

REVIEW OF ENVIRONMENTAL FACTORS

Addendum #1

Coco Creek Bypass

Prepared for: Lithgow City Council



The Environmental Factor



Review of Environmental Factors – Addendum #1

Coco Creek Bypass

Document Verification

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This Addendum has been prepared by The Environmental Factor (TEF) at the request of Lithgow City Council (LCC or Council) in order to describe changes to the project as previously stated in the final Review of Environmental Factors (REF) for the *Glen Davis Road Bridge Replacements Project, 2021* (hereafter, the Project REF). This document is not intended to be utilised or relied upon by any persons other than LCC, nor to be used for any purpose other than that articulated above. Accordingly, TEF accepts no responsibility in any way whatsoever for the use of this report by any other persons or for any other purpose.

This report has been developed in accordance with the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act), the *NSW Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) and the Department of Planning and Environment's (DPE) Guidelines for Division 5.1 assessments (DPE Guidelines) and demonstrates how the environmental factors specified in clause 171(2) of the EP&A Regulation were taken into account when considering the likely impact of the proposed activity.

The information, statements, recommendations, and commentary (together the "Information") contained in this review have been prepared by TEF from material provided by LCC and NSW Department of Planning and Environment (DPE), including available databases. TEF has not sought any independent confirmation of the reliability, accuracy or completeness of this information. It should not be construed that TEF has carried out any form of audit of the information which has been relied upon.

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Information contained within the Report is current as at the date of the Report and may not reflect any event or circumstances which occur after the date of the Report. TEF is not responsible for updating this report if site conditions change.

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Abbreviations

Abbreviation	Description
BC Act	<i>Biodiversity Conservation Act 2016</i>
CEEC	Critically Endangered Ecological Community
DEE	Department of Environment and Energy
DPI	Department of Primary Industries
DPE	Department of Planning and Environment (formerly OEH)
EEC	Endangered Ecological Community
EPA	Environmental Protection Agency
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
EPL	Environmental Protection Licence
FM Act	<i>Fisheries Management Act 1994</i>
KTP	Key Threatening Process
LCC	Lithgow City Council
LGA	Local Government Agency
MNES	Matters of National Environmental Significance
NSW	New South Wales
OEH	Office of Environment and Heritage (now DPE)
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
REF	Review of Environmental Factors
TEF	The Environmental Factor
WoNS	Weed of National Significance

1 SUMMARY

The Environmental Factor (TEF) has been engaged by Lithgow City Council (LCC or Council) to undertake a Review of Environmental Factors (REF) to fully consider the environmental issues relating to the proposed removal of three (3) timber bridges and replacement with modern road bridges along Glen Davis Road between the townships of Capertee and Glen Davis; the bridges are located at the Airly Creek, Coco Creek and Crown Creek crossings, NSW (hereafter 'the Proposal'). Additional to the scope of the original Proposal, Coco Creek requires a bypass or diversion to be constructed in order to permit traffic movements and thoroughfare during bridge construction.

The update to the original study area assessed in the REF has been undertaken through provision of this Addendum and documents provided by LCC, with a brief onsite investigation undertaken (19th May 2022). This REF Addendum should be read and considered in conjunction with the *Glen Davis Road Bridge Replacement REF* (referred to hereafter as the Project REF), to assess the environmental impacts of this project as a whole.

Impacts as a result of the bypass installation and use include the following:

- Impacts to up to **0.42 ha**, including **0.36 ha** of native vegetation as a result of construction and use of a temporary bridge and single-lane roadway approximately 4.5 m wide and 209 m long to be graded with dirt and road base along its length.
- Direct (**0.05 ha**) and indirect (**0.2 ha**) impacts to Box Gum Woodland Threatened Ecological Community (TEC). Tests of significance have concluded that there are no significant impacts and a referral to the Minister is not required.
- Installation of approximately 10 m long temporary concrete bridge crossing Coco Creek, with no instream pilings.
- Reinforcement of banks with stone and concrete
- Operation of one-way bridge with traffic lights at either end for use by vehicles up to 4.5 tonne.
- Removal of temporary bridge and closure of temporary roadway following completion of the Coco Creek bridge replacement works.

An additional survey was completed by Apex Archaeology on the 13th of May 2022 to investigate the addendum study area as part of the Aboriginal Due Diligence Assessment. Ground disturbance in this area was reduced away from the road and the eastern side of Coco Creek was identified as having moderate potential for sub surface archaeological deposits to occur. However, consultation with Lithgow City Council confirmed that the bypass area will not impact the area identified to have sub surface archaeological potential, and as such no further archaeological assessment is necessary. To minimise impacts to the ground surface within the area of PAD near Coco Creek it is recommended that geofabric or similar be laid down along the surface within the eastern portion of the bypass section prior to any material being brought in to create the bypass section.

A Fisheries permit is to be progressed and include the bridge construction and the above-mentioned works. The potential impacts associated with this proposed activity are outlined within this report and are considered unlikely to significantly affect the environment. Environmental Safeguards

recommended herein, and in the Project REF, are to be implemented and maintained as part of the scope of works.

1.1 Site Description

The Proposal will include the clearing of a bypass, installation of a temporary concrete bridge and laying of gravel to form the road base. Bridge upgrade works in the area (refer project REF) have deemed the need for a temporary traffic diversion at Coco Creek while bridge upgrade works are carried out. This temporary bypass will enable local traffic, vehicles up to 4.5 tonne and emergency vehicles to continue to use Glen Davis Road between the townships of Glen Davis and Capertee, NSW. The bypass occurs across two (2) private properties (Lot 1 DP568768 and Lot 1 DP755766) with both property owners amenable to the works progressing.

Table 1 Site details

Site details	
Road name / Property name Lot /DP	The addendum study area occurs across Coco Creek, adjacent the existing Coco Creek bridge which services Glen Davis Road. The works occur across two private properties, Lot 1 DP568768 and Lot 1 DP755766.

Table 2 Definitions

Term	Description
Subject site	The area to be directly affected, including machinery access, stockpile, road construction (4.5 x 209 m and including clearing, grading and laying gravel), temporary bridge installation and use. A 4.5 m wide direct impact area has been used, for a total direct impact area of 0.09 ha .
Study area	Includes the subject site (as described above) and any proximal areas that could be potentially directly or indirectly impacted by the proposal. For the purposes of this addendum, the study area has included a buffer of 10 m either side of the centre line to allow for indirect impacts for a total impact to 0.42 ha .
Locality	Is the area within 10 kilometres of the subject site



Plate 1 Subject Site for Bypass and temporary bridge placement

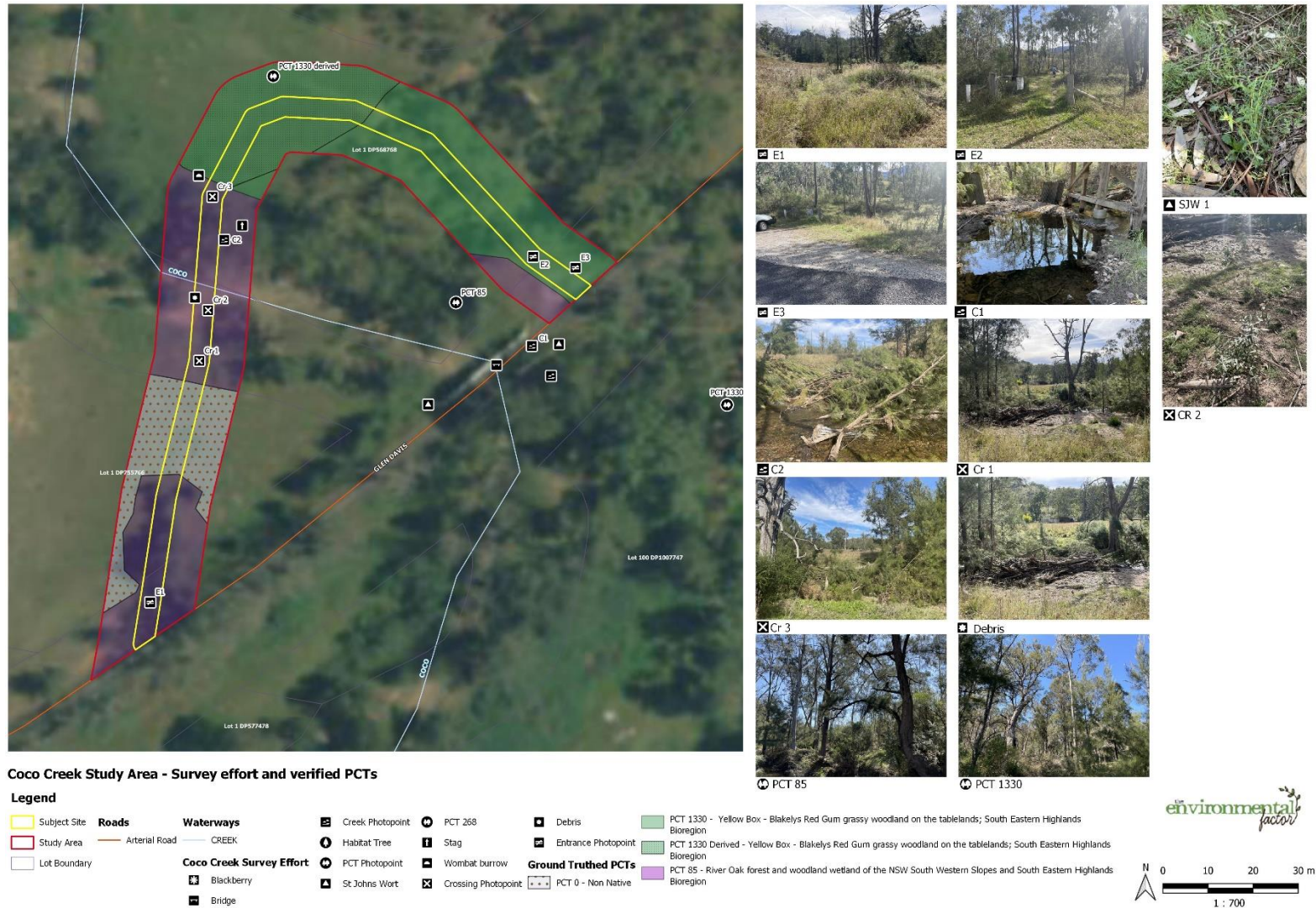


Figure 1 Subject Site and Study Area at Coco Creek Bypass

2 DESCRIPTION OF CHANGES

The works, as assessed herein, constitute the installation of a temporary bypass road during construction of the bridge crossing Coco Creek, along Glen Davis Road, and installation of a temporary waterway crossing. The bypass and temporary crossing will permit traffic movement during the new Coco bridge installation and retain traffic flow for vehicles under 4.5 tonne, and emergency vehicles.

The following sections and Appendix A provide further detail on relevant aspects of the works.

2.1 Justification for the Proposed Works

Council has identified the need to undertake extensive maintenance works on Coco Creek bridge (and Airly and Crown Creek bridges), including the replacement of structural components due to the ongoing cost of maintaining the existing structures in their current state of repair, and due to safety concerns regarding the single-lane style of the bridges which occur on a busy transport road in a 100 km / hr speed limit area.

In order to proceed with the construction of the Coco Creek bridge, a bypass needs to be constructed to allow traffic movement along Glen Davis Road during this time. Crown Creek crossing has an existing diversion. The works assessed as part of this addendum relate to the construction of a bypass road and temporary bridge at Coco Creek to allow traffic movement between Glen Davis and Capertee/Lithgow without a detour through Kandos.

2.2 Options Considered

Option 1 – Construct a bypass around Coco Creek bridge site, allowing traffic movement to continue during bridge construction.

Option 2 – Do nothing and proceed with works replacing Coco Creek bridge without a diversion in place, obstructing traffic movement intermittently over a 10 - 13 week period.

Council elected to proceed with Option 1 in order to maintain traffic flow and to minimise disruptions to local traffic movements in the area during the bridge replacement.

2.3 Construction Activities

Construction activities include:

- Clearing of vegetation along the 209 m bypass, grading and laying of gravel
- Stabilizing the creek banks with rock and concrete
- Installation (via crane) of a pre-cast concrete single land bridge over Coco Creek
- Installation of temporary signage and traffic lights, alerting road users to the bypass and associated restrictions
- Removal of instream *Casuarina cunninghamiana* (approximately 20 individuals) and flood debris from within the subject site at Coco Creek.
- Removal of concrete bridge once Coco Creek bridge replacement works complete

2.4 Operation Activities

Operational activities will include use of the single-lane bypass and bridge by local traffic and vehicles under 4.5 tonne (excluding emergency vehicles).

3 LEGISLATIVE CONTEXT AND STAKEHOLDER CONSULTATION

The majority of the Legislative Context as detailed in the Project REF was considered to remain relevant for the proposed design changes. The below table includes a summary of the predicted legislative changes commensurate with the proposed design addition.

Table 3 Summary of legislative outcomes

Legislation	Proposed change	Consistent with Project REF?
EPBC Act	-	Yes
Roads Act	Installation of bypass Rd on private land. Council is the appropriate roads authority.	Yes
ISEPP	-	Now Transport and Infrastructure SEPP (TISEPP), but remains consistent.
EP&A Act	-	Yes
BC Act	-	Yes
BC Regulatory Act	-	Yes
NPW Act	-	Yes
Heritage Act	-	Yes
FM Act	New temporary bridge and streambank modifications. No instream pilons proposed.	No; Instream works including removal of Casuarina and flood debris plus riparian bank stabilisation require Approval from DPI Fisheries. Application for a Fisheries Permit to be issued under Part 7 of the FM Act is required.
WM Act	-	Yes
NSW Biosecurity Act	-	Yes
Local Land Services Act , Local Land Services Amendment Act	-	Yes
SEPP Koala Habitat Protection 2021	-	Yes
POEO Act	-	Yes

3.1 Community and Agency Consultation

3.1.1 Stakeholder Consultation

Council has communicated with the property owners on which the bypass is to be constructed. Both have confirmed their approval for the works to proceed (pers. Comms LCC, 2022).

3.1.2 Agency Consultation

Council will liaise with the Department of Primary Industries (DPI) and obtain a Part 7 Fisheries Permit.

4 ENVIRONMENTAL ASSESSMENT

This section of the REF Addendum provides a description of the potential environmental impacts associated with the construction and operation of a bypass at Coco Creek. All aspects of the environment potentially affected by the changes have been considered.

All existing Safeguards and mitigation measures outlined in the Project REF remain applicable to the project and must be implemented as part of the additional works that are the subject of this Addendum. Additional site-specific safeguards have been identified where necessary. Not all of the proposed additional works alter the identified impacts for each of the environmental aspects. Table 4 below provides a summary of anticipated impacts for each environmental consideration within the additional study area. Where the new proposed works would not alter the environmental impacts identified in the Project REF, the additional works are not discussed further.

Table 4 Summary of design changes for environmental impacts

Environmental Consideration	Impacts associated with additional works?
Soils and Erosion	Yes – temporary negative as additional excavation of soils required
Waterways	Yes – temporary negative impacts anticipated with bypass road through waterway
Noise and Vibration	Yes – temporary negative additional noise impact anticipated associated with grading of bypass road
Air Quality	No – captured in Project REF
Socio-economic Considerations	Yes – positive impact anticipated with vehicle movement enabled / removal of extended traffic diversion
Visual Amenity	Yes – minor negative impacts associated with signage and construction of bypass road
Traffic and Transport	Yes – positive impact anticipated
Non-Aboriginal Heritage	No – captured in Project REF
Aboriginal Heritage	Yes – additional consideration warranted; impact unlikely, however stop works protocol recommended
Biodiversity	Yes – additional vegetation clearance required
Waste	No – captured in Project REF
Climate Change	No – captured in Project REF

4.1 Soils and Erosion

4.1.1 Existing Environment

The existing environment was described in Chapter 5 of the Project REF. The addendum study area is located in close proximity to the subject site of the Project REF. The same soil types (Rudosols and Tenosols) and Acid Sulphate Soils (Cq(p4)) occur within the new subject site.

The bridge crossing and road installation will impact upon the soils in the subject site, with excavation and earthmoving activities required.

4.1.2 Potential Soils and Erosion Impacts

Potential impacts associated with the addendum study area are consistent with those described in the REF, with the addition of impacts associated with removal of vegetation, excavation of the temporary bypass road, stabilizing the banks of Coco Creek associated with cut-in of approach, and temporary bridge installation.

Potential impacts associated with the installation and use of the bypass road and bridge are included in Table 5 below.

Table 5 Potential impacts - soils and erosion

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Impacts to an additional 0.09 ha including vegetation clearing, ground disturbance and erosion. A further 0.33 ha has the potential to experience indirect impacts.	Sediment movement and loosening of soils generated by vehicles moving along dirt road.
Installation of bridge including reinforcement of banks	Vehicular movement, loading and unloading of materials and installation adjacent to and within creek bank may add to erosion.	Nil – once operational, bridge is not expected to impact on soil and erosion.
	Excavation and reinforcement of banks to cut in approach, which constitutes 'dredging and reclamation' under the FM Act. A permit is required.	Potential for erosion in works area including scouring of banks.
Removal of bridge	Potential for erosion of creek bank due to machinery and personnel movements.	Potential for erosion and pollution of Coco Creek if banks are not adequately revegetated and rehabilitated.

4.1.3 Environmental Safeguards – Soils and Erosion

The soils and erosion safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly.

Several additional safeguards and management measures for soils and erosion have been recommended, per the below:

- Ensure signage and entry to bypass road is removed following completion of Coco Creek bridge to prevent use of bypass and entry to the area to facilitate rehabilitation.
- Seek advice on bank stability and best practice management for rehabilitation following bridge removal. Rocks and stabilisation measures may need to remain in situ to prevent further erosion.
- Plantings of appropriate native riparian species to be carried out within riparian zone of temporary bridge crossing once bridge has been removed in order to help stabilise creek banks.

4.2 Waterways

4.2.1 Existing Environment

The existing environment was described in Chapter 5 of the Project REF.

Coco Creek contained slow flows at the time of survey (May 2022) with rocky pools, washed up logs (flood debris, snags) and other debris scattered around and within the waterway (refer **Error! Reference source not found.** and Plate 3). The embankments are steep with intact riparian vegetation and fallen timber. Water quality was observed as good with low turbidity, although no standardized water quality tests have been completed as part of this assessment. The creek up and downstream of the subject site supports a variety of aquatic habitats in varying conditions, including trees, rocky outcrops, washed up decaying trees with hollows, rocky pools, snags, stags, and swampy grassland.

Waterways which are 3rd order or greater (calculated using the Strahler method on a 1:25,000 topo) are represented as Key Fish Habitat (KFH) on mapping provided by NSW Department of Primary Industries (DPI) Fisheries; Coco Creek falls into this category in this location.



Plate 2 Clear flowing water, rocky cobbles and snags observed within the subject site of Coco Creek during May 2022 survey



Plate 3 Riparian vegetation and cover including fallen timber and structural vegetation on the banks of the Creek in the path of the proposed temporary bridge crossing: Looking south (left) and north (right)

4.2.2 Potential Waterways Impacts

Potential impacts associated with the proposed works are consistent with those described in the REF, with the potential for additional erosion affecting Coco Creek due to disruption of the bank during installation and removal of the bridge. Impacts to the waterway may also result from erosion on the creekbank. Potential impacts associated with the installation, use and removal of the bypass road and bridge are included in Table 6 below.

Table 6 Potential impacts - waterways

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Removal on instream trees and debris. Potential for sediment migration. Loosening of soils along bypass road.	Potential for heavy rains to wash loose soils into Coco Creek.
Installation of bridge including reinforcement of banks	Disruption of soils and bank and removal of vegetation within waterway and riparian zone.	Potential for creek bed erosion and deposition during flood events. Potential for dust, washouts and scouring.
Removal of bridge	Potential for disruption of creek bank, soil instability and sediments entering waterway	Nil

4.2.3 Environmental Safeguards – Waterways

The surface and groundwater safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly.

Several additional safeguards for surface and groundwater have been recommended.

- Council is required to include these addendum works within their application for a Permit under Part 7 of the FM Act for ‘dredging and reclamation and obstruction of fish passage’ in order to proceed with the works.
- Minimising removal of instream snags and/or vegetation to required areas for temporary bridge installation only. Debris within the Coco Creek subject site from recent flooding will require removal prior to bridge installation along with an additional approx. twenty (20) regenerating *Casuarina cunninghamiana* with a dbh <10 cm within the creek. Trees are to be cut at the base, rather than pulled up from the roots, wherever possible to reduce release of sediments into the water column.
- All vegetation, snag and instream habitat removal is to occur so as to cause minimal disturbance to the banks and waterway. Logs and snags to remain within the waterway where possible – moved downstream or onto adjacent land.
- No instream structures form part of the scope (pilons etc) – bridge to be craned into place.

4.3 Noise and Vibration

4.3.1 Existing Environment

The existing environment was described in Chapter 5 of the Project REF. No residential properties occur close to the addendum subject site, however one (1) fishing shack occurs on Lot 1 DP 568768.

The landowner has given their approval for the bypass works and the shack will be vacant during the construction phase of the works, thus noise impacts are not likely to impact on this landholder.

4.3.2 Potential Noise and Vibration Impacts

Potential impacts associated with the installation and operation of the bypass and bridge are included in Table 7 below.

Table 7 Potential noise and vibration impacts

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Use of heavy noise-generating machinery including alert beepers, excavators and trucks.	Noise generated by vehicles using bypass road and bridge.
Installation of bridge including reinforcement of banks	Vehicular movement and reverse beepers, high noise generating machinery, drilling, concrete cutting and crane noise.	Nil
Removal of bridge	Crane noise, reverse alert beeper, truck.	Nil

4.3.3 Environmental Safeguards – Noise and Vibration

The noise and vibration safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly.

No additional safeguards for noise and vibration have been recommended as part of these works.

4.4 Socio-economic considerations

4.4.1 Existing Environment

The existing environment was described in Chapter 5 of the Project REF. One fishing shack occurs in close proximity to the addendum subject site. This landholder has advised that no one will be occupying the shack during the road bypass construction and operational phases and so, no impacts are likely to result.

4.4.1 Potential Socio-economic Impacts

Potential impacts associated with the new study area are consistent with those described in the REF. Additional potential impacts associated with the works are outlined in Table 8 below.

Table 8 Potential impacts – socioeconomics

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Benefit to locals, allowing continued use of road and thoroughfare during construction works. Temporary road and bridge will permit construction and bridge replacement of Coco Creek bridge to take place.	
Installation of bridge including reinforcement of banks		
Removal of bridge	Access to private property granted by landholders.	

4.4.2 Environmental Safeguards – Socio-economic

The air quality safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly.

One additional safeguard for socio-economics has been recommended to be implemented as part of these works:

- Continue to liaise with landholders regarding bypass and bridge works and ensure involvement throughout the process.

4.5 Visual Amenity

4.5.1 Existing Environment

The existing environment was described in Chapter 5 of the Project REF. visual amenity within the addendum study area is mostly native vegetation, with a partially cleared access track, view of a fishing shack and surrounding natural bushland.

4.5.2 Potential Visual Amenity Impacts

Potential impacts associated with the new study area are consistent with those described in the REF. Direct impacts to an additional 0.09 ha will result from the addendum works with additional impacts detailed in Table 9.

Table 9 Potential impacts – visual amenity

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Exposed landscape/ temporary fencing, high vis, materials, machinery. Clearing of up to 0.09 ha of vegetation including across Coco Creek.	Vehicles travelling along the bypass road, through private property.
Installation of bridge including reinforcement of banks	Clearing of stream bank vegetation, streambank works.	Concrete bridge across waterway detracts from natural setting.
Removal of bridge	Potential for barren section of Coco Creek following bridge removal. Potential for visible concrete/rocks to remain on streambank.	Rehabilitation within crossing location to return or improve pre-works visual amenity of the site.

4.5.3 Environmental Safeguards – Visual amenity

The visual amenity safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly. Additional safeguards and management measures for visual amenity of the site are:

- Ensure works remain within impact footprint and clearing/ alterations are conducted in a way to minimize long-term visual impacts.
- Ensure tidiness and minimal visual impact of the site is made a priority.
- Revegetate the streambank and rectify the site to return it to pre-work or better condition upon completion of bridge replacement works.

4.6 Traffic and Transport

4.6.1 Existing Environment

The existing environment was described in Chapter 5 of the Project REF. Movement of trucks, light vehicles and machinery is predicted along the bypass road, with entry occurring from both ends to allow for bridge installation. The informal track that exists currently is not graded or maintained to allow frequent vehicular thoroughfare (Plate 4 - Plate 6).

4.6.2 Potential Traffic and Transport Impacts

Potential impacts associated with the new study area are consistent with those described in the REF. The addendum works will allow the thoroughfare of vehicles under 4.5 tonne and retain traffic movement along Glen Davis Road during Coco Creek bridge construction. Vehicle movements will be limited to 40 km/h and portable traffic lights will direct traffic during use of the bypass.

A Traffic Management Plan (TMP) will cover the traffic safety requirements, including safety measures that surround with site (Table 10).



Plate 4 Entrance to bypass from Glen Davis Rd – 8m wide, narrowing to 4.5 m. Northern entrance (left), southern entrance (right)



Plate 5 Existing informal track (left) and proposed alignment (right) for Bypass, northern side of Study Area



Plate 6 Proposed alignment for Bypass (left) and bridge placement (right), southern side of Study Area

Table 10 Potential impacts - traffic and transport

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Trucks, vehicles and machinery moving to and along the bypass. Entry and exit from the site onto the road. Extended reduced speed area and turning vehicles. Reduced speed a	Signage and traffic lights directing road users to bypass road. Limited access to some vehicles.
Installation of bridge including reinforcement of banks	Heavy vehicles and machinery accessing the site. Crane use.	Ability of traffic movement to remain during bridge installation works.
Removal of bridge	Heavy vehicles and machinery accessing the site, crane use. Bypass road removed and no longer in use.	Traffic flow redirected onto Glen Davis Road and normal traffic flow returned.

4.6.3 Environmental Safeguards – Traffic and transport

The traffic and transport safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly. Some additional safeguards and management measures for traffic and transport considerations have been recommended below:

- Install signage and traffic lights, warning road users of slow and turning vehicles. Signage to direct road users to bypass road, including load limits of bridge.
- Prepare the bypass road to safely allow movement of vehicles (grading/gravel etc.).
- Have vehicles over 4.5 tonne to be redirected and given appropriate warning of road inaccessibility.

4.7 Aboriginal Heritage

4.7.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF. An additional survey was completed by Apex Archaeology on the 13th of May 2022 to investigate the addendum study area. The area assessed was on the northern side of Glen Davis Road and consists of an approximate 200m bypass of the bridge. Ground disturbance in this area was reduced away from the road and the eastern side of Coco Creek was identified as having moderate potential for sub surface archaeological deposits to occur. However, consultation with Lithgow City Council confirmed that the bypass area will not impact the area identified to have sub surface archaeological potential, and as such no further archaeological assessment is necessary.

4.7.2 Potential Aboriginal Heritage Impacts

Potential impacts associated with the new study area are consistent with those described in the REF. The addendum works will impact the ground within the subject site footprint, however this has been surveyed and areas with sub-surface archaeological potential will be avoided.

Table 11 Potential impacts – Aboriginal Heritage

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Impacts to ground from clearing, grading and road base. Area has been assessed and no artefacts of PAD sites are to be impacted.	Potential for vehicles to stray off-track and impact on PAD site. No impacts provided strict adherence to designated bypass road.
Installation of bridge including reinforcement of banks	No impacts predicted	
Removal of bridge	No impact predicted	

4.7.3 Environmental Safeguards – Aboriginal Heritage

The Aboriginal Heritage safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly. Some additional safeguards and management measures for Aboriginal Heritage considerations have been recommended below:

- To minimise impacts to the ground surface within the area of PAD near Coco Creek it is recommended that geofabric or similar be laid down along the surface within the eastern portion of the bypass section prior to any material being brought in to create the bypass section.
- Should it be deemed that any sub surface impacts are to occur to the eastern portion of the study area (as identified in Figure 5 of Appendix B) then further Aboriginal archaeological assessment in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales (OEH 2010), including full consultation with the Aboriginal community in accordance with the Aboriginal cultural

heritage consultation requirements for proponents 2010 (OEH 2010), should be undertaken

4.8 Biodiversity

4.8.1 Existing Environment

The existing environment was described in Chapter 5 of the Project REF.

As part of this, a desktop assessment was undertaken to identify threatened flora and fauna species, populations and ecological communities listed under the BC Act, and Matters of National Environmental Significance (MNES) listed under the EPBC Act that may be affected by the Proposal.

At the time of the original REF/ FFA (December 2021) database records pertaining to the study area and locality (i.e. 10 kilometre radius) were reviewed, and included:

- DPE Wildlife Atlas database for records of threatened species and endangered ecological communities listed under the BC Act that have been recorded within the locality of the subject site (DPE 2021, data accessed 27th August 2021).
- Department of the Environment and Energy (DEE) Protected Matters Search Tool for Matters of National Environmental Significance (MNES) listed under the EPBC Act recorded or predicted to occur in the locality of the site (DAWE 2021, report generated 27th August 2021).
- OEH threatened species profiles online database (DPE 2021)
- DEE online species profiles and threats database (DAWE 2021).
- State Vegetation Type Map: Central Tablelands Region SMV PCT 4778 CRS GDA20 MGA zone 55, to identify native vegetation types occurring within the study area and the likely presence of any threatened ecological communities (OEH 2019).
- SEPP Koala Habitat Protection – SEPP 2020 applies

Due to the time elapsed, and the databases being updated annually, updated searches were done on the 7th of June 2022. These searches revealed an additional two (2) threatened species records (Bionet) as recorded within the search area (10 km). PCT 1330 observed onsite was found to align with a Threatened Ecological Community and has been included in the LoO and ToS.

Table 12 Additional threatened species (Bionet) for addendum study area (10 km radius) and Likelihood of Occurrence

Scientific Name	Common name	BC Act	EPBC Act	Habitat	Source	Likelihood of Occurrence within the Study Area	Likelihood of impact within the Study Area
<i>Circus assimilis</i>	Spotted Harrier	V		The Spotted Harrier is found in open wooded country in tropical and temperate Australia, particularly in arid and semi-arid areas	Bionet	Possible	Low
<i>Rostratula australis</i>	Australian Painted Snipe	E	E	The Australian Painted Snipe occupies wetland and swamp habitats, preferring the fringes of swamps and	Bionet	Low	Low

Scientific Name	Common name	BC Act	EPBC Act	Habitat	Source	Likelihood of Occurrence within the Study Area	Likelihood of impact within the Study Area
				dams with a cover of grasses, lignum or open timber. Breeding occurs anytime during spring and summer when conditions are favourable. It nests on the ground amongst tall vegetation.			
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions		CE	CE	White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland can occur as either grassland or woodland is characterised by a species diverse understory of grasses, herbs and sparse shrubs. Dominant canopy species include Eucalyptus albens, E. melliodora and E. blakelyi.	Observed onsite, aligns with PCT 1330.	Known	Moderate

The Spotted Harrier (*Circus assimilis*) and Australian Painted Snipe (*Rostratula australis*) have a low likelihood of occurrence within the subject site, and as such, no tests of significance were completed for these species. The original FFA/REF assessed the likelihood of impact to any species with a moderate or higher likelihood of occurrence within the subject sites of the three bridges. These tests are deemed consistent with the current scope of works, with an additional direct impact area of 0.09 ha and indirect impacts to 0.42 ha of similar habitat not deemed likely to change the determinations of the outcomes for likelihood of impact on these species. A patch of PCT 1330 which aligns with the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Threatened Ecological Community has been further assessed in Sections 4.7.4 and 4.7.5 below.

A site visit was undertaken on the 19th of May 2022 to identify any potential ecological impacts arising from the bypass and bridge installation. Figure 1 shows PCT's and ecological features recorded within the subject site and study area.

Table 13 PCT's within addendum Subject Site and Study Area.

PCT	Subject site (ha)	Study Area (ha)
PCT 0 Non-native	0.01	0.06
PCT 85 River Oak Forest and woodland wetland of the NSW South Western Slopes and South Eastern Highlands Bioregion	0.04	0.16
PCT 1330 Yellow Box – Blakely's Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion	0.03	0.12
PCT 1330 Derived-Yellow Box – Blakely's Red Gum grassy woodland on the tablelands; South Eastern Highlands Bioregion	0.02	0.08
Total	0.09	0.42
Total native	0.08	0.36

The northern bank of Coco Creek addendum subject site (Figure 1, Plate 7) contained remnant woodland with an existing cleared access track and was dominated by native vegetation including *Eucalyptus bridgesiana* (Apple Box), *Angophora floribunda* (Rough-barked Apple), *Brachychiton populneus* (Kurrajong), *Bursaria spinosa* (Bursaria), *Rubus parviflorus* (Thimbleberry), *Themeda triandra* (Kangaroo grass), *Bothriochloa macra* (Red grass), *Aristida ramosa* (Purple wiregrass), *Sporobolus creber* (Slender Rat's tail grass), *Chrysocephalum sp.*, *Vittadinia cunneata* (Fuzzweed), *Dichondra repens* (Kidney Weed), and *Desmodium varians* (Slender Tick Trefoil). This vegetation aligns with the Plant Community Type (PCT) PCT 1330 – Yellow Box – Blakely's Red Gum grassy woodland on the tablelands. This PCT aligns with a threatened Ecological Community (TEC) *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*. A Test of Significance was undertaken for this TEC within the bypass subject site and study area, with no significant impact to this TEC expected.

An area of derived grassland of the same PCT occurred adjacent the woodland area. This side of the Study Area was largely in good condition, with higher levels of weed encroachment evident along the creek bank.

Riparian vegetation within and immediately adjacent the creek line (Plate 8) included *Casuarina cunninghamiana* (River Oak), *Angophora floribunda* (Rough-barked Apple), *Eucalyptus sp.*, *Bursaria spinosa* (Bursaria) and *Hymenanthera dentata* (Tree Violet). This vegetation aligns with the PCT 85 - River Oak forest and woodland wetland of the NSW South Western Slopes and South Eastern Highlands Bioregion. This PCT does not align with a TEC.

The southern bank of the Coco Creek study area was largely degraded (Plate 7), containing a low density of scattered *Casuarina cunninghamiana* (PCT 85) and a cleared understorey dominated by exotic grasses and weeds including *Rubus fruticosus sp. agg.* (Blackberry) (WoNS/Priority), *Hypericum perforatum* (St. John's Wort) (Priority), *Verbena rigida* (Slender Vervain), *Rosa rubignosa* (Sweet Briar)

(WoNS, Priority) and *Phalaris aquatica* (Phalaris). Vegetation present within this section of the study area did not align to a PCT.



Plate 7 Remnant PCT 1330 (left) with derived grassland along existing track, and non-native vegetation (right) with small stand of PCT 85 (*Casuarina cunninghamiana*) to be removed

4.8.2 Potential Biodiversity Impacts

Potential impacts associated with the new study area are detailed below.

Impacts to up to **0.36 ha** of native vegetation, consisting mostly of groundcovers and shrubs are expected as a result of the bypass road and bridge installation. This includes direct impact to **0.05 ha** and indirect impacts to **0.2 ha** of PCT 1330 (derived and intact) which aligns with the TEC *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. Tests of Significance (BC and EPBC Act) have been completed for this PCT, with no significant impact found. Impacts to other threatened biota have been thoroughly assessed within the project FFA, with the additional impact area associated with the bypass road and temporary bridge construction not considered to change the outcome of these assessments.

No mature trees are to be removed as a result of the addendum works, with impacts to groundcovers and shrubs occurring along some uncleared sections of the proposed bypass for a total direct impact to 0.08 ha of native vegetation and 0.36 ha of native vegetation within the study area.

Three (3) *Casuarina cunninghamiana* within the southern portion of the Study Area are to be removed along with three (3) small stags with no habitat features evident.

Instream impacts consist of the removal of approximately twenty (20) regenerating *Casuarina cunninghamiana* with a dbh of <10 cm. Two (2) eucalypt saplings will also be removed. One large stag is to be retained (Plate 9), with one lower limb potentially needing to be pruned. Instream logs and flood debris will be removed from the stream as part of the temporary bridge installation. Some logs which occur on the southern bank will be moved from the subject site but will remain within the study area. This potential habitat is to be moved outside of the waterway impact area but is to remain on adjacent land. These impacts must be captured within the Fisheries Permit application.

One wombat burrow is located within the addendum subject site (Plate 9). This burrow will need to be marked and safeguarded (see mitigation measures below) throughout construction and operation of the bypass road and bridge. Indirect impacts to fauna in the locality may occur from the bypass route, including impacts associated with human presence, noise, dust, vehicle movement, and

pollution. The vast tracts of intact vegetation within the surrounding locality, clearing within an already partially cleared section and avoidance of direct instream impacts result in an overall limited direct impact on flora and fauna.

The fisheries permit for the project works will need to include the impact caused by creek bank works, and temporary bridge installation and removal and will require approval before works proceed.



Plate 8 Flood debris (left) and instream *C. cunninghamiana* (right) to be removed



Plate 9 Habitat attributes present within Study Area: Wombat Burrow (left) and Stag, to be retained (right)

Table 14 Potential impacts – Biodiversity

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Clearing of up to 0.08 ha of native groundcover and understory species, including 0.7 ha of White Box – Yellow Box – Blakeley's Red Gum TEC. Indirect impacts to 0.36 ha of native vegetation within study area. Direct impact to wombat burrow.	Disturbance to flora and fauna due to dust, noise and vehicle movements.

Design Change	Construction Impacts	Operational Impacts
Installation of bridge including reinforcement of banks	Impacts to creek banks due to stabilization measures. Removal of up to twenty (20) <i>Casuarina cunninghamiana</i> and two (2) eucalypt saplings. Removal of instream debris and three (3) small stags with no hollows evident.	Erosion of bank potentially affecting waterway.
Removal of bridge	Heavy machinery presence, further disruption to ground/vegetation.	Potential for bank to be impacted and erosion to occur, impacting waterway.

4.8.3 Environmental Safeguards – Biodiversity

The biodiversity safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly. Additional safeguards and management measures for Biodiversity of the site are:

- All instream habitat (upstream and downstream) is to be inspected and any potential habitat resources within the impact footprint including logs, snags, rocks, reeds and other fringing vegetation are to be safely relocated under the supervision of a qualified ecologist or fauna spotter catcher.
- No mature trees, logs or stags containing potential fauna habitat to be impacted.
- A temporary barrier to be installed between the bypass road and the wombat burrow entrance to redirect wombat away from road during diversion – to be removed once diversion is closed.
- Rehabilitation works within creek bank and along bypass road to be undertaken following construction of Coco Creek bridge and re-opening of Glen Davis Road. Weed removal, planting of native tubestock within riparian zone, and planting of native tubestock along de-commissioned road to regenerate habitat.

5 CERTIFICATION

This REF addendum provides a true and fair review of the Proposal in relation to its likely 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.

This report has been developed in accordance with the NSW Environmental Planning and Assessment Regulation 2021 (EP&A Regulation) and the Department of Planning and Environment's Guidelines for Division 5.1 assessments (DPE Guidelines) and demonstrates how the environmental factors specified in subsection (2) clause 171 of the EP&A Regulation were taken into account when considering the likely impact of the proposed activity.

The assessment has concluded that the proposed works as described in this REF Addendum, providing all proposed management measures and Safeguards are implemented, will not result in a significant impact on the environment. An Environmental Impact Statement (EIS) is not required.

The proposed works will not result in a significant impact on any declared critical habitat, threatened species, populations or ecological communities or their habitats. Therefore, a Species Impact Statement (SIS) is not required.

The proposed works are not being carried out on Commonwealth land, are unlikely to affect any Commonwealth land, or have any significant impact on any Matters of National Environmental Significance.

All proposed work contemplated as part of the Proposal will be completed under the guidance of a Construction Environmental Management Plan (CEMP) to manage and minimise potential environmental impacts, particularly ecological impacts, associated with the proposed work. Once operational, the Proposal is not expected to cause any significant environmental or community impacts.

I certify that I have reviewed and endorsed the contents of this REF addendum document, and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading.

Prepared by:

Name: Anna Uhrig, Skye Rivett
Title: Ecologist, Senior Ecologist
Date: 7/06/2022

Reviewed and Endorsed for Certification by:

Name: Emily Cotterill (CEnVP)
Title: Director, The Environmental Factor
Date: 10/06/2022

Determiner declaration and approval

I have reviewed this REF and determine that the Proposal will not have a significant impact on the environment and can proceed subject to the controls outlined in this REF addendum

Name:

Title: Date:

6 REFERENCES

DAWE 2022 Species Profile and Threats Databases

DAWE 2022 Protected Matters Search Tool for MNES listed under the EPBC Act.

<http://www.environment.gov.au/epbc/protected-matters-search-tool>

DPI 2022 Priority Weeds of the Central Tablelands NSW WeedWise

DPI 2022 Weeds of National Significance NSW WeedWise

DPE 2022 SEPP Koala Habitat Protection 2020 Koala Habitat Protection SEPP - (nsw.gov.au)

DPE 2021 NSW Government Vegetation Regulatory Map

<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=NVRMap>

DPE 2022 Bionet Wildlife Atlas Threatened species records, which holds data from a number of custodians.

Lithgow City Council. Weeds Management, 2021, <https://council.lithgow.com/environment/weeds-management/>

New South Wales Flora online – PlantNET 2022 <http://plantnet.rbgsyd.nsw.gov.au/floraonline.html>

Review of Environmental Factors, Glen Davis Rd Bridges, 2021, TEF

Sixmaps tool, <https://maps.six.nsw.gov.au/>

7 APPENDICES

Appendix	Item
Appendix A	Diversion route
Appendix B	Aboriginal Due Diligence Report

Appendix A – Diversion route

Appendix B – Aboriginal Due Diligence Report

Appendix C – Additional Assessments of Significance

ADDITIONAL TESTS OF SIGNIFICANCE FOR NSW STATE LISTED THREATENED BIOTA

Section 1.7 of the EP&A Act lists considerations that must be taken into account in the determination of the significance of potential impacts of a proposed Proposal on ‘threatened species, populations or ecological communities (or their habitats)’ listed under the BC Act. The Test of Significance is used to determine whether a Proposal is ‘likely’ to impose ‘a significant effect’ on threatened biota and thus whether a Species Impact Statement (SIS) is required. Should the Test of Significance conclude that there is likely to be a ‘significant effect’ on a listed species, population or endangered ecological community, an SIS must be prepared or participation in the Biodiversity Offset Scheme.

Biodiversity Conservation Act 2016 Part 7.3 sets out the following Test of Significance (ToS) considerations which must be addressed to determine whether a significant impact is likely to occur.

The following ToS is in addition to the existing assessments contained within the Project REF and FFA and should be considered in conjunction with these assessments.

Name	BC Act	Summary of Assessment of Significance
<i>Ecological communities</i>		
<i>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland</i>	CE	No significant impact

*White Box Yellow Box Blakely's Red Gum Woodland and Derived Native Grassland (Critically Endangered under BC Act) – **Box Gum Woodland**. Critically Endangered*

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

Not relevant to this community

In the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

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

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

The PCT onsite that is considered analogous to the Box Gum Woodland TEC is PCT 1330 *Yellow Box - Blakely's Red Gum grassy woodland on the tablelands, South Eastern Highlands Bioregion*.

The bypass study area supports a remnant patch of PCT 1330 in good condition, consisting predominately of shrubs and groundcover (derived) within the impact footprint. Onsite surveys confirmed presence of this PCT past the riparian zone of the northern section of the bypass road.

Total direct impacts (clearing) to this PCT equals **0.05 ha** with potential indirect impact to approximately **0.2 ha**, including dust settling and other air emissions, noise and vibration and other typical indirect impacts associated with construction activities. Local occurrence of this TEC is not likely to be placed at risk of extinction as a consequence of these works as the area to be removed constitutes an existing track with derived grassland previously cleared of overstorey and shrub species.

In relation to the habitat of a threatened species or ecological community:

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

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

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

The proposal will involve removal of approximately **0.05 ha** of this TEC in derived (0.02 ha) and remnant (0.03 ha) condition, due to clearing associated with the bypass road installation. The area of TEC present occurs as a patch of derived grassland and some intact woodland vegetation consisting mostly of groundcovers and shrubs. It is connected to areas of intact TEC within the locality within adjacent National Parks estate and private property.

The importance of this area to the long-term survival of the TEC in the locality is not high, given the existing cleared nature of the site, small section to be impacted, and the nearby road. Removal of a small proportion of this derived grassland along an existing track will not result in significant direct or indirect impacts to the surrounding vegetation, which is likely to be in significantly better condition. The surrounding area supports intact native vegetation throughout numerous protected areas.

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

The site does not support any declared registered areas of outstanding biodiversity value (formerly critical habitat):

<https://www.environment.nsw.gov.au/criticalhabitat/CriticalHabitatProtectionByDoctype.htm>

Whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process

The following listed Key threatening processes have the potential to occur or increase as a result of the proposal, if appropriate mitigation measures are not implemented:

- Infection of native plants by *Phytophthora cinnamomic*.
- Introduction and establishment of exotic rust fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae.
- Anthropogenic climate change
- Invasion of native plant communities by exotic perennial grasses

Conclusion

Based on the location, quality and small area of TEC proposed to be impacted (0.05 ha) it is unlikely that the proposal will have a significant impact on this community such that it places it of futher risk of extinction.

ADDITIONAL SIGNIFICANT IMPACT CRITERIA ASSESSMENT FOR COMMONWEALTH LISTED THREATENED BIOTA

An assessment of significance has been provided for threatened biota of concern to provide an indication of the potential level of impact of the proposal based on past records and habitats present. The following assessment has relied on species habitat information and records available via OEH Saving Our Species, Field Survey, DEE SPRAT profiles unless otherwise stated.

The following TEC listed under the EPBC Act is included in this assessment:

Name	EPBC Act	Summary of Assessment of Significance
<i>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland</i>	CE	No significant impact

The Assessment of Significance concluded that a significant impact to this TEC is unlikely. Consequently, a Referral to the Minister is not warranted.

White Box-Yellow Box-Blakely's Red Gum Woodland and Derived Grassland - Critically Endangered

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will

Reduce the extent of an ecological community

The proposal will involve removal of approximately **0.05 ha** of Box Gum Woodland in good and derived condition for the installation of the bypass road. This consists mostly of groundcover and shrubs along an existing cleared track.

Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines

The area of TEC present within the subject site occurs adjacent the Coco Creek Bridge subject site and study area and is therefore susceptible to existing impacts caused by fragmentation due to road works. It is connected to areas of intact TEC within the locality within adjacent National Parks estate, and this fragmentation will not increase as a result of the proposed works. Removal of predominately groundcovers along an existing track adjacent an existing road is not considered likely to significantly impact pollination or seed dispersal.

Adversely affect habitat critical to the survival of an ecological community

The area to be impacted occurs primarily as derived grassland consisting mostly of shrubs and understory along an existing track and open area. It is not likely to be habitat that is critical to the survival of this ecological community.

Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns

Works will temporarily impact on water flow within Coco Creek during construction, due to removal of instream vegetation and debris, which will not impact on the TEC. Construction is being undertaken to have minimal impact on the surrounding environment, with habitat trees and surrounding vegetation left untouched wherever possible. Cranes will be used to minimise impact and need to enter vegetated areas. No impacts to remnant stand in study area will occur.

Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting

Once operational, no further impacts to surrounding vegetation are predicted as part of the bypass road and bridge installation. The area will be decommissioned, with regeneration and native tubestock planting recommended.

Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:

- assisting invasive species, that are harmful to the listed ecological community, to become established, or
- causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community

Road construction along an already cleared track and alignment chosen to minimize construction impacts will reduce any substantial impacts to the quality and integrity of this TEC within the study area. No fertilisers, oils, weeds or other pollutants will likely impact on the TEC above existing levels. There is potential for weed spread as road users use the bypass road during the operational phase, however this is considered to be similar to existing background levels based on location.

Interfere with the recovery of an ecological community. Reduce the extent of an ecological community

Although a small reduction (up to **0.05 ha**) may occur as a result of the bypass road installation, this will occur predominately along an existing cleared track with impacts to mostly shrubs and groundcovers and all overstorey species avoided.

Conclusion

The importance of this small area of TEC to the long-term survival of the TEC in the locality is not high, given its proximity to the road and impacts associated with the existing track. Removal of a small proportion of this TEC is unlikely to result in significant direct or indirect impacts to the surrounding vegetation which is in varying conditions. The surrounding locality supports intact native vegetation throughout numerous protected areas which may support larger tracts of this TEC.
