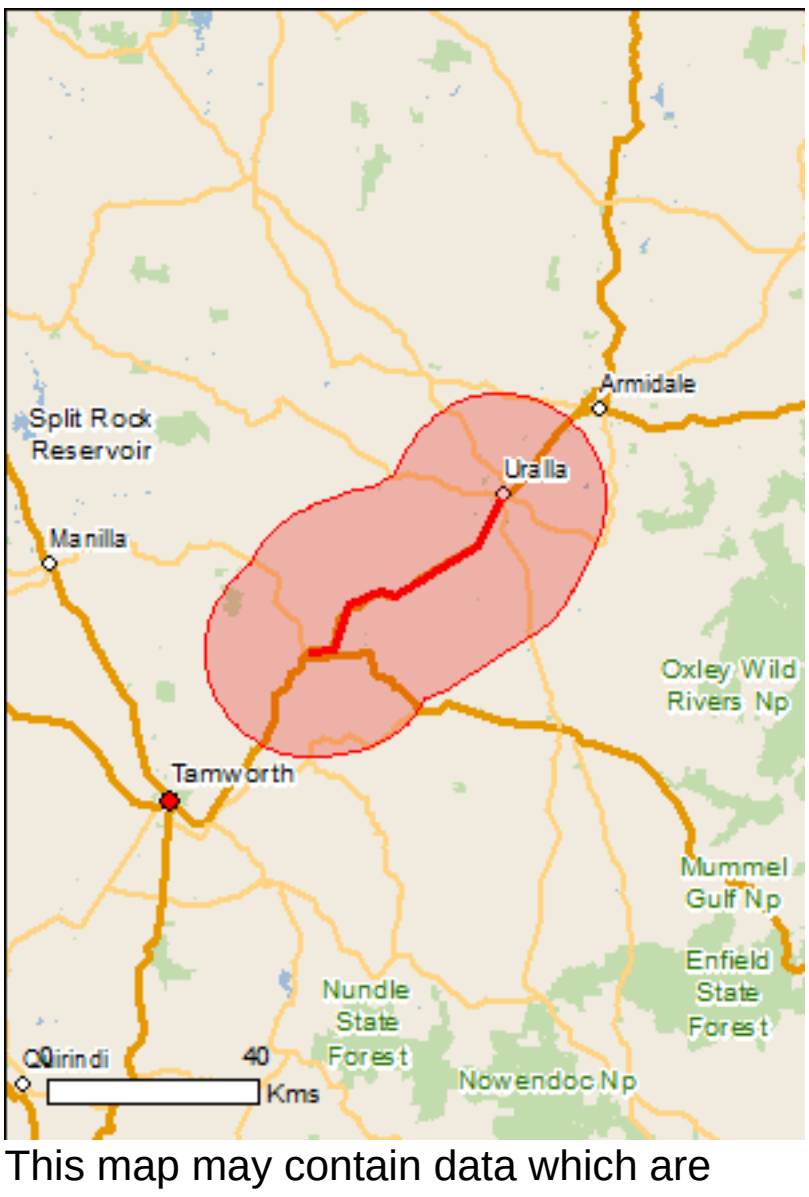
EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

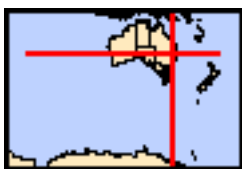
Report created: 14/09/21 17:04:48



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

Coordinates

Buffer: 20.0Km



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	43
Listed Migratory Species:	14

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	4
Commonwealth Heritage Places:	None
Listed Marine Species:	20
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	3
Regional Forest Agreements:	1
Invasive Species:	38
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Banrock station wetland complex	1000 - 1100km
Gwydir wetlands: gingham and lower gwydir (big leather) watercourses	200 - 300km upstream
Riverland	900 - 1000km upstream
The coorong, and lakes alexandrina and albert wetland	1100 - 1200km

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Natural grasslands on basalt and fine-textured alluvial plains of northern New South Wales and southern Queensland	Critically Endangered	Community may occur within area
New England Peppermint (Eucalyptus nova-anglica) Grassy Woodlands	Critically Endangered	Community likely to occur within area
Upland Wetlands of the New England Tablelands (New England Tableland Bioregion) and the Monaro Plateau (South Eastern Highlands Bioregion)	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Polytelis swainsonii Superb Parrot [738]	Vulnerable	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area
Frogs		
Litoria booroolongensis Booroolong Frog [1844]	Endangered	Species or species habitat known to occur within area
Litoria castanea Yellow-spotted Tree Frog, Yellow-spotted Bell Frog [1848]	Critically Endangered	Species or species habitat likely to occur within area
Litoria piperata Peppered Tree Frog [1827]	Vulnerable	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Acacia pubifolia Velvet Wattle [19799]	Vulnerable	Species or species habitat may occur within area
Arthraxon hispidus Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur

Name	Status	Type of Presence within area
Bertya ingramii a shrub [21383]	Endangered	Species or species habitat known to occur within area
Cadellia pentastylis Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area
Callistemon pungens [55581]	Vulnerable	Species or species habitat known to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Diuris pedunculata Small Snake Orchid, Two-leaved Golden Moths, Golden Moths, Cowslip Orchid, Snake Orchid [18325]	Endangered	Species or species habitat known to occur within area
Eucalyptus caleyi subsp. ovendenii Ovenden's Ironbark [56193]	Vulnerable	Species or species habitat may occur within area
Eucalyptus mckieana McKie's Stringybark [20199]	Vulnerable	Species or species habitat known to occur within area
Eucalyptus nicholii Narrow-leaved Peppermint, Narrow-leaved Black Peppermint [20992]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus rubida subsp. barbigerorum Blackbutt Candlebark [64618]	Vulnerable	Species or species habitat may occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat likely to occur within area
Haloragis exalata subsp. velutina Tall Velvet Sea-berry [16839]	Vulnerable	Species or species habitat may occur within area
Homoranthus prolixus [55198]	Vulnerable	Species or species habitat known to occur within area
Leionema lachnaeoides [64924]	Endangered	Species or species habitat likely to occur within area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat known to occur within area
Tylophora linearis [55231]	Endangered	Species or species habitat may occur within area
Reptiles		
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area
Uvidicolus sphyrurus Border Thick-tailed Gecko, Granite Belt Thick-tailed Gecko [84578]	Vulnerable	Species or species habitat known to occur

Name	Status	Type of Presence within area
Wollumbinia belli Bell's Turtle, Western Sawshelled Turtle, Namoi River Turtle, Bell's Saw-shelled Turtle [86071]	Vulnerable	Species or species habitat known to occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Australian Telecommunications Corporation
Commonwealth Land - Commonwealth Scientific & Industrial Research Organisation
Commonwealth Land - Telstra Corporation Limited

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Pandion haliaetus Osprey [952]		Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Name	State
Watsons Creek	NSW
Watsons Creek	NSW
Watsons Creek	NSW

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat may occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Nationally Important Wetlands	[Resource Information]
Name	State
New England Wetlands	NSW

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-30.872563 151.168408,-30.869027 151.205487,-30.804763 151.232953,-30.785889 151.288571,-30.794147 151.311917,-30.718028 151.453366,-30.649528 151.491818

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Annexure B
Likelihood of occurrence

Table B 1: Threatened flora likelihood of occurrence criteria

Likelihood	Criteria
Known	The species was observed in the subject site either during the current survey or during another survey less than one year prior.
High	A species has a high likelihood of occurrence if: the subject site contains or forms part of a large area of high-quality suitable habitat that has not been subject to recent disturbance (e.g. fire), the species is known to form a persistent soil seedbank and the species has been recorded recently (within 10 years) in the locality the species is a cryptic flowering species that has been recorded recently (within 10 years) in the locality and has a large area of high-quality potential habitat within the construction footprint that was not seasonally targeted by surveys.
Moderate	A species has a moderate likelihood of occurrence if: the species: has a large area of high-quality suitable habitat in the subject site that has not been subject to recent disturbance (e.g. fire) the species is known to form a persistent soil seedbank, but the species has not been recorded recently (within 10 years) in the locality the species: has a small area of high-quality suitable habitat or a large area of marginal habitat in the subject site That has not been subject to recent disturbance (e.g. fire) the species is known to form a persistent soil seedbank the species has been recorded recently (within 10 years) in the locality the species is a cryptic flowering species, with a small area of high-quality potential habitat or a large area of marginal habitat within the proposal footprint, that was not seasonally targeted by surveys.
Low	A species has a low likelihood of occurrence if: it is not a cryptic species, nor a species known to have a persistent soil seedbank species and was not detected despite targeted searches the species is a cryptic flowering species, with a small area of high-quality potential habitat or a large area of marginal habitat within the proposal footprint, that was not seasonally targeted by surveys as the species has not been recorded within 50 years in the locality.
None	Suitable habitat is absent from the subject site.

Table B 2: Habitat assessment – threatened flora

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Acacia pubifolia	Velvet Wattle	E	V	Rocky granite hillsides, in sandy, stony or loamy soil in eucalypt-scrub woodland or Eucalyptus-Callitris forest, and shrubby woodland on granite (Hunter Catchment only).	PMST, BioNet	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Arthraxon hispidus	Hairy Jointgrass	-	V	Moist shady places in or on the edges of rainforest and wet eucalypt forest, often near creeks or swamps.	PMST	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Bertya ingramii	Narrow-leaved Bertya	E	E	Among rocks or in thin soils close to cliff-edges in dry woodland with she-oaks, wattles and tea-trees. Occurs only on the New England Tablelands.	PMST, BioNet	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Cadellia pentastylis	Ooline	V	V	Forms a closed or open canopy mixing with eucalypt and cypress pine species. There appears to be a strong correlation between the presence of Ooline and low- to medium-nutrient soils of sandy clay or clayey consistencies, with a typical soil profile having a sandy loam surface layer, grading from a light clay to a medium clay with depth.	PMST	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Callistemon pungens		-	V	In or near rocky watercourses, usually in sandy creek beds on granite or sometimes on basalt.	PMST, BioNet	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Dichanthium setosum	Bluegrass	V	V	In NSW, occurs on the New England Tablelands, North West Slopes and Plains and the Central Western Slopes of NSW, in moderately disturbed areas such as cleared woodland, grassy roadside remnants and highly disturbed pasture.	PMST, BioNet	Moderate - Field surveys did not record the species in the study area. However, there is suitable habitat at the study site and this species is known to be cryptic. **Test of significance completed.**
Diuris pedunculata	Small Snake Orchid	E	E	Grassy sclerophyll forests, dry sclerophyll woodlands, grassy sclerophyll woodlands, grasslands, riparian areas, and swampy forests.	PMST, BioNet	Moderate - Field surveys did not record the species in the study area. However, there is suitable habitat at the study site and this species is known to be cryptic. **Test of significance completed.**
Eucalyptus caleyi subsp. Ovendenii	Ovenden's Ironbark	V	V	Grows in grassy woodland on dry, shallow soils of moderate fertility.	PMST	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Eucalyptus mckieana	McKie's Stringybark	V	V	*Eucalyptus mckieana* is found in grassy open forest or woodland on poor sandy loams, most commonly on gently sloping or flat sites.	PMST, BioNet	Low - Field surveys did not record the species in the study area.
Eucalyptus nicholii	Narrow-leaved Peppermint	V	V	Grassy or sclerophyllous woodland on shallow relatively infertile soils on shales and slates.	PMST, BioNet	Low - Field surveys did not record the species in the study area.
Eucalyptus rubida subsp. barbigerorum	Blackbutt Candlebark	V	V	Woodland on medium or high fertility soils. Known from scattered populations on the New England Tablelands from Guyra to the Tenterfield area.	PMST, BioNet	Low - Field surveys did not record the species in the study area.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Euphrasia arguta	-	PCE	CE	Known from three sites in/near Nundle State Forest in eucalypt forest with a mixed grass and shrub understorey. Habitat includes open forest country around Bathurst in subhumid places, grassy country near Bathurst and in meadows near rivers.	PMST	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Haloragis exalata subsp. velutina	Tall Velvet Sea-berry	V	V	Damp places near watercourses, also in woodland and steep rocky slopes of gorges.	PMST	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Homoranthus prolixus	Granite Homoranthus	V	V	Occurs in woodland and heath on shallow sandy skeletal soil on and around granite or acid volcanic outcrops.	PMST, BioNet	Low - Field surveys did not record the species in the study area.
Leionema lachnaeoides		E	E	Habitat vegetation is montane heath and commonly includes *Eucalyptus stricta, Allocasuarina nana, Dillwynia retorta, Epacris microphylla* and *Caustis flexuosa*.	PMST	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Lepidium hyssopifolium	Aromatic Peppercress	E	E	In NSW the species was known to have occurred in both woodland with a grassy understorey and in grassland. The species may be a disturbance opportunist, as it was discovered at the most recently discovered site (near Bungendore) following soil disturbance. The cryptic and non-descript nature (appearing like several weed species) of the species makes it hard to detect.	BioNet	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Prasophyllum sp. Wybong (C.Phelps ORG 5269)	-	-	CE	Known to occur in open eucalypt woodland and grassland	PMST	Moderate - Field surveys did not record the species in the study area. However, there is suitable habitat at the study site and this species is known to be cryptic. **Test of significance completed.**
Swainsona sericea	Silky Swainson-pea	V	-	Found in Natural Temperate Grassland and Snow Gum Eucalyptus pauciflora Woodland on the Monaro. Found in Box-Gum Woodland in the Southern Tablelands and South West Slopes. Sometimes found in association with cypress-pines Callitris spp.	BioNet	Moderate - Field surveys did not record the species in the study area. However, there is suitable habitat at the study site and this species is known to be cryptic. **Test of significance completed.**
Thesium australe	Austral Toadflax	-	V	Grassland or grassy eucalypt woodland where *Themeda australis* is predominant, on grassy headlands.	PMST, BioNet	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Tylophora linearis		V	E	*Tylophora linearis* grows in dense shrublands occasionally overtopped by *Callitris glaucophylla* and various species of *Eucalyptus*. Not previously recorded in Northern Rivers CMA area.	PMST	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
Zieria odorifera subsp. Warrabahensis		CE	-	It is found in both heath and *Eucalyptus prava/Callitris endlicheri* layered woodland on granite outcrops	BioNet	Low - Field surveys did not record the species in the study area. No suitable habitat occurs.
V = Vulnerable; E = Endangered; CE = Critically Endangered						

Table B 3: Fauna likelihood of occurrence criteria

Likelihood	Criteria
Recorded	The species was observed in the study area during the current survey
High	It is highly likely that a species inhabits the study area and is dependent on identified suitable habitat (ie for breeding or important life cycle periods such as winter flowering resources), has been recorded recently in the locality (10 km) and is known or likely to maintain resident populations in the study area. Also includes species known or likely to visit the study area during regular seasonal movements or migration.
Moderate	Potential habitat is present in the study area. Species unlikely to maintain sedentary populations; however, may seasonally use resources within the study area opportunistically or during migration. The species is unlikely to be dependent (ie. for breeding or important life cycle periods such as winter flowering resources) on habitat within the study area, or habitat is in a modified or degraded state. Includes cryptic flowering flora species that were not seasonally targeted by surveys and that have not been recorded.
Low	It is unlikely that the species inhabits the study area and has not been recorded recently in the locality (10 km). It may be an occasional visitor, but habitat similar to the study area is widely distributed in the local area, meaning that the species is not dependent (ie. for breeding or important life cycle periods such as winter flowering resources) on available habitat. Specific habitat is not present in the study area or the species are a non-cryptic perennial flora species that were specifically targeted by surveys and not recorded.
None	Suitable habitat is absent from the study area. Based on a field assessment of the habitat constraints or microhabitats on the study area , the habitat is identified as being substantially degraded such that the species is unlikely to utilise the study area (or specific vegetation zones), or an expert report that is prepared that states the species is unlikely to be present on the study area or specific vegetation zones.

Table B 4: Habitat assessment – threatened fauna

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Amphibians						
Litoria booroolongensis	Booroolong Frog	E	E	Permanent streams with some fringing vegetation cover such as ferns, sedges or grasses.	PMST, BioNet	Low – No suitable habitat occurs.
Litoria castanea	Yellow-spotted Tree Frog	CE	E	Require large permanent ponds or slow flowing 'chain-of-ponds' streams with abundant emergent vegetation such as bulrushes and aquatic vegetation.	PMST	Low – No suitable habitat occurs.
Litoria piperata	Peppered Tree Frog	CE	V	Found in streamside vegetation and under rocks and fallen timber along rocky streams flowing eastward from the Tablelands.	PMST	Low – No suitable habitat occurs.
Birds						
Anseranas semipalmata	Magpie Goose	V	-	Shallow wetlands (<1 m deep), large swamps and dams with dense growth of rushes or sedge.	BioNet	Low – No suitable habitat occurs.
Anthochaera phrygia	Regent Honeyeater	CE	CE	Dry open forest and woodland with an abundance of nectar-producing eucalypts, particularly box-ironbark woodland, swamp mahogany forests, and riverine sheoak woodlands.	PMST, BioNet	Low – No suitable habitat occurs.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	Woodlands and dry open sclerophyll forests, usually dominated by eucalypts; also recorded in shrublands, heathlands and various modified habitats.	BioNet	**Moderate** – potential habitat. Recorded within locality.
Botaurus poiciloptilus	Australasian Bittern	E	E	Permanent freshwater wetlands with tall dense vegetation, particularly bullrushes and spikerushes.	PMST	Low – No suitable habitat occurs.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Burhinus grallarius	Bush Stone-curlew	E	-	Lightly timbered open forest and woodland, and partly cleared farmland with woodland remnants, preferring areas with dry leaf-litter, fallen timber and sparse ground cover.	BioNet	Low – No suitable habitat occurs.
Calidris ferruginea	Curlew Sandpiper	E	CE	Tidal mudflats, sandy ocean shores and occasionally inland freshwater or salt-lakes.	PMST	Low – No suitable habitat occurs.
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	-	Sheoaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.	BioNet	Low – No suitable habitat occurs.
Chthonicola sagittata	Speckled Warbler	V	-	Eucalyptus dominated communities with sparse shrubs and grassy understorey.	BioNet	**Moderate** – potential habitat. Recorded within locality.
Circus assimilis	Spotted Harrier	V	-	Grassy open woodland, inland riparian woodland, grassland and shrub steppe.	BioNet	Low – No suitable habitat occurs.
Climacteris picumnus victoriae	Brown Treecreeper	V	-	Eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range, and less commonly on coastal plains and ranges.	BioNet	**Moderate** – potential habitat. Recorded within locality.
Daphoenositta chrysoptera	Varied Sittella	V	-	Inhabits eucalypt forests and woodlands, especially rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland.	BioNet	**Moderate** – potential habitat. Recorded within locality.
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	Swamps, mangroves, mudflats, dry floodplains.	BioNet	Low – No suitable habitat occurs.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Erythrotriorchis radiatus	Red Goshawk	CE	V	Open woodland and forest, preferring a mosaic of vegetation types, a large population of birds as a source of food, and permanent water. Typically found in riparian habitats along or near watercourses or wetlands. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers. Population in NSW is naturally small (probably only one pair), and lies at extreme of the natural range of the species in Australia.	PMST	Low – No suitable habitat occurs.
Falco hypoleucos	Grey Falcon	E	V	The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range.	PMST	Low – No suitable habitat occurs.
Falco subniger	Black Falcon	V	-	Widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions. In NSW there is assumed to be a single population that is continuous with a broader continental population	BioNet	Low – No suitable habitat occurs.
Glossopsitta pusilla	Little Lorikeet	V	-	Forages in open Eucalyptus forest and woodland; also feeds on Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	BioNet	**Moderate** – potential habitat. Recorded within locality.
Grantiella picta	Painted Honeyeater	V	V	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests. Specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus Amyema.	PMST, BioNet	Low – No suitable habitat occurs.
Haliaeetus leucogaster	White-bellied Sea-eagle	V	-	Coastal habitats and around terrestrial wetlands characterised by the presence of large areas of open water (larger rivers, swamps, lakes, ocean). Habitats may include freshwater swamps, lakes, reservoirs, billabongs, saltmarsh and sewage ponds in addition to bays and inlets, beaches, reefs, lagoons, estuaries and mangroves.	BioNet	Low – No suitable habitat occurs.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Hieraaetus morphnoides	Little Eagle	V	-	Open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used.	BioNet	**Moderate** – potential habitat. Recorded within locality.
Hirundapus caudacutus	White-throated Needletail	-	V	Most often recorded aerial foraging above wooded areas, including open forest and rainforest, and may also fly between trees or in clearings, below the canopy. Breeding does not occur in Australia.	PMST, BioNet	Low – No suitable habitat occurs.
Lathamus discolor	Swift Parrot	E	CE	On mainland Australia foraging occurs where eucalypts are flowering profusely or where abundant lerp infestations occur. Favoured feed trees include winter flowering species such as Swamp Mahogany Eucalyptus robusta, Spotted Gum Corymbia maculata, Red Bloodwood C. gummifera, Forest Red Gum E. tereticornis, Mugga Ironbark E. sideroxylon, and White Box E. albens. Commonly used lerp infested trees include Inland Grey Box E. microcarpa, Grey Box E. moluccana, Blackbutt E. pilularis and Yellow Box E. melliodora.	PMST, BioNet	Low – No suitable habitat occurs.
Lophoictinia isura	Square-tailed Kite	V	-	Dry woodland and open forest, particularly along major rivers and belts of trees in urban or semi-urban areas. Home ranges can extend over at least 100 km2.	BioNet	**Moderate** – potential foraging habitat. Recorded within locality.
Melanodryas cucullata cucullata	Hooded Robin (south-eastern form)	V	-	Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.	BioNet	Low – No suitable habitat occurs.
Melithreptus gularis gularis	Black-chinned Honeyeater (eastern subspecies)	V	-	Drier open forests or woodlands dominated by box and ironbark eucalypts, and open forests of smooth-barked gums, stringybarks, ironbarks and tea-trees.	BioNet	Low – No suitable habitat occurs.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Neophema pulchella	Turquoise Parrot	V	-	Favours open, grassy woodland with dead trees near permanent water. Also inhabits coastal heaths and pastures with exotic grasses and weeds, along roadsides and in orchards.	BioNet	Low – No suitable habitat occurs.
Ninox connivens	Barking Owl	V	-	Eucalypt woodland, open forest, swamp woodlands and timber along watercourses.	BioNet	Low – No suitable habitat occurs.
Ninox strenua	Powerful Owl	V	-	Woodland and open forest to tall moist forest and rainforest. Requires large tracts of forest or woodland habitat but may also occur in fragmented landscapes.	BioNet	Low – No suitable habitat occurs.
Oxyura australis	Blue-billed Duck	V	-	Deep water in large permanent wetlands and swamps with dense aquatic vegetation.	BioNet	Low – No suitable habitat occurs.
Petroica boodang	Scarlet Robin	V	-	Dry eucalypt forests and woodlands with an open and grassy understorey with few scattered shrubs. Both mature and regrowth vegetation are utilised; habitat usually contains abundant logs and fallen timber.	BioNet	**Moderate** – potential habitat. Recorded within locality.
Petroica phoenicea	Flame Robin	V	-	Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes; prefers clearings or areas with open understoreys. Breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense. In winter, birds migrate to drier more open habitats in the lowlands (i.e. valleys below the ranges, and to the western slopes and plains).	BioNet	**Moderate** – potential habitat. Recorded within locality.
Polytelis swainsonii	Superb Parrot	V	V	Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest.	PMST	Low – No suitable habitat occurs.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Pomatostomus temporalis temporalis	Grey-crowned Babbler	V	-	Open woodlands dominated by mature eucalypts, with regenerating trees, tall shrubs, and an intact ground cover of grass and forbs.	BioNet	Low – No suitable habitat occurs.
Rostratula australis	Australian Painted Snipe	E	E	Well-vegetated shallows and margins of wetlands, dams, sewage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, and open timber.	PMST, BioNet	Low – No suitable habitat occurs.
Stagonopleura guttata	Diamond Firetail	V	-	Grassy eucalypt woodlands, open forest, mallee, temperate grassland, and secondary grassland derived from other communities, riparian areas, and sometimes in lightly wooded farmland.	BioNet	Low – No suitable habitat occurs.
Stictonetta naevosa	Freckled Duck	V	-	Permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. In drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	BioNet	Low – No suitable habitat occurs.
Tyto novaehollandiae	Masked Owl	V	-	Dry eucalypt forest and woodlands.	BioNet	Low – No suitable habitat occurs.
Fish						
Maccullochella peelii	Murray Cod	-	V	Warm water habitats that range from clear, rocky streams to slow flowing turbid rivers and billabongs.	PMST	Low – No suitable habitat occurs.
Mammals						
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Near cave entrances and crevices in cliffs.	PMST, BioNet	Low – No suitable habitat occurs.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Dry and moist eucalypt forests and rainforests, fallen hollow logs, large rocky outcrops.	PMST, BioNet	Low – No suitable habitat occurs.
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	-	Moist and dry eucalypt forest and rainforest, particularly at high elevations.	BioNet	Low – No suitable habitat occurs.
Miniopterus orianae oceanensis	Large Bent-winged Bat	V	-	Forest or woodland, roost in caves, old mines and stormwater channels.	BioNet	**Moderate** – potential foraging and opportunistic roosting habitat. Recorded within locality.
Nyctophilus corbeni	Corben's Long-eared Bat	V	V	Mallee, bulloke and box eucalypt dominated communities, more common in box/ironbark/cypress-pine vegetation, inhabiting tree hollows, crevices, and under loose bark.	PMST, BioNet	**Moderate** – potential foraging and opportunistic roosting habitat. Recorded within locality.
Petauroides volans	Greater Glider	-	V	Ranges and coastal plains of eastern Australia, where it inhabits a variety of eucalypt forests and woodlands.	PMST	Low – No suitable habitat occurs.
Petaurus norfolcensis	Squirrel Glider	V	-	Blackbutt, bloodwood and ironbark eucalypt forest with heath understorey in coastal areas, and box-ironbark woodlands and River Red Gum forest inland.	BioNet	**Moderate** – potential habitat. Recorded within locality.
Petrogale penicillata	Brush-tailed Rock Wallaby	E	V	North-facing cliffs and dry eucalypt forest and woodland, inhabiting rock crevices, caves, overhangs during the day, and foraging in grassy areas nearby at night.	PMST	Low – No suitable habitat occurs.
Phascolarctos cinereus	Koala	V	V	Appropriate food trees in forests and woodlands, and treed urban areas.	PMST, BioNet	**Moderate** – potential habitat. Recorded within locality.
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	PMST, BioNet	Low – No suitable habitat occurs.

Scientific name	Common name	BC Act	EPBC Act	Habitat requirements	Source	Likelihood of occurrence
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	Forages in a variety of habitats, roosts in tree hollows and buildings.	BioNet	**Moderate** – potential foraging and opportunistic roosting habitat. Recorded within locality.
Scoteanax rueppellii	Greater Broad-nosed Bat	V	-	Woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.	BioNet	Low – No suitable habitat occurs.
Reptiles						
Aprasia parapulchella	Pink-tailed Legless Lizard	V	V	Inhabits sloping, open woodland areas with predominantly native grassy groundlayers, particularly those dominated by Kangaroo Grass (Themeda australis).	PMST	Low – No suitable habitat occurs.
Myuchelys bellii	Bells Turtle	E	V	Upper reaches and smaller tributaries of major rivers flowing through granitic bedrock, preferring narrow stretches of river, 30 to 40 m wide, with pools up to 3 m deep, and sandy and rocky. Riverbeds, with small beds of weed.	PMST, BioNet	Low – No suitable habitat occurs.
Uvidicolus sphyrurus	Border Thick-tailed Gecko	V	V	Dry sclerophyll open forest and woodland associated with outcrops of granite, basalt, sandstone and metamorphic rocks.	PMST, BioNet	Low – No suitable habitat occurs.
V = Vulnerable; E = Endangered; CE = Critically Endangered						

Annexure C
Assessments of significance

BC Act Assessments of significance

The proposed works would be assessed under Section 5.5 of the EP&A Act. As such, Section 7.3 of the BC Act outlines the 'test of significance' that is to be undertaken to assess the likelihood of significant impact upon threatened species or ecological communities listed under the BC Act. Assessments of significance have been completed for the following threatened species listed under the BC Act:

- Flora (Bluegrass, Small Snake Orchid, Silky Swainson-pea and White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions)
- Woodland birds (Dusky Woodswallow, Speckled Warbler, Brown Treecreeper, Varied Sittella, Little Lorikeet, Scarlet Robin, Flame Robin)
- Predatory birds (Little Eagle, Square-tailed Kite)
- Arboreal mammals (Squirrel Glider & Koala)
- Microbats (Corben's Long-eared Bat, Large Bent-winged Bat, Yellow-bellied Sheathtail-Bat)

Flora and TEC

Threatened flora and the TEC have been grouped for assessment owing to family similarities, broadly overlap in ecology and habitat preferences, and potential impacts as result of the proposal. Threatened flora for this impact assessment include:

- Bluegrass
- Small Snake Orchid
- Silky Swainson-pea
- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions TEC

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

Neither Bluegrass, Small Snake Orchid or Silky Swainson-pea were recorded in the site visit. However, these species can both be cryptic and potential habitat for the species was present at the site. The proposal would result in the direct loss of up to approximately 0.18 ha of vegetation comprising PCT 538 *Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion* and PCT 567 *Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion* which contains potential habitat for Bluegrass, Small Snake Orchid and Silky Swainson-pea in broad structural terms. No known populations occur in the study area. Considering that equivalent or better-quality habitat is present in the broader locality that will not be affected by the proposal, and that the proposal is unlikely to result in significant fragmentation or isolation of habitat for this species, it would be highly unlikely that an adverse effect on the life cycle of both species would occur such that a viable local population of either species is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction

The local occurrence of the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions TEC is outlined below in Table C 1. The local occurrence of the TEC was estimated from broad scale vegetation mapping, specifically the State Vegetation Type Map: Border Rivers Gwydir / Namoi Region Version 2.0. VIS ID 4467 (State Government of NSW and Department of Planning, Industry and Environment 2015).

The estimates provided below in Table C 1 provide an indication of the extent of the local occurrence of woodland patches. In all cases, the actual local occurrence is larger than estimated as not all patches of vegetation are mapped accurately. It is important to note that many other PCTs in the locality are associated with *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions* and as such the actual proportional impact is much lower.

Of importance to this assessment is that the proposed impacts are limited to minor disturbance and clearing on the margins of this community along the New England Highway. Impacts to this community largely involve minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation. As such, the local occurrence of high quality intact or relatively intact White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions TEC will largely not be affected. As such, the proposal is considered unlikely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

As can be seen from Table C 1, the proposal would not have an adverse effect on the extent of White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions TEC, as a whole, such that the local occurrence of the TEC is likely to be placed at risk of extinction. The proportional and nature of impacts to the local occurrence of the TEC is very low and the proposal would not result in the local extinction of the TEC.

Table C 1: Estimation of the local occurrence of the TEC and proportional impact

Threatened ecological community	Potential impact (ha)	Local occurrence (within 10km of study area)	Proportional impact
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions	0.17 ha	PCT 538 Rough-barked Apple - Blakely's Red Gum open forest of the Nandewar Bioregion and western New England Tableland Bioregion 164 ha mapped in the locality.	0.1 % of the local occurrence of mapped TEC
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions	0.01	PCT 567 Broad-leaved Stringybark - Yellow Box shrub/grass open forest of the New England Tableland Bioregion 4.49 ha mapped in the locality.	0.2 % of the local occurrence of mapped TEC

The proposal is considered unlikely to substantially and adversely modify the composition of the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions TEC such that its local occurrences are placed at risk of extinction. The TEC already has an altered composition caused by a reduction in ecological function, as indicated by:

(a) invasion and establishment of exotic species

(b) degradation of habitat along edges of road reserve

(c) local small-scale fragmentation.

The proposal would remove part of an already modified and partially disturbed version of the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the New England Tableland Bioregions TEC. This impact will not cause the local occurrence to be placed at risk of extinction. The composition of the TEC within the locality is predicted to remain as is after the implementation of the proposal.

(c) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

The extent of predicted impacts to the threatened flora and TEC is shown in Table C 1. The proportional impact to the TEC is low.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

The proposal would result in only a minor increase in the width of the cleared corridor of the New England Highway. The existing landscape is substantially fragmented, consisting of a mosaic of grassy woodland, and cleared farmland. Post-works, the increase to vegetation fragmentation relating to the proposal would be of such a minor nature as to be negligible.

No area of habitat for any of the subject threatened flora and TEC would become substantially fragmented or isolated from other nearby areas of habitat as a result of the proposal.

Considering the above, a minor increase in the width of the cleared road corridor is unlikely to result in significant fragmentation or isolation of habitat for any of the subject species and TEC or result in a disruption to genetic transfer between potential occurrences that are dissected by the New England Highway.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

Due to the conservation significance of the threatened flora and TEC, the remaining patches of these threatened flora and TEC within NSW are likely to be important for its survival. However, the patches within the study area are considered partly modified. Furthermore, no patches of vegetation in the study area have been recognised as priority conservation land or as part of core habitats or regional corridors by the BCD. As such, the patches within the study area can be considered less important than larger high-quality examples in the locality that retain higher levels of ecological integrity and function.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No areas of outstanding biodiversity value have been declared in Tamworth LGA

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A KTP is a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, population, or ecological community. Key threatening processes are listed under the BC Act and at the present there are currently 39 listed KTPs. With respect to threatened flora, the proposal is consistent with two KTPs being:

- clearing of native vegetation
- removal of dead wood and dead trees

The extent of native vegetation clearing, and habitat removal associated with the proposal is relatively small in terms of the available habitat for these species within the proposal locality. It is highly unlikely that the proposal would exacerbate the KTPs to the extent that it would be significant to the species and TEC.

Conclusion

In summary, the proposal is considered unlikely to result in a significant effect on threatened flora and TEC. Approximately 0.18 ha of potential habitat would be affected by the proposal. Given the extent of the works, it is unlikely that the local population of any of the threatened flora species or TEC would be placed at significant risk of extinction as a result of the proposal.

Woodland birds

Threatened woodland birds have been grouped for assessment owing to family similarities, broadly overlap in ecology and habitat preferences, and potential impacts as result of the proposal. Threatened woodland birds for this impact assessment include:

- Dusky Woodswallow (Artamus cyanopterus cyanopterus)
- Speckled Warbler (Chthonicola sagittata)
- Brown Treecreeper (eastern subspecies) (Climacteris picumnus victoriae)
- Varied Sittella (Daphoenositta chrysoptera)
- Little Lorikeet (Glossopsitta pusilla)
- Scarlet Robin (Petroica boodang)
- Flame Robin (Petroica phoenicea)

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

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

No threatened woodland birds were observed during field investigation, however, these species have either been recorded in the locality (BioNet) or the presence of habitat associated with the species. As the site investigation was relatively short in nature and threatened woodland birds are not always easily detectable, this assessment is therefore based on the presence of potentially suitable habitat for likely threatened woodland birds. The proposal would impact on approximately 0.18 ha of known and potential habitat in the form of PCT 538 and PCT 567. Threatened woodland birds using the study area are likely to be part of a viable population that extends through the locality and are likely to present in other parts of the locality as there is a reasonable amount of potentially suitable habitat in the form of grassy woodland habitat occurring in the locality. In addition, these species would not be solely restricted to this habitat but are known to utilise a number of other woodland habitats in the locality. Due to the narrow linear impact expected within an existing road reserve, it is considered unlikely that local population of threatened woodland birds would be

restricted to the study area and the proposal is not likely to have an adverse effect on the life cycle of the species such that a viable local population is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction

Not applicable.

(c) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

It is estimated that the proposal would impact on approximately 0.18 ha of potential habitat for threatened woodland birds in the form of PCT 538 and PCT 567.

Habitat within the study area is already fragmented at a local scale by the existing road, adjacent roads, and agricultural development. Landscape scale fragmentation is unlikely to occur from the proposal as the work would involve removing vegetation from patch edges rather than breaking apart of large blocks of vegetation into many smaller patches. Importantly, the proposal would not result in the breaking apart of large blocks of high-quality habitats. No further habitat fragmentation on a landscape scale would occur because of the proposal. Isolation of habitats is likely to increase by a small extent as the distance between patches on either side of the road reserve would be marginally increased.

The proposal will not create a significant barrier to the movement of these species between areas of suitable habitat. The impact of 0.18 ha of potential habitat would present <1% of available habitat within locality. Higher quality habitat within the locality would still be accessible for these species. The quality and importance of habitat which may be impacted by activities is not considered to be significantly important for the long-term survival of any local population of these species.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposal will not impact on any declared area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A KTP is a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, population, or ecological community. Key threatening processes are listed under the BC Act and at the present there are currently 39 listed KTPs. With respect to threatened woodland birds, the proposal is consistent with three KTPs being:

- clearing of native vegetation
- removal of dead wood and dead trees

The extent of native vegetation clearing, and habitat removal associated with the proposal is relatively small in terms of the available habitat for these species within the proposal locality. It is unlikely that the proposal would exacerbate the KTPs to the extent that it would be significant to any of these species.

Conclusion

In summary, the proposal is considered unlikely to result in a significant effect on threatened woodland birds. Approximately 0.18 ha of potential habitat would be affected by the proposal. Threatened woodland birds using the study area are likely to be part of a viable population that extends through the locality and due to the narrow and linear impact expected within an existing disturbed road reserve corridor, it is considered unlikely that local population of threatened woodland birds would be restricted to the study area. Given the extent of potentially suitable habitat that exists in the locality and the very small proportional impact likely to occur from the proposal, potential impacts to threatened woodland birds are unlikely to be significant.

Birds of prey

Threatened birds of prey have been grouped for assessment owing to family similarities and overlap in ecology and habitat preferences, and potential impacts as result of the proposal. Threatened birds of prey for the impact assessment are:

- Square-tailed Kite (Lophoictinia isura)
- Little Eagle (Hieraaetus morphnoides).

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

Threatened birds of prey were not recorded in the study area during surveys and therefore, this assessment is based on the presence of potentially suitable habitat. The proposal would impact approximately 0.18 ha of potential habitat in the form of PCT 538 and PCT 567. Due to the mobility and large home range of these species and the general narrow and linear impact associated with the proposal, any identified population of threatened birds of prey would not be restricted to habitat within the study area. Threatened birds of prey using the study area are likely to be part of a viable population that extends through the proposal locality and are likely to be present in other parts of the locality as there is a large amount of potentially suitable habitat occurring in the locality. The proportional impact to this potential habitat is very small and considered negligible. Therefore, due to the narrow and linear impact expected within an existing road corridor, the proposal is not likely to have an adverse effect on the life cycle of the species such that a viable local population is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction

Not applicable.

(c) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

It is estimated that the proposal would impact on approximately 0.18 ha of potential habitat for threatened birds of prey in the form of PCT 538 and PCT 567. These habitats occurred on the verge of an existing disturbed road corridor.

Habitat within the study area is already fragmented at a local scale by the existing New England Highway, adjacent roads, and agricultural development. Landscape scale fragmentation is unlikely to occur from the proposal as the work would involve removing vegetation from patch edges rather than breaking apart of large blocks of vegetation into many smaller patches. Importantly, the proposal would not result in the breaking apart of large blocks of high-quality habitats. No further habitat fragmentation on a landscape scale would occur because of the proposal. Isolation of habitats is likely to increase by a small extent as the distance between patches on either side of the road corridor would be increased. As the proposal impact area is largely confined to previously disturbed areas, the proposal would not adversely fragment or isolate any previously undisturbed patches of habitat. Furthermore, given these species' high mobility and that similar and likely more significant habitat occurs widely in the locality, it is considered unlikely that habitat would become further isolated or fragmented significantly beyond that currently existing in the study area and wider locality.

The proposal will impact approximately 0.18 ha of narrow and linear habitat in an existing partially disturbed road corridor. Impacts to vegetation largely involve minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation. Although the loss of native vegetation would be an incremental loss of local habitat, the importance is not considered to be significant to the long-term survival of any local population of threatened birds of prey.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposal will not impact on any declared area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A KTP is a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, population or ecological community. Key threatening processes are listed under the BC Act and at the present there are currently 39 listed KTPs. With respect to threatened birds of prey, the proposal is consistent with one KTP; being clearing of native vegetation. Although it is an incremental loss of suitable habitat in the locality, the extent of native vegetation clearing and habitat removal associated with the proposal is relatively small in terms of the available habitat for these species within the proposal locality.

Conclusion

In summary, the proposal is considered unlikely to result in a significant effect on threatened birds of prey. Approximately 0.18 ha of potential habitat would be affected by the proposal. Threatened birds of prey using the study area are likely to be part of a viable population that extends through the locality and due to the narrow and linear impact expected within an existing road corridor, it is considered unlikely that local population of threatened birds of prey would be restricted to the study area. Given the extent of potentially

suitable habitat that exists in the locality and the very small proportional impact likely to occur from the proposal, any impacts to threatened birds of prey are unlikely to be significant.

Arboreal Mammals

Threatened arboreal mammals have been grouped for assessment owing to broadly overlap in ecology and habitat preferences, and potential impacts as result of the proposal. Threatened arboreal mammals for this impact assessment include:

- Squirrel Glider (*Petaurus norfolcensis*)
- Koala (*Phascolarctos cinereus*).

Both species are listed as Vulnerable under the BC Act. The Koala is also listed as Vulnerable under the EPBC Act.

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

Neither the Squirrel Glider or Koala were recorded in the study area during the field survey informing this report, however, the species is known to occur in the greater locality. Nevertheless, whilst the immediate road corridor was disturbed, remnant open forest corresponding to PCT 538 and PCT 567 occurred therein. The proposal would impact 0.18 ha of habitat in the form of PCT 538 and PCT 567, of which the impact would largely involve minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation. Any population of Squirrel Glider or Koala potentially using the study area are likely to be part of a viable population extending throughout the locality and are likely to be present in other parts of the locality. Given the small amount of vegetation to be removed and the abundance of suitable open forest habitat nearby the proportional impact to this potential habitat is very small and therefore is considered negligible. Due to the narrow linear impact expected within an existing partially disturbed road corridor, it is considered unlikely that a local population of Squirrel Glider or Koala would be restricted to the study area and the proposal is not likely to have an adverse effect on the life cycle of either species such that a viable local population is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction

Not applicable.

(c) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

It is estimated that proposal would impact on approximately 0.18 ha of potential habitat for both species in the form of PCT 538 and PCT567.

Habitat within the study area is already fragmented at a local scale by the existing highway, adjacent roads, and agricultural use. Landscape scale fragmentation is unlikely to occur from the proposal as the work would involve removing vegetation from patch edges rather than breaking apart of large blocks of vegetation into many smaller patches. Importantly, the proposal would not result in the breaking apart of large blocks of high-quality habitats. No further habitat fragmentation on a landscape scale would occur because of the proposal. Isolation of habitats is likely to increase by a small extent as the distance between patches on either side of the road corridor would be increased.

The habitat in the study area is not likely to be important to the long-term survival of the Squirrel Glider or Koala. No priority management areas or sites occur in the study area or locality. Impacts would largely involve minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation. Although the loss of native vegetation would be an incremental loss of local habitat, the quality and importance are not considered to be significant to the long-term survival of any local population of either species.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposal will not impact on any declared area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A KTP is a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, population or ecological community. Key threatening processes are listed under the BC Act and at the present there are currently 39 listed KTPs. With respect to both Squirrel Glider and Koala, the proposal is consistent with one KTP being:

- clearing of native vegetation

The extent of native vegetation clearing and habitat removal associated with the proposal is relatively small in terms of the available habitat for these species within the proposal locality.

Conclusion

In summary, the proposal is considered unlikely to result in a significant impact on either the Squirrel Glider or Koala. Whilst 0.18 ha of potential habitat would be affected by the proposal, impact would largely involve minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation. Both species are likely to use habitat that extends through the locality and due to the narrow and linear impact expected within an existing road corridor, it is considered unlikely that local population of either species would be restricted to the study area. Given the extent of potentially suitable habitat that exists in the locality and the very small proportional impact likely to occur from the proposal, is unlikely the proposal would have a significant to either species.

Microbats

Threatened microbats have been grouped for assessment owing to broadly overlap in ecology and habitat preferences, and potential impacts as result of the proposal. Threatened microbats for this impact assessment include:

- Corben's Long-eared Bat (*Nyctophilus corbeni*)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)
- Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*)

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

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction

No threatened microbats were observed during field investigation; however, these species have either been recorded in the locality (BioNet) or the presence of habitat associated with the species. As the site investigation was relatively short in nature and threatened microbats are not always easily detectable, this assessment is therefore based on the presence of potentially suitable habitat for likely threatened microbats. Approximately 0.18 ha of vegetation to be impacted provides foraging habitat for microchiropteran bats. Additionally, culverts with potential opportunistic roosting habitat would be impacted by the works. Whilst 0.18 ha of foraging and potential roosting habitat may be removed as part of the proposed action, an abundance of similar or high-quality roosting opportunities occur in the wider locality. The removal of 0.18 ha would represent <1% of available habitat for these species. These species would not be solely restricted to this habitat but are known to utilise a number of other open woodland habitats in the locality. The proportional impact to this potential habitat is very small. Due to the narrow linear impact expected within an existing road reserve, it is considered unlikely that local population of threatened microbats would be restricted to the study area and the proposal is not likely to have an adverse effect on the life cycle of the species such that a viable local population is likely to be placed at risk of extinction.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction

Not applicable.

(c) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

It is estimated that proposal would impact on approximately 0.18 ha of potential habitat for threatened microbats in the form of PCT 538 and PCT 567. In addition, up to six culverts with opportunistic roosting habitat would be impacted.

Habitat within the study area is already fragmented at a local scale by the existing road, adjacent roads, and agricultural development. Landscape scale fragmentation is unlikely to occur from the proposal as the work would involve removing vegetation from patch edges rather than breaking apart of large blocks of vegetation into many smaller patches. Importantly, the proposal would not result in the breaking apart of large blocks of high-quality habitats. No further habitat fragmentation on a landscape scale would occur because of the proposal. Isolation of habitats is likely to increase by a small extent as the distance between patches on either side of the road reserve would be marginally increased.

The proposal will not create a significant barrier to the movement of these species between areas of suitable habitat. The impact of 0.18 ha of potential habitat would present <1% of available habitat within locality. Higher quality habitat within the locality would still be accessible for these species. The quality and importance of habitat which may be impacted by activities is not considered to be significantly important for the long-term survival of any local population of these species.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

The proposal will not impact on any declared area of outstanding biodiversity value.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A KTP is a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, population or ecological community. Key threatening processes are listed under the BC Act and at the present there are currently 39 listed KTPs. With respect to threatened microbats, the proposal is consistent with three KTPs being:

- clearing of native vegetation
- removal of dead wood and dead trees

The extent of native vegetation clearing and habitat removal associated with the proposal is relatively small in terms of the available habitat for these species within the proposal locality. It is unlikely that the proposal would exacerbate the KTPs to the extend that it would be significant to any of these species.

Conclusion

Approximately 0.18 ha potential habitat in the form of PCT 538, PCT567, and culverts, which may be used by these species for foraging and opportunistic roosting purposes. Habitat to be impacted occurs as vegetation along the existing highway / road reserve. The proposed action will not increase fragmentation, and given the high mobility of assessed species, the proposed action is unlikely to represent significant increases to habitat isolation and or fragmentation to these species. The habitat is not considered critical habitat to long term survival of these species within the locality. Given this, the Proposal is considered unlikely to lead to a significant impact on these species.

EPBC assessments

For threatened biodiversity listed under the EPBC Act, significance assessments have been completed in accordance with the *EPBC Act Policy Statement 1.1 Significant Impact Guidelines* (Department of Environment, 2013). These significance assessments have been prepared for the following threatened species:

Vulnerable Flora

- Bluegrass

Endangered Flora

- Small Snake Orchid
- *Prasophyllum* sp. *Wybong*

TEC

- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Vulnerable Fauna

- Corben's Long-eared Bat

Endangered Fauna

- Koala

Vulnerable Flora – Bluegrass

Bluegrass is listed as Vulnerable under the EPBC Act. The following assessment has been undertaken following the Matters of National Environmental Significance, Significant Impact Guidelines 1.1. Under the Act, important populations are:

- **likely to be key source populations either for breeding or dispersal**
- **likely to be necessary for maintaining genetic diversity, and/or**
- **at or near the limit of the species range.**

Is this part of an important population?

An 'important population' is a population that is necessary for a species' long-term survival and recovery. This may include populations identified as such in recovery plans, and/or that are:

- key source populations either for breeding or dispersal
- populations that are necessary for maintaining genetic diversity, and/or
- populations that are near the limit of the species range.

No important population of Bluegrass occurs at the site. This species is cryptic and occurs in habitats such as cleared woodland, grassy roadside remnants and highly disturbed pasture.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will result in one or more of the following:

Lead to a long-term decrease in the size of an important population of a species

Not applicable. No important population of Bluegrass occurs at the site.

Reduce the area of occupancy of an important population

Not applicable. No important population of Bluegrass occurs at the site.

Fragment an existing important population into two or more populations

Not applicable. No important population of Bluegrass occurs at the site.

Adversely affect habitat critical to the survival of a species

Bluegrass was not recorded in the site survey. The habitat affected occurs within a previously disturbed landscape. The vegetation proposed for removal consists of up to approximately 0.18 ha of vegetation ranging from low to high quality that is potential habitat for Bluegrass.

These site habitats are considered to be of relatively low importance to Bluegrass considering that equivalent or better habitat is present in the broader locality that can be utilised and that this habitat will not be affected by the proposal.

Disrupt the breeding cycle of an important population

Not applicable. No important population of Bluegrass occurs at the site.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

The habitat affected occurs within a previously disturbed landscape. The vegetation proposed for removal consists of up to approximately 0.18 ha of vegetation that is potential habitat for Bluegrass.

These site habitats are considered to be of relatively low importance to the species considering that equivalent or better habitat is present in the broader locality that can be utilised and that this habitat will not be affected by the proposal.

Considering the above, the proposal is considered unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the Bluegrass is likely to decline.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

The proposal is unlikely to assist invasive species harmful to the species to become established, particularly with the effective implementation of the recommended safeguards in relation to weed control and weed hygiene protocols.

Introduce disease that may cause the species to decline

The proposal is unlikely to introduce a disease that may cause the threatened flora to decline, particularly with the effective implementation of the recommended safeguards in relation to machinery hygiene protocols.

Interfere substantially with the recovery of the species

The proposal would not be an impediment to the overall recovery of these species, considering that the proposal is relatively minor in nature, and would involve the removal of only up to approximately 0.18 ha of low to high quality vegetation which is potential habitat, and that alternative habitat, both in the study area and broader locality, would not be substantially adversely affected by the proposal.

Endangered Flora – Small Snake Orchid, *Prasophyllum* sp. *Wybong*

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

Lead to a long-term decrease in the size of a population

Small Snake Orchid or *Prasophyllum* sp. *Wybong* were not recorded in the site survey. The potential habitat for this species to be removed at the site for the proposal consists of 0.18 ha corresponding to PCT

538 and PCT 567 that is potential habitat for Small Snake Orchid or *Prasophyllum* sp. *Wybong*. This vegetation is in low to high condition.

The proposal is unlikely to lead to a long-term decrease in the size of o population of Small Snake Orchid or *Prasophyllum* sp. *Wybong* considering that only a relatively small area of potential habitat would be removed, and that equivalent or better habitat is present in the broader locality that can be utilised that will not be affected by the proposal.

Reduce the area of occupancy of the species

The proposal is unlikely to reduce the area of occupancy of the species considering that equivalent or better habitat is present in the broader locality that can be utilised and that this habitat will not be affected by the proposal.

Fragment an existing population into two or more populations

The proposal would result in only a minor increase in the fragmentation of the landscape. The existing landscape is substantially fragmented, consisting of a mosaic of forest remnants and cleared farmland. Post-works, the increase to vegetation fragmentation relating to the proposal would be of such a minor nature as to be negligible.

No area of habitat for the Small Snake Orchid or *Prasophyllum* sp. *Wybong* would become substantially fragmented or isolated from other nearby areas of habitat as a result of the proposal.

Considering the above, a minor increase in the width of the cleared road corridor is unlikely to result in significant fragmentation or isolation of habitat for the Small Snake Orchid or *Prasophyllum* sp. *Wybong* or result in a disruption to genetic transfer between potential occurrences.

Adversely affect habitat critical to the survival of a species

Small Snake Orchid or *Prasophyllum* sp. *Wybong* were not recorded in the site survey. The habitat affected occurs within a previously disturbed landscape. The vegetation proposed for removal consists of up to 0.18 ha of PCT 538 and PCT 567 that is potential habitat for Small Snake Orchid and *Prasophyllum* sp. *Wybong*. This vegetation ranges from low to high condition.

These site habitats are considered to be of relatively low importance to the Small Snake Orchid or *Prasophyllum* sp. *Wybong* considering that equivalent or better habitat is present in the broader locality that can be utilised and that this habitat will not be affected by the proposal.

Disrupt the breeding cycle of a population

The proposal is unlikely to result in significant fragmentation or isolation of habitat for the Small Snake Orchid or *Prasophyllum* sp. *Wybong* or result in a disruption to genetic transfer between potential occurrences.

Consequently, the proposal is unlikely to disrupt the breeding cycle of a population of the Small Snake Orchid or *Prasophyllum* sp. *Wybong*.

Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

The habitat affected occurs within a previously disturbed landscape. The vegetation proposed for removal consists of up to 0.18 ha of PCT 538 and PCT 567 that is potential habitat for Small Snake Orchid and *Prasophyllum* sp. *Wybong.* This vegetation ranges from low to high condition.

These site habitats are considered to be of relatively low importance to the Small Snake Orchid or *Prasophyllum* sp. *Wybong* considering that equivalent or better habitat is present in the broader locality that can be utilised and that this habitat will not be affected by the proposal.

Considering the above, the proposal is considered unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the Small Snake Orchid or *Prasophyllum* sp. *Wybong* is likely to decline.

Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat

The proposal is unlikely to assist invasive species harmful to the Small Snake Orchid or *Prasophyllum* sp. *Wybong* to become established, particularly with the effective implementation of the recommended safeguards in relation to weed control and weed hygiene protocols (refer to **Section 7**).

Introduce disease that may cause the species to decline, or

The proposal is unlikely to introduce a disease that may cause the Small Snake Orchid or *Prasophyllum* sp. *Wybong* to decline, particularly with the effective implementation of the recommended safeguards in relation to machinery hygiene protocols (refer to **Section 7**).

Interfere with the recovery of this species

The proposal would not be an impediment to the overall recovery of this species, considering that the proposal is relatively minor in nature, and would involve the removal of only up to 0.18 ha of potential habitat, and that alternative habitat, both in the study area and broader locality, would not be substantially adversely affected by the proposal.

White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland

An action is likely to have a significant impact on a Critically Endangered or Endangered ecological community if there is a real chance or possibility that it will:

Reduce the extent of an ecological community

Based on the estimated impact area, the proposal would result in the direct clearing of approximately 0.18 ha of White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC. Impacts to this community would largely involve minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation. The impact of 0.18 ha represents approximately 0.1% of the local occurrence of mapped PCT 538 and PCT 567. The proportional impacts to the local occurrence of this TEC are likely to be low magnitude.

Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines

Habitat fragmentation *per se* relates to the physical dividing up of once continuous habitats into separate smaller fragments. The proposal would not break apart continuous areas of the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC into separate smaller fragments. Habitat connectivity is expected to remain in a similar state after completion of the proposal and there is unlikely to be an alteration to existing community composition, altered species interactions, or altered ecosystem functioning in the locality due to the action. Habitat fragmentation is not considered an important impact of the action with regard to its context and intensity.

Adversely affect habitat critical to the survival of an ecological community

Existing habitat, where this community occurs, would be cleared for minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation. This would result in the direct removal of about 0.18 ha of habitat. No very large patches would be impacted and only select trees would be removed so the proposal is considered unlikely to adversely affect habitat critical to the survival of the ecological community.

Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns

Where the TEC would be removed by the action, all abiotic factors (i.e. water, nutrients and soil) would be permanently modified and/or destroyed through vegetation removal. Where minor works are to be undertaken (i.e. trimming of vegetation and selective remove of trees) it is unlikely that the works would significant alter the abiotic factors necessary for the ecological community's survival.

Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting

The composition of the TEC may be modified as a result of the action through weed invasion and removal of vegetation. The patch of the TEC to be impacted occurs on the edge of the existing road corridor which already experiences impact from weeds and therefore a reduction in ecological function. Alteration of species composition in the patch is considered unlikely to occur as it is already altered by past disturbance. The impacts are largely minor widening of the existing road corridor and trimming & removal of select Eucalypt trees, it is unlikely that these impacts would cause the substantial loss of functionally important species that the community would be placed a significant risk.

Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:

- **assisting invasive species, that are harmful to the listed ecological community, to become established**
- **causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community**

Weed introduction and spread and the infection of native plants by *Phytophthora cinnamomi* have been identified as being spread by construction machinery. Phytophthora infects the roots of plants and has the potential to cause dieback. Machinery associated with vegetation clearance and subsequent construction for the proposal has the potential to introduce and transmit weed propagules and Phytophthora. This is a potential indirect impact through the spread and transmission of weeds and pathogens into retained habitat near the road. This can be mitigated through the development and implementation of suitable control measures for vehicle and plant hygiene but an impact, particularly from weeds, is likely. It is the intention to use current best practice hygiene and weed control protocols.

There will not be regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the TEC outside of the impact area.

Interfere with the recovery of an ecological community.

Due to the minor impacts associated with the proposal, the proposal will not significantly interfere with any of the identified recovery actions outlined in the National Recovery Plan for White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Department of Environment Climate Change and Water NSW, 2011).

Conclusion

After consideration of the factors above, an overall conclusion has been made that the action is unlikely to result in a significant impact to the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC. The predicted impacts to this TEC are likely to be minor and given that the community occurs along the existing road corridor it is unlikely that the proposal would cause a significant impact to the TEC as a whole.

Koala

The Koala (*Phascolarctos cinereus)* is listed as Endangered under the EPBC Act. The following assessment has been undertaken following the Matters of National Environmental Significance, Significant Impact Guidelines 1.1. Under the EPBC Act a 'population of a species' is defined as:

- a geographically distinct regional population, or collection of local populations, or
- a population, or collection of local populations, that occurs within a particular bioregion.

Is this part of an important population?

An action is likely to have a significant impact on a Endangered species if there is a real chance or possibility that it will result in one or more of the following:

Lead to a long-term decrease in the size of a population

The Impact of clearing 0.18 ha of partially disturbed roadside vegetation is unlikely to lead to a long-term decrease in the size of a Koala population potentially occurring in the study area. Furthermore, any koala population potentially occurring in the area would not have an increased rate of road casualties given that the works are mostly restricted to minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation.

Reduce the area of occupancy of the species

Given the proposed works are restricted to clearing 0.18ha regarding minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation, it is expected that the area of occupancy of the species would remain the same.

Fragment an existing population into two or more populations

The habitat being cleared is already fragmented due to the existing road. Given the proposed works are restricted to clearing 0.18ha regarding minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation, no koala population would be fragmented into two or more populations as a result of the clearing.

Adversely affect habitat critical to the survival of a species

No critical habitat is listed for the Koala under the EPBC Act. However, the Koala Habitat Assessment Tool within the 'EPBC Act referral guidelines for the Endangered Koala' was used to determine whether Koala habitat in the study area classifies as 'habitat critical to the survival of the Koala' (Figure 5-1). To be classified as habitat critical to the survival of the Koala vegetation must score 5 or above using the habitat assessment tool. A summary of the key assessment criteria and scoring for the study area against the referral guidelines is provided in Table 5-2 and illustrated in Figure 5-1. Using the Koala Habitat Assessment Tool, Koala habitat in the study area scored 3 out of 10 (Table 5-2). Therefore, habitat in the study area is not likely to constitute habitat critical to the survival of the species. A comparison of the proposal's potential impacts was assessed against Figure 2 of the 'EPBC Act referral guidelines for the vulnerable Koala' to determine where impacts were likely to be adverse. As illustrated in Figure 5-1, it was

concluded that the proposal is unlikely to have an adverse impact on the habitat critical for the species due to the following:

- Study area does not occur in an '*Area of Regional Koala Significance*'(Department of Environment and Energy, 2021)
- The study area is partially disturbed within the immediate road reserve and habitat is fragmented, with large expanses of habitat cleared in the proposal locality for agricultural land use, partially isolating the study area from large habitat remnants
- The proposal will not fragment or impact habitat that is important to the recovery objectives for the species within the locality.
- The proposal impacts to vegetation largely involve minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation

Disrupt the breeding cycle of an important population

Not applicable. Koala potentially occurring in the study area is not considered part of an important population.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

The proposal would impact on approximately 0.18 ha of habitat in the form of PCT 538 and 567. Any population of Koala potentially using the study area are likely to be part of a viable population extending throughout the locality and are likely to be present in other parts of the locality. The proportional impact to this potential habitat is considered small, which largely involves minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation. Due to the narrow and linear impact expected within an existing road corridor, it is considered unlikely that a local population of Koala would be restricted to the study area. While a small amount potential marginal foraging habitat would be impacted, it is unlikely to be of an extent that would cause this species to decline.

Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat

It is not likely that invasive species (such as introduced predators) that are harmful to the Koala would become further established as a result of the proposal.

Introduce disease that may cause the species to decline

It is unlikely that the proposal would significantly fragment a koala population to the point where dispersal is limited and therefore disease transmission between individuals is increased. As Chlamydia bacteria in Koalas and Koala Retrovirus is primarily transmitted between Koala individuals (DECC, 2008), it is unlikely that the proposal would introduce disease that may cause the species to decline.

Interfere substantially with the recovery of the species

A recovery plan for the Koala has not been prepared under the EPBC Act.

The proposal would not interfere with the Saving Our Species (OEH, 2017) recovery strategy or Approved Recovery Plan (DECC, 2008). The study area does not occur within any priority management or koala management areas for the species (OEH, 2017; DECC, 2008).

Conclusion

In summary, the proposal is considered unlikely to result in a significant impact to the Koala. Whilst, approximately 0.18 ha of potential habitat would be affected by the proposal, the Koala was not recorded in the study area during the field surveys. Koalas potentially using the study area are likely to use habitat that extends through the locality and due to the narrow and linear impact expected within an existing disturbed road corridor, it is considered unlikely that a local population of Koala would be restricted to the study area. Therefore, the predicted impacts to the potential habitat for this species is likely to be minor given the

mapped extent of similar vegetation in the locality. The impacts to this species are not considered to be important in regard to the context and intensity.

Corben's Long-eared Bat

The Corben's Long-eared Bat is listed as Vulnerable under the EPBC Act. The following assessment has been undertaken following the Matters of National Environmental Significance, Significant Impact Guidelines 1.1. Under the Act, important populations are:

- likely to be key source populations either for breeding or dispersal
- likely to be necessary for maintaining genetic diversity, and/or
- at or near the limit of the species range.

Is this part of an important population?

The Corben's Long-eared Bat was not recorded in the study area during the field assessment informing this report, however, a record in the greater locality for this species was returned from the Atlas of NSW Wildlife database(Environment Energy and Science, 2021a). The study area does provide habitat which would support microbat foraging and opportunistic roosting. The study area may be used on an intermittent basis during local movements, but it is not likely to represent important or critical habitat. Although the study area provides potential foraging and low-quality roosting habitat, similar or better-quality habitat occurs more widely within the locality.

This species, if occurring within the study area, would not be at the limit of its known range; nor would the population there be likely to be a key source population or necessary for maintaining genetic diversity. Therefore, it is considered that a population of Corben's Long-eared Bats, if present, is unlikely to be an 'important population'.

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will result in one or more of the following:

Lead to a long-term decrease in the size of an important population of a species

Not applicable. The potentially occurring Corben's Long-eared Bat in the study area is not considered part of an important population.

Reduce the area of occupancy of an important population

Not applicable. The potentially occurring Large-eared Pied Bat in the study area is not considered part of an important population.

Fragment an existing important population into two or more populations

Not applicable. The potentially occurring Corben's Long-eared Bat in the study area is not considered part of an important population.

Adversely affect habitat critical to the survival of a species

No overwintering (breeding) roost habitat would be impacted. Only a relatively small area (0.18 ha) of foraging and opportunistic roosting habitat, in the form of medium sized hollows, would be impacted by the proposal. The study area is partially disturbed within the immediate road reserve and habitat is fragmented, with large expanses of habitat cleared in the proposal locality for agricultural land use, partially isolating the study area from large habitat remnants.

The proposal will not fragment or impact habitat that is important to the recovery objectives for the species within the locality. The proposal impacts to vegetation largely involve minor widening of the existing road corridor and trimming & removal of selected Eucalypt trees which pose a danger to road users and operation.

Disrupt the breeding cycle of an important population

Not applicable. No overwintering (breeding) roost habitat will be impacted by the proposal. No important population of Corben's Long-eared Bats occurs at the site.

Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

The proposal would impact on approximately 0.18 ha of foraging habitat, including medium sized hollows, in the form of PCT 538 and 567. Additionally, up to six culverts with potential opportunistic (non-breeding) roosting habitat would be impacted. Any population of Corben's Long-eared Bat potentially using the study area are likely to be part of a viable population extending throughout the locality and are likely to be present in other parts of the locality. The proportional impact to this potential habitat is considered small, which largely involves minor widening of the existing road corridor and trimming & removal of select trees which pose a danger to road users and operation. Due to the narrow and linear impact expected within an existing road corridor, it is considered unlikely that a local population of Corben's Long-eared Bats would be restricted to the study area. While a small amount potential marginal foraging and roosting habitat would be impacted, it is unlikely to be of an extent that would cause this species to decline.

Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

It is not likely that invasive species (such as introduced predators) that are harmful to the Corben's Long-eared Bat would become further established as a result of the proposal.

Introduce disease that may cause the species to decline

It is unlikely that the proposal would introduce or spread a disease that may cause the species to decline.

Interfere substantially with the recovery of the species

While the proposal may impose a minor risk of negative direct or indirect impact to the subject species, the recovery of these species is unlikely to be substantially interfered with by the proposal.

Conclusion

In summary, the proposal is considered unlikely to result in a significant impact to the Corben's Long-eared Bat. Whilst approximately 0.18 ha of potential habitat would be affected by the proposal, the Corben's Long-eared Bat was not recorded in the study area during the field surveys. Corben's Long-eared Bats potentially using the study area are likely to use habitat that extends through the locality and due to the narrow and linear impact expected within an existing disturbed road corridor, it is considered unlikely that a local population of Corben's Long-eared Bat would be restricted to the study area. Therefore, the predicted impacts to the potential habitat for this species is likely to be minor given the mapped extent of similar vegetation in the locality. The impacts to this species are not considered to be important in regard to the context and intensity.

Annexure D
Species Recorded

Table D1 Recorded fauna

Taxa/Fauna group	Scientific Name	Common name	Status	
			BC Act	EPBC Act
Aves	*Corvus coronoides*	Australian Raven	-	-
Aves	*Eolophus roseicapilla*	Galah	-	-
Aves	*Rhipidura leucophrys*	Willie Wagtail	-	-
Aves	*Cracticus tibicen*	Australian Magpie	-	-
Reptillia	*Ctenotus robustus*	Eastern Striped Skink	-	-

Annexure E
Vegetation Loss Spreadsheet

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	Project	Region	LGA	client	LAT/LONG	Segment	Picture ID	PCT No.	EPBC status	BC status	m2 removed	No. trees not D/Z	Trees D/Z <10 years	XS	S	M	L	VL	Av. Tree height	hollows	IBRA	IBRA sub region	NSW landscape	%veg cover	Landscape features/Notes	observer /consultant
2	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.760383, 151.3726054	1700 NB	252	567	CE	CE	5	3			2	1			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
3	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7598442, 151.3732443	1700 NB	255	567	CE	CE	1	1			1				8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
4	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7593222222222,151.374038888889	1700 NB	257	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
5	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7592862, 151.3739779	1700 NB	258	567	CE	CE	2	1				1			12	1	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
6	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.759236, 151.3740861	1700 NB	259	567	CE	CE	3	0	2						12	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
7	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7590387, 151.3743889	1700 NB	261	567	CE	CE	3	2			1	1			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
8	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7588054, 151.3746332	1700 NB	262	567	CE	CE	3	0	3						8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
9	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7583109, 151.3752276	1700 NB	267	567	CE	CE	10	2	4			2			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
10	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7580415, 151.3755192	1700 NB	268	567	CE	CE	8	1	3			1			12	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
11	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7578861, 151.3757777	1700 NB	270	567	CE	CE	5	4		2	2				8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
12	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.757797, 151.3759472	1700 NB	271	567	CE	CE	1	1			1				8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
13	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7575637, 151.3762055	1700 NB	272	567	CE	CE	1	0	0	1					2	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
14	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7575637, 151.3763109	1700 NB	274	567	CE	CE	8	4			2	2			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
15	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7573666, 151.3764944	1700 NB	275	567	CE	CE	2	1				1			12	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
16	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7572358, 151.3767249	1700 NB	276	567	CE	CE	2	1				1			12	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
17	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.757204, 151.377700	1700 SB	279	567	CE	CE	2	1				1			8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
18	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7574806, 151.3766333	1700 SB	282	567	CE	CE	2	2			1	1			8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
19	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7840694444445,151.327958333333	1660 NB	596	538	CE	CE	6	1	3		1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
20	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7837527777778,151.32895	1660 NB	604	538	CE	CE	4	2				2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
21	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7835722222222,151.329513888889	1660 NB	607	538	CE	CE	1	0	1						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
22	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7834916666667,151.329697222222	1660 NB	608	538	CE	CE	6	0	5						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
23	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7834611111111,151.329925	1660 NB	610	538	CE	CE	12	0	8						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
24	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7833027777778,151.330094444444	1660 NB	612	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
25	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7832777777778,151.330230555556	1660 NB	614	538	CE	CE	5	0	4						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
26	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7830916666667,151.330719444444	1660 NB	615	538	CE	CE	2	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
27	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7830833333333,151.330763888889	1660 NB	616	538	CE	CE	5	3				3			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
28	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7828111111111,151.331375	1660 NB	618	538	CE	CE	1	0	1						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
29	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7827888888889,151.331269444444	1660 NB	619	538	CE	CE	3	2				2			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
30	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7825083333333,151.332	1660 NB	622	538	CE	CE	6	3				2	1		10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
31	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7823277777778,151.332322222222	1660 NB	623	538	CE	CE	3	1					1		10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
32	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7821916666667,151.332641666667	1660 NB	626	538	CE	CE	2	0	2						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
33	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7820194444444,151.332961111111	1660 NB	632	538	CE	CE	3	2			2				15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
34	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7820416666667,151.333052777778	1660 NB	633	538	CE	CE	2	2			2				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
35	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7819777777778,151.333130555556	1660 NB	634	538	CE	CE	5	0	3						10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
36	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7819111111111,151.333266666667	1660 NB	635	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
37	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7818555555556,151.333297222222	1660 NB	636	538	CE	CE	4	2	1		1	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
38	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.78175,151.333527777778	1660 NB	638	538	CE	CE	5	3			1	2			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
39	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7817527777778,151.333663888889	1660 NB	639	538	CE	CE	5	3				3			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
40	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7815222222222,151.3338	1660 NB	640	538	CE	CE	1	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
41	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7815027777778,151.333983333333	1660 NB	641	538	CE	CE	2	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
42	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7814111111111,151.334244444444	1660 NB	643	538	CE	CE	1	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
43	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7812916666667,151.334427777778	1660 NB	644	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
44	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7812805555556,151.334472222222	1660 NB	645	538	CE	CE	8	5			3	2			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
45	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7810333333333,151.334366666667	1660 NB	646	538	CE	CE	5	3			1	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
46	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7810694444444,151.334852777778	1660 NB	647	538	CE	CE	2	0	2						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
47	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.78105,151.334930555556	1660 NB	648	538	CE	CE	16	2	6			2			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
48	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7809833333333,151.335083333333	1660 NB	649	538	CE	CE	2	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
49	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7807694444445,151.335494444444	1660 NB	651	538	CE	CE	2	2				2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
50	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7807722222222,151.335677777778	1660 NB	652	538	CE	CE	6	2	2		1	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
51	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7806388888889,151.335786111111	1660 NB	653	538	CE	CE	5	3				3			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
52	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.780575,151.336058333333	1660 NB	655	538	CE	CE	6	3	1		2	1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
53	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7804861111111,151.336302777778	1660 NB	656	538	CE	CE	5	1	2			1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
54	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7805277777778,151.336333333333	1660 NB	657	538	CE	CE	2	2				2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
55	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7804277777778,151.336547222222	1660 NB	658	538	CE	CE	1	1				1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
56	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7803944444445,151.336655555556	1660 NB	659	538	CE	CE	8	1	4			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
57	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.78045,151.336961111111	1660 SB	660	538	CE	CE	8	0	5						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
58	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7805138888889,151.336791666667	1660 SB	662	538	CE	CE	2	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
59	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7807833333333,151.336058333333	1660 SB	664	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
60	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7808138888889,151.335816666667	1660 SB	667	538	CE	CE	5	3				3			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
61	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7811833333333,151.335005555556	1660 SB	672	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
62	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7813194444444,151.334777777778	1660 SB	674	538	CE	CE	8	0	5						10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
63	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7813138888889,151.334733333333	1660 SB	675	538	CE	CE	4	2				2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
64	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7813805555556,151.334625	1660 SB	676	538	CE	CE	1	0	1						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
65	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7815222222222,151.334366666667	1660 SB	678	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
66	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7816222222222,151.334152777778	1660 SB	680	538	CE	CE	1	1			1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
67	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7816777777778,151.334044444444	1660 SB	681	538	CE	CE	2	1					1		10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
68	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7817166666667,151.333922222222	1660 SB	682	538	CE	CE	6	4				4			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
69	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7817972222222,151.333786111111	1660 SB	683	538	CE	CE	1	1				1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
70	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7818444444445,151.333663888889	1660 SB	684	538	CE	CE	2	2				2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
71	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7818916666667,151.333602777778	1660 SB	685	538	CE	CE	4	3	1		2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
72	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.781975,151.333419444444	1660 SB	686	538	CE	CE	2	1	1			1			13	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
73	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.78205,151.333236111111	1660 SB	687	538	CE	CE	2	0	2						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
74	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7820027777778,151.333283333333	1660 SB	688	538	CE	CE	6	4			2	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
75	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7824166666667,151.332366666667	1660 SB	690	538	CE	CE	5	2	1			2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
76	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7831194444444,151.331038888889	1660 SB	697	538	CE	CE	1	1				1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
77	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7831888888889,151.330872222222	1660 SB	698	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
78	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7832194444445,151.330825	1660 SB	699	538	CE	CE	2	1	1			1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
79	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.78345,151.330291666667	1660 SB	703	538	CE	CE	3	0	3						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
80	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7835138888889,151.330002777778	1660 SB	705	538	CE	CE	2	1	1			1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
81	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7838861111111,151.329102777778	1660 SB	708	538	CE	CE	5	0	3						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
82	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7840555555556,151.328597222222	1660 SB	709	538	CE	CE	3	0	3						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
83	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7842055555556,151.328261111111	1660 SB	711	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
84	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7842055555556,151.328125	1660 SB	712	538	CE	CE	1	1				1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
85	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7803194444445,151.337111111111	1665 NB	713	538	CE	CE	1	1			1				15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
86	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7803222222222,151.337263888889	1665 NB	714	538	CE	CE	8	4	1		2	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
87	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.78015,151.337555555556	1665 NB	715	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
88	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7802194444444,151.337508333333	1665 NB	716	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
89	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7802194444444,151.337569444444	1665 NB	717	538	CE	CE	10	5	2		1	4			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
90	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7802222222222,151.337752777778	1665 NB	718	538	CE	CE	4	3				3			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
91	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.78015,151.337861111111	1665 NB	719	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
92	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7801388888889,151.338075	1665 NB	720	538	CE	CE	2	0	2						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
93	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7800666666667,151.338166666667	1665 NB	721	538	CE	CE	8	2	3		2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
94	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7800111111111,151.338425	1665 NB	723	538	CE	CE	15	1	8			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
95	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.78,151.338516666667	1665 NB	724	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
96	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7799555555556,151.338822222222	1665 NB	726	538	CE	CE	2	2			1	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
97	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7798694444444,151.339158333333	1665 NB	728	538	CE	CE	2	2			2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
98	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7798222222222,151.339430555556	1665 NB	729	538	CE	CE	8	0	5						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
99	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7798416666667,151.339491666667	1665 NB	730	538	CE	CE	8	2	3			2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
100	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7798055555556,151.339691666667	1665 NB	731	538	CE	CE	5	1	3			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
101	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7797611111111,151.339813888889	1665 NB	732	538	CE	CE	1	1				1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
102	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7797305555555,151.340058333333	1665 NB	733	538	CE	CE	1	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
103	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.779625,151.340363888889	1665 NB	735	538	CE	CE	12	7			5	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
104	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7795555555556,151.340605555556	1665 NB	736	538	CE	CE	10	0	7						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
105	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7795722222222,151.340788888889	1665 NB	737	538	CE	CE	4	2	1		1	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
106	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7795194444445,151.341125	1665 NB	739	538	CE	CE	1	2		1	1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
107	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.77945,151.341277777778	1665 NB	740	538	CE	CE	2	0	2						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
108	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7792666666667,151.342025	1665 NB	742	538	CE	CE	8	0	5						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
109	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7792027777778,151.342330555556	1665 NB	743	538	CE	CE	2	0	2						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
110	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7796972222222,151.340088888889	1665 NB	743	538	CE	CE	3	2			2				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
111	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7790194444445,151.342666666667	1665 NB	744	538	CE	CE	10	1	5			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
112	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7789722222222,151.342911111111	1665 NB	746	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
113	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7788166666667,151.3432	1665 NB	747	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
114	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7787694444444,151.343277777778	1665 NB	748	538	CE	CE	5	3			1	2			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
115	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7787694444444,151.343369444444	1665 NB	749	538	CE	CE	12	7			6	1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
116	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7787972222222,151.343475	1665 NB	750	538	CE	CE	10	5			2	3			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
117	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7786472222222,151.343597222222	1665 NB	751	538	CE	CE	12	7			6	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
118	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7786444444445,151.343658333333	1665 NB	752	538	CE	CE	5	3				3			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
119	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7782527777778,151.344177777778	1665 NB	753	538	CE	CE	2	0	2						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
120	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7782333333333,151.343994444444	1665 NB	754	538	CE	CE	2	2			2				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
121	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7779222222222,151.34465	1665 NB	755	538	CE	CE	1	0	1						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
122	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7778472222222,151.344711111111	1665 NB	756	538	CE	CE	3	2			1	1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
123	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7775388888889,151.344925	1665 NB	757	538	CE	CE	2	2			2				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
124	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7775388888889,151.344925	1665 NB	758	538	CE	CE	2	2				2			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
125	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7767583333334,151.345597222222	1665 NB	761	538	CE	CE	5	3			3				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
126	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7767,151.345641666667	1665 NB	762	538	CE	CE	4	2	1		1	1			6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
127	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7763111111111,151.346008333333	1665 NB	763	538	CE	CE	10	0	6						5	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
128	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7762666666667,151.346052777778	1665 NB	764	538	CE	CE	5	3			1	2			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
129	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7760583333333,151.346144444444	1665 NB	765	538	CE	CE	2	2			2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
130	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.775975,151.346405555556	1665 SB	766	538	CE	CE	5	0	3						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
131	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7760305555555,151.346375	1665 SB	767	538	CE	CE	12	4	4		2	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
132	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7760833333333,151.346313888889	1665 SB	768	538	CE	CE	16	5	6		3	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
133	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7761694444444,151.346266666667	1665 SB	769	538	CE	CE	10	4	3		3				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
134	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7764638888889,151.346052777778	1665 SB	770	538	CE	CE	1	0	1						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
135	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7768027777778,151.34575	1665 SB	772	538	CE	CE	2	2			1	1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
136	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7769527777778,151.345641666667	1665 SB	773	538	CE	CE	4	3			2	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
137	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7771027777778,151.34555	1665 SB	774	538	CE	CE	10	7			3	4			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
138	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7772,151.345444444444	1665 SB	775	538	CE	CE	7	5			2	3			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
139	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7774694444444,151.345352777778	1665 SB	776	538	CE	CE	5	1	4		1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
140	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7774111111111,151.345291666667	1665 SB	777	538	CE	CE	12	8			2	6			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
141	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7778444444444,151.344908333333	1665 SB	779	538	CE	CE	12	4	4		4				12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
142	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7779472222222,151.345016666667	1665 SB	780	538	CE	CE	20	6	8		6				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
143	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7788111111111,151.343688888889	1665 SB	781	538	CE	CE	18	12			11	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
144	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7789138888889,151.343552777778	1665 SB	782	538	CE	CE	3	1	1			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
145	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7789166666667,151.343383333333	1665 SB	783	538	CE	CE	6	4		1	2	1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
146	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7790416666667,151.343277777778	1665 SB	785	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
147	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7792444444445,151.34285	1665 SB	787	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
148	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7793277777778,151.342727777778	1665 SB	788	538	CE	CE	2	2			2				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
149	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7795055555556,151.342116666667	1665 SB	791	538	CE	CE	5	3				3			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
150	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7801444444444,151.341719444444	1665 SB	792	538	CE	CE	6	5			2	3			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
151	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7802027777778,151.341719444444	1665 SB	793	538	CE	CE	1	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
152	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7801222222222,151.341736111111	1665 SB	794	538	CE	CE	1	1				1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
153	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7799611111111,151.340605555556	1665 SB	797	538	CE	CE	2	2			1	1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
154	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7798055555556,151.340483333333	1665 SB	798	538	CE	CE	1	1				1			13	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
155	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7801083333333,151.339141666667	1665 SB	801	538	CE	CE	3	2					2		15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
156	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7800611111111,151.338791666667	1665 SB	802	538	CE	CE	1	1			1				15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
157	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7802361111111,151.338347222222	1665 SB	803	538	CE	CE	2	2			2				15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
158	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7802166666667,151.338286111111	1665 SB	804	538	CE	CE	1	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
159	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7802138888889,151.338027777778	1665 SB	805	538	CE	CE	1	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
160	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7803416666667,151.337752777778	1665 SB	806	538	CE	CE	1	0	1						13	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
161	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7804916666667,151.337080555556	1665 SB	808	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
162	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7758666666667,151.346252777778	1670 NB	810	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
163	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7758888888889,151.346161111111	1670 NB	811	538	CE	CE	1	0	1						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
164	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7752944444445,151.346955555556	1670 NB	812	538	CE	CE	1	1			1				5	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
165	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7749194444445,151.347030555556	1670 NB	813	538	CE	CE	1	1		1					5	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
166	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7743916666667,151.347105555556	1670 NB	814	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
167	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7745111111111,151.347502777778	1670 NB	815	538	CE	CE	8	5		3	1	1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
168	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7741083333333,151.347716666667	1670 NB	816	538	CE	CE	3	2			1	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
169	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7737472222222,151.347947222222	1670 NB	819	538	CE	CE	4	2				1	1		12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
170	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.77365,151.348130555556	1670 NB	820	538	CE	CE	2	0	2						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
171	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7732305555556,151.348144444444	1670 NB	821	538	CE	CE	1	0	1						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
172	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.773125,151.348555555556	1670 NB	822	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
173	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7726916666667,151.348586111111	1670 NB	824	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
174	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7721777777778,151.349166666667	1670 NB	826	538	CE	CE	2	1					1		15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
175	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.77215,151.349305555556	1670 NB	827	538	CE	CE	10	3	3			3			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
176	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7719111111111,151.349441666667	1670 NB	830	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
177	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7718888888889,151.349486111111	1670 NB	833	538	CE	CE	2	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
178	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.771425,151.349913888889	1670 NB	837	538	CE	CE	2	2			2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
179	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7713,151.350036111111	1670 NB	838	538	CE	CE	2	0	2						10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
180	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7710305555555,151.350219444444	1670 NB	840	538	CE	CE	4	3			3				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
181	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7709611111111,151.350358333333	1670 NB	841	538	CE	CE	14	2	7		2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
182	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7708083333333,151.350463888889	1670 NB	842	538	CE	CE	16	6	4		6				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
183	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7705666666667,151.3508	1670 NB	845	538	CE	CE	5	3			1	1	1		10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
184	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7703527777778,151.350891666667	1670 NB	846	538	CE	CE	3	0	3						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
185	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7702611111111,151.351027777778	1670 NB	847	538	CE	CE	18	3	8		2	1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
186	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7702166666667,151.350997222222	1670 NB	848	538	CE	CE	2	2			1	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
187	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7700972222222,151.351105555556	1670 NB	849	538	CE	CE	1	1			1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
188	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7700222222222,151.351166666667	1670 NB	850	538	CE	CE	1	1			1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
189	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7698111111111,151.351288888889	1670 NB	851	538	CE	CE	8	2	3		2				12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
190	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.769725,151.351394444444	1670 NB	852	538	CE	CE	1	1			1				2	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
191	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7693888888889,151.351652777778	1670 NB	854	538	CE	CE	16	7	3		7				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
192	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7694166666667,151.351638888889	1670 NB	855	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
193	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7691472222222,151.352019444444	1670 SB	856	538	CE	CE	2	0	2						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
194	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7717222222222,151.311325	1670 SB	857	538	CE	CE	4	3				3			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
195	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7696861111111,151.351577777778	1670 SB	858	538	CE	CE	8	0	5						13	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
196	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7699666666667,151.351472222222	1670 SB	859	538	CE	CE	1	0	1						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
197	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7705944444444,151.350891666667	1670 SB	862	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
198	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7707222222222,151.350783333333	1670 SB	863	538	CE	CE	1	1				1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
199	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7707277777778,151.350722222222	1670 SB	864	538	CE	CE	2	2				2			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
200	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7710777777778,151.350433333333	1670 SB	866	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
201	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7714833333333,151.350113888889	1670 SB	867	538	CE	CE	2	2			1	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
202	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7716805555555,151.349883333333	1670 SB	868	538	CE	CE	7	2	3			2			13	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
203	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7720583333333,151.349608333333	1670 SB	870	538	CE	CE	2	0	2						10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
204	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7722444444444,151.349394444444	1670 SB	871	538	CE	CE	15	1	9			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
205	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7725194444444,151.349105555556	1670 SB	872	538	CE	CE	5	2	1		2				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
206	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7726,151.349075	1670 SB	873	538	CE	CE	15	0	12						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
207	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7730111111111,151.348877777778	1670 SB	874	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
208	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7732861111111,151.348663888889	1670 SB	875	538	CE	CE	1	0	1						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
209	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.773225,151.348633333333	1670 SB	876	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
210	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7733861111111,151.348555555556	1670 SB	877	538	CE	CE	5	3			1	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
211	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7735805555556,151.348311111111	1670 SB	878	538	CE	CE	3	3			1	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
212	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7737416666667,151.348236111111	1670 SB	880	538	CE	CE	1	1				1			13	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
213	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7740888888889,151.347947222222	1670 SB	882	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
214	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7743416666667,151.347747222222	1670 SB	883	538	CE	CE	2	2			2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
215	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7743166666667,151.347733333333	1670 SB	884	538	CE	CE	2	1	1		1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
216	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7745777777778,151.347488888889	1670 SB	885	538	CE	CE	4	3			3				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
217	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7747583333333,151.347472222222	1670 SB	886	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
218	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7747527777778,151.347411111111	1670 SB	887	538	CE	CE	2	2			2				12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
219	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7748861111111,151.347288888889	1670 SB	888	538	CE	CE	5	3			1	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
220	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7750138888889,151.347213888889	1670 SB	889	538	CE	CE	2	2				2			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
221	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7750805555556,151.347166666667	1670 SB	890	538	CE	CE	2	2				2			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
222	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7752833333333,151.347	1670 SB	891	538	CE	CE	1	1			1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
223	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7753666666667,151.346894444444	1670 SB	892	538	CE	CE	7	5			3	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
224	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7753416666667,151.346755555556	1670 SB	893	538	CE	CE	5	3		1	1	1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
225	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7757805555555,151.346602777778	1670 SB	895	538	CE	CE	2	2					2		15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
226	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7758166666667,151.346619444444	1670 SB	896	538	CE	CE	8	2	4		2				12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
227	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7691277777778,151.351791666667	1680 NB	898	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
228	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7690833333333,151.351822222222	1680 NB	899	538	CE	CE	1	1				1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
229	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7689388888889,151.351866666667	1680 NB	900	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
230	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7674333333333,151.353347222222	1680 SB	900	538	CE	CE	13	9			9				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
231	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7688361111111,151.351975	1680 NB	901	538	CE	CE	2	1	1			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
232	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7686305555556,151.352141666667	1680 NB	902	538	CE	CE	12	0	7						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
233	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.768575,151.352233333333	1680 NB	904	538	CE	CE	1	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
234	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.768375,151.352311111111	1680 NB	905	538	CE	CE	1	1					1		10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
235	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7684166666667,151.352280555556	1680 NB	906	538	CE	CE	1	1				1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
236	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7682944444444,151.352386111111	1680 NB	907	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
237	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7677666666667,151.352783333333	1680 NB	908	538	CE	CE	3	3		1	2				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
238	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7677777777778,151.35295	1680 NB	909	538	CE	CE	1	0	1						3	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
239	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7673416666667,151.353241666667	1680 NB	911	538	CE	CE	8	0	6						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
240	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7673361111111,151.35315	1680 NB	913	538	CE	CE	4	0	3						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
241	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7670944444445,151.353469444444	1680 NB	914	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
242	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7667666666667,151.353836111111	1680 NB	915	538	CE	CE	5	1	3			1			6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
243	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7667527777778,151.354186111111	1680 NB	917	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
244	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7660611111111,151.354661111111	1680 NB	919	538	CE	CE	2	1	1		1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
245	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.766,151.354736111111	1680 NB	921	538	CE	CE	8	4	1		1	3			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
246	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7657388888889,151.355163888889	1680 NB	922	538	CE	CE	10	5	2		1	4			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
247	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7656611111111,151.355255555556	1680 NB	923	538	CE	CE	2	1					1		12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
248	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7656944444444,151.3553	1680 NB	924	538	CE	CE	12	3	4		3				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
249	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7656472222222,151.355422222222	1680 NB	925	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
250	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7654222222222,151.355666666667	1680 NB	926	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
251	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7653305555556,151.355775	1680 NB	927	538	CE	CE	10	0	8						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
252	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7652805555556,151.355941666667	1680 NB	928	538	CE	CE	6	0	4						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
253	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7652388888889,151.356047222222	1680 NB	929	538	CE	CE	2	2		1	1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
254	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7650444444444,151.356444444444	1680 NB	931	538	CE	CE	2	2		1	1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
255	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7649638888889,151.356522222222	1680 NB	932	538	CE	CE	10	3	3	1	2				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
256	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7648305555556,151.356705555556	1680 NB	933	538	CE	CE	5	3			3				12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
257	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7647166666667,151.356980555556	1680 NB	934	538	CE	CE	8	4	1		3	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
258	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7648083333333,151.356980555556	1680 NB	935	538	CE	CE	18	6	7		4	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
259	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.76455,151.357330555556	1680 NB	936	538	CE	CE	12	1	7		1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
260	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7639972222222,151.361588888889	1680 SB	950	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
261	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7639055555556,151.360777777778	1680 SB	952	538	CE	CE	1	1			1				5	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
262	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7638638888889,151.360352777778	1680 SB	954	538	CE	CE	3	3			3				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
263	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7638666666667,151.360244444444	1680 SB	955	538	CE	CE	12	2	7			2			14	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
264	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7639083333333,151.359694444444	1680 SB	957	538	CE	CE	10	1	6		1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
265	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7638361111111,151.359436111111	1680 SB	959	538	CE	CE	1	0	1						1	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
266	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.764075,151.358702777778	1680 SB	963	538	CE	CE	3	3			2	1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
267	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7642166666667,151.358627777778	1680 SB	964	538	CE	CE	10	0	7						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
268	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.76415,151.358458333333	1680 SB	965	538	CE	CE	8	3	3			3			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
269	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7642666666667,151.358322222222	1680 SB	966	538	CE	CE	6	4			3	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
270	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7643138888889,151.358230555556	1680 SB	967	538	CE	CE	2	2			1	1			5	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
271	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7643333333333,151.358138888889	1680 SB	969	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
272	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7645416666667,151.357758333333	1680 SB	971	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
273	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7647138888889,151.357636111111	1680 SB	972	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
274	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7647888888889,151.357391666667	1680 SB	974	538	CE	CE	3	3			1	2			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
275	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7648555555556,151.357086111111	1680 SB	975	538	CE	CE	1	1			1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
276	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7649944444444,151.356888888889	1680 SB	976	538	CE	CE	1	1				1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
277	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7651277777778,151.356566666667	1680 SB	978	538	CE	CE	7	5			2	3			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
278	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.765275,151.356277777778	1680 SB	979	538	CE	CE	4	0	4						5	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
279	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7653611111111,151.356155555556	1680 SB	981	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
280	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7654611111111,151.355880555556	1680 SB	983	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
281	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7657861111111,151.355377777778	1680 SB	986	538	CE	CE	2	2			2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
282	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7668638888889,151.353988888889	1680 SB	988	538	CE	CE	2	0	2						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
283	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7666027777778,151.354080555556	1680 SB	989	538	CE	CE	10	1	6		1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
284	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7676361111111,151.353163888889	1680 SB	991	538	CE	CE	6	4			4				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
285	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.767675,151.353119444444	1680 SB	992	538	CE	CE	6	4			4				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
286	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7679138888889,151.352827777778	1680 SB	993	538	CE	CE	6	3	1	2	1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
287	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7679944444445,151.352813888889	1680 SB	994	538	CE	CE	13	1	8			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
288	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7682722222222,151.352616666667	1680 SB	995	538	CE	CE	7	4	1		2	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
289	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7685555555556,151.352355555556	1680 SB	996	538	CE	CE	1	0	1						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
290	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7689027777778,151.352172222222	1680 SB	997	538	CE	CE	1	1			1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
291	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7689888888889,151.352127777778	1680 SB	998	538	CE	CE	2	1	1			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
292	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7690833333333,151.352097222222	1680 SB	999	538	CE	CE	7	0	5						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
293	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7645833333334,151.357283333333	1680 NB	1085	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
294	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7645611111111,151.357436111111	1680 NB	1086	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
295	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7644888888889,151.357483333333	1680 NB	1087	538	CE	CE	10	4	2			4			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
296	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.76445,151.357588888889	1680 NB	1088	538	CE	CE	2	2			1	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
297	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7642305555556,151.358002777778	1680 NB	1089	538	CE	CE	4	3				3			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
298	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7641083333333,151.358275	1680 NB	1090	538	CE	CE	10	5	1			5			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
299	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7640472222222,151.358397222222	1680 NB	1091	538	CE	CE	8	4	1		2	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
300	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7639972222222,151.358505555556	1680 NB	1092	538	CE	CE	1	0	1						10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
301	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7639083333333,151.358763888889	1680 NB	1093	538	CE	CE	6	3	1			3			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
302	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7639,151.358825	1680 NB	1094	538	CE	CE	6	2	2			2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
303	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637305555556,151.359361111111	1680 NB	1095	538	CE	CE	6	3	1			3			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
304	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637638888889,151.359511111111	1680 NB	1096	538	CE	CE	5	2	1		1	1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
305	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637333333333,151.359663888889	1680 NB	1098	538	CE	CE	2	1	1		1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
306	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637111111111,151.359847222222	1680 NB	1099	538	CE	CE	6	3	1		1	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
307	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637027777778,151.360030555556	1680 NB	1100	538	CE	CE	6	5			4	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
308	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637166666667,151.360397222222	1680 NB	1101	538	CE	CE	3	1	2			1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
309	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637416666667,151.360686111111	1680 NB	1102	538	CE	CE	1	1			1				12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
310	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637694444444,151.361052777778	1680 NB	1103	538	CE	CE	5	2	2		2				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
311	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637583333333,151.361236111111	1680 NB	1104	538	CE	CE	7	3	2		2	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
312	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7638305555556,151.361358333333	1680 NB	1105	538	CE	CE	10	6	1		3	3			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
313	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637833333333,151.361511111111	1680 NB	1106	538	CE	CE	7	2	3			2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
314	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7638138888889,151.361738888889	1680 NB	1107	538	CE	CE	2	2				2			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
315	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637694444444,151.361922222222	1680 NB	1108	538	CE	CE	12	2	6		1	1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
316	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637638888889,151.362030555556	1680 NB	1109	538	CE	CE	10	3	4			3			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
317	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637638888889,151.362336111111	1680 NB	1110	538	CE	CE	1	1			1				12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
318	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637333333333,151.362563888889	1680 NB	1111	538	CE	CE	8	2	3		1	1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
319	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637416666667,151.362747222222	1680 NB	1113	538	CE	CE	8	3	1		1	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
320	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7636972222222,151.362991666667	1680 NB	1114	538	CE	CE	5	1	2			1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
321	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637055555556,151.363175	1680 NB	1115	538	CE	CE	25	21		10	10	1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
322	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7637,151.363388888889	1680 NB	1116	538	CE	CE	1	0	1						12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
323	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7636777777778,151.363525	1680 NB	1117	538	CE	CE	10	7	1		6	1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
324	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7636277777778,151.363983333333	1680 NB	1119	538	CE	CE	1	0	1						12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
325	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7635833333333,151.364472222222	1680 NB	1120	538	CE	CE	3	0	3						10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
326	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7634722222222,151.365372222222	1680 NB	1123	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
327	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7631638888889,151.366530555556	1690 NB	1125	538	CE	CE	2	2				2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
328	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7631333333333,151.366547222222	1690 NB	1126	538	CE	CE	3	2			2				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
329	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7629194444444,151.367386111111	1690 NB	1129	538	CE	CE	2	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
330	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7628111111111,151.367644444444	1690 NB	1131	538	CE	CE	7	5			3	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
331	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.76285,151.367766666667	1690 NB	1132	538	CE	CE	5	3			1	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
332	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7628027777778,151.367844444444	1690 NB	1133	538	CE	CE	2	2			1	1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
333	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7627111111111,151.368102777778	1690 NB	1134	538	CE	CE	6	4			2	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
334	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7624722222222,151.368927777778	1690 NB	1136	538	CE	CE	10	6			4	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
335	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7623583333333,151.369355555556	1690 NB	1138	538	CE	CE	2	2				2			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
336	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7623027777778,151.369552777778	1690 NB	1139	538	CE	CE	7	5			3	2			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
337	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.76195,151.370055555556	1690 NB	1142	538	CE	CE	1	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
338	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7618833333333,151.370377777778	1690 NB	1144	538	CE	CE	1	1				1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
339	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7616416666667,151.370469444444	1690 NB	1145	538	CE	CE	2	2			2				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
340	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7615416666667,151.370833333333	1690 NB	1146	538	CE	CE	2	1					1		15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
341	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7615861111111,151.370941666667	1690 NB	1147	538	CE	CE	2	0	2						8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
342	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.76145,151.371047222222	1690 NB	1148	538	CE	CE	3	3			1	2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
343	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7613805555556,151.371155555556	1690 NB	1149	538	CE	CE	5	4			3	1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
344	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7611305555556,151.371658333333	1690 NB	1152	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
345	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7608388888889,151.371977777778	1690 NB	1155	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
346	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7593217, 151.3740394	1700 SB	1162	567	CE	CE	1	1				1			8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
347	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7595359, 151.3740084	1700 SB	1163	567	CE	CE	4	2			1	1			8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
348	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7596415, 151.3738721	1700 SB	1164	567	CE	CE	8	4				4			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
349	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7597415, 151.3737193	1700 SB	1165	567	CE	CE	4	2				2			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
350	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7598305, 151.3735665	1700 SB	1166	567	CE	CE	4	2			1	1			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
351	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7598615, 151.3735163	1700 SB	1167	567	CE	CE	15	6			5	1			8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
352	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7600302, 151.3733525	1700 SB	1168	567	CE	CE	8	4			1	3			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
353	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7600331, 151.3733359	1700 SB	1169	567	CE	CE	10	6			4	2			8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
354	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7601168, 151.3732308	1700 SB	1171	567	CE	CE	5	3			1	2			8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
355	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7602222, 151.3731696	1700 SB	1172	567	CE	CE	8	4			3	1			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
356	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7601953, 151.3730573	1700 SB	1173	567	CE	CE	10	5			4	1			8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
357	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.760303, 151.3729253	1700 SB	1175	567	CE	CE	10	5		2	3				8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
358	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7604862, 151.3728635	1700 SB	1176	567	CE	CE	1	1			1				10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
359	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7604599, 151.3727927	1700 SB	1177	567	CE	CE	8	4			2	2			10	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
360	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7605585, 151.3726497	1700 SB	1178	567	CE	CE	12	3	3		3				8	0	New England Tablelands	Yarrowyck-Kentucky Downs, Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
361	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7606805555556,151.372513888889	1690 SB	1179	538	CE	CE	7	2	3			2			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
362	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7607222222222,151.372436111111	1690 SB	1180	538	CE	CE	3	0	3						6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
363	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7607277777778,151.372344444444	1690 SB	1181	538	CE	CE	5	3			1	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
364	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7608611111111,151.372238888889	1690 SB	1182	538	CE	CE	10	6	1		1	5			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
365	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7609833333333,151.372008333333	1690 SB	1183	538	CE	CE	2	1					1		15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
366	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7611666666667,151.371872222222	1690 SB	1184	538	CE	CE	4	2					2		15	1	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
367	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7611805555556,151.371916666667	1690 SB	1185	538	CE	CE	7	2	3			2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
368	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.76135,151.371719444444	1690 SB	1187	538	CE	CE	4	2				2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
369	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7614666666667,151.3714	1690 SB	1188	538	CE	CE	6	3	1			3			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
370	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7615833333333,151.371230555556	1690 SB	1190	538	CE	CE	2	2				2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
371	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7615777777778,151.371125	1690 SB	1191	538	CE	CE	2	2			1	1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
372	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7618166666667,151.370941666667	1690 SB	1192	538	CE	CE	1	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
373	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7618333333333,151.37085	1690 SB	1193	538	CE	CE	3	3			2	1			13	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
374	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7618972222222,151.370697222222	1690 SB	1194	538	CE	CE	6	3	1		3				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
375	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7620361111111,151.3705	1690 SB	1195	538	CE	CE	1	0	1						12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
376	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7624555555556,151.369658333333	1690 SB	1199	538	CE	CE	2	1					1		10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
377	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7624972222222,151.369536111111	1690 SB	1200	538	CE	CE	6	3				3			14	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
378	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7625944444444,151.369263888889	1690 SB	1202	538	CE	CE	2	1				1			16	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
379	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7626916666667,151.368941666667	1690 SB	1203	538	CE	CE	1	1			1				7	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
380	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7627333333333,151.368697222222	1690 SB	1204	538	CE	CE	5	4			1	3			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
381	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7630027777778,151.367691666667	1690 SB	1208	538	CE	CE	1	1				1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
382	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7630583333333,151.367552777778	1690 SB	1209	538	CE	CE	1	1			1				6	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
383	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7589944444445,151.375166666667	1700 SB	1301	538	CE	CE	2	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
384	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7585861111111,151.375152777778	1700 SB	1303	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
385	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7586666666667,151.375044444444	1700 SB	1304	538	CE	CE	6	4			4				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
386	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7587166666667,151.374955555556	1700 SB	1305	538	CE	CE	8	4			1	3			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
387	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7587861111111,151.374955555556	1700 SB	1306	538	CE	CE	8	5			2	3			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
388	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7588361111111,151.374863888889	1700 SB	1307	538	CE	CE	2	2			1	1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
389	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7588638888889,151.374725	1700 SB	1308	538	CE	CE	2	1				1			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
390	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7589194444444,151.374711111111	1700 SB	1309	538	CE	CE	2	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
391	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7589277777778,151.37465	1700 SB	1310	538	CE	CE	4	3			2	3			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
392	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7590722222222,151.374572222222	1700 SB	1311	538	CE	CE	8	4			2	2			12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
393	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7592305555556,151.374344444444	1700 SB	1313	538	CE	CE	1	1			1				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
394	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.75925,151.374297222222	1700 SB	1315	538	CE	CE	3	1	1			1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
395	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7594,151.374161111111	1700 SB	1318	538	CE	CE	8	4			2	2			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
396	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.75935,151.373977777778	1700 SB	1320	538	CE	CE	2	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
397	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7597972222222,151.373566666667	1700 SB	1325	538	CE	CE	2	1				1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
398	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7599138888889,151.373475	1700 SB	1326	538	CE	CE	2	1				1			15	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
399	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7599777777778,151.373366666667	1700 SB	1327	538	CE	CE	1	1				1			10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
400	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7600027777778,151.373352777778	1700 SB	1328	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
401	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7601055555556,151.373275	1700 SB	1329	538	CE	CE	2	2			2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
402	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.76015,151.3732	1700 SB	1330	538	CE	CE	2	2			2				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
403	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7602222222222,151.373108333333	1700 SB	1331	538	CE	CE	1	1				1			8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
404	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7602361111111,151.373016666667	1700 SB	1332	538	CE	CE	5	3			3				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
405	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7603527777778,151.372847222222	1700 SB	1335	538	CE	CE	1	1			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
406	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7605027777778,151.372727777778	1700 SB	1336	538	CE	CE	6	3	1		3				10	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
407	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7605666666667,151.372619444444	1700 SB	1337	538	CE	CE	2	2			1				8	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
408	HW9 s1660 - 1700 Sidling Hill	Tamworth Regional	Tamworth Regional Council	Mitchel Ingram	-30.7609166666667,151.372208333333	1700 SB	1339	538	CE	CE	2	1			1				12	0	New England Tablelands	Eastern Nandewar				Theresa Choi (GeoLINK), Ben Millan (GeoLINK)
409												**811**	**432**	**28**	**397**	**369**	**17**	**0**		**2**						
410																										

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