Coolamon Shire Council

Coolamon industrial subdivision

Review of Environmental Factors

December 2020

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1. Introduction

1.1 Proposal background

Coolamon Shire Council (Council) is proposing a new industrial subdivision at Wade Street, Coolamon, NSW (see Figure 1.1) (the proposal). Council has amended the *Coolamon Local Environmental Plan 2011* (Coolamon LEP) 'Land Zoning Map and Lot Size Map Sheet', to rezone about seven hectares of land from part Lot 2 DP 1221837 (one hectare) and Lot 2 DP 838319 (six hectares) into light industrial subdivision lots (proposal site). The proposal will subdivide the existing proposal site into approximately 21 new light industrial lots (about 2000 meters squared), and an additional two smaller service lots to allow for the establishment of power lines, drainage paths, water mains and sewerage mains.

Council has engaged GHD to prepare a Review of Environmental Factors (REF) to assess the potential environmental impacts of the proposal.

For the purposes of this REF, the following definitions are used:

- The 'proposal' or 'proposal site' - refers to the area required for construction of the proposal, including construction vehicle access. It includes the construction footprint, site compound, stockpile sites and any areas that would be disturbed (refer to Figure 1.1).
- The 'study area' refers to the area of impact and any additional areas which are likely to be affected by the proposal, either directly or indirectly. Generally, the study area includes the area up to 500 metres from the proposal site.
- The 'locality' refers to the area within a 10 kilometre radius of the proposal.

1.2 Purpose of the REF

This REF has been prepared by GHD Pty Ltd (GHD) on behalf of Council to assess the potential environmental impacts of the proposal. For the purposes of the proposal, Council is the proponent and determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The purpose of this REF is to determine if the proposed scope of works would have a significant impact on the environment. This REF documents the proposal, assesses the potential environmental impacts and provides environmental management measures to be implemented to minimise the risk of adverse environmental impacts during construction and operation.

This REF has been prepared in accordance with Part 5 of the EP&A Act. For the purposes of the proposal, Council is the proponent and determining authority under Division 5.1 of the EP&A Act.

The description of the proposed work and assessment of associated environmental impacts has been undertaken in the context of clause 228 of the Environmental Planning and Assessment Regulation 2000, the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act), and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In doing so, the REF helps to fulfil the requirements of:

- Section 5.5 of the EP&A Act including that Council examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the REF would be considered when assessing:

- Whether the proposal is likely to have a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Division 5.2 of the EP&A Act
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- The significance of any impact on nationally listed biodiversity matters under the EPBC Act, including whether there is a real possibility that the activity may threaten long-term survival of these matters, and whether offsets are required and able to be secured
- The potential for the proposal to significantly impact any other matters of national environmental significance or the environment of Commonwealth land and the need, subject to the EPBC Act strategic assessment approval, to make a referral to the Australian Government Department of Agriculture, Water and the Environment for a decision by the Commonwealth Minister for the Environment on whether assessment and approval is required under the EPBC Act.

1.3 Scope and limitations

This report: has been prepared by GHD for Coolamon Shire Council and may only be used and relied on by Coolamon Shire Council for the purpose agreed between GHD and the Coolamon Shire Council as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Coolamon Shire Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section 1.4 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Coolamon Shire Council and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

1.4 Assumptions

Assumptions made by GHD when undertaking services and preparing the REF include (but are not limited to):

- The impact footprint of the proposal would be as presented in Figure 1.1, and prepared using data provided by Council to GHD
- The safeguards and management measures detailed in section Table 5-1 would be implemented.

BREDINS LANE
CANOLA WAY
MANN STREET
WADE STREET
HOLDEN STREET
CURTIS STREET
JACARANDA AVENUE
LONGSHOTS LANE
WARATAH CRESCENT
STINSON STREET
METHUL STREET
HAKEA DRIVE
BANKSIA STREET
BOOTH STREET

Legend

Proposal site

Paper Size ISO A4

0 50 100 150

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Coolamon Shire Council

Coolamon industrial subdivision
Biodiversity assessment

The proposal site

Project No. 12527688
Revision No. -
Date 04/06/2020

FIGURE 1-1

G:\23\12527688\GIS\Maps\Deliverables\12527688_Z001_SiteOverview.mxd
Print date: 02 Jul 2020 - 12:34

Data source: Imagery: NSW LPI; Topo Basemap: NSW LPI; Cadastre: SIXMAPS, 04/06/2020; Roads: SIXMAPS, 04/06/2020; © Department of Finance, Services & Innovation 2017. Created by: LAMaloney

2. Description of the proposal

2.1 The proposal

Council propose to subdivide approximately seven hectares of undeveloped land into 21 industrial lots, and additional service blocks, to accommodate for growing development demand for light industrial businesses.

The proposal site is located in the centre of Coolamon township, adjacent to Wade Street to the south, and the Griffith – Junee Branch railway line adjacent to the north. Council has recently acquired the land of the proposal site, and rezoned it to light industrial.

Key features of the proposal include:

- Subdivision of the proposal site into 21 smaller industrial lots
- Establishment of two easement/service lots within Lot 2 DP 1221837 to allow for power lines, drainage paths, water mains and sewerage mains
- Clearing of all vegetation, including mostly introduced groundcover, and some native non-native, and non-locally native shrubs and trees from within lot boundaries
- Removal of planted Sugar Gums (*Eucalyptus cladocalyx*) along Wade Street, and minimal vegetation associated with remnant native vegetation to facilitate the construction of driveway access to the lots. Although there is little native vegetation on site, tree removal would be minimised wherever practicable.

The proposed 21 industrial lots will vary in dimensions (see Table 2-1), but will all have a minimum lot size of 2000 square metres to comply with the IN2 zone minimum lot size (MLS) requirements. The two easement allotments (lot 6 and lot 15) will be less than the prescribed MLS, however these two allotments will be created for subdivision servicing purposes, and it has been identified that compliance with the development standard is unreasonable or unnecessary as the infrastructure does not require a large lot size. Additionally, as the smaller allotment size required for the infrastructure lots provides accessibility to relevant infrastructure authorities for servicing and maintenance of such infrastructure, and creates no unnecessary burdens on any of the freehold allotments, there is sufficient environmental planning grounds to justify contravening the development standard (Appendix E).

Table 2-1: Proposed allotment size

Lot number	Area m^2	Building envelope m^2
1	2002	1230
2	2002	1230
3	2102	1323
4	2102	1349
5	2326	1397
6	392	Easement for water and power
7	2002	1276
8	2002	1276
9	2002	1276
10	2297	1506
11	2297	1513
12	2287	1513
13	2297	1513
14	2299	1515

Lot number	Area m^2	Building envelope m^2
15	1131	Easement for Drainage, water, pump station and access
16	2782	1888
17	2782	1957
18	2782	1958
19	2782	1958
20	2782	1958
21	2782	1958
22	2782	1958
23	2827	1996

A development application (DA) will be lodged and assessed for the creation of freehold titled allotments in conjunction with required and proposed civil works. Planning approval will be sort by each subsequent allotment owners for the further and future development of the created industrial allotments.

2.2 Needs and opinions considered

Coolamon is a small country town located approximately 35 kilometres north-west of Wagga Wagga in the NSW Riverina region. The shire has a population of approximately 4,315 (recorded by the 2016 census)(ABS, 2020) and includes the smaller rural villages of Ardlethan, Ganmain, Marrar and Beckom

There has been a recent increase in light industrial developments (including vehicle mechanics, plumbers, and other trades) seeking to establish developments on land zoned RU5 Village or RU4 Rural Small Holdings. Many of these small business cannot operate under the Home Business or Home Industry land use definition as they do not meet the relevant LEP controls. Consequently, the provision of light industrial land would more appropriately serve these businesses and reduce the potential for land use conflict in the future.

The objective of the proposal is to provide light industrial land to service the communities growing small business industry, and reduce the potential for land use conflict in the future.

2.3 Alternatives and options considered

The two options for the proposal include the following:

- Option 1 - Do nothing. This option involves leaving the proposal site in its current, undeveloped state. This option would not improve the growth of light industrial development within the town. This option was therefore discounted.
- Option 2 - Subdivision of the proposal site into 21 light industrial land blocks and two easement lots. This option is the preferred option as it meets the project objective of improving development of the light industrial industry in Coolamon.

2.4 Preferred option

Option 2 is the preferred option. Undertaking subdivision works on the proposal site will allow for small business growth within Coolamon township, and additionally support the towns and surrounding villages future growth. This option includes:

- Subdivision of the proposal site into 21 industrial lots
- Establishment of two easement/service lots to allow for power lines, drainage paths, water mains and sewerage mains

- This option meets the project objective of providing light industrial land to service the growing small business industry in the community and reduce the potential for land use conflict in the future

2.5 Construction methods and activities

2.5.1 Pre-site establishment

Prior to the commencement of site establishment activities, pre-site establishment would include the following:

- Preparation and approval of the contractor's construction environmental management plan (CEMP), including the environmental mitigation measures contained in this REF
- Community notification, and all other stakeholder notifications, as required.

2.5.2 Site establishment

Site establishment activities would include the following:

- Set up stockpile site (on proposal site and Council depot) for storing materials
- Establishment of site compound including toilet facilities
- Delivery of plant and equipment
- Installing fencing where required
- Establishing access to work areas where required,
- Install site environment management, including drainage and erosion management controls, in accordance with the CEMP
- Identification of native vegetation to be retained where practicable

2.5.3 Main Construction activities

Construction activities would include:

- Locate existing services and utilities within the area of proposal site
- Removal of trees and groundcover.
- Excavation and backfill of where required
- Levelling of block
- Open drain construction
- Provision of kerb and gutter along the frontage of most of the development site
- Realignment of all telecommunication along Wade Street
- Trenching for sewer, storm water, gas, and telecommunication installation
- Water extraction from existing watermain on southern side of Wade St
- Site clean-up and rehabilitation, including:
  - Removing excess material from stockpile site
  - Removing temporary stockpile site
  - Revegetating disturbed areas as required
  - Removing temporary erosion and sedimentation controls, following stabilisation of disturbed areas

– Removing temporary traffic controls

2.5.4 Construction hours

Construction would generally occur during the standard hours set out in the *Interim Construction Noise Guidelines* (DECC, 2009):

- Mondays to Fridays between 7 am and 6 pm
- Saturdays between 8 am and 1 pm
- No work would occur on Sundays or public holidays.

Work outside the standard hours is not anticipated other than for deliveries.

Noise generating works outside standard construction hours would require the formal written consent of Council and require justification in accordance with the *Interim Construction Noise Guideline* (DECC 2009).

Plant and equipment

Plant and equipment needed for the proposal would include:

- Trucks
- Loader
- Excavator
- Loader
- Chainsaw
- Mini excavator
- Backhoe
- Cherry picker
- Mulcher
- Bobcat
- Concrete truck
- Grader

Earthworks

Earthworks would include the areas associated with trenching (sewer, storm water, gas, and telecommunication installation), and block levelling. The total volume of earthworks is currently unknown but is expected to be minimal. Any fill required, would be certified clean fill and excess fill would be disposed of at a licensed facility or existing Council owned stockpile site.

There is not expected to be an excess of fill from construction activities, however some fill may need to be imported to the site.

Materials

The materials required for the construction of the proposal include bedding and pipe encasement material (sand / cracker dust) for pipe installation. Quantities will be dependent on design which is still to be determined.

Water may be required during construction to achieve required earthworks moisture content, and to suppress dust. If required, water would be sourced from water supply main on southern side of Wade Street.

Construction traffic management and access

Construction traffic management and access is discussed in section 4.8

Vehicle movements

The proposal would generate a number of heavy vehicle movements through the transport of machinery, fuel, general provisions and materials. The majority of vehicle movements would be for machinery access and the transport of materials to the site.

Heavy vehicle movements would primarily be confined to within the proposal site. Machinery would generally remain onsite until works are completed.

Light vehicles would be required to transport staff to and from the proposal site. Light vehicles would also be used in various roles on site, including traffic management and small deliveries.

With construction expected to be mostly limited to the proposal site, no specific traffic management is likely to be required. Compound and stockpile sites

The proposal will utilise the Council's Stinson Street depot and an existing aggregate stock pile site located on the proposal site.

2.6 Utilities adjustments

All telecommunications cables along the front of the proposal site will require realignment. Council have been in discussions with both Telstra and NBN for a number of months to achieve the desired outcome.

A new water main will be constructed at Jacaranda Avenue, and would travel across Wade Street, and then east along the length of the development to service the lots east of Jacaranda Avenue. Lots to the west of Jacaranda Avenue will be serviced by the existing water main on the southern side of Wade Street. Gas will be installed in a shared trench with telecommunications.

2.7 Construction hours

Construction would generally occur during the standard hours set out in the *Interim Construction Noise Guidelines* (DECC, 2009):

- Mondays to Fridays between 7 am and 6 pm
- Saturdays between 8 am and 1 pm
- No work would occur on Sundays or public holidays.

Work outside the standard hours is not anticipated other than for deliveries.

Noise generating works outside standard construction hours would require the formal written consent of Council and require justification in accordance with the *Interim Construction Noise Guideline* (DECC 2009).

3. Statutory and planning framework

3.1 Environmental Planning and Assessment Act 1979 (NSW)

3.1.1 Overview

The EP&A Act establishes the system of environmental planning and assessment in NSW. This proposal is subject to the environmental impact assessment and planning approval requirements of Division 5.1 of the EP&A Act. Division 5.1 of the EP&A Act specifies the environmental impact assessment requirements for activities undertaken by public authorities, such as councils, which do not require development consent under Division 4.1 of the EP&A Act.

In accordance with section 5.5 of the EP&A Act, Council, as the proponent and determining authority, must examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposal. Clause 228 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) defines the factors which must be considered when determining if an activity assessed under Division 5.1 of the EP&A Act would have a significant impact on the environment.

Chapter 6 of this REF provides an environmental impact assessment of the proposal in accordance with clause 228 of the EP&A Regulation, and Appendix A specifically responds to the factors for consideration under clause 228.

3.1.2 Part 5 environmental assessment and determining authority

The proposal is subject to Part 5 of the EP&A Act. Part 5 of the EP&A Act provides for the control of 'activities' that do not require development consent or the approval of the Minister for Planning, Industry and Environment.

Section 110 of the EP&A Act defines 'determining authority' as follows:

> '*determining authority means a Minister or public authority and, in relation to any activity, means the Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the activity to be carried out*.'

The EP&A Act's definition of 'public authority' (section 4) includes: '*(a) a public or local authority constituted by or under an Act*'.

For the purposes of the proposal, Council is the determining authority in accordance with the EP&A Act.

The duties of the determining authority are set out in section 5.5 of the EP&A Act. Section 5.5 requires that a determining authority '*…examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity*.'

Section 112 provides that a determining authority shall not approve or carry out an activity that is likely to significantly affect the environment or threatened species, populations or ecological communities, or their habitats, unless it has considered an environmental impact statement in respect of the activity. In addition, if the proposal was to be carried out on an area of outstanding biodiversity value (AOBV), or if the determining authority decides the proposal would be likely to significantly affect a threatened species, population or ecological community or its habitat, then it must obtain and consider a species impact statement.

This REF has been prepared to consider whether the proposal would have a significant impact on the environment under Section 5.5 of the EP&A Act. Factors that need to be taken into

account when considering the likely impact of an activity on the environment are outlined in clause 228 of the EP&A Regulation and are discussed in section 3.1.

3.2 Local planning instruments

3.2.1 Coolamon Local Environmental Plan 2011

The site is located within the Coolamon LGA and therefore the provisions of the *Coolamon Local Environmental Plan 2011* (Coolamon LEP) apply. The proposal is located within land that is zoned IN2 light industrial and consent permits of the LEP apply.

Permissible land uses with consent for this zone include likely business of depots, freight transport facilities, light industries, rural supplies and warehouse or distribution centres.

3.3 Other relevant state legislation

3.3.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) establishes, amongst other things, the procedures for issuing of licences for environmental protection on aspects such as waste, air, water and noise pollution control. The owner or occupier of premises engaged in scheduled activities is required to hold an environment protection licence and comply with the conditions of that licence.

The proposal would not involve any scheduled activities listed under Schedule 1 of the POEO Act, therefore an application for an environment protection licence is not required.

With appropriate erosion and sediment controls implemented, the proposal is unlikely to cause water pollution. Therefore, an environment protection licence under the POEO Act is not required.

The POEO Act creates a number of pollution offences. If a 'pollution incident' were to occur during the proposal causing or threatening 'material harm' to the environment, Council would be obliged to notify the NSW Environment Protection Authority (EPA) immediately.

3.3.2 Fisheries Management Act 1994

The *Fisheries Management Act 1994* (FM Act) aims to conserve, develop and share the fishery resources of the State for the benefit of present and future generations including conserving fish stocks and fish habitat and promoting ecologically sustainable development.

The FM Act requires an assessment of whether threatened species of fish and aquatic vegetation, populations or ecological communities are likely to be affected by the proposal. If a significant impact on a threatened species, population or ecological community is likely, a species impact statement must be completed and consultation with the NSW Department of Primary Industries (Fishing and Aquaculture) is required.

The Act lists key threatening processes under Schedule 6 that are likely to impact on watercourses and threatened biota, including degradation of native riparian vegetation along NSW watercourses, and installation and operation of in-stream structures and other mechanisms that alter natural flow regimes of rivers and streams.

The FM Act requires a permit for certain work including dredging, reclamation or work that blocks fish passage. The proposal would not involve work in local waterways, and is unlikely to require a permit under the FM Act.

3.3.3 National Park and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) provides the basis for legal protection and management of Aboriginal sites within NSW, and for the management of National Parks estate.

Section 90 of the NPW Act specifies that the Director-General may issue an Aboriginal heritage impact permit in relation to a specified Aboriginal object, place, land, activity or person, or specified types or classes of these. An Aboriginal heritage impact permit may be issued subject to conditions, or unconditionally.

Aboriginal heritage impact permits must be obtained before the commencement of any project that would, or would be likely to, impact on Aboriginal objects or places.

This REF concludes that the proposal would be unlikely to have a significant effect on an Aboriginal object or place (see section 4.3). An Aboriginal heritage impact permit would therefore not be required for the proposal.

3.3.4 Biodiversity Conservation Act 2016

The aim of the *Biodiversity Conservation Act 2016* (BC Act) is to conserve biodiversity and deliver ecologically sustainable development though a market-based approach particularly for higher risk projects. Ecological outcomes for lower risk projects would be achieved through self-assessment of risk. The market based approach would have a regional and state focus rather than a local focus on biodiversity.

The BC Act lists a number of threatened species, populations and ecological communities to be considered when deciding whether there is likely to be a significant impact on threatened biota or their habitats. If a species of flora or fauna listed in the BC Act is identified, a review must be carried out of the factors set out to establish if there is likely to be a significant impact on that species, population, ecological community or habitat. If any of these could be impacted by the proposal, an assessment of significance that addresses the requirements of section 1.7 of the EP&A Act must be completed to determine the significance of the impact.

The potential for impacts on ecology has been considered in section 4.2. The assessment concludes that the proposal would be unlikely to have a significant impact on any threatened species, populations or ecological communities listed under the BC Act. A species impact statement is therefore not required.

3.3.5 Biosecurity Act 2015

The *Biosecurity Act 2015* reforms the management of pests, diseases, weeds and contaminants in NSW. For local government, the Biosecurity Act repeals the *Noxious Weeds Act 1993* which established local councils (or in some areas, county councils) as Local Control Authorities (LCAs).

The Biosecurity Act 2015 and its subordinate legislation came into effect on 1 July 2017. As part of the management of weed species, all plants are regulated with a ‘general biosecurity duty’ to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.

One priority weed species listed for the Riverina control area, African Boxthorn (*Lycium ferocissimum*), was identified during the site surveys, as well as signage indicating the presence of Spiny Burr Grass (however, not recorded in surveys). The potential impacts have been considered in section 4.2. The spread of weeds would be managed by implementing safeguards identified in Table 5-1.

3.3.6 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) is concerned with all aspects of heritage conservation ranging from basic protection against indiscriminate damage and demolition of buildings and sites, through to restoration and enhancement.

Heritage places and items of particular importance to the people of NSW are listed on the State Heritage Register. Only those heritage items that are of State significance are listed on the State Heritage Register. Approval under Section 60 of the Heritage Act may be required for impacts to a listed heritage item.

An assessment of the state and local heritage items within the locality proposal site has concluded that the proposal can be assessed, under Part 5 of the EP&A Act, by Council as the proponent and determining authority.

Up-To-Date Store and Garth Jones Collection of farm machinery, listed on the State Heritage Register, is located approximately 437 meters north west of the proposal site. This REF concludes that the proposal would be unlikely to have a significant effect on this item listed on the State Heritage Register that is located within the study area.

3.4 Commonwealth legislation

3.4.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act an action that 'has, will have or is likely to have a significant impact on a matter of national environmental significance' (MNES) or the environment of Commonwealth land is deemed to be a 'controlled action' and may not be undertaken without prior approval from the Australian Minister for the Environment. The significance of impacts of an activity on MNES is assessed according to the DEE EPBC Act significant impact criteria. The impacts of the proposal on matters of national environmental significance are considered in 4 and Appendix A of this REF.

This REF finds that the proposal is unlikely to have a significant impact on any matters of national environmental significance. Accordingly, the proposal has not been referred to the Australian Government Department of Agriculture, Water and the Environment (DAWE).

3.5 Confirmation of statutory position

Council is the determining authority for the proposal. This REF fulfils Council's obligation under section 5.5 of the EP&A Act including to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the activity.

3.6 Consultation

The Hay Branch railway line /west on the northern side of the proposal site. John Holland Rail (JHR) are the manager of the Country Regional Network and review any documentation and planning proposals with adjacent to or within the rail corridor.

Council consulted with JHR during re rezoning of the proposal site (see Appendix D). JHR, did not raise any objections to the proposal.

3.7 Community consultation

Council will conduct local community consultation, including St Michaels Primary School and affected residences, prior to and during construction in the form of newsletters, letter drops and Council social media platforms.

4. Environmental assessment

This chapter of the REF provides a detailed description of the potential environmental impacts associated with the construction and operation of the proposal. All aspects of the environment potentially impacted by the proposal are considered. This includes consideration of the factors specified in the guidelines *Is an EIS required?* (DUAP 1999) as required under clause 228(1)(b) of the *Environmental Planning and Assessment Regulation 2000*. The factors specified in clause 228(2) of the *Environmental Planning and Assessment Regulation 2000* are also considered in Appendix A. Site-specific safeguards are provided to mitigate the identified potential impacts.

4.1 Soils, water quality, hydrology and groundwater

4.1.1 Existing environment

Topography and geology

The project site and wider study area is typically flat to gently undulating and is located in the Ardlethan Hills Mitchell Landscape (Mitchell 2002). The Landscape characteristics include rolling hills and rises on Ordovician quartzose sandstone, greywacke, chert, and phyllite. General elevation is 200 to 412 metres and local relief is 50 to 60 metres.

Soils

Soil types

Ardlethan Hills Mitchell Landscape's typically contain stony red and brown texture-contrast soils merging to calcareous red earth on valley floors (Mitchell 2002).

Acid sulphate soils

There are no known occurrences of acid sulphate soils in the study area. Based on mapping of acid sulphate soils for NSW (OEH 2013), it is unlikely that these would occur in the study area. Acid sulphate soils are generally confined to coastal areas, although they can occur at inland locations where there is poor drainage. No such environments are known to be present in the study area.

Soil contamination

A search of the EPA contaminated land register did not find any declared contaminated sites located in or near the study area. Search results are provided in Appendix B.

Hydrology and water quality

There are no named watercourses in the study area. Two man-made drainage lines cross the proposal site, perpendicular to Wade Street (see Figure 4.1). The site was moderately wet and retained some water in drainage areas after rainfall. A number of dams, located on private property, are located in the locality of the proposal site, the closest being 510 metres north.

Groundwater

No groundwater dependent ecosystems exist within the proposal site.

4.1.2 Potential impacts

Topography and soils

The proposal would involve earthworks at select locations of the proposal site during construction. Earthworks would potentially affect soils and loose fill may erode during rainfall events. Erosion of earthworks could cause sedimentation of drainage lines. Sedimentation may also influence nearby vegetation and habitat by smothering groundcover vegetation and changing soil surface characteristics. However, the proposal is unlikely to affect topography or destabilise landforms due to the relatively minor nature of the works.

Vehicle movements, including machinery and support vehicles

Machinery and support vehicles used for the construction of the proposal would be driven off road and would have the potential to transport excess material onto sealed roads and disturb the ground surface.

Stockpiling

Excavated material would temporarily be stockpiled on the proposal site and reused where possible. Loose soil material could erode in periods of high rainfall or windy conditions.

Soil contamination

Excavation may disturb any contamination and hazardous materials present in soil. If inadequately managed, the disturbance of areas of contamination has the potential for:

- Direct contact and/or inhalation by site workers, users, and visitors
- Impacts to surrounding environmental receivers (including surrounding ecosystems and flora and fauna, where present)
- Mobilisation and migration of surface and subsurface contaminants via leaching, runoff and/or subsurface flow, impacting nearby soils, surface water, and groundwater.

Based on the results of the desktop review the potential to disturb contamination resulting in impacts to human health and the environment is considered low. Regardless, the potential for the impacts due to the potential disturbance of contamination would be minimised by implementing the mitigation measures provided in Table 5-1.

Construction activities have the potential to result in the contamination of soil and groundwater due to spills and leaks of fuel, oils, and other hazardous materials. In addition, there is the potential to introduce contamination to the proposal site through the acceptance of imported fill that has not been properly verified, if required. These potential impacts would be minimal with the implementation of standard mitigation measures, provided in Table 5-1.

Hydrology

Construction of the proposal is likely to affect surface runoff characteristics near the proposal site through cut and fill earthworks. The increase in the impermeable surface of the road would be likely to generate an increase in surface runoff, which would be directed to the existing drainage lines. This is unlikely to significantly alter the hydrology of the study area due to the minor nature of the proposal.

Surface water quality

The introduction of pollutants from construction of the proposal into the surrounding environment, if uncontrolled, could potentially have the following impacts on the water quality of drainage lines and dams:

- Increased sediment load and organic matter causing adverse impacts to water quality in drainage lines and creeks, such as increased turbidity. Provided safeguards and management measures are implemented, the proposal would be unlikely to contribute significant amounts of sediment and organic matter
- Gross pollutants (large waste items) entering drainage lines in the study area
- Reduced water quality in drainage lines and creeks due to an influx of contaminants such as fuel or chemicals from accidental spills.

The potential for construction water quality impacts to the surrounding drainage lines is considered to be low due to the potential for soil erosion and sedimentation during construction, particularly when construction occurs within and adjacent to drainage lines.

4.2 Biodiversity

A specialist ecological assessment of the proposal was undertaken by GHD as part of the site investigations. This report is provided in Appendix C and is summarised in this section of the REF.

4.2.1 Methodology

Desktop review

The desktop assessment included a review of background biodiversity information obtained from database searches and literature reviews (see Appendix B. These searches included:

- BioNet Atlas – threatened species web application, species sightings. Search of all terrestrial threatened flora and fauna species (within a 10 kilometre radius of the proposal site) (searched June 2020) (BCD 2020a)
- BioNet Atlas – threatened species web application, threatened biodiversity profiles (2020b) NSW, online profiles
- BioNet Atlas – vegetation classification for plant community types in the study area
- Commonwealth Bureau of Meteorology's Atlas of Groundwater Dependent Ecosystems (GDE)
- DAWE (2020a) EPBC Act Protected Matters Search Tool – for a 10 kilometre radius around the proposal site (searched March 2020)
- DAWE (2020b) Species profile and threats database, online profiles
- NSW Department of Primary Industries (DPI) priority weed declarations – Riverina region (DPI 2019) (searched March 2020)
- NSW Government Sharing and Enabling Environmental Data (SEED) catalogue for plant community types and potential mapping in the study areaAny other relevant spatial data such as soils, geology and topography
- any other available biodiversity studies of the area (eg previous ecological assessments in the study area and locality).

Field surveys

Flora and fauna field surveys were conducted by two ecologists on 18 May 2020. Where appropriate, field surveys were conducted in accordance with the '*Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities Working Draft*' (DEC 2004) (see Appendix C).

The primary objectives of the field surveys were to:

- Determine the area of threatened species habitat, vegetation communities, threatened ecological communities and endangered populations likely to be directly and indirectly affected by the proposal
- List the threatened biota previously recorded, or predicted to occur in the locality and assess their potential to occur in the study area based on the desktop review and site assessment
- Identify the flora and fauna species occurring within the study area at the time of survey and determine the habitat potential within the study area for any additional flora and fauna species including threatened species listed under the BC Act and EPBC Act;
- Identify any habitat features for threatened and migratory species (e.g. wetlands, waterbodies, rocky outcrops etc.)
- Determine the contribution of the proposal to cumulative impacts on flora and fauna species and their habitat, populations, ecological communities, critical habitats, migratory species and habitats in a local context
- Develop mitigation measures to reduce the potential direct and indirect impacts of the proposal on flora and fauna species in the study area
- Determine the value of the habitat in the study area for flora and fauna species, particularly for threatened species and species of conservation significance, and describe potential impacts that would result from the proposal
- Describe the flora and fauna species, habitat, populations and ecological communities in the study area in relation to their occurrence and quality in the locality
- Determine the condition and extent of vegetation removal required for the proposal.

Biodiversity survey effort for the proposal is summarised in Table 4-1 and is discussed further in the biodiversity assessment in Appendix C.

Table 4-1: Survey effort for biodiversity assessment

Survey method	Effort
Flora plot and transect surveys (see Figure 4.1)	Two 20 metre by 50 metre plots within the proposal site to characterise dominant species and abundance. Walking transects were conducted for the length of the proposed development area to characterise vegetation and assess habitat within the site.
Hollow-bearing tree survey	All hollow-bearing trees within the proposal site that have the potential to be impacted were recorded with a GPS.
Fauna habitat assessment	Potential fauna habitat identified within areas of potential vegetation clearing including lot locations, easements and access driveways.
Opportunistic fauna observations	Opportunistic fauna observations for all flora and fauna species encountered during flora surveys and habitat assessment.

Assessment of the likelihood of occurrence of listed biota

An assessment of the likelihood of occurrence and possibility of impact was completed for listed species, populations and ecological communities with the potential to occur in the study area.

In assessing which of these species, populations and ecological communities are 'likely' to occur within the study area (as described in '*Threatened Biodiversity Survey and Assessment:*

Guidelines for Developments and Activities Working Draft') (DEC 2004) the following factors were taken into consideration:

- The presence of potential habitat within the study area
- Condition and approximate extent of potential habitat within the study area
- Species occurrence within the locality and region (including results of current and previous surveys and results of database searches and literature review).

In addition, the possibility of impact by the proposal on threatened biota likely to occur, or present was assessed, and therefore whether a BC Act assessment of significance and/or EPBC Act significance assessment is required to assess the significance of the impact.

4.2.2 Existing environment

Flora

Field surveys in the proposal site identified 79 flora species, of which 33 are native and 46 are introduced (see Appendix C).

The proposal site occurs on two adjacent land blocks located between Wade Street and an NSW railway line. The proposal site is mostly modified and degraded with the groundcover dominated by introduced species including Wild oats *(Avena fatua),* Common Storksbill *(Erodium botrys*), Soursob *(Oxalis pes-caprae*) and wild Gazanias (*Gazania rigens)*. Native species, occurring in lesser abundance, include Ringed Wallaby Grass (*Rytidosperma caespitosum),* Windmill Grass (*Chloris truncata*) and Rigid Panic (*Walwhalleya proluta*). There are patches of native grassland across the proposal site dominated by Windmill Gras. However, these are small (usually less than 10 metres by 10 metres) and localised within wider patches dominated by introduced groundcover species.

Some native shrubs occurred throughout the site, however mostly this was restricted to non-local, planted species such as *Melaleuca* species. Some naturally occurring shrubs were present in the patch of Grey Box woodland at the eastern extent of the site along Wade Street. This included Wilga (*Geijera parviflora),* and Hakea Wattle (*Acacia hakeoides).*

Various tree species occurred throughout the site, however the site was predominately planted non-locally native and introduced species such as Sugar Gums (*Eucalyptus cladocalyx*) and Silver-leaved Ironbark (*Eucalyptus melanophloia)*. Locally native tree species occurring within the proposal site included Kurrajong trees (*Brachychiton populneus),* White Cypress Pine (*Callitris glaucophylla)* and Mugga Ironbark (*Eucalyptus sideroxylon).* However, most native occurring canopy species were restricted to the small patch of woodland located along Wade Street at the eastern end of the proposal site. This woodland patch contained Grey Box (*Eucalyptus microcarpa)*, White Cypress Pine (*Callitris glaucophylla)* and Yellow Box (*Eucalyptus melliodora)* along with various native groundcover species such as Blueberry Lilies (*Dianella revoluta* and *Dianella longifolia),* Rock Ferns, (*Cheilanthes austrotenuifolia)* and Purple Wiregrass (*Aristida ramosa).*

There are large number of planted introduced tree species including Peppercorns (*Schinus areira*) and Pine trees (*Pinus radiata*). Most of these occur within the proposed lots rather than in the roadside corridor of Wade Street (see Photo 1).

Hollow-bearing trees were recorded along Wade Street along the proposal site boundary.

Photo 1: Planted introduced trees and non-locally native trees within the proposal site.

Priority weeds

One species listed as a priority weed for the Riverina region was recorded during surveys; African Boxthorn (*Lycium ferocissimum*). This was located at the eastern end pf the proposal site in native vegetation along Wade Street.

Council weed marking signs for Spiny Burr Grass (*Cenchrus longispinus*). were observed on the proposal site during surveys. These signs indicated this weed is present in parts of the proposal site, however, the recent survey did not identify its presence.

Both weed species carry a General Biosecurity risk, to prevent, eliminate or minimise any biosecurity risk they hold. Additionally African Boxthorn carries a 'Prohibition on dealings' meaning it must not be imported into the State or sold. African Boxthorn is also listed as a Weed of National Significance (WONS). These species are nationally prioritised weeds based on their invasiveness, potential for spread and environmental, social and economic impacts.

Vegetation communities

There was one NSW plant community type (PCT) identified within the proposal site:

- PCTID 76 - Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions. This vegetation community is dominated by a canopy of Grey Box and occurs along Wade Street at the eastern end of the proposal site (see Photo 2).

This PCT meets the classification criteria for the BC Act listed endangered ecology community of Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (Grey Box Woodland). However, it does not meet the criteria for the EPBC Act listing of the community, due to the limited diversity of the groundcover species, small size of trees and unconnected patch to larger areas of the same community.

The proposal would remove scattered canopy species, including trees that form part of the Grey Box Woodland PCT. The associated groundcover that would be removed is dominated by introduced species.

Photo 2: Grey Box woodland at the eastern end of Wade Street road reserve.

Fauna

Fauna species

Surveys undertaken by GHD identified 12 fauna species (see Appendix C), nine of which are native species.

Fauna habitat within the proposal site is generally very limited due to its predominantly cleared and modified nature, and limited native vegetation. The site has scattered canopy species and introduced groundcover, which may provide some limited movement and foraging habitat for common fauna species such as Crested Pigeons (*Ocyphaps lophotes),* Galahs (*Eolophus roseicapillus),* and Blue-faced Honeyeater (*Entomyzon cyanotis).* These species were all recorded during site surveys and may forage on flowering eucalypts or seeds from groundcover species within the proposal site.

Site surveys identified some hollow-bearing trees adjacent to the proposal site in the Wade Street road reserve. Where possible it is recommended that hollow-bearing trees are retained.

Fauna habitat

Woodland

The proposal site has a small area of woodland habitat at the eastern extent of the proposal site. This woodland is restricted to a strip of road reserve (about 3-4 metres wide and 400 metres long) at the boundary of the proposal site. It is predominantly composed of dense White Cypress Pine regrowth and introduced groundcover species. Due to its location in a built up area, and isolation from other areas of potential habitat, this woodland is unlikely to provide significant habitat for fauna species.

Scattered canopy vegetation in the woodland on site may provide some sheltering, movement and foraging habitat for small woodland birds such as the Yellow-rumped Thornbill (*Acanthiza*

chrysorrhoa) and Pied Butcherbird (*Cracticus nigrogularis).* Shrubs and native grasses within the woodland on site are also likely to provide foraging habitat for commonly occurring birds, reptiles and mammal species that may occur at the site intermittently. Introduced groundcover within the woodland may also provide marginal habitat for fauna species.

No hollow-bearing trees were recorded on the proposal lots; however, 14 hollow-bearing trees were recorded along Wade Street roadside reserve. These hollow- bearing trees included 11 Sugar Gums and two Yellow Box trees, with a combined total of 28 hollows. The biodiversity survey identified these hollows to be very small or just beginning to form. Consequently, hollow depth was difficult to determine, however it was concluded that some may have limited depth and therefore have reduced hollow habitat potential.

Aquatic habitat

No permanent aquatic habitat or Key Fish Habitat (KFH) occurs on site or is mapped as occurring within the study area. However, the proposal site survey identified some manmade drainage lines (dry at the time of surveying) which may provide temporary habitat for mobile amphibian species such as the Spotted Grass Frog (*Limnodynastes tasmaniensis)* in times of rain. Due to the lack of native fringing vegetation, and location within a highly disturbed area which is isolated from areas of more suitable, these drainage lines are unlikely to provide significant wetland or aquatic habitat for species.

Threatened biota

BC Act listed biota

Threatened biota listed under the BC Act and identified by database searches and field surveys that could potentially occur in the locality include 19 bird species, three mammal species, five plant species, one amphibian species, three fish species and one reptile species.

One ecological community, listed under the BC Act, was recorded in the study area (see Figure 4.1); Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (Grey Box woodland) listed as an endangered ecological community. Approximately 0.36 hectares of isolated remnant Grey Box woodland was recorded on the proposal site. The proposal would potentially require the removal of some, or all, of this, however the community is isolated from other native woodland and remnant habitat. This threatened biota and others likely to be impacted by the proposal are identified in Appendix B and Appendix C.

An EP&A Act test of significance (Appendix C) was prepared for Grey Box Woodland and woodland bird species to assist in determining the significance of the potential impacts of the project on threatened biota. These assessments conclude that the project is unlikely to significantly impact on any threatened biota listed under the BC Act.

EPBC Act matters of MNES

Literature review, database search and field surveys identified three migratory species, three ecological communities, four flora species, 14 birds, three mammals, one reptiles, three fish species and one frog listed under the EPBC Act that could potentially occur in the locality (See Appendix B).

Of these, no species or ecological communities are considered to have a high or moderate likelihood of occurrence in the study area (see Appendix C). Consequently, it was not necessary to prepare significant impact guidelines to assist in determining the significance of the potential impacts of the proposal on MNES.

Vegetation type

- Introduced vegetation
- PCTID76: Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregion (BC Act listed - Grey Box Woodland)
- Planted woodland

Paper Size A3

0 40 80 160

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

- Hollow-bearing tree
- Flora plot
- Spiny Burr-grass marker
- Proposal site boundary

Coolamon Shire Council
Industrial subdivision biodiversity assessment

Biodiversity assessment features

Job Number	12527688
Revision	A
Date	02 Jul 2020

FIGURE 4.1

C:\Users\Bturner\Documents\Projects\Coolamon BA\Figures\Coolamon_Biodiversity_10062020.mxd

Data source: NSW Government (LPI): Aerial photograph - 2015; roads, waterways - 2012; MIA Renewal Alliance: Early Works proposal footprint - 2017. Created by:bturner

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4.2.3 Potential impacts

Potential direct impacts

Construction

Vegetation and habitat removal

The proposal could remove about 6.68 hectares of vegetation (native and non-native) on the proposal site (see Table 4-2). This would include 0.36 hectares of remnant Grey Box woodland (listed under the BC Act). All other vegetation to be potentially removed on site is not NSW locally native (and has been planted), or is introduced trees.

Table 4-2: Summary of vegetation removal for the proposal

Vegetation type	Area (ha)
Introduced grassland	5.72
Planted non local trees and introduced grassland in roadside	0.6
Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina bioregions (PCT ID76) – BC Act Grey Box Woodland	0.36

The site's groundcover is dominated by introduced species with scattered occurrences of native grasses. Removal of groundcover vegetation, may cause a temporary loss of foraging habitat for some fauna species, with disturbed areas adjacent to the proposal site allowed to regenerate following construction. However, the habitat is marginal due to the dominance of introduced groundcover species and its previous disturbance, with better quality habitat available outside the proposal site in the study area and locality.

Trees that may potentially be removed by the proposal, and their size classes, are identified in Table 4-3. Although removal of all roadside vegetation has been included in impact assessment, wherever practicable, Council may retain mature trees for visual and aesthetic purposes.

Table 4-3: Tree removal species and size class

Common name *Species name*	Tree size classes (cm)							
	<10	10-20	20-40	40-60	60-80	80-100	>100	Total
Grey Box (*Eucalyptus microcarpa*)	1	0	1	2	0	0	0	4
White Cypress Pine (*Callitris glaucophylla)*	3	0	0	0	0	0	0	3
Kurrajong (*Brachychiton populneus*)	2	2	0	2	0	0	0	6
Native planted trees (within lots)	25	15	2	0	0	0	0	42
Non-native species (no size recorded)	0	0	0	0	0	0	0	0
Roadside vegetation	12	4	1	0	5	9	3	34

As discussed above, about 0.36 hectares of the endangered ecological community of Grey Box woodland listed under the BC Act was recorded along the road edge at the eastern end of the proposal site. This woodland is unlikely to provide significant habitat for fauna species due to its

isolation from other areas of habitat. Wherever possible, the Grey Box trees from this community should be retained for habitat, visual and aesthetic purposes.

No hollow-bearing trees occur within the proposed lots; however, hollow-bearing trees were recorded adjacent to the proposal site, along the roadside reserve of Wade Street. These should be retained wherever practical. Removal of Sugar Gum trees with shallow hollows is not likely to result in a loss of good quality habitat, and the removal of this habitat has been taken into consideration when applying impact assessment criteria and guidelines (Appendix C).

Potential indirect impacts

Weeds

The groundcover vegetation in the study area contains a range of introduced species and escaped garden varieties including Gazania. The priority weed and WONS African Boxthorn was identified within the study area during surveys. The species is already prevalent throughout the study area, however the prevention of further spread into surrounding areas is important due to the species' invasiveness and for the ongoing persistence of native vegetation communities in the study area and locality. Signage indicating the occurrence of Spiny-Burr Grass was noted on site, however the species was not identified during surveys. The proposal has the potential to further introduce and spread weeds in the study area through the movement of machinery and light vehicle traffic and disturbance associated with earthworks.

The implementation of safeguards detailed in Table 5-1 would limit the potential for the spread of weeds associated with the proposal.

Injury and mortality

During construction, death or injury may occur to fauna present during clearing of trees and vegetation. If birds are present but not nesting during construction they will generally move away from the proposal site to escape disturbance. Clearing of hollow-bearing trees carries the risk of injury to hollow dependent fauna that may be utilising hollows at the time of clearing.

Due to its highly modified landscape within the town of Coolamon, and lack of significant woodland habitat to support large amounts of fauna species, it is unlikely that the proposal will result in a significant increase in fauna movement at the site or in the surrounding study area due to its . Given the 50 kilometre per hour speed limit along Wade Street, vehicle collisions with fauna are unlikely to occur, and therefore be unlikely to cause substantial impacts to any threatened or non-threatened fauna species in the area.

Potential impacts to fauna would be avoided through the implementation of pre-clearing safeguards outlined in Table 5-1.

Disturbance of fauna

The proposal has the potential to temporarily affect the use of the study area by fauna as a result of increased disturbance during construction. The use of plant and machinery may temporarily deter some fauna species such as birds from using potential habitat in the study area during construction.

Key threatening processes

Two listed key threatening processes listed under the BC Act and/or EPBC Act are relevant to the proposal:

- The removal of native vegetation – the proposal would remove up to 80 native trees, including about 0.36 hectares of Box-Gum Woodland

- The loss of hollow-bearing trees – the proposal would remove two hollow-bearing trees containing four hollows.

Summary of impact assessment

The assessment of likelihood of occurrence found that the proposal is unlikely to impact on any threatened species or communities listed under the BC Act or EPBC Act in the study area and locality, given the low impacts of the proposal on native vegetation (about 0.36 hectares) or habitat of value (see Appendix C).

4.3 Aboriginal heritage

4.3.1 Methodology

In assessing the potential impact of the proposal on Aboriginal heritage, the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010) was followed.

The proposal is not defined as a low impact activity under the *National Parks and Wildlife Regulation 2009* (NPW Regulation) as it involves excavation of soil. The due diligence process is therefore relevant to the proposal.

A search of the NSW Aboriginal Heritage Information Management System (AHIMS) was undertaken on 3 September 2020 for the proposal.

The study area generally has a high level of disturbance. Surveys were not required as it is likely that previous disturbance has removed any existing sites of Aboriginal heritage. In addition, the trees to be removed are of a young age (less than 50 years) and therefore are very unlikely to have any potential heritage significance.

4.3.2 Existing environment

The study area is located within the Murray-Darling Basin. Aboriginal people have occupied this part of Australia for up to 50,000 years, with early occupation focused on the resources of freshwater lakes and rivers and their floodplains. Coolamon is located within the boundary of Wiradjuri Country. The Murrumbidgee River is located about 25 kilometres south of the proposal site, and is known to be a feature of significance to the Aboriginal community in the area.

The study area and proposal site have been substantially modified by township and train line establishment activities, and the development of roads. The proposal is located in a existing vacant block between Wade Street and the southern NSW railway. No trees that could potentially bare Aboriginal scars would be removed by the proposal.

The AHIMS search results identified that no Aboriginal sites have been recorded within a 50 meter search buffer from the proposal site, however there was one site recorded within 200 metres of the proposal site. No Aboriginal places have been recorded in or near the proposal site (see Appendix B).

No Aboriginal heritage sites are expected to be impacted as long as the proposal keeps within the identified proposal site.

The NSW ePlanning Spatial Viewer identified that the proposal is not located on Crown Land, and consequently no Aboriginal Land Claim search was required (see Appendix B).

4.3.3 Potential impacts

The due diligence assessment process detailed in the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW 2010) was followed for the proposal as outlined in Table 4-4.

Table 4-4: Due diligence assessment

Due diligence matter	Response
1. Will the activity disturb the ground surface or any culturally modified trees?	Yes – the proposal would disturb the ground surface for industrial subdivision and development; however the proposal site is located in previously disturbed land. No trees with potential cultural scars would be removed by the proposal.
2a. Are there any relevant confirmed site records or other associated landscape feature information on AHIMS?	The results of the basic AHIMS search indicate that one Aboriginal site has been recorded in or near the study area (within 200 metres of the site). This site would not be impacted by the proposal.
2b. Are there any other sources of information of which a person is already aware?	There are no other known studies of the area relevant to the proposal.
2c. Are there landscape features that are likely to indicate presence of Aboriginal objects?	There are no landscape features such as natural waterways, rock shelters, sand dunes, waterholes or wetlands present in the study area. The proposal is located on land that has been previously disturbed by clearing and road development. Because the site has previously been disturbed and any trees with potential cultural scars would be retained, no further investigation of Aboriginal heritage is necessary.

4.4 Non-Aboriginal heritage

4.4.1 Methodology

Heritage databases were searched on 3 September 2020 to identify any heritage items recorded in the study area, including the following:

- Australian Heritage database, for items and places of national heritage significance.
- NSW State Heritage Inventory, for items and places of State heritage significance.
- Heritage Schedule 5 of the Coolamon LEP for zoning and local heritage information.

4.4.2 Existing environment

History of European settlement

The following information is sourced from Coolamon Council (2020).

The earliest history of European settlement in Coolamon is documented in 1848 of a property named ‘coleman’, owned by a Mr J. Atkinson. The region has produced wheat since 1851, however, the Coolamon township was not established until 1881. This same year the Coolamon railway line, located on the Hay Branch Line connecting Junee to Coolamon and on to Narrandera, was completed.

The Coolamon Shire was proclaimed on 3 March 1906 and encompasses three larger towns of Coolamon, Ganmain and Ardlethan, and the smaller villages of Marrar, Matong and Beckom. The Coolamon LGA comprises of 2,433 square kilometres, of which, the majority (2,280 square kilometres) is Agricultural land that is predominantly cropping.

Heritage sites

One item was listed on the State Heritage Register (under the NSW Heritage Act) was identified in the study area.

- Up-To-Date Store and Garth Jones Collection of farm machinery, 127-129 Cowabbie St - *approximately 437 meters north west of the proposal site.*

There are 26 other local heritage items located within the locality of the project site which mostly include residences and commercial buildings.

4.4.3 Potential impacts

The majority of the state and local heritage items or sites identified the database review are located inside of the study area but outside the proposal site (see database searches located in Appendix B). However, it is unlikely that the proposal would cause any impacts to items or sites of non-Aboriginal heritage.

4.5 Noise and vibration

4.5.1 Methodology

A basic qualitative assessment of the potential noise impact of the proposal was undertaken for the construction period for the sensitive receivers in the proposal study area.

The *Interim Construction Noise Guideline* (DECC 2009) states that construction works with a duration of more than three weeks should be subject to a quantitative assessment of noise impacts. Construction is not anticipated to occur for periods longer than three weeks in any one location. There are about 10 residences located within 50 metres of the proposal site, however works within the vicinity of residences would be short in duration and generally be limited to minor vegetation removal.

Construction scenarios have been identified based on the proposed construction methodology. Noise impact distances have been calculated to determine the area where noise impacts are likely during construction.

4.5.2 Existing environment

The proposal site within Coolamon township, about 35 kilometres north-west of Wagga Wagga. The noise environment is typical of a rural-township area with intermittent road traffic noise and natural sounds. An operational train line is located adjacent to the proposal site with an associated road crossing (with noise and light signals) about 280 meters west. The topography of the study area is generally flat to gently undulating.

Sensitive receivers with the potential to be affected by noise impacts during construction of the proposal include rural residents near the proposal site, with the nearest residence located about 30 metres, Saint Michael's Primary School, Saint Michael's Catholic Church, the New Coolamon Hotel and Coolamon Station, which is not manned (see Figure 1.1).

Existing noise levels in the study area would primarily be influenced by:

- Passing traffic on Wade Street, Cowabbie Street and other local roads
- Passing trains and associated road crossing alerts
- Noise associated with rural agricultural environments
- Heavy vehicle movements and machinery associated with Coolamon Steelworks
- Noise associated with Saint Michael's Primary School

The minimum background levels from the *Noise Policy for Industry* (NPfI) (EPA, 2017), 35 dBA for the day period and 30 dBA for the evening and night periods, have been adopted for this assessment.

4.5.3 Potential impacts

Construction noise

A distance-based assessment has been undertaken as per the AS 2436 – 2010 *Guide to noise and vibration control on construction, demolition and maintenance sites* to determine distances from equipment where NMLs are exceeded. The construction methodology in section 2.5 has been reviewed and the estimated sound power level for the respective activities produced. Sound power levels are sourced from AS 2436 and the *Construction Noise and Vibration Guideline* (CNVG) (Roads and Maritime, 2016). Buffer distances for residential and non-residential receivers are provided in Table 4-5 and Table 4-6 for each construction activity.

Table 4-5 Buffer distances for residential receivers

Scenario	Equipment	Scenario sound power level (dBA)	Distance from source where NML is exceeded (m)	
			Noise affected residences	Highly noise affected residences
Noise management level (external)			**45**	**75**
CS01 - Tree clearing	Cherry picker, chainsaw, mulcher	120[1]	940	59
CS02 – Excavation and backfill of SPS	Excavator, trucks	110	363	23
CS03 – Leveling of block	Grader	110	363	23
CS04 – Open drain construction	Concrete truck, bobcat, mini excavator	112	430	27
CS05 – Trenching for sewer, stormwater, gas and telecommunication installation	Backhoe, excavator, trucks	111	397	25
CS06 – General tidy up	Bobcat, loader	109	317	20

Note 1: A 5 dBA correction has been added for annoying characteristics of tree clearing equipment

Table 4-6 Buffer distances for non-residential receivers

Scenario	Equipment	Scenario sound power level (dBA)	Distance from source where NML is exceeded (m)	
			Commercial	Schools, place of worship
Noise management level (external)			**70**	**55**
CS01 - Tree clearing	Cherry picker, chainsaw, mulcher	120[1]	94	374
CS02 – Excavation and backfill of SPS	Excavator, trucks	110	36	145
CS03 – Leveling of block	Grader	110	36	145
CS04 – Open drain construction	Concrete truck, bobcat, mini excavator	112	43	171
CS05 – Trenching for sewer, stormwater, gas and telecommunication installation	Backhoe, excavator, trucks	111	40	158
CS06 – General tidy up	Bobcat, loader	109	32	126

Note 1: A 5 dBA correction has been added for annoying characteristics of tree clearing equipment

The ICNG NMLs are likely to be exceeded during all construction stages due to the close proximity of works to nearby sensitive receivers. Worst case noise impacts would be expected during the tree clearing stage due to operation of a chainsaw and mulcher. Potentially impacted residences should be informed of the nature of works and duration.

The highly noise affected level is likely to be exceeded at residences located within 59 metres of tree clearing works. The ICNG recommends that consultation is undertaken with highly noise affected residences to discuss if respite periods are required and appropriate time periods.

The distances presented in Table 4-5 do not take into account shielding from buildings or other structures. AS2436 states noise levels would reduce by 5 to 10 dB due to shielding from structures which would reduce the noise affected distance.

Generally, noise impacts during construction would be intermittent and short-term. It is recommended that the safeguards and management measures detailed in section 5.3 are implemented to minimise potential construction noise impacts.

Construction vibration

Currently, there is no Australian Standard that sets criteria for the assessment of building damage caused by vibration. Guidance of limiting vibration values is attained from British Standard *BS 7385-2:1993 Evaluation and measurement of vibration in buildings* and German

Standard *DIN 4150-3:1999 Structural Vibration – Effects on vibration on structures* for building damage construction vibration criteria. The German Standard DIN 4150 is included as it provides guidance for structures of intrinsic value that is not covered in BS 7385. Heritage listed structures identified near the proposal site are listed in section 4.4.2.

Construction vibration impacts are not anticipated as the construction equipment outlined in Section 2.5 would not generate significate vibration emissions.

Traffic noise

The application notes for the RNP state that "for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level as a result of the development should be limited to 2 dB above that of the noise level without the development. This limit applies wherever the noise level without the development is within 2 dB of, or exceeds, the relevant day or night noise assessment criterion." This is also considered to be applicable for construction noise therefore if road traffic noise increases from construction is within 2 dB(A) of current levels then the objectives on the RNP are achieved.

A significant increase in traffic volumes would be needed in order to increase road traffic noise by 2 dB(A) (a doubling in traffic corresponds to an approximate 3 dB(A) increase). The additional traffic generated from the proposal would not be significant when compared with the daily existing vehicle numbers.

4.6 Air quality

4.6.1 Existing environment

Air quality

The proposal site is located in Coolamon township and is surrounded by a mixture of residential, public recreation, special purpose (train line), primary production and rural small holdings properties.

Sources of air pollution in the study area are likely to include:

- Emissions from vehicles on local roads
- Dust and emissions from train movements
- Dust from vehicles travelling on unsealed roads
- Dust from agricultural activities
- Dust and emissions from machinery undertaking steelworks
- Smoke from paddock stubble burn-off in agricultural areas, as well as from wood fires

Search results from the national pollutant inventory managed by DAWE (2020c) indicate there are no industrial facilities within the boundaries of the Coolamon postcode (2722) (see Appendix B).

The most commonly reported atmospheric emissions in the catchment are:

- Total nitrogen
- Total phosphorus.

Sensitive receivers

Sensitive receivers with the potential to be affected by air quality impacts during construction of the proposal include residents near the proposal site, Saint Michael's Primary School and

Coolamon Steelworks. The nearest residence is located within 20 meters of the proposal site (see Figure 1.1).

4.6.2 Potential impacts

Construction

During construction the following activities would potentially result in air quality impacts:

- Clearing of groundcover vegetation and trees
- Earthworks
- Stripping and stockpiling topsoil
- Transport and handling of soils and materials
- Use of construction vehicles, generating exhaust fumes.

Potential air quality impacts during construction would predominantly be from the generation of dust. Dust generation could result in health impacts to nearby receivers.

Given the nature, and short-term duration of the proposal , it is not expected that the proposal would cause significant air quality impacts at receivers.

Dust could be generated by construction vehicles accessing unsealed sections of the proposal site. The impacts of dust generation would be short-term, during the construction phase only and would be controlled using the safeguards detailed in Table 5-1.

Machinery and other construction vehicles would emit exhaust fumes. The impact of these emissions would be temporary in nature and limited to the construction phase.

Overall, potential air quality impacts during construction would be low and short-term.

4.7 Landscape and visual

4.7.1 Existing environment

The landscape character of the study area is generally defined by the train line, silo buildings, and commercial areas to the north, rural properties to the east and residential properties to the south and west.

The terrain of the study area is typically flat to gently undulating. The study area occurs within the Ardlethan Hills Mitchell Landscape, which comprises rolling hills and rises on Ordovician quartzose sandstone, greywacke, chert, and phyllite. This landscape typically contains stony red and brown texture-contrast soils merging to calcareous red earth on valley floors (Mitchell 2002). General elevation is 200 to 412 metres and local relief is 50 to 60 metres.

The proposal site occur on a mostly cleared and vacant lot containing mostly introduced groundcover vegetation, with some planted native, non-locally native and introduced trees and shrubs occurring intermittently, particularly along Wade Street. A small patch of native woodland occurs along Wade Street at the eastern end of the proposal site. The woodland is restricted to the immediate roadside, and is no more than 3-4 metres wide. It is isolated from other areas of woodland by the adjacent road and vacant lot.

Key sensitive receivers in the study area include residential properties south of Wade Street. The proposal site would also be visible for road users along other local roads in the study area (see Figure 1.1).

4.7.2 Potential impacts

Construction

Visual impacts during construction would generally be associated with:

- Plant and equipment
- Earthworks
- Stockpile site
- Vegetation removal

These have the potential to temporarily affect views for residents, the Coolamon Steelworks, and local road users. Saint Michal's Primary School is unlikely to be impacted to more than a minor extent due to its location being set back from the road with minimal views of potential construction.

Sensitive receivers would be affected by views of the proposal construction works, including earthworks, construction plant and equipment, stockpile site and vegetation removal.

The visual impacts of construction works would be relatively small-scale. It is anticipated that reinstatement of disturbed areas would reduce the visual impacts in the short to medium term after construction, and that the development of the currently disused lot would improve the visual aesthetic of the site

Operation

The construction of the proposal would potentially impact upon visual amenity, particularly for residential properties, Coolamon Steel works and local road users. The proposed industrial subdivision includes service lots to allow for the establishment of power lines, drainage paths, water mains and sewerage main, which would alter the visual feature of the road, in addition to the tree removal proposed. It is unlikely that the proposed changes would cause any substantial obstruction of existing views due to the minor nature of the changes and being located immediately adjacent to the existing road and between the railway in a vacant lot. As such, no positive aesthetic views would be lost by the establishment of the proposal.

The works will result in beneficial visual amenity outcomes as it proposes to undertake significant landscaping works to the Wade Street Development frontage. These works will serve to screen existing railway land and future development. The landscaping will also serve to mitigate against future industrial land use noise generation.

4.8 Traffic access

4.8.1 Existing environment

The proposal site is located along Wade Street in the centre of Coolamon. Wade Street runs east/west through Coolamon, crossing Cowabbie Street, (the main north/south road through the town) approximately 200 meters west of the proposal site. Wade Street changes to Canola Way approximately 50 metres to the west, one kilometre to the east, of the proposal site at the outskirts of Coolamon township. To the west, Canola Way connects Coolamon to the small townships of Ganmain (approximately 15 kilometres west) and onto Narrandera (approximately 60 kilometres west); to the east, Canola Way Connects Coolamon to Marrar (approximately 14 kilometres east) and onto Junee (approximately 39 kilometres north east). Cowabbie Street connects Coolamon to Wagga Wagga (approximately 35 kilometres south), and to Ardlethan (approximately 60 kilometres north west) and Temora (approximately 60 kilometres north east).

A number of residential roads intersect with Wade street along the length of the proposal site, including Methul Street (south), Bruce Street (south), Lewis Street (south), Jacaranda Avenue, Holden Street and Curtis Street. All roads in the study area are locally classified roads and are the responsibility or Council.

Wade Street, via Methul Street (south) and Bruce Street (south), provides a linking route to Saint Michaels Primary School, located approximately 250 meters south of the proposal site. Increased traffic movement on Wade Street is associated with and bus and staff movements, as well as parent's picking-up / dropping off children.

Council has noted that Wade Street has high traffic volume with large proportion heavy vehicles (trucks, farm machinery etc).Initial Council traffic counts obtained in May 2020 on Wade Street near St West near Iverach Street intersection identified ADT 1207, and 11 percent heavy vehicle usage. Subsequent traffic count data obtained by Council between 2 October and 12 October 2020 on Wade St West near Iverach Street intersection identified ADT 1406 and 54 percent heavy vehicle percentage. The high percentage of heavy vehicle usage in the October month is likely attributed to the commencement of the seasonal grain harvest and the subsequent generation of heavy vehicle (truck and tractor) movements this generates in a regional area.

4.8.2 Potential impacts

Construction impact

Construction of the proposal would be undertaken so that impacts to traffic would be minimised as much as possible.

The proposal would generate a number of heavy vehicle movements through transport of machinery, fuel, general provisions and materials across the duration of the project. Machinery is expected to remain on site for the duration of the proposal works.

Light vehicles would be required to transport staff to and from the proposal site. Light vehicles would also be used in various roles on site.

This number of vehicle movements generated by the proposal would be unlikely to significantly affect traffic on local roads.

Vehicle movements

The proposal would generate a number of heavy vehicle movements through the transport of machinery, fuel, general provisions and materials. The majority of vehicle movements would be for machinery access and the transport of materials to the site.

Heavy vehicle movements would primarily be confined to within the proposal site. Machinery would generally remain onsite until works are completed.

Light vehicles would be required to transport staff to and from the proposal site. Light vehicles would also be used in various roles on site, including traffic management and small deliveries.

Construction access management

Construction access to the proposal site would primarily be via Wade Street. From Coolamon township, access to Wade Street would be via Cowabbie Street and Coolamon Road. From Wagga Wagga, access would be via the Olympic Highway, Coolamon Road, Cowabbie Street. From Narrandera, access would be via the Newell Hwy and Canola Way. From Junee access would be via Old Junee Road, Goldfields Way, Broad Street, and Canola Way. From Temora access would be via Goldfields Way, Coolamon Road, Springwood Road, Rannock Road and Cowabbie Street.

Construction of the proposal would be undertaken so that impacts to traffic would be minimised as much as possible.

Property access

Property access would be maintained during the construction period with no changes made to accesses during operation (see Table 5-1).

Operational impacts

The development is located on Wade Street, a well used regional road under the authority of Council. The proposal once established would have permanent impacts to traffic flow through the ongoing use of the proposal site and subsequent generation of traffic.

The RTA Guide for Traffic Generating Development identifies that the peak traffic generation period for industrial land uses is generally determined by three key factors:

- employee density
- travel mode
- peak period travel distribution.

The employee density will vary with the industry type - from a low density at traditional warehouses to a high density at high-tech industrial developments, as peak period travel distribution varies with the type and extent of development.

Anticipated vehicle movement rates for single use developments, as per the RTA Guide for industrial development are:

- Daily vehicle trips equal five per 100 m^2 gross floor area
- Evening peak hour vehicle trips equal one per 100 m^2 gross floor area.

The anticipated maximum building footprint is anticipated to be 450 m^2 and as such, the estimated vehicle movements per day for each lot is 4.5 movements, which would result in about 95 traffic movements per day for the subdivision. Vehicle movements are anticipated to include cars, pantec trucks, service vehicles, and on occasion double trucks of a maximum of 30 metres in length. Wade Street, and the surrounding road network already experiences vehicle movements of these types, and is considered able to adequately handle the predicted increased vehicle movements generated by the proposal.

Wade Street and the surrounding road network will satisfactorily cater for any future light industrial developments without creating adverse or unacceptable impacts.

Parking, loading and unloading

The construction of the subdivided lots would involve the establishment of ample off-street parking. This would be prioritised during the development of the proposal as the provision of adequate off-street parking discourages on-street parking and subsequently maintains the existing level of service and safety of the existing road network. The subdivision will also result in the provision of kerb and gutter along the Wade Street Development frontage and there will be ample opportunity for on street parking if required.

All future developments of the site will be required to ensure compliance with the following development controls applying to Industrial Development, which are contained in the Coolamon Development Control Plan 2015:

- Vehicular entry and exit shall be in a forward direction, with vehicular access points located clear of rail crossings, roundabouts and intersections. Access points with inadequate sight distances should also be avoided

- Internal manoeuvring and parking areas shall be constructed to be hard-wearing and be provided with a dust-proof surface
- Internal parking spaces shall be clearly delineated
- The number of car parking spaces shall be determined in reference to the *NSW Roads and Maritime Services Guide to Traffic Generating Development* and *Australian Standard 2890 – Parking Facilities*. Any variation will be at the full discretion of Council
- The loading and unloading of delivery vehicles shall be contained wholly on site. All loading/ and unloading on public roads will not be permitted
- Subdivided allotments will be required, under individual development consents, to provide adequate parking, loading and unloading facilities on each allotment.

4.9 Socio-economic

4.9.1 Existing Environment

The proposal site is located at Coolamon, which at the time of the 2016 Census (ABS 2020) has a population of 2,199 people. The mean age was 42 with a median weekly household income of $1,304.

The 2016 Census (ABS 2020) provides the following core demographic data about Coolamon:

- At the time of the 2016 Census there were 2,199 people in the Coolamon
- The number of dwellings was 880, with an average number of people per household being 2.6
- The proportion of people aged 19 years or under was 28.1 per cent
- The proportion of people aged 60 years or older was 28.4 per cent.
- The median weekly household income was $1,304
- The proportion of households with two motor vehicles was 35.8 per cent.
- People of Aboriginal and/or Torres Strait Islander people descent comprised of 3.1 per cent of the population.

The top employment occupations for Coolamon (ABS 2020) are provided in Table 4-7.

Table 4-7: Top employment occupations for Coolamon

Industry	Number employed	Percentage of people employed
Professionals	123	17.0
Managers	149	16.6
Technical and trades	117	13.0
Community and person service	116	12.9
Labourers	92	10.2

Land uses in the study area are listed in section 4.3. Land use in the study area is characterised by residential, primary production, rural small holdings, public recreation zone, residential, special purpose, and light industrial land.

4.9.2 Potential impacts

During construction there would be a potential reduction in amenity for sensitive receivers as a result of construction activities. Potential impacts on amenity have been assessed in the following sections of the REF:

- Noise and vibration (section 4.5)
- Air quality (section 0)
- Visual (section 4.7).

No land acquisition would be required for the proposal with potential impacts on the community expected to be minimal.

Beneficial impacts

The proposal would provide the local community with increased light indusial land and support future growth in this sector within the community. The proposed subdivision will create opportunity for future development works which will generate positive economic benefit and result in employment opportunities for local and regional staff during the operational process of the completed future development. This would result in positive economic flow on effects to the local and regional economy and community.

4.10 Waste management

4.10.1 Policy setting

Council is committed to ensuring responsible management of unavoidable waste and to promoting the reuse of such waste through appropriate measures. This is done in accordance with the resource management hierarchy principles contained in the *Waste Avoidance and Resource Recovery Act 2001*. The resource management hierarchy principles in order of priority as outlined in the *Waste Avoidance and Resource Recovery Act 2001* are:

- Avoidance of unnecessary resource consumption
- Resource recovery (including reuse, reprocessing, recycling and energy recovery)
- Diversion of Green waste, metal waste and E-waste
- Disposal

By adopting the above principles, Council encourages the most efficient use of resources and reduces cost and environmental harm.

4.10.2 Potential impacts

The proposal is unlikely to generate large quantities of waste. Waste would potentially be generated from the following sources, some of which would be recycled or reused:

- Green waste from vegetation clearing (native and introduced vegetation). Priority weed material would be separated from native green waste
- Chemicals and oils
- Excess construction materials
- Redundant erosion and sediment controls
- Paper and office waste from site and management facilities
- General waste from staff (lunch packaging etc).

The proposal is not expected to generate low amounts of waste, as excavated soil from would be used as fill in other areas of the proposal where possible.

Potential waste would be classified in accordance with the '*Waste Classification Guidelines*' (EPA 2014) and disposed of at an approved materials recycling or waste disposal facility.

Liquid and solid waste would be removed by tanker or truck and disposed of off-site at a facility that is suitably licensed and able to accept those wastes for storage, reuse or disposal. Fuel and chemical storage areas would be bunded and protected in accordance with the specifications set out by DPIE and WorkCover.

Materials not reused would be removed to a licensed or approved waste facility. The impacts of waste generation at the site are considered to be low, and would be minimised.

4.11 Climate change

4.11.1 Policy setting

Climate change refers to the warming temperatures and altered climatic conditions associated with the concentration of greenhouse gases in the atmosphere. There is a need to understand climate change and the effect it could have on all existing and potential new projects and infrastructure. In NSW, responses to climate change are provided in various policy and guideline documents such as the *NSW Greenhouse Plan* (NSW Government 2005b).

The Intergovernmental Panel on Climate Change produces global climate change projections. In Australia both the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Bureau of Meteorology (BOM) have produced regional downscaled projections for Australia. In 2008 the NSW Government published refined climate change projections for each region in NSW. This work was carried out by researchers at the Climate Change Research Centre, University of New South Wales.

4.11.2 Existing environment

Existing climate

Coolamon's climate is classified as warm semi-arid, with a mean annual rainfall of 507.8 millimetres recorded from the Coolamon Post Office weather station (74033).

Rainfall is spread evenly throughout the year with June and July months having the highest monthly mean rainfall (BOM 2020).The mean annual maximum temperature for Coolamon is 22.2 degrees Celsius, with January being the warmest month, reaching a mean maximum of 31.9 degrees Celsius, and August being the coldest with an average monthly maximum of 14.5 degrees Celsius (at Wagga Wagga AMO weather station, 72150, BOM 2020).

Climate change

The former Department of Environment, Climate Change and Water (now DPIE), in partnership with the Climate Change Research Centre at the University of New South Wales, developed regional climate projections for NSW based on preliminary analyses of global modelling data. The projections have been developed for 'State Plan regions' throughout NSW (OEH 2014). The proposal occurs in the Murray Murrumbidgee Region, which includes the NSW side of the Murray River, as well as the Murrumbidgee and Lachlan Rivers.

By 2039, annual rainfall in the Murray Murrumbidgee Region is projected to increase in summer and autumn and decrease in spring. Severe fire weather is projected to increase across the region during spring and summer, and decrease during autumn.

Maximum temperatures are projected to increase in the near future by 0.4 to one degrees celsius and in the far future by 1.5 to 2.5 degrees celsius. The number of hot days is projected to increase, while the number of cold nights will decrease.

4.11.3 Potential impacts

Potential impacts of climate change on the proposal

Fluctuations in rainfall and temperature caused by climate change are expected to be variable in nature. There is the potential for climate change to cause short-term and long-term impacts. Impacts could therefore occur during both the construction and operation phases of the proposal.

Construction

Increases in temperatures may reduce work capacity and increase the risk of heat stress for site workers.

There may be impacts to various construction activities from climate change, such as increased temperatures interfering with road sealing activities.

There may be an increase in extreme weather events, such as intense rainfall interfering with construction timeframes or dry, hot weather conducive to generation of dust.

Increased summer rainfall may result in increased flooding and erosion risks at the site and associated sediment loss.

Operation

Increases in temperature may affect the integrity of the proposal infrastructure in the long-term. This may occur either directly or through evaporative changes in soil moisture content and soil instability, which in the long term may affect structures.

Changes in rainfall intensity may result in the following impacts in the long term:

- Increased potential for localised flooding
- Drainage and stormwater impacts
- Changes to flora and fauna species and distribution, including pest and weed species
- Erosion impacts, resulting in sediment loss from the site
- Watercourse impacts, including changes to channel structure and other characteristics near the proposal site resulting from changed hydrological conditions.

Potential impacts of the proposal on climate change

Construction

Impacts of the proposal on climate change during construction would include the release of the following greenhouse gases:

- Carbon dioxide may be generated from land clearing (decomposition of cleared vegetation)
- Carbon dioxide and nitrous oxide would be generated from liquid fuel use in plant and vehicles (diesel, petrol) during construction and disposal and transport of materials
- Methane would be released from landfilling any carbon based waste
- Various greenhouse gas emissions would be associated with the extraction and production of materials used in the construction of the proposal.

Operation

Maintenance activities would be undertaken for the proposal as necessary. Maintenance activities are expected to be infrequent and there would therefore be a negligible change in vehicle emissions resulting from maintenance activities for the proposal.

4.12 Demands on resources

4.12.1 Potential impacts

The proposal would require the use of a number of resources, including:

- Resources associated with the operation of construction machinery, and motor vehicles (this includes a variety of resources, the major one being diesel and petrol)
- Materials required for the construction of various components of the proposal including bedding and pipe encasement material (sand / cracker dust) for pipe installation culverts and pipes
- Construction water (for dust suppression). This would be likely sourced from the local potable supply.

The quantities of materials required for the proposal are detailed in section 0

The materials required during the proposed construction works are not currently restricted resources. However, materials such as metals and fuels are considered non-renewable and would be used conservatively.

Materials would be sourced from local and commercial suppliers, where possible. Excess materials would be disposed of in accordance with safeguards and management measures outlined in section 4.10.

4.13 Cumulative impacts

4.13.1 Existing environment

Developments in the locality with which the proposal has the potential to have cumulative impacts include:

- Maintenance of linear infrastructure projects including roads, powerlines and services that have been constructed in the study area and locality
- Clearing of residential lots to facilitate lot development and house construction resulting in the loss of native vegetation
- Subdivision of agricultural land into rural lifestyle blocks, resulting in the loss of native vegetation

There are no other known major developments occurring concurrently or planned in the locality.

5. Environmental management

This chapter describes how the proposal would be managed to reduce potential environmental impacts throughout construction and operation. A framework for managing the potential impacts is provided with reference to environmental management plans. The licence and/or approval requirements required before construction are identified.

5.1 Environmental management plan

A number of safeguards and management measures have been identified in order to minimise adverse environmental impacts, including social impacts, which could potentially arise as a result of the proposal. Should the proposal proceed, these management measures would be applied during the construction of the proposal.

A construction environmental management plan (CEMP) and relevant environmental sub-plans would be prepared to describe safeguards and management measures identified. These plans would provide a framework for establishing how these measures would be implemented and who would be responsible for their implementation.

The plans would be prepared by the Construction Contractor and approved by Council prior to commencement of construction of the proposal. The CEMP would be a working document, subject to ongoing change and updated as necessary to respond to specific requirements.

5.1.1 Construction environmental management plan

The key objective of the CEMP would be to ensure all environmental commitments made in this REF, and conditions imposed by any licences and approvals are implemented during construction. The CEMP would include the following information:

- Objectives of the CEMP
- Procedures to provide understanding for all personnel of the principles of environmental management
- List of approvals to be obtained before work commences
- Accountability (roles and responsibility of personnel)
- Management strategies to guide actions to make sure environmental obligations are met
- Detailed procedures to facilitate the implementation of appropriate environmental management measures
- An erosion and sediment control plan as a sub-plan within the CEMP
- Objectives for each area of potential environmental impact, based on a desirable outcome
- Actions for meeting environmental objectives based on the mitigation measures identified in this REF and any statutory or regulatory obligations
- Timing for the implementation of each action
- Procedures for management of emergencies and other unforeseen circumstances
- Consultation (government and community) and complaint handling procedures
- Monitoring plan to ascertain environmental performance and compliance with the CEMP
- An audit process to make sure the actions are carried out

- Strategies for positive feedback of information from the audit into the environmental objectives, actions and strategies of the CEMP so that experience can be used to improve environmental management practices
- List of relevant contacts.

5.2 Notifications, permits, approvals and licences

The following notifications, permits, approvals and/or licences are required:

- Landowners whose driveways, access, and visual amenity are likely to be impacted through road closure, private property impacts would be consulted prior to the commencement of construction.
- In the event that the proposal design or the requirement of works change, a consistency assessment should be undertaken to determine the need for any additional environmental assessment and/or mitigation and control measures.

5.3 Summary of proposal environmental mitigation measures

Environmental mitigation measures outlined in Table 5-1 would be incorporated into the detailed design phase of the proposal (pre-construction), during construction, and during operation of the proposal. These mitigation measures would minimise any potential adverse impacts arising from the proposal on the surrounding environment.

All mitigation measures described in this REF would be incorporated into the CEMP and made known to all project personnel and visitors by way of a site induction where relevant (ie site induction content should be tailored to individual tasks and purposes for being on site).

Table 5-1: Summary of safeguards and management measures.

Impact	Mitigation measure	Responsibility and timing
Soils, water quality, hydrology and groundwater		
Soil erosion, sedimentation and water quality	• A soil and water management plan will be prepared as part of the CEMP for the proposal in accordance with the *Blue Book - Soils and Construction - Managing Urban Stormwater Volume 1* (Landcom 2004) • The soil and water management plan will include but not be limited to: – A primary erosion and sedimentation control plan and a maintenance schedule for ongoing maintenance of temporary erosion and sediment controls – An incident emergency spill plan which will include measures to avoid spillages of fuels, chemicals, and fluids onto any surfaces or into any adjacent/nearby waterways. If considered necessary, an accredited soil conservationist may be engaged to provide advice during development and implementation of the soil and water management plan. The soil conservationist may regularly review and inspect works throughout the construction phase.	Project manager Pre-construction
Soil erosion and sedimentation	• Sediment and erosion controls will be installed before the commencement of earthworks • Erosion and sedimentation controls will be checked and maintained regularly during construction • High risk soil erosion activities such as earthworks will not be undertaken immediately before or during high rainfall or wind events. • The CEMP will nominate higher risk activities with regards to erosion and sedimentation and similarly, the CEMP will define a high rainfall and wind event. • Topsoil excavated at the proposal site will be stockpiled separately for reuse in landscaping and rehabilitation works • Erosion and sediment control measures will be maintained until the works are complete and areas are stabilised.	Project manager Construction
Soil and water contamination	• All fuels, chemicals, and liquids will be stored at least 50 metres away from any drainage lines in bunded fuel trailers and utility vehicles. If storage in the compound site is necessary, fuels, chemicals and liquids will be stored in an impervious bunded area with adequate storage capacity	Project manager Construction

Impact	Mitigation measure	Responsibility and timing
	• The refuelling of plant and planned maintenance of machinery and plant will be undertaken 50 metres away from waterways. The CEMP will include a refuelling procedure which will be implemented during any refuelling activities on site. • Visual monitoring of local water quality (i.e. turbidity, hydrocarbon spills/slicks) will be undertaken at regular frequencies to identify any potential spills or deficient erosion and sediment controls. A record will be kept of these inspections • Adequately stocked emergency spill kits will be kept on-site at all times • All staff will be inducted about incident and emergency procedures and made aware of the locations of emergency spill kits. • Should a spill occur during construction, the emergency spill plan will be implemented. The EPA will be notified as required under Part 5.7 of the POEO Act.	
Biodiversity		
Loss of native vegetation and fauna habitat	• All staff will be inducted and informed of the limits of vegetation clearing and the areas of vegetation to be retained. Areas of vegetation not to be removed will be clearly marked prior to construction • Temporary exclusion fencing will be erected to prevent encroachment and clearing of remnant vegetation beyond the construction footprint • Clearing of hollow-bearing trees and canopy trees would occur outside the main fauna breeding season where practicable i.e. construction to occur between January and August • Pre-clearing surveys would be completed for hollow-bearing trees. This involves the presence of a qualified ecologist or WIRES representative to be on site before, during and after the felling of hollow-bearing trees.	Council and Project manager Pre-construction
	• Pruning or lopping of limbs will be conducted in preference to tree removal wherever possible • Felled hollow-bearing trees will be left on site for at least 24 hours after felling to allow any resident fauna to relocate.	Council and Project manager Construction

Impact	Mitigation measure	Responsibility and timing
Spread of weeds	• Priority weed control measures will be implemented as part of the CEMP to prevent their spread in the study area • Declared priority weeds will be managed according to requirements under the NSW *Biosecurity Act 2015* • Soil disturbance will be avoided as much as possible to minimise the potential for spreading weeds and generating sediment.	Project manager Pre-construction and construction
Chemical and fuel impacts on native vegetation	• Any herbicides used for weed control will be applied to the manufacturer's specifications and as outlined in the manufacturers Safety Data Sheet • Broad spectrum non-selective herbicides (residual herbicides) will not be used. Herbicides selected for use will be appropriate for the species being treated • Spraying of herbicides will not be undertaken in windy weather or within such distance of a watercourse as will permit any of the herbicide to enter the water	Project manager Construction
Aboriginal heritage		
Potential impacts to unexpected finds	• The CEMP is to include an unexpected finds procedure to be implemented in the event of an unexpected find. • In the event of an unexpected find of an Aboriginal heritage item (or suspected item), all works in the vicinity of the find must cease and the site supervisor will be contacted immediately for advice on how to proceed • If the origin of the find cannot be determined quickly, or if it is determined that the find is of Aboriginal origin, immediately notify the following authorities or personnel of the discovery: – Biodiversity Conservation Division (BCD – formerly OEH) (Queanbeyan Office): ph. 131 555 or (02) 9995 5555 – Wagga Local Aboriginal Land Council (WALC): ph. (02) 6921 4095. • Facilitate, in co-operation with the appropriate authorities and WALC.	Council and Project manager Construction
Potential impacts to unexpected human remains	• Cease all ground surface disturbance in the area of the find(s) immediately by notifying machinery operators in the immediate vicinity of the find(s). Also avoid touching the discovered remains • Inform the site supervisor as soon as possible to organise for a qualified professional opinion (usually the police in the first instance)	Council and Project manager Construction

Impact	Mitigation measure	Responsibility and timing
	• Create a buffer zone of 50 metres by 50 metres around the find location. No authorised entry or earth disturbance will be allowed until the discovery has been assessed.	
Non-Aboriginal heritage		
Potential impacts to unexpected finds	• In the event of an unexpected find of a non-Aboriginal heritage item (or suspected item), all works in the vicinity of the find must cease and the site supervisor will be contacted immediately for advice on how to proceed • Works will not recommence until the heritage value and associated protection and any approval requirements have been determined • Council will notify EES if any item (or suspected item) of non-Aboriginal heritage is found during construction to determine the appropriate course of action.	Council and Construction Contractor Construction
Noise and vibration		
Construction noise and vibration impacts	• Works will be undertaken during normal work hours i.e. 7 am to 6 pm Monday to Friday; 8 to 1 pm Saturdays. No work will be undertaken on Sundays, Public Holidays or outside these work hours without notification to affected community. • Potentially impacted residences will be notified of construction prior to the commencement of works. Notification should include the following details: - The nature of the proposed works - The expected noise levels and duration • Site contact details	Council and Project manager Pre-construction
Construction noise from inappropriate practices	• Inductions for the work crew would include the specific noise issues and mitigation measures required for the site. The induction would include: – all relevant project specific and standard noise mitigation measures – relevant approval conditions – permissible hours of work	Project manager Construction

Impact	Mitigation measure	Responsibility and timing
	– location of nearest sensitive receivers – construction employee parking areas – designated loading/unloading areas and procedures – site opening/closing times (including deliveries) – behavioural practices including: – avoiding the use of outdoor radios when working outside the recommended standard hours – avoiding shouting and slamming doors – where practical, operating machines at low revs and switching off when not being used rather than left idling for prolonged periods – Minimise the use of compression braking when operating heavy vehicles – minimising reversing alarms.	
Construction noise impacts	• Where the predicted and/or measured construction noise is greater than the noise affected level, works would be conducted in accordance with the ICNG and all reasonable and feasible practices would be undertaken to minimise noise • Site setup and dismantling would occur during standard work hours, reducing noise impacts to sensitive receivers where possible. The site setup would seek to maximise the distance between plant and equipment and any residences and other noise sensitive receivers where practicable. For example, vehicle movements and generator storage would be located as far as possible from residences • Use quieter noise emitting construction methods where practicable • Machines found to produce excess noise compared to industry best practice would be removed from the site or stood down until repairs or modifications can be made • Ensure that truck compression braking is minimised when entering or leaving the work sites or work areas adjacent to residential properties and on construction traffic routes (include in induction package) Any noise complaints would be addressed immediately in accordance with a standard resolution procedure (as documented in the CEMP). Property owners/occupiers potentially impacted by the construction works would be informed in advance of the proposed work and provided a contact phone number for any complaints or concerns during the construction period.	Project manager Construction

Impact	Mitigation measure	Responsibility and timing
Land use disruption	Affected landowners and stakeholders, including Saint Michael's Primary School, Saint Michael's Catholic Church and Coolamon Steelworks will be consulted on an ongoing basis regarding the status and timing of construction.	Pre-construction and construction Council
Air quality		
General air quality impacts	Construction activities will be managed to minimise the emission of dust, smoke, and other substances.	Project manager Construction
Dust	• Air quality impacts relating to dust generated by construction vehicles will be visually monitored • Exposed unsealed surfaces will be watered regularly to minimise dust emissions, if required • The CEMP will include a wind speed trigger level which will require assessment of construction activities, ensuring the potential for dust emissions are considered. Construction activities likely to result in dust generation will cease until appropriate controls (dust suppression) can be implemented • Stabilisation of disturbed surfaces will take place as soon as practicable • Areas that may generate dust will be managed to suppress dust emissions.	Project manager Construction
Other emissions	• Plant and machinery will be turned off when not in use as much as possible and will be fitted with emission control devices complying with Australian Design Standards • Construction plant and equipment will be maintained in a good working condition in order to limit impacts on air quality. Plant maintenance and operational checks will be documented on the plant and machinery daily pre-start checks • No burning of any materials will occur • During transportation, loads will be adequately covered.	Project manager Construction
Landscape and visual		
Visual impacts of proposal	• The footprint for construction works will be kept to a minimum to minimise earthworks and maintain existing vegetation wherever possible	Pre-construction and construction

Impact	Mitigation measure	Responsibility and timing
	• Sites disturbed by earthworks will be rehabilitated as soon as possible after construction.	Council and contractor
Visual impacts of construction works	The work site will be left in a tidy manner at the end of each work day.	Construction Contractor
Traffic and access		
Construction impacts to traffic and property access	All property accesses would be maintained throughout the construction period.	Construction Contractor
Socio-economic		
General impacts to properties	Potentially affected property owners, including the local school, will be contacted before the commencement of works. Residents will be notified via a letter box drop providing information on the proposed works, working hours and a contact name and number should any complaints wish to be registered.	Council Pre-construction and construction
Waste management		
General waste impacts	A waste management plan will be included in the CEMP.	Pre-construction Contractor
General waste impacts	• Resource management hierarchy principles will be followed: – Avoid unnecessary resource consumption as a priority – Recover resources as far as is practicable (including reuse of materials, reprocessing, and recycling and energy recovery) – Disposal is undertaken as a last resort (in accordance with the *Waste Avoidance and Resource Recovery Act 2001*). • Site inductions will be undertaken (and recorded) by a site supervisor for all staff, to provide a thorough knowledge of all key environmental/safety issues, including waste disposal protocols	Pre-construction and construction Contractor

Impact	Mitigation measure	Responsibility and timing
	• Wastes will be managed and classified in accordance with the *Waste Classification Guidelines* (EPA 2014) and managed in accordance with the POEO Act • All waste will be disposed of at appropriately approved and licensed facilities • Garbage receptacles will be provided and recycling of materials encouraged. Rubbish will be transported to an appropriate waste disposal facility. • Where appropriate, excess materials will be disposed of according to the following (in order): – Use remaining materials as directed by Council and Contractor – Disposal at an approved materials recycling or waste disposal facility – As otherwise provided for by the relevant waste legislation. Waste material will not be left on site once the works have been completed.	
Climate change		
Greenhouse emissions	• Delivery of materials with full loads would be undertaken from local suppliers where possible • Appropriately sized construction equipment, plant and vehicles would be used • Regular servicing of equipment would be undertaken to maintain optimal performance, and to minimise down time (which can improve overall efficiency) • Investigation of alternative fuels and power sources would be undertaken and implemented, where appropriate • Material and waste supply and departure scheduling would be undertaken to optimise full loads and minimise required vehicle trips • Clearing of vegetation would be minimised where feasible.	Construction Contractor
Resource consumption	• The procurement of materials would be limited to the quantities required for the proposal • Procurement would endeavour to use materials and products with a recycled content where that material or product is cost and performance effective.	Project manager Construction

6. Conclusion

This chapter provides the justification for the proposal taking into account its biophysical, social and economic impacts, the suitability of the site and whether or not the proposal is in the public interest. The proposal is also considered in the context of the objectives of the EP&A Act, including the principles of ecologically sustainable development as defined in schedule 2 of the *Environmental Planning and Assessment Regulation 2000*. provide light industrial land to service the communities.

6.1 Justification

The proposal is required to increase the light industrial land availability in Coolamon to support the growing small business industry and reduce the potential for land use conflict in the future. The works would include subdivision of approximately seven hectares of undeveloped land into 21 industrial lots, and additional service blocks.

There would be a number of adverse environmental impacts as a consequence of the proposal. These impacts are mostly considered short-term, being directly related to construction activities.

The primary impacts during construction include:

- Removal of about 6.68 hectares of vegetation (native and non-native), of which 0.36 hectares of the threatened ecological community Grey Box Woodland as listed under the BC Act, including trees and associated groundcover dominated by introduced species
- Removal of about 55 trees in total from the proposal site, scattered along the length of the alignment (and potentially 34 trees from the roadside
- Potential for soil erosion and water quality impacts during construction
- Potential construction noise impacts on nearby residences
- Potential for a reduction in air quality caused by the generation of dust during construction
- Other changes in amenity and environmental risks including visual impacts and waste.

Due to the relatively small scale of the proposal and the proposed design measures and safeguards, the proposal would be unlikely to cause significant environmental impacts during construction.

Where possible, impacts would be avoided or minimised through the implementation of site-specific safeguards. The proposal is unlikely to have a significant long-term impact on the environment or the community. On balance, it is considered that the adverse environmental impacts of the proposal are outweighed by the benefit of the proposal and that the proposal is therefore justified.

6.2 Objects of the EP&A Act

The objects of the EP&A Act and relevance to the proposal are listed in Table 6-1.

Table 6-1: Objects of the EP&A Act

Object	Comment
5(a)(i) To encourage the proper management, development and conservation of natural and artificial resources, including agricultural land,	The proposal would potentially remove 6.68 hectares of vegetation (native and non-native), including 0.36 hectares of endangered ecological community of Grey

Object	Comment
natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment.	Box Woodland. The proposal could potentially cause the further spread of weeds in the study area. The proposal has the potential to cause impacts to sensitive receivers in the study area during construction through noise and generation of dust.
5(a)(ii) To encourage the promotion and co-ordination of the orderly economic use and development of land.	Council is undertaking consultation and environmental assessments required to properly plan and develop the proposal without undue impacts to the local economy.
5(a)(iii) To encourage the protection, provision and co-ordination of communication and utility services.	Communications utility services exist in the vicinity of the proposal, as detailed in section 2.6. Council would locate the services prior to construction to ensure they are avoided and not impacted on.
5(a)(iv) To encourage the provision of land for public purposes.	The proposal would not impact on any land used for public purposes.
5(a)(v) To encourage the provision and co-ordination of community services and facilities.	The proposal is unlikely to affect the use of community facilities by the public.
5(a)(vi) To encourage the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats.	The proposal would remove 0.36 hectares from the endangered ecological community of Grey Box Woodland, including trees and associated groundcover dominated by introduced species. The proposal could potentially cause the spread of weeds in the study area. The proposal would be unlikely to have a significant impact on any listed species, population or ecological community.
5(a)(vii) To encourage ecologically sustainable development.	Ecologically sustainable development is considered in Sections 8.2.1 – 8.2.4 below.
5(a)(viii) To encourage the provision and maintenance of affordable housing.	Not relevant to the project.
5(b) To promote the sharing of the responsibility for environmental planning between different levels of government in the State.	Not relevant to the project.
5(c) To provide increased opportunity for public involvement and participation in environmental planning and assessment.	Council will undertake community liaison with affected parties as part of the proposal, including nearby residents and schools. Potential issues arising from the proposal have been addressed during the environmental planning and assessment process.

6.3 Conclusion summary

The proposal is subject to assessment under Part 5 of the EP&A Act. The REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity.

The main adverse effects of the proposal would include:

- Potential to impact on biodiversity due to the removal of native and introduced planted vegetation along the road reserve
- Potential for soil erosion and water quality impacts during construction
- Construction noise impacts on residents adjacent to the proposal site

- Potential for a reduction in air quality caused by the generation of dust emissions during construction
- A range of other changes in amenity and environmental risks including visual impactsand waste.

Adverse environmental effects would be minimised through the implementation of mitigation measures outlined in this REF.

The proposal would have the following beneficial effects:

- Increased business opportunities for the shire
- Allow for industrial development and appropriately zoned land

On balance, it is considered that the adverse environmental impacts of the proposal are outweighed by the beneficial effects and that the proposal is therefore justified.

The proposal would be unlikely to cause a significant impact on the environment. Therefore it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Public Spaces under Part 5.1 of the EP&A Act. A Biodiversity Development Assessment Report or Species Impact Statement is not required. The proposal is subject to assessment under Division 5.1 of the EP&A Act. Consent from Council is not required.

The proposal is not likely to have a significant impact on matters of national environmental significance or the environment of Commonwealth land within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999*. A referral to the Australian Government Department of Agriculture, Water and Environment is not required.

7. References

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Appendices

Appendix A – Consideration of clause 228 (2) factors and matters of national environmental significance

Clause 228(2) factors

In addition to the requirements of the guideline 'Is an EIS required?' as detailed in the REF, the following factors, listed in clause 228(2) of the Environmental Planning and Assessment Regulation 2000, have also been considered to assess the likely impacts of the proposal on the natural and built environment.

Factor	Impact
a. Any environmental impact on a community?	
Residences in the study area would potentially be affected during construction by noise from construction, machinery and vehicles as well as air quality impacts through generation of dust. Visual impacts would occur from earthworks and machinery. These impacts would be short-term and would be minimised through the implementation of safeguards detailed in section 5.	Short-term minor negative.
The construction of the proposal would have low long-term visual impacts through the removal of vegetation, establishment of drainage lines, power lines, drainage paths, water mains and sewerage mains, and associated works such as block levelling. These impacts would be minimised by retaining vegetation wherever practicable and rehabilitating the proposal site following construction.	Long-term minor negative
The proposal would benefit the community by providing additional light industrial land blocks for the growing small business industry and reduce the potential for land use conflict in the future.	Long-term positive
b. Any transformation of a locality?	
The construction of the proposal would have major long-term visual impacts through the vegetation clearance, excavation of the site and installation of drainage lines. These impacts would be minimised by retaining vegetation wherever practicable and rehabilitating the proposal site following construction.	Short term minor negative impact. Long term positive impact
c. Any environmental impact on the ecosystems of the locality?	
The proposal would potentially remove all onsite and road side vegetation, composed of: 5.72 hectares of introduced grassland, 0.36 hectares of remnant Grey Box woodland and 0.6 hectares of planted non local trees and introduced grassland in roadside. The proposal could potentially cause the further spread of weeds in the study area. Safeguards to minimise impacts would be implemented as described in section 4.13. The proposal would be unlikely to have a significant impact.	Long-term minor negative
d. Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?	
Residences in the study area would potentially be affected during construction by construction impacts as detailed in (a) above.	Short-term minor negative
e. Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?	

The proposal is unlikely to impact on any sites with potential heritage or other social values. Safeguards to avoid or minimise impacts on heritage would be implemented as detailed in sections 4.3 and 4.4.	To be confirmed
f. Any impact on the habitat of protected fauna (within the meaning of the National Parks and Wildlife Act 1974)?	
Given the lack of suitable permanent and potential habitat for fauna species, it is unlikely that fauna will reliably occur at the site or be impacted by changes in the acoustic environment of the area. Impacts during construction would be short-term and temporary, and would be unlikely to deter fauna from using the study area in the long term. Safeguards would be implemented as described in section 5.3.	Long-term minor negative
g. Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?	
The proposal would remove a small amount of introduced grassland. The proposal could potentially cause the spread of weeds in the study area. The proposal would be unlikely to endanger any species of animal, plant or other form of life. Safeguards to minimise impacts would be implemented as described in section in section section 5.3.	Minor
h. Any long-term effects on the environment?	
The proposal could potentially cause minor long-term ecological impacts as described in (g) above.	Minor
i. Any degradation of the quality of the environment?	
Residences in the study area could potentially be affected by construction impacts as described in (a) above.	Short-term minor negative
The proposal would have a minor impact on the quality of the environment through the ecological impacts described in (g) above.	Long-term minor negative
j. Any risk to the safety of the environment?	
There is potential for safety to be reduced during the construction of the proposal. Traffic management safeguards described in section 5.3 would address safety risks in relation to work near roads and rail. Standard safety measures would be implemented to restrict public access to the proposal site during construction.	Short-term minor negative
k. Any reduction in the range of beneficial uses of the environment?	
The proposal would not require any land acquisition. The proposal would not result in any reduction to the range of beneficial uses of the environment.	Nil
l. Any pollution of the environment?	
Wade Street residences and businesses located potentially be affected by construction impacts as described in (a) above.	Short-term minor negative
During construction the proposal could potentially result in soil and water pollution, including pollution of the drainage lines in the study area. Pollution could result from sedimentation or chemical and fuel spills. Management of soil and water quality impacts would be undertaken in accordance with the safeguards outlined in section 5.3.	Short-term minor negative
Waste generated during construction could also pollute the environment. Waste would be managed in accordance with the safeguards outlined in section 5.3.	Short-term minor negative

m. Any environmental problems associated with the disposal of waste?	
The proposal would be unlikely to generate contaminated waste during construction. Other waste streams generated during construction are common and would pose no difficulty in their disposal. Waste would be recycled wherever possible. Waste would be managed in accordance with the safeguards outlined in section 5.3.	Nil
n. Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?	
All resources required for the proposal are readily available and are not in short supply.	Nil
o. Any cumulative environmental effect with other existing or likely future activities?	
The cumulative effects of the proposal are discussed in section 5.3. Short-term cumulative impacts relate to soils and water quality, visual amenity and air quality impacts. The proposal would be likely to have relatively minor cumulative impacts in relation to these factors.	Short-term minor negative
Long-term cumulative impacts relate to biodiversity and land use impacts. The proposal would be likely to have relatively minor cumulative impacts in relation to these factors.	Long-term minor negative
p. Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?	
The proposal is not located within a coastal area, and would not cause any impact on coastal processes and coastal hazards.	Nil

Matters of national environmental significance

Factor	Impact
a. Any impact on a World Heritage property?	
The proposal would not have any impact on a World Heritage property. There are no World Heritage properties within 10 kilometres of the proposal.	Nil
b. Any impact on a National Heritage place?	
The proposal would not have any impact on a National Heritage place. There are no National Heritage places located within 10 kilometres of the proposal.	Nil
c. Any impact on a wetland of international importance?	
The proposal would not have any impact on a wetland of international importance.	Nil
d. Any impact on listed threatened species or communities?	
The proposal would not have an impact on any listed threatened species or communities due to the limited vegetation removal required. Safeguards would be implemented as described Table 5-1.	Minor
e. Any impacts on listed migratory species?	
The proposal is unlikely to affect any species listed as migratory under the EPBC Act.	Nil

Factor	Impact
f. Any impact on a Commonwealth marine area?	
The proposal is not located near a marine area and would be unlikely to have an impact on a marine area.	Nil
g. Does the proposal involve a nuclear action (including uranium mining)?	
The proposal does not involve a nuclear action.	Nil
h. Any impact on the Great Barrier Reef Marine Park?	
The proposal would not result in any impacts to the Great Barrier Reef Marine Park due to its distance from the park.	Nil
i. Any environmental impact on a water resource, in relation to coal seam gas development and large coal mining development?	
The proposal is not a coal seam gas or large coal mining development.	Nil
j. Additionally, any impact (direct or indirect) on Commonwealth land?	
The proposal is located near the following Commonwealth Land: The proposal would be unlikely to have an impact on these Commonwealth lands.	Nil
k. The environment, where Commonwealth agencies are proposing to take action?	
Council is not a Commonwealth agency.	Nil

Appendix B – Database searches

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : REF Coolamon 500m

Client Service ID : 532905

GHD Wagga Wagga

161/169 Baylis St
Wagga Wagga New South Wales 2650

Attention: Ashleigh Edmond

Email: ashleigh.edmond@ghd.com

Date: 03 September 2020

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -34.8159, 147.2022 - Lat, Long To : -34.8137, 147.2134 with a Buffer of 200 meters, conducted by Ashleigh Edmond on 03 September 2020.

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 the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

1	**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 (http://www.nsw.gov.au/gazette) website. Gazettal notices published prior to 2001 can be obtained from Office of Environment and Heritage's Aboriginal Heritage Information Unit 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 Office of Environment and Heritage 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.

3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

Search Results

No results found.

Enter at least one search criterion.

Search Hints

Search Reset form

Place name

Street name
wade st

Town or suburb
coolamon

State
New South Wales

Country
Australia

Advanced search options

List
All Lists

Different lists will provide different status and class options

Local Government Area

Place ID number

Legal status
--All--

Class
--All--

Keyword Search

Description Statement of Significance Place history

Latitude/Longitude

N

Latitude 1

Longitude 1 S Longitude 2

W E Latitude 2 E **E**

S

S

Wholly within region
Wholly or partially within region

Longitude coordinates should be entered as ddd.mm.ss
Latitude coordinates should be entered as dd.mm.ss

Map Ref No

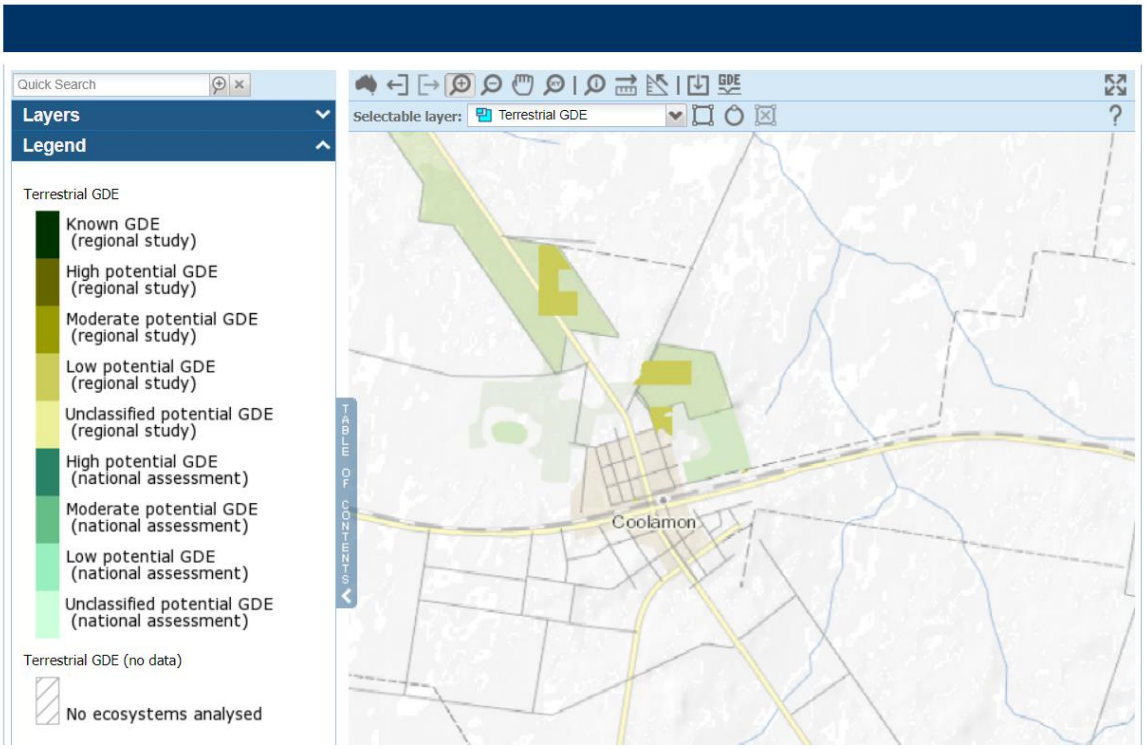
1:100,000 eg 2357
1:250,000 eg SF-50-01

Search Hints

- Not all fields need to be filled in. The fewer you fill in the more results you will get.
- If you cannot find a place, check spelling and try alternative names. Reduce the number of words that you include and use fewer fields.
- The Local Government field used on its own will provide a comprehensive list of places in an area.

Report Produced: Thu Sep 3 16:14:28 2020

Groundwater Dependent Ecosystems Atlas



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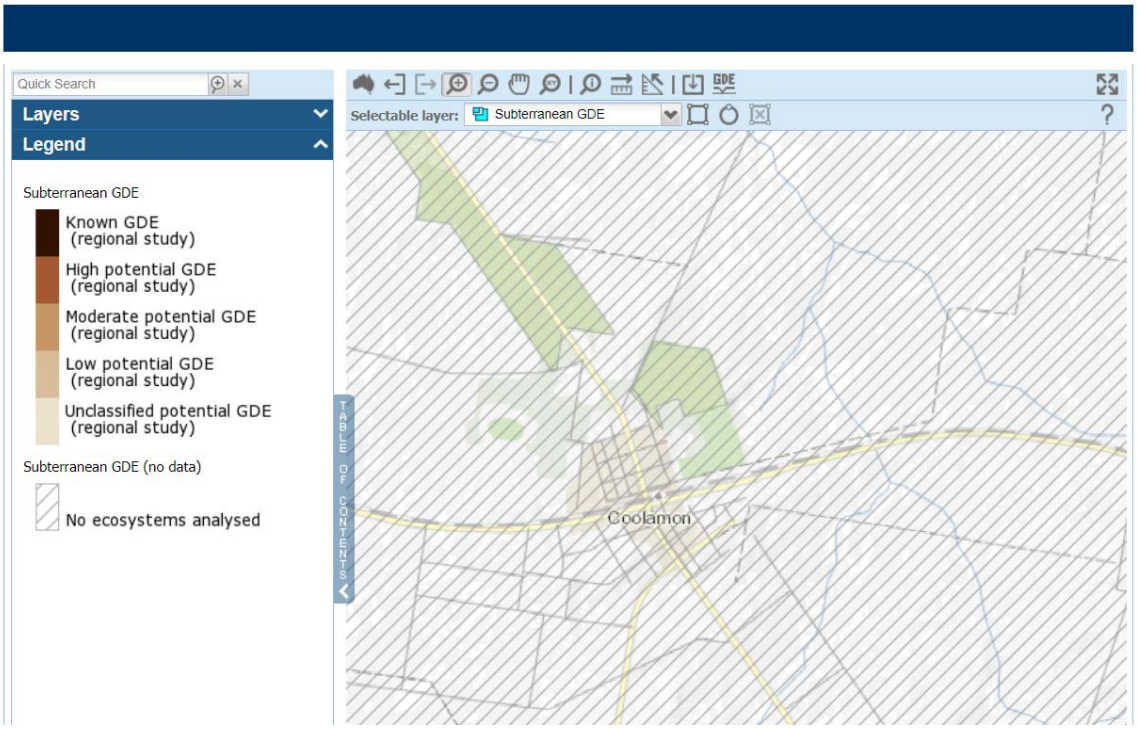
Bureau Home » Water Information » Groundwater Information » GDE Atlas

Groundwater Dependent Ecosystems Atlas

About | FAQ | Feedback



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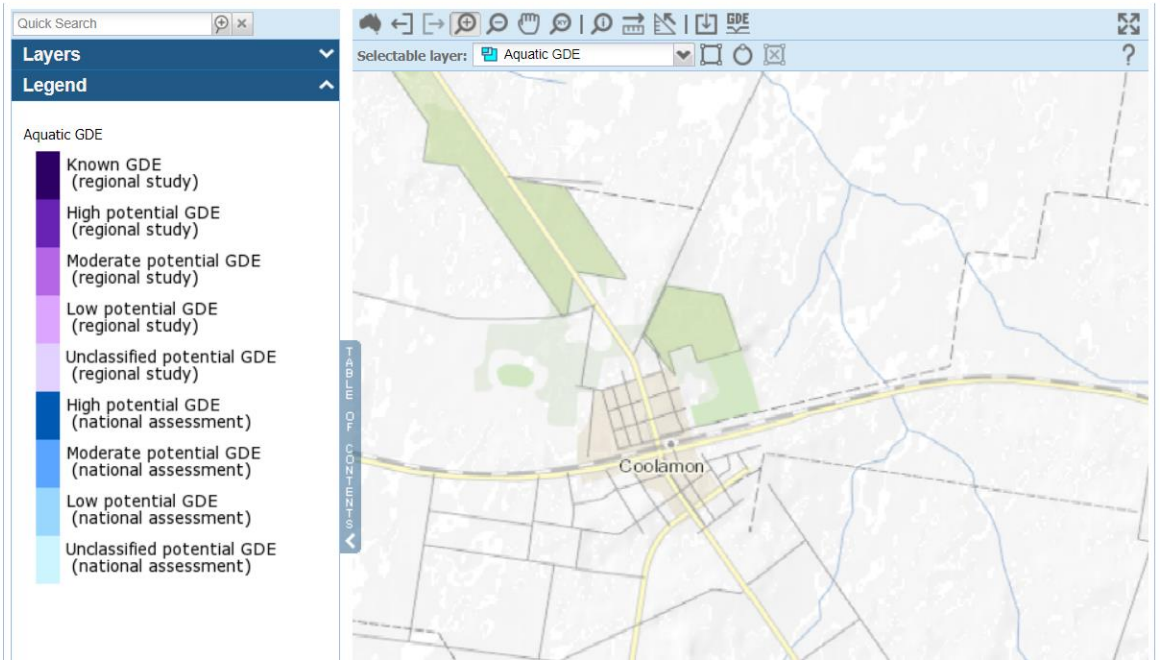

Home Contaminated land Record of notices

Search results

Your search for:LGA: COOLAMON SHIRE COUNCIL

Search Again
Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under

For

the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

3 September 2020

business and industry

For local government

Contact us

- 131 555 (tel:131555)
- Online (https://yoursay.epa.nsw.gov.au/epa-website-feedback)
- info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)
- EPA Office Locations (https://www.epa.nsw.gov.au/about-us/contact-us/locations)

Home Contaminated land Record of notices

Search results

Your search for:LGA: COOLAMON SHIRE COUNCIL

Search Again
Refine Search

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- Contamination at the site may be being managed under the planning process.

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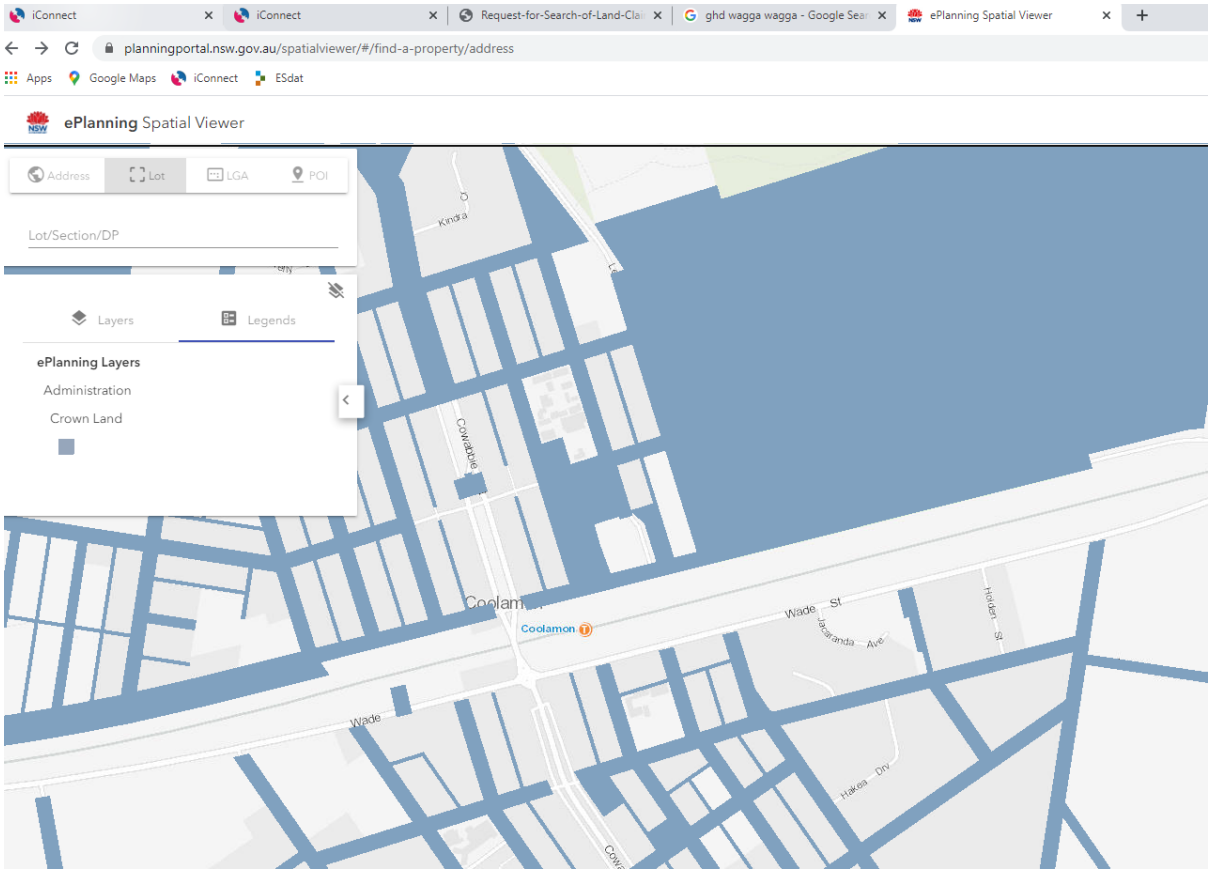
For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Layers
Legends
ePlanning Layers
Administration
Crown Land
Kindra
Cowabbie
Coolamon
Wade St
Jacaranda Ave
Holder St
Wade
Hakea Dr

ePlanning Spatial Viewer

User Guide

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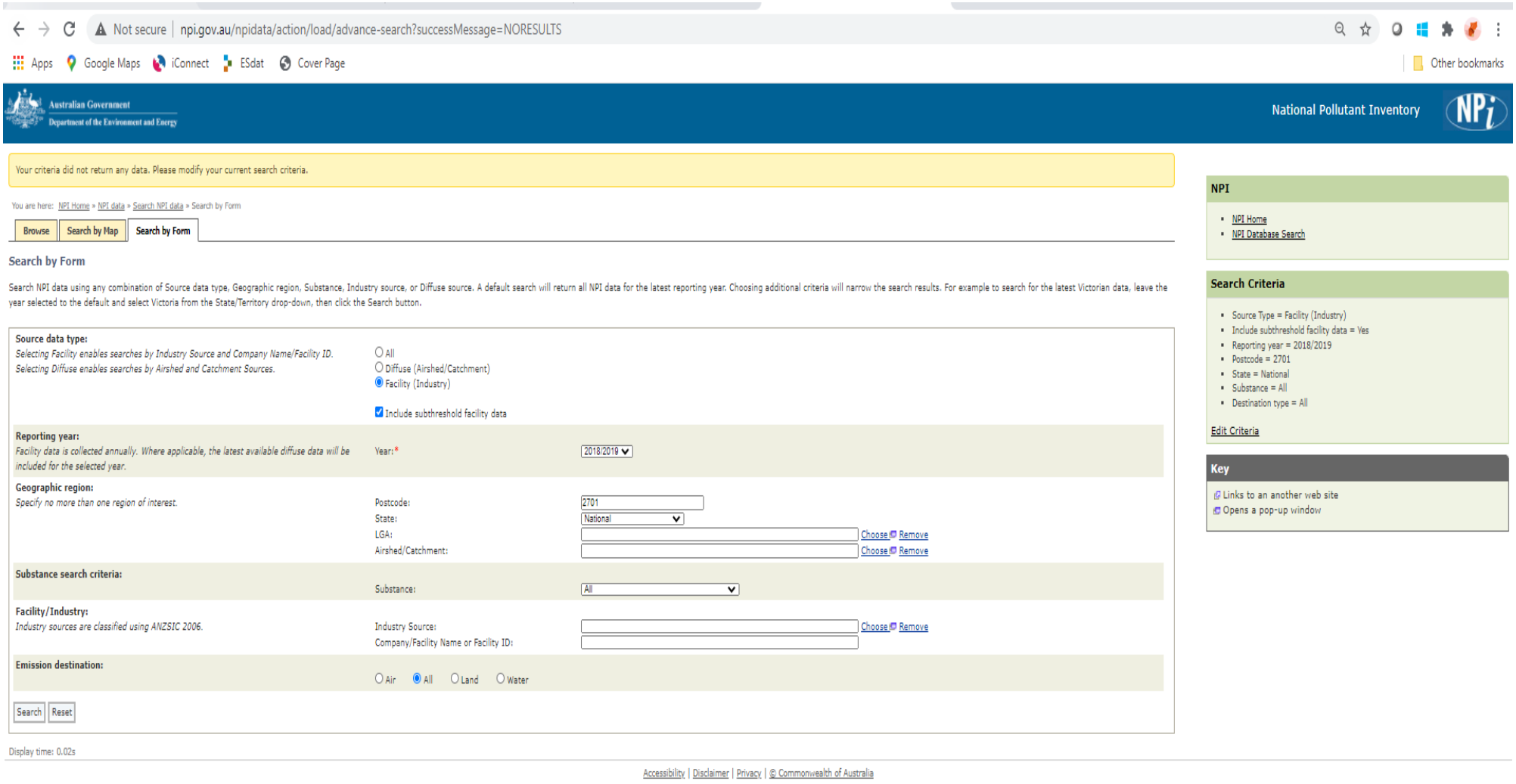
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National Pollutant Inventory
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Facility (Industry)
Include subthreshold facility data
Reporting year:
Facility data is collected annually. Where applicable, the latest available diffuse data will be included for the selected year.
Year:*
2018/2019
Geographic region:
Specify no more than one region of interest.
Postcode:
2701
State:
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Airshed/Catchment:
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Substance search criteria:
Substance:
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Facility/Industry:
Industry sources are classified using ANZSIC 2006.
Industry Source:
Choose
Remove
Company/Facility Name or Facility ID:
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All
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Water
Search
Reset
Display time: 0.02s
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Search Criteria
Source Type = Facility (Industry)
Include subthreshold facility data = Yes
Reporting year = 2018/2019
Postcode = 2701
State = National
Substance = All
Destination type = All
Edit Criteria
Key
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Australian Government
Department of the Environment and Energy

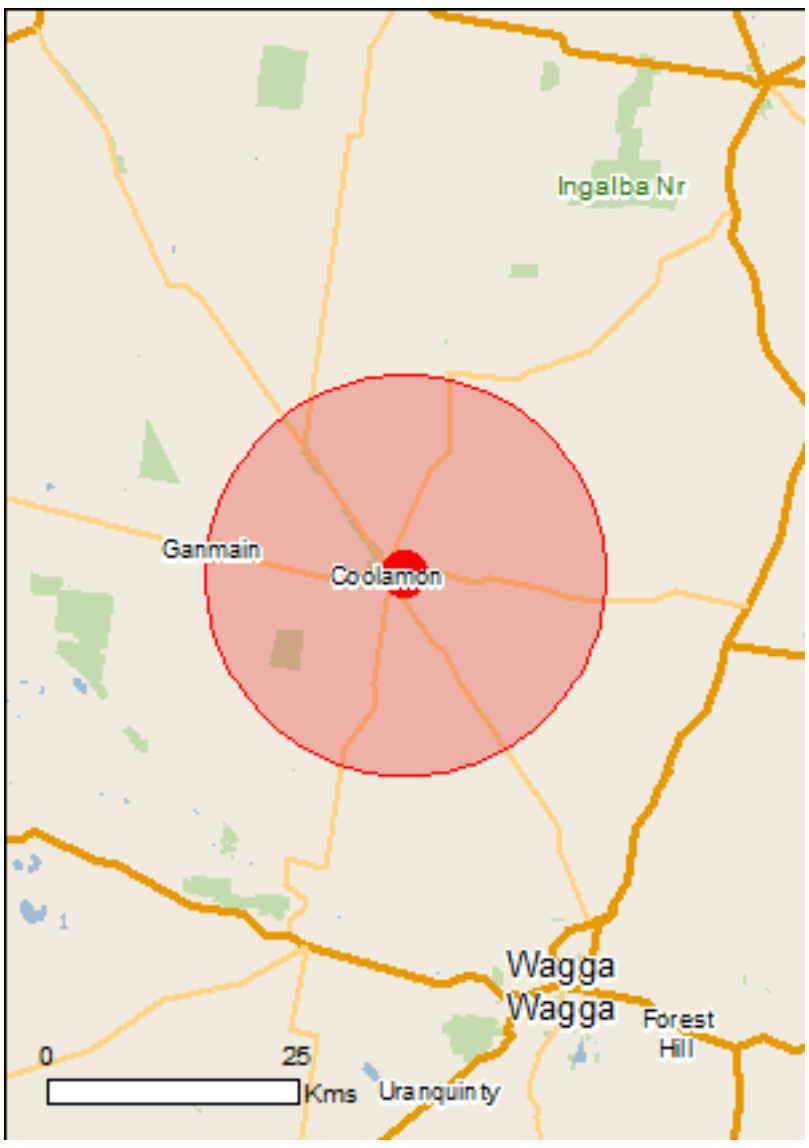
EPBC Act Protected Matters Report

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

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

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

Report created: 18/06/20 13:22:56



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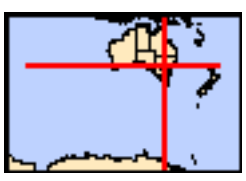

Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	22
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	3
Commonwealth Heritage Places:	None
Listed Marine Species:	17
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	20
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Banrock station wetland complex	600 - 700km upstream
Hattah-kulkyne lakes	400 - 500km upstream
Riverland	500 - 600km upstream
The coorong, and lakes alexandrina and albert wetland	600 - 700km upstream

Listed Threatened Ecological Communities		[Resource Information]

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

Name	Status	Type of Presence
	Critically Endangered	Community likely to occur within area
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community may occur within area

Listed Threatened Species		[Resource Information]
Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour may occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Leipoa ocellata Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within

Name	Status	Type of Presence
		area
Polytelis swainsonii		
Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area
Rostratula australis		
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
Galaxias rostratus		
Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area
Maccullochella peelii		
Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area
Macquaria australasica		
Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Frogs		
Litoria raniformis		
Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828]	Vulnerable	Species or species habitat likely to occur within area
Mammals		
Nyctophilus corbeni		
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)		
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat may occur within area
Pteropus poliocephalus		
Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Plants		
Austrostipa wakoolica		
[66623]	Endangered	Species or species habitat may occur within area
Caladenia arenaria		
Sand-hill Spider-orchid [9275]	Endangered	Species or species habitat may occur within area
Swainsona murrayana		
Slender Darling-pea, Slender Swainson, Murray Swainson-pea [6765]	Vulnerable	Species or species habitat likely to occur within area
Tylophora linearis		
[55231]	Endangered	Species or species habitat may occur within area
Reptiles		
Aprasia parapulchella		
Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		

Name	Threatened	Type of Presence
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

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

Name
Commonwealth Land - Australian Telecommunications Commission
Commonwealth Land - Australian Telecommunications Corporation
Commonwealth Land - Telstra Corporation Limited

Listed Marine Species [Resource Information]

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

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat likely to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Extra Information

Invasive Species [Resource Information]

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

Name	Status	Type of Presence
Birds		
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Solanum elaeagnifolium Silver Nightshade, Silver-leaved Nightshade, White Horse Nettle, Silver-leaf Nightshade, Tomato Weed, White Nightshade, Bull-nettle, Prairie-berry, Satansbos, Silver-leaf Bitter-apple, Silverleaf-nettle, Trompillo [12323]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-34.8134 147.21474

Acknowledgements

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

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

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

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

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Canberra ACT 2601 Australia
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Heritage NSW

Search for NSW Heritage

Return to search page where you can refine/broaden your search.

Statutory listed items

Information and items listed in the State Heritage Inventory come from a number of sources. This means that there may be several entries for the same heritage item in the database. For clarity, the search results have been divided into three sections.

- **Section 1** - contains Aboriginal Places declared by the **Minister for the Environment** under the National Parks and Wildlife Act. This information is provided by Heritage NSW.
- **Section 2** - contains heritage items listed by the **Heritage Council of NSW** under the Heritage Act. This includes listing on the State Heritage Register, an Interim Heritage Order or protected under section 136 of the Heritage Act. This information is provided by Heritage NSW.
- **Section 3** - contains items listed by **local councils** on Local Environmental Plans under the Environmental Planning and Assessment Act and **State government agencies** under s.170 of the Heritage Act. This information is provided by local councils and State government agencies.

Section 1. Aboriginal Places listed under the National Parks and Wildlife Act.

Your search did not return any matching results.

Section 2. Items listed under the Heritage Act.

Your search returned 1 record.

Item name ▲	Address	Suburb	LGA	SHR
Up-To-Date Store and Garth Jones Collection of farm machinery	127-129 Cowabbie Street	Coolamon	Coolamon	01761

Section 3. Items listed by Local Government and State Agencies.

Your search returned 26 records.

Item name ▲	Address	Suburb	LGA	Information source
Convent	56 Bruce Street	Coolamon	Coolamon	LGOV
Coolamon Hospital (former)	53-55 Wade Street	Coolamon	Coolamon	LGOV
Coolamon Hotel	Cnr Wade & Cowabbie Streets	Coolamon	Coolamon	LGOV
Coolamon Police Station and Lockup Residence	56 Loughman Street, Corner Methul Street	Coolamon	Coolamon	SGOV
Coolamon Post Office	88 Cowabbie Street	Coolamon	Coolamon	LGOV
Coolamon Railway Precinct		Coolamon	Coolamon	SGOV
Coolamon Railway Precinct		Coolamon	Coolamon	SGOV
Coolamon Shire Council Hall	55 Cowabbie Street	Coolamon	Coolamon	LGOV
Courthouse	Methul	Coolamon	Coolamon	LGOV
Cowabbie Street Conservation Area		Coolamon	Coolamon	LGOV
Crane	Mann Street,	Coolamon	Coolamon	LGOV
Fire Station	Cowabbie Street	Coolamon	Coolamon	LGOV
Old Coolamon Hospital	Cowabbie Street	Coolamon	Coolamon	LGOV
Old Methodist Church	37 Loughnan	Coolamon	Coolamon	LGOV
Platform and Station - Railway Station	Wade Street	Coolamon	Coolamon	LGOV
Police Station	56 Loughnan Street	Coolamon	Coolamon	LGOV
Residence (Uniting Church Precinct)	36 Loughnan Street	Coolamon	Coolamon	LGOV
Residence-St Andrew's Anglican Church	71 Mirrool Street	Coolamon	Coolamon	LGOV
RSL Building	Loughnan Street	Coolamon	Coolamon	LGOV

St Andrews Anglican Church (& Hall)	Wade Street	Coolamon	Coolamon	LGOV
St Michael's Catholic Church Presbytery	Methul Street	Coolamon	Coolamon	LGOV
St Michaels School Catholic Precinct	Methul Street	Coolamon	Coolamon	LGOV
Stationmaster's residence	46 Wade	Coolamon	Coolamon	LGOV
Uniting Church	32 Loughnan Street	Coolamon	Coolamon	LGOV
Up To Date Store	127-129 Cowabbie Street	Coolamon	Coolamon	LGOV
WW1/WW2 Memorial	Cowabbie Street	Coolamon	Coolamon	LGOV

There was a total of 27 records matching your search criteria.

Key:

LGA = Local Government Area

GAZ= NSW Government Gazette (statutory listings prior to 1997), HGA = Heritage Grant Application, HS = Heritage Study, LGOV = Local Government, SGOV = State Government Agency.

Note: While Heritage NSW seeks to keep the Inventory up to date, it is reliant on State agencies and local councils to provide their data. Always check with the relevant State agency or local council for the most up-to-date information.

Appendix C - Biodiversity assessment

Coolamon Shire Council

Coolamon industrial subdivision

Biodiversity assessment

July 2020

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Appendices

1. Introduction

1.1 Proposal background

Coolamon Shire Council (Council) is proposing a new industrial subdivision at Wade Street, Coolamon (the proposal), and requires the preparation of a biodiversity assessment (BA) determine the biodiversity impacts of the proposal. As part of the proposal, Council has rezoned land in the proposal site to light industrial.

Coolamon is a small, growing rural community in the Riverina region of NSW, located about 35 kilometres north-west of Wagga Wagga. Recently, the town has seen an increase in development types including vehicle mechanics, plumbers, and other trades (light industrial) seeking to establish their respective developments on land that is zoned RU5 Village or RU4 Rural Small Holdings. In the case of many small businesses, they cannot operate under the Home Business or Home Industry land use definition, as it is considered that these developments do not meet the relevant Local Environment Plan (LEP) controls. The provision of light industrial land would more appropriately serve these businesses and reduce the potential for land use conflict in the future.

Coolamon will benefit from increased access to industrial businesses, as it is an important resource for employment and economic outputs that can significantly contribute to the sustainability of small rural towns.

1.2 The proposal

Council has amended the Coolamon LEP 2011 'Land Zoning Map and Lot Size Map Sheet', and rezoned approximately six hectares of land at Lot 2 DP 838319, and about one hectare of land of part Lot 2 DP 1221837, Wade Street, Coolamon to light industrial (see Figure 1-1). The proposed industrial development includes subdivision of the proposal site into about 21 new light industrial lots of about 50 by 50 metres in size. The industrial subdivision includes service lots to allow for the establishment of power lines, drainage paths, water mains and sewerage mains.

1.2.1 Key features of the proposal

- Subdivision of the proposal site into 21 smaller industrial lots
- Establishment of two easement/service lots to cater for power lines, drainage paths, water mains and sewerage mains
- Clearing of all vegetation, including mostly introduced groundcover, and some native, non-native, and non-locally native shrubs and trees from within lot boundaries
- Removal and limb-lopping of mature Sugar Gums (*Eucalyptus cladocalyx)*, and minimal vegetation associated with remanent native vegetation to facilitate the construction of drive-way access to the lots.

1.2.2 Construction environmental management plan

A construction environmental management plan (CEMP) would guide construction activities to ensure works are carried out to Council specifications and to incorporate all safeguards described in this ecological assessment and other supporting documents including the Review of Environmental (REF) and erosion and sediment control plan.

1.3 Legislative context

1.3.1 State legislation

NSW Environmental Planning and Assessment Act 1979

The Environmental Planning and Assessment Act 1979 (EP&A Act) provides the statutory basis for planning and environmental assessment in NSW. The EP&A Act provides the framework for environmental planning and development approvals, and includes provisions to ensure that the potential environmental impacts of a development are assessed and considered in the decision making process.

Application of Part 5 of the EP&A Act

As a result of the application of the State Environmental Planning Policy (Infrastructure) 2007 the proposal is permissible without consent, and is therefore subject to Part 5 (Division 5.1) of the EP&A Act.

Section 5.1 of the EP&A Act defines a determining authority as 'a Minister or public authority and, in relation to any activity, means the Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the activity to be carried out'. Council is the proponent and determining authority for the proposal. This biodiversity impact assessment has been prepared to accompany a Review of Environmental Factors (REF) to satisfy Council's obligations as a determining authority under the EP&A Act.

In relation to Part 5 activities, Section 5.5 of the EP&A Act imposes a duty on a determining authority to 'examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity'. Section 5.5 also lists a number of matters that the determining authority must consider as part of the determination of the proposal.

The factors that need to be taken into account when considering the likely impact of an activity on the environment are provided in Clause 228 of the Regulation. A summary of the results of the assessment of the proposal in accordance with the Clause 228 factors is provided in section 4.1.

NSW Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 (BC Act), together with the Biodiversity Conservation Regulation 2017, provide a mechanism to address impacts on biodiversity from land clearing associated with development. Self-determining authorities can assess impacts of Part 5 developments on threatened biota listed under the BC Act via Part 7.3 of the BC Act and Section 1.7 of the EP&A Act. This requires assessment of potential impacts on threatened biodiversity via the test of significance, and if significant impacts are likely, a species impact statement (SIS) or assessment under the Biodiversity Assessment Methodology (BAM) would be required.

The potential for impacts on ecology have been considered in section 3.7.4 of this report. The assessment concludes that the proposal would be unlikely to have a significant impact on any threatened species, populations or ecological communities listed under the BC Act. A species impact statement or assessment under the BAM is therefore not required.

Biosecurity Act 2015

The Biosecurity Act 2015 (Biosecurity Act) specifies the duties of public and private landholders as to the control of priority weeds. Under the Act, priority weeds have been identified for Local

Government Areas and assigned duties of control. Under Part 3 of the Biosecurity Act any person who deals with biosecurity matters (i.e. listed weed species) and who knows, or ought reasonably to know, the biosecurity risk posed or likely to be posed by biosecurity matters has the duty to ensure that, so far as is reasonably practicable, the biosecurity risk is prevented, eliminated and minimised.

Priority weeds identified within the broader study area, and which may occur within the proposal site under the correct conditions, would be managed in accordance with the requirements of the Biosecurity Act. Specific weed management safeguards have been developed to avoid the contamination and spread of priority weeds, and can be found in section 5.

During site surveys signage that indicated the presence of Spiny Burr Grass was documented. The species itself was not recorded during surveys however caution and proper weed management practices should be implemented to mitigate the risk of spread of the weed.

1.3.2 Commonwealth legislation

Environment Protection and Biodiversity Conservation Act 1999

The purpose of the EPBC Act is to ensure that actions likely to cause a significant impact on 'matters of national environmental significance' undergo an assessment and approval process. Under the EPBC Act, an action includes a proposal, a development, an undertaking, an activity or a series of activities, or an alteration of any of these things. An action that 'has, will have or is likely to have a significant impact on a matter of national environmental significance' is deemed to be a 'controlled action' and may not be undertaken without prior approval from the Australian Minister for the Environment. MNES relevant to this report include threatened species and ecological communities and migratory species.

The EPBC Act has been considered in this assessment through:

- Desktop review to determine the listed biodiversity matters that are predicted to occur within the locality of the proposal and hence could occur, subject to the habitats present
- Targeted field surveys for listed threatened biota and migratory species
- Assessment of potential impacts on threatened and migratory biota, which concluded that no assessments of significance in accordance with the EPBC Act Significant Impact Guidelines 3.1 are required
- Identification of suitable impact mitigation and environmental management measures for threatened and migratory biota, where required.

1.4 Purpose of this report

1.4.1 Scope and limitations

This report: has been prepared by GHD for Coolamon Shire Council and may only be used and relied on by Coolamon Shire Council for the purpose agreed between GHD and Coolamon Shire Council as set out in section 2.1 of this report.

GHD otherwise disclaims responsibility to any person other than Coolamon Shire Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

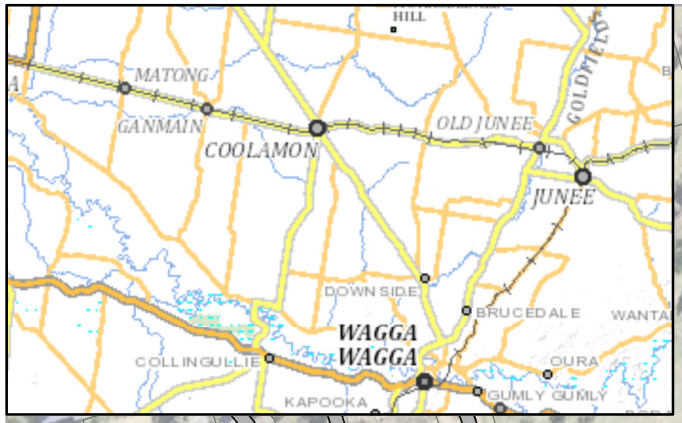
The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no

responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section 1.2 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Coolamon Shire Council and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.



Legend

Proposal site

Paper Size ISO A4

0 50 100 150

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

GHD

Coolamon Shire Council

Coolamon industrial subdivision
Biodiversity assessment

The proposal site

Project No. **12527688**
Revision No. **-**
Date **04/06/2020**

FIGURE 1-1

G:\23\12527688\GIS\Maps\Deliverables\12527688_Z001_SiteOverview.mxd
Print date: 02 Jul 2020 - 12:34

Data source: Imagery: NSW LPI; Topo Basemap: NSW LPI; Cadastre: SIXMAPS, 04/06/2020; Roads: SIXMAPS, 04/06/2020; © Department of Finance, Services & Innovation 2017. Created by: LAMaloney

2. Methods

2.1 Background research

A brief landscape analysis was conducted to gauge the landscape value of the vegetation in the study area. The landscape assessment has taken into account the spatial configuration of vegetation, vegetation cover, connectivity and adjacent native vegetation.

Vegetation within a two kilometre radius of the proposal site was viewed using satellite imagery. This analysis was strictly limited to an analysis of the over-storey vegetation. The class and quality of over-storey was not comprehensively assessed for vegetation in the surrounding landscape.

2.1.1 Database review

A search of relevant databases was conducted to obtain records of threatened and migratory species, populations and ecological communities within the region. The search included all species, populations and ecological communities listed under the NSW BC Act and Commonwealth EPBC Act with the potential to occur in the locality. The assessment included a review of:

- BioNet Atlas – threatened species web application, species sightings. Search of all terrestrial threatened flora and fauna species (within a 10 kilometre radius of the proposal site) (searched June 2020) (BCD 2020a)
- BioNet Atlas – threatened species web application, threatened biodiversity profiles (2020b) NSW, online profiles
- BioNet Atlas – vegetation classification for plant community types in the study area
- DAWE (2020a) EPBC Act Protected Matters Search Tool – for a 10 kilometre radius around the proposal site (searched March 2020)
- DAWE (2020b) Species profile and threats database, online profiles
- NSW Department of Primary Industries (DPI) priority weed declarations – Riverina region (DPI 2019) (searched March 2020)
- Any other relevant spatial data such as soils, geology and topography.

The literature review and database searches undertaken assist in overcoming some of the limitations associated with a short survey period, survey timing and the types of survey methods employed.

2.2 Habitat assessment

An assessment of the likelihood of occurrence was completed for listed species, populations and ecological communities with the potential to occur in the study area of the proposal site.

In assessing which of these species, populations and ecological communities are 'likely' to occur within the study area (as described in '*Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities Working Draft*)' (DEC 2004) the following factors were taken into consideration:

- The presence of potential habitat within the study area
- Condition and approximate extent of potential habitat within the study area
- Species occurrence within the locality and region (including results of current and previous surveys and results of database searches and literature review).

It was determined that no species were considered likely to be impacted by the proposal due to the location of the proposal site, and the lack of suitable, connected habitat at the site for species to occur in.

2.3 Field surveys

Field based surveys were conducted by two ecologists over one day on the 18 May 2020.

Where appropriate, field surveys were conducted in accordance with *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities Working Draft* (DEC 2004) and other relevant flora and fauna group species guidelines.

The primary objectives of the field surveys were to:

- Determine the area of threatened species habitat, vegetation communities, threatened ecological communities and endangered populations likely to be directly and indirectly affected by the proposal
- List the threatened biota previously recorded, or predicted to occur in the locality and assess their potential to occur in the study area based on the desktop review and site assessment
- Identify the flora and fauna species occurring within the study area at the time of survey and determine the habitat potential within the study area for any additional flora and fauna species including threatened species listed under the BC Act and EPBC Act;
- Identify any habitat features for threatened and migratory species (e.g. wetlands, waterbodies, rocky outcrops etc.)
- Determine the contribution of the proposal to cumulative impacts on flora and fauna species and their habitat, populations, ecological communities, critical habitats, migratory species and habitats in a local context
- Develop mitigation measures to reduce the potential direct and indirect impacts of the proposal on flora and fauna species in the study area
- Determine the value of the habitat in the study area for flora and fauna species, particularly for threatened species and species of conservation significance, and describe potential impacts that would result from the proposal
- Describe the flora and fauna species, habitat, populations and ecological communities in the study area in relation to their occurrence and quality in the locality
- Determine the condition and extent of vegetation removal required for the proposal.

Survey effort for the proposal is summarised in Table 2-1.

Table 2-1: Summary of survey effort for biodiversity assessment

Survey method	Effort
Flora plot and transect surveys (see Figure 4-1)	Two 20 metre by 50 metre plots within the proposal site to characterise dominant species and abundance. Walking transects were conducted for the length of the proposed development area to characterise vegetation and assess habitat within the site.
Hollow-bearing tree survey	All hollow-bearing trees within the proposal site that have the potential to be impacted were recorded with a GPS.

Survey method	Effort
Fauna habitat assessment	Potential fauna habitat identified within areas of potential vegetation clearing including lot locations, easements and access driveways.
Opportunistic fauna observations	Opportunistic fauna observations for all flora and fauna species encountered during flora surveys and habitat assessment.

2.3.1 Weather conditions

Weather conditions were fine and still during field surveys, with a maximum daytime temperature of 18.6 degrees celsius and a low of 7.5 degrees celsius. Daytime wind gusts reached a maximum of 35 kilometres an hour in an east-north easterly direction. No rain was recorded during surveys.

2.3.2 Flora

Flora surveys were conducted in the subject site and study area using transect and plot surveys (Table 2-1). For the transect survey, the entire length of the proposal site was walked.

Two plots of dimensions 20 metres by 50 metres were surveyed throughout the subject site to assist with species identification and plant community type classification. The following vegetation and habitat characteristics were recorded within each plot:

- Description of vegetation
- Dominant canopy vegetation
- Dominant understorey vegetation
- Groundcover species and abundance
- Any signs of previous disturbance and grazing.

2.3.3 Plant community types

Surveys of vegetation communities in the study area were carried out to characterise vegetation formation, class, structure and condition. Plant community composition is especially important for those areas that have the potential to be a threatened ecological community including derived native grasslands.

Flora surveys enabled determination of the composition and extent of ecological communities occurring in the study area. The study area was investigated to identify vegetation communities present and to identify any areas with the potential to be classified as a threatened ecological community.

For areas with the potential to classify as a threatened ecological community, an analysis was carried out using the criteria for classification under the BC Act and EPBC Act.

Vegetation communities with the potential to be a threatened ecological community were surveyed through characterisation of all vegetation within a plot (50 metres by 20 metres) placed randomly within the vegetation community. Plots were surveyed as detailed in Table 2-1.

2.3.4 Hollow-bearing tree survey

Hollow-bearing trees were surveyed by collecting a GPS position at the location of each tree. For each hollow-bearing tree the following characteristics were recorded:

- Species

- Diameter at breast height (DBH)
- Number of hollows
- Size of hollows (diameter at entrance).

2.3.5 Fauna

Fauna surveys comprised incidental observation and habitat assessment only. Habitat assessments were conducted for all fauna group and, observations of fauna signs. Fauna habitat resources were assessed to identify areas of potential habitat within the study area. Specific resources such as shelter, basking, roosting, nesting and foraging sites for birds, bats, arboreal mammals, amphibians, ground-dwelling mammals and reptiles were noted.

2.4 Habitat assessment

An assessment of the likelihood of occurrence was completed for listed species, populations and ecological communities with the potential to occur in the study area.

In assessing which of these species, populations and ecological communities are 'likely' to occur within the study area (as described in '*Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities Working Draft*)' (DEC 2004) the following factors were taken into consideration:

- The presence of potential habitat within the study area
- Condition and approximate extent of potential habitat within the study area
- Species occurrence within the locality and region (including results of current and previous surveys and results of database searches and literature review).

Criteria used for assessment of the likelihood of occurrence are:

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

For each species, population or ecological community with a likelihood of occurrence category of recorded, high or moderate, and likely to be impacted by the proposal, an EP&A Act Test of Significance (5-Part Test) and/or EPBC Act significance assessment was completed.

2.5 Limitations

The timing of flora and fauna surveys for the proposal was not suitable for detection of some key flora and fauna species. However, some fauna species are mobile and transient in their use of resources. Consequently, it is likely that not all species either resident or transitory at the site would have been recorded during the field surveys. The disadvantage of this limitation was reduced by database searches, and by assessing the habitat value of the study area for threatened and migratory species known to occur in the region, to determine their likelihood of occurrence.

Due to the limited habitat value of the small woodland patches in the study area and the lack of other habitat features, fauna surveys were restricted to opportunistic observations and habitat assessment only. Field surveys were not designed to enable all species, either resident or transitory in the study area, to be detected. Instead, they were aimed at identifying the ecological values of the study area, with particular emphasis on threatened and migratory species, to allow an assessment of the potential impacts of the proposal.

For those species of conservation significance that were not detected but likely to occur in the study area, an assessment of the likelihood of their occurrence was made based on known habitat requirements.

Weather conditions during the field surveys were fine and did not affect the results of the surveys. Ecologists had full access to the proposal site.

3. Existing environment

3.1 General description

3.1.1 Bioregion, vegetation and surrounding landuse

The study area occurs in the NSW South West Slopes Bioregion. This bioregion covers the lower inland slopes of the Great Dividing Range extending from north of Cowra through southern NSW into western Victoria.

The proposal site occurs within a mostly cleared and vacant lot running parallel to Wade Street, Coolamon. Surrounding landuse is comprised of residential dwellings, local businesses, railway line, grains silos and agricultural use in the wider study area.

The proposed lots contain mostly introduced groundcover vegetation, with some planted native, non-locally native and introduced trees and shrubs occurring intermittently, particularly along Wade Street. A small patch of native woodland occurs along Wade Street at the eastern end of the proposal site. The woodland is restricted to the immediate roadside, and is no more than 3-4 metres wide. It is isolated from other areas of woodland by the adjacent road and vacant lot.

3.2 Terrain, soils, geology and drainage

Terrain within the project site and wider study area is typically flat to gently undulating. The study area occur in the Ardlethan Hills Mitchell Landscape, which comprises rolling hills and rises on Ordovician quartzose sandstone, greywacke, chert, and phyllite. General elevation is 200 to 412 metres and local relief is 50 to 60 metres.

The site occurs on the Ardlethan Hills Mitchell Landscape, which typically contains stony red and brown texture-contrast soils merging to calcareous red earth on valley floors (Mitchell 2002).

There are no named watercourses in the study area. Two man-made drainage lines cross the proposal site, perpendicular to Wade Street (see Figure 4-1). The site was moderately wet and retained some water in drainage areas after rainfall.

3.3 Climate

In the Coolamon area, the climate is classified as warm semi-arid with a mean annual rainfall of 571.4 millimetres, recorded from the Wagga Wagga weather station (072150). Summers are generally warm to hot while winters are cold. The mean maximum annual temperature is 31.9 degrees celsius, recorded in January, while the mean minimum annual temperature is 2.8 degrees celsius recorded in July from the Wagga Wagga weather station (BoM 2020).

3.4 Groundwater dependent ecosystems

No groundwater dependent ecosystems exist within the proposal site.

3.5 Flora

3.5.1 Flora survey results

The survey of the proposal site identified 79 flora species, of which 33 are native and 46 are introduced (Appendix A).

Within the proposal site, the groundcover vegetation is dominated by introduced species such as Wild oats *(Avena fatua),* Common Storksbill *(Erodium botrys*), Soursob *(Oxalis pes-caprae*)

and wild Gazanias (*Gazania rigens)*. Commonly occurring native species included Ringed Wallaby Grass (*Rytidosperma caespitosum),* Windmill Grass (*Chloris truncata*) and Rigid Panic (*Walwhalleya proluta*). Some native shrubs occurred throughout the site, however mostly this was restricted to non-local, planted species such as *Melaleuca* species. Some naturally occurring shrubs were present in the patch of Grey Box woodland at the eastern extent of the site along Wade Street. This included Wilga (*Geijera parviflora),* and Hakea Wattle (*Acacia hakeoides).*

Although there are patches of grassland across the proposal site that have more native grass cover of Windmill Grass, these patches are small (usually less than 10 metres by 10 metres) and localised within the wider patch which is dominated by mostly introduced groundcover species.

Various tree species occurred throughout the site, however mostly this included planted non-locally native and introduced species such as Sugar Gums (*Eucalyptus cladocalyx*) and Silver-leaved Ironbark (*Eucalyptus melanophloia)*. Some locally native tree species occurred within the proposal site, such as Kurrajong trees (*Brachychiton populneus),* White Cypress Pine (*Callitris glaucophylla)* and Mugga Ironbark (*Eucalyptus sideroxylon).* However, most native occurring canopy species were restricted to the small patch of woodland located along Wade Street at the eastern end of the proposal site. This woodland patch contained Grey Box (*Eucalyptus microcarpa)*, White Cypress Pine (*Callitris glaucophylla)* and Yellow Box (*Eucalyptus melliodora)* along with various native groundcover species such as Blueberry Lilies (*Dianella revoluta* and *Dianella longifolia),* Rock Ferns, (*Cheilanthes austrotenuifolia)* and Purple Wiregrass (*Aristida ramosa).*

There are large number of planted introduced tree species including Peppercorns (*Schinus areira*) and Pine trees (*Pinus radiata*). Most of these occur within the proposed lots rather than in the roadside corridor of Wade Street (see Photo 1).

Hollow-bearing trees were recorded along Wade Street along the proposal site boundary.

Priority weeds

One priority weed species listed for the Riverina control area were identified during surveys, African Boxthorn (*Lycium ferocissimum*). This was located at the eastern end pf the proposal site in native vegetation along Wade Street.

Additionally, Council weed marking signs were observed on site, indicating that part of the proposal site contains Spiny Burr Grass (*Cenchrus longispinus*). Despite a thorough search of the proposal site, this species was not identified within the proposal site by ecologists. However weed markers were recorded and included in Figure 4-1 for reference.

Both weed species carry a General Biosecurity risk, to prevent, eliminate or minimise any biosecurity risk they hold. Additionally African Boxthorn carries a ‘Prohibition on dealings’ duty and must not be imported into the State or sold.

African Boxthorn is also listed as a Weed of National Significance (WONS). WONS species are nationally prioritised weeds based on their invasiveness, potential for spread and environmental, social and economic impacts.

Photo 1: Planted introduced trees and non-locally native trees within the proposal site.

Plant community type

The small patch of woodland occurring along Wade Street at the eastern end of the proposal site meets the classification as the PCT *Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions (PCTID 76)* as per the NSW BioNet Vegetation classification database (see Photo 2).

This plant community type (PCT) meets the classification criteria for the BC Act listed endangered ecology community of Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (Grey Box Woodland), however it does not meet the criteria for the EPBC Act listing of the community due to the limited diversity of the groundcover species, small size of trees and unconnected patch to larger areas of the same community.

Photo 2: Grey Box woodland at the eastern end of Wade Street road reserve.

3.6 Fauna

3.6.1 Fauna habitats

Field surveys recorded 12 fauna species, three of which are introduced (see Appendix A).

Fauna habitat within the proposal site is generally very limited. The site is mostly cleared and modified, and contains little native vegetation or canopy cover.

Scattered canopy species, and introduced groundcover within the proposal site may provide some limited movement and foraging habitat for common fauna species such as Crested Pigeons (*Ocyphaps lophotes),* Galahs (*Eolophus roseicapillus),* and Blue-faced Honeyeater (*Entomyzon cyanotis)* which were all recorded during site surveys. These species may forage on flowering eucalypts or seeds from groundcover species within the proposal site.

Some hollow-bearing trees were recorded adjacent to the proposal site in the Wade Street road reserve. Where possible it is recommended that hollow-bearing trees are retained. Further details of hollow-bearing trees are provided in Table 3-1.

Woodland

Woodland at the eastern end of the proposal site contains mostly dense White Cypress Pine regrowth and introduced groundcover species. The woodland is restricted to a strip of road reserve only about 3-4 metres wide and 400 metres long (to the boundary of the proposal site), and is unlikely to provide significant habitat for fauna species due to its location in a built up area, and its isolation from other areas of potential habitat.

Canopy vegetation in the woodland on site may provide some sheltering, movement and foraging habitat for small woodland birds such as the Yellow-rumped Thornbill (*Acanthiza chrysorrhoa)* and Pied Butcherbird (*Cracticus nigrogularis).*

Shrubs and native grasses within the woodland in the proposal site are also likely to provide foraging habitat for commonly occurring birds, reptiles and mammal species that may occur at the site intermittently. Introduced groundcover within the woodland can also provide marginal habitat for fauna species.

Hollow-bearing trees were recorded during surveys along the Wade Street roadside reserve. In total 14 hollow-bearing trees were recorded along the roadside reserve, including 11 Sugar Gums and two Yellow Box trees containing a total of 28 hollows. Details of hollow bearing trees are provided below in Table 3-1. No hollow-bearing trees were recorded from within the proposed lots, and all are restricted to the roadside reserve along Wade Street.

Most of the hollow-bearing trees have either very small hollows or hollows that are only just beginning to form. This is likely due to the young age of the trees (planted about 50-70 years ago). Due to the height of some of these hollows above the ground and the hollows just beginning to form, it was difficult to determine if some of the hollows had depth. Some of the hollows in Table 3-1 may not have much depth and therefore have reduced hollow habitat potential.

Table 3-1: Potential hollow-bearing tree species and size classes

ID	Common name *Species name*	DBH (cm)	Hollow size classes (cm)				
			<5	5 to 10	10 to 20	20 to 30	>30
HBT1	Sugar Gum *Eucalyptus cladocalyx*	60-70	0	2	0	0	0
HBT2	Sugar Gum *Eucalyptus cladocalyx*	80-90	0	1	0	0	0
HBT3	Sugar Gum *Eucalyptus cladocalyx*	80-100	0	1	1	0	0
HBT4	Sugar Gum *Eucalyptus cladocalyx*	80-100	0	0	1	0	0
HBT5	Sugar Gum *Eucalyptus cladocalyx*	80-100	0	2	0	0	0
HBT6	Sugar Gum *Eucalyptus cladocalyx*	80-100	0	0	1	1	0
HBT7	Sugar Gum *Eucalyptus cladocalyx*	80-100	0	2	0	0	0
HBT8	Sugar Gum *Eucalyptus cladocalyx*	100-110	0	2	0	0	0
HBT9	Sugar Gum *Eucalyptus cladocalyx*	100-120	1	1	0	0	0
HBT10	Sugar Gum *Eucalyptus cladocalyx*	100-120	2	2	1	0	0
HBT11	Sugar Gum *Eucalyptus cladocalyx*	80-100	1	1	0	0	0
HBT12	Yellow Box *Eucalyptus melliodora*	50-60	0	1	1	0	0
HBT13	Yellow Box *Eucalyptus melliodora*	50-60	0	0	2	0	0

Aquatic habitat

Some man made drainage lines were recorded on site. These were dry during site surveys. Given the lack of native fringing vegetation at the site, and the location of the site in a highly

disturbed area isolated from areas of more suitable, permanent habitat, it is unlikely to provide significant wetland or aquatic habitat for species. Drainage lines may provide temporary habitat for mobile amphibian species such as the Spotted Grass Frog (*Limnodynastes tasmaniensis)* in times of rain, but as discussed above, this is unlikely to be significant. No permanent aquatic habitat or Key Fish Habitat (KFH) occurs on site or is mapped as occurring within the study area.

3.7 Threatened and migratory biota

This section describes the threatened biodiversity and other species of conservation concern present, or likely to occur within the study area based on records from within the locality and the nature of the habitat present within the study area and locality.

3.7.1 Threatened ecological communities

The PCT *Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions (PCTID 76)* was recorded on site. This PCT forms part of the BC Act listed endangered ecological community of Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (Grey Box woodland). While the PCT present on site meets the criteria for the BC Act listing of this community, it does not meet the criteria for the EPBC Act listing of this community due to the mostly degraded and introduced state of the groundcover stratum, small size of trees and unconnected patch to larger areas of the same community.

3.7.2 Threatened flora

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

3.7.3 Threatened fauna

No threatened fauna listed under the BC Act of EPBC Act were recorded during field surveys within the study area.

3.7.4 Summary of NSW listed species, communities and populations

Literature reviews, database searches and field surveys identified 19 bird species, three mammal species, five plant species, one amphibian species, three fish species and one reptile species listed under the BC Act that can potentially occur in the study area (see Appendix B).

One ecological community listed under the BC Act was recorded in the study area during surveys. The endangered Grey Box woodland community was recorded in the road reserve within the assessment area (see Figure 4-1), and is likely to require some removal to facilitate the proposal. In total, 0.36 hectares of Grey Box woodland was recorded in the proposal site and the proposal would potentially require the removal of some, or all of this isolated patch of the community. The community is limited to a narrow strip of remnant woodland in the road reserve, approximately 10 metres wide, and is isolated from other native woodland and remnant habitat.

3.7.5 Summary of MNES

Matters of national environmental significance (MNES) are listed and protected under the EPBC Act. The act identifies three MNES relevant to this ecological assessment:

- Threatened species and ecological communities
- Migratory species

- Ramsar wetlands

The literature review, database search and field surveys identified three ecological communities, four flora species, 14 birds, three mammals, one reptiles, three fish species and one frog listed under the EPBC Act that could potentially occur in the locality (see Appendix B).

Of these, no species or ecological communities are considered to have a high or moderate likelihood of occurrence in the study area.

As no species, populations or ecological communities were considered to have a high or moderate likelihood of occurrence and are not likely to be impacted, it was not necessary to prepare significant impact guidelines to assist in determining the significance of the potential impacts of the proposal on MNES.

Migratory species

Migratory species are protected under the international agreements to which Australia is a signatory, including the *Japan-Australia Migratory Bird Agreement* (JAMBA), the *China-Australia Migratory Bird Agreement* (CAMBA), the *Republic of Korea-Australia Migratory Bird Agreement* (RoKAMBA) and the *Bonn Convention on the Conservation of Migratory Species of Wild Animals.* Migratory species are considered MNES and are protected under the EPBC Act.

Three migratory species are considered to possibly occur in the study area, however no migratory bird species were recorded or are considered likely to be impacted by the proposal.

4. Potential impacts

4.1 Direct impacts

4.1.1 Removal of native vegetation

The proposal could remove up to 6.68 hectares of vegetation including both native and introduced vegetation (Table 2-1). Remnant native vegetation to be removed is about 0.36 hectares of Grey Box woodland (Table 2-1). All other vegetation to be removed is not NSW locally native and has been planted or is introduced trees and the groundcover is dominated by introduced species with scattered occurrences of native grasses (see Figure 4-1).

Table 4-1: Summary of vegetation removal for the proposal

Vegetation type	Area (ha)
Introduced grassland	5.72
Planted non local trees and introduced grassland in roadside	0.6
Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina bioregions (PCT ID76) – BC Act Grey Box Woodland	0.36

The removal of native and non-native vegetation includes the mix of trees. Details of tree species and size classes that could be removed by the proposal are shown in Table 4-2. Vegetation to be removed consists of mostly introduced groundcover, and introduced and non-locally native trees. Some native tree species that occur within the proposal site will be required to be removed, including three sapling White Cypress Pine trees and six Kurrajong trees of various sizes. An additional three Grey Box trees occur within the proposal site towards the eastern end of the proposal site near the Wade Street roadside reserve. Although removal of all roadside vegetation has been included in impact assessment, wherever practicable, Council may retain mature trees for visual and aesthetic purposes (see section 5.1.1).

Table 4-2: Tree removal species and size class

Common name *Species name*	Tree size classes (cm)							
	<10	10-20	20-40	40-60	60-80	80-100	>100	Total
Grey Box (*Eucalyptus microcarpa*)	1	0	1	2	0	0	0	4
White Cypress Pine (*Callitris glaucophylla)*	3	0	0	0	0	0	0	3
Kurrajong (*Brachychiton populneus*)	2	2	0	2	0	0	0	6
Native planted trees (within lots)	25	15	2	0	0	0	0	42
Non-native species (no size recorded)	0	0	0	0	0	0	0	0
Roadside vegetation	12	4	1	0	5	9	3	34

About 0.36 hectares of the endangered ecological community of Grey Box woodland listed under the BC Act was recorded along the road edge at the eastern end of the proposal site. As discussed previously, this woodland is unlikely to provide significant habitat for fauna species due to its isolation from other areas of habitat. Given the density of White Cypress Pine trees within the community, access to lots where this community occurs would not be possible without removing most of the occurrence of this community. Wherever possible, the Grey Box trees from this community should be retained for habitat, visual and aesthetic purposes (see section 5.1.1).

4.1.2 Hollow-bearing tree removal

Hollow-bearing trees were recorded during site surveys adjacent to the proposal site along the roadside reserve of Wade Street (see Figure 4-1). No hollow-bearing trees occur within the proposed lots. Where hollow-bearing trees occur at the roadside entrance to lots, these should be retained wherever practicable. However, where this is not practical, removal of Sugar Gum trees with shallow hollows is not likely to result in a loss of good quality habitat within the proposal site and the removal of this habitat has been taken into consideration when applying impact assessment criteria and guidelines (see Appendix C).

4.1.3 Injury and mortality

During construction, death or injury may occur to fauna present during clearing of trees and vegetation. If birds are present but not nesting during construction they will generally move away from the proposal site to escape disturbance. Given the nature of the site, its location within a highly modified landscape within the town of Coolamon, and the lack of significant woodland habitat likely to support a large amount of fauna species, it is unlikely that the proposal will result in a significant increase in fauna movement at the site or in the surrounding study area. Given the 50 kilometre per hour speed limit along Wade Street, vehicle collisions with fauna are unlikely to occur, and therefore be unlikely to cause substantial impacts to any threatened or non-threatened fauna species in the area.

4.1.4 Disturbance of fauna

The proposal has the potential to temporarily affect the use of the study area by fauna as a result of increased disturbance during construction. The use of machinery may temporarily deter some fauna species from using potential habitat in the study area during construction.

Noise can cause change in behaviours such as foraging, requiring additional energy expenditure if fauna need to forage further afield. Given the lack of suitable permanent and potential habitat for fauna species, it is unlikely that fauna will reliably occur at the site or be impacted by changes in the acoustic environment of the area. Impacts during construction would be short-term and temporary, and would be unlikely to deter fauna from using the study area in the long term.

With the implementation of safeguards in section 5.1.2 the proposal would be unlikely to substantially affect fauna in the study area.

4.1.5 Changes in surface hydrology

Construction of the proposal may affect surface runoff characteristics near the proposal site. There is an increased risk of sediment entering the table drains during the construction period following clearing,. The proposal is unlikely to cause any long-term changes in surface hydrology that would adversely impact biota in the study area. The additional surface area of the road is unlikely to have more than a minor impact.

Vegetation type

- Introduced vegetation
- PCTID76: Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregion (BC Act listed - Grey Box Woodland)
- Planted woodland

Paper Size A3

0 40 80 160

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

- Hollow-bearing tree
- Flora plot
- Spiny Burr-grass marker
- Proposal site boundary

Coolamon Shire Council
Industrial subdivision biodiversity assessment

Plant community type and survey effort

Job Number	12527688
Revision	A
Date	02 Jul 2020

FIGURE 4.1

C:\Users\Bturner\Documents\Projects\Coolamon BA\Figures\Coolamon_Biodiversity_10062020.mxd

Suite 3, Level 1, 161-169 Baylis Street Wagga Wagga NSW 2650 Australia **T** 61 2 6923 7400 **F** 61 2 6971 9565 **E** wgamail@ghd.com **W** www.ghd.com

Data source: NSW Government (LPI): Aerial photograph - 2015; roads, waterways - 2012; MIA Renewal Alliance: Early Works proposal footprint - 2017. Created by:bturner

4.2 Indirect impacts

4.2.1 Wildlife connectivity and habitat fragmentation

The small isolated woodland patch within the project site and study area is minimal and highly fragmented by the development of the surrounding area. The site is not well connected to remnant habitat, and woodland within the roadside only occupies about 0.36 hectares.

Due to the limited amount of isolated trees and introduced vegetation proposed to be removed, and the small 0.36 hectares isolated patch of Grey Box woodland to be, it is unlikely that the proposal would fragment woodland habitat in the study area. Fauna would remain able to traverse the study area and wider locality. It is unlikely that species limited in their dispersal abilities would be restrained by the proposed removal of vegetation. Treed vegetation patches in the study area and locality would remain connected.

4.2.2 Invasion and spread of weeds

Groundcover vegetation in the study area is affected by some introduced species and escaped garden varieties including Gazania. The proposal has the potential to further introduce and spread weeds in the study area by movement of machinery and light vehicle traffic during construction of the proposal.

One priority weed species was identified, and one known to occur were recorded during field surveys, African Boxthorn and Spiny-Burr Grass.

The spread of weeds would be managed by implementing safeguards identified in section 5.1.2.

4.2.3 Contamination, erosion and sedimentation

The proposal has the potential to cause impacts to native flora and fauna through spills of fuels and chemicals. This may occur during refuelling operations or during preparation and use of chemicals for weed management. Spills could potentially have localised impacts on terrestrial fauna.

The construction of the proposal has the potential to result in erosion of the area where soils are exposed. This could lead to sedimentation of the table drain, with the potential for sediment to be carried offsite during wet weather events into local drainage lines.

Contamination impacts have the potential to occur during construction. These impacts would be unlikely to be substantial due to the limited area of impact and the implementation of safeguards detailed in section 5.1.2.

4.2.4 Invasion and spread of pathogens

The proposal has the potential to result in the spread of pathogens such as bacteria and fungi. This could occur through the spread of soils on vehicle tyres and operatives' footwear. Impacts of pathogens include spread of known diseases that are detrimental to fauna such as the amphibian chytrid fungus.

Invasion and spread of pathogens and disease have the potential to occur during construction.

The potential spread of pathogens would be minimised through the implementation of safeguards outlined in section 5.1.2.

4.2.5 Bushfire

The proposal has the potential to cause bushfire during construction. Impacts of bushfires may include death and injury to fauna, loss of woodland habitat including hollow bearing trees and loss of potential feed resources. In addition, bushfires may result in changes to structure and

function of woodland communities including changes to groundcover composition. This would be unlikely given the lack of woodland habitat in the surrounding study area .

4.3 Cumulative impacts

The proposal may have minor cumulative impacts associated with the future subdivision and associated residential development in the Coolamon area. This includes small lot rural residential developments to the north and south of Coolamon. However, most of these other residential developments have occurred in previously cleared land or have resulted in removal of native vegetation of less than half a hectare. Given the small scale of vegetation removal, and impacts to fauna habitats associated with the proposal, cumulative impacts are expected to be negligible.

4.4 Assessment of significance

The assessment of likelihood of occurrence found that the proposal is unlikely to impact on any threatened species or communities listed under the BC Act or EPBC Act in the study area and locality, given the low impacts of the proposal on native vegetation (about 0.36 hectares) or habitat of value.

In summary:

- The proposal will remove about 0.36 hectares of isolated Grey Box woodland listed as a threatened ecological community under the NSW BC Act.
- Trees to be removed from the site consisted of mostly planted non-native and non-locally native species
- Native trees to be removed from the site consisted mostly of juvenile and sapling trees
- The site occurs in a highly modified environment surrounded by residential and industrial developments, and is unlikely to provide significant habitat for native flora and fauna.

5. Avoid, minimise and mitigate impacts

Development of the proposal has incorporated a hierarchy of avoiding, minimising and mitigating impacts wherever possible.

5.1.1 Avoidance and minimisation

To allow for the rezoning to establish new light industrial development lots, clearing of existing vegetation at the site is required. To avoid and minimise vegetation impacts on site, native canopy vegetation and trees providing habitat values are recommended to be retained where possible.

Three Grey Box trees occur within the proposal site towards the southern end of the proposal site near the roadside, and it is recommended that these be retained where possible. Given they occur on the roadside edge of the block, where possible and practical, it is recommended that some of these mature native trees should be retained to provide both habitat and aesthetic benefit to the site.

The 0.36 hectare isolated patch of BC Act listed Grey Box woodland at the southern end of Wade Street would require removal to facilitate access to the proposed lots (see Figure 4-1). Where possible, mature trees from the community should be retained. However, clearing of the entire patch given its isolated and regrowth nature is not likely to impact the local occurrence of the community.

Non-locally native planted Sugar Gums containing shallow hollows occur in the roadside reserve of Wade Street (see Figure 4-1). There is some space available between trees to allow for the establishment of driveways and utilities access. However, where impacts to these trees is unavoidable the removal of these trees would occur.

5.1.2 Safeguards and management measures

The safeguards and management measures detailed in Table 5-1 would be implemented to minimise the impacts of the proposal on the environment in the study area. These safeguards and management measures would be incorporated into a CEMP to be implemented during construction.

Table 5-1: Safeguards and management measures

Impact	Safeguards and management measures	Timing
Removal of native vegetation	• Construction boundaries will be clearly marked prior to commencing construction • Ant trees to be retained will be clearly marked on maps and on the ground prior to commencing construction • Roadside trees along Wade Street will be retained whereever practicable. • No native vegetation will be removed beyond the proposal site for either permanent or temporary construction impacts.	Pre-construction
Impacts to fauna	If required, fauna handling during vegetation removal will be undertaken by a licensed fauna ecologist or wildlife carer.	Construction

Impact	Safeguards and management measures	Timing
General	All construction vehicles will be parked in areas already cleared of native vegetation.	Construction
Sediment and erosion control	• Temporary sediment and silt control fencing will be placed on the perimeter of works before commencement of earthworks • Weather forecasts will be checked before construction. If rainfall is predicted for the day of construction, construction will be delayed until no rainfall is predicted and access tracks are dry.	Pre-construction and construction
Spread of weeds	• Care to be taken when working in the vicinity of the area signed as containing Spiny Burr Grass (see Figure 4-1). All topsoil and vegetation matter removed from this area to be disposed of at a licensed facility. No top soil from areas potentially containing the weed should be reused on site or elsewhere. • All other soil excavated during construction will be stockpiled within existing cleared areas for immediate reuse after construction. Any surplus fill will be removed from site and disposed of at an appropriate facility.	Construction
Unexpected threatened species	If unexpected threatened fauna, flora or ecological communities are discovered, works will stop immediately in the vicinity of the find. The environment manager will be notified immediately and an assessment of the likely impacts of the proposal on the threatened species will be completed.	Construction

6. Conclusion

The surrounding study area has been previously cleared and modified for residential, rural and industrial uses. The proposal site is mostly modified and degraded, with canopy species at the site mostly planted non-locally native and introduced species, and groundcover dominated by introduced weeds with smaller patches of native grasses scattered throughout.

An isolated patch Grey Box woodland (0.36 hectares) occurs in the roadside reserve at the eastern end of the proposal site. This patch meets the listing requirements for classification as the BC Act endangered ecological community of Inland Grey Box woodland, as it contains the necessary canopy composition. However, it is unlikely to meet the requirements of the EPBC Act listing of the community due to a lack of floristic diversity of the groundcover stratum, patch size and size of trees.

About six hectares of mostly introduced groundcover, and 113 mostly introduced and planted trees would be removed from within the proposal site. Of the 113 trees, 13 are locally native species such as White Cypress Pine and Kurrajong trees.

Vegetation within the site is generally degraded and poorly connected other areas of habitat due to the sites location in the township of Coolamon amongst various residential and industrial developments. The site does not contain significant native habitat of value to native flora and fauna species.

A number of safeguards and mitigation measures are proposed to minimise the impacts of the proposal on native flora and fauna. It is not considered likely that any flora or fauna listed under the NSW BC Act or Commonwealth EPBC Act will be impacted by the proposal.

7. References

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Appendices

Appendix A – Species list

Flora species list

* denotes an introduced species

Scientific Name	Common Name	Plot 1 % cover	Plot 2 % cover	Incidental
Acacia spp.	-	-	-	✓
Acacia baileyana	Cootamundra Wattle	-	-	✓
Acacia hakeoides	Hakea Wattle	-	0.1	✓
*Arctotheca calendula**	Capeweed	0.2	1	✓
Aristida behriana	Bunch Wiregrass	0.1	-	
Aristida ramosa	Purple Wiregrass	-	-	✓
*Asphodelus fistulosus**	Onion Weed	-	-	✓
Atriplex semibaccata	Creeping Saltbush	-	-	✓
Austrostipa scabra	Speargrass	0.5	0.1	✓
*Avena fatua**	Wild Oats	25	0.5	✓
Bothriochloa macra	Red Grass	-	-	✓
Brachychiton populneus	Kurrajong	-	-	✓
*Brassica rapa subsp. campestris**	Turnip	-	-	✓
Callitris glaucophylla	White Cypress Pine	-	0.1	
*Cenchrus clandestinum**	Kikuyu Grass	-	-	✓
Cheilanthes austrotenuifolia	Rock Fern	-	-	✓
Chloris truncata	Windmill Grass	1	25	-
*Cichorium intybus**	Chicory	0.1	-	-
*Cirsium vulgare**	Spear Thistle	-	-	✓
*Conyza bonariensis**	Flaxleaf Fleabane	-	-	✓
*Cyperus eragrostis**	Umbrella Sedge	-	-	✓
Dianella longifolia	Blueberry Lily	-	-	✓
Dianella revoluta	Blueberry Lily	-	-	✓
*Echium plantagineum**	Patterson's Curse	-	-	✓
Einadia nutans	Climbing Saltbush	-	0.1	-
Epilobium hirsutum	Hoary Willow Herb	-	-	✓
*Eragrostis cilianensis**	Stinkgrass	-	-	✓
*Erodium botrys**	Long Storksbill	5	2	-
*Erodium moschatum**	Musky Crowfoot	0.5	-	-
Eucalyptus cladocalyx	Sugar Gum	-	-	✓
Eucalyptus melanophloia	Silver-leaved Ironbark	-	-	✓
Eucalyptus melliodora	Yellow Box	-	-	✓
Eucalyptus microcarpa	Western Grey Box	-	3	✓
Eucalyptus sideroxylon	Mugga Ironbark	-	-	✓
*Euphorbia spp.**		-	-	✓
*Gazania spp.**	Gazania	5	0.2	✓
Geijera parviflora	Wilga	-	-	✓

Scientific Name	Common Name	Plot 1 % cover	Plot 2 % cover	Incidental
*Heliotropium europaeum**	Potato Weed	0.3	-	-
*Hypericum perforatum**	St. Johns Wort	0.1	-	-
*Hypochaeris radicata**	Catsear	-	-	✓
*Lactuca serriola**	Prickly Lettuce	-	-	✓
*Lepidium africanum**	Common Peppercress	0.1	-	-
Lomandra filiformis	Wattle Matt-rush	-	-	✓
*Lycium ferocissimum**	African Boxthorn	-	-	✓
*Lythrum hyssopifolia**	Hyssop Loosestrife	-	-	✓
Maireana enchylaenoides	Wingless Fissure-weed	-	0.2	-
*Malva parviflora**	Small-flowered Mallow	0.1	-	✓
Melaleuca spp.		-	-	✓
*Modiola caroliniana**	Red-flowered Mallow	-	-	✓
*Olea europaea**	Common Olive	-	-	✓
*Oxalis latifolia**		-	0.1	-
*Oxalis pes-caprae**	Soursob	-	1	-
*Papaver somniferum**	Opium Poppy	-	-	✓
*Paspalum dilatatum**	Paspalum	-	-	✓
*Paspalum spp.**		-	-	✓
*Pinus radiata**	Radiata Pine	-	-	✓
*Poa annua**	Winter Grass	-	-	✓
*Portulaca oleracea**	Pigweed	-	-	✓
*Romulea minutiflora**	Small-flowered Onion Grass	-	-	✓
*Romulea rosea var. australis**	Onion Grass	-	0.1	-
*Rumex crispus**	Curled Dock	-	-	✓
Rytidosperma caespitosum	Ringed Wallaby Grass	-	0.1	✓
Rytidosperma pallidum	Redanther Wallaby Grass	-	-	✓
*Salvia verbenaca**	Vervain	-	-	✓
*Schinus areira**	Pepper Tree	-	-	✓
Sclerolaena muricata	Black Rolypoly	-	-	✓
*Setaria verticillata**	Whorled Pigeon Grass	0.2	-	✓
Sida corrugata	Corrugated Sida	0.1	0.1	-
*Sonchus oleraceus**	Common Sowthistle	-	-	✓
*Trifolium angustifolium**	Narrow-leaved Clover	-	-	✓
*Trifolium arvense**	Haresfoot Clover	-	-	✓
*Trifolium glomeratum**	Clustered Clover	-	0.2	✓
*Trifolium subterraneum**	Subterranean Clover	-	-	✓
*Verbascum virgatum**	Twiggy Mullein	-	-	✓
Vittadinia cuneata var. cuneata	A Fuzzweed	-	0.1	-
Wahlenbergia stricta	Tall Bluebell	-	0.1	-
Walwhalleya proluta		0.5	-	✓

Fauna species list

* denotes an introduced species

Observation type – O = observed, W = heard

None of the species recorded were listed as threatened under the NSW BC Act or Commonwealth EPBC Act.

Scientific Name	Common Name	Observation type
**Columba livia*	Rock Dove	O
Anthochaera carunculata	Red Wattlebird	W
Entomyzon cyanotis	Blue-faced Honeyeater	OW
**Passer domesticus*	House Sparrow	O
**Oryctolagus cuniculus*	Rabbit	S
Strepera graculina	Pied Currawong	OW
Eolophus roseicapillus	Galah	OW
Cracticus tibicen	Australian Magpie	OW
Ocyphaps lophotes	Crested Pigeon	O
Cracticus nigrogularis	Pied Butcherbird	O
Acanthiza chrysorrhoa	Yellow-rumped Thornbill	O
Pachycephala rufiventris	Rufous Whistler	W

Appendix B – Likelihood of occurrence

An evaluation of the likelihood and extent of impact to threatened and migratory fauna recorded from within the Coolamon local government area (BC Act threatened species); and within a 10 kilometre radius of the proposal site (EPBC Act threatened and migratory species). Records are from the EPBC Environmental Reporting Tool available from the Department of Agrculture, Water and the Environment (DAWE) website. Biodiversity information has been obtained from the Threatened Species Profiles on the NSW OEH website (http://www.environment.nsw.gov.au/threatenedspecies/) and from the Species Profiles and Threats Database on the Commonwealth DotEE website (http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl).

Status

- National - Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
- NSW - *Biodiversity Conservation Act 2016*
- E Endangered
- CE Critically Endangered
- EP Endangered population
- V Vulnerable
- Mi Migratory

Likelihood of occurrence in study area

Recorded – The species was observed in the study area during the current survey

High – It is highly likely that a species inhabits the study area and is dependent on identified suitable habitat (i.e. for breeding or important life cycle periods such as winter flowering resources), has been recorded recently in the locality (within 10 kilometres) and is known or likely to maintain resident populations in the study area. Also includes species known or likely to visit the study area during regular seasonal movements or migration

Moderate – Potential habitat is present in the study area. Species unlikely to maintain sedentary populations, however may seasonally use resources within the study area opportunistically or during migration. The species is unlikely to be dependent (ie. for breeding or important life cycle periods such as winter flowering resources) on habitat within the study area, or habitat is in a modified or degraded state. Includes cryptic flowering flora species that were not seasonally targeted by surveys and that have not been recorded

Low – It is unlikely that the species inhabits the study area and has not been recorded recently in the locality (within 10 kilometres). It may be an occasional visitor, but habitat similar to the study area is widely distributed in the local area, meaning that the species is not dependent (i.e. for breeding or important life cycle periods such as winter flowering resources) on available habitat. Specific habitat is not present in the study area or the species are a non-cryptic perennial flora species that were specifically targeted by surveys and not recorded

None – Suitable habitat is absent from the study area.

Species / Communities	Status		Habitat requirements	Likelihood of occurrence in the proposal site and likelihood of impact
	EPBC Act	BC Act		
Ecological communities				
Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions	-	E	Community occurs on brown loam or clay, alluvial or colluvial soils on prior streams and abandoned channels or slight depressions on undulating plains or flats of the western slopes. Community often occurs upslope from River Red Gum communities above frequently inundated areas of the floodplain. It also occurs on colluvium soils on lower slopes and valley flats. Occurs on alluvial soils of the South West Slopes, Brigalow Belt South and Darling Riverine Plains Bioregions. Mainly in the Dubbo-Narromine-Parkes-Forbes area. Predicted to occur in the locality (BCD, 2020).	**Low:** This community was not recorded during site surveys and is unlikely to be impacted by the proposal.
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (BC Act) Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (EPBC Act)	E	E	Predominantly occurs on the drier edge of the temperate grassy eucalypt woodland belt (375-700 mm rainfall) ranging from central New South Wales through northern and central Victoria into South Australia. Grey Box Grassy Woodlands usually occur in flat to undulating landscapes, such as plains, low slopes and rises, or occasionally in drainage depressions. Patches of this community tend to occur on relatively productive soils. Predicted to occur in the locality (BCD, 2020) Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Recorded:** This community was recorded during site surveys, and 0.36 hectares of an isolated patch of the community would be removed.
Mallee and Mallee-Broombush dominated woodland and shrubland, lacking Triodia, in the NSW South Western Slopes Bioregion	-	E	Mallee and Mallee-Broombush dominated woodland and shrubland, lacking Triodia, in the NSW South Western Slopes has a very highly restricted distribution, with known occurrences falling with a region of less than 4000 square kilometres bounded by Lake Cowal - Temora - Ardlethan - Ungarie. It is estimated that the total area remaining is	**Low:** This community was not recorded during site surveys and is unlikely to be impacted by the proposal.

Species / Communities	Status		Habitat requirements	Likelihood of occurrence in the proposal site and likelihood of impact
	EPBC Act	BC Act		
			around 2300 hectares within the local government areas of Bland and Temora. Most remaining areas are on private property or within roadside easements, though small areas are known from the following Natures Reserves: Buddigower, The Charcoal Tank, portions of South West Woodland (former Blue Mallee Flora Reserve and State Forest and Wyalong State Forest) and possibly Big Bush. Predicted to occur in the locality (BCD, 2020).	
Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions	-	E	Sandhill Pine Woodland has been recorded in the far south-western portion of the NSW South Western Slopes bioregion near Urana, extending through the Riverina bioregion, from the Urana – Narranderra district in the east, into the southern part of the Murray-Darling Depression bioregion, as far west as the South Australian border. In the Riverina bioregion and the far south-western portion of the NSW South Western Slopes bioregion, the community is typically associated with prior streams and aeolian source-bordering dunes, which are scattered within an extensive alluvial clay plain dominated by chenopod shrublands. Sandhill Pine Woodland typically occupies red-brown loamy sands with alkaline sub-soils on the alluvial plain of the Murray River and its tributaries, and on parts of the sandplain in south-western NSW. Predicted to occur in the locality (BCD, 2020)	**Low:** This community was not recorded during site surveys and is unlikely to be impacted by the proposal.
White Box Yellow Box Blakely's Red Gum Woodland (BC Act) White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Box-Gum Woodland) (EPBC Act)	CE	E	Characterised by the presence or prior occurrence of White Box, Yellow Box and/or Blakely's Red Gum. The trees may occur as pure stands, mixtures of the three species or in mixtures with other trees, including wattles. Commonly co-occurring eucalypts include *Eucalyptus bridgesiana, E. polyanthemos, E. rubida, E. pauciflora, E. cinerea, E. mannifera, E. macrorhyncha, E. microcarpa* and others.	**Low:** This community was not recorded during site surveys and is unlikely to be impacted by the proposal.

Species / Communities	Status		Habitat requirements	Likelihood of occurrence in the proposal site and likelihood of impact
	EPBC Act	BC Act		
			Predicted to occur in the locality (BCD, 2020) Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	
Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions (BC Act) Weeping Myall woodlands (EPBC Act)	E	E	The Weeping Myall Woodlands occurs on the inland alluvial plains west of the Great Dividing Range in NSW and QLD. It occurs in the Riverina, NSW South Western Slopes, Darling Riverine Plains, Brigalow Belt South, Murray-Darling Depression, Nandewar and Cobar Peneplain Interim Biogeographic Regionalisation for Australia (IBRA) bioregions. Predicted to occur in the locality (BCD, 2020) Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Low:** This community was not recorded during site surveys and is unlikely to be impacted by the proposal.
Plants				
Austrostipa wakoolica A spear-grass	E	E	Confined to the floodplains of the Murray River tributaries of central-western and south-western NSW, with localities including Manna State Forest, Matong, Lake Tooim, Merran Creek, Tulla, Cunninyeuk and Mairjimmy State Forest (now part of South West Woodland Nature Reserve). Grows on floodplains of the Murray River tributaries, in open woodland on grey, silty clay or sandy loam soils; habitats include the edges of a lignum swamp with box and mallee; creek banks in grey, silty clay; mallee and lignum sandy-loam flat; open Cypress Pine forest on low sandy range; and a low, rocky rise. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	**Low:** Specific habitat requirements and associated species for this species are not present within the proposal site. The site is highly modified and degraded, and it is unlikely that this species would persist on site.
Caladenia arenaria Sand-hill Spider-Orchid	E	E	Caladenia arenaria is found mostly on the south west plains and western south west slopes. The original description is of a plant from Nangus, west of Gundagai (1865) and there is a report of the species from Adelong near Tumut. A record near Cootamundra needs verifying. The Sand-hill Spider	**Low:** The species is unlikely to occur in the study area due to its degraded nature, the dominance of introduced species and lack of favoured sandy habitat. The nearest records in the region are from Yarrenjerry

Species / Communities	Status		Habitat requirements	Likelihood of occurrence in the proposal site and likelihood of impact
	EPBC Act	BC Act		
			Orchid is currently only known to occur in the Riverina between Urana and Narranderra. Occurs in woodland with sandy soil, especially that dominated by White Cypress Pine (Callitris glaucophylla) This species is known or was predicted to occur within a 10 kilometre radius of the proposal site using the PMST.	State Forest about 50 kilometres to the north.
Diuris tricolor Pine Donkey Orchid	-	V	Sporadically distributed on the western slopes of NSW, extending from south of Narrandera all the way to the north of NSW. Localities in the south include Red Hill north of Narrandera, Coolamon, and several sites west of Wagga Wagga. Condobolin-Nymagee road, Wattamondara towards Cowra, Eugowra, Girilambone, Dubbo and Cooyal, in the Central West. Pilliga SCA, Pilliga National Park and Bibblewindi State Forest in the north and Muswellbrook in the east. Disturbance regimes are not known, although the species is usually recorded from disturbed habitats. Associated species include Callitris glaucophylla, Eucalyptus populnea, Eucalyptus intertexta, Ironbark and Acacia shrubland. The understorey is often grassy with herbaceous plants such as Bulbine species. Predicted to occur in the locality (BCD, 2020)	**Low:** This species is known from locations in the Coolamon locality in suitable habitat. The proposal site was surveyed, and due to the highly modified and degraded nature of the site, and the lack of suitable associated habitat for the species, it is unlikely to occur.
Swainsona murrayana Slender Darling-pea	V	V	Found throughout NSW , it has been recorded in the Jerilderie and Deniliquin areas of the southern riverine plain, the Hay plain as far north as Willandra National Park, near Broken Hill and in various localities between Dubbo and Moree. Occurs in grassland, herbland and open Black-box woodland. Associated with low chenopod shrubs *Maireana* species, wallaby-grass *Austrodanthonia* species and spear grass *Austrostipa* species. Flowers from spring to early summer. Grows on heavy grey or brown clay, loam, or red cracking clays. Grows in a variety of vegetation types including bladder saltbush, black box and grassland communities on level	**Low:** Associated habitat components and species (chenopod shrublands) are not present within the proposal site or are likely to be present in the wider study area. It is unlikely that this species will occur in the proposal site or study area.

Species / Communities	Status		Habitat requirements	Likelihood of occurrence in the proposal site and likelihood of impact
	EPBC Act	BC Act		
			plains, floodplains and depressions and is often found with Maireana species. Plants have been found in remnant native grasslands or grassy woodlands that have been intermittently grazed or cultivated. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	
Tylophora linearis	E	V	Majority of records occur in the central western region. Records from Goonoo, Pillaga West, Pillaga East, Bibblewindi, Cumbil and Eura State Forests, Coolbaggie NR, Goobang NP and Beni SCA. Also has been recorded Hiawatha State Forest near West Wyalong in the south and there are old records as far north as Crow Mountain near Barraba and near Glenmorgan in the western Darling Downs. Grows in dry scrub and open forest. Recorded from low-altitude sedimentary flats in dry woodlands of *Eucalyptus fibrosa, Eucalyptus sideroxylon, Eucalyptus albens, Callitris endlicheri, Callitris glaucophylla and Allocasuarina luehmannii.* Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	**Low:** Associated habitat components for this species are not found within the proposal site, and no records exist in the wider study area. It is unlikely that this species will occur within the proposal site or the wider study area.

Fauna

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
Birds				
Australasian Bittern *Botaurus poiciloptilus*	E	E	This species favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (Typha spp.) and spikerushes (Eleocharis spp.). Hides during the day among	**Low:** No suitable wetland habitat occurs on site or will be impacted by the proposal. This species is

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
			dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	unlikely to occur due to a lack of suitable potential habitat.
Australian Painted Snipe *Rostratula australis*	E	E	Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground among tall vegetation, such as grasses, tussocks or reeds. Forages nocturnally on mud-flats and in shallow water. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Low:** No suitable wetland habitat occurs on site or will be impacted by the proposal. This species is unlikely to occur due to a lack of suitable potential habitat.
Brown Treecreeper (eastern subspecies) *Climacteris picumnus Victoriae*	-	V	Found in eucalypt woodlands (including Box-Gum Woodland) and dry open forest of the inland slopes and plains inland of the Great Dividing Range. The species mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species, and is also found in mallee and River Red Gum Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses. They are usually not found in woodlands with a dense shrub layer. Multiple recent records exist in the locality. The closest records occurs four kilometres north of the proposal site (BCD, 2020).	**Low:** The species may occur as an occasional visitor to the study area and proposal site, but is unlikely to be reliant on any vegetation to be impacted by the proposal due to its low habitat value and unconnected remnant native vegetation. This species is unlikely to be impacted by the proposal.
Curlew Sandpiper *Calidris ferruginea*	CE	E	The Curlew Sandpiper is distributed around most of the Australian coastline (including Tasmania). It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. Inland records are probably mainly of birds pausing for a few days during migration. The Curlew Sandpiper breeds in Siberia and migrates to Australia (as well as Africa and Asia) for the non-breeding	**Low:** No suitable wetland habitat occurs on site or will be impacted by the proposal. This species is unlikely to occur due to a lack of suitable potential habitat.

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
			period, arriving in Australia between August and November, and departing between March and mid-April. It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes inland. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	
Dusky Woodswallow *Artamus cyanopterus cyanopterus*	-	V	Dusky woodswallows are widespread in eastern, southern and south western Australia. The species occurs throughout most of New South Wales, but is sparsely scattered in, or largely absent from, much of the upper western region. Most breeding activity occurs on the western slopes of the Great Dividing Range. Primarily inhabit dry, open eucalypt forests and woodlands, including mallee associations, with an open or sparse understorey of eucalypt saplings, acacias and other shrubs, and ground-cover of grasses or sedges and fallen woody debris. It has also been recorded in shrublands, heathlands and very occasionally in moist forest or rainforest. Also found in farmland, usually at the edges of forest or woodland.. Multiple recent records exist in the locality. The closest records occurs 4 kilometres north of the proposal site (BCD, 2020)	**Moderate:** The species may occur as an occasional visitor to the study area and proposal site, but is unlikely to be reliant on any vegetation to be impacted by the proposal due to its low habitat value. This species is unlikely to be impacted by the proposal
Eastern Curlew *Numenius madagascarriensis*	CE	-	The Curlew is a migratory bird that travels from Australia to Russia. In Australia it is primarily coastal, residing in estuaries, bays, harbours, inlets and coastal lagoons. Forages on crabs and molluscs on mudflats (Marchant and Higgins, 1993). Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Low:** No suitable wetland habitat occurs on site or will be impacted by the proposal. This species is unlikely to occur due to a lack of suitable potential habitat.

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
Flame Robin *Petroica phoenicea*	-	V	The Flame Robin is endemic to south eastern Australia, and ranges from near the Queensland border to south east South Australia and also in Tasmania. In NSW, it breeds in upland areas and in winter, many birds move to the inland slopes and plains. It is likely that there are two separate populations in NSW, one in the Northern Tablelands, and another ranging from the Central to Southern Tablelands. Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open understoreys. The groundlayer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense. Multiple recent records exist in the locality. The closest records occurs 4.8 kilometres north of the proposal site (BCD, 2020)	**Moderate:** The species may occur as an occasional visitor to the study area and proposal site, but is unlikely to be reliant on any vegetation to be impacted by the proposal due to its low habitat value. This species is unlikely to be impacted by the proposal due to a lack of suitable potential habitat.
Grey-crowned Babbler *Pomatostomus temporalis temporalis*	-	V	The eastern subspecies (temporalis occurs from Cape York south through Queensland, NSW and Victoria and formerly to the south east of South Australia. This subspecies also occurs in the Trans-Fly Region in southern New Guinea. In NSW, the eastern sub-species occurs on the western slopes of the Great Dividing Range, and on the western plains reaching as far as Louth and Balranald. It also occurs in woodlands in the Hunter Valley and in several locations on the north coast of NSW. It may be extinct in the southern, central and New England tablelands. Inhabits open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains. Woodlands on fertile soils in coastal regions. Multiple recent records exist in the locality. The closest records occurs 4.8 kilometres north of the proposal site (BCD, 2020)	**Low:** The species may occur as an occasional visitor to the study area and proposal site as it often forages in Grey Box woodland containing White Cypress Pine. The removal of 0.36 hectares of unconnected native vegetation is unlikely to impact on the potential habitat for this species.
Glossy Black-Cockatoo	-	V	The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central	**Low:** The species may occur intermittently around the site occasionally, but no suitable habitat exists

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
Calyptorhynchus lathami			Queensland coast to East Gippsland in Victoria, and inland to the southern tablelands and central western plains of NSW, with a small population in the Riverina. An isolated population exists on Kangaroo Island, South Australia. Inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foods. Inland populations feed on a wide range of sheoaks, including Drooping Sheoak, *Allocasuaraina diminuta,* and *A. gymnathera*. Belah is also utilised and may be a critical food source for some populations. The species is known to occur over Coolamon intermittently, and has been recorded 1.3 kilometres south of the proposal site.	for the species on site and it is unlikely to reliably occur due to a lack of suitable potential habitat.
Glossy Ibis *Plegadis falcinellus*	Mi	-	The Glossy Ibis is the smallest Ibis known in Australia, and is generally located east of the Kimberly in Western Australia and Eyre Peninsula in South Australia. The species is known to be patchily distributed in the rest of Western Australia and is rare or a vagrant in Tasmania. The Glossy ibis prefers fresh water marshes at the edges of lakes, rivers, agoons, flood-plains, swamps, wet meadows and cultivated areas under irrigation, and is often found in the company of other Ibis species. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Low:** No suitable wetland habitat occurs on site or will be impacted by the proposal. This species is unlikely to occur due to a lack of suitable potential habitat.
Hooded Robin *Melanodryas cucullata cucullata*	-	V	The Hooded Robin is widespread, found across Australia, except for the driest deserts and the wetter coastal areas - northern and eastern coastal Queensland and Tasmania. However, it is common in few places, and rarely found on the coast. It is considered a sedentary species, but local seasonal movements are possible. The south-eastern form (subspecies cucullata) is found from Brisbane to Adelaide and throughout much of inland NSW, with the exception of the	**Moderate:** The species may occur as an occasional visitor to the study area and proposal site, but is unlikely to be reliant on any vegetation to be impacted by the proposal due to its low habitat value. This species is unlikely to be impacted by the proposal due to a lack of suitable potential habitat.

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
			extreme north-west, where it is replaced by subspecies picata. Two other subspecies occur outside NSW. Prefers lightly wooded country, usually open eucalypt woodland, acacia scrub and mallee, often in or near clearings or open areas. Requires structurally diverse habitats featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses. A record for the species exists in the locality. The closest records occurs 4.8 kilometres north of the proposal site (BCD, 2020)	
Little Eagle *Hieraaetus morphnoides*	-	V	The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. Sheoak or Acacia woodlands and riparian woodlands of interior NSW are also used. A record for the species exists in the locality. The closest records occurs 4.8 kilometres north of the proposal site (BCD, 2020)	**Low:** The species may occur in the wider study area, but is unlikely to utilise the proposal site as it lacks any suitable habitat for the species.
Major Mitchell's Cockatoo *Lophochroa leadbeateri*	-	V	Found across the arid and semi-arid inland, from south-western Queensland south to north-west Victoria, through most of South Australia, north into the south-west Northern Territory and across to the west coast between Shark Bay and about Jurien. In NSW it is found regularly as far east as about Bourke and Griffith, and sporadically further east than that. Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. Feeds mostly on the ground, especially on the seeds of native and exotic melons and on the seeds of species of saltbush, wattles and cypress pines. Two historical records from 1998 and 1999 for this species exist within the wider study area, approximately four kilometres from the proposal site.	**Low:** The species may occur intermittently around the site occasionally, but no suitable habitat exists for the species on site and it is unlikely to reliably occur.

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
			The species is known to occur in Coolamon occasionally, and has been recorded 1.3 kilometres south of the proposal site.	
Malleefowl *Leipoa ocellata*	V	E	Occurs in semi-arid to arid mallee country in the south-west of NSW. Its NSW stronghold is centred on Mallee Cliffs NP, extending east to Balranald and with scattered records north to Mungo NP. There are also populations near Dubbo (Goonoo forest). Occasional records exist from the Pilliga, around Cobar and Goulburn River NP. Predominantly inhabit mallee communities, preferring the tall, dense and floristically-rich mallee found in higher rainfall (300 - 450 mm mean annual rainfall) areas. Utilises mallee with a spinifex understorey, but usually at lower densities than in areas with a shrub understorey. Less frequently found in other eucalypt woodlands, such as Inland Grey Box, Ironbark or Bimble Box Woodlands with thick understorey, or in other woodlands such dominated by Mulga or native Cypress Pine species. Prefers areas of light sandy to sandy loam soils and habitats with a dense but discontinuous canopy and dense and diverse shrub and herb layers. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Low:** No suitable mallee habitat occurs on site or will be impacted by the proposal. This species is unlikely to occur due to a lack of suitable potential habitat.
Painted Honeyeater *Grantiella picta*	V	V	Nomadic, occurring in low densities across most of NSW. Highest concentrations and almost all breeding occur on inland slopes of the Great Dividing Range. Inhabits Boree, Brigalow and Box Gum woodlands and Box-Ironbark forests. Specialist forager on the fruits of mistletoes, preferably of the Amyema genus. Nests in outer tree canopy. A specialist feeder on the fruits of mistletoes growing on woodland eucalypts and acacias. Prefers mistletoes of the genus *Amyema*. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Low:** The proposal site does not contain habitat likely to support the species, the species is unlikely to occur due to a lack of suitable potential habitat.

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
Regent Honeyeater *Anthochaera phrygia*	CE	CE	The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Low:** The proposal site does not contain habitat likely to support the species, the species is unlikely to occur due to a lack of suitable potential habitat.
Speckled Warbler *Chthonicola sagittata*	-	V	The Speckled Warbler has a patchy distribution throughout south-eastern Queensland, the eastern half of NSW and into Victoria, as far west as the Grampians. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. A record for the species exists in the locality. The closest records occurs 4.8 kilometres north of the proposal site (BCD, 2020)	**Low:** The proposal site does not contain habitat likely to support the species, as no large, relatively undisturbed habitat exists in the study area. The species is unlikely to occur due to a lack of suitable potential habitat.
Superb Parrot *Polytelis swainsonii*	V	V	The Superb Parrot is found throughout eastern inland NSW. On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. Birds breeding in this region are mainly absent during winter, when they migrate north to the region of the upper Namoi and Gwydir Rivers. The other main breeding sites are in the Riverina along the corridors of the Murray, Edward and Murrumbidgee Rivers where birds are present all year round. In the Riverina the birds nest in the hollows of large trees	**Low:** The species may occur as an occasional visitor to the study area and proposal site, but is unlikely to be reliant on any vegetation to be impacted by the proposal due to its low habitat value. This species is unlikely to be impacted by the proposal.

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
			(dead or alive) mainly in tall riparian River Red Gum Forest or Woodland. On the South West Slopes nest trees can be in open Box-Gum Woodland or isolated paddock trees. Species known to be used are Blakely's Red Gum, Yellow Box, Apple Box and Red Box. Inhabit Box-Gum, Box-Cypress-pine and Boree Woodlands and River Red Gum Forest. The species is known to occur in the Coolamon area an a record for the species exists 2.1 kilometres west of the proposal site (BCD, 2020). Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	
Swift Parrot *Lathamus discolor*	CE	E	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. 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, Mugga Ironbark E. sideroxylon, and White Box E. albens. Commonly used lerp infested trees include Inland Grey Box E. microcarpa, Grey Box E. moluccana and Blackbutt E. pilularis. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Low:** The proposal site does not contain habitat likely to support the species, the species is unlikely to occur due to a lack of suitable potential habitat.
White-fronted Chat *Epthianura albifrons*	-	V	The White-fronted Chat is found across the southern half of Australia, from southernmost Queensland to southern Tasmania, and across to Western Australia as far north as Carnarvon. Found mostly in temperate to arid climates and very rarely sub-tropical areas, it occupies foothills and lowlands up to 1000 m above sea level. In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the	**Moderate:** The species may occur as an occasional visitor to the study area and proposal site, but is unlikely to be reliant on any vegetation to be impacted by the proposal due to its low habitat value. This species is unlikely to be

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
			coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas. Gregarious species, usually found foraging on bare or grassy ground in wetland areas, singly or in pairs. They are insectivorous, feeding mainly on flies and beetles caught from or close to the ground. A record for the species exists in the locality. The closest records occurs 4.8 kilometres north of the proposal site (BCD, 2020)	impacted by the proposal due the small scale of impacts and the lack of suitable potential habitat.
White-throated Needletail *Hirundapus caudacutus*	Mi	-	The White-throated Needletail is widespread in eastern and south-eastern Australia. In eastern Australia, it is recorded in all coastal regions of Queensland and NSW, extending inland to the western slopes of the Great Divide and occasionally onto the adjacent inland plains. A large proportion of the White-throated Needletails of the nominate subspecies would occur in Australia as non-breeding visitors. Most White-throated Needletails spend the non-breeding season in Australasia, mainly in Australia, and occasionally in New Guinea and New Zealand, though it has been suggested that some may overwinter in parts of South-East Asia. As the Needletails that occur in Australia migrate from breeding areas in the Northern Hemisphere, they would be affected by global threats. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	**Low:** This species may occur aerially of the proposal site, but will not be impacted by the proposal as no habitat of value for the species will be impacted.
Mammals				
Corben's Long-eared Bat *Nycotophilus corbeni*	V	V	Overall, the distribution of the south eastern form coincides approximately with the Murray Darling Basin with the Pilliga Scrub region being the distinct stronghold for this species. Inhabits a variety of vegetation types, including mallee, bulloke and box eucalypt dominated communities, but it is distinctly	**Low:** This species is unlikely to occur as no woodland habitat suitable for this species occurs in the study area. The removal of 0.36 hectares of unconnected native vegetation is unlikely to impact on the potential habitat for this species

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
			more common in box/ironbark/cypress-pine vegetation that occurs in a north-south belt along the western slopes and plains of NSW and southern Queensland. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020)	
Koala *Phascolarctos cinereus*	V	V	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In NSW it mainly occurs on the central and north coasts with some populations in the west of the Great Dividing Range. It was briefly historically abundant in the 1890s in the Bega District on the south coast of NSW, although not elsewhere, but it now occurs in sparse and possibly disjunct populations. Koalas are also known from several sites on the southern tablelands. Feed on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	**Low:** This species is unlikely to occur as no woodland habitat suitable for this species occurs in the study area. This species is unlikely to be impacted by the proposal due to a lack of suitable potential habitat within the proposal site.
Grey-headed Flying Fox *Pteropus poliocephalus*	V	V	Roosts in camps within 20km of a regular food source, typically in gullies, close to water and in vegetation with a dense canopy. Forages in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, swamps and street trees, particularly in eucalypts, melaleucas and banksias. Highly mobile with movements largely determined by food availability (Eby & Law, 2008). Will also forage in urban gardens and cultivated fruit crops. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	**Low:** This species is unlikely to occur as no woodland habitat suitable for this species occurs in the study area. This species is unlikely to be impacted by the proposal due to a lack of suitable potential habitat within the proposal site.

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
Flathead Galaxias *Galaxias rostratus*	CE	CE	The species is generally found mid-water in still and gently moving waters of small streams, lakes, lagoons, billabongs and backwaters. Its habitat consists of coarse sand or mud substrate and aquatic vegetation. It is thought that the species may be locally extinct from the lower Murray, Murrumbidgee, Macquarie and Lachlan Rivers. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	**None:** No suitable aquatic habitat occurs on site for this species
Macquarie Perch *Macquaria australasica*	E	E	Occurs in the upper reaches of the Lachlan, Murrumbidgee and Murray Rivers, and in parts of the Hawkesbury and Shoalhaven catchment areas. Inhabits river and lake habitats, especially the upper reaches of rivers and their tributaries. Requires clear water with deep, rocky holes and abundant cover (including aquatic vegetation, woody debris, large boulders and overhanging banks). Spawning occurs in spring and summer in shallow upland streams or flowing sections of river systems. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	**None:** No suitable aquatic habitat occurs on site for this species
Murray Cod *Maccullochella peelii peelii*	V	-	Occurs throughout the Murray-Darling Basin. Can live in a wide range of habitats, from clear, rocky streams in the upper western slopes regions of New South Wales to the slow flowing, turbid rivers and billabongs of the western plains. Generally, they are found in waters up to 5m deep and in sheltered areas with cover from rocks, timber or overhanging banks. The presence of wood debris has been shown to be the primary factor determining Murray cod presence. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	**None:** No suitable aquatic habitat occurs on site for this species
Pink-tailed Worm Lizard *Aprasia parapulchella*	V	V	Populations occur in the Queanbeyan/Canberra district, Cooma, Yass, Bathurst, Albury and West Wyalong areas. Inhabits grassland and open woodland with substantial embedded rock cover in sunny situations. Recorded in both	**Low:** No suitable rocky habitat occurs on site for this species.

Species	Status		Habitat requirements	Likelihood of occurrence in the proposal site and study area and likelihood of impact
	EPBC Act	BC/FM Act		
			native and non-native grasslands. Usually recorded under small rocks (150 - 600 mm basal area) shallowly embedded in the soil (2 - 5 cm, and use ant burrows under these rocks. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	
Southern Bell Frog *Litoria raniformis*	V	E	In NSW the species was once distributed along the Murray and Murrumbidgee Rivers and their tributaries, the southern slopes of the Monaro district and the central southern tablelands as far north as Tarana, near Bathurst. Currently, the species is known to exist only in isolated populations in the Coleambally Irrigation Area, the Lowbidgee floodplain and around Lake Victoria. A few yet unconfirmed records have also been made in the Murray Irrigation Area in recent years. The species is also found in Victoria, Tasmania and South Australia, where it has also become endangered. Usually found in or around permanent or ephemeral Black Box/Lignum/Nitre Goosefoot swamps, Lignum/Typha swamps and River Red Gum swamps or billabongs along floodplains and river valleys. They are also found in irrigated rice crops, particularly where there is no available natural habitat. Predicted to occur within 20 kilometres of the proposal site using the PMST search (DAWE, 2020).	**Low:** No suitable aquatic or wetland habitat occurs on site for this species.

Appendix C – Assessments of significance

EP&A Act assessments of significance (Biodiversity Conservation Act)

Section 7.3 of the *Biodiversity Conservation Act 2016* and section 1.7 of the EP&A Act lists five factors that must be taken into account in the determination of the significance of potential impacts of an activity on 'threatened species', populations or ecological communities (or their habitats) listed under the BC Act.

The ' test of significance or 5-part test' is used to determine whether an activity is 'likely' to impose 'a significant effect' on threatened biota and thus whether a species impact statement (SIS) is required. Should the Test of Significance conclude that a significant effect is likely, an SIS must be prepared.

A five part tests has been provided for the threatened community to be impacted by the proposal.

Section 1.7 assessments **Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (Grey Box Woodland)**	
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,**

A threatened species is not the subject of this assessment of significance

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**

The proposal would remove up to 0.36 hectares of Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregion (Grey Box Woodland). The roadside woodland to be removed is comprised of most White Cypress Pine (*Callitris glaucophylla)* regrowth, some native shrubs and trees such as Wilga (*Geijera parviflora)* and Kurrajong (*Brachychiton populneus)* and some mature Grey Box (*Eucalyptus microcarpa)* and Yellow Box (*Eucalyptus melliodora)* trees. The remnant woodland patch is restricted to a small (up to 10 metres wide but mostly 3 to 4 metres wide) stretch between the roadway and the proposed subdivision lots. In total, about 0.36 hectares of woodland occurs in the proposal site, and would be removed by the proposal. Where possible, mature eucalypts would be retained.

Woodland in the patch (along the Wade Street roadside) is isolated from all other woodland communities in the surrounding study area, as the site occurs in the residential area of the township of Coolamon, and adjacent landuse has modified the surrounding area. Some planted trees and shrubs occur in the area surrounding the woodland patch, but this mostly consists of garden plantings, roadside plantings and isolated non-locally native planted trees and shrubs.

Alternate native woodland patches are available within the road reserve of Canola Way (Wade Street) and Curtis Street to the east and south, and woodland patches occur to the north along Bredins Lane, and within the Coolamon Golf Course. Woodland patches to the north connect to Kindra State Forrest, and approximately 80 hectare remnant Grey Box woodland patch in the study area.

Given its location within the township of Coolamon, and its isolation from other areas of good quality, it is unlikely that woodland to be removed for the proposal represents quality habitat in the study area. The woodland is very narrow, and does not contain significant suitable habitat likely to support fauna species. The woodland patch may be used as a stepping stone for fauna to traverse the site to higher quality woodland in Kindra State Forrest, however significant woodland, non-native and planted vegetation is available outside of the proposal site to still allow for this.

The proposed removal of Grey Box woodland from the proposal site would be unlikely to have an adverse effect on the extent of Grey Box Woodland for the reasons described above, and as such it is unlikely to place a local occurrence of this community at risk of extinction.

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

The proposal has the potential to modify the composition of the ecological community by creating conditions conducive to the spread of weed species. This could occur through general disturbance from machinery, vehicles and foot traffic. These conditions could lead to the spread of invasive species such as African Boxthorn, which is already present in the study area.

Given the occurrence of the small patch of Grey Box woodland in an isolated location surrounded by significantly modified and highly degraded exotic grasslands containing a high composition of invasive and introduced species, it is unlikely that works in the proposal site would substantially and adversely modify the composition of the ecological community such that its local occurrence would 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

The proposal would remove up to 0.36 hectares of Grey Box Woodland from the roadside corridor within the proposal site. The roadside vegetation to be removed is comprised of trees, shrubs and groundcover vegetation. The majority of the trees to be removed from site are White Cypress Pine regrowth. Also included in the removal is various native trees and shrubs such as Wilga and Kurrajong trees, Grey Box and Yellow Box. Where possible, mature eucalypts would be retained.

The patch to be disturbed is already modified and subject to edge effects and fragmentation due to residential developments within Coolamon.

The Grey Box Woodland patch is very small and is unlikely to represent significant habitat for species. The woodland to be removed is comprised of mostly White Cypress Pine, with few mature eucalypts to be removed. The proposal would also remove and impact on shrubs and groundcover vegetation generally dominated by native flora species. Where possible, mature eucalypts would be retained.

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

The woodland in the study area is fragmented by nearby residential developments within Coolamon and by linear infrastructure such as roads, including Wade Street. Vegetation connectivity is limited in the proposal site, and is restricted to planted non-native and native species, and some remnant roadside vegetation along Canola Way (east of Wade Street). Patchy woodland connectivity is available to the north of the proposal site via native and planted patches of woodland along roadsides, in private lots and within the Coolamon Golf Course. These woodland patches connect to Kindra State Forrest, a large remnant Grey Box woodland patch north-east of Coolamon.

The removal of 0.36 hectares of Grey-Box Woodland is unlikely to result in significant additional fragmentation to that which has already occurred due to removal being limited to the edges of the existing road where the groundcover contains a higher proportion of introduced species compared to the surrounding woodland. Where possible, mature eucalypts would be retained. The proposal would not sever or isolate any patches of habitat.

(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,

Grey Box Woodland in the proposal site is of low quality, and is mostly comprised of White Cypress Pine regrowth. The woodland has been degraded by residential developments and the construction of

the road in the study area. It is also lacks substantial habitat components and is unlikely to provide suitable habitat for species in the study area.

Due to the removal of only a very small area of Grey Box Woodland by the proposal, which represents only a minor fraction of the woodland present in the study area and locality the area of Grey Box the proposal is unlikely to put the long-term survival of the ecological community in the locality at risk.

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

No areas of outstanding biodiversity value exist in the study area

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.

The proposed action constitutes one listed key threatening process relevant to the Grey Box Woodland ecological community:

- Clearing of native vegetation – the proposal would remove 0.36 hectares of Grey Box Woodland. This is unlikely to represent a significant loss of the Grey Box Woodland ecological community, as described above.

Conclusion

The proposal would be unlikely to have a significant effect on the endangered Grey Box Woodland ecological community as:

- Only a small area of vegetation representative of the community would be removed from an isolated patch compared to the extent of the community in the study area and locality (about 0.36 hectares)
- The small amount of isolated woodland removal from the ecological community is unlikely to result in significant additional fragmentation to that which has already occurred
- The isolated woodland to be removed is unlikely to represent significant habitat for species due to its small size, location in a built-up area and isolation from other areas of habitat
- Parts of the community to be removed are mainly comprised of regrowth White Cypress Pine.

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Rev0	B. Turner	L. Maloney		L. Maloney		03/07/2020
FINAL	B. Turner	L. Maloney		L. Maloney		21/07/2020

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Appendix D - Consultation

REQUEST FOR SEARCH OF LAND CLAIM REGISTER

OFFICE OF THE REGISTRAR
ABORIGINAL LAND RIGHTS ACT 1983 (NSW)

Level 3, 2-10 Wentworth Street
Parramatta NSW 2124
02 8633 1266
PO Box 5068
Parramatta NSW 2124

Please print all details clearly using block letters

1. Contact details

Full name:	Ashleigh Edmond
Name of company:	GHD Pty Ltd
Postal address:	161/169 Baylis St, Wagga Wagga NSW 2650
Email address:	ashleigh.edmond@ghd.com
Telephone number:	0411379956

2. Real Property Details (if more than one parcel please attach separate table)

Lot / Section / Deposited Plan:	2/-/DP838319 2/-/DP1221837
Parish:	Coolamon
County:	Australia

Attached is a copy of the current title search(es), please tick (✓): ☐

3. To assist our office in assigning priorities please provide:

a. The purpose for which information is required:

GHD is conducting a review of environmental effects on this land for proposed development by Coolamon Council

b. The reason for urgency (when urgent consideration is required):

Please note:

i. Searches will only be performed on Crown Land.
ii. In order to process a search we require a copy of a current title search for the relevant land.
iii. Subject to demand, searches are normally completed within 10 working days. Complex searches may take longer.
iv. If your search is urgent, please indicate why at point 3b above.
v. Please send the completed form together with current relevant title search(es) via email to: **ALC@oralra.nsw.gov.au**

4 Signature and date:

Appendix E – Statement of environmental effects

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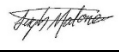
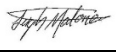
DRAFT B	B. Turner	L. Maloney		L. Maloney		09/12/2020

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