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# Aquatic Biodiversity Assessment

## Proposed Bridge Replacement Works

## Jerrabattgulla Creek Bridge, Jerrabattgulla Road Jerrabattgulla, NSW

**Queanbeyan Palerang Regional Council**

May 2025

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# Contents

# 1. Introduction

## 1.1. Background

Queanbeyan Palerang Regional 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. Council has identified that the bridge on Jerrabattgulla Road, crossing Jerrabattgulla Creek is reaching the end of its useful life and is at risk of becoming unserviceable. This bridge is an important asset on Jerrabattgulla Road providing an important link between the Jerrabattgulla district to the west of Jerrabattgulla Creek and rural areas to the east, including the town of Braidwood.

The existing bridge is low lying and creates a sharp turn in the road, the bridge upgrade is a good opportunity to improve its alignment as well as its flood resilience.

The existing bridge is of timber construction including abutment walls, joists and deck.

The proposal is to realign the road and construct a two lane concrete cast in place bridge structure crossing Jerrabattgulla Creek. The existing bridge will remain in place during works facilitating traffic flow. The existing timber bridge will be demolished once the new bridge is commissioned.

The REF and concept plans detail the specific design.

## 1.2. Site Description

The project area is the site of a single lane and of timber bridge on a rural road. Native vegetation nearby in the road reserve is sparse to absent, the riparian vegetation is dominated by exotic species.

## 1.3. Purpose of this Assessment

This Aquatic Biodiversity Assessment has been prepared to support a Review of Environmental Factors for the proposal as well as an application for a Part 7 permit under the Fisheries Management Act 1994 required for in-stream works.

This assessment identifies:

- The proposal including methodology and environment it occurs including photographs of the waterway in each direction, bank and important habitat features.
- The likely impact on the aquatic and riparian environment that the proposal would result in.
- A description of the physical and hydrological features of the development area.
- Fish occurring in the locality, including threatened and protected species, populations, ecological communities, pest species or presence of ‘critical habitat’ under the FM Act and EPBC Act.
- An aquatic and riparian vegetation survey map of the area which shows the location and/or coverage of macrophytes, riparian vegetation and snags.
- A description of aquatic habitat TYPE.
- A description of waterway CLASS.
- Details of the nature, timing, magnitude and duration of the proposed disturbance to the aquatic environment.

## 1.4. Description of Proposal

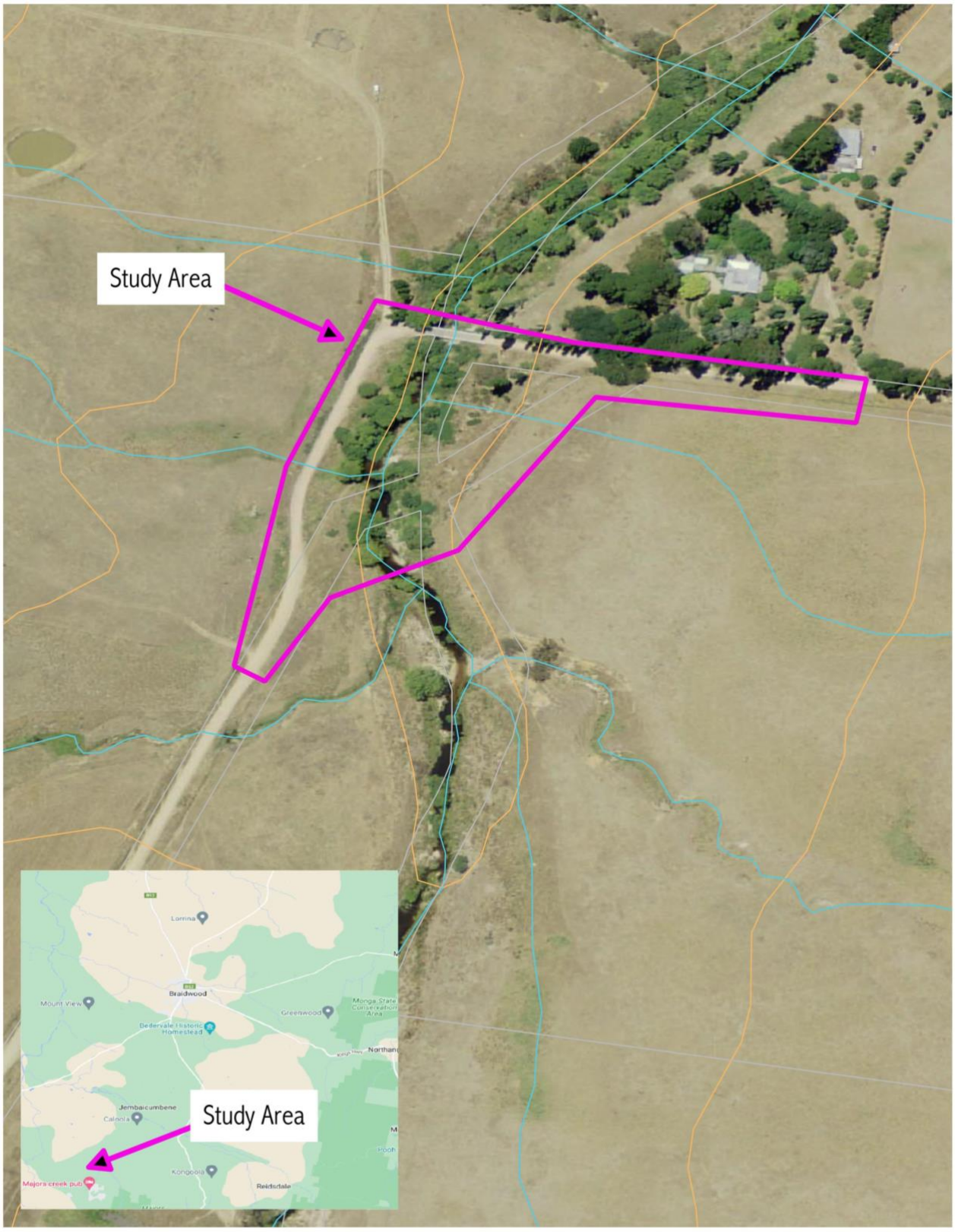
Council is proposing to remove the existing bridge and replace it with a greater capacity cast in place structure in an improved alignment that will greatly reduce the severity of an existing bend in the road.

During construction of the new bridge traffic will continue to use the existing timber bridge, once the new bridge has been commissioned the existing timber bridge will be demolished.

The proposed works would include:

- Completion of design and planning approvals/ licences and permits as required
- Implementation of traffic management plan and closing of the road in the works area
- Site preparation, including construction of access pads/ tracks, and temporary erosion and sediment controls
- Dewatering as required
- Construction of approaches, formation 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
- Decommissioning and removal of temporary works including erosion and sediment controls
- Post construction works including clean-up and site rehabilitation.

The location of the works and project area are identified in Map 1-1 below. Specific details of the proposal are provided in the REF and its attached concept plans.




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 all informed this review, the following sources being key to this assessment:

- Current versions of legislation referred to in this report.
- Commonwealth Government Species Profiles and Threats (SPRAT) database http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl
- Commonwealth Department of Climate Change, Energy, the Environment and Water Protected Matters Search Tool https://pmst.awe.gov.au/#/map?lng=131.50634765625003&lat=-28.671310915880834&zoom=5&baseLayers=Imagery,ImageryLabels
- NSW Threatened Biodivertsity Database Collection (TBDC) https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet
- Australia's IBRA Bioregions and sub-bioregions http://environment.gov.au/land/nrs/science/ibra/australias-bioregions-maps
- NSW Government SEED Mapping & SEED Layer Intersection Tool
- NSW Fisheries Spatial Data Portal
- ePlanning spatial viewer https://www.planningportal.nsw.gov.au/spatialviewer
- NSW Biodiversity Values Map
- State Vegetation Type Map (SVTM) Dec 2023
- NSW Spatial Services SixMaps https://maps.six.nsw.gov.au

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

- NSW DPI Policy and guidelines for fish habitat conservation and management Update 2013
- 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.

The plans for the proposal including those in the REF and earlier versions were considered in the context of the environment and the intent of the project to understand the scope and likely impacts of the proposal. Discussions were also held with the project manager to ensure the complete scope of the proposal and its potential impacts were considered.

## 2.2. Field Survey

The study area was surveyed by an ecologist on 18 July 2023. Conditions were clear and cool, 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. Aquatic fauna were searched for in suitable habitat where present throughout the project area.

## 2.3. Survey Limitations

The survey aimed to thoroughly describe the aquatic and hydrological environment in order to satisfy the needs of DPI Fisheries in assessing the required Fisheries Permit Application as well as to document the potential fish habitat at the site and aquatic fauna present. While surveys for fauna were limited to the area adequate to determine the potential fish habitat present and predict the species that may make use of habitats present.

# 3. Results

## 3.1. Literature and Database Review

Desktop assessment has identified the following characteristics of the site:

### 3.1.1. NSW 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. This legislation also provides a framework for protecting and enhancing fish habitats through zoning, development controls and habitat restoration. The proposed works occur in a waterway defined as key fish habitat and a Part 7 permit under the Fisheries Management Act 1994 is required as in-stream works and fish passage obstruction may be required.

### 3.1.2. Key Fish Habitat Mapping

The project area is mapped as key fish habitat by the NSW Fisheries Spatial Data Portal, threatened fish species mapping was also loaded to this map however no threatened fish species habitat is mapped nearby.

**Map 2: Key Fish habitat Mapping and threatened fish habitats *NSW Fisheries Spatial Data Portal* in vicinity of project area (indicated in pink line).**

### 3.1.3. BC Act

No BC Act listed species, populations or communities were recorded in the vicinity of the works area or considered likely to occur and rely on resources in this area.

### 3.1.4. EPBC Act

No EPBC Act listed species, populations or communities were recorded in the vicinity of the works area or considered likely to occur and rely on resources in this area.

### 3.1.5. Fisheries Management Act 1994

No NSW FM Act listed species habitat has been mapped for the subject site or nearby or recorded in the NSW Wildlife Atlas.

## 3.2. Aquatic Environment

The aquatic environment in the vicinity of the project area is characterised by permanent/ semi-permanent pools linked by shallow ephemeral depressions. Riparian and aquatic vegetation is present and intact including groundcovers, understory and canopy including mature trees. Banks are steep and pools are deep while macrophytes occur they are sparse.

The substrate is silty/ muddy with small boulders and bedrock in places, coarse woody debris and overhanging branches and fallen timber are present, almost always being exotic vegetation.

Photos below illustrates the range of aquatic and habitat features of the project area.

**Photo 3-1: Downstream of project area, northern side, showing piers and exotic willow and poplar trees dominating the riparian canopy.**

**Photo 3-2: Project area and downstream, existing bridge structure to right, site of proposed crossing to left. Pools and boulders visible. Woody riparian vegetation dominated by exotics however native wattles can be seen.**

**Photo 3-3: Long pool immediately downstream of project area.**

## 3.3. Aquatic Fauna Records and Observations

No fish were recorded at the site however it is expected given the size of the stream and nearby pools that fish would be present and likely include Short and Long-finned Eels, Plague minnow *Gambusia holbrooki*, Spiny Crayfish *Euastacus spp*. and Yabby *Cherax destructor*, possibly European Carp, Galaxids & Smelts.

The site is not mapped by the NSW Fisheries Spatial Data Portal, as potential habitat for threatened species.

No threatened or protected species, populations, ecological communities are expected to occur due to lack of continuity with known threatened species habitat. No 'critical habitat' listed under the FM Act or EPBC Act occurs nearby and the site is not mapped as a threatened fish species stream by the NSW Fisheries Spatial Data Portal.

## 3.4. Aquatic Habitat Type and Waterway Class

NSW DPI *Policy and guidelines for fish habitat conservation and management Update 2013* provides guidance to assess sensitivity and apply Parts 2 and 7 of the FM Act. Fish habitat sensitivity is the importance of the habitat to the survival of fish including all aquatic invertebrates. Table 1 of these guidelines provides a key fish habitat and associated sensitivity classification scheme.

Using this table the waterway is categorised as:

- **Type 2 Moderately sensitive key fish habitat** being:

  Freshwater habitats and brackish wetlands, lakes and lagoons other than those defined in Type 1.

Table 2 of these guidelines classifies waterways for fish passage it factors in the functionality of the waterway as fish habitat. This assessment relates primarily to watercourses and classifies these streams using indicators such as hydraulic geometry (stream shape and size), frequency of stream flows (perennial, intermittent or ephemeral), presence of aquatic habitat units (pools, riffles, vegetation, snags), presence of threatened or protected fish species and other native fish, and connection to adjacent habitats (e.g. floodplain wetlands).

In this table, the waterway at the project area is defined as:

- **Class 2 Moderate key fish habitat** being:

  Non-permanently flowing (intermittent) stream, creek or waterway (generally named) with clearly defined bed and banks with semi-permanent to permanent waters in pools or in connected wetland areas. Freshwater aquatic vegetation is present. TYPE 1 and 2 habitats present.

# 4. Summary of Impacts on Aquatic Environment

Works will result in the following impacts on the aquatic environment:

- Worksite dewatering within parts of the stream related to work.
- Demolition and removal of the existing pier and foundation.
- Rehabilitation of streambed.

Impacts and associated mitigation measures are discussed in detail in the REF.

The proposal is expected to improve reliability of Jerrabattgulla Road particularly during high rainfall events, improve traffic safety and reduce maintenance costs of the road and bridge. This will provide benefits to receiving waters including reduced sedimentation risks and reduced impacts of ongoing maintenance.