HW16 Bruxner Highway S5440-5450 Little Creek to Tabulam Rivulet

Minor Works Review of environmental factors

Bundjalung Country

Transport for NSW | June 2022

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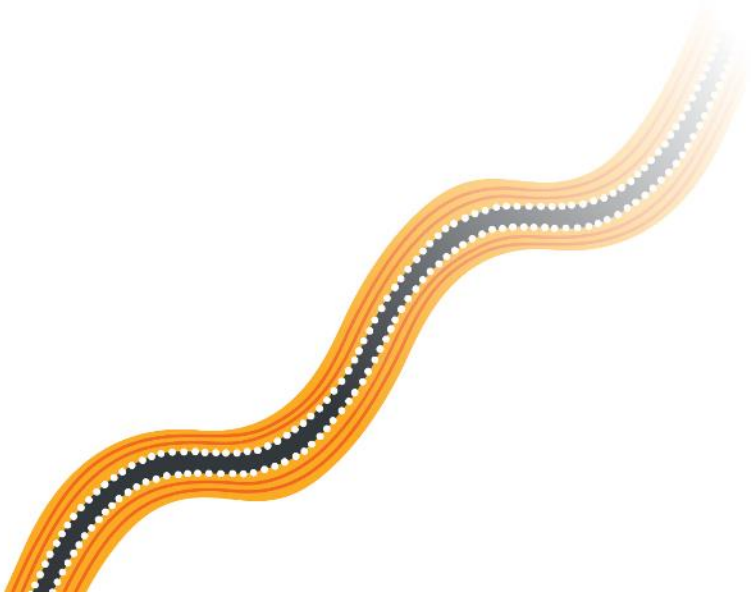
Acknowledgement of Country

Transport for NSW acknowledges the Bundjalung Nation, the traditional custodians of the land on which the HW16 Bruxner Highway S5440-5450 Little Creek to Tabulam Rivulet 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.



HW16 Bruxner Highway S5440-5450 Little Creek to Tabulam Rivulet

Review of environmental factors

Transport for NSW | June 2022

File Number: P.0069936

Prepared by Reconeco Pty Ltd and Transport for New South Wales.

Document controls

Approval and authorisation

Title	HW16 Bruxner Highway S5440-5450 Little Creek to Tabulam Rivulet Minor works review of environmental factors
Accepted on behalf of Transport for NSW by:	Ross Gersekowski Project / Contract Manager Project Services North
Signed:	
Dated:	03/08/2022

Document status

Document status	Date	Prepared by	Reviewed by
V1	19/05/2022	Taylor Craig	Angus Underwood
V2	24/06/2022	Taylor Craig	Craig Faulkner

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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* (BC Act), the *Fisheries Management Act 1994* (FM Act) and the Commonwealth Government's *Environment Protection and Biodiversity Conservation Act 1999* (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

Location details	
Title	HW16 Bruxner Highway S5440-5450 Little Creek to Tabulam Rivulet
File number	P.0069936
Road name and number	HW 16 - Bruxner Highway
Closest cross road(s):	Clarence Way
Chainage of works:	45km west of Casino
Local government area:	Kyogle Council
Transport for NSW region:	Northern Region

2.1.2 Description of proposed work

The S5440-5450 Little Creek to Tabulam Rivulet Project is located approximately 45km west of Casino on the Bruxner Highway, measuring from the Bruxner Highway/Summerland Way Roundabout in Casino (refer **Figure 1**).

Transport for NSW proposes to rehabilitate a section of road on the Bruxner Highway, S5440-5450 Little Creek to Tabulam Rivulet. The need to rehabilitate the pavement has stemmed from poor existing pavement conditions and a narrowed sealed width of around 7.0m. Transport's objectives are to rehabilitate the pavement to achieve a 20 year design life, increase the sealed formation from 7m to 9m to achieve a minimum 3.25m Lane width and 1.0m sealed shoulders and increase road user safety by removing roadside hazards and implementing safety barrier. The works will include the repair of the existing drainage (culvert inlets/outlets), vegetation removal to widen the road formation and a structural overlay of the road surface to improve the structural capacity of the pavement and improve ride quality.

The proposal concept plan is shown in **Appendix A**.

Summary of proposed works:

- Compound establishment/disestablishment
- Traffic control establishment
- Implement erosion and sediment controls
- Pavement rehabilitation
- Tree removal
- Pavement widening
- Culvert widening and/or full replacement – pipe extension 2.44m each side all culverts
- Installation of safety barriers

- Sealing of the new pavement surface
- Line-marking and delineation, not including audio tactile line marking

Hours of Works Expected:

Monday to Friday: 07:00 – 18:00

Saturday: 08:00 – 18:00

Sunday and Public Holidays: no work

However, work may be undertaken outside of the extended hours on weekends or nights to minimise traffic impacts on the community. If it is determined that work outside the nominated hours is required, an assessment would be undertaken to determine the safeguards and mitigations required.

Noisy works will be undertaken in accordance with RMS “Construction Noise and Vibration Guideline” (August 2016).

2.1.3 Objectives of works

The objectives of the S5440-5450 Little Creek to Tabulam Rivulet Project are to rehabilitate the pavement to achieve a 20-year design life, increase the sealed formation from 7m to 9m to achieve a minimum 3.25m Lane width and 1.0m sealed shoulders and increase road user safety by removing roadside hazards and implementing safety barrier.

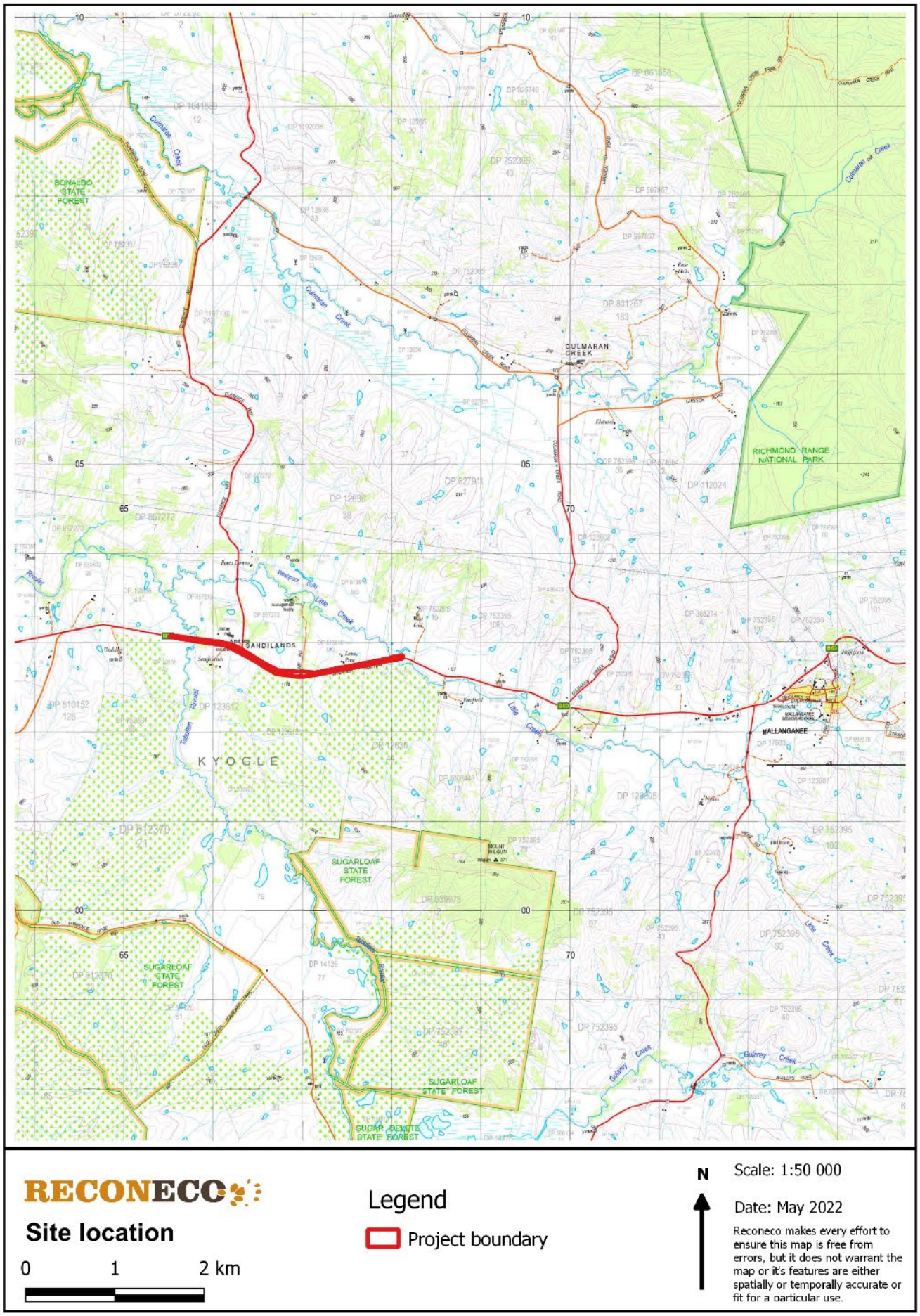


Figure 1 Site location

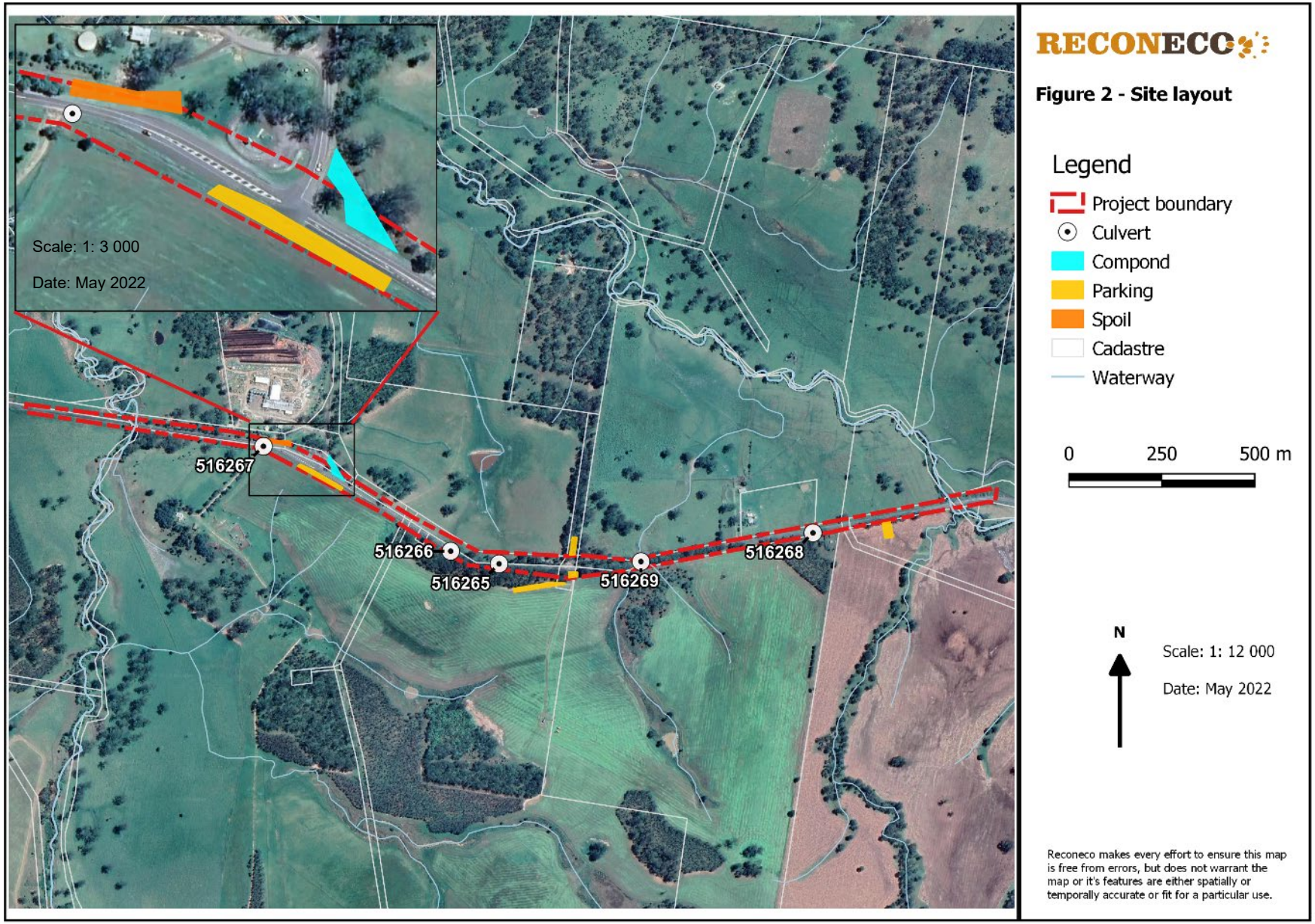


Figure 2 Site layout

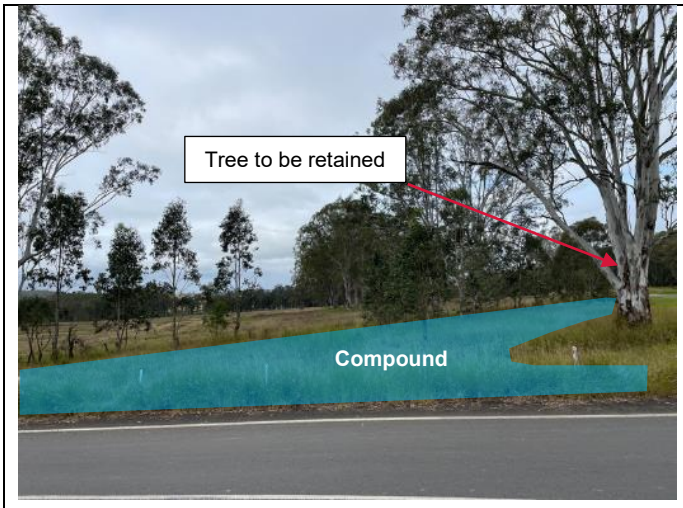


Plate 1: Proposed compound site east of Sandilands Rest Area at the intersection of Clarence Way and Bruxner Highway. Small Forest Red Gums (*Eucalyptus tereticornis*) trees require removal. Large Forest Red Gum tree to be retained and exclusion zone established to protect structural root zone.

Plate 2: Proposed spoil site adjacent to Sandilands Rest Area at the intersection of Clarence Way and Bruxner Highway. Forest Red Gum trees to be retained.

Plate 3: Single pipe culvert 516265 located between Dump Road and Sandilands Rest Area is proposed to be extended or replaced with a new structure. The presence of deep cracks between pipe sections and some cavities provides low to moderate value bat habitat; however, no indication of bat habitation was found during surveys.

Plate 4: Single pipe culvert 516268, 380m west of Little Creek, is proposed to be extended or replaced with a new structure. The presence of deep cracks between pipe sections provides low to moderate value bat habitat; however, no indication of bat habitation was found during surveys. Shallow standing water was present on the 3rd of May 2022.

Plate 5: Culvert 516268 has a large Forest Red Gum within 5m of the southern headwall. The tree is not proposed for removal and is to be retained.	**Plate 6**: Triple pipe culvert 516269 is proposed to be extended or replaced with a new structure. Desktop satellite map review and site inspection on the 3rd of May 2022 indicated that standing water is present throughout wet periods annually. Cracks in the southern headwall led to cavities, providing low to moderate value bat habitat. No indication of bat habitation was found during surveys.
	
Plate 7: Proposed parking area (subject to landowners' approval) located 180m west of Little Creek Bridge on the southern site of the Bruxner Highway. Inspection during surveys indicated the paddock is being used for cattle grazing. One single wide gate entry.	**Plate 8**: Proposed parking area (subject to landowners' approval) located opposite south of Dump Road and Bruxner Highway intersection. Inspection during surveys indicated the paddock has been used for cropping. Wide, double gate entry.
	
Plate 9: View west of Sandilands Rest Area. Parking area proposed on a grassy shoulder located within the road corridor opposite the rest area on the southern side of the Bruxner Highway.	**Plate 10**: View west showing mature and immature endangered Bailey's Cypress Pines (*Callitris baileyi*) located on the southern side of Bruxner Highway near Sandilands Rest Area. None of the endangered trees should be removed or damaged and the space around them would be quartered off as an environmental protection area.

Plate 11: View east showing a mature Bailey's Cypress Pine and immature specimens. Immature plants are protected with wire netting and marked with blue tape.

Plate 12: Eastern extent of tree removal looking west. Most trees within 9m of centre line are proposed to be removed.

Plate 13: View west from Dump Road and Bruxner Highway intersection. Most trees within 9m of centre line to be removed. Large Large-leaved Spotted Gum (*Corymbia henryi*) tree to be retained.

Plate 14: View west from Dump Road and Bruxner Highway intersection. All but five (5) trees upon the bank on the southern side of the highway are to be retained from Dump Road to Sandilands Rest Area.

Plate 15: View south-west showing two Grey Box (*Eucalyptus moluccana*) trees proposed for removal.

Plate 16: Cat's Claw Creeper (*Dolichandra unguis-cati*), a weed on national significance, climbing up the trunks of trees proposed for removal.

Key: ⊗ - Tree proposed for removal

○ - Habitat tree

2.1.4 Ancillary facilities

Ancillary facilities		
Will the proposal require the use or installation of a compound site? A compound site is proposed to be established within the road reserve at the intersection of Clarence Valley Way and Bruxner Highway opposite the Sandilands Rest area (refer **Figure 2**). This area has been previously disturbed and cleared of vegetation however there is one large Forest Red Gum (*Eucalyptus tereticornis*) which should be retained. Smaller regrowth trees less than 100mm DBH also occur in this area which would require removal. This includes Forest Red Gums and *Jacksonia scoparia* (Dogwood) (refer **Plate 1**). The total area to be clearing is approximately 0.09ha. A tree preservation area should be established under the large Forest Red Gum to protect the structural root zone of the tree.	☑ Yes	☐ No
Will the proposal require the use or installation of a stockpile site? Proposed stockpile sites for the project include: • ST50318 - Approx 4.4km East of S5440 (Western fringe of Mallanganee at the Bruxner Hwy/Sandilands Street Intersection (Note this site may be occupied by concurrent Kyogle Council Project/s and may not be available for this project). • ST50319 - Approx 4.6km West of S5460	☑ Yes	☐ No
Are any other ancillary facilities required (eg temporary plants, parking areas, access tracks)? Five (5) temporary plant parking locations have been identified (refer **Figure 2**). Two potential parking areas are located on private property and would require consultation with the property owners prior to use. Other areas may also be used within the road reserve to enable plant to be parked close to the location where works are occurring without returning to compound/ parking areas each day. Plant parking location must ensure they are located at location where the road reserve is wide enough to safety park plant. The project requires a location for spoil material excavated during the proposed works. One potential site has been identified (refer **Figure 2**): 1. Site near the intersection of Clarence Way and Bruxner Highway near Mara seeds. This site is 1.8km east of start of project area. This site covers approximately 750m^2 being 75 x 10m. The site is currently mown grass and is clear of native vegetation (refer Plate 2).	☑ Yes	☐ No

Access tracks may need to be created at culverts where extension or replacement cannot be entirely carried out from the road surface.		

2.1.5 Proposed date of commencement

At the time of writing the report, the proposed date of commencement for the proposal is towards the end of 2022. Note that any timeframes provided are indicative only. Estimated length of construction period is 24 weeks, not including any delays or impacts from wet weather.

2.2 Need and options

2.2.1 Options considered

The options considered for the proposal included a range of scoping adjustments to reduce the impact of the project's footprint, whilst still achieving the project objectives:

- Extent of tree removal – several attempts and revisions were made to the design to only remove those trees which made constructing the project difficult.
- At selected locations targeted batter slope adjustments were made to reduce the project footprint and impact on the number of trees for removal.
- Culvert works considered both full removal and rehabilitation of existing culverts insitu with whole of life costs used for the final decision either to replace or extend and re-line the barrels.
- **Option 1 - 'Do nothing'**: no safety, efficiency or pavement/ride quality improvements would be provided. The safety for road users would remain compromised due to the current alignment, width, and condition of the road. This was considered unacceptable as it does not address the objectives of the proposal, hence is not the preferred option.
- **Option 2 (Preferred)** – Transport for NSW proposes a pavement upgrade, and drainage maintenance of a section of the Bruxner Highway. This option is preferred as it addresses the objective of the proposal by improving safety, efficiency, and pavement/ride quality.
- **Option 1 - 'Do nothing':** no safety, efficiency or pavement/ride quality improvements would be provided. The safety for road users would remain compromised due to the current alignment, width, and condition of the road. This was considered unacceptable as it does not address the objectives of the proposal, hence is not the preferred option.
- **Option 2** – Transport for NSW carries out a pavement upgrade and drainage maintenance for a section of the Bruxner Highway. Roadside hazards are removed, and safety barriers are implemented.
- **Option 3** (Preferred) – Transport for NSW carries the activities outlined in Option 2, but also implements a range of scoping adjustments that would reduce environmental impacts and address potentially hazardous culvert, whilst still achieving the project objectives. These scoping adjustments included:
    - Redesigning the proposed works to reduce the project footprint and only remove those trees which made constructing the project difficult (e.g. targeted batter slope adjustments)
    - Consideration of both full removal and rehabilitation of existing culverts in situ, with whole of life costs used for the final decision either to replace or extend and re-line the barrels.

  This option is preferred as it addresses the objectives of the proposal by improving safety, efficiency, and pavement/ride quality, while also implementing necessary scope adjustments.

2.2.2 Justification for the proposal

The proposal is required to:

- Increase the sealed formation from 7m to 9m to achieve a 3.25m lane width and 1m sealed shoulder.
- Improve road safety

The proposal is considered justified as it would provide an upgrade to road pavement and alignment which will ultimately improve the safety of the Bruxner Highway for road users. The proposal will have some environmental impacts as a result tree removal, as well as short term noise impacts, however mitigation measures have been identified to minimise these impacts.

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 (State Significant Precincts) 2005 or State Environmental Planning Policy (Planning Systems) 2021.

2.3.2 Other relevant legislation and environmental planning instruments

Legislation/Planning Instrument	**Statement on Relevancy**
Biodiversity Conservation Act 2016	An ecological assessment and review of relevant databases relating to the possible occurrence of State listed threatened species, populations and/or ecological communities was undertaken for the purposes of this review (refer to **Section 3** and **Appendix F** and **G)**. The result of this assessment and review concluded that no State listed threatened species, populations and/or communities are likely to be significantly impacted by the proposed works, therefore a Species Impact Assessment is not required.
Biosecurity Act 2015	The North Coast Strategic Weed Management Plan provides a framework for regional weed management and supports regional implementation of the *NSW Biosecurity Act 2015*. The plan outlines how land managers can meet requirements under the General Biosecurity Duty. The plan also identifies state level and other priority weeds to provide focus to weed management in the region.

	Under this management plan two (2) of the weeds present, Lantana (*Lantana camara*) and Cat's Claw Creeper (*Dolichandra unguis-cati*), are listed as State Priority Weeds and Weeds of National Significance (WONS). Their spread should be minimised to protect priority assets. Further detail is provided in **Section 3.7.**
Fisheries Management Act 1994	One of the key objectives of the *Fisheries Management Act 1994* is to conserve 'key fish habitats' and NSW Department of Primary Industries focus the application of the Act, Fisheries Management Regulations and other policies and guidelines on 'key fish habitats'. Concurrence from the Department of Primary Industries (Fisheries) is required prior to the commencement of works if triggers in accordance with Sections 198-202, 205 and 218-220 of the Act are met. The waterways where culvert works are proposed are 1st and 2nd order streams and are not identified as key fish habitat. Little Creek and Tabulam Rivulet are Key Fish Habitat however no works are proposed within close proximity to these waterways The proposal would not involve dredging and reclamation (as defined in the Act); therefore, the project would not trigger consultation and/or permit requirements under the Act.
Heritage Act 1977	A search for Heritage items was undertaken on the NSW State Heritage Register, Australian Heritage Database and Kyogle Council LEP (refer to **Appendix D**). The searches did not identify any non-Indigenous Heritage items or places at the proposed work site, or in the broader study area which have potential to be impacted by the proposed work.
National Parks and Wildlife Act 1974	The provisions of the *National Parks and Wildlife Act 1974* as they relate to the conservation of nature and cultural heritage items are unlikely to be triggered by the Proposal. Under the Act it is an offence to cause damage to a plant or animal or cultural heritage item unless it is essential for carrying out an activity by a determining authority within the meaning of Part 5 of that Act if the determining authority has complied with that Part. No National Park estate occurs in the immediate vicinity of the proposed works zone, with the closest NPWS estate, Richmond Range National Park, being approximately 4km north-east. An Aboriginal Heritage Information Management System (AHIMS) search was undertaken in April 2022 (refer to **Appendix D**). The result of the search was that no sites were listed as occurring within the designated search zone. Additionally, a Stage 1 PACHCI Assessment was completed for the works by Transport for NSW Northern Region with an associated assessment undertaken by the Aboriginal Cultural Heritage Officer (refer to **Appendix D**). Measures are identified in **Section 3.6** to mitigate any impacts associated with the proposal.
State Environmental Planning Policy (Biodiversity and Conservation) 2021	Chapter 2 'Vegetation in non-rural areas' does not apply as the land is zoned RU1. Chapter 3 and 4 '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 Policy applies to Local Government Areas listed under Schedule 2 of the Policy which includes the subject site. The SEPP only applies in relation to activities which require a development application to be made. As Section 2.108(1) of TISEPP precludes the proposal from requiring development consent, the SEPP does not apply to the Proposal. However, it is TfNSW policy to consider all potential environmental impacts of proposed works, including potential impacts to Koalas and/or their habitat. The proposed works will impact koala habitat and BioNet records indicate koalas are present in the surrounding landscape. Impacts on koalas have been considered as part of this MWREF and safeguards have been recommended to avoid and minimise potential impacts, both direct to individual animals and their habitat.
Environmental Protection and Biodiversity Conservation Act 1999	In September 2015, a "strategic assessment" approval was granted by the Federal Environment Minister in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The approval applies to TfNSW activities being assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* with respect to potential impacts on nationally listed threatened species, ecological communities and migratory species. The practical effect of the approval is that TfNSW projects assessed via a REF: • 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 the Environment for these matters, even if the activity is likely to have a significant impact. Matters of National Environmental Significance (MNES) have been considered in **Section 4.2** of this MWREF. Additionally, an ecological assessment and review of relevant databases relating to the possible occurrence of Nationally listed threatened species, populations and/or ecological communities was undertaken for the purposes of this review (refer to **Section 3**). The assessments concluded that no MNES or Commonwealth Land would be likely to be impacted by the proposal.
Environmental Planning and Assessment Act 1979	The Proposal is located within the Kyogle Local Government Area and is covered by the Kyogle Local Environmental Plan (LEP) 2012. Land surrounding the subject site is zoned RU1 Primary Production (north and sound along the highway) and W1 Natural Waterway (at both Little Creek and Tabulam Rivulet). Objectives of the RU1 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 ensure that the productive capacity of agricultural land is appropriately recognised and managed. Objectives of the W1 zone are: • To protect the ecological and scenic values of natural waterways. • To prevent development that would have an adverse effect on the natural values of waterways in this zone. • To provide for sustainable fishing industries and recreational fishing. Section 2.108(1) of TISEPP precludes the proposal from requiring development consent. However, it is TfNSW policy to consider all potential environmental impacts of proposed works, including zoning objectives. It is considered that the proposed works are consistent with the subject LEP zonings.
Native Title Act 1993	The *Native Title Act 1993* recognises and protects native title. The Act covers actions affecting native title and the processes for determining whether native title exists and compensation for actions affective native title. It establishes the Native Title Registrar, the National Native Title Tribunal, the Register of Native Title Claims and the Register of Indigenous Land Use Agreements, and the National Native Title Register. Registered Native Title claims were identified within proposed works area in a search of the National Native Title Tribunal. A search of the Native Title Tribunal Native Title Vision website was undertaken, with One (1) Native Title claimant, being the Western Bundjalung People Part A, and one (1) Register of Indigenous Land Use Agreements was identified at the proposed works area in a search of the National Native Title Tribunal (**refer Appendix D**). Native Title is extinguished in the road reserve so no formal Section 24KA notification to NTS Corp is required; however, TfNSW is to liaise with or notify Indigenous Native Title/Land Use Agreement claimants prior to commencing any of the proposed works. The Indigenous Land Use Agreements relates to National Parks estates and as the proposed works will not occur within these areas the ILUA does 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:

Is consultation with Council required under sections 2.10 - 2.12 and 2.14 of 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?	☐ Yes	☑ No
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? If yes, does a heritage assessment indicate that the potential impacts to the heritage significance of the item/area are more than minor or inconsequential?	☐ 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 here: *Coastal management mapping (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/NA
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 manual entitled *Floodplain Development Manual:*	☐ Yes	☑ No

Is consultation with Council required under sections 2.10 - 2.12 and 2.14 of SEPP (Transport and Infrastructure)?		
the management of flood liable land published by the New South Wales Government. Both Little Creek and Tabulam Rivulet, as well as a shallow valley running to culvert 516269, would be subject to flooding during very high rainfall events. The proposed works are considered unlikely to change flooding patterns in the area given the proposed works will be restricted to the rehabilitation of the existing pavement in this area. Drainage will be maintained at existing culverts. Culverts will be extended however this will cause insignificant changes to waterflow during flooding events.		

Is consultation with a public authority (other than Council) required under sections 2.13, 2.15 and 2.16 of 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? Both Little Creek and Tabulam Rivulet, as we as a shallow valley running to culvert 516269, would be subject to flooding during very high rainfall events. The works would be considered routine maintenance of the road surface.	☐ Yes	☑ No/NA
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
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 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

2.4.2 [SEPP (Precincts-Central River City) and/or SEPP (Precincts-Western Parkland City) consultation]

N/A

2.4.3 Other agency and community consultation

No other agency or community consultation was undertaken; however, TfNSW is to liaise with / notify Indigenous Native Title/Land Use Agreement claimants prior to starting any of the proposed works.

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 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* are also considered in section 5. Site-specific safeguards are provided to ameliorate the identified potential impacts.

Specialist Input:

Daytime field inspections of the ecological attributes of the subject site were undertaken by a suitably qualified and experienced ecologist from Reconeco Pty Ltd on the 3rd of May 2022 and 10th May 2022. The field surveys included:

- Identification of vegetation occurring within the survey area.
- Identification of areas of vegetation providing important habitat features including Koala food trees.
- Search for threatened flora species.
- Searches for significant habitat features including tree hollows and nests.
- Inspection of culverts for evidence of use, particularly by microbat species.
- Identification and assessment of any trees and other vegetation likely to be disturbed by the proposed works.
- Identification of weed species.

The full results of the field assessment have been incorporated into this MWREF rather than made the subject of a separate ecological assessment report.

Key information gained from the field surveys:

Plant Community Types (PCT's)

PCT 841: Forest Red Gum grassy open forest of the coastal ranges of the NSW North Coast Bioregion. These areas of vegetation are dominated by Forest Red Gum however also contain other subdominant species includes Broad Leaf Apple Gum, Pink Bloodwood, Grey Ironbark, Spotted Gum and Grey Box. The mid and understorey composition are variable depending on historic disturbance and current land use. Species in mid storey can include *Acacia spp, Gouia semiglauca, and Cupaniopsis parvifolia* in more moist areas. Ground covers are generally dominated by grasses including native, Poa (*Poa labillardierei*.), Kangaroo grass (*Themeda triandra*) and Bladey Grass (*Imperata cylindrica*). Common exotic species include Green Panic (*Panicum maximum var. trichoglume*) and Lantana (*Lantana camara*).

PCT 837: Forest Red Gum – Swamp Box forest of the Clarence lowlands of the North Coast Bioregion. Characterised by canopy species including Forest Red Gum, Swamp Box, Pink Bloodwood and Grey Ironbark. The midstorey is generally sparse and includes native species such as *Acacia sp.* and *Jacksonia sp.* Groundcover is a mix of native and exotic species depending on disturbance and currently land use. Common natives in Poa, Kangaroo grass and Bladey Grass.

Threatened Flora Species

A BioNet database carried out before the field surveys search showed twenty-six (26) Bailey's Cypress Pines (*Callitris baileyi*), listed as endangered in NSW, and two (2) Slaty Red Gums (*Eucalyptus glaucina*), listed as vulnerable in NSW and under the EPBC Act. Field surveys confirmed the presence of both mature and immature Bailey's Cypress Pines; however, there were no Slatey Red Gums found after thorough inspection of all proposed trees for removal.

Koala Habitat

All areas within the proposal site are considered koala habitat, particularly those containing Forest Red Gum (*Eucalyptus tereticornis*).

Habitat Trees

Inspection of the trees to be removed showed that seven (7) are habitat trees (i.e., have tree hollows, decorticating bark slabs or bird nests).

Endangered Ecological Communities

No endangered ecological communities were found on site.

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 (eg >2ha) for earthworks? The proposed widening of the sealed width 1000mm wide by approx. 600mm deep both sides of the road for most of the 2.52km section length would create approx. 0.5ha of disturbed area. Disturbance due to pavement widening would occur sequentially along the subject site as would the sealing of the disturbed areas. The proposed installation of a compound area on the vegetated curb opposite the Sandilands Rest Area (north-east of the Bruxner Highway/Clarence Way junction) would require approx. 0.09ha of clearing (refer **Figure 2** and **Plate 1**). The proposed works could also require the installation of access tracks to the inlet and outlet of culverts. The estimated average width and length of an access track is 3 m by 20 m; therefore, if two (2) access tracks are required for all five (5) culverts an extra 600 square metres of disturbance would occur. Over the duration of the proposed project, an area of approximately 0.59 to 0.65 ha would be disturbed.	☐ Yes	☑ No
Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors? The proposal area does not consist of steep slopes or narrow road corridors.	☐ Yes	☑ No

Description of existing environmental and potential impacts		
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? The proposed works passes over two (2) streams and involves the extension or replacement of five (5) culverts. The five (5) culverts: 516267, 516266, 516265, 516269, and 516268, are to either have 2.44m extensions installed on each end or be fully replaced (pending condition assessment). Culvert work is to be completed from the existing road level, and via access tracks that lead to the culvert outlets/inlets. Ecological assessments have been carried out on both the northern and southern sides of the road, 9 m from the centreline, and the proposed access track are to stay within this boundary. Desktop review of google earth airview and observations during field surveys indicate the culverts do not have permanent water movement through them and primarily serve as a pathway for surface runoff from rain. Culvert 516269 was shown to have water moving through it in a 2010 imagery file and upon inspect during field surveys on 03 May 2022 there was standing water approx 40cm deep each side of the culvert. In the event of heavy or consistent rain, water movement from the culverts would flow into farm dams or, eventually, into Little Creek or Tabulam Rivulet. Due to the low level of disturbance expected from the culvert work, and the relatively large distance between them and the dams and streams mentioned, the chance of stormwater impacting sensitive receivers via culvert works is low. Little Creek and Tabulam Rivulet occur within the length of the subject site and are considered 'Key Fish Habitat' and are identified as potential habitat for the endangered Southern Purple Spotted Gudgeon. The proposed works do not require any direct interaction with the streams or the stream beds and would not impact on any riverbanks or involve dredging and reclamation. As the proposal involves works occurring close to both streams, sediment and erosion control will need careful consideration. The introduction of sediments and contaminants into Little Creek and Tabulam Rivulet from stormwater discharge, mainly by means of works close to the stream, poses a risk; however, mitigation measures proposed in this MWREF are expected to alleviate potential impacts to the sensitive receiving environments.	☑ Yes	☐ No
Is there any evidence within or nearby the likely footprint of potential contamination? A search of the NSW EPA Contaminated Land Record of Notices did not identify any potential sites of contamination within 1km of the proposal area (refer **Appendix C**). Dip site mapping for the area shows that the nearest dip site is situated approximately 1200 metres north-northeast of the junction of Bruxner Highway and Clarence Way (near Sandilands rest area); well away from potential impact from the proposed works.	☐ Yes	☑ No
Is the likely proposal footprint in or nearby highly sloping landform?	☐ Yes	☑ No

Description of existing environmental and potential impacts		
Is the proposal likely to result in more than 2.5ha (area) of exposed soil? The proposed total area of soil exposed during the project, based upon the estimates for pavement widening, and compound/access track installation, is approximately 0.65ha.	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

Erosion and sedimentation safeguards	☒
E1. Erosion and sediment control measures are to be implemented and maintained to: • Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets. • Reduce water velocity and capture sediment on site. • Minimise the amount of material transported from site to surrounding pavement surfaces. • Divert clean water around the site (in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book)).	☒
E2. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.	☒
E3. Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised.	☒
E4. Work areas are to be stabilised progressively during the works.	☒
E5. A progressive erosion and sediment control plan is to be prepared for the works.	☒
E6. The maintenance of established stockpile sites is to be in accordance with the Transport for NSW Stockpile Site Management Guideline (EMS-TG-10).	☒

3.2 Waterways and water quality

Description of existing environment and potential impacts		
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? The proposed works passes over two (2) streams and involves the widening or replacement of five (5) culverts. The five (5) culverts: 516267, 516266, 516265, 516269, and 516268, are proposed either to have 2.44m extensions installed on each end or be fully replaced. All culvert work is to be completed from existing road level and via access tracks created to inlets and outlets for carrying out work to headwalls and immediate drain inverts. Desktop review of google earth airview and observations during field	☑ Yes	☐ No

Description of existing environment and potential impacts		
surveys indicate the culverts do not have permanent water movement through them and primarily serve as a pathway for surface runoff from rain. Culvert 516269 was shown to have water moving through it in a 2010 imagery file and upon inspect during field surveys on 03 May 2022 there was standing water approx. 40cm deep each side of the culvert. Culvert 516268, 380m west of Little Creek, was also found to have shallow standing water. In the event of heavy or consistent rain, water movement from the culverts would flow into farm dams or, eventually, into Little Creek or Tabulam Rivulet. Little Creek and Tabulam Rivulet occur within the length of the subject site and are considered 'Key Fish Habitat' and are identified as potential habitat for the endangered Southern Purple Spotted Gudgeon. The proposed works do not require any direct interaction with the streams or the stream beds and would not impact on any riverbanks or involve dredging and reclamation. As the proposal involves works occurring close to both streams, sediment and erosion control will need careful consideration. Works should be planned and carried out during dry periods of the year to avoid undertaking work when water is flowing through culverts; however, if water is flowing through culverts there needs to be a deviation of clean water flow around the culvert outlet during works to avoid sedimentation and maintain clear water flow. Note that during field surveys on 03 May 2022 the water found at culverts 516269 and 516268 was still and not flowing. Works are to be undertaken in accordance with best environmental management practice including the use of erosion and sediment controls in accordance with the requirements of the Blue Book (i.e. Landcom [2004], Managing Urban Stormwater: Soils and Construction [4th Edition]).		
Is the location known to flood or be prone to water logging? The proposal area is not known to be prone to flooding or waterlogging as majority of the road section in on a gentle slope or ridgeline. Standing water is present at culvert 516269 during wet periods as seen in a 2010 imagery file and during site surveys on 03 May 2022. While there is standing water at culvert 516269 the roadway running east and west of the culvert increases in elevation and waterlogging is highly unlikely. Both Little Creek and Tabulam Rivulet, as we as a shallow valley running to culvert 516269, would be subject to flooding during very high rainfall events only. All compound and stockpile area are not located with the flood prone land. Work in flood prone areas should be undertaken during dry periods and weather forecast monitored to identify risk of flooding while works are underway.	☑ 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

Description of existing environment and potential impacts		
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)?	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

Water quality	☒
W1. There is to be no release of dirty water into drainage lines and/or waterways.	☒
W2. Water quality control measures are to be used to prevent any materials (e.g., concrete, grout, sediment etc) entering drain inlets or waterways.	☒
W3. Excess debris from cleaning and washing is removed using hand tools.	☒
W4. All fuels, chemicals and liquids are to be stored in an impervious bunded area a minimum of 50 metres away from: • Rivers, creeks or any areas of concentrated water flow • Flooded or poorly drained areas • Slopes above 10%.	☒
W5. Refuelling of plant and equipment is to occur in impervious bunded areas located a minimum of 50 metres from drainage lines or waterways.	☒
W6. 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.	☒
W7. All workers will be advised of the location of the spill kit and trained in its use.	☒
W8. If an incident (e.g. spill) occurs, the Transport for NSW Environmental Incident Classification and Reporting Procedure is to be followed and the Transport for NSW Contract Manager notified as soon as practicable.	☒
W9. 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.	☒
W10. Timing the works should consider risk of flooding events which are more likely in the wet season which for the area is from December – March. Works undertaken during this period should monitor forecast rainfall and plan for the occurrence of flooding events which may impact construction works.	☒
W11. If water is found to be flowing at any culverts, prepare a combined Water Deviation plan / Dewatering Plan / Work Method Statement to address potential impacts specific to the activity and provide additional mitigation measures to be included in the CEMP.	☒

Water quality	☒
W12. Where water is flowing through culverts there needs to be a deviation of clean water flow around the culvert outlet during works to avoid sedimentation and maintain clear water flow.	☒

3.3 Noise and vibration

Description of existing environmental and potential impacts		
Are there any residential properties or other noise sensitive areas near the location of the proposal that may be affected by the work (ie church, school, hospital):		
During construction? A distance-based assessment (Construction scenario) has been complete for the project and identified a potential impact area of 115m during daytime (OOHW) for isolated dwelling residential receivers and 35m during daytime hours for industrial premise non-residential receivers. There is one (1) residential property located within 115m of the works, and one (1) industrial premise located within 50m of the works which are affected receivers during daytime periods (refer **Appendix E)**.	☑ Yes	☐ No
During operation? The proposed works is not expected to increase the overall road noise once operational.	☐ 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 6.00pm Sunday and Public Holidays: no work However, work may be undertaken outside of the extended hours on weekends or nights to minimise traffic impacts on the community. If it is determined that work outside the nominated hours is required, an assessment would be undertaken to determine the safeguards and mitigations required. Noisy works will be undertaken in accordance with RMS “Construction Noise and Vibration Guideline” (August 2016).	☐ Yes	☑ No
Is any explosive blasting required for the proposal?	☐ Yes	☑ No
Would construction noise or vibration from the proposal affect sensitive receivers? A noise assessment has been undertaken using RMS’ Maintenance Noise Estimator (refer **Appendix E**). A distance-based assessment (Construction scenario) has been complete for the project and identified a potential impact area of 115m during daytime (OOHW) for isolated dwelling residential	☑ Yes	☐ No

Description of existing environmental and potential impacts		
receivers and 35m during daytime hours for industrial premise non-residential receivers. Based upon mapping provided by TfNSW (refer **Appendix E**), there is one (1) residential property located <50m of the works, and one (1) industrial premise located <50m of the works which are affected receivers during daytime (OOHW) periods (refer **Appendix E)**. The exact distance between the proposed works area and the sensitive receivers was calculated by Reconeco using a QGIS mapping distance ruler, and these distances were used to decided which measures were triggered. The isolated dwelling residential receiver is located approximately 530m west of Little Creek on the northern side of the Bruxner Highway and is approximately 35m from the proposed boundary of the works. Based upon the 35m distance the triggered measures require that a notification, phone call and respite offer be given to the dwelling occupants. The industrial premise, Mara Seeds PTY LTD, is located directly adjacent to and north of the Sandilands Rest Area. The distance from the proposed works boundary to the closest building on the premise in approximately 10m. Based upon the 10m distance the triggered measures require that a notification, phone call and respite offer be given to the users of the premise. Noisy works will be undertaken in accordance with RMS “Construction Noise and Vibration Guideline” (August 2016).		
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/hr or installing audio-tactile line markings. The proposed works is not expected to increase the overall road noise once operational.	☐ Yes	☑ No
Would the proposal result in vibration being experienced by any surrounding properties or infrastructure during operation?	☑ Yes	☑ No

Safeguards

Safeguards to be implemented are:

Noise and vibration	☒
N1. Works to be carried out during normal work hours (i.e., 7am to 6pm Monday to Friday) except for Saturdays where hours will be 8am to 6pm. Any work that is performed outside normal work hours or on Sundays or public holidays must have measures in place to minimise noise impacts. Note extended Saturday work hours 8am to 6pm.	☒
N2. Noise impacts are to be minimised in accordance with Transport for NSW Construction Noise Estimator.	☒

Noise and vibration	☒
N3. Letter box drops are to be completed to all residents located less than 115 metres from the works. All noise complaints will be addressed if/when received with respite options provided on a case-by-case basis.	☒
N4. Implement 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.	☒

3.4 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?	☐ Yes	☑ No
Is there likely to be an emission to air during construction? Emissions to air would be expected for the proposed activities as a result of vehicles and machinery use, however, given the limited amount of equipment to be used and the relatively small scale of works, the emission levels are expected to be negligible and able to be minimised further with the implementation of safeguards as recommended following.	☑ Yes	☐ No

Safeguards

Safeguards to be implemented are:

Air Quality	☒
A1. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust.	☒
A2. Works (including the spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely.	☒
A3. Vegetation or other materials are not to be burnt on site.	☒
A4. Vehicles and vessels transporting waste or other materials that may produce odours or dust are to be covered during transportation.	☒
A5. Stockpiles or areas that may generate dust are to be managed to suppress dust emissions in accordance with the Transport for NSW Stockpile Site Management Guideline (EMS-TG-10).	☒

3.5 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 proposal will be carried out in a road corridor subject to significant historic disturbance due to road construction activities, and land subject to previous agricultural land use.	☐ Yes	☑ No
Have online Aboriginal Heritage Information Management System (AHIMS) searches been completed? A search of the AHIMS Web Service (AWS) was undertaken in April 2022 (refer **Appendix D**). No Aboriginal sites or Aboriginal places were identified as a result of the search.	☑ Yes	☐ No
Is there potential for the proposal to impact on any items of Aboriginal heritage? The proposed section of road has previously been disturbed during road construction, and any new excavation required for the works would not occur in historically undisturbed earth. Furthermore, given that the abovementioned AHIMS database search did not identify any Aboriginal places at or near the subject site, it is considered unlikely that the proposed works would impact any items of Aboriginal heritage.	☐ Yes	☑ No
Would the proposal involve the removal of mature native trees? Up to twenty-nine (29) mature trees are proposed to be removed. All these trees were surveyed and did not indicate any cultural heritage such as scaring. The AHIMS searches found no records within the proposal area.	☑ Yes	☐ No
Would the proposals impact on any features that may indicate any potential archaeological remains? There were no features indicating potential archaeological remains within the surveyed areas.	☐ Yes	☑ No
Is the proposal consistent with the requirements of the legacy Roads and Maritime Procedure for Aboriginal cultural heritage consultation and investigation (PACHCI)? A Procedure for Aboriginal cultural heritage consultation and investigation has been undertaken by Tabatha Cann – Aboriginal Cultural Heritage Officer for TfNSW (refer **Appendix D**). The project, as indicated in the Procedure for Aboriginal cultural heritage consultation was assessed as being unlikely to have a potential impact on Aboriginal cultural heritage.	☑ Yes	☐ No

Safeguards

Safeguards to be implemented are:

Aboriginal heritage	☒
B1. If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport for NSW Aboriginal cultural heritage officer and regional environment manager contacted immediately. Steps in the Transport for NSW *Standard Management Procedure: Unexpected Heritage Items* must be followed.	☒

3.6 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 EPBC heritage list • Australian Heritage Places Inventory • Local Environmental Plan(s) heritage items Refer **Appendix D**.	☑ 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
Are there any items of potential non-Aboriginal heritage significance which are not listed on relevant heritage databases/registers that are in the vicinity of the proposal?	☐ Yes	☑ No
Is the proposal likely to occur in or near features that indicate potential archaeological remains? The proposal will be carried out within a road corridor subject to significant historical disturbance. There were no heritage items identified during the site survey.	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

Non-Aboriginal Heritage	☒
H1. 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 NSW *Standard Management Procedure: Unexpected Heritage Items* must be followed. Transport for NSW Senior Environment Specialist – Heritage must be contacted immediately.	☒

3.7 Biodiversity

Description of existing environmental and potential impacts

Have relevant database searches been carried out? The following relevant database searches were undertaken in April 2022. The results are included in **Appendix F**. • NSW BioNet Atlas Search – threatened flora and fauna species within 10km x 10km area centred of the subject site. • Commonwealth EPBC Act – Protected matters search tool (PMST). • NSW DPI Fisheries threatened species distribution maps for the proposal location.	☑ Yes	☐ No
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. A BioNet search identified seven (7) Endangered Ecological Communities (EECs) and twenty (19) threatened species consisting of fifteen (14) fauna species and five (5) flora species within a 10kmx10km area centred on the subject site (refer **Figure 3, Appendix B**). A Matters of National Environmental Significance report identified two (2) EECs, thirty-six (36) threatened species and fourteen (14) migratory species within a 5km radius of the subject site.	☑ Yes	☐ No

Table 1. BioNet threatened species records within 5km of subject site.

Scientific name	Common name	Status		Number of records	Distance from works	Potential Impact
		BC Act	EPBC Act			
Aves						
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	3	>1km	No
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	-	2	>1km	No
Climacteris picumnus victoriae	Brown Treecreeper (eastern subspecies)	V	-	11	>1km	No
Glossopsitta pusilla	Little Lorikeet	V	-	10	>1km	No
Ninox strenua	Powerful Owl	V	-	3	>1km	No
Tyto tenebricosa	Sooty Owl	V	-	1	>1km	No
Mammalia						
Aepyprymnus rufescens	Rufous Bettong	V	-	2	>1km	No

Dasyurus maculatus maculatus	Spotted-tailed Quoll	V	E	1	>1km	No
Petauroides volans	Greater Glider	-	V	14	>1km	No
Petaurus norfolcensis	Squirrel Glider	V	-	1	>1km	No
Phascolarctos cinereus	Koala	V	E	15	On site	No
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	4	>1km	No
Chalinolobus nigrogriseus	Hoary Wattled Bat	V	-	1	>1km	No
Scoteanax rueppellii	Greater Broad-nosed Bat	V	-	4	>1km	No
Flora						
Callitris baileyi	Bailey's Cypress Pine	E	-	35	On site	No
Eucalyptus glaucina	Slaty Red Gum	V	V	4	<500m Note: Species BioNet records on site but none were found during surveys.	No
Rhodamnia rubescens	Scrub Turpentine	CE	-	1	>1km	No
Rhodomyrtus psidioides	Native Guava	CE	-	1	>1km	No
Sophora fraseri	Brush Sophora	V	V	2	>1km	No

CE=Critically Endangered E=Endangered V=Vulnerable

Table 2. BioNet Endangered Ecological Communities records within 5km of subject site.

Scientific Name	NSW status	Comm. status
Grey Box—Grey Gum Wet Sclerophyll Forest in the NSW North Coast Bioregion	E	
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E	
Lowland Rainforest of Subtropical Australia		CE
Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	E	

Description of existing environmental and potential impacts		
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	E	
Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	E	
White Gum Moist Forest in the NSW North Coast Bioregion	E	

CE=Critically Endangered E=Endangered V=Vulnerable

The two creeks within the project area are listed as known or indicative habitat for the threatened fish species Southern Purple Spotted Gudgeon (*Mogurnda adspersa*). However, there would be no direct impacts on either steam, and indirect impacts from the proposal would be negligible with the implementation of proposed safeguards.

Is the proposal likely to impact nationally listed threatened species, ecological communities or migratory species? A Likelihood of Occurrence Assessment has been undertaken for all species identified in the database searches to identify species likely to occur on the subject site and which may require further assessment (refer **Appendix G**). One (1) threatened flora and seven (7) threatened fauna species are considered to have a moderate to high likelihood of occurring within the site and therefore have potential to be impacted as a result to loss or degradation of habitat. A test of significance has been undertaken for these species (refer **Appendix H**) to determine if there is likely to be a significant impact, as required by S7.3 of BC Act. These species include: • Bailey's Cypress Pine (*Callitris baileyi*) • Dusky Woodswallow (*Artamus cyanopterus cyanopterus*) • Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae*) • Little Lorikeet (*Glossopsitta pusilla*) • Koala (*Phascolarctos cinereus*) • Squirrel Glider (*Petaurus norfolcensis*) • Hoary Wattled Bat (*Chalinolobus nigrogriseus*) • Greater Broad-nosed Bat (*Scoteanax rueppellii*) The results of this assessment concluded that while the proposal will result in impacts to threatened species habitat including critical habitat features such as koala food trees and tree hollow there is unlikely to be a significant impact such that a viable local population of the species is likely to be placed at risk of extinction. Safeguards are provided which aim to mitigate impacts on threatened fauna species including preclearing surveys and spotter catcher to avoid direct impacts on individuals, as well as installation of nest boxes to replace loss of tree hollows. Furthermore, given the nearby records and the presence of Koala food trees within the subject site, it is recommended that a pre-clearing inspection targeting Koalas be undertaken as a safeguard to ensure the ongoing absence of Koalas from the trees proposed for removal and the zone of proposed works.	☐ Yes	☑ No
Would the proposal require the removal of any other vegetation? Up to twenty-nine (29) native trees are proposed to be removed to facilitate the widening of the road. These trees generally occur within 9m of the current centre line. Review of the project design has been carried out to reduce the number of trees	☑ Yes	☐ No

proposed for removal; therefore, less trees would be removed. All twenty-nine (29) trees assessed have been reported on as this will represent a 'worst case' scenario. The details of each tree assessed are provided in the table below and in **Figures 4** and **5**.

Table 3. Trees proposed for removal

ID	Common name	Scientific name	DBH (cm)	Height (m)	Koala food tree	Contains hollows	Distance from centre line (m)
1	Grey Box	*Eucalyptus moluccana*	75	30	Y	N	9
2	Grey Box	*Eucalyptus moluccana*	39	25	Y	N	7
3	Large-leaved Spotted Gum	*Corymbia henryi*	19	10	N	N	7
4	Forest Red Gum	*Eucalyptus tereticornis*	53	25	Y	N	7.5
5	Grey Ironbark	*Eucalyptus siderophloia*	42	30	N	N	7
6	Broad-leaved Apple	*Angophora subvelutina*	41	15	N	N	6.5
7	Forest Red Gum	*Eucalyptus tereticornis*	85	30	Y	Y	8
8	Large-leaved Spotted Gum	*Corymbia henryi*	45	20	N	N	8
9	Grey Ironbark	*Eucalyptus siderophloia*	45	20	N	N	8.5
10	Forest Red Gum	*Eucalyptus tereticornis*	85	30	Y	N	8
11	Grey Ironbark	*Eucalyptus siderophloia*	48	10	N	N	7
12	Forest Red Gum	*Eucalyptus tereticornis*	90	30	Y	N	7.5
13	Forest Red Gum	*Eucalyptus tereticornis*	60	30	Y	N	6
14	Forest Red Gum	*Eucalyptus tereticornis*	117	35	Y	Y	5
15	Forest Red Gum	*Eucalyptus tereticornis*	45	18	Y	N	6.5
16	Forest Red Gum	*Eucalyptus tereticornis*	115	30	Y	Y	6
17	Forest Red Gum	*Eucalyptus tereticornis*	80	31	Y	Y	8.5
18	Forest Red Gum	*Eucalyptus tereticornis*	100	30	Y	Y	10
19	Forest Red Gum	*Eucalyptus tereticornis*	120	35	Y	N	8
20	Forest Red Gum	*Eucalyptus tereticornis*	17	8	Y	N	7.5
21	Swamp Box	*Lophostemon suaveolens*	21	10	N	N	10
22	Forest Red Gum	*Eucalyptus tereticornis*	60	30	Y	N	6
23	Forest Red Gum	*Eucalyptus tereticornis*	45	30	Y	N	6
24	Swamp Box	*Lophostemon suaveolens*	23	10	N	N	6

Description of existing environmental and potential impacts

25	Forest Red Gum	*Eucalyptus tereticornis*	98	30	Y	Y	5
26	Forest Red Gum	*Eucalyptus tereticornis*	103	30	Y	Y	6
27	Forest Red Gum	*Eucalyptus tereticornis*	80	30	Y	Y	8
28	Forest Red Gum	*Eucalyptus tereticornis*	125	30	Y	Y	7
29	Forest Red Gum	*Eucalyptus tereticornis*	105	30	Y	N	6

Aside from the tree proposed for removal, some trees would have limbs sectioned off. This is for two main reasons:

1. To manage hazardous limbs that could potentially fall into work zone
2. To manage limbs above the roadway that could be pose risks to road users in the future

The proposal would also involve the removal of midstorey and understorey vegetation for the compound set-up, pavement widening and associated installation of new batters, drainage, and culverts or culvert extensions. This clearing is required where vegetation occurs close to the road pavement to allow widening and pavement rehabilitation to occur.

In the heavily forested areas of the proposal site, the native midstorey and understorey species composition includes Red Kamala (*Mallotus philippensis*), Coffee Bush (*Breynia oblongifolia*), Guioa (*Guioa semiglauca*), Small-leaved Tuckeroo (*Cupaniopsis parvifolia*), Poison Peach (*Trema tomentosa*), Sally Wattle (*Acacia melanoxylon*), Cockspur (*Maclura cochinchinensis*), Silk Pod (*Parsonsia straminea*), Scrambling Lily (*Geitonoplesium cymosum*) and Bladey Grass (*Imperata cylindrica*). The introduced species within the heavily forested areas includes: Lanata (*Lantana camara*), Cat's Claw Creeper (*Dolichandra unguis-cati*) Small-leaf Privet (*Ligustrum sinense*), Siratro (*Macroptilium atropurpureum*), Setaria (*Setaria sphacelata*) and Rhodes Grass (*Chloris gayana*).

In areas that are not forested the vegetation composition is dominated by introduced grasses such as Setaria, Rhodes Grass and Red Natal Grass (*Melinis repens*).

Lantana and Cat's Claw Creeper are State Priority Weeds and Weeds of National Significance (WONS).

The compound area proposed for clearing contain the previously mentioned introduced grass species, as well as native flora including Bladey Grass, Dogwood (*Jacksonia scoparia*) and young (1 - 8m tall) Forest Red Gums (*Eucalyptus tereticornis*). The area of vegetation proposed for removal for the compound installation is 0.09ha.

Would the proposal affect any tree hollows or hollow logs? Of the twenty-nine (29) trees proposed for removal there are nine (9) that contain tree hollows. The total number of hollows recorded was twenty-two (22). The details of these trees are provided below, and their location is shown in **Figures 3** and **4**. **Table 4.** Trees proposed for removal that are hollow bearing.	☑ Yes	☐ No

Description of existing environmental and potential impacts

ID	Common name	Scientific name	DBH (cm)	Height (m)	Distance from centre line (m)	Number of hollows (m)	Size class
7	Forest Red Gum	*Eucalyptus tereticornis*	85	30	8	2	1-5cm
14	Forest Red Gum	*Eucalyptus tereticornis*	117	35	5	5	1-5cm,5-15cm,15cm+
16	Forest Red Gum	*Eucalyptus tereticornis*	115	30	6	6	1-5cm,5-15cm
17	Forest Red Gum	*Eucalyptus tereticornis*	80	31	8.5	3	1-5cm
18	Forest Red Gum	*Eucalyptus tereticornis*	100	30	10	2	1-5cm
25	Forest Red Gum	*Eucalyptus tereticornis*	98	30	5	2	1-5cm
26	Forest Red Gum	*Eucalyptus tereticornis*	103	30	6	1	15cm+
27	Forest Red Gum	*Eucalyptus tereticornis*	80	30	8	1	1-5cm
28	Forest Red Gum	*Eucalyptus tereticornis*	125	30	7	2	5-15cm

The impacted hollow bearing trees contain small to medium size hollows on branches with the diameter of opening usually being less than 15cm. These trees provide important habitat suitable for microbats, birds, and arboreal gliders. The loss of hollows in the landscape is a key threatening process under the *Biodiversity Conservation Act*.

Efforts should be made to avoid removal of these trees and undertake pruning instead.

Where removal is the only feasible options hollow sections of the branches should be retained and modified to create 'nest boxes' that can be installed in suitable trees in the surrounding landscape. Alternatively, hollows may be replaced with prefabricated nest boxes or with the creation of hollows using a boring device. Trees should be located within the road corridor as far as possible away from the road pavement to avoid future impacts.

Impacted tree hollows should be replaced at a ratio of 1:2. As there were twenty-two (22) hollows recorded in trees for proposed for removal there should be at least eleven (11) replacement hollows installed.

Clearing supervision should be undertaken by a suitably qualified ecologist or spotter catcher to ensure no direct impacts occur to fauna that may be occupying tree hollows at the time of clearing.

Are there any known areas of outstanding biodiversity value or areas mapped as 'littoral rainforest' or 'coastal wetland' under chapter 2 of State Environmental Planning Policy (Resilience and Hazards) 2021 (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?	☐ Yes	☑ No

Description of existing environmental and potential impacts		
Roads can create barriers to the movement of wildlife however the proposed changes will not significantly increase the existing barrier or create new barriers to the movement of wildlife.		
Would the proposal disturb any natural waterways or aquatic habitat? Both Little Creek and Tabulam Rivulet, and a shallow valley running to culvert 516269 and 516268, are natural waterways. Culverts 516269 and 516268 only have water flow intermittently in accordance with high rainfall and can have standing water remain due to it positioning in a low-lying area. The proposed works are considered unlikely to disturb the natural waterways in the area given that the proposed works will not occur within the creek or rivulet and the disturbance at culvert 516269 and 516268 during pipe extensions/replacement will be negligible. Proposed safeguards including installation of sediment and erosion control measures and timing of works for dry period (July – November) will mitigate any potential impacts.	☐ Yes	☑ No
Would the proposal disturb any crevices or other locations (such as on bridges and culverts) for potential bat habitat? The proposed works will not directly disturb any potential bats habitat. The culverts were inspected during site survey and no microbats, or evidence of use was observed at the time of survey on 05 May 2022. Of the five (5) culverts within the proposal area two (2) were identified as potential low to medium value bat habitat. Most culverts pipes are narrow and provide low quality potential habitat for microbat's species that may occur in the area. Culverts 516265 and 516268 had cracks up to 5cm wide between sections of pipe and cavities that could provide roost locations. There were small scats scatted evenly along the length of culvert 516268, which is typical of ground dwelling rodents (e.g. rat). It is considered that these culverts provide limited habitat value due to their small diameter and lack of suitable roosting locations. Impacts from the working would likely be negligible as the culverts are being extended rather than removed.	☑ Yes	☐ No

Safeguards

Safeguards to be implemented are:

Biodiversity		☐
F1.	There is to be no disturbance or damage to threatened species or areas of outstanding value.	☒
F2.	Works are not to harm threatened fauna (including where they inhabit bridges or other structures e.g. timber fence posts).	☒

Biodiversity		☐
F3.	Environmental protection areas should be established to ensure the boundary of areas to be cleared are clearly identified and all other vegetation is retained. Areas of Bailey's Cypress Pines shown in **Figure 6** and **Plates 10** to **11** must be included in Environmental Protection Areas. Furthermore, weed control is to be undertaken within the Environmental Protection Area to promote the growth of Bailey's Cypress Pines and reduce weed competition with immature specimens.	☒
F4.	An experienced, licensed ecologist or appropriately trained Transport for NSW staff is to undertake pre-clearing surveys prior to vegetation removal to inspect trees for the presence of fauna. If fauna is identified a licensed ecologist is to be engaged to perform any spotter catcher duties required.	☒
F5.	An experienced ecologist or appropriately trained Transport for NSW staff is to undertake spotter catcher role during removal of hollow bearing trees.	☒
F6.	An arborist should be used to remove sections of tree hollows manually to minimise potential impacts to species occupying the trees. Hollow sections should be lowered to the ground in controlled manner and inspected as part of the clearing process. Any animals present should be released under supervision of an ecologist or wildlife carer.	☒
F7.	If unexpected threatened fauna or flora species are discovered, stop works immediately and follow the Transport for NSW *Unexpected Threatened Species Find Procedure* in the Transport for NSW *Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process)*.	☒
F8.	Each tree hollow removed should be replaced at a ratio of 1:2 (i.e., 2 boxes for each hollow removed) to compensate for loss of tree hollows. This can be achieved through installation of nest boxes or creation of hollows using a boring device, or sections of tree hollows can be removed, modified, and installed in surrounding unimpacted vegetation. Of the eleven (11) replacement hollows a range of entry and cavities sizes should be used to account for the suite of species occurring locally.	☒
F9.	All pathogens (e.g. Chytrid, Myrtle Rust and *Phytophthora*) are to be managed in accordance with the Transport for NSW *Biodiversity Guidelines - Guide 7 (Pathogen Management),* **DECC Statement of Intent 1: Infection of native plants by Phytophthora cinnamomi** (for *Phytophthora)* and Arrive Clean, Leave Clean, Commonwealth of Australia 2015.	☒
F10.	Weeds are to be managed according to requirements under the Biosecurity Act, 2015 and Guide 6 (Weed Management) of the Transport for NSW *Biodiversity Guidelines 2011*.	☒
F11.	Fauna handling must be carried out in accordance with the requirements the Transport for NSW *Biodiversity Guidelines* - Guide 9 (Fauna Handling).	☒
F12.	Works are not to create an ongoing barrier to the movement of wildlife.	☒

3.8 Trees

Description of existing environmental and potential impacts		
Does the proposal involve pruning, trimming or removal of any tree/s? The proposal would require the removal of twenty-nine (29) trees and some midstorey and understorey vegetation where it is close to the current pavement edge or where clearing is required for compound establishment.	☑ Yes	☐ No

Most trees proposed for removal are Forest Red Gums, of which a thirteen (13) have a DHB of 80cm or greater and seven (7) 100cm or greater. Of the thirteen with a DBH 80cm or greater nine (9) are habitat (hollow bearing) trees. All details regarding tree removal can be found in **Table 4** of **Section 3.7** and **Figures 4** and **5**. Details regarding compound establishment are in **Section 2.1.4** and **Plate 1**.		
Do the trees form part of a streetscape, an avenue or roadside planting?	☐ Yes	☑ No
Have the trees been planted by a community group, Landcare group or by council or is the tree a memorial or part of a memorial group e.g. has a plaque?	☐ Yes	☑ No
Do the trees form part of a heritage listing or have other heritage value?	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

Trees	☒
T1. Pruning of mature trees is to be in accordance with Part 5 of the *Australian Standard 4373-2007 Pruning of amenity trees.*	☒
T2. Work limits are to be clearly delineated in the field prior to commencement.	☒
T3. There is to be no disturbance beyond the limit of works without prior assessment.	☒

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? Temporary lane closures and traffic control would likely be required to undertake the project. A traffic control plan would be required to address any changes to traffic flow.	☑ Yes	☐ No
Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation?	☐ Yes	☑ No

The proposal is to maintain the safety of the existing roadway. Therefore, no additional ongoing detours or disruptions to traffic flow or access are being introduced to the area as a result of the works.		
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? There are no registered bus stops within the proposal area. The proposal is to maintain the safety of the existing roadway. Therefore, no additional ongoing detours or disruptions to traffic flow or access are being introduced to the area.	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

Traffic	☒
R1. 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.	☒
R2. A traffic control plan will be prepared in accordance with the '*Traffic control at work sites manual*' (RMS, 2018) and Australian Standard 1742.3 *Manual of uniform control devices.*	☒
R3. Notify NSW SES where there are likely to be significant delays in the operation of the roads affected by the upgrades.	☒

3.10 Socio-economic

Description of existing environmental and potential impacts		
Is the proposal likely to impact on local business?	☐ 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)?	☐ 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

Description of existing environmental and potential impacts		
The proposal would occur in a rural area where pedestrian movement is highly infrequent and no pedestrian services such as foot paths are in place.		
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)?	☐ Yes	☑ No
Is the proposal likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)?	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

Community consultation	☒
C1. Notification is to be given to road users and adjacent properties 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.	☒
C2. All complaints are to be recorded on a complaint register and attended to promptly.	☒
C3. 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.	☒
C4. TfNSW is to liaise with / notify Indigenous Native Title/Land Use Agreement claimants prior to starting any of the proposed works.	

3.11 Landscape character and visual amenity

Description of existing environmental and potential impacts		
[Note: refer to the Practice note for landscape character and visual impact assessment EIA-N04 for assistance in answering these questions]. Discuss with SMES and the Transport urban design section to consider whether a visual impact assessment should be prepared.]		
Is the proposed work over or near an important physical or cultural element or landscape? (e.g. 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,	☐ Yes	☑ No

Description of existing environmental and potential impacts		
a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark?		
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced? Details of vegetation removal have been provided in **Section 3.7** and **3.8**. The works would alter the visual appearance of the area due to vegetation removal and road widening however the changes are not expected to be visually intrusive and would not create significant changes to the locality. The clearing would not expose adjoining residence to the roadway or result in the complete removal of a vegetative buffer. Similar vegetation adjoining the site will remain in place.	☑ Yes	☐ No
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? The proposal would involve the stripping, temporarily stockpiling and placement of topsoil within the road corridor. Soil and road material will be reused as fill where possible or disposed of offsite as required. The character of the existing road corridor will be retained.	☐ 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

Safeguards

Safeguards to be implemented are:

Visual amenity	☒
V1. Landscaping is to be managed in accordance with Transport for NSW *Landscape guideline, 2013*.	☒
V2. Works to be carried out in accordance with Transport for NSW EIA-N04 *Guideline for Landscape Character and visual impact assessment.*	☒

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)? Waste generated as a result of the proposal will include mulch from the removal of trees, and other general construction waste, such as excess non-contaminated topsoil and general fill. Herbaceous, grass and vine weeds are to be treated with herbicide at least 2 weeks prior to vegetation removal to ensure that plant material is inert and the risk of spreading weeds is reduced. Cut stumps of pest tree species should be treated with glyphosate herbicide to ensure they do not regrow following tree removal. Mulch and spoil will be reused onsite within the road reserve. Material may be stockpiled and spread on road batters at completion of works. No mulch or spoil will be placed in areas of concentrated flow including waterways and lower creek banks.	☐ Yes	☑ No
Is the proposal likely to require a licence from EPA? Note: As described in Schedule 1 of the *Protection of the Environment Operations Act 1997*.	☐ Yes	☑ No
Is the proposal likely to require the removal of asbestos?	☐ Yes	☑ No

Safeguards

Safeguards to be implemented are:

Waste management	☒
M1. A Waste Management Plan must be prepared that follows the Transport for NSW Technical Guide: Management of road construction and maintenance waste.	☒
M2. Resource management hierarchy principles are to be followed: • Avoid unnecessary resource consumption as a priority.	☒

Waste management	☒
• 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*).	
M3. If vegetation is to be mulched and transported off site for beneficial reuse, it is to be assessed for the presence of weeds, pests, and other diseases, and a Mulch Management Plan prepared in accordance with the Transport for NSW *Technical Procedure: Mulch Management*.	☒
M4. Bulk project waste (e.g. fill) sent to a site not owned by the Transport for NSW (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 Transport for NSW Waste. This includes waste transported for reuse, recycling, disposal, or stockpiling.	☒
M5. There is to be no disposal or re-use of construction waste on to other land.	☒
M6. Waste is not to be burnt on site.	☒
M7. Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed.	☒
M8. Working areas are to be maintained, kept free of rubbish and cleaned up at the end of each working day.	☒
M9. Tree mulch can be reused onsite to stabilise soil by spreading on embankments (no more than 100m thick) within the road reserve. Tree mulch will not be spread on the lower slopes of stream banks.	☒

4. Consideration of State and Commonwealth environmental factors

4.1 Environmental Planning and Assessment Regulation 2021 checklist

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.

Environmental factor	Impact
(a) Any environmental impact on a community? The proposed work may cause minor short-term environmental impacts on the community, such as delays to traffic and noise impacts on residents; however, the potential impacts would be minimised with the implementation of the safeguards as detailed in this REF. The maintenance works would have no long-term environmental impact on a community, and road users would benefit from safer travelling conditions.	Negligible – Short term
(b) Any transformation of a locality? The proposed work would not transform the locality, as the works are limited to minor works within the existing road corridor including previously disturbed areas. The works would alter the visual appearance of the area due to vegetation removal and road widening however the changes are not expected to be visually intrusive and would not create significant changes to the locality.	Negligible – Short term
(c) Any environmental impact on the ecosystems of a locality? The proposal would have potential environmental impacts on the ecosystems of a locality; however, the potential impacts would be minimised with the implementation of the safeguards given in **Section 3** of this REF.	Negligible – Short term
(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? It is likely the work would not significantly reduce the aesthetic, recreational, value of the locality, but scientific and environmental impacts are more likely associated with removal of threatened fauna habitats. Furthermore, the occurrence of an endangered flora species (*Callitris baileyi*) within the proposal area presents potential scientific and environmental impacts. However, the risk of potential impacts would be minimised with the implementation of the safeguards given in **Section 3** of this REF.	Negative
(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?	Negligible

Environmental factor	Impact
Minor impacts on native vegetation will occur however it is not considered that the proposal will significantly impact other values listed above.	
(f) Any impact on habitat of any protected animals (within the meaning of the *Biodiversity Conservation Act 2016*)? The proposal will impact protected animals as a result of the removal of habitat including koala food trees and habitat trees. Any potential impacts will be minimised through the implementation of the safeguards given in **Section 3** of this REF.	Negative
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? The proposal would not endanger any species of animal, plant, or other form of life, whether living on land, in water or in the air due to the limited scope of works for the proposed activities and the implementation of the safeguards given in **Section 3** of this REF.	None predicted
(h) Any long-term effects on the environment? The proposal would have positive long-term effects on the environment for surrounding residences and road users due to improved safety and usability for road users. The proposal would contribute to cumulative negative effects on the environment as a result of tree removal and loss of fauna habitat. Safeguards provided in **Section 3** of this REF aim to mitigate impacts where possible.	Positive – Long term
(i) Any degradation of the quality of the environment? The proposal would potentially degrade the quality of the environment in the short-term, however the potential impacts would be minimised with the implementation of the safeguards given in **Section 3** of this REF.	None predicted
(j) Any risk to the safety of the environment? The proposal would have minimal risk to the safety of the environment due to the limited scope of works for the maintenance activities covered in this REF, and the potential impacts would be minimised with the implementation of the safeguards given in **Section 3** in this REF.	None predicted
(k) Any reduction in the range of beneficial uses of the environment? The proposal would cause a minor reduction in the use of the road from lane closures, potentially increasing travel time for road users in the short-term. There would be no long-term reduction in the range of beneficial uses of the environment as a result of the maintenance works.	Negative – Short term
(l) Any pollution of the environment?	Negative – Short term

Environmental factor	Impact
The proposal would potentially cause pollution of the environment; however, the potential impacts would be minimised with the implementation of the safeguards given in **Section 3** of this REF.	
(m) Any environmental problems associated with the disposal of waste? The waste generated during the proposal would be contained and removed for disposal to approved recycling facilities or to licensed landfill in accordance with the safeguards in **Section 3** of this REF. No environmental problems are anticipated for the disposal of waste.	Negligible
(n) Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply? The proposal would not significantly increase demands on resources, which are, or are likely to become, in short supply. Relatively small amounts of materials would be required for the proposed work. The safeguards listed in **Section 3** of this REF would be implemented to minimise any impacts.	None predicted
(o) Any cumulative environmental effect with other existing or likely future activities? The proposal has the potential to have cumulative environmental effects with other existing or likely future activities, however the effects would be minimal due to the limited scope of works for the activities covered in this REF, and the potential impacts on the environment would be minimised with the implementation of the safeguards given in **Section 3** in this REF.	Negative – Minor
(p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The proposal is not located in an area subject to coastal processes and hazards and is not expected to impact on these processes.	None predicted
• **Any impact on applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1?** Kyogle Council prepared a Local Strategic Planning Statement (LSPS) that incorporates directions contained within the NSW State Government's *North Coast Regional Plan 2036* and policies in Council's *Community Strategic Plan*. Within the LSPS Kyogle Council outlines specific action that aim to: • deliver a greater supply and variety of housing, • deliver more land for residential and industrial uses, • protect our biodiversity, catchments, and rivers, • address natural hazards and respond to climate change, • improve transport and community facilities, • make our towns and villages great places to live, work and visit, and • grow agriculture and tourism and support existing businesses.	Positive – Long term

Environmental factor	Impact
Overall, the proposal is in line with the aims of Kyogle Council and the above-mentioned strategic plans, in the sense it will: • support the safe and effective transportation of material to build housing, • protect biodiversity, catchments and rivers from pollution associated with vehicle accidents and degraded roads exposed to erosion, • provide safer travel in the events of natural hazards such as fires, storms, and floods, • make rural living more attractive as roads are safer, more efficient, and more enjoyable to travel along and, • aid the growth of agriculture and tourism and support existing businesses creating more efficient movement within the region.	
(q) Any impact on other relevant environmental factors? In considering the potential impacts of this proposal all relevant environmental factors have been considered, refer to **Section 3** of this assessment.	

4.2 Matters of National Environmental Significance checklist

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.

Factor	Impact
(a) Any impact on a World Heritage property?	Nil
(b) Any impact on a National Heritage place?	Nil
(c) Any impact on a wetland of international importance (often called 'Ramsar' wetlands)?	Nil
(d) Any impact on nationally threatened species, ecological communities or migratory species?	Nil
(e) Any impact on a Commonwealth marine area?	Nil
(f) Does the proposal involve a nuclear action (including uranium mining)?	Nil

Factor	Impact
Additionally, any impact (direct or indirect) on the environment of Commonwealth land?	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

Safeguards for the proposed work	
Soil	E1. Erosion and sediment control measures are to be implemented and maintained to: • Prevent sediment moving off-site and sediment laden water entering any water course, drainage lines, or drain inlets. • Reduce water velocity and capture sediment on site. • Minimise the amount of material transported from site to surrounding pavement surfaces. • Divert clean water around the site (in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book)). E2. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request. E3. Erosion and sediment control measures are not to be removed until the works are complete, and areas are stabilised. E4. Work areas are to be stabilised progressively during the works. E5. A progressive erosion and sediment control plan is to be prepared for the works. E6. The maintenance of established stockpile sites is to be in accordance with the Transport for NSW Stockpile Site Management Guideline (EMS-TG-10).
Waterways and water quality	W1. There is to be no release of dirty water into drainage lines and/or waterways. W2. Water quality control measures are to be used to prevent any materials (e.g., concrete, grout, sediment etc) entering drain inlets or waterways. W3. Excess debris from cleaning and washing is removed using hand tools. W4. All fuels, chemicals and liquids are to be stored in an impervious bunded area a minimum of 50 metres away from: • Rivers, creeks, or any areas of concentrated water flow • Flooded or poorly drained areas • Slopes above 10%. W5. Refuelling of plant and equipment is to occur in impervious bunded areas located a minimum of 50 metres from drainage lines or waterways. W6. 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.

Safeguards for the proposed work	
	W7. All workers will be advised of the location of the spill kit and trained in its use. W8. If an incident (e.g. spill) occurs, the Transport for NSW Environmental Incident Classification and Reporting Procedure is to be followed and the Transport for NSW Contract Manager notified as soon as practicable. W9. 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. W10. Timing the works should consider risk of flooding events which are more likely in the wet season which for the area is from December – March. Works undertaken during this period should monitor forecast rainfall and plan for the occurrence of flooding events which may impact construction works. W11. If water is found to be flowing at any culverts, prepare a combined Water Deviation plan / Dewatering Plan / Work Method Statement to address potential impacts specific to the activity and provide additional mitigation measures to be included in the CEMP. W12. Where water is flowing through culverts there needs to be a deviation of clean water flow around the culvert outlet during works to avoid sedimentation and maintain clear water flow.
Noise and vibration	N1. Works to be carried out during normal work hours (i.e., 7am to 6pm Monday to Friday) except for Saturdays where hours will be 8am to 6pm. Any work that is performed outside normal work hours or on Sundays or public holidays must have measures in place to minimise noise impacts. Note extended Saturday work hours 8am to 6pm. N2. Noise impacts are to be minimised in accordance with Transport for NSW Construction Noise Estimator. N3. Letter box drops are to be completed to all residents located less than 115 metres from the works. All noise complaints will be addressed if/when received with respite options provided on a case-by-case basis. N4. Implement 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.
Air quality	A1. Measures (including watering or covering exposed areas) are to be used to minimise or prevent air pollution and dust. A2. Works (including the spraying of paint and other materials) are not to be carried out during strong winds or in weather conditions where high levels of dust or air borne particulates are likely. A3. Vegetation or other materials are not to be burnt on site. A4. Vehicles and vessels transporting waste or other materials that may produce odours or dust are to be covered during transportation. A5. Stockpiles or areas that may generate dust are to be managed to suppress dust emissions in accordance with the Transport for NSW Stockpile Site Management Guideline (EMS-TG-10).
Non-Aboriginal heritage	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

Safeguards for the proposed work	
	Transport for NSW *Standard Management Procedure: Unexpected Heritage Items* must be followed. Transport for NSW Senior Environment Specialist – Heritage must be contacted immediately.
Aboriginal heritage	If Aboriginal heritage items are uncovered during the works, all works in the vicinity of the find must cease and the Transport for NSW Aboriginal cultural heritage officer and regional environment manager contacted immediately. Steps in the Transport for NSW *Standard Management Procedure: Unexpected Heritage Items* must be followed.
Biodiversity	F1. There is to be no disturbance or damage to threatened species or areas of outstanding value. F2. Works are not to harm threatened fauna (including where they inhabit bridges or other structures e.g. timber fence posts). F3. Environmental protection areas should be established to ensure the boundary of areas to be cleared are clearly identified and all other vegetation is retained. Areas of Bailey's Cypress Pines shown in Figure 6 and Plates 10 to 11 must be included in Environmental Protection Areas. Furthermore, weed control is to be undertaken within the Environmental Protection Area to promote the growth of Bailey's Cypress Pines and reduce weed competition with immature specimens. F4. An experienced, licensed ecologist or appropriately trained Transport for NSW staff is to undertake pre-clearing surveys prior to vegetation removal to inspect trees for the presence of fauna. If fauna is identified a licensed ecologist is to be engaged to perform any spotter catcher duties required. F5. An experienced ecologist or appropriately trained Transport for NSW staff is to undertake spotter catcher role during removal of hollow bearing trees. F6. Tree limbs containing hollows should be removed by arborist prior to felling trees and lowered to ground undamaged to avoid direct impacts to fauna occupying hollow. F7. If unexpected threatened fauna or flora species are discovered, stop works immediately and follow the Transport for NSW Unexpected Threatened Species Find Procedure in the Transport for NSW Biodiversity Guidelines 2011 – Guide 1 (Pre-clearing process). F8. Each tree hollow removed should be replaced at a ratio of 1:2 (i.e., 2 boxes for each hollow removed) to compensate for loss of tree hollows. This can be achieved through installation of nest boxes or creation of hollows using a boring device, or sections of tree hollows can be removed, modified, and installed in surrounding unimpacted vegetation. Of the eleven (11) replacement hollows a range of entry and cavities sizes should be used to account for the suite of species occurring locally.F9. All pathogens (e.g. Chytrid, Myrtle Rust and Phytophthora) are to be managed in accordance with the Transport for NSW Biodiversity Guidelines - Guide 7 (Pathogen Management), DECC Statement of Intent 1: Infection of native plants by Phytophthora cinnamomi (for Phytophthora) and Arrive Clean, Leave Clean, Commonwealth of Australia 2015. F10. Weeds are to be managed according to requirements under the Biosecurity Act, 2015 and Guide 6 (Weed Management) of the Transport for NSW Biodiversity Guidelines 2011.

Safeguards for the proposed work	
	F11. Fauna handling must be carried out in accordance with the requirements the Transport for NSW Biodiversity Guidelines - Guide 9 (Fauna Handling). F12. Works are not to create an ongoing barrier to the movement of wildlife.
Trees	T1. Pruning of mature trees is to be in accordance with Part 5 of the Australian Standard 4373-2007 Pruning of amenity trees. T2. Work limits are to be clearly delineated in the field prior to commencement. T3. There is to be no disturbance beyond the limit of works without prior assessment.
Traffic and transport	R1. 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. R2. A traffic control plan will be prepared in accordance with the 'Traffic control at work sites manual' (RMS, 2018) and Australian Standard 1742.3 Manual of uniform control devices. R3. Notify NSW SES where there are likely to be significant delays in the operation of the roads affected by the upgrades.
Socio-economic	C1. Notification is to be given to road users and adjacent properties 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. C2. All complaints are to be recorded on a complaint register and attended to promptly. C3. 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. C4. TfNSW is to liaise with / notify Indigenous Native Title/Land Use Agreement claimants prior to starting any of the proposed works.
Landscape character and visual amenity	V1. Landscaping is to be managed in accordance with Transport for NSW Landscape guideline, 2013. V2. Works to be carried out in accordance with Transport for NSW EIA-N04 Guideline for Landscape Character and visual impact assessment.
Waste	M1. A Waste Management Plan must be prepared that follows the Transport for NSW Technical Guide: Management of road construction and maintenance waste. M2. 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).

Safeguards for the proposed work	
	M3. If vegetation is to be mulched and transported off site for beneficial reuse, it is to be assessed for the presence of weeds, pests, and other diseases, and a Mulch Management Plan prepared in accordance with the Transport for NSW Technical Procedure: Mulch Management. M4. Bulk project waste (e.g. fill) sent to a site not owned by the Transport for NSW (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 Transport for NSW Waste. This includes waste transported for reuse, recycling, disposal, or stockpiling. M5. There is to be no disposal or re-use of construction waste on to other land. M6. Waste is not to be burnt on site. M7. Waste material, other than vegetation and tree mulch, is not to be left on site once the works have been completed. M8. Working areas are to be maintained, kept free of rubbish, and cleaned up at the end of each working day. M9. Tree mulch can be reused onsite to stabilise soil by spreading on embankments (no more than 100m thick) within the road reserve. Tree mulch will not be spread on the lower slopes of stream banks.

5.1 Licensing and approvals

No additional licensing or approvals required.

5.2 Other requirements

Requirement		
Environmental management plan sent to SMES for review.	☑ 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:

Taylor Craig

Ecologist

Reconeco Pty. Ltd.

Date: 24/06/2022

Minor Works REF reviewed by:

Angus Underwood

Senior Ecologist

Reconeco Pty Ltd

Date: 17/05/2022

Craig Faulkner

Senior Ecologist

Reconeco Pty Ltd

Date: 24/06/2022

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 proposal described in the Minor Works REF will have some environmental impacts which can be ameliorated satisfactorily. Having regard to the safeguard and management measures proposed, this assessment has considered that these impacts are unlikely to be significant and therefore an approval for the proposal does not need to be sought under Division 5.2 of the EP&A Act.

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.

6.3 Environment staff recommendation

It is recommended that the proposal to rehabilitate and widen a section of road on the Bruxner Highway (S5440-5450) as described in this Minor Works REF proceeds 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.

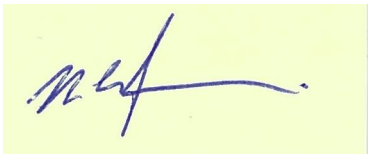
The Minor Works REF determination will remain current for two years until July 2024 at which time it shall lapse if works have not been physically commenced. The pre-construction checklist must be completed prior to the commencement of any works.

Recommended by:

4/7/2022

Senior Environment and Sustainability Officer

Noted by:



Ross Gersekowski

Project Manager

Date: 03/08/2022

6.4 Determination

In accordance with the above recommendation and sections 5.5 and 5.7 of the EP&A Act, I determine that Transport for NSW may:

- proceed with the activity

David Pattison

Senior Manager Project Services North

Date: 25/08/2022

Appendix A

Project Design and Brief

Appendix B

Figures 3 to 6

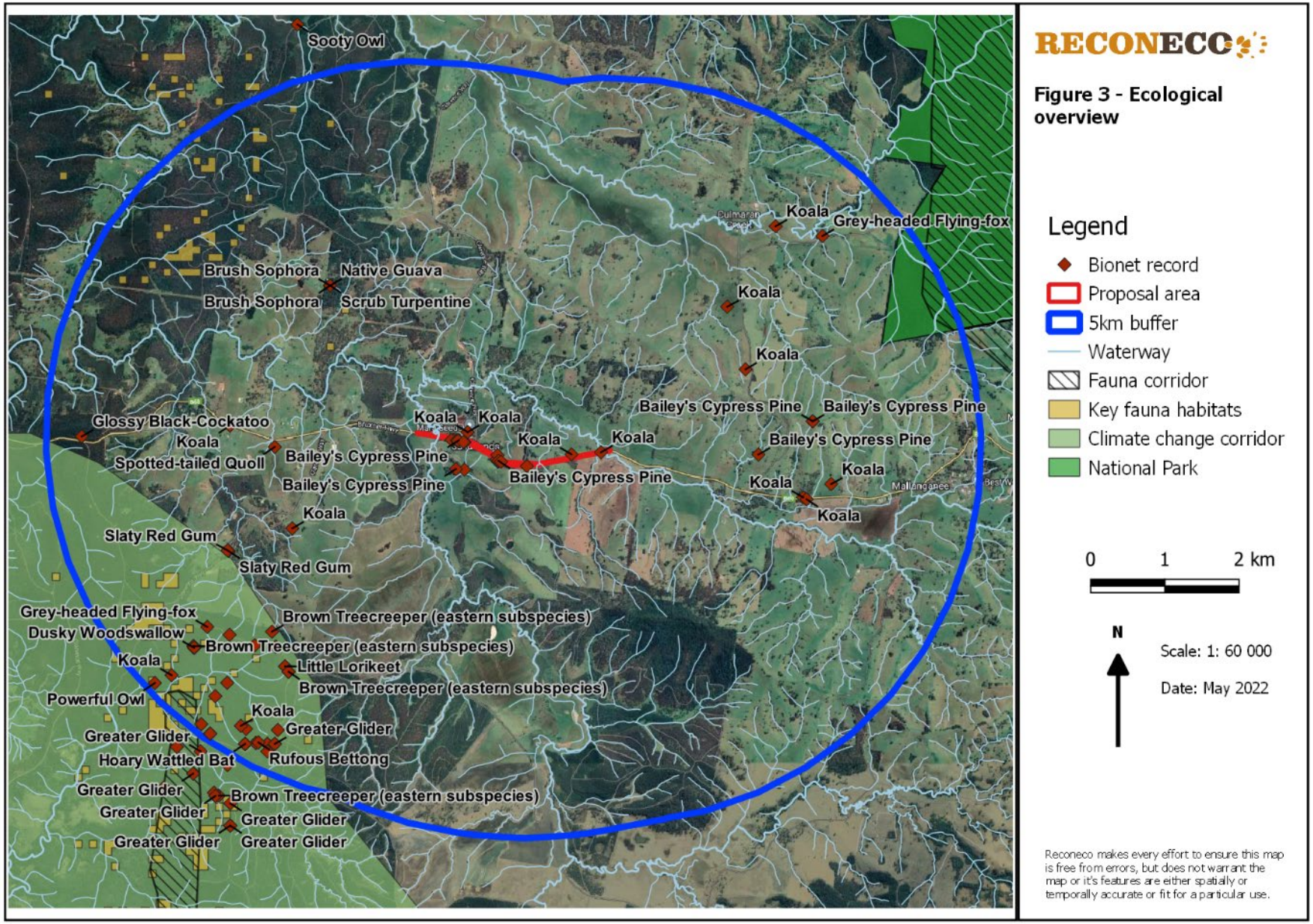


Figure 3 Ecological overview of the landscape surrounding the proposal area.

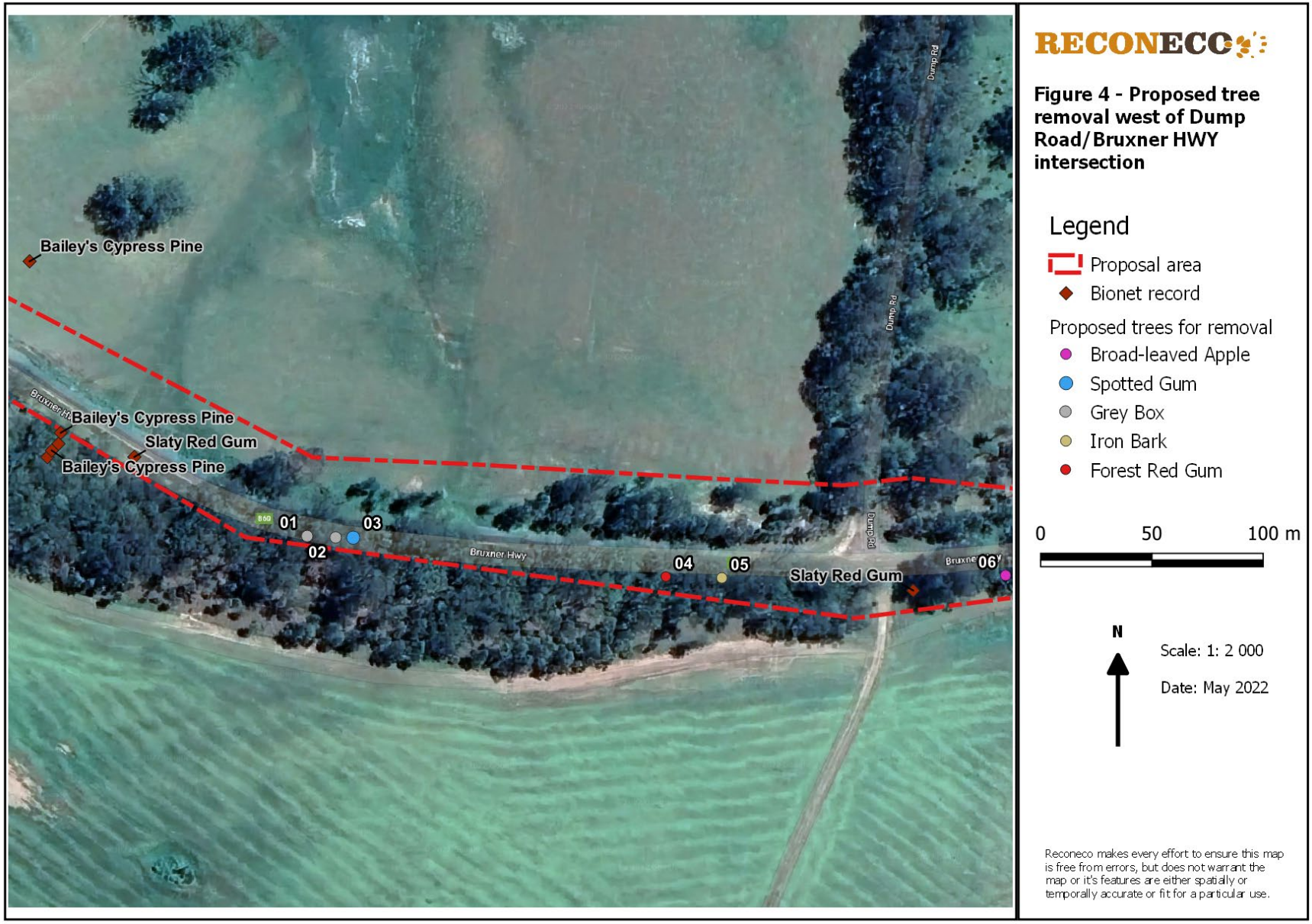


Figure 4 Proposed tree removal and nearby BioNet records west of Dump Road/Bruxner Highway intersection.

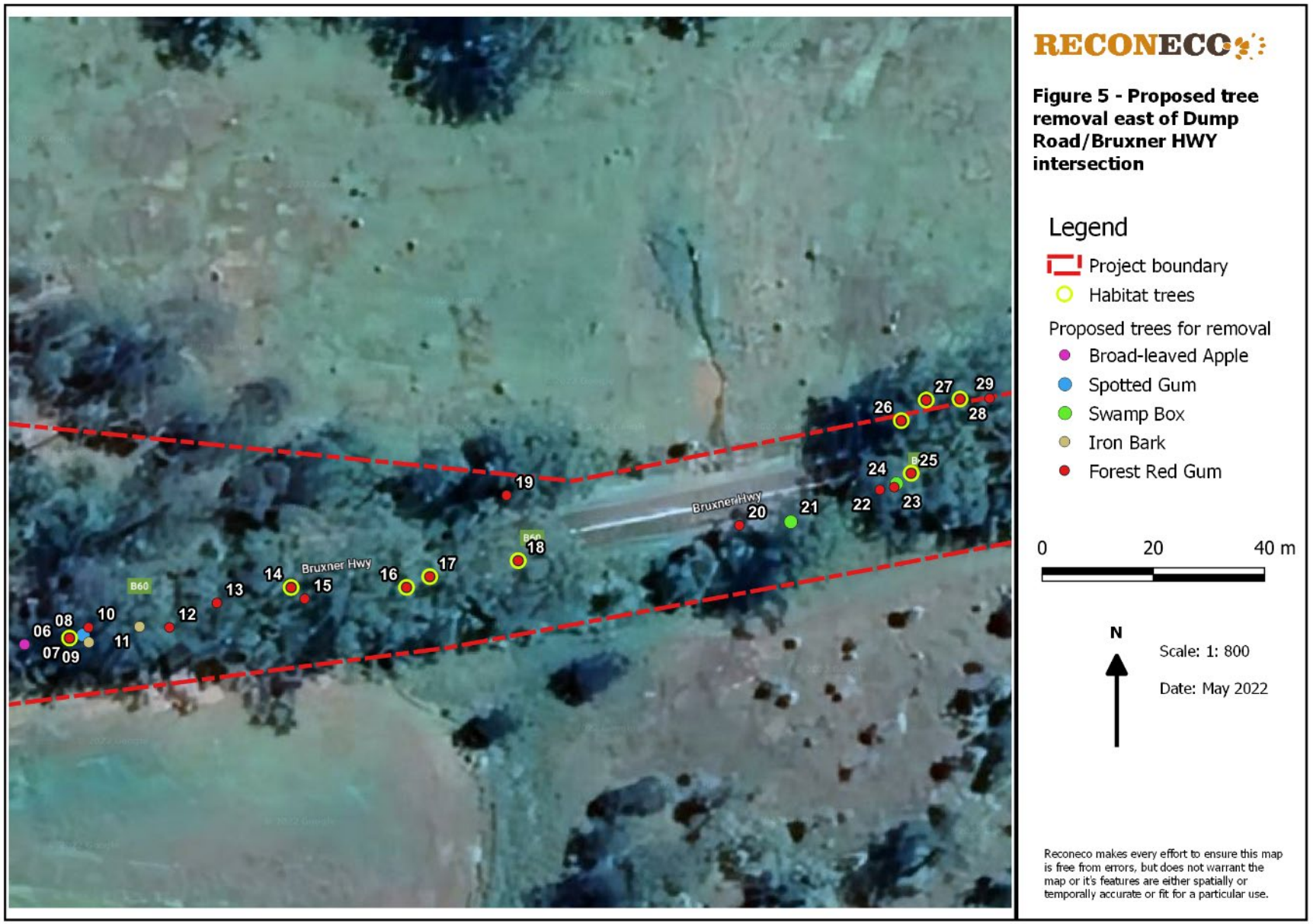


Figure 5 Proposed tree removal and habitat trees east of the Dump Road/Bruxner Highway intersection.

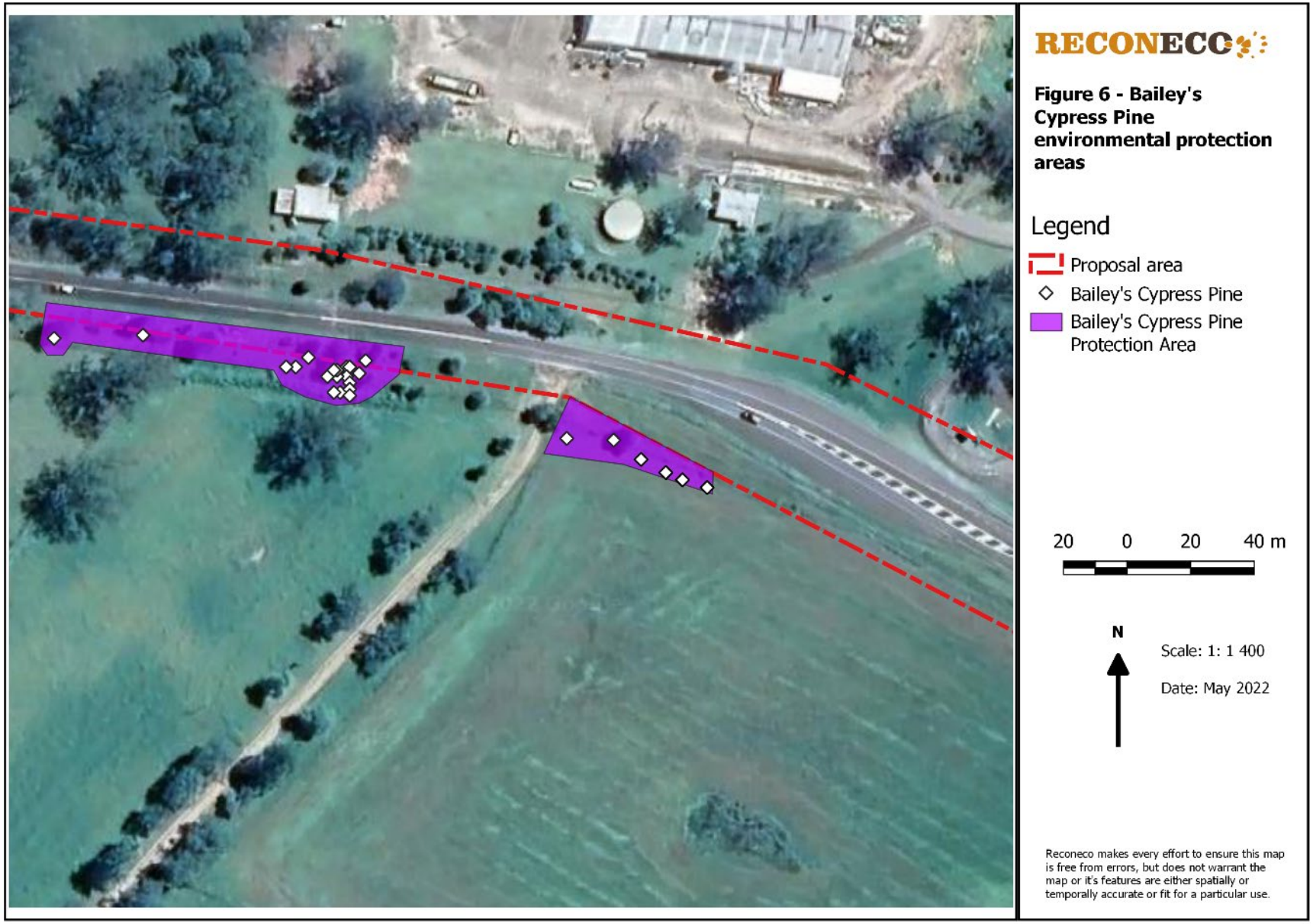


Figure 6 Endangered Bailey's Cypress Pine (*Callitris baileyi*) environmental protection west of Sandilands Rest Area. Note: seedlings not recorded.

Appendix C

Contaminated Lands Database Search Results

Appendix D

Heritage Database Search Results

Appendix E

Noise Assessment

Appendix F

BioNet Atlas and Protected Matters Search Results

Appendix G

Threatened Species Likelihood of Occurrence

Appendix H

Test Of Significance – *Biodiversity Conservation Act 2016*

Month YEAR
TfNSW XX.XXX
ISBN: XXX-X-XXXXXX-XX-X