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REVIEW OF ENVIRONMENTAL FACTORS

PART 5 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Proposed Bridge Replacement Works
Dignams Creek Bridge
Dignams Creek Road, Dignams Creek, NSW

Bega Valley Shire Council

October 2023

Version	Final
Date	6 November 2023
Project Number	140249_1

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Environment Line Environment Protection Authority & Heritage and Aboriginal cultural heritage incidents		131 555
Life threatening emergency Police Fire Ambulance		000

Document Control and Review

Review of Environmental Factors.

Proposed Bridge Replacement Works

Dignams Creek Bridge, Dignams Creek Road, Dignams Creek, NSW

Macrozamia Environmental	Document Number	140249-1
File Name	140249_REF_26 Oct 2023	

Revision	Date	Prepared	Reviewed	Approved
Final	6 November 2023	P Guinane		P Guinane
Draft for client review	3 November 2023		Council Staff	
Draft v1	14 October 2023	P Guinane		P Guinane

Contents

1 Introduction

1.1 Proposal identification

Bega Valley Shire Council (Council) are responsible for the provision and maintenance of local road infrastructure in this Local Government Area as part of their responsibilities to their ratepayers and road users more broadly.

Council has identified that the existing single lane timber bridge crossing Dignams Creek is becoming aged and is due for replacement with a modern structure. Replacement of the bridge requires the realignment of Dignams Creek Road, being the only practical access for residents to the north, competently the existing bridge must remain in service until completion of the new bridge.

Dignams Creek Road is a key throughfare providing vehicular access to the Dignams Creek Road district west and northwest of the Princes Highway, it is the only publicly maintained road providing access to lands to the north of Dignams Creek at the subject bridge site, providing access to rural residential and agricultural properties and is particularly important at times of emergency, such as bushfire, where alternate routes that are generally impractical become potentially dangerous.

Council proposes to construct a single lane cast in place concrete bridge aligned to the east of the existing crossing. Formation and approaches would be constructed matched to the existing road. Following commissioning of the new bridge the existing timber bridge will be demolished and removed.

During works Dignams Creek Road will remain open to traffic which will be slowed and managed for safety during works.

The scope of the works is summarised as follows;

1. Implement traffic management plan, to manage traffic on Dignams Creek Road during each stage of the works
2. Installation of temporary erosion and sediment controls & establishment of temporary works compound and stockpile area
3. Clearing and grubbing of project area
4. Construction of cast in place footings, piers and abutments
5. Construction of formation for approaches
6. Construction of cast in place deck for new bridge
7. Gravel placement for deck and approaches and sealing of wearing surface 8m wide 2 coat 14mm/7mm bitumen seal including approaches
8. Bridge furniture installation including railing and signage as required
9. Commissioning of new crossing
10. Demolition of existing bridge structure and removal of its components
11. Construction of drainage and placement of required scour protection as required
12. Rehabilitation of old bridge approaches to natural form
13. Rehabilitation of site including removal of temporary erosion control structures & all waste materials and ensuring site is not subject to accelerated erosion.

The proposal location and study area are identified on Map 1-1 of this report. The study area includes the site of the works and adjoining lands to the extent that they may be impacted by the works including the area of the bridge works and stockpile/ compound areas.

1.2 Site characteristics

The subject bridge crosses Dignams Creek, a fourth order stream draining forested land managed for conservation to the west and flowing easterly 16km to Wallaga Lake and the ocean the landscape is mostly native forest on undulating hills the majority of which is managed for conservation in national park. Smaller areas nearby have been cleared and managed as pasture, typically for dairy operations.

The Dignams Creek channel at the project site is broad and deep, surface flow was not present during inspections in August and October 2023, pools were visible up and down stream. The riparian area including stream banks are well vegetated with native vegetation.

1.3 Purpose of the report

This Review of Environmental Factors (REF) has been prepared by Macrozamia Environmental on behalf of Council under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). For these works Council is the proponent and the determining authority under this Act.

The purpose of the REF is to describe the proposal, to assess, quantify and document the possible impacts of the proposal on the environment, and to detail ameliorative measures to be implemented at the time of works and maintained after works have been completed in order for the proposal to have a minimal and acceptable environmental impact.

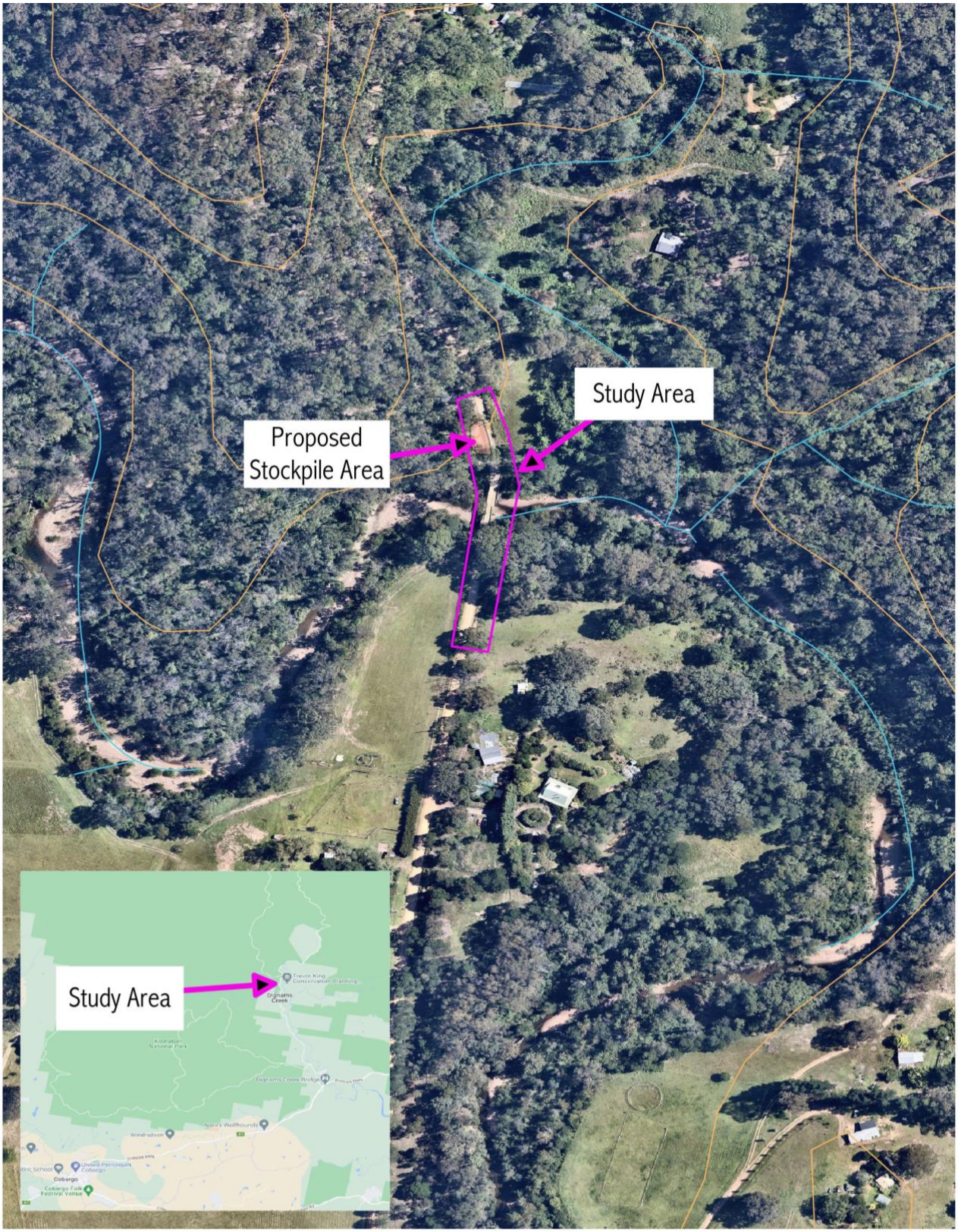
This REF considers the study area to be the site of the proposed works and immediately adjoining lands to the extent that they could potentially be impacted, including the site of the works area. Map 1-1 in this report shows this area.

The description of the proposed works and associated environmental impacts have been undertaken in context of clause 171 of the *Environmental Planning and Assessment Regulation 2021*, the *Biodiversity Conservation Act 2016* (BC Act), and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In doing so, the REF helps to fulfil the requirements of Section 5.5 (Duty to consider environmental impact) of the EP&A Act; that Council examines and takes 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 will be considered by the consent authority 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 under Part 5 of the EP&A Act
- The significance of any impact on threatened species as defined by the BC Act and/or NSW *Fisheries Management Act 1994* (FM Act)
- The potential impact on Aboriginal Objects or places protected by the *National Parks and Wildlife Act 1974* (NP&W Act)
- The potential for the proposal to significantly impact a matter of national environmental significance or other Commonwealth matter and the need to make a referral to the Australian Government Department of the Environment for a

decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the EPBC Act.


Study Area
Proposed Stockpile Area
Study Area
Macrozamia Environmental
Map 1-1
Study Area and Locality
0
50
100 m

2 Need and options considered

2.1 Strategic and community need for the proposal

The proposed bridge replacement works are needed to improve the reliability and safety of this part of Dignams Creek Road. The existing bridge structure is reaching the end of its useful life, by replacing it with a modern concrete structure before it becomes unserviceable Council are actively maintaining road infrastructure in a safe and functional condition in line with community expectations for reliability and safety. The bridge replacement is also a good opportunity to improve the alignment of Dignams Creek Road further improving road safety and function.

By making improvements to road infrastructure, Council is contributing to their cumulative program of supporting the local community's needs, improving road user safety and the reliability of the road network. By undertaking the works Council are providing value for money to ratepayers while meeting their duty to provide and maintain adequate, safe facilities to the community.

2.2 Proposal objectives

The objectives of the proposal are to:

- Improve reliability of vehicular access to and from the Dignams Creek district north of the bridge
- Improve the integrity of the bridge structure and resistance to damage during high flow or bushfire events
- Improve road user safety and comfort
- Reduce likelihood of unplanned road closure due to the bridge structure becoming unserviceable.

2.3 Alternatives and options considered

Council have considered the following options in relation to the bridge upgrade;

- To '*do nothing'*
- To replace the bridge in the alignment of the existing bridge, closing Dignams Creek Road during demolition and construction &
- To construct a new bridge on a different alignment to the existing bridge and demolish the existing bridge once the new bridge is commissioned, allowing Dignams Creek Road to be open throughout works.

The '*do nothing*' option must be considered for public infrastructure projects. In this case Council found that despite being initially more expensive doing nothing would fail to address concerns resulting from the bridge reaching the end of its useful life and becoming unserviceable. The option would require continued maintenance committing Council to ongoing costs without resolving the liability of an unserviceable road asset.

The option of replacing the existing bridge with a new concrete structure within the same alignment of the existing would result in lesser biodiversity impacts and reduced earthworks than an alternate alignment. This option however, would require the closure of Dignams Creek Road at the works site for 16 weeks during works. The result of such a closure would be a substantial impact to road users particularly residents and businesses to the north of Dignams Creek. Alternate routes are possible through National Park tracks however their condition is poor and they are sporadically maintained, the increased journey time is unreasonable

adding 30 to 45 minutes to typical journey time. As these tracks are in National Park they are also subject to access restrictions that may be imposed for operational or safety reasons by the NSW National Parks and Wildlife Service which may include closure during fire ban days.

Given the impracticality of closing Dignams Creek Road to accommodate this option it was considered unacceptable.

Constructing the new modern concrete structure capable of remaining functional during minor flood events and bushfire on a new alignment allows the existing bridge to remain in use while the new bridge is being constructed without the need to close Dignams Creek Road.

While this option does require clearing of native vegetation, greater earthworks and more financial cost, the benefit of not requiring road closure for a prolonged period of time warrants these minor disadvantages.

Having regard to the above considerations it is determined that the works proposed by Council would provide the best value for money and greatest long-term benefit for the community.

3 Description of the proposal

3.1 The proposal

Council propose to construct a multi-span, single lane, concrete cast in place bridge on an alignment to the east of the existing bridge alignment along with approaches matched to the existing road the wearing surface of approaches and bridge deck will be sealed.

During construction of the new bridge, traffic flow would be maintained on Dignams Creek Road, managed as required for safe plant and construction vehicle access to the works site.

Following commissioning of the new bridge, the existing bridge will be dismantled and removed, approaches are to be rehabilitated to a natural condition.

It is intended that works will be completed in one stage in the 2024 – 2025 financial year, the timeframe for works is expected to be up to 16 weeks though this may be impacted by Council's operational schedule and weather conditions.

The following summarises the activities involved;

- Completion of survey, design and planning approvals/ licences, permits and land acquisition as required
- Implementation of staged traffic management plan
- Implement staged erosion and sediment controls as prescribed by erosion and sediment control plan
- Establishment of stockpile area
- Clearing and grubbing of project footprint
- Excavation for abutments & construction of footings for piers
- Constriction of abutments and formation
- Install permanent formwork & steel reinforcing for cast in place structures
- Pour cast in place piers, abutments & headwalls
- Construction of bridge deck
- Sealing of deck and approach wearing surface 2 coat 14mm/7mm bitumen seal matched to existing road alignment
- Installation of railings/ traffic barriers and signage as required
- Commissioning of new works
- Demolition of existing bridge structure and removal of components
- Rehabilitation of existing bridge approaches and rehabilitation to natural state
- Decommissioning and removal of temporary works including erosion and sediment controls
- Post construction works including clean-up and site rehabilitation.

3.2 Stockpile & work compound sites

Works compounds are used to store construction materials, machinery and chemicals that are typically used during road construction projects.

A suitable stockpile & works compound area occurs in the road reserve on the north side of the bridge and west side of Dignams Creek Road.

Controls need to be designed to prevent contamination of receiving waters from runoff from any stockpile area or compound. In the establishment and management of works compounds and stockpile areas the following general criteria must be complied with:

1. Be in areas previously cleared of native vegetation
2. Not be located in areas subject to flooding, outside the 1 in 10 year Average Recurrence Interval (ARI)
3. Be provided with erosion and sediment controls prior to comencement
4. Drainage controls including diversion drains and perimeter banks, and the bunding of liquid storage areas must be installed prior to the compounds being occupied and must be maintained and renewed as necessary during the construction period to ensure their effectiveness
5. Not unduly interfere with the business or other economic activities in the area
6. Allow access that is safe to use for site workers
7. Be restored at the completion of the occupation
8. Preference should be given to re-occupying previously established works compound sites, stockpile sites or other highly disturbed areas
9. Concrete trucks must not be washed out outside a suitably designed, designated concreate washout bund
10. The works compound should be securely fenced against theft and vandalism if considered necessary by the Project Manager
11. Plant and machinery should be secured against theft/ vandalism and unauthorised access when not in use
12. All chemicals stored on-site should be stored in a lockable storage facility with a floor and bund that is able to contain at least 110% of the volume of the largest container stored in it
13. Materials for the cleaning up of any chemical spills such as hydrocarbon absorbent booms (for use in waterways) and loose absorbent material would be kept at the works compound. Fire extinguishers of a type appropriate to the materials stored at the compound would also be kept on site
14. No fuels would be stored at the works compound. Plant and equipment should be refuelled from refuelling trucks on-site, or at a contractor's depot off-site. Refuelling and other machinery maintenance would be undertaken in specially designated bunded areas designed to enable any spilled fuels and oils to be contained on-site and cleaned up.

3.3 Project activities

3.3.1 Work methodology

Works will be completed in one stage as follows;

Preliminary activities

- Undertake environmental assessment & obtain licences or approvals as required

- Confirm land tenure and cadastral boundaries, make arrangements as required to access adjoining lands
- Identify/ locate services as required
- Complete and commence implementation of Construction Environmental Management Plan (CEMP)
- Complete and commence implementation of de-watering plan
- Complete Erosion and Sediment Control Plan (ESCP)
- Complete Traffic Management Plan (TMP)
- Complete project inductions – ongoing as required

Site establishment and installation of traffic controls

- Installation of traffic controls in accordance with traffic management plan
- Marking limit of works
- Installation of erosion and sediment controls in accordance with the ESCP and environmental specifications prescribed for the proposal and licence conditions if required
- Implement dewatering plan
- Establishment of stockpile/ compound site

Construction of new approaches and formation

- Clearing and grubbing of project footprint
- Earthworks as required

Construction of new bridge

- Excavation for foundations
- Installation of temporary formwork for abutments & piers
- Installation of steel reinforcing for abutments & piers
- Pouring of cast in place concrete abutments & piers
- Installation of temporary formwork for deck
- Installation of steel reinforcing for deck
- Pouring of cast in place concrete deck
- Construction of drainage as required
- Gravel placement for deck and approaches and resealing of wearing surface 2 coat 14mm/7mm bitumen seal including approaches

Commissioning of new bridge

- Road furniture construction
- Installation/ upgrade of advisory signs where required
- Line marking where required

Demolition of existing bridge

- Undertake pre-demolition microbat survey
- Removal of bridge components with crane/ excavator
- Removal of bridge abutment material for reuse as fill were possible
- Rehabilitation of existing approaches to natural state

Post construction works

- Soil stabilisation & maintenance of erosion and sediment controls
- Rehabilitation of erosion and sediment controls in the event of failure, replacement of any reserved topsoils and revegetation with grasses of the works compound site including replacement of trees
- Removal of traffic controls.

3.3.2 Construction hours and duration

The proposed works would be undertaken within the following working hours:

- Monday – Friday: 7:00am to 6:00pm
- Saturday: 8:00am to 1:00pm
- Sunday and Public Holidays: no work.

It is anticipated the works will commence in the 2024 – 2025 financial year and be completed within 16 weeks, however, weather conditions and competing priorities of Council may alter this timeframe

3.3.3 Plant and equipment

Machinery to be used will consist of:

- Light vehicles
- Medium/ heavy ridged trucks
- Bore drill rig
- Excavator
- Pile driver
- Crane
- Concrete trucks & pump
- Water carts for dust suppression
- Hand tools.

There may be a need to bring in other machinery as the need arises.

3.3.4 Earthworks

Earthworks will be required as follows;

- Construction of access pads/ tracks for stockpile area and sediment management structures
- Stockpiling of aggregates and topsoil
- Construction of approaches
- Excavation for footing construction

- Shaping of road formation, batters and drainage construction

Generally balanced earthworks will reduce the need to import material. Depending on the quality of natural material, additional imported fill may be required to meet the requirements for controlled fill under roadways.

3.3.5 Source and quantity of materials

- Select fill for approach construction
- Cast in place formwork and reinforcing
- Concrete for bridge components and footings
- Plastic drainage cells and geotech fabric
- Aggregates & bitumen for road construction
- Fuels and oils for the machinery and equipment.

Materials will be sourced from local suppliers and the project is not expected to create a shortage of any materials available to the local economy.

3.3.6 Traffic management and access

The works occur on a minor road providing access to the northern Dignams Creek district to the north of the bridge.

A Traffic Management Plan (TMP) must be prepared in accordance with Council's policies and procedures.

Council must ensure that the work site is maintained in a safe and secure state with consideration of cyclist traffic incorporate appropriate signage and barriers as required.

3.4 Ancillary facilities

Construction works will require one stockpile/ compound site. There are suitable lands in the road reserve to develop these temporary facilities.

Any sites to be used for ancillary facilities will be located by Council in accordance with criteria identified in section 3.2 of this REF and within the study area of this REF. If these facilities are to be constructed outside the study area of this REF an assessment of the proposed area will be required.

3.5 Property acquisition and land access

Works occur on Council owned and managed road reserve, no access to private lands will be required. Council should confirm the boundaries of the road reserve and ensure cadastral information is up to date.

4 Statutory and planning framework

4.1 Local Environmental Plans

In the project area, the southern side of Dignams Creek Bridge occurs in the Bega Valley Local Government Area (LGA) and the north side occurs in Eurobodalla LGA. The Bega Valley Local Environmental Plan 2013 (BVLEP) applies to the Bega Valley LGA and the Eurobodalla Local Environmental Plan 2012 (ELEP) applies to the Eurobodalla LGA, provisions of each LEP that relate to the project are generally identical and have been addressed below concurrently.

4.1.1 Bega Valley Local Environmental Plan 2013 (LEP) & Eurobodalla Local Environmental Plan 2012

Under both these instruments the project area is zoned RU1 Primary Production

The objectives of this zone are as follows;

RU1 Primary Production (BVLEP);

- 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 encourage development for tourism-related activities and other development that is compatible with agricultural activities, which will not adversely affect the environmental and cultural amenity of the locality.
- To maintain and protect the scenic value and rural landscape characteristics of land in the zone.

RU1 Primary Production (ELEP);

- 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 minimise the visual impact of development on the rural landscape.
- To provide for recreational and tourist activities that support the agricultural, environmental and conservation value of the land.

The proposed works are consistent with the objectives of the zone and permitted with consent in this zone under both the BVLEP and ELEP.

Clause 5.10 Heritage Conservation

The objectives of this clause in BVLEP are as follows

(a) to conserve the environmental heritage of Bega Valley,

(b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,

(c) to conserve archaeological sites,

(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

The objectives of this clause in ELEP are as follows

(a) to conserve the environmental heritage of Eurobodalla,

(b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,

(c) to conserve archaeological sites,

(d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

Neither the BVELP or ELEP list nearby local heritage items or places.

The Aboriginal Heritage Information Management System (AHIMS) identifies no Aboriginal sites or Aboriginal places in the vicinity of the project area. The AHIMS search result is provided in Appendix 3 of this REF.

Heritage matters are addressed in section 6.6 of this report.

Part 6 Additional local provisions

6.5 Terrestrial Biodiversity BVLEP

A small part of the southern end of the project area is mapped as '*Biodiversity*' on the *Terrestrial Biodiversity Map*, as such this clause applies.

(1) The objective of this clause is to maintain terrestrial biodiversity by—

(a) protecting native fauna and flora, and

(b) protecting the ecological processes necessary for their continued existence, and

(c) encouraging the conservation and recovery of native fauna and flora and their habitats.

(2) This clause applies to land identified as "Biodiversity" on the Terrestrial Biodiversity Map.

(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider—

(a) whether the development is likely to have—

(i) any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and

(ii) any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and

(iii) any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and

(iv) any adverse impact on the habitat elements providing connectivity on the land, and

(b) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that—

(a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or

(b) if that impact cannot be reasonably avoided by adopting feasible alternatives—the development is designed, sited and will be managed to minimise that impact, or

(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

This clause is addressed in the attached Biodiversity Assessment Report.

Other additional local provisions

The project site is not mapped by other additional local provisions of either LEP maps including Environmentally sensitive land, acid sulfate soils, coastal risk planning and riparian land and water courses.

4.2 State Environmental Planning Policies

4.2.1 State Environmental Planning Policy (Transport and Infrastructure) 2021

Chapter 2 of the State Environmental Planning Policy (Transport and Infrastructure) SEPP (T&ISEPP) aims to facilitate the effective delivery of infrastructure across the State by—

(a) improving regulatory certainty and efficiency through a consistent planning regime for infrastructure and the provision of services, and

(b) providing greater flexibility in the location of infrastructure and service facilities, and

(c) allowing for the efficient development, redevelopment or disposal of surplus government owned land, and

(d) identifying the environmental assessment category into which different types of infrastructure and services development fall (including identifying certain development of minimal environmental impact as exempt development), and

(e) identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and

(f) providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing, and

(g) providing opportunities for infrastructure to demonstrate good design outcomes.

Division 1 of Chapter 2 of the T&ISEPP makes provisions for public authorities to consult with local Councils and other public authorities prior to the commencement of certain types of development. Consultation, including consultation as required by T&ISEPP (where applicable), is discussed in Section 5 of this REF.

4.2.2 State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 4 Remediation of land

(1) The object of this Chapter is to provide for a Statewide planning approach to the remediation of contaminated land.

(2) In particular, this Chapter aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment—

(a) by specifying when consent is required, and when it is not required, for a remediation work, and

(b) by specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular, and

(c) by requiring that a remediation work meet certain standards and notification requirements.

A consent authority must not consent to the carrying out of any development on land unless:

- it has considered whether the land is contaminated, and
- if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
- if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

Contaminated land was considered on this site, signs of previous land uses such as sheep dips, waste materials, signs of past structures or land fill were considered, and none found. Additionally, the NSW EPA online search tool for contaminated land was used which found no contaminated sites on this database in the vicinity of the works.

Due to an absence of any signs of potentially contaminating activities in the past no further investigation under this SEPP was considered necessary. However, if any signs of contaminated land are revealed during works, works must cease and the potential for contaminated land to be considered guided by actions in this SEPP.

4.2.3 State Environmental Planning Policy (Biodiversity and Conservation) 2021

The State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP) consolidates several repealed SEPPs that help to manage conservation of biodiversity.

Chapter 3 Koala habitat protection 2020 of the BC SEPP applies to this site.

Chapter 3 Koala habitat protection 2020

This Chapter aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline—

(a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and

(b) by encouraging the identification of areas of core koala habitat, and

(c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.

Under this Chapter the following steps are to be taken;

3.6 Step 1—Is the land potential koala habitat?

(1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies, the council must be satisfied as to whether or not the land is a potential koala habitat.

(2) The council may be satisfied as to whether or not land is a potential koala habitat only on information obtained by it, or by the applicant, from a person who is qualified and experienced in tree identification.

(3) If the council is satisfied—

(a) that the land is not a potential koala habitat, it is not prevented, because of this Chapter, from granting consent to the development application, or

(b) that the land is a potential koala habitat, it must comply with section 3.7.

3.7 Step 2—Is the land core koala habitat?

(1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a potential koala habitat, it must satisfy itself as to whether or not the land is a core koala habitat.

(2) The council may be satisfied as to whether or not land is a core koala habitat only on information obtained by it, or by the applicant, from a person with appropriate qualifications and experience in biological science and fauna survey and management.

(3) If the council is satisfied—

(a) that the land is not a core koala habitat, it is not prevented, because of this Chapter, from granting consent to the development application, or

(b) that the land is a core koala habitat, it must comply with section 3.8.

3.8 Step 3—Can development consent be granted in relation to core koala habitat?

(1) Before granting consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a core koala habitat, there must be a plan of management prepared in accordance with Part 3 that applies to the land.

Under this Chapter, potential koala habitat means *areas of native vegetation where trees of the types listed in Schedule 1 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component*.

Under this definition the site does support potential koala habitat, for this Chapter, *core koala habitat* means; *an area of land with a resident population of koalas, evidenced by attributes such as breeding females, being females with young, and recent sightings of and historical records of a population*.

No signs of a resident population of koalas were recorded on the site. It is possible the habitat present is a small part of the home range of a local population.

This SEPP is addressed in the attached Biodiversity Assessment Report at Section 6.

4.3 Other relevant legislation

4.3.1 Environmental Planning and Assessment Act 1979 & Environmental Planning and Assessment Regulation 2021

The Environmental Planning and Assessment Act 1979 (EP&A Act) supports a range of objects that encourage appropriate development across the state. It meets varied outcomes associated with promotion of social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources and economically and environmentally sustainable development.

The Environmental Planning and Assessment Regulation 2021 (The Regulation) is a Statutory Instrument that supports the EP&A Act.

Clause 171 of Part 8 of The Regulation provides a list of factors to be taken into account when consideration is being given to the likely impact of an activity on the environment. Section 8 of this REF addresses these factors describing the nature of any impacts.

4.3.2 Biodiversity Conservation Act 2016

The purpose of the Biodiversity Conservation Act 2016 (BC Act) is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. Specifically, it aims to conserve biodiversity at bioregional and state scales, providing mechanisms to assess extinction risk of species and ecological communities, and identify key threatening processes to biodiversity values, support biodiversity conservation on private land, avoid, minimise and offset the impacts of proposed developments and land use changes on biodiversity and an offset scheme providing a market based offset trading economy.

The BC Act provides a clearing threshold, Biodiversity Values Map and test of significance triggers to determine the necessity for the impacts on biodiversity of a development to be assessed using the BC Act's Biodiversity Assessment Methodology (BAM) through a Biodiversity Development Assessment Report (BDAR). While assessment under the BAM is optional for Part V proposals the potential to impact matters protected under the BC Act have been considered.

Sections 7.2 and 7.3 of the BC Act considers the likelihood of impact on threatened matters and the requirement for further assessment. If there is a chance of an impact on a BC Act listed matter a test of Significance is required to determine the significance of the impact. If this assessment establishes that there is a likelihood for a significant impact on threatened species, populations and their habitat or on ecological communities further assessment through a BDAR would be undertaken.

Due to potential biodiversity impacts of the project a Biodiversity Assessment Report was undertaken and is provided at Appendix 2 of this report.

Biodiversity matters are addressed in section 6.2 of this REF.

4.3.3 Fisheries Management Act 1994

The FM Act aims to conserve, develop and share the fishery resources of NSW for the benefit of present and future generations. In particular, the objects of this Act are to:

- Conserve fish stocks and key fish habitats
- Conserve threatened species, populations and ecological communities of fish and marine vegetation

- Promote ecologically sustainable development, including the conservation of biological diversity.

The FM Act identifies threatened aquatic species, populations and ecological communities and requires an Assessment of significance for potential significant impacts to any of these entities. Any potential significant impact triggers the need for a test of significance.

Impacts to listed fish have been considered along with terrestrial matters in Section 6.2 of this REF.

Part 7 of the FM Act makes various provisions to protect aquatic habitats and regulates activities that may impact fish habitat. A Part 7 permit under the Fisheries Management Act 1994 is required for the works as in-stream works are necessary.

4.3.4 Heritage Act 1977 & National Parks and Wildlife Act 1974

The NSW *Heritage Act 1977* (Heritage Act) is a statutory tool designed to conserve the cultural heritage of NSW and used to regulate development impacts on the State's heritage assets. This Act details the statutory requirements for protecting historic buildings and places and includes any place, building, work, relic, movable object, or precinct, which may be of historic, scientific, cultural, social, archaeological, natural or aesthetic value.

The *National Parks and Wildlife Act 1974* (NPW Act) is the primary legislation for the protection of some aspects of Aboriginal cultural heritage in NSW. Under section 86 of the NPW Act, it is an offence to 'harm' an Aboriginal object. 'Harm' means any act or omission that:

- *Destroys, defaces, damages or desecrates the object*
- *Moves the object from the land on which it had been situated, or*
- *Causes or permits the object to be harmed.*

No state heritage matters have been identified in proximity to the works, heritage issues are addressed in Section 6.7 of this REF.

4.4 Commonwealth legislation

4.4.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act a referral is required to the Australian Government for proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land.

The EPBC Act identifies nine matters of national environmental significance being:

- *World Heritage properties*
- *National heritage places*
- *Wetlands of international importance (Ramsar wetlands)*
- *Threatened species and ecological communities*
- *Migratory species*
- *Commonwealth marine areas*
- *Nuclear actions*
- *Great Barrier Reef Marine Park*
- *Water impacts from coal seam gas and large coal mining actions*.

An assessment of the above matters has been undertaken and has concluded that none of these matters require further consideration due either to the absence of items of significance or relevance and the absence of suitable habitats for migratory and threatened flora and fauna and ecological communities.

4.5 Confirmation of statutory position

By adopting the requirements of the T&ISEPP, the proposal may be carried out without the need for development consent. The proposal is subject to environmental impact assessment under Part 5 of the EP&A Act. Bega Valley Shire Council is the proponent and joint determining authority along with Eurobodalla Shire Council for the proposal.

5 Stakeholder and community consultation

5.1 Landowners and community

The project site occurs in a rural district, the local community is composed of those living and working in the rural environment. The community is heavily reliant on the road network for transport in the absence of alternatives such as public transport, the remoteness of the community from urban centres also makes alternatives such as walking or cycling impractical. Consequently, the road network is essential to enable the community to access work, shopping, school and other economic activities and social commitments.

Adjoining and nearby landholdings are agricultural properties to the northeast, east, south and southwest, many also with residential uses. To the northwest Kooraban National Park adjoins the project area to the west of Dignams Creek Road and north of Dignams Creek.

It is important that Council engage with the community to ensure any concerns about traffic disruptions are suitably managed. Council must have in place a complaint handling process enabling concerned members of the community to contact Council in relation to the project during the construction phase and discuss issues with the concerned parties.

Given the improvement to reliability of the road, traffic flow efficiency and road safety that the project will result in, it is expected that the proposal will not be contentious in the community.

5.2 Aboriginal community involvement

While not likely, it is possible that artefacts important to the Aboriginal community could be found in the project area during works, if suspected finds are made Council will invite the Local Aboriginal Land Council to comment on the works.

5.3 T&ISEPP consultation

Chapter 2 Division 1 of T&ISEPP require that public authorities undertake consultation with Councils and other public authorities, when proposing to carry out development without consent. Table 5-1 of this report lists these items and assesses whether these are relevant to the proposal.

Table 5-1 T&ISEPP Chapter 2 Division 1 Consultation Factors

Item	Response
Clause 2.10 Consultation with councils—development with impacts on council-related infrastructure or services	
A substantial impact on stormwater management services provided by a Council	Not applicable – the proposal would not involve substantial impacts to a stormwater system. The road design does allow for drainage and appropriate dispersal of water this is consistent with the existing design of the road.
Likely to generate traffic to an extent that will strain the capacity of the road system in a local government area.	While many truck movements would be required during the construction phase, they would be managed to limit impacts. Given the scale of the proposal, it is unlikely the capacity of the road system would be strained.
Involves connection to, and a substantial impact on the capacity of, any part of a sewerage system owned by a Council.	Not applicable – the proposal would not involve connection to or impacts to a sewerage system.
Involves connection to, and use of a substantial volume of water from, any part of a water supply system owned by a Council	Not applicable – the proposal would not involve connection to or substantial use of water from a Council-owned water supply system.
Involves the installation of a temporary structure on, or the enclosing of, a public place that is under a Council's management or control that is likely to cause a disruption to pedestrian or vehicular traffic that is not minor or inconsequential.	There will be some disruption to vehicular traffic during construction, through traffic management on Dignams Creek Road, this impact is temporary and minor. Council has been in consultation with Eurobodalla Shire Council advising them of the works.
Involves excavation that is not minor or inconsequential of the surface of, or a footpath adjacent to, a road for which a Council is the roads authority under the Roads Act 1993 (if the public authority that is carrying out the development, or on whose behalf it is being carried out, is not responsible for the maintenance of the road or footpath).	The proposal would involve excavation of existing road surfaces. Bega Valley Shire Council is the proponent and relevant road authority for the bridge and Dignams Creek Road to the south of the works site. Eurobodalla Shire Council is relevant road authority for Dignams Creek Road to the north of the works site. Bega Valley Shire Council has been and remains in close consultation with Eurobodalla Shire Council in relation to the proposal.
Clause 2.11 Consultation with councils—development with impacts on local	

heritage	
(1) This section applies to development carried out by or on behalf of a public authority if the development— (a) is likely to affect the heritage significance of a local heritage item, or of a heritage conservation area, that is not also a State heritage item, in a way that is more than minor or inconsequential, and (b) is development that this Chapter provides may be carried out without consent. (2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this section applies unless the authority or the person has— (a) had an assessment of the impact prepared, and (b) given written notice of the intention to carry out the development, with a copy of the assessment and a scope of works, to the council for the area in which the heritage item or heritage conservation area (or the relevant part of such an area) is located, and (c) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.	Not applicable – the proposal does not affect any local heritage items or heritage conservation areas.
Clause 2.12 Consultation with councils—development with impacts on flood liable land	
(1) In this section, 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: the management of flood liable land published by the New South Wales Government and as in force from time to time. (2) A public authority, or a person acting on behalf of a public authority, must not carry out, on flood liable land, development that this Chapter provides may be carried out without consent and	Council is the proponent, the proposal has been designed to withstand flooding events and will not increase patterns to more than a minor extent.

that will change flood patterns other than to a minor extent unless the authority or person has— (a) given written notice of the intention to carry out the development (together with a scope of works) to the council for the area in which the land is located, and (b) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.	
Clause 2.13 Consultation with State Emergency Service—development with impacts on flood liable land	
(1) A public authority, or a person acting on behalf of a public authority, must not carry out development on flood liable land that may be carried out without development consent under a relevant provision unless the authority or person has— (a) given written notice of the intention to carry out the development (together with a scope of works) to the State Emergency Service, and (b) taken into consideration any response to the notice that is received from the State Emergency Service within 21 days after the notice is given. (2) Any of the following provisions in Part 2.3 is a relevant provision— (a) Division 1 (Air transport facilities), (b) Division 2 (Correctional centres and correctional complexes), (c) Division 6 (Emergency services facilities and bush fire hazard reduction), (d) Division 10 (Health services facilities), (e) Division 14 (Public administration buildings and buildings of the Crown), (f) Division 15 (Railways), (g) Division 16 (Research and monitoring stations), (h) Division 17 (Roads and traffic), (i) Division 20 (Stormwater management systems). (3) This section does not apply in relation	Not applicable, none of these circumstances apply to the proposed road upgrade

to the carrying out of minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance. (4) In this section, 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: the management of flood liable land published by the New South Wales Government and as in force from time to time.	
2.14 Consultation with councils—development with impacts on certain land within the coastal zone	
(1) This section applies to development on land that is within a coastal vulnerability area and is inconsistent with a certified coastal management program that applies to that land. (2) A public authority, or a person acting on behalf of a public authority, must not carry out development to which this section applies, which this Chapter provides may be carried out without development consent, unless the authority or person has— (a) given written notice of the intention to carry out the development to the council for the local government area in which the land is located, and (b) taken into consideration any response to the notice that is received from the council within 21 days after the notice is given.	Not applicable, works do not occur in a coastal vulnerability area.
2.15 Consultation with public authorities other than councils	
(1) A public authority, or a person acting on behalf of a public authority, must not carry out specified development that this Chapter provides may be carried out without consent unless the authority or person has— (a) given written notice of the intention to carry out the development (together with a scope of works) to the specified authority in relation to the development,	The western side of the Dignams Creek, on the western side of Dignams Creek Road is National Park (Kooraban National Park). As the works are *development adjacent to land reserved under the National Parks and Wildlife Act 1974* Council must consult with NSW National Parks and Wildlife Service, Narooma office and provide this REF for their comment. No other of these circumstances apply to

and (b) taken into consideration any response to the notice that is received from that authority within 21 days after the notice is given. (2) For the purposes of subsection (1), the following development is specified development and the following authorities are specified authorities in relation to that development— (a) development adjacent to land reserved under the National Parks and Wildlife Act 1974 or to land acquired under Part 11 of that Act—the Office of Environment and Heritage, (b) development on land in Zone E1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone, other than land reserved under the National Parks and Wildlife Act 1974—the Office of Environment and Heritage, (c) development comprising a fixed or floating structure in or over navigable waters—Transport for NSW, (d) development that may 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—the Director of the Observatory, (e) development on defence communications facility buffer land within the meaning of clause 5.15 of the Standard Instrument—the Secretary of the Commonwealth Department of Defence, (f) development on land in a mine subsidence district within the meaning of the Mine Subsidence Compensation Act 1961—the Mine Subsidence Board.	the proposed road upgrade works.

In relation to the above Clauses it is important to note Clause 2.17 Exceptions;

> (1) Sections 2.10–2.15 do not apply with respect to development to the extent that—
>
> (a) they would require notice of the intention to carry out the development to be given to a council or public authority from whom an approval is required in order for the development to be carried out lawfully, or

(b) they would require notice to be given to a council or public authority with whom the public authority that is carrying out the development, or on whose behalf it is being carried out, has an agreed consultation protocol that applies to the development, or

(c) they would require notice to be given to a council or public authority that is carrying out the development or on whose behalf it is being carried out, or

(d) the development is exempt development or complying development under any environmental planning instrument (including this Chapter), or

(e) the development comprises emergency works, or

(f) the development is carried out in accordance with a code of practice approved by the Minister for the purposes of this section and published in the Gazette.

5.4 Government and utility consultation

NSW Department of Planning and Environment (Environment and Heritage)

Council will consult with EES if unforeseen heritage (including Aboriginal Heritage) or biodiversity issues are raised during works.

NSW National Parks and Wildlife Service

The western side of the Dignams Creek, on the western side of Dignams Creek Road is Kooraban National Park. As the works are development adjacent to land reserved under the National Parks and Wildlife Act 1974 Council is required to consult with NSW National Parks and Wildlife Service (NPWS). This REF will be provided to the Narooma office of the NPWS for comment, any relevant feedback will be considered by Council.

Eurobodalla Shire Council

Council will continue to engage with Eurobodalla Shire Council in relation to the progress and impacts of the project on Eurobodalla Shire Councils road.

5.5 Ongoing or future consultation

Council will engage with the local community, the Aboriginal Community and Government Agencies as required during the works if unforeseen issues arise.

6 Environmental assessment

All potential environmental impacts associated with the construction and operation of the proposal, given its scale and use, are addressed below as required under Clause 171, Part 8 Infrastructure and environmental impact assessment, of the Environmental Planning and Assessment Regulation 2021.

6.1 Traffic

6.1.1 Existing environment

The existing traffic of Dignams Creek Road is that serviced by a minor rural road, it is used largely by the local community who live and work in this rural district to access adjoining rural areas and centres including Cobargo & Bermagui or Bega & Narooma.

6.1.2 Potential impacts

Construction

Traffic impacts during construction will be the management of traffic using Dignams Creek Road, traffic may be slowed at the works site and stopped for short periods of time for safe entry and egress of plant and vehicles associated with the works.

Operation

The proposal is designed to improve road functionality as well as road user safety and comfort and reduce road and bridge maintenance costs. Any increases in traffic at the project site during operation would be due to ordinary growth in the region, rather than as a result of the proposal.

The proposal would provide operational benefits with respect to increased safety, road network performance & reliability and reduced maintenance costs.

6.1.3 Safeguards and management measures

Impact	Environmental safeguards	Responsibility	Timing
Traffic and access	• A TMP must be prepared and controls established at the site in accordance with Council policies.	Contractor	Pre-construction
Access impacts	• Works must not disrupt property or business access.	Contractor	Construction

6.2 Biodiversity

6.2.1 Existing environment

The proposal occurs in a landscape supporting large tracts of native forest, with little agriculture, on this site the canopy is dominated by *Eucalyptus elata* and *E. botryoides* grading into *Casuarina cunninghamiana* closer to the watercourse, the understory is diverse and well vegetated, *Acacia mearnsii, Androcalva fraseri, Bursaria spinosa & Pittosporum undulatum* dominante, several vines and groundcover plants also occur. The exotic component is minor including isolated blackberry, forbs and kikuyu

The existing bridge and its rocky headwalls are of potential habitat value to fauna that may roost or build nests in its structure, including threatened microbats. The

watercourse is a very valuable habitat component for fauna providing a water source, microhabitats and a movement corridor.

6.2.2 Direct Impacts

The proposal's impacts to vegetation will be the permanent removal of 139m^2 of Southern Escarpment River Oak Forest and 536m^2 of South Coast Hinterland Yellow Stringybark Forest most of which is in good condition including hollow bearing trees, trees of a range of age classes, understory plants, native grasses, riparian vegetation and a low exotic component. This impact is to accommodate the proposed new road alignment. Biodiversity impacts have been avoided as much as practical while delivering a functional, well designed road alignment and bridge that is durable, long lasting and reduces required ongoing maintenance. This impact will be offset by measures prescribed in Section 9 of this report.

The existing timber bridge offers potential habitat for a variety of fauna, potentially including threatened microbat species. Fauna that may use the bridge structure as habitat will find habitation alternatives without substantial concern, in many cases the new bridge structure will provide similar habitat. The risk of threatened microbats using the bridge will be managed through inspections prescribed in Section 9 of this report.

An additional area of up to 55m^2 of exotic grassland will also be temporarily impacted to accommodate a temporary stockpile area, See map 1-1. This impact is minor and does not require offsetting due to its low biodiversity value.

Operation of the new bridge will be consistent with the existing and is not expected to result in operational impacts on biodiversity.

There is potential for the following threatened species of microbats to make use of the existing bridge prior to its demolition;

- Southern Myotis (*Myotis macropus*)
- Little Bent-winged Bat (*Miniopterus australis*)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)

To manage this risk, the bridge structure must be inspected prior demolition, if any signs of microbats are present impact to these species must be reconsidered and an Assessment of Significance undertaken.

6.2.3 Indirect Impacts

There is a risk that plant and equipment used for the works may transport weed material along the site or from other sites and that if the site is not rehabilitated after works that erosion may become accelerated due to changes in surface-water flows. Mitigation measures provided in this REF address these risks.

6.2.4 Cumulative Impacts

Cumulative impacts have been considered as part of this assessment. Council aims to continually improve the condition of assets under its management. This program improves safety for the community as well as reducing maintenance costs associated.

While construction impacts can affect local biodiversity to an extent, the cumulative environmental impact of improving and maintaining assets is generally positive.

6.2.5 Safeguards and mitigation measures

To minimise or eliminate potential adverse impacts on flora and fauna and to ensure that the project does not have a negative impact on biodiversity the following controls are recommended:

Impact	Environmental safeguards	Responsibility	Timing
Weed invasion	In order to manage the risk of indirect impacts of invasive species establishing in the project area, a weed management plan will be prepared and implemented to ensure the project does not increase the occurrence of weed species on the site or adjoining land the plan will incorporate the following practices; • Plant and equipment will be cleaned prior to entering any part of the site ensuring no mud/ soil or vegetation material is imported into the area • The site manager will ensure that procedures are in place to ensure plant and equipment entering the site are clean and free of mud, soil and vegetation material. A weed management plan will be prepared and implemented to ensure the project does not increase the occurrence of weed species on the site or adjoining land.	Council & Contractor	Pre-construction & Post-construction
Microbats roosting in existing bridge structure	Due to the possibility of the existing bridge structure becoming roosting habitat for the following threatened species of microbats a pre-demolition inspection for microbats is to be undertaken within three days before proposed demolition by a suitably experienced ecologist. If evidence of microbat presence is found an Assessment of Significance is to be undertaken. • Southern Myotis (*Myotis macropus*) • Little Bent-winged Bat (*Miniopterus australis*) • Large Bent-winged Bat (*Miniopterus orianae oceanensis*). In order to manage the risk of microbats roosting in the bridge	Council & Contractor	Pre-construction & construction

Impact	Environmental safeguards	Responsibility	Timing
	structure the Construction Environmental Management Plan is to include an unexpected finds procedure for microbats including the following; • For days during bridge demolition works, a daily inspection for microbats roosting in the bridge structure is to be undertaken and documented including investigating for bats, guano and sounds of bats • If bats or their signs are present a suitably qualified and experienced ecologist is to be engaged to investigate further Any bats found are not to be touched		
Loss of biodiversity	In order to achieve no net loss of biodiversity, the proponent will compensate for vegetation removed by the project through the planting of native vegetation along Council Managed Road reserves within 15km of the project area. Plantings will be undertaken according to the following criteria and components; • Sites for planting will be chosen based on a low likelihood of clearing of the site occurring in the future and the presence of degraded ecosystems without native grassland communities • Planting areas will be a suitable part of the landscape to establish a. Southern Escarpment River Oak Forest (5%) and b. South Coast Hinterland Yellow Stringybark Forest (95%) • At least 700 plants will be planted over 1ha of road reserve including in the area of the existing bridge and its approaches • Trees will be planted within 18 months of road works commencing	Council & Contractor	Pre-construction, construction & Post constructiuon

Impact	Environmental safeguards	Responsibility	Timing
	• Plantings will be maintained for 4 years and until they have established at least 80% success rate • Plants will be sourced from locally collected seed • Species planted are to be local trees and shrubs including but not limited to; a. At least 50 *Casuarina cunninghamiana* River Oak, Where appropriate b. At least 150 *Eucalyptus botryoides* Bangalay, Where appropriate c. At least 100 *Eucalyptus elata* River Peppermint, Where appropriate d. Other species from each of the plant community types above In order to minimise impacts of vegetation removal a Vegetation Management Plan will be prepared prior to works commencing and be implemented during works that addresses/ incorporates the following; • The plan will be prepared by a suitably qualified and experienced ecologist • The plan will detail planting methodology including a map of proposed plantings referred to in 9.3 above • Pre-clearing surveys targeting hollow bearing trees and nesting fauna to be conducted within a week of proposed clearing to ensure clearing impacts on fauna are minimised • Measures to minimise impacts to nesting fauna that are located in pre-clearing surveys • Clearing methodology incorporating measures to minimise impacts to		

Impact	Environmental safeguards	Responsibility	Timing
	fauna that may be occupying hollow bearing trees		

6.3 Soil and water

6.3.1 Existing environment

The proposed works occur in the Wallaga Lake Catchment, runoff from the project area enters Dignams Creek and flows 16km to Wallaga lake, a coastal estuary.

Soils on the site are stable, protected by vegetation and scour protection.

6.3.2 Potential impacts

Construction impacts

There is potential for disturbances to soils through establishment of site compound and stockpile areas, excavations, vehicle and plant movement and vegetation removal. Exposed soils if unmanaged will be placed at risk of accelerated erosion and therefore sedimentation of receiving waters.

There is also a risk of oil spillage from broken hydraulic lines on plant and equipment. It is important to manage these risks to minimise the chances of them occurring and to be prepared in the event of a situation that may result in water pollution.

Operation impacts

The improved bridge and abutment design as well as sealing of the road wearing surfaces will reduce sedimentation impacts on receiving waters.

6.3.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Soil and Water Management	• An Erosion and Sediment Control Plan (ESCP) will be prepared to mitigate impacts during construction including the following: ○ Erosion and sedimentation controls are to be installed prior to construction. ○ Disturbed areas are to be progressively stabilised ○ Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and within two days	Contractor	Pre-Construction

Impact	Environmental safeguards	Responsibility	Timing
	of expected rain events. Records of compliance are to be kept and available for inspection. ○ Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised. ○ Work areas are to be stabilised progressively during the works.		
Water and soil pollution	• A spill management plan must be developed which includes measures for refuelling, maintenance of machinery and response and notification procedures. It must also include the following measures: ○ Sediment management controls such as a sediment curtain to prevent sedimentation of downstream waters ○ Machinery must be regularly checked to ensure there is no oil, fuel or other liquids leaking from the machinery, including daily checks of machinery and equipment to be used for construction. ○ A spill kit including boom must be stored on onsite at all times to manage any potential accident spills. ○ Where possible, re-fuelling of vehicles and equipment will be undertaken in an impervious bunded area at the compound site, located 50 metres from any creek or drainage line. ○ When re-fuelling remote from compound, trained staff will observe at all times and tanks will have an automatic cut off when full and	Contractor	Pre-construction & During construction

Impact	Environmental safeguards	Responsibility	Timing
	vehicles will carry a temporary bund and spill kit. ○ If a spill occurs, follow the Environmental Incident Classification and Management Procedure and notify the Environmental Officer as soon as practicable.		

6.4 Noise and vibration

6.4.1 Existing environment

The project site occurs in a rural area and is generally peaceful. The greatest source of noise and vibration currently in the vicinity is the traffic using Dignams Creek Road. Four dwellings occur within 200m of the works area, 3 to the south and one to the north no other sensitive receivers occur nearby.

6.4.2 Potential impacts

Construction noise impacts

Given the nature of the works noise generated is not expected to impact dwellings or businesses. Noise generated by the works is not likely to impact businesses or economic activities.

Construction vibration impacts

Vibration emitted by construction is unlikely to impact the comfort of nearby landholders or cause damage to architectural structures.

Operational noise & vibration impacts

Works will result in noise and vibration impacts to sensitive receivers being reduced due to improved quality of the road travel surface.

6.4.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Work hours	• Works to be carried out during normal work hours (i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays).	Contractor	Construction

6.5 Air quality

6.5.1 Existing environment

The existing air quality is high being a rural environment with minimal development. Traffic using Dignams Creek Road produce exhaust gases and generate dust intermittently interrupting air quality for relatively short periods of time.

6.5.2 Potential impacts

Construction

Earthworks, construction activities and vehicle movements will generate dust. This impact is very minor and insignificant if managed through current best practice.

Operation

The improvement of this part of Dignams Creek Road is likely to result in improved air quality as the bridge and road travel surface will be in better condition.

6.5.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Air pollution	• Dust suppression measures (including watering and covering exposed areas) are to be used to minimise or prevent air pollution and dust. • Vehicles will be maintained to manufacturer's requirements and regular checks are to be made to ensure they are operating efficiently. • Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.	Contractor	Construction

6.6 Heritage

6.6.1 Existing environment

An AHIMS search was undertaken which identifies no Aboriginal sites or places in the vicinity of the project area, included at Appendix 3.

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales 2010* has been followed and summarised below, the generic due diligence process is shown in the flow diagram at Appendix 3.

Step 1; Will the activity disturb the ground surface or any culturally modified trees?

Yes, road works will require minor disturbance of the ground surface for excavation, sealing and drainage maintenance.

Step 2; Are there any:

a) relevant confirmed site records or other associated landscape feature information on AHIMS? and/or

b) any other sources of information of which a person is already aware? and/or

c) landscape features that are likely to indicate presence of Aboriginal objects?

No, AHIMS search identifies no records of Aboriginal Sites nearby

Step 3; Can harm to Aboriginal objects listed on AHIMS or identified by other sources of information and/or can the carrying out of the activity at the relevant landscape features be avoided?

Yes, works will not occur in the vicinity of listed Aboriginal objects.

> *AHIP application not necessary. Proceed with caution. If any Aboriginal objects are found stop work and notify DECCW. If human remains are found, stop work, secure the site and notify the NSW Police and DECCW.*

The result of this due diligence process is that an Aboriginal Heritage Impact Permit is not required.

No listed heritage items occur close to the project area.

There is potential for other items or artefacts of cultural significance to be present in the study area reflecting the long occupation of the land by European and Aboriginal communities.

6.6.2 Potential impacts

No impacts to Aboriginal or non-Aboriginal heritage are expected however safeguards below will address nearby AHIMS records and unexpected finds.

6.6.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Unexpected Aboriginal heritage	• Any work crews employed in ground disturbing works within the study area must be made aware of the legislative protection of Aboriginal sites and objects at the induction and toolbox talks and will be recorded. • All site staff are to be advised that it is an offence under the NPW Act to harm an Aboriginal object without appropriate approval. • If objects are encountered which are suspected to be of Aboriginal heritage value work is to stop and Council will seek advice from a representative of the Local Aboriginal Land Council and an archaeologist with expertise in Aboriginal heritage. The recommendations provided by any subsequent archaeological assessment should be implemented as part of the project.	Council & Contractor	Continuous
Unexpected heritage	• If historical artefacts that become evident during excavation, work in the immediate vicinity should cease until an investigation is undertaken with guidance from Council's heritage advisor.	Council & Contractor	Continuous

6.7 Land use and socio-economic

6.7.1 Existing environment

The economic environment of this area is largely driven by primary production and home business, a sparse population lives in the district that imports most of its products and services from the nearby rural centres of Cobargo, Bermagui and Bega.

Road transport is critical to the maintenance of the economic environment of the local community.

6.7.2 Potential impacts

The potential to disrupt traffic using Dignams Creek Road is the only potential negative impact on the local economy. This is likely to be minor, short term and will not significantly impact any industry or business.

No access to a business or residence will be impeded during construction.

6.7.3 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Changes in local access and traffic movement	• Road closures will be minimised as far as practical • Detours will be adequately sign posted during road closure.	Council & contractor	Construction and operation
Complaints	• Complaints received are to be recorded and attended to promptly in accordance with Council's complaints handling procedures.	Council & contractor	Construction

6.8 Waste and resource management

Waste management would be undertaken in accordance with the *Waste Avoidance and Resource Recovery Act 2001*. The objectives of this Act that are applicable to the proposal are:

(a) to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development,

(b) to ensure that resource management options are considered against a hierarchy of the following order:

(i) avoidance of unnecessary resource consumption,

(ii) resource recovery (including reuse, reprocessing, recycling and energy recovery),

(iii) disposal,

(c) to provide for the continual reduction in waste generation,

(d) to minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,

(e) to assist in the achievement of the objectives of the Protection of the Environment Operations Act 1997.

6.8.1 Waste sources

The proposed works would generate general rubbish waste from works crews and waste building materials from demolition of the timber bridge.

General waste would be temporarily stored on site prior to disposal at an appropriately licensed waste facility.

Waste building materials should be recycled in other Council or community projects.

6.8.2 Safeguards and mitigation measures

Impact	Environmental safeguards	Responsibility	Timing
Production of packaging materials and other construction waste	• The resource management hierarchy must be followed at all times throughout the proposal: *avoid resource consumption → recover recyclable materials for reuse → dispose material unable to be recycled*	Contractor	Construction
Waste on site	• Waste material, other than vegetation and tree mulch, must not be left on site once the works have been completed • Working areas must be maintained, kept free of rubbish and cleaned up at the end of each working day	Contractor	Construction
Production of solid putrescibles waste	• Proper bins (with lids) must be available for the temporary storage of putrescible waste within the site compound and then disposed of by a licensed contractor	Contractor	Construction

6.9 Cumulative impacts

It is a requirement under Part 8 Infrastructure and Environmental Impact Assessment of the Environmental Planning and Assessment Regulation 2021 to take into account any cumulative environmental impacts with other existing or likely future activities. Cumulative impacts relate to the combined potential effects of different impact areas of the proposal as well as the potential interaction with other proposals in the local area.

6.9.1 Potential Cumulative impacts

As this is a minor and beneficial proposal it is considered unlikely to be contributing in any significant way to any cumulative impacts. Council aims to maintain their road infrastructure in a functional and reliable state that provides adequate transport service to the community and minimises negative impacts to the natural environment.

6.10 Summary of beneficial effects

The proposal is expected to improve reliability of Dignams Creek Road, particularly during bushfire and high rainfall events, improve traffic safety and reduce maintenance costs of the road and bridge. This will provide benefits to the local community and value for money for ratepayers.

6.11 Summary of adverse effects

Construction works will require temporary traffic disruptions and amenity impacts to the site. These impacts are minor and considered acceptable given the benefits the proposal will generate.

7 Environmental management

7.1 Environmental management plans

Several safeguards and mitigation measures have been provided by this REF that manage potential adverse impacts of the proposal. Whilst these measures are implemented and incorporated into the detailed design and applied during the construction and operation of the proposal any impacts are considered acceptable given the benefit of the proposal.

A Construction Environmental Management Plan (CEMP) including an Erosion and Sediment Control Plan (ESCP) will be prepared that specifies safeguards and mitigation measures provided by this REF. This CEMP, and any activity/ contractor specific appendices will provide a framework that clearly identifies the implementation of these measures including responsible officers and monitoring and review processes.

The CEMP and any appendices will be prepared and certified by the Council Environment Officer prior to construction commencement. Plans will be working documents, subject to ongoing change and updated as necessary to respond to changing conditions.

7.2 Summary of safeguards and management measures

Environmental safeguards outlined in this document will be implemented during the project. These safeguards will minimise any potential adverse impacts arising from the proposed works on the surrounding environment. The safeguards and management measures are summarised in Table 7-1 of this report and must be kept on the site during works, this may be via incorporation into the CEMP.

Table 7-1 Summary of safeguards and mitigation measures.

No.	Impact	Environmental safeguards	Responsibility	Timing
1	General	• All environmental safeguards must be incorporated within the following: ○ Construction Environmental Management Plan ○ Detailed design stage ○ Contract specifications for the proposal ○ Contractor's Environmental Management Plan	Council	Pre-construction
2	General	• All businesses and residences likely to be affected by the proposed works must be notified at least five working days prior to the commencement of the proposed activities.	Council	Pre-construction
3	Traffic and access	• A TMP must be prepared (in accordance with Transport for NSW *Traffic Control at Work Sites* 2022 Standard).	Contractor	Pre-construction
4	Traffic delays	• Road users must be advised of the proposed work signage in the vicinity of the works. • Detours will be adequately sign posted during road closure.	Council	Pre-construction & Construction
5	Access impacts	• The local community are to be notified of the proposed works at least two prior to commencement of works.	Council	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
6	Microbats roosting in existing bridge structure	Due to the possibility of the existing bridge structure becoming roosting habitat for the following threatened species of microbats a pre-demolition inspection for microbats is to be undertaken within three days before proposed demolition by a suitably experienced ecologist. If evidence of microbat presence is found an Assessment of Significance is to be undertaken. • Southern Myotis (*Myotis macropus*) • Little Bent-winged Bat (*Miniopterus australis*) • Large Bent-winged Bat (*Miniopterus orianae oceanensis*). In order to manage the risk of microbats roosting in the bridge structure the Construction Environmental Management Plan is to include an unexpected finds procedure for microbats including the following; • A daily inspection for microbats roosting in the bridge structure is to be undertaken and documented including investigating for bats, guano and sounds of bats • If bats or their signs are present a suitably qualified and experienced ecologist is to be engaged to investigate further • Any bats found are not to be touched	Council & Contractor	Pre-construction & construction
7	Weed invasion	In order to manage the risk of indirect impacts of invasive species establishing in the project area, a weed management plan will be prepared and implemented to ensure the project does not increase the occurrence of weed species on the site or adjoining land the plan will incorporate the following practices; • Plant and equipment will be cleaned prior to entering any part of the site ensuring no mud/ soil or vegetation material is imported into the area The site manager will ensure that procedures are in place to ensure plant and equipment entering the site are clean and free of mud, soil and vegetation material.	Council & Contractor	Pre-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
8	Microbats roosting in existing bridge structure	Due to the possibility of the existing bridge structure becoming roosting habitat for the following threatened species of microbats a pre-demolition inspection for microbats is to be undertaken within three days before proposed demolition by a suitably experienced ecologist. If evidence of microbat presence is found an Assessment of Significance is to be undertaken. • Southern Myotis (*Myotis macropus*) • Little Bent-winged Bat (*Miniopterus australis*) • Large Bent-winged Bat (*Miniopterus orianae oceanensis*). In order to manage the risk of microbats roosting in the bridge structure the Construction Environmental Management Plan is to include an unexpected finds procedure for microbats including the following; • For days during bridge demolition, a daily inspection for microbats roosting in the bridge structure is to be undertaken and documented including investigating for bats, guano and sounds of bats • If bats or their signs are present a suitably qualified and experienced ecologist is to be engaged to investigate further Any bats found are not to be touched	Council & Contractor	Pre-construction & construction

9	Loss of biodiversity	In order to achieve no net loss of biodiversity, the proponent will compensate for vegetation removed by the project through the planting of native vegetation along Council Managed Road reserves within 15km of the project area. Plantings will be undertaken according to the following criteria and components; • Sites for planting will be chosen based on a low likelihood of clearing of the site occurring in the future and the presence of degraded ecosystems without native grassland communities • Planting areas will be a suitable part of the landscape to establish a. Southern Escarpment River Oak Forest (5%) and b. South Coast Hinterland Yellow Stringybark Forest (95%) • At least 700 plants will be planted over 1ha of road reserve including in the area of the existing bridge and its approaches • Trees will be planted within 18 months of road works commencing • Plantings will be maintained for 4 years and until they have established at least 80% success rate • Plants will be sourced from locally collected seed • Species planted are to be local trees and shrubs including but not limited to; a. At least 50 *Casuarina cunninghamiana* River Oak, Where appropriate b. At least 150 *Eucalyptus botryoides* Bangalay, Where appropriate c. At least 100 *Eucalyptus elata* River Peppermint, Where appropriate d. Other species from each of the plant community types above In order to minimise impacts of vegetation removal a Vegetation Management Plan will be prepared prior to works commencing and be implemented during works that addresses/ incorporates the following; • The plan will be prepared by a suitably qualified and experienced ecologist	Council & Contractor	Pre-construction, construction & post construction

No.	Impact	Environmental safeguards	Responsibility	Timing
		• The plan will detail planting methodology including a map of proposed plantings referred to in 9.3 above • Pre-clearing surveys targeting hollow bearing trees and nesting fauna to be conducted within a week of proposed clearing to ensure clearing impacts on fauna are minimised • Measures to minimise impacts to nesting fauna that are located in pre-clearing surveys • Clearing methodology incorporating measures to minimise impacts to fauna that may be occupying hollow bearing trees		

10	Soil and Water Management	• An Erosion and Sediment Control Plan (ESCP) will be prepared to mitigate impacts during construction including the following:
		  • Erosion and sedimentation controls are to be installed prior to construction.
		  • Disturbed areas are to be progressively stabilised
		  • Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and within two days of expected rain events. Records of compliance are to be kept and available for inspection.
		  • 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.
		  • Erosion and sediment control measures are not to be removed until the works are complete and areas are stabilised.
		  • Work areas are to be stabilised progressively during the works.
			Contractor	Pre-construction, Construction & Post-construction

No.	Impact	Environmental safeguards	Responsibility	Timing

11	Water and soil pollution	• A spill management plan must be developed which includes measures for refuelling, maintenance of machinery and response and notification procedures. It must also include the following measures:
		  • Sediment management controls such as a sediment curtain to prevent sedimentation of downstream waters
		  • Machinery must be regularly checked to ensure there is no oil, fuel or other liquids leaking from the machinery, including daily checks of machinery and equipment to be used for construction.
		  • A spill kit including boom must be stored on onsite at all times to manage any potential accident spills.
		  • Where possible, re-fuelling of vehicles and equipment will be undertaken in an impervious bunded area at the compound site, located 50 metres from any creek or drainage line.
		  • When re-fuelling remote from compound, trained staff will observe at all times and tanks will have an automatic cut off when full and vehicles will carry a temporary bund and spill kit.
		  • If a spill occurs, follow the Environmental Incident Classification and Management Procedure and notify the Environmental Officer as soon as practicable.
			Contractor	Pre-construction, Construction & Post-construction

No.	Impact	Environmental safeguards	Responsibility	Timing
12	Construction noise and vibration	• Works to be carried out during normal work hours (i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays). • A complaints register is to be established. All complaints received during the works will be recorded into the register. Complaints will be responded to promptly. • Noise monitoring would be undertaken at any sensitive receivers which lodge a noise complaint, and methods of reducing noise levels to an acceptable level will be investigated. • Construction works must be carried out in accordance with Roads and Maritime Environmental Noise Management Manual (G36 Specification). • Noise impacts are to be minimised in accordance with Practice Note 7 in the RTA's Environmental Noise Management Manual and RTA's Environmental fact sheet No. 2- Noise management and Night Works.	Contractor	Pre-construction
13	Air pollution	• Dust suppression measures (including watering and covering exposed areas) are to be used to minimise or prevent air pollution and dust. • Vehicles will be maintained to manufacturer's requirements and regular checks are to be made to ensure they are operating efficiently. • Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transportation.	Council & Contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
14	Aboriginal heritage	• Any work crews employed in ground disturbing works within the study area must be made aware of the legislative protection of Aboriginal sites and objects at the induction and toolbox talks and will be recorded. • All site staff are to be advised that it is an offence under the NPW Act to harm an Aboriginal object without appropriate approval. • If objects are encountered which are suspected to be of Aboriginal heritage value work is to stop and Council will seek advice from a representative of the Local Aboriginal Land Council and an archaeologist with expertise in Aboriginal heritage. The recommendations provided by any subsequent archaeological assessment should be implemented as part of the project.	Council & Contractor	Continuous
15	Unexpected heritage	• If historical artefacts that become evident during excavation, work in the immediate vicinity should cease until an investigation is undertaken with guidance from Council's heritage advisor.	Council & Contractor	Continuous
16	Changes in local access and traffic movement	• Road closures will be minimised as far as practical.	Council & Contractor	Construction and operation
17	Complaints	• Complaints received are to be recorded and attended to promptly in accordance with Council's complaints handling procedures.	Council & Contractor	Construction
18	Production of packaging materials and other construction waste	• The resource management hierarchy must be followed at all times throughout the proposal: *avoid resource consumption → recover recyclable materials for reuse → dispose material unable to be recycled.*	Contractor	Construction

No.	Impact	Environmental safeguards	Responsibility	Timing
19	Waste on site	• Waste material, other than vegetation and tree mulch, must not be left on site once the works have been completed. • Working areas must be maintained, kept free of rubbish and cleaned up at the end of each working day	Contractor	Construction
20	Production of solid putrescibles waste	• Proper bins (with lids) must be available for the temporary storage of putrescible waste within the site compound and then disposed of by a licensed contractor.	Contractor	Construction

7.3 Licensing and approvals

A Part 7 permit under the Fisheries Management Act 1994 is required as in-stream works are necessary and the site is defined as key fish habitat.

This will require application to Department of Primary Industries (Fisheries).

No other licences or approvals have been identified as being necessary for this proposal. If the scope of works were to change, this requirement may change.

8 Cl171 Review of environmental factors

In addition to the requirements of the *Is an EIS required?* guideline as detailed earlier in this document, the following factors, provided in clause 171 of the Environmental Planning and Assessment Regulation 2021, have also been considered to assess the likely impacts of the proposal on the environment.

Factor	Impact
a. The environmental impact on a community? The proposal would improve infrastructure and services/ economic activity for the community.	Long term positive
b. The transformation of a locality? The proposal is maintenance to existing assets and will not cause significant transformation.	Nil
c. The environmental impact on the ecosystems of the locality? The proposal will not significantly impact terrestrial ecosystems.	Minor
d. Reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? The proposal would have a short-term impact of visual amenity during construction however no long term impacts are likely.	Minor short term
e. Any effects on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations? The proposal is unlikely to impact these anthropological factors.	Nil
f. The impact on the habitat of protected fauna (within the meaning of the *National Parks and Wildlife Act 1974*)? No impact.	Nil
g. The 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.	Nil
h. Long-term effects on the environment? The proposal would not significantly change the environment, long term effects will be positive, due to improved road integrity.	Positive
i. Degradation of the quality of the environment? Short term amenity will be affected, no long-term degradation.	Minor short term

Factor	Impact
j. Risk to the safety of the environment? The proposal would pose minimal risk to the safety of the environment. Recommendations in this report ameliorate residual risk.	Manageable
k. Reduction in the range of beneficial uses of the environment? There would be no reduction in the range of beneficial uses of the environment.	Nil
l. Pollution of the environment? The proposal would be likely to result in short term air quality and noise impacts. These would be managed accordingly and are considered short term and minor.	Minor short-term negative
m. Environmental problems associated with the disposal of waste? Waste generated is minor and managed within Council's existing services.	Nil
n. Increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? The proposal is unlikely to result in materials becoming in short supply, fuel use will be consistent with existing requirements of Council.	Nil
o. Cumulative environmental effect with other existing or likely future activities? The proposal will have insignificant cumulative effects.	Nil
p. Impact on coastal processes and coastal hazards, including those under projected climate change conditions? As the site is not in a coastal area there would be no impact on coastal processes and coastal hazards, including those under projected climate change conditions.	Nil
(q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1	Nil
(r) other relevant environmental factors.	Nil

9 Conclusion

This proposal has been assessed under Part 5 of the EP&A Act REF process. It has examined and taken into account to the fullest extent practical all matters affecting or likely to affect the environment by reason of the proposed activity. This has included consideration of impacts on threatened species, populations and ecological communities and their habitats, critical habitat, other protected fauna and native vegetation. The REF has also considered soil and water impacts, Aboriginal and non-Aboriginal heritage impacts and a range of socio economic and amenity impacts.

From the assessment of the biophysical, socio-economic and legislative environment above it is concluded that there is likely to be no significant impact on the environment if this proposal proceeds incorporating recommendations provided by this REF.

- No significant impacts on terrestrial biodiversity are likely, recommendations in this report manage residual risk.
- No significant impacts on heritage values are likely, recommendations in this report manage residual risk.
- Potential pollution impacts on air, soils and water are manageable through current best practices
- The proposal has the potential to cause minor short term visual and noise impacts during construction. These are considered acceptable and manageable impacts

Environmental impacts of the proposal are not likely to be significant and therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought for the proposal from the Minister for Planning under Part 5.1 of the EP&A Act. The proposal is unlikely to affect threatened species, populations or ecological communities or their habitats, within the meaning of the BC Act or FM Act, therefore a Species Impact Statement is not required.

The proposal is also unlikely to affect Commonwealth land or have an impact on any matters of national environmental significance and therefore referral to the Commonwealth Environment Minster for approval is not required.

10 Certification

This review of environmental factors 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.

Patrick Guinane

Environmental Consultant

Macrozamia Environmental

Date: 22 October 2023

I have examined this review of environmental factors and accept the review of environmental factors on behalf of Bega Valley Shire Council.

Name _____

Title _____

Bega Valley Shire Council

Date: _____

Appendix 1 – Works Concept Plans

Bega Valley Shire Council

Appendix 2 – Biodiversity Assessment Report

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BIODIVERSITY ASSESSMENT REPORT

Proposed Bridge Replacement Works
Dignams Creek Bridge
Dignams Creek Road, Dignams Creek, NSW

Bega Valley Shire Council

September 2023

Version	Final
Date	26 October 2023
Project Number	140249_1

Contents

1. Introduction

1.1. Background

This report has been prepared by Macrozamia Environmental for Bega Valley Shire (Council) to support a Review of Environmental Factors (REF) for a proposal to replace the existing timber bridge on Dignams Creek Road crossing Dignams Creek.

Council has identified that this bridge is reaching the end of its useful life and is at risk of becoming unserviceable. This bridge is an important asset on Dignams Creek Road providing road access for communities in the Dignams Creek Community to the north of the crossing.

The existing bridge is single lane and of timber construction including abutment walls, joists and deck with concrete footings and three wooden piers, several maintenance and repair works have incorporated plywood and steel components.

The proposal is to take the opportunity to improve the alignment of Dignams Creek Road where it crosses Dignams Creek and construct a new concrete, cast in place bridge structure crossing the creek on the eastern side of the existing bridge. Approaches and formation for the new alignment of Dignams Creek Road would also be constructed.

During works, traffic would continue to use Dignams Creek Road and the existing bridge, managed for safety of road users and works crews. Following commissioning of the new bridge the existing bridge will be demolished and the site rehabilitated to a natural state.

The scope of the works is summarised as follows;

1. Traffic management, during works traffic using Dignams Creek Road will be slowed and managed for safety
2. Installation of temporary erosion and sediment controls
3. Clearing and grubbing of new alignment
4. Construction of new approaches and formation matched to existing road surface and design criteria for new bridge
5. Construction of cast in place headwalls and deck
6. Sealing of deck matched to approaches
7. Drainage construction as required
8. Installation of traffic signage and bridge furniture including barriers
9. Commissioning of new crossing
10. Demolition of existing bridge structure and removal of components
11. Rehabilitation of existing approaches & formation to natural state
12. Rehabilitation of site including bank stabilisation, removal of temporary erosion control structures & all waste materials and ensuring site is not subject to accelerated erosion.

The proposal location and study area are identified on Map 1-1 of this report. The study area includes the site of the works and adjoining lands to the extent that they may be impacted by the works.

The environment is characterised by a rural setting with significant areas of remnant vegetation broken by cleared agricultural paddocks and road corridors. Vegetation in the road reserve in the vicinity of the project site is a native forest community with a minor exotic component.

This Biodiversity Assessment Report considers the potential impacts of the proposal on biodiversity matters. The proposal requires the establishment of a temporary stockpile area, removal of the existing bridge and construction works.

This assessment considers the impacts on biodiversity of all components of the project, the concept plans at Appendix 1 of the REF detail the design of the proposal.

1.2. Site Description

The subject land occurs in a rural landscape occupied by grazing enterprises, private lands managed for conservation and forest in national park managed for conservation, nearby lands are occupied by large tracts of native forest, the riparian corridor is well vegetated with native riparian forest with a reasonably diverse understory and groundcover, weed species are sparse. The bed of Dignams Creek is rocky, at the time of inspection it was dry and generally unvegetated, minimal course woody debris was present.

Terminology used in this report aims to be consistent with the NSW Biodiversity Assessment Method 2020;

Assessment area refers to the local environment surrounding the subject land within a buffer distance of 500m of the subject land.

Subject Land refers to the land impacted by the works, in this case the road reserve extending 50m north and south of the development footprint.

Development footprint refers to the areas of direct impacts of the proposal, it includes the footprint of the development (85m long, variable width) and any ancillary works, facilities and accesses that support the construction or operation of the development, a total of 1400m^2.

The proposal location and subject land are identified on Map 1-1 of this report and the development footprint is detailed in the concept plans at Appendix 1 of the REF.

1.3. Aims of this Report

The purpose of this report is to identify and assess the terrestrial biodiversity, including flora, fauna and ecological communities occurring in the study area and the likely impacts of the proposed development on these matters, with consideration of the site's landscape context. This report addresses the legislative framework below;

i. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
    a. Biodiversity Matters of National Environmental Significance

       Identification of protected matters at risk of impact and assessment of significance of any impact

ii. NSW *Biodiversity Conservation Act 2016* (BC Act)
    a. Part 4, Divisions 2 and 5

       Consideration of listed species, ecological communities and key threatening processes to be considered under s7.3

    b. Section 7.3

       Test of Significance, for determining whether proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats

iii. NSW *Environmental Planning and Assessment Act 1979* (EP&A Act)

a. Part 5, Infrastructure and environmental impact assessment

iv. NSW *State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP)*

Part 2 Development control of koala habitats

v. Queanbeyan-Palerang Regional Local Environmental Plan 2022 (LEP)

Clause 7.2 Terrestrial Biodiversity

(1)The objective of this clause is to maintain terrestrial and aquatic biodiversity including—

(a) protecting native fauna and flora, and

(b) protecting the ecological processes necessary for their continued existence, and

(c) encouraging the recovery of native fauna and flora, and their habitats.

(2) This clause applies to land identified as “sensitive land” on the Natural Resources Sensitivity—Biodiversity Map.

This Biodiversity Assessment aims to;

- Provide a description of the subject site and study area
- Describe the methods used to assess biodiversity
- Identify the key flora and fauna species & vegetation communities present in the study area, including an assessment of potential habitat values of the site and their interaction with habitats outside the study area
- Identifies the listed threatened species, populations migratory species & ecological communities with potential to occur in the study area
- Define the potential impacts of the proposal on biodiversity and assess the significance of potential impacts on threatened species, populations and ecological communities and migratory species.

It is important to note that not all species that occur on or use this site could be identified without an extended survey period of several seasons and over numerous site visits. A survey of this extent is beyond the scope of this assessment. To compensate for this, habitats have been assessed with consideration of potentially occurring species applying the principle, particularly in relation to listed matters.

1.4. Description of Proposal

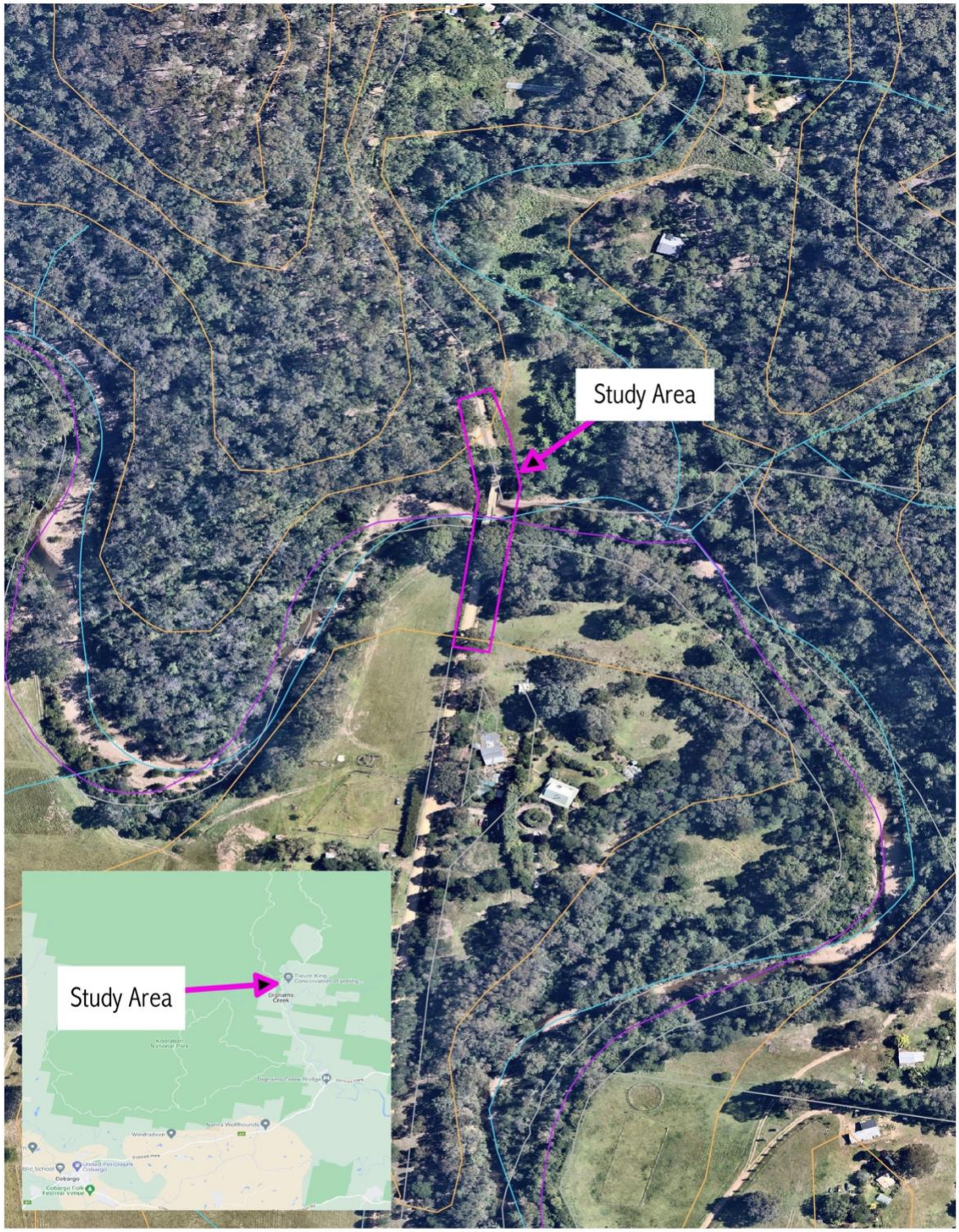
Council is proposing to realign Dignams Creek Road crossing Dignams Creek, constructing new approaches and a concrete bridge, once commissioned, the existing timber bridge will be removed.

During works traffic using Dignams Creek Road will be managed for safety of road users and works crews.

It is intended that works will be completed in one stage in the 2024 – 2025 financial year, the timeframe for works is expected to be up to 16 weeks though this may be impacted by Council’s operational schedule and weather conditions.

The following summarises the activities involved;

- Completion of design and planning approvals/ licences and permits as required
- Implementation of traffic management plan
- Site preparation, including construction of access pads/ tracks, and temporary erosion and sediment controls
- Clearing and grubbing of works area
- Construction of approaches, formation, abutments and drainage as required
- Install permanent formwork & steel reinforcing for headwalls and deck
- Pour cast in place headwalls & deck
- Sealing of deck wearing surface 2 coat 14mm/7mm bitumen seal matched to approaches
- Installation of railings/ traffic barriers and signage as required
- Commissioning of new works
- Demolition of existing bridge and removal of its components
- Rehabilitation of existing approaches to a natural state
- Decommissioning and removal of temporary works including erosion and sediment controls
- Post construction works including clean-up and site rehabilitation.



Macrozamia Environmental

Map 1-1
Study Area and Locality

0 50 100 m

2. Methods

2.1. Literature and Database Review

The study area and its landscape context were considered through a literature and database review in preparation for field survey and to inform survey aims and threatened biodiversity assessments. Aerial photography, NSW Government GIS data and NSW & Commonwealth databases as well as Macrozamia Environmental's records from previous surveys in the landscape all informed this review, the following sources being key to this assessment;

- Current versions of legislation referred to in section 1.3 of this Biodiversity Assessment, NSW Legislation website
- NSW ePlanning Spatial Viewer, NSW Department of Planning, Industry and Environment
- BioNet Atlas of NSW Wildlife, NSW Office of Environment and Heritage
- Threatened Biodiversity Profiles, NSW Office of Environment and Heritage
- NSW Vegetation Information System, NSW Office of Environment and Heritage
- Land and Property Information SIX Map Topographic and Cadastral Data for this Local Government Area, periodically updated on our GIS
- EPBC Protected Matters Search Tool, Commonwealth Department of Agriculture, Water and the Environment.

Wherever applicable, NSW and Commonwealth policies and guidelines have been adopted in the undertaking of this assessment, the following have been key to preparation of this report;

- Threatened Species Test of Significance Guidelines NSW Office of Environment and Heritage 2018
- The EPBC Act Matters of National Environmental Significance: Significant Impact Guidelines, Department of Environment, Water, Heritage and the Arts 2013.

Threatened species, populations and migratory species that were recorded within 10km of the study area in the BioNet Atlas of NSW Wildlife and listed in the EPBC Protected Matters Search Tool were considered for their likelihood of occurrence in the study area the following factors informed this assessment;

- The location, habitats and dates of records
- Habitat within the study area and habitats in the landscape including the continuity of suitable habitats for the matter under consideration
- Scientific literature pertaining to each matter and applying ecological knowledge to the assessment.

The potential for each threatened matter or migratory species to occur was then considered and the necessity for targeted field surveys was determined. Following field surveys and review of habitat occurring in the study area, the potential for species, communities or populations to use the study area or to be impacted directly or indirectly by the proposal was assessed, this assessment is summarised in the table at Appendix 1 of this report.

2.2. Field Survey

The study area was surveyed by an ecologist on 31 August & 13 October 2023. Conditions were clear and warm on each day, it was considered conditions were adequate for opportunistic fauna survey and of sufficient time to adequately assess each vegetation community throughout the

area of the works. During site inspections the study area was defined, vegetation communities mapped and notes made on the flora and fauna species identified within and adjacent to the impact area of the proposal, a photo/ videographic record was also made aiding in documenting the site characteristics.

2.3. Flora and Vegetation Communities

All flora and fauna species identified were recorded along with ecological communities and habitat components occurring on the site.

Flora was surveyed using the random meander technique (Cropper 1993) focusing on each vegetation community occurring in the study area. Notes were made of individual plant species present and vegetation communities mapped and defined then compared with OEH defined Plant Community Types and checked against described listed vegetation communities.

Targeted surveys were undertaken for threatened species of plants that were considered to have potential to occur on the site based on desktop research or where habitats on site were found to be suitable.

Floral nomenclature is consistent with *The Plant Information Network System of The Royal Botanic Gardens and Domain Trust* PlantNET online resource.

2.4. Fauna and Fauna Habitats

Incidental fauna survey was undertaken for birds, amphibians, reptiles and mammals, which included opportunistic observations of fauna, active searching of signs of direct and indirect occurrence including scats, tracks, scratch & feeding marks, burrows, calls, pellets and remnants such as bones, fur and feathers.

Where suitable habitat components were present, targeted searches were undertaken for fauna presence or signs of past presence. For example loose rocks and timber were lifted in search of reptiles and rocky areas observing for basking reptiles, wet areas were approached quietly to listen for frogs and in suitable habitat bird calls were used for identification.

Habitat components that may be used for foraging, roosting, breeding or nesting by any potentially occurring fauna were considered, along with the continuity of habitat present within the study area as well as stepping stone or corridor habitat that may connect the study area to other parts of the landscape, particularly to areas of quality habitat or conservation areas.

Habitat surveys targeted tree hollows, stags, bird nests, possum dreys, decorticating bark, rock shelters, rock outcrops / crevices, mature / old growth trees, food species particularly nectar producing and palatable species such as mistletoes and proteaceae species.

Where present, artificial structures such as bridges/ culverts, dams, service pits and other structures were also considered for their habitat value and investigated for the presence of microbats including their sounds and guano deposits.

Faunal nomenclature is consistent with;

- Cogger, H. (1992). Reptiles and Amphibians of Australia, Revised Edition. Reed, Sydney.
- Morcombe, M. (2000). Field Guide to Australian Birds. Steve Parish Publishing Pty Ltd, Queensland.
- Strahan, R. (1995). The Mammals of Australia. Australian Museum/Reed Books, Sydney.

2.5. Survey Limitations

The flora survey aimed to record all the key and most frequent species occurring on the study area in order to accurately describe vegetation characteristics and classify plant community

types present as well as all important weed species. Beyond this, as many flora species as practically could be recorded were, however, a definitive list of the flora occurring in the study area cannot be derived without structured surveys over several seasons. Such survey effort is beyond the scope of this assessment given past land uses on the site, its degraded nature and the nature of the proposal's impacts.

Despite these limitations the biodiversity assessment undertaken for flora, vegetation communities and fauna is adequate to undertake appropriate biodiversity impact assessment. Further flora species would be recorded during longer surveys over different seasons however sufficient data has been collected to detect flora and habitats of threatened matters.

Biodiversity survey following OEH's published threatened species survey and assessment guidelines was not undertaken as sufficient detail to determine the likelihood of occurrence of threatened species and communities as well as potentially occurring migratory species for the purposes of this assessment has been achieved through flora and habitat assessment during the field survey.

3. Results

3.1. Literature and Database Review

Desktop assessment has identified the following characteristics of the site;

Interim Biogeographic Regionalisation for Australia (IBRA)

The Interim Biogeographic Regionalisation for Australia (IBRA) is a geospatial system for categorising landscapes into assemblages of common characteristics including climate, geology, landform, native vegetation and species assemblages. The 89 IBRA regions are further apportioned into a total of 419 subregions across the continent which are more localised and homogenous geomorphological divisions.

This system of categorisation based on broad environmental features enables for more effective management biodiversity and helps to define Plant Community Types as well as predict likelihood of threatened species and communities occurring.

The subject land occurs in the South East Coastal Ranges subregion of the South Eastern Highlands Bioregion, it is not close to the boundary of another subregion.

Landform and drainage

The study area occurs at an elevation of 30m asl is gently sloping toward Dignams Creek and draining to the east.

The existing road is drained through artificial formation and drainage to Dignams Creek.

Soils and geology

Soil landscape mapping is not available for the project area, soils appear deep and fertile based on vegetation in the area. Soil stability is good throughout the project area well protected by gentle slopes and high vegetative cover.

Environmental planning

Bega Valley Local Environmental Plan 2013 (LEP)

6.5 Terrestrial biodiversity

The objective of this clause is to maintain terrestrial biodiversity by

(a) protecting native fauna and flora, and

(b) protecting the ecological processes necessary for the continued existence of native fauna and flora, and

(c) encouraging the conservation and recovery of native fauna and flora and their habitats.

Parts of the project site is mapped as '*Terrestrial Biodiversity*' on the *Terrestrial Biodiversity Map*, as such the following clause applies to the lands south of Dignams Creek;

> *(3) In deciding whether to grant development consent for development on land to which this clause applies, the consent authority must consider—*
>
> *(a) whether the development is likely to have—*
>
> *(i) any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and*
>
> *(ii) any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and*

(iii) any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and

(iv) any adverse impact on the habitat elements providing connectivity on the land, and

(b) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.

This Biodiversity Assessment addresses this clause throughout the report.

Note that Eurobodalla Local Environmental Plan 2012 applies to the lands to the north of Dignams Creek, this instrument provides no Terrestrial biodiversity clause.

The State Environmental Planning Policy (Biodiversity and Conservation) 2021

The State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP) consolidates several repealed SEPPs that help to manage conservation of biodiversity.

Chapter 3 Koala habitat protection 2020 of the BC SEPP applies to this project due to its Rural land zoning.

This Chapter aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline—

(a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and

(b) by encouraging the identification of areas of core koala habitat, and

(c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.

Under this Chapter the following steps are to be taken;

3.6 Step 1—Is the land potential koala habitat?

(1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies, the council must be satisfied as to whether or not the land is a potential koala habitat.

(2) The council may be satisfied as to whether or not land is a potential koala habitat only on information obtained by it, or by the applicant, from a person who is qualified and experienced in tree identification.

(3) If the council is satisfied—

(a) that the land is not a potential koala habitat, it is not prevented, because of this Chapter, from granting consent to the development application, or

(b) that the land is a potential koala habitat, it must comply with section 3.7.

3.7 Step 2—Is the land core koala habitat?

(1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a potential koala habitat, it must satisfy itself as to whether or not the land is a core koala habitat.

(2) The council may be satisfied as to whether or not land is a core koala habitat only on information obtained by it, or by the applicant, from a person with appropriate qualifications and experience in biological science and fauna survey and management.

(3) If the council is satisfied—

(a) that the land is not a core koala habitat, it is not prevented, because of this Chapter, from granting consent to the development application, or

(b) that the land is a core koala habitat, it must comply with section 3.8.

3.8 Step 3—Can development consent be granted in relation to core koala habitat?

(1) Before granting consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a core koala habitat, there must be a plan of management prepared in accordance with Part 3 that applies to the land.

Under this Chapter, potential koala habitat means *areas of native vegetation where trees of the types listed in Schedule 1 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component*.

Under this definition the site does support potential koala habitat, for this Chapter, *core koala habitat* means; *an area of land with a resident population of koalas, evidenced by attributes such as breeding females, being females with young, and recent sightings of and historical records of a population*.

This SEPP is addressed in Section 6 of this report.

NSW Biodiversity Conservation Act 2016

The NSW Biodiversity Conservation Act 2016 (BC Act) has been designed to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. It is a broad legislative tool and the key piece of NSW legislation addressing conservation matters in the state. In terms of development impact assessment and planning, the BC Act works in conjunction with the EP&A Act to deliver the NSW Biodiversity Assessment Method and the Test of Significance assessment for threatened biodiversity matters as well as the listings of threatened matters and key threatening processes.

Clause 7.2 (1) defines *"likely to significantly affect threatened species"* as;

(1) For the purposes of this Part, development or an activity is likely to significantly affect threatened species if—

(a) it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, or

(b) the development exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or

(c) it is carried out in a declared area of outstanding biodiversity value.

An inventory of BC Act listed matters that occur or may occur in the landscape of the project site has been curated in Appendix 1 of this report. Based on the biology of each matter, its known geographic range and nearby records an assessment of risk of impact on the matter has been made, any matter that has been determined as having a real chance or possibility of being impacted must be further assessed through a Test of Significance;

7.3 Test for determining whether proposed development or activity likely to significantly affect threatened species or ecological communities, or their habitats

(1) The following is to be taken into account for the purposes of determining whether a

proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats—

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

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

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

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

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

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

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

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

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

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

Section 4, Threatened Species Populations & Ecological Communities, of this report addresses findings of desktop review of threatened biodiversity.

Application of the Biodiversity Assessment Method

The BC Act provides a series of native vegetation clearing thresholds and the Biodiversity Values Map (BVM) to determine the necessity for the impacts on biodiversity of a development to be assessed using the BC Act's Biodiversity Assessment Method (BAM). The thresholds are a native vegetation area clearing trigger, the Biodiversity Values Map trigger and the significant impact to listed matters trigger, as detailed below.

1. **Native vegetation area clearing trigger;**

At this site the native vegetation clearing threshold to trigger the BAM is 1ha. Native vegetation as defined by the BC Act includes all vegetation that is native to NSW, regardless of whether it is native to the subject site's bioregion or has been planted. Clearing includes all removal or destruction of native vegetation including through expected future uses of the development.

The proposal requires no clearing of native vegetation.

2. **Biodiversity Values Map (BVM) trigger;**

The riparian lands of Dignams Creek are mapped on the BVM map. This would be a trigger for the BAM as works occur in the mapped area however, as a Part 5 infrastructure project assessed through an REF entry to the BOS is optional.

See Figure 3-2 below showing BVM mapping in solid purple and the project site in pink outline.

Figure 3-1 BVM Mapping in the vicinity of the project area, subject site indicated in pink, BVM mapping in purple.

3. **Significant impact to listed matters trigger;**

Where there is potential for BC Act listed matters (species, populations or ecological communities) to be impacted by the proposal a test of significance must be undertaken to determine the significance of any impact.

Where this test determines a significant impact is likely the BAM is triggered.

The potential for protected matters occurring in the study area has been assessed in the threatened matter evaluations table at Appendix 1 and are discussed in Section 4 of this report. The result of this assessment is the finding that no listed matters are at risk of significant impact by the proposal.

Application of the BAM

The proposal would trigger the BAM as a Part IV project due to BVM mapping and vegetation clearing, it would be eligible for assessment through the Biodiversity Offsets Scheme, however as the project is being assessed as a Part 5 infrastructure project through an REF and will not significantly impact a threatened matter, entry to the BOS is optional and has not been considered a necessary pathway for the minor nature of the works.

3.2. Vegetation communities and flora species

The study area occurs in an environment that has supported eucalypt dominated woodland and forest for many years prior to European settlement. These ecosystems have been progressively modified over the past 200 years, intersected by road and utility corridors and cleared for urban development and agriculture, typically grazing enterprises in the lower flatter parts of the

landscape while hill tops and ridges have typically been cleared for timber and allowed to regenerate over time. Large areas of the nearby landscape are occupied by native woody vegetation communities that are generally relatively intact. Rural residential land uses have become common in the assessment area, such holdings are often vegetated with varying levels of simplification of forest communities, often grazed by domestic animals and managed for bushfire risk mitigation. Several large areas of agricultural paddocks with sparse trees, including exotic and native, also occur as well as areas rehabilitated as planted forest for conservation and forestry outcomes.

Diverse native forest of moderate to high condition class extends into the road reserve at the subject site and along Dignams Creek, vegetation in the vinity is mapped by the State Vegetation Type Mapping 2022 (SVTM) as the following plant community types (PCT), See Figure 3-2;

- 4084 Southern Escarpment River Oak Forest
- 3656 South Coast Foothills Dry Shrub Forest &
- 3660 South Coast Hinterland Yellow Stringybark Forest

Vegetation in the study area was found to match *Southern Escarpment River Oak Forest* in the riparian area of Dignams Creek grading into *South Coast Hinterland Yellow Stringybark Forest* outside the riparian area. These PCTs are described as follows;

4084 Southern Escarpment River Oak Forest;

A tall to very tall riparian grassy open forest found on fast-flowing streams of coastal, hinterland and escarpment valleys of the South East Corner, southern Sydney Basin and adjacent eastern margins of the South Eastern Highlands bioregion. This PCT is distributed from the Bega Valley north to Warragamba Catchment, at elevations of 5-250 metres asl, in areas receiving 700-1350 mm mean annual rainfall. It occurs on exposed bedrock and gravelly alluvium derived from substrates including sedimentary (sandstone, siltstone, conglomerate), granitic and felsic volcanic rocks. A mid-dense tree canopy is almost always dominated by *Casuarina cunninghamiana* subsp. *cunninghamiana*, with a sparse shrub stratum that almost always includes scattered *Melicytus dentatus*, very frequently *Acacia floribunda* and commonly with patches of *Acacia mearnsii*. The ground layer tends to be grassy and dominated by *Microlaena stipoides*, commonly with *Oplismenus aemulus* and *Entolasia marginata*, occasionally with *Oplismenus imbecillis* and rarely with dense patches of *Cynodon dactylon*. Other species present very frequently include *Stephania japonica* var. *discolor*, commonly *Lomandra longifolia* and *Sigesbeckia orientalis* subsp. *orientalis* and occasionally *Dichondra repens*, *Geranium solanderi, Pandorea pandorana* subsp. *pandorana, Pellaea falcata* or *Pteridium esculentum*. This PCT is restricted to narrow bands of rocky alluvium and may grade into a wide variety of other types on footslopes above watercourses.

3660 South Coast Hinterland Yellow Stringybark Forest;

A tall to very tall dry shrubby sclerophyll open forest with a sparse ground cover of graminoids and grasses associated with exposed slopes and crests on hinterland ranges and escarpment foothills between the Victorian border and the Budawang Ranges, South Coast. The tree canopy almost always includes a high cover of *Eucalyptus muelleriana*, commonly with *Eucalyptus sieberi*, *Angophora floribunda*, occasionally *Eucalyptus agglomerata* and rarely *Eucalyptus globoidea*. Other eucalypt 'gum' species may occasionally be present including *Eucalyptus smithii* or *Eucalyptus cypellocarpa*. The dry shrub layer is a sparse to very sparse cover that almost always includes *Persoonia linearis* and very frequently *Acacia falciformis*. Other common shrubs include *Podolobium ilicifolium*, *Leucopogon lanceolatus*, occasionally with *Acacia obtusifolia* or *Allocasuarina littoralis*. The ground layer is a sparse cover of graminoids, grasses

and ferns. *Dianella caerulea* and *Lomandra longifolia* are very frequent however rarely more than just a few individual plants, commonly with *Lomandra multiflora* subsp. *multiflora*, *Poa meionectes, Microlaena stipoides* and *Pteridium esculentum*. This is a widespread PCT found on a range of high quartz sandy loams derived from sandstone, other coarse grained sediments and granites. It has a moderate floristic overlap with dry shrub forest PCT 3665 in the far south coast hinterland however it is found on higher elevations and semi sheltered aspects.

On this site the canopy is dominated by *Eucalyptus elata* and *E. botryoides* grading into *Casuarina cunninghamiana* closer to the watercourse, the understory is diverse and well vegetated, *Acacia mearnsii, Androcalva fraseri, Bursaria spinosa & Pittosporum undulatum* dominante, several vines and groundcover plants also occur. Nearby forest supports more stringybark species which strongly influenced the PCT selection.

The exotic component is minor including isolated blackberry, forbs and kikuyu. A full list of flora recorded is provided in Table 3-1.

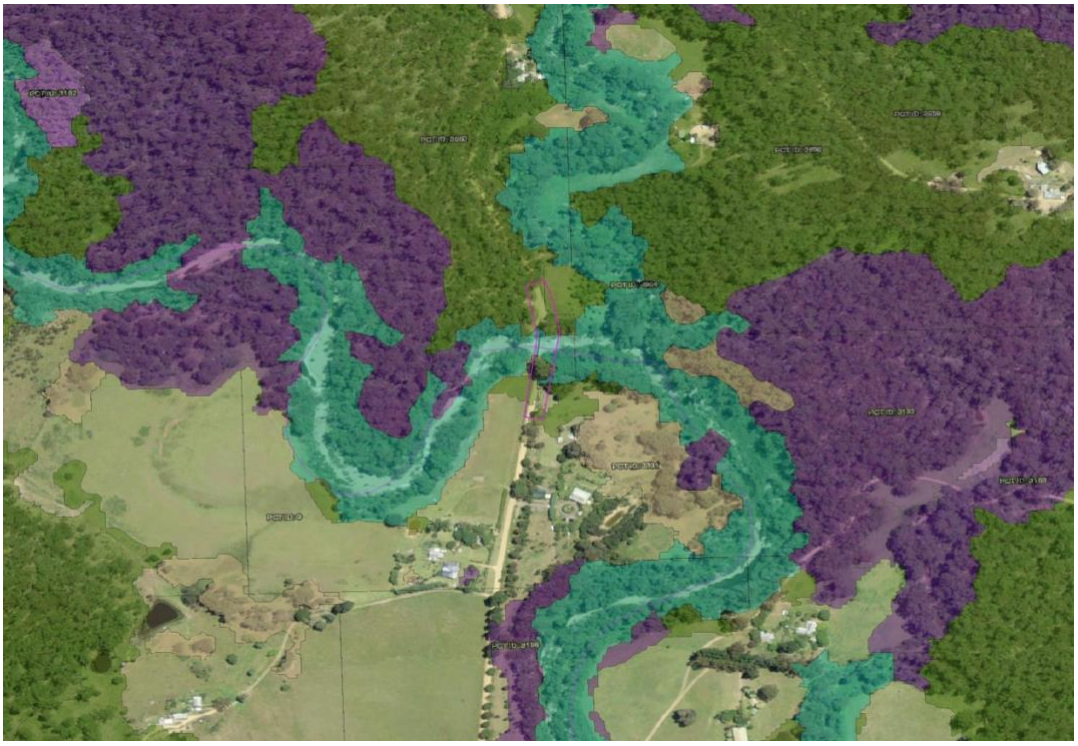


Figure 3-2 SVTM of PCTs in the vicinity of the project area, subject site indicated in pink.

The PCTs *4084 Southern Escarpment River Oak Forest* and *3660 South Coast Hinterland Yellow Stringybark Forest* are not associated with a threatened ecological community.

No other flora species or communities were recorded or considered likely to occur that are listed matters under the BC Act or the EPBC Act.

Figure 3-3, Example of South Coast Hinterland Yellow Stringybark Forest in project area that will be cleared for works.

Figure 3-4, Southern Escarpment River Oak Forest in project area that will be cleared for works.

Figure 3-5, Existing bridge from western side showing forest vegetation extent grading into riparian area.

Table 3-1 Flora Recorded

Family	Species	Common Name	BC Act	EPBC	Exotic
Aphanopetalaceae	*Aphanopetalum resinosum*	Gum Vine			
Apiaceae	*Hydrocotyle laxiflora*	Hydrocotyle			
Apiaceae	*Platysace lanceolata*	Shrubby Platysace			
Apocynaceae	*Marsdenia rostrata*	Milk Vine			
Apocynaceae	*Tylophora barbata*	Bearded Tylophora			
Asphodelaceae	*Dianella caerulea*	Blue Flax-lily			
Asteraceae	*Cassinia sp*				
Asteraceae	*Hypochaeris radicata*	Catsear			
Asteraceae	*Senecio madagascariencis*	Fireweed			
Asteraceae	*Senecio hispidulus*	Hill Fireweed			
Bignoniaceae	*Pandorea pandorana*	Wonga Wonga Vine			
Blechnaceae	*Blechnum cartilagineum*	Gristle Fern			
Casuarinaceae	*Casuarina cunninghamiana*	River Oak			
Convolvulaceae	*Dichondra repens*	Kidney Weed			
Cyperaceae	*Gahnia melanocarpa*	Black Fruit Saw-sedge			
Dennstaedtiaceae	*Pteridium esculentum*	Bracken			
Dicksoniaceae	*Dicksonia antarctica*	Soft Treefern			
Dilleniaceae	*Hibbertia aspera*	Rough Guinea Flower			

Fabaceae (Faboideae)	*Indigofera australis*	Australian Indigo			
Fabaceae (Mimosoideae)	*Acacia floribunda*	White Sally			
Fabaceae (Mimosoideae)	*Acacia mearnsii*	Black Wattle			
Goodeniaceae	*Goodenia ovata*	Hop Goodenia			
Lomandraceae	*Lomandra longifolia*	Spiny-headed Mat-rush			
Lomandraceae	*Lomandra multiflora*	Many-flowered Mat-rush			
Luzuriagaceae	*Eustrephus latifolius*	Wombat Berry			
Malvaceae	*Androcalva fraseri*				
Myrtaceae	*Eucalyptus angophoroides*	Apple-topped Gum			
Myrtaceae	*Eucalyptus botryoides*	Bangalay			
Myrtaceae	*Eucalyptus elata*	River Peppermint			
Myrtaceae	*Melaleuca parvistaminea*	Melaleuca			
Pittosporaceae	*Billardiera scandens*	Hairy Apple Berry			
Pittosporaceae	*Bursaria spinosa*	Native Blackthorn			
Pittosporaceae	*Pittosporum undulatum*	Sweet Pittosporum			
Poaceae	*Pennisetum clandestinum*	Kikuyu			
Poaceae	*Poa labillardierei*	River Tussock-grass			
Poaceae	*Rytidosperma pallidum*	Silvertop Wallaby Grass			
Ranunculaceae	*Clematis glycinoides*	Headache Vine			
Rhamnaceae	*Pomaderris aspera*	Hazel Pomaderris			
Rosaceae	*Rubus parvifolius*	Native Raspberry			
Rosaceae	*Rubus fruiticosus*	Blackberry			*
Rubiaceae	*Gynochthodes jasminoides*	Sweet Morinda			
Ulmaceae	*Trema tomentosa var. aspera*	Native Peach			
Verbenaceae	*Verbena bonariensis*	Purpletop			*
Violaceae	*Melicytus dentatus*	Tree Violet			

3.3. Fauna and Fauna Habitat

Due to the limited survey period and lack of habitat diversity, few fauna were found using the site, however, the potential for fauna to use the site, particularly threatened species has been considered based on the habitats present.

The presence of intact native forest and a well vegetated riparian corridor in the project area with the presence of canopy, understory and groundcover layers offers a diversity of habitat to a range of fauna. It is likely that a diversity of birds, mammals and reptiles as well as a plethora of invertebrates make use of the habitats in the vicinity of the project area, including both native and exotic species

The bridge itself is also of high potential habitat value to fauna that may roost or build nests in its structure, including threatened microbats. The fissures between timber components as well as rocky scour protection provide valuable refuge and roosting spaces for fauna. See Figure 3-6 and Figure 3-7.

The watercourse is a very valuable habitat component for fauna providing a water source, microhabitats and a movement corridor.

The continuity of the habitat present with a diversity of habitats across the landscape significantly amplifies the value of the habitat present. The birds Australian Magpie, Eastern Rosella & Yellow Rump Thornbill were incidentally recorded on the site, it is likely that many more species than this use the site including reptiles and microbats.

No fauna species or fauna habitats were recorded or considered likely to occur that are listed matters under the BC Act or the EPBC Act.

Figure 3-6, Examples of fissures in timber and cracks at timber joints that provide refuge and roosting habitat for a range of fauna particularly microbats.

Figure 3-7, Rocky abutment/ scour protection on southern bank providing abundant refuge habitat particularly for insects, reptiles and small mammals.

3.4. Impacts

The proposal's impacts to vegetation will be the permanent removal of 139m^2 of Southern Escarpment River Oak Forest and 536m^2 of South Coast Hinterland Yellow Stringybark Forest most of which is in good condition including hollow bearing trees, trees of a range of age classes, understory plants, native grasses, riparian vegetation and a low exotic component. This impact is to accommodate the proposed new road alignment. Biodiversity impacts have been avoided as much as practical while delivering a functional, well designed road alignment and bridge that is durable, long lasting and reduces required ongoing maintenance. This impact will be offset by measures prescribed in Section 9 of this report.

The existing timber bridge offers potential habitat for a variety of fauna, potentially including threatened microbat species. Fauna that may use the bridge structure as habitat will find habitation alternatives without substantial concern, in many cases the new bridge structure will provide similar habitat. The risk of threatened microbats using the bridge will be managed through inspections prescribed in Section 9 of this report.

An additional area of up to 55m^2 of exotic grassland will also be temporarily impacted to accommodate a temporary stockpile area. This impact is minor and does not require offsetting due to its low biodiversity value.

Potential indirect impacts will be dust generation and introduction/ spreading of weed material as a result of construction works and movement of plant and equipment. Impact mitigation measures prescribed by this report and the REF address these risks.

Operation of the new bridge will be consistent with the existing and is not expected to result in operational impacts on biodiversity.

4. Threatened Species, Populations and Ecological Communities

The BC Act provides a series of thresholds including area of native vegetation clearing, the Biodiversity Values Map (BVM) and significant impacts to listed matters to determine the necessity for the impacts on biodiversity of a development to be assessed using the BC Act's Biodiversity Assessment Method (BAM). As this project is being assessed under Part V of the EP&A Act it is exempt from this criteria however, significant impacts to threatened species would escalate biodiversity assessment to assessment through the BAM.

Where there is potential for BC Act listed matters (species, populations or ecological communities) to be impacted by the proposal a test of significance must be undertaken to determine the significance of any impact.

The potential for protected matters occurring in the area to be impacted has been assessed in the threatened matter evaluations table at Appendix 1 of this report.

The findings of this assessment are as follows;

4.1. Threatened species

Appendix 1 addressed several listed species that have been recorded within 10km of the of the study area in the past or in other parts of the Southern Tablelands and considered to have some potential to occur on the site.

Following this assessment, no Threatened Species listed under the BC Act were considered likely to occur on the site or be impacted by the proposal.

While no signs of microbats making use of the bridge structure were found during site inspections, there is potential for the following threatened species of microbats to make use of the existing bridge prior to its demolition;

- Southern Myotis (*Myotis macropus*)
- Little Bent-winged Bat (*Miniopterus australis*)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*)

To manage this risk, the bridge structure must be inspected prior demolition, if any signs of microbats are present impact to these species must be reconsidered and an Assessment of Significance undertaken.

4.1. Endangered Populations

No Endangered Populations listed under the BC Act have been considered likely to be at risk of impact by the proposal.

4.2. Endangered Ecological Communities

Appendix 1 addressed 1 listed community, no endangered ecological communities were found to be at risk of impact of this proposal.

5. Environment Protection and Biodiversity Conservation Act 1999

The *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) specifies that approval is required from the Commonwealth Minister for the Environment for actions that have, will have or are likely to have a significant impact on a matter of "national environmental significance".

The Act identifies nine matters of national environmental significance being:

1) World Heritage properties
2) National heritage places
3) Wetlands of international importance (Ramsar wetlands)
4) Threatened species and ecological communities
5) Migratory species
6) Commonwealth marine areas
7) Nuclear actions (including uranium mining)
8) Great Barrier Reef Marine Park
9) Water impacts from coal seam gas and large coal mining actions

Matters number 4 (Threatened species, ecological communities) and 5 (Migratory species) are relevant to this proposal.

5.1. Threatened Species & Ecological Communities:

Threatened species listed under this Act have been considered in the Appendix 1 assessment along with NSW BC Act listed species.

The Commonwealth Environment Department protected matters search tool was used to highlight any maters of national environmental significance that could be of concern. No matters were considered likely to be negatively impacted by the proposal.

5.2. Migratory Species:

In addition to threatened species and ecological communities, the EPBC Act allows for the listing of internationally protected migratory species, i.e. species listed under the Japan-Australia Migratory Bird Agreement (JAMBA), the China - Australia Migratory Bird Agreement (CAMBA) and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).

No protected migratory species were observed on site at the time of this assessment or considered likely to occur on the site or rely on resources provided by its habit.

6. State Environmental Planning Policy (Biodiversity and Conservation) 2021

The State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP) consolidates several repealed SEPPs that help to manage conservation of biodiversity.

Chapter 3 Koala habitat protection 2020 of the BC SEPP applies to this project being in RU1 Primary Production zoning.

This Chapter aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline—

(a) by requiring the preparation of plans of management before development consent can be granted in relation to areas of core koala habitat, and

(b) by encouraging the identification of areas of core koala habitat, and

(c) by encouraging the inclusion of areas of core koala habitat in environment protection zones.

Under this Chapter the following steps are to be taken;

3.6 Step 1—Is the land potential koala habitat?

(1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies, the council must be satisfied as to whether or not the land is a potential koala habitat.

(2) The council may be satisfied as to whether or not land is a potential koala habitat only on information obtained by it, or by the applicant, from a person who is qualified and experienced in tree identification.

(3) If the council is satisfied—

(a) that the land is not a potential koala habitat, it is not prevented, because of this Chapter, from granting consent to the development application, or

(b) that the land is a potential koala habitat, it must comply with section 3.7.

3.7 Step 2—Is the land core koala habitat?

(1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a potential koala habitat, it must satisfy itself as to whether or not the land is a core koala habitat.

(2) The council may be satisfied as to whether or not land is a core koala habitat only on information obtained by it, or by the applicant, from a person with appropriate qualifications and experience in biological science and fauna survey and management.

(3) If the council is satisfied—

(a) that the land is not a core koala habitat, it is not prevented, because of this Chapter, from granting consent to the development application, or

(b) that the land is a core koala habitat, it must comply with section 3.8.

3.8 Step 3—Can development consent be granted in relation to core koala habitat?

(1) Before granting consent to a development application for consent to carry out development on land to which this Part applies that it is satisfied is a core koala habitat,

there must be a plan of management prepared in accordance with Part 3 that applies to the land.

Under this Chapter of this SEPP;

> **potential koala habitat means** *areas of native vegetation where trees of the types listed in Schedule 1 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component*.

Vegetation in the road corridor, Dignams Creek riparian area and throughout the landscape supports *potential koala habitat* under this definition.

Under this Chapter of this SEPP;

> ***core koala habitat*** *means an area of land with a resident population of koalas, evidenced by attributes such as breeding females, being females with young, and recent sightings of and historical records of a population*.

Koalas were not recorded during site inspections, searches for koala scats were undertaken around the base of each suitable potential koala habitat tree in the development footprint area. Canopies were also searched for individuals along with scratch marks on trees.

No signs of a resident population of koalas was identified on the site. It is possible the habitat present is a small part of the home range of a local population.

A search of the NSW Wildlife atlas identified several koala records over the past 20 years in forests adjoining the project area. While this satisfies part of the definition of core koala habitat, the habitat on the site does not meet the definition due to the absence of *a resident population of koalas, evidenced by attributes such as breeding females, being females with young*.

While koalas may make use of the habitat present, a plan of management for koalas under section 3.8 of Chapter 3 Koala habitat protection 2020 of the BC SEPP is not required.

7. NSW Fisheries Management Act 1994

The Fisheries Management Act 1994 provides for the protection of fish and marine vegetation, endangered populations and ecological communities by a listing process. No species, populations or communities listed under this act were recorded on site at the time of this assessment or are considered likely to occur on this site.

Works will have a minor and temporary impact on aquatic habitat through excavation and construction of new pier foundations and removal of existing pier foundations, it is unlikely that works will occur in water due to the low flow of Dignams Creek.

No Tests of Significance have been prepared for species protected by this Act in relation to the proposed development.

8. Assessment of the Biodiversity Impact

Considering the information detailed above that has been summarised from information collected during field and desktop investigations and assessments of significance for threatened species and communities the following final assessments are made.

8.1. Direct Impacts

Proposed works will result in the following direct impacts to vegetation;

- Permanent removal of 139m^2 of Southern Escarpment River Oak Forest moderate to high condition
- Permanent removal of 536m^2 of South Coast Hinterland Yellow Stringybark Forest moderate to high condition
- Removal of 30m^2 of river bed gravel from Dignams Creek for footing construction
- Temporary occupation of up to 55m^2 of exotic grassland for stockpiling
- Removal of the existing bridge structure which has potential to be used by fauna, impact

Mitigation measures in Section 9 of this report mitigate or offset these impacts.

8.2. Indirect Impacts

There is a risk that construction works will generate dust that may impact local biodiversity, plant and equipment used for the works may also transport weed material on the site or from other sites. Impact mitigation measures in Section 9 of this report address this risk.

8.3. Potential Impacts on Flora

The proposal's impacts to vegetation will be the permanent removal of 675m^2 of native forest vegetation most of which is in good condition including hollow bearing trees, trees of a range of age classes, understory plants, native grasses, riparian vegetation and a low exotic component. This impact is to accommodate the proposed new road alignment and bridge construction.

An additional area of up to 150m^2 of exotic pasture in adjoining paddocks will also be temporarily impacted to accommodate adjustment of boundary fencing and for a temporary stockpile area. This impact is minor and does not require offsetting due to its low biodiversity value.

Impacts described above are not likely to significantly impact any threatened flora or endangered ecological communities.

8.4. Potential Impacts on Fauna and Habitat

The native forest to be removed offers good habitat to a variety of fauna particularly birds and arboreal mammals. This habitat is widespread in the local area and is not a highly significant loss in this context. The existing timber bridge offers potential habitat for a variety of fauna, potentially including threatened microbat species. Fauna that may use the bridge structure as habitat will find habitation alternatives without substantial concern, in many cases the new bridge structure will provide similar habitat alternatives.

The impact of the proposal on fauna populations and their habitats is considered likely to be moderate. Impact mitigation measures Section 9 of this report mitigate and offset these impacts

No listed threatened fauna or their habitats are considered at risk of impact by this proposal, subject to pre-demolition surveys of the existing bridge.

9. Impact Mitigation Measures

The following impact mitigation measures are recommended for adoption to reduce the likelihood of any negative impacts on flora and fauna associated with this proposal both in the short and long term.

9.1 Council must ensure that they do not import weed material to the site, for example, in or on plant and equipment used on the site. At a minimum the following actions will be undertaken to achieve this;

- In order to manage the risk of indirect impacts of invasive species establishing in the project area, a weed management plan will be prepared and implemented to ensure the project does not increase the occurrence of weed species on the site or adjoining land the plan will incorporate the following practices;
- Plant and equipment will be cleaned prior to entering any part of the site ensuring no mud/ soil or vegetation material is imported into the area
- The site manager will ensure that procedures are in place to ensure plant and equipment entering the site are clean and free of mud, soil and vegetation material.

9.2 Due to the possibility of the existing bridge structure becoming roosting habitat for the following threatened species of microbats a pre-demolition inspection for microbats is to be undertaken within three days before proposed demolition by a suitably experienced ecologist. If evidence of microbat presence is found an Assessment of Significance is to be undertaken.

- Southern Myotis (*Myotis macropus*)
- Little Bent-winged Bat (*Miniopterus australis*)
- Large Bent-winged Bat (*Miniopterus orianae oceanensis*).

9.3 In order to manage the risk of microbats roosting in the bridge structure the Construction Environmental Management Plan is to include an unexpected finds procedure for microbats including the following;

- A daily inspection for microbats roosting in the bridge structure is to be undertaken and documented including investigating for bats, guano and sounds of bats
- If bats or their signs are present a suitably qualified and experienced ecologist is to be engaged to investigate further
- Any bats found are not to be touched.

9.3 In order to achieve no net loss of biodiversity, the proponent will compensate for vegetation removed by the project through the planting of native vegetation along Council Managed Road reserves within 15km of the project area. Plantings will be undertaken according to the following criteria and components;

- Sites for planting will be chosen based on a low likelihood of clearing of the site occurring in the future and the presence of degraded ecosystems without native grassland communities
- Planting areas will be a suitable part of the landscape to establish
    a. Southern Escarpment River Oak Forest (5%) and
    b. South Coast Hinterland Yellow Stringybark Forest (95%)

- At least 700 plants will be planted over 1ha of road reserve including in the area of the existing bridge and its approaches
- Trees will be planted within 18 months of road works commencing
- Plantings will be maintained for 4 years and until they have established at least 80% success rate
- Plants will be sourced from locally collected seed
- Species planted are to be local trees and shrubs including but not limited to;
    a. At least 50 *Casuarina cunninghamiana* River Oak, Where appropriate
    b. At least 150 *Eucalyptus botryoides* Bangalay, Where appropriate
    c. At least 100 *Eucalyptus elata* River Peppermint, Where appropriate
    d. Other species from each of the plant community types above.

9.4 In order to minimise impacts of vegetation removal a Vegetation Management Plan will be prepared prior to works commencing and be implemented during works that addresses/ incorporates the following;

- The plan will be prepared by a suitably qualified and experienced ecologist
- The plan will detail planting methodology including a map of proposed plantings referred to in 9.3 above
- Pre-clearing surveys targeting hollow bearing trees and nesting fauna to be conducted within a week of proposed clearing to ensure clearing impacts on fauna are minimised
- Measures to minimise impacts to nesting fauna that are located in pre-clearing surveys
- Clearing methodology incorporating measures to minimise impacts to fauna that may be occupying hollow bearing trees.

10. Conclusion

This Biodiversity Assessment Report has assessed the flora and fauna associated with this site and the extent and nature of impacts on biodiversity of the proposed works.

The proposal has been designed and sited to reduce and minimise impacts to biodiversity, residual impacts are to be managed through the mitigation measures prescribed by this report.

It is essential that this report's impact mitigation measures be implemented in order to minimise and offset vegetation and habitat loss and to manage potential weed issues on the site and ensure that adjoining lands are not impacted.

While the impact mitigation measures are implemented in full the impact of the proposal is acceptable and manageable.

11. References

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- NSW Government, Threatened Biodiversity Data Collection. Online database of species records, various contributors, periodically updated.
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Appendix 1 – Threatened Matter Evaluations Table

Appendix 2 Threatened Species Evaluations

The following table present the evaluations for threatened species, endangered ecological communities and endangered populations found either

1. Within a 10km buffer of the study site in the Atlas of NSW Wildlife (Bionet).
2. Identified as potentially occurring in the area by the Commonwealth EPBC Protected Matters Search Tool.
3. Considered to have potential to occur in the landscape given habitats available

The assessment of potential for impact to the species or ecological community is based on the nature of the proposal, it's direct and indirect impacts and the ecology of the species. Where a potential impact to a threatened species, ecological community or endangered populations has been identified, an Assessment of Significance (AoS) has been completed.

Abbreviations

E: listed as endangered under either the NSW Biodiversity Conservation Act 2016 (BC Act) or the Commonwealth Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act) (depending on the table column E is placed in).

V: listed as vulnerable under either the BC Act or EPBC Act (depending on the table column V is placed in).

EEC: listed as an Endangered Ecological Community under the BC Act.

CE: listed as Critically Endangered under the EPBC Act.

M: Marine or Migratory Species under the EPBC Act.

References

Department of the Environment (2023). Species Profile and Threats Database, Department of the Environment, Canberra. [Online]. Available from: http://www.environment.gov.au/sprat.

Office of Environment and Heritage (2023). Threatened Species Profile Search. [Online]. Available from: http://www.environment.nsw.gov.au/threatenedspeciesapp/.

Department of Primary Industries (2023). Listed threatened species, populations and ecological communities. [Online]. Available from: http://www.dpi.nsw.gov.au/fishing/species-protection/conservation.

Species name	Habitat requirements	TSC Act status	EPBC Act status	Presence of habitat	Likelihood of occurrence	Potential impact
Fauna						
Aves						
Haliaeetus leucogaster White-bellied Sea-Eagle	Habitats are characterised by the presence of large areas of open water including larger rivers, swamps, lakes, and the sea. Occurs at sites near the sea or sea-shore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves; and at, or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs and saltmarsh. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, and forest (including rainforest). Breeding habitat consists of mature tall open forest, open forest, tall woodland, and swamp sclerophyll forest close to foraging habitat. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts'. Nests are large structures built from sticks and lined with leaves or grass.	V		Present in landscape	Possible	Will potentially forage in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat available in the landscape.
Hieraaetus morphnoides Little Eagle	Occupies open eucalypt forest, woodland or open woodland. Sheoak or *Acacia* woodlands and riparian woodlands of interior NSW are also used. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. Lays two or three eggs during spring, and young fledge in early summer. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion.	V		Present in landscape	Possible	Will potentially forage in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat

Species name	Habitat requirements	TSC Act status	EPBC Act status	Presence of habitat	Likelihood of occurrence	Potential impact
						available in the landscape.
Lophoictinia isura Square-tailed Kite	Found in a variety of timbered habitats including dry woodlands and open forests. Shows a particular preference for timbered watercourses. In arid north-western NSW, has been observed in stony country with a ground cover of chenopods and grasses, open acacia scrub and patches of low open eucalypt woodland. Is a specialist hunter of passerines, especially honeyeaters, and most particularly nestlings, and insects in the tree canopy, picking most prey items from the outer foliage.	V		Present in landscape	Possible	Will potentially forage in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat available in the landscape.
Glossopsitta pusilla Little Lorikeet	This parrot occurs across much of eastern NSW, it forages primarily in the canopy of open *Eucalyptus* forest and woodland, yet also finds food in *Angophora*, *Melaleuca* and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. Isolated flowering trees in open country, e.g. paddocks, roadside remnants and urban trees also help sustain viable populations of the species. Feeds mostly on nectar and pollen, occasionally on native fruits such as mistletoe, and only rarely in orchards	V		Present in landscape	Possible	Will potentially use habitat in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat available in the landscape.

Species name	Habitat requirements	TSC Act status	EPBC Act status	Presence of habitat	Likelihood of occurrence	Potential impact
Lathamus discolor Swift Parrot	Breeds in Tasmania during spring and summer, migrating in the autumn and winter months to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In NSW mostly occurs on the coast and south west slopes Migrates to the Australian south-east mainland between February and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany *Eucalyptus robusta*, Spotted Gum *Corymbia maculata*, Red Bloodwood *C. gummifera*, Forest Red Gum *E. tereticornis*, Mugga Ironbark *E. sideroxylon*, and White Box *E. albens*. Commonly used lerp infested trees include Inland Grey Box *E. microcarpa*, Grey Box *E. moluccana*, Blackbutt *E. pilularis*, and Yellow Box *E. melliodora*	E	C	Present in landscape	Possible	Will potentially use habitat in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat available in the landscape.
Daphoenositta chrysoptera Varied Sittella	Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and *Acacia* woodland.Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy.	V		Present in landscape	Possible	Will potentially use habitat in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat available in the landscape.

Species name	Habitat requirements	TSC Act status	EPBC Act status	Presence of habitat	Likelihood of occurrence	Potential impact
Mammals						
Pteropus poliocephalus Grey-headed Flying-fox	Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Feed on the nectar and pollen of native trees, in particular *Eucalyptus, Melaleuca* and *Banksia*, and fruits of rainforest trees and vines. Also forage in cultivated gardens and fruit crops.	V	V	Potential foraging habitat present	Likely to occur occasionally	Will potentially use habitat in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat available in the landscape.
Isoodon obesulus obesulus Southern Brown Bandicoot (eastern)	Southern Brown Bandicoots are largely crepuscular and generally only found in heath or open forest with a heathy understorey on sandy or friable soils. They feed on a variety of ground-dwelling invertebrates and the fruit-bodies of hypogeous (underground-fruiting) fungi. Their searches for food often create distinctive conical holes in the soil. Males have a home range of approximately 5-20 hectares whilst females forage over smaller areas of about 2-3 hectares. Nest during the day in a shallow depression in the ground covered by leaf litter, grass or other plant material. Nests may be located under Grass trees Xanthorrhoea spp., blackberry bushes and other shrubs, or in rabbit burrows. The upper surface of the nest may be mixed with earth to waterproof the inside of the nest.	E	E	Potential	Potentially will occur	Will potentially use habitat in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat available in the landscape.

Species name	Habitat requirements	TSC Act status	EPBC Act status	Presence of habitat	Likelihood of occurrence	Potential impact
Dasyurus maculatus Spotted-tailed Quoll	Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. Mostly nocturnal, although will hunt during the day; spends most of the time on the ground, although also an excellent climber and will hunt possums and gliders in tree hollows and prey on roosting birds.	V	E	Present	Site may be part of a much larger home range	Will potentially use habitat in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat available in the landscape.
Cercartetus nanus Eastern Pygmy-possum	Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest. Feeds largely on nectar and pollen collected from banksias, eucalypts and bottlebrushes; an important pollinator of heathland plants such as banksias; soft fruits are eaten when flowers are unavailable. Also feeds on insects throughout the year; this feed source may be more important in habitats where flowers are less abundant such as wet forests. Shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum (Pseudocheirus peregrinus) dreys or thickets of vegetation, (e.g. grass-tree skirts); nest-building appears to be restricted to breeding females; tree	V		Present	Possibly in landscape but unlikely on site due to absence of suitable forage plants	Unlikely to be impacted

Species name	Habitat requirements	TSC Act status	EPBC Act status	Presence of habitat	Likelihood of occurrence	Potential impact
	hollows are favoured but spherical nests have been found under the bark of eucalypts and in shredded bark in tree forks.					
Potorous tridactylus Long-nosed Potoroo	Inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrubs of tea-trees or melaleucas. A sandy loam soil is also a common feature. The fruit-bodies of hypogeous (underground-fruiting) fungi are a large component of the diet of the Long-nosed Potoroo. They also eat roots, tubers, insects and their larvae and other soft-bodied animals in the soil. Often digs small holes in the ground in a similar way to bandicoots.	V	V	Potential	Potentially will occur	Will potentially use habitat in the area of the works however this habitat is not important to the species and represents an insignificant portion of habitat available in the landscape.
Amphibians						
No threatened Amphibians considered likely to occur						
Reptiles						
No threatened reptiles considered likely to occur						
Fish						
Prototroctes maraena	Small to medium sized (max 330mm, 0.5kg) pelagic fish of the Retropinnidae family. *P. maraena* is omnivorous feeding on macro-invertebrates,	E	V	Habitat nearby	Possible during higher water flow	Unlikely to be impacted, measures will

Species name	Habitat requirements	TSC Act status	EPBC Act status	Presence of habitat	Likelihood of occurrence	Potential impact
Australian Grayling	zooplankton, algae and diatomaceous biofilm. Rivers and stream sections inhabited are mostly characterised by cool, clear waters with a sandy and gravel substrate and alternating pool and riffle zones, although individuals have been found in highly turbid water. These rivers can be in relatively undisturbed or highly disturbed catchments.			downstream		be in place to avoid downstream impacts to waterways where potential habitat occurs
Flora						
Astrotricha sp. Wallagaraugh Merimbula Star-hair	The southern (Yambulla/ Timbillica) population occurs on shallow gravelly granitic soils in fairly dry open forests dominated by rough-barked eucalypts including *Eucalyptus consideniana* and *E. croajingalongensis*, with a rich shrub layer including some or all of *Leptospermum* spp., *Kunzea ambigua*, *Dodonaea* spp., *Hakea* spp., *Pomaderris* spp. and *Acacia terminalis*.	E		Not ideal habitat	Unlikely	This species was targeted in suitable habitat areas and not recorded, not likely to occur.
Acacia georgensis Bega Wattle	Typically occurs on well-drained, shallow soils at sites with considerable exposed rock. The sites where it is found represent a range of different environments with correspondingly varied vegetation; in general, other tree species are uncommon but can include Veined Olive (*Notelaea venosa*), Hickory Wattle (*Acacia implexa*), Forest Red Gum (*Eucalyptus tereticornis*), Woollybutt (*E. longifolia*), Bega Mallee (*E. spectatrix*) and Gully Gum (*E. smithii*).	V	V	Absent	Unlikely	Not likely
Acacia constablei Narrabarba Wattle	This species is a South Coast endemic known from only two localities. The largest population is found at Narrabarba Hill south of Eden. The other population is found on a rocky ridgetop 1.4 km to the north on the other side of the Wonboyn River. Confined to Rhyolite and Aplite rock outcrops with skeletal soils.	V	V	Absent	Unlikely	This species was targeted in suitable habitat areas and not

Species name	Habitat requirements	TSC Act status	EPBC Act status	Presence of habitat	Likelihood of occurrence	Potential impact
	It is often dominant or co-dominant in an open shrubland community which also includes Giant Honey-myrtle, Tick Bush, Coastal Zieria and Lance-leaf Platysace; the herbaceous component of the vegetation is dominated by Long-leafed Wallaby Grass (*Notodanthonia longifolia*) and *Lepidosperma urophorum*.					recorded, not likely to occur.
Pomaderris Bodalla Bodalla Pomaderris	On the south coast Pomaderris bodalla occurs in moist open forest along sheltered gullies or along stream banks.	V		Possible	Unlikely as this is a distinct species. Records exist in the wider landscape	This species was targeted in suitable habitat areas and not recorded, not likely to occur.
Haloragis exalata subsp. exalata Square Raspwort	Square Raspwort is a shrub that reaches 1.5 m tall with square, four-ribbed stems, flowers are insignificant; the petals are only about 3 mm long and yellowish-green to reddish, although the spike-like flower cluster may be prominent at the ends of branches, appears to require protected and shaded damp situations in riparian habitats.	V	V	Potential	Unlikely as this is a distinct species that was not recorded	This species was targeted in suitable habitat areas and not recorded, not likely to occur.
Ecological Communities						
No Ecological Communities at risk of impact						

Appendix 2 – Site Photos

Photo 1, Project area, existing bridge on right, proposed new bridge alignment to left.

Photo 2, Proposed stockpile area on north side of existing bridge.

Photo 3, Alignment of proposed bridge facing north, vegetation in middle of image will be removed.

Photo 4, Alignment of proposed bridge facing south, vegetation in middle of image will be removed.

Appendix 3 – AHIMS Search Results & Due Diligence Chart

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : Dignams

Client Service ID : 831377

Macrozamia Environmental

473 Tathra Road
Kalaru New South Wales 2550

Attention: Pat Guinane

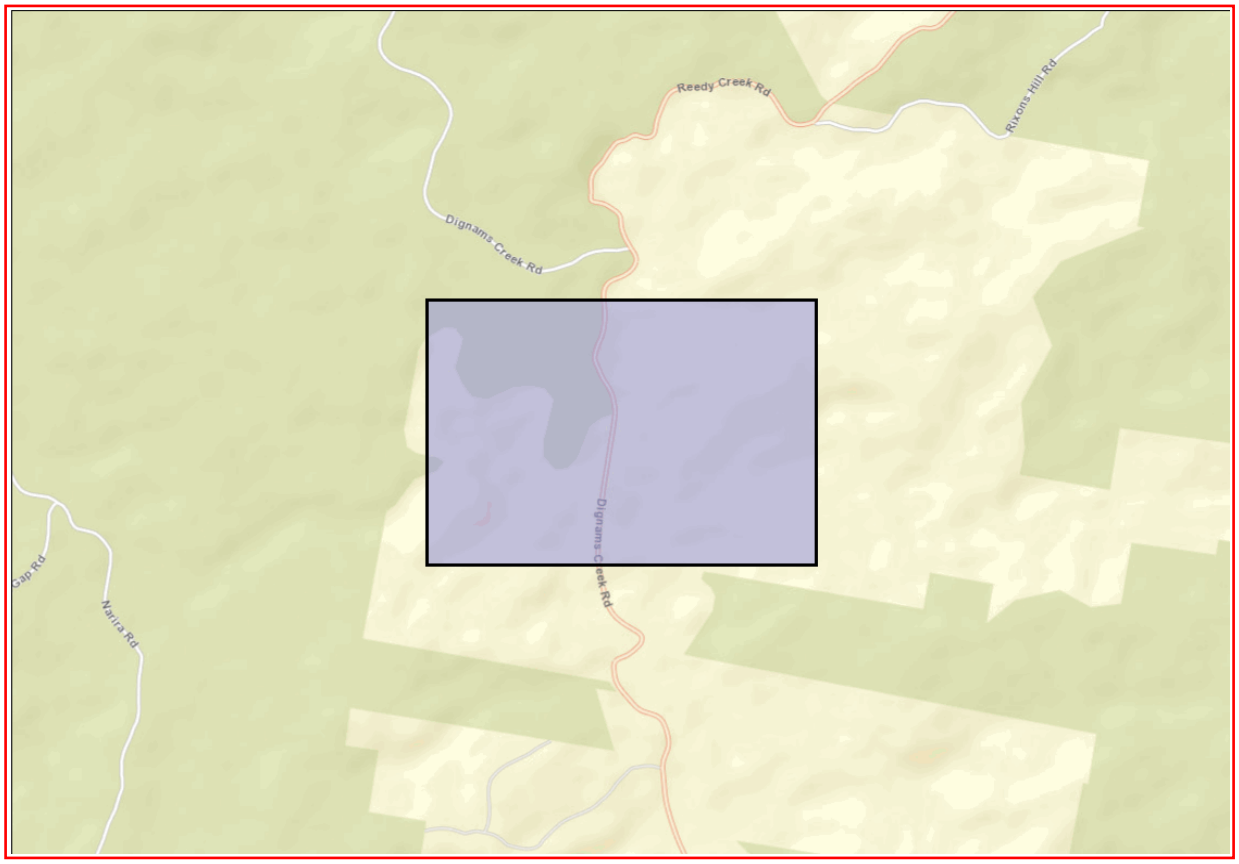
Email: pat@macrozamia.com.au

Date: 22 October 2023

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -36.3233, 149.9591 - Lat, Long To : -36.3147, 149.9745, conducted by Pat Guinane on 22 October 2023.

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



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

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

If your search shows Aboriginal sites or places what should you do?

- You must do an extensive search if AHIMS has shown that there are Aboriginal sites or places recorded in the search area.
- If you are checking AHIMS as a part of your due diligence, refer to the next steps of the Due Diligence Code of practice.
- You can get further information about Aboriginal places by looking at the gazettal notice that declared it. Aboriginal places gazetted after 2001 are available on the NSW Government Gazette (https://www.legislation.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Heritage NSW upon request

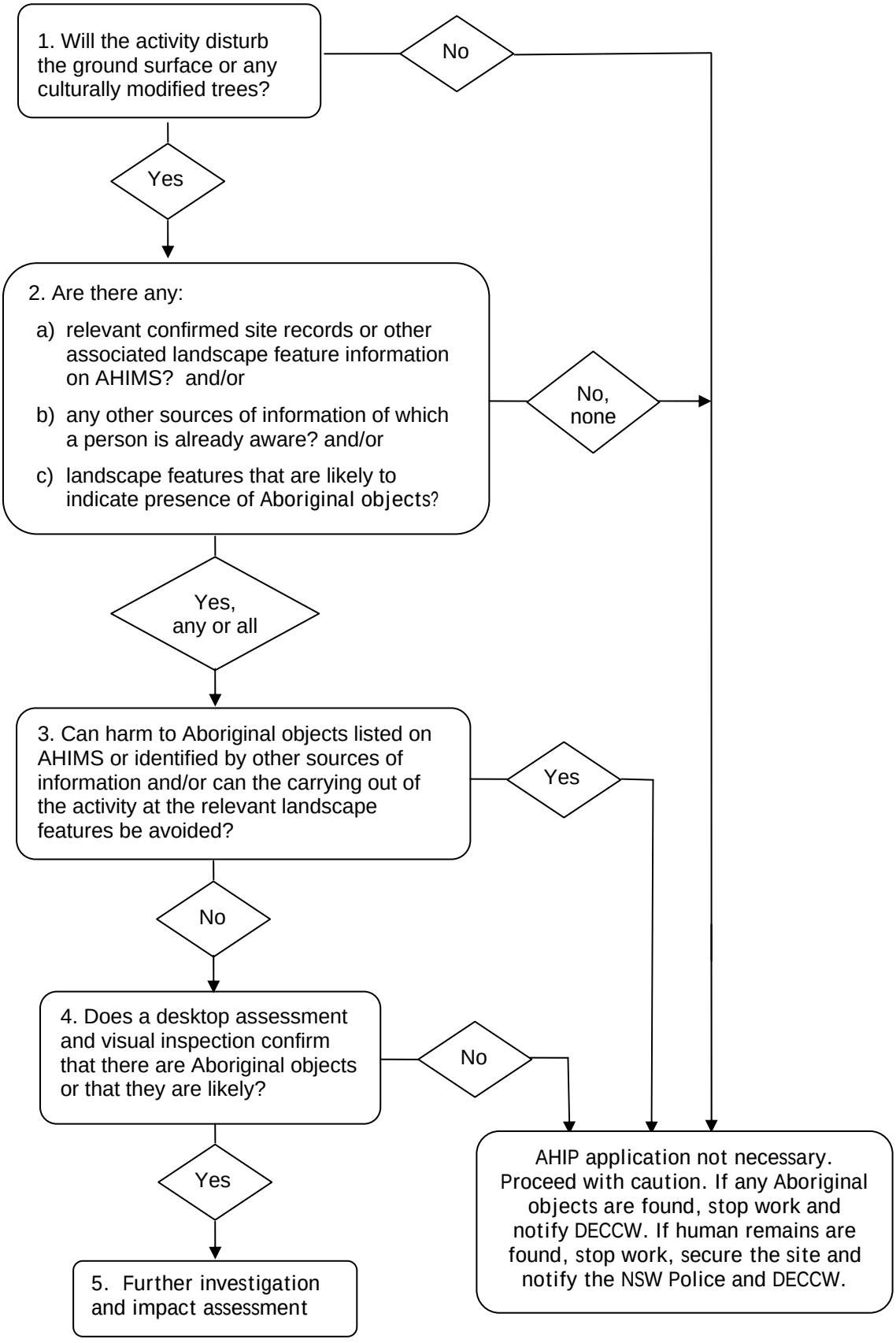
Important information about your AHIMS search

- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Heritage NSW and Aboriginal places that have been declared by the Minister;
- Information recorded on AHIMS may vary in its accuracy and may not be up to date. Location details are recorded as grid references and it is important to note that there may be errors or omissions in these recordings,
- Some parts of New South Wales have not been investigated in detail and there may be fewer records of Aboriginal sites in those areas. These areas may contain Aboriginal sites which are not recorded on AHIMS.
- Aboriginal objects are protected under the National Parks and Wildlife Act 1974 even if they are not recorded as a site on AHIMS.
- This search can form part of your due diligence and remains valid for 12 months.

Level 6, 10 Valentine Ave, Parramatta 2150
Locked Bag 5020 Parramatta NSW 2124
Tel: (02) 9585 6345

ABN 34 945 244 274
Email: ahims@environment.nsw.gov.au
Web: www.heritage.nsw.gov.au

8 The generic due diligence process



Appendix 4 – Site Photos

Photo 1, Existing Bridge from western side.

Photo 2, Existing Bridge from north side, proposed new bridge alignment is on the left hand side

Photo 3, Existing Bridge from north side.

Photo 4, Alignment of proposed bridge facing south, vegetation in centre of image will be impacted.

Photo 5, Alignment of proposed bridge facing north, vegetation in centre of image will be impacted.