

Review of Environmental Factors

July 2024

Lachlan River Precinct Pipeline and Solar Arrays

Prepared for  **PARKES SHIRE COUNCIL**



The Environmental Factor

Review of Environmental Factors – Lachlan River Precinct Pipeline and Solar Arrays

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This Report has been prepared by The Environmental Factor (TEF) on behalf of Parkes Shire Council (PSC or Council), to assess to the fullest extent possible, the matters affecting or likely to affect the environment as a result of the proposed construction of a pipeline, solar array, and associated, access road, and electrical connections associated with water supply infrastructure located within the Lachlan River Precinct (LRP), in the Forbes Shire Council Local Government Area, NSW (hereafter 'the Proposal'). This document is not intended to be utilised or relied upon by any persons other than the Client, nor to be used for any purpose other than that articulated above. Accordingly, TEF accepts no responsibility in any way whatsoever for the use of this report by any other persons or for any other purpose.

The information, statements, recommendations, and commentary (together the "Information") contained in this report have been prepared by TEF from material provided by Council and from material provided by the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) and the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), and through the assessment process.

This report has been developed in accordance with the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act), the *NSW Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) and the Department of Planning and Environment's (DPE) Guidelines for Division 5.1 assessments (DPE Guidelines) and demonstrates how the environmental factors specified in the DPE Guidelines (which simply adopt the factors specified in section 171(2) of the EP&A Regulation), have been taken into account when considering all matters affecting or likely to affect the environment by reason of the proposed activity. TEF has not sought any independent confirmation of the reliability, accuracy, or completeness of this information. It should not be construed that TEF has carried out any form of audit of the information which has been relied upon.

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Abbreviations

Abbreviation	Description
ABS	Australian Bureau of Statistics
ADD	Aboriginal Due Diligence
AOBV	Areas of Outstanding Biodiversity Value
ASC	Australian Soil Classification
ASS	Acid Sulfate Soils
AWS	Automatic Weather Station
BAM	Biodiversity Assessment Methodology
BC Act	<i>Biodiversity Conservation Act 2016</i>
BoM	Bureau of Meteorology
BOS	Biodiversity Offset Scheme
BVM	Biodiversity Values Map
CEMP	Construction Environmental Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water (formerly DAWE)
DECC	Department of Energy and Climate Change
DEWHA	Department of the Environment, Water, Heritage and the Arts
DPI	Department of Primary Industries
DPE	Department of Planning and Environment (formerly OEH)
ELA	Eco Logical Australia
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	Environmental Protection Authority
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
ERSED	Erosion and Sediment Control
ESD	Ecologically Sustainable Development
FM Act	<i>Fisheries Management Act 1994</i>
FSC	Forbes Shire Council
GBD	General Biosecurity Duty
GHG	Green House Gas
HBT	Hollow Bearing Tree
HTE	High Threat Exotic
ICNG	Interim Construction Noise Guidelines
KFH	Key Fish Habitat
LEP	Local Environmental Plan
LGA	Local Government Area

Abbreviation	Description
LLS Act	<i>Local Land Services Act 2013</i>
LLSA Act	<i>Local Land Services Amendment Act 2016</i>
LRP	Lachlan River Precinct
LRPS	Lachlan River Pumping Station
LRPTP	Lachlan River Pre-treatment Plant
MNES	Matters of National Environmental Significance
NPW Act	<i>National Parkes and Wildlife Act 1974</i>
PCT	Plant Community Type
PMO	Project Management Office
POEO Act	Protection of the Environment Operations Act 1997
PS	Pump Station
PSC or Council	Parkes Shire Council
PV	Photovoltaic
PWSP	Parkes Water Sharing Plan
QA	Quality Assurance
RCP	Representative Concentration Pathway
REF	Review of Environmental Factors
RF Act	<i>Rural Fires Act 1997</i>
RM	Rising Main
RRG	River Red Gum
RWSD	Raw Water Storage Dam
SAII	Serious and Irreversible Impacts
SAP	Special Activation Precinct
SEPP	State Environmental Planning Policy
SIS	Species Impact Statement
TCP	Traffic Control Plan
TEC	Threatened Ecological Community
TEF	The Environmental Factor
TfNSW	Transport for New South Wales
TISEPP	<i>Transport and Infrastructure State Environmental Planning Policy 2021</i>
ToS	Tests of Significance
WM Act	<i>Water Management Act 2000</i>
WoNS	Weeds of National Significance
WSWA	Water Supply Works Approval

Executive Summary

This Review of Environmental Factors (REF) has been prepared by The Environmental Factor (TEF), on behalf of Parkes Shire Council (PSC or Council) to present the findings of the investigations undertaken into the potential environmental impacts arising as a result of the construction and operation of the pipeline and two (2) solar arrays associated with water supply infrastructure located within the Lachlan River Precinct (LRP), in the Forbes Shire Council Local Government Area, NSW (hereafter 'the Proposal'). The Proposal involves constructing an access road, constructing two (2) solar arrays, trenching and laying water pipeline and construction of ancillary infrastructure including electrical connections. The pipeline will be constructed through the LRP property, connecting into an existing short section of pipeline under the Escort Way before travelling southeast for approximately 850 m in the Escort Way road reserve connecting into Reservoir 1A off Fairview Road.

The Proposal forms a discrete and independent part of a broader program that aims to support greater water security within Parkes and throughout the central west region, in particular Council's and other water utilities that are included in the Central NSW Joint Organisation (CNSWJO). This initiative is aimed at supporting critical drinking water security and planned developments to the west of Parkes, including the proposed future Special Activation Precinct (SAP) developments. The proposed pipeline will help meet the requirements of the program by providing upgraded water supply infrastructure. The proposed solar arrays will help reduce ongoing energy consumption and operating costs for infrastructure within the LRP that includes the Lachlan River Pump Station (LRPS) and Lachlan River Pre-Treatment Plant (LRPTP).

This report has considered to the fullest extent possible all matters affecting or likely to affect the environment by way of this Proposal under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and has considered:

- impacts on Matters of National Environmental Significance (MNES) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) (refer Section 4.7 Appendix B)
- matters affecting or likely to affect the environment in accordance with s 5.5 of the EP&A Act and the DPE Guidelines (refer Section 3.2 and Section 4)
- impacts on threatened species in accordance with s 7.8 of the *Biodiversity Conservation Act 2016* (BC Act) and Part 7A Division 12 of the *Fisheries Management Act 1994* (FM Act) (refer Sections 3.2.1, 3.2.6, 4.7 and Appendix B)

This report identifies where proposed construction works could impact the surrounding environment. Construction activities will occur within cultivated farmland and the existing road-reserve, impacting on native and exotic vegetation, woodland communities, and habitats. Potential environmental impacts arising from the Proposal includes typical construction impacts associated with stripping/grubbing of groundcover, disturbance to soils through earth works and excavation/surface grading, changes to traffic flows and the presence of heavy machinery, increases to dust and noise emissions during the construction phase as well as potential for erosion and subsequent sediment migration into waterways via the existing drainage lines. In addition, there is the potential for cumulative impacts from other proposed works within the LRP including the construction of the LRPTP and upgrades to the existing LRPS. Given that PSC are responsible for all associated proposals in the program, the construction impacts of this Proposal would be scheduled to minimise cumulative effects of the separate proposals proceeding at the same time. Provided the environmental safeguards outlined in this REF are followed, the impacts identified are not likely to have a significant impact on the environment.

The subject site occurs within and adjacent to The Escort Way road reserve in the Forbes LGA. The Escort Way is classified as a State Road and is managed and maintained by Forbes Shire Council (FSC); Transport for NSW (TfNSW) and FSC have been consulted as part of REF development as consent will be required from the roads authority,

being FSC, under s138 of the *Roads Act 1993* (s138 Permit); and as a classified road, concurrence will be required from TfNSW, prior to construction commencing.

The surrounding environment has been historically cleared, and native vegetation in the surrounding area is comprised of large, mature River Red Gum trees, several of which were recorded as containing hollows. It is not anticipated that any impacts to canopy vegetation would occur given that there is sufficient gap to allow the construction of the pipeline and road without impacting on any mature trees. Up to thirty-seven (37) threatened species identified in the surrounding locality via desktop assessment are considered to have a moderate likelihood of occurring, however given that habitat features specific to these species would not be impacted, and impacts are limited to predominantly exotic vegetation from a disturbed and degraded road reserve and agricultural paddock, it is anticipated that the Proposal would be unlikely to have a significant impact on threatened species, populations or ecological communities, or their habitats. If construction methodology or assessed impact footprint (subject site) are amended, re-assessment of the potential impacts to threatened biota would be required.

The Lachlan River is located within the study area and is approximately 60 m from where the pipeline will be constructed. Potential impacts to downstream surface waters relate directly to erosion and increased sedimentation during construction. This could result in impacts to the water quality within the adjacent Lachlan River. If Erosion and Sediment (ERSED) control measures and best practice design principles are adhered to, impacts to waterways are anticipated to be negligible. As works are proposed within the mapped Key Fish Habitat (KFH) area of the river, a Part 7 Fisheries Permit will be required to allow for dredging or reclamation works within the waterway.

The Tallawalla property and adjacent Escort Way road reserve have been assessed extensively for Aboriginal heritage in the past. A low density artefact scatter was identified in 2015 along the terrace landform of the Lachlan River. Following the resulting report and assessment, an AHIP was issued to Council in 2015; the subject site includes this AHIP area, which remains active until May 2025. In 2021 an assessment was completed for the proposed construction of a 9 km water pipeline through the LRP. The investigation area runs directly adjacent to the subject site and transects the AHIP area. The resulting Aboriginal Cultural Heritage Assessment (ACHA) prepared for the pipeline project included community consultation and a test excavation program. A portion of the subject site encompassing the southern solar array area is noted as being outside the approved ACHA/test pit area. As such, Council will require additional assessment in accordance with the Aboriginal 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' of this unsurveyed area prior to works proceeding.

An Aboriginal Due Diligence (ADD) assessment was prepared in 2024 to assess the section of proposed pipeline within the Escort Way road reserve. The reports note that one (1) culturally modified tree was identified near the subject site and one previously identified modified community interest tree was noted 10 – 20 m north of the proposed pipeline alignment. Given the presence of multiple heritage sites surrounding the subject site, the Proposal has the potential for impacts to known Aboriginal heritage. In addition, there is also the possibility of encountering and impacting unknown archaeological material during works. The REF includes Safeguards that must be implemented to reduce the risk of direct impacts to Aboriginal heritage. If the construction methodology or assessment impact footprint (subject site) are amended, re-assessment of the potential impacts to Aboriginal heritage would be required.

All work will be completed under the guidance of a Construction Environmental Management Plan (CEMP) to manage potential environmental impacts associated with the work. Once operational, the Proposal is not expected to cause any significant environmental or community impacts. The proposed infrastructure upgrade is anticipated to have positive socio-economic benefits for the local community, through the provision of improved water supply infrastructure. Given the nature, scale and extent of impacts, and assuming strict implementation of the environmental safeguards outlined in this REF, the Proposal is **unlikely to have a significant adverse impact** on the environment. It is considered that all matters affecting or likely to affect the environment by reason of the Proposal have been considered as required by s5.5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1 Introduction

The Environmental Factor (TEF) has been engaged by Parkes Shire Council (PSC) to undertake a Review of Environmental Factors (REF) to consider to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed construction of a pipeline and solar arrays associated with water supply infrastructure located within the Lachlan River Precinct (LRP), in the Forbes Shire Council Local Government Area, NSW (hereafter 'the Proposal'). The Proposal involves constructing an access road, constructing two (2) solar arrays, trenching and laying water pipeline and construction of ancillary infrastructure including electrical connections. The pipeline will be constructed through the LRP property, connecting into an existing short section of pipeline under the Escort Way before travelling southeast for approximately 850 m in the Escort Way road reserve connecting into Reservoir 1A off Fairview Road.

The Proposal would occur in a diverse landscape, with surrounding land consisting of a combination of remnant native vegetation, water supply infrastructure, rural properties, agricultural land and The Escort Way highway, which connects the townships of Forbes and Eugowra and is an important State road that connects communities and businesses with the surrounding region.

This report has considered to the fullest extent possible all matters affecting or likely to affect the environment under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and has considered:

- impacts on Matters of National Environmental Significance (MNES) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) (refer Section 4.7 Appendix B)
- matters affecting or likely to affect the environment in accordance with s 5.5 of the EP&A Act and the DPE Guidelines (refer Section 3.2 and Section 4)
- impacts on threatened species in accordance with s 7.8 of the *Biodiversity Conservation Act 2016* (BC Act) and Part 7A Division 12 of the *Fisheries Management Act 1994* (FM Act) (refer Sections 3.2.1, 3.2.6, 4.7 and Appendix B)

Concept design plans have been provided to display the location of the proposed pipeline and solar array locations (Appendix A).

1.1 Site description

The site on which the proposed pipeline and solar array are to be constructed is southwest of the proposed Lachlan River Pre-treatment Plant (LRPTP) within Lot 81 DP750183, a property known locally as 'Tallawalla', commencing approximately 110 m to the southwest of the LRP access road (refer Figure 2). The pipeline would traverse the Tallawalla property before connecting to a short section of existing pipeline under the Escort Way (assessment of which was completed under a separate REF – see TEF, 2023). Pipeline would be constructed via standard trenching technique within the Escort Way road reserve southeast for approximately 850 m connecting an existing pipeline at Reservoir 1A off Fairview Road.

The site is dominated by remnant native vegetation within the road reserve, and the road infrastructure of The Escort Way.

The broader surrounding environment is highly cleared, and native vegetation in the surrounding area is predominantly restricted to remnant roadside vegetation along The Escort Way and other roads and lanes in the locality, and to the riparian corridor of the Lachlan River to the south. The surrounding area contains

predominantly mixed use (cropping and grazing) agricultural farmland, which has been mostly cleared of native vegetation. Some remnant scattered paddock trees are evident via satellite imagery, however these are sparse and not connected through the landscape. Some areas of gilgais and wetland areas were observed via satellite imagery to the north of the Proposal in adjacent agricultural land.

A review of the Biodiversity Values Map (BVM) accessed 16/05/2024 did not identify the study area as occurring within land mapped as containing Biodiversity Values. Biodiversity Values are however mapped as encompassing the Lachlan River riparian zone, immediately south of the study area.

The subject site is unmapped on the Native Vegetation Regulatory Mapping (DPIE 2021) and subsequently not located within Vulnerable Regulated Land or Sensitive Regulated Land. The remainder of the study area is unmapped as well, with areas of Category 2 – Vulnerable Regulated Land immediately south of the study area, coinciding with the protected riparian land of the Lachlan River.

1.2 Proposal Background

The Parkes Shire LGA is experiencing an increased water supply demand, arising from changing climatic conditions coupled with significant growth in the industrial and residential sectors. This has led PSC to propose undertaking a series of independent strategic water infrastructure initiatives aimed at supporting greater water security within Parkes and throughout the Central West region as part of the proposed future Special Activation Precinct (SAP) developments. This is known as the Parkes Water Security Program ('the Program').

The Program consists of a number of initiatives designed to increase water security without overly stressing the aquifer and riverine environments. Thus, the construction of a pipeline within the LRP is aimed at accommodating a diversification of raw water sources used to supply the Parkes WTP thus improving water security in the LGA.

The Proposal's construction phase is proposed to commence in November 2024 with the works estimated to take 8 weeks. Works would be contained within the existing road reserve of The Escort Way and Council owned 'Tallawalla', identified as Lot 81 in DP 750183.

1.2.1 Proposal objectives

The primary objective of the Proposal is to assist Council in providing greater water security within Parkes and throughout the Central West, through provision of upgraded water infrastructure to supply the Parkes WTP.

The construction of pipeline and solar arrays is consistent with the objectives of the Parkes Shire Community Strategic Plan titled 'Parkes Shire 2035+'. Specifically, '**Objective 3.4 – Our utilities well planned and efficiently managed**'. The strategic plans to meet this objective are identified as:

- 3.4.1 – Provide essential water and sewer infrastructure to meet the needs of our growing community
- 3.4.2 – Ensure effective collection and safe water treatment of wastewater, balancing the production of sustainable recycled water with return to the environment
- Ensure the optimisation of water consumption by promoting reuse opportunities and waste minimisation across the Parkes Shire

Thus, the primary objective of the Proposal is to assist Council in providing greater water security to local residents through provision of critical water supply infrastructure. The secondary objectives are to achieve

this goal with minimal impact to native biota, neighbouring properties, road users and the surrounding environment.

Project objectives will be achieved thorough delivery of a comprehensive community consultation and stakeholder engagement plan, pre-commencement impact boundary delineation and careful design and construction methodology to minimise potential impacts to the surrounding community and natural environment. Council and its appointed contactor will complete ongoing engagement and communications with residents and businesses adjacent to the construction area, pre-clearing survey and site inductions for work personnel, in combination with implementation of the Environmental Safeguards provided in this report (Appendix D).

1.3 Terms and definitions

The terms and definitions used throughout this report are described in Table 1 below.

Table 1 Terms and definitions

Term	Definition
Subject site	<p>The area to be directly affected by the Proposal, including earthworks and vegetation clearing. Includes:</p> <ul style="list-style-type: none"> • Construction of approximately 160 m of new access road within the LRP • Installation of two (2) ground level solar arrays on steel frames • Construction of approximately 1,300 m of new pipeline to connect the LRP with reservoir 1A • Connect ancillary electrical connections <p>For a total direct impact footprint of 3.57 ha (Figure 1).</p>
Study area	<p>Includes the subject site (as described above) and any proximal areas that could be potentially directly or indirectly impacted by the Proposal. For the purposes of this report the study area encompasses the subject site, and a 25m buffer around the subject site measuring a combined total area 12.09 ha.</p> <p>The subject site and study area are shown in Figure 2.</p>
The Locality	The area within 10 kilometres of the subject site.

2 Proposal Description

The Proposal, as assessed herein, constitutes the construction of water pipeline and solar arrays at the approximate location of MGA Zone 55, easting: 605642.253, northing: 6304659.101, within Lot 81 DP 750183. The pipeline would traverse the LRP property to the existing pipeline under the Escort Way, for the pipeline to then travel southeast for approximately 850 m through the road reserve to Reservoir 1A off Fairview Road. Construction of an access road is also proposed to connect to the existing LRP access road, as well as the southern solar array and connection of electrical services. The proposed pipework installation, solar array, and ancillary infrastructure is intended to upgrade existing water supply infrastructure within the LRP.

Council proposes to engage a contractor to complete all works. The road construction will involve forming a maximum four (4) metre wide all-weather surface with a five (5) m wide direct impact zone either side to allow for movement of machinery and shaping of surface drainage structures as appropriate. The proposed pipeline includes both DN 250 and DN 375 pipeline, with a 500 mm and 750 mm trench respectively, and a five (5) metre direct impact zone either side. The direct impact area (the subject site) will have a 25 m indirect impact area applied (the study area). The fixed axis ground mounted solar arrays would be constructed by driving steel beams directly into the ground without the need for encasing in concrete. Each solar array is expected to include 552 panels with an installed DC power capacity of 276kW (AC). The panels will sit approximately 2 m in height from the base of the frame (height of which is still to be confirmed). Ancillary features include the inverters, trenched cabling, grid connection, metering and security fencing. Each system is expected to generate an estimated 489 MWh/year.

The following sections provide further detail on relevant aspects of the Proposal, including design development, options selection, and proposed construction and operation activities as they apply to the Proposal. Concept design and proposed construction methodology have been included as Appendix A.

Table 2 Site details

Site details	Description
Lot and DP	The study area (defined with other relevant definitions in Table 1), on Council owned land and TfNSW managed road reserve, within: <ul style="list-style-type: none"> • Lot 81 DP750183 'Tallawalla' (Freehold) • The Escort Way road reserve • Lot 1 DP519829 (Freehold)
Closest crossroad(s)	<ul style="list-style-type: none"> • Parkes – Eugowra Road • Littles Road • Fairview Road
Land zoning	<ul style="list-style-type: none"> • RU1 – Primary Production • SP2 - Infrastructure
IBRA region	NSW South Western Slopes
IBRA sub region	Inland Slopes

2.1 Design principles

The core principles for the design and operation of the Proposal are to secure ongoing access of water to the Parkes Shire's water supply infrastructure in line with the objectives of the PWSP, with minimal impact to the

surrounding native biota, any sensitive receivers in proximity to the subject site, and other water users. Best practice design principles will be implemented to ensure the Proposal is designed to meet appropriate engineering standards. Council has identified the following as the guiding principles for the Proposal:

- Contribute to Parkes' water security and quality and meet the objectives listed in Section 1.2.1.
- Ensure rehabilitation works are completed following construction to stabilise all areas and ensure maintenance of visual aesthetic and avoidance of erosion/migration of sediment into local waterways and the spread/proliferation of weeds.

2.2 Justification for the proposed works

The Proposal forms a discrete and independent part of a broader program that aims to support greater water security within Parkes and throughout the central west region, in particular Council's and other water utilities that are included in the Central NSW Joint Organisation (CNSWJO). This initiative is aimed at supporting critical drinking water security and planned developments to the west of Parkes, including the proposed future Special Activation Precinct (SAP) developments. The proposed pipeline will help meet the requirements of the program by providing upgraded water supply infrastructure. The proposed solar arrays will help reduce ongoing operating costs for infrastructure within the LRP that includes the existing Lachlan River Pump Station (LRPS) and proposed Lachlan River Pre-Treatment Plant (LRPTP).

2.3 Options considered

Council considered the following options for these works:

1. Proceed with the proposed installation of pipework to the south of the pre-treatment lagoons, construct solar arrays directly adjacent to the future PTP, and establish ancillary infrastructure as detailed in Section 1 and the proposed construction designs detailed in Appendix A;
2. Construct a pipeline that aligns north of the pre-treatment lagoons.
3. Do nothing.

Council elected to undertake Option 1, to construct the pipeline along the southern boundary of the pre-treatment lagoons, construct two solar arrays directly adjacent to the pre-treatment lagoons, and establish associated ancillary infrastructure to access the pipeline and southern solar array. Option 2 was rejected as it would involve a greater direct impact area due to the proposed pipeline in this option being longer, subsequently requiring more land to be trenched to lay pipework. Option 3 was rejected as the pipework and solar arrays form a critical component of water infrastructure for the community. Not proceeding with the Proposal is not considered a viable option. In addition, Option 1 was considered the safest, most practical, and economic option for the community, Council and its ratepayers.

2.4 Construction and Operation

The following sub-chapters describe the intended construction and operation methodologies that will be implemented as part of the Proposal.

2.4.1 Description of construction works

Council is proposing the following works:

- Establishment of work site including amenities, temporary fencing and signage,
- Establishment of environmental impact controls, including sediment and erosion controls,

- Locate underground services; if services are within the subject site:
 - Trench and expose underground services and utilise hydrovac / vacuum excavation methodology to fully expose.
 - Move underground services in consultation with relevant authorities if required,
- Removal of vegetation where required,
- Trench to appropriate depth along the pipeline alignment for laying of the pipe,
- Install two (2) solar arrays and security fencing as per final design,
- Construct an access road alongside the pipeline and to the southern solar array from The Escort Way, forming an all-weather accessible surface,
- Establish trenched cabling and electrical connections to facilitate the solar arrays,
- Site remediation, including revegetation, and removal of ERS controls (once site is fully stabilised).

It is proposed that typical trenching machinery and auxiliary equipment will be used throughout the proposed works. The number of personnel on the site will vary depending on the phase of construction. Stockpiles and construction amenities as appropriate would be established within precleared areas within the existing LRP, where space allows.

The construction phase of the Proposal would include the activities outlined in Table 3. A s138 Permit will be obtained prior to construction works commencing.

Table 3 Types of work relevant to the Proposal

Types of works	Comments
Site preparation works	<ul style="list-style-type: none"> • Site demarcation. • Clearing of vegetation within the impact area. • Stockpiling and removal of waste green material. • Establishment of access routes for excavation and construction equipment, including placement of signage. • Establishment of layby areas, storage facilities and site office (if required).
Detection and relocation of services (where required)	<ul style="list-style-type: none"> • Locate services within the LRP that may be affected by the Proposal. • Grubbing and stripping of topsoil where required. • Excavation of trench to expose existing services using standard trenching technique and hydrovac / vacuum excavation methodology. • Excavation of new trench to allow for realignment of services. • Backfilling of trenched areas and site rehabilitation.
Access road construction	<ul style="list-style-type: none"> • The access road will be constructed as part of these works. This will include raising and levelling the access road to approximately 0.5 m in height above the surrounding land and forming an all-weather accessible surface.
Trenching	<ul style="list-style-type: none"> • Grubbing and stripping of topsoil. • Excavation of the proposed alignment for pipeline placement, using standard trenching techniques. • Site preparation including excavation and depositing soil/sand to achieve correct ground levels for pipeline construction. • Stockpiling and removal of waste material including soil, road base and concrete. • Laying pipeline to connect to Reservoir 1A.

Types of works	Comments
Solar Array Installation	<ul style="list-style-type: none"> • Site demarcation • Drive steel beams into ground and construct steel frames • Install panels • Connect PV system to main switchboard via trenched cables • Construct security fencing around system • Commission and test system
Site rehabilitation works	<ul style="list-style-type: none"> • Site restoration works to achieve correct levels to stabilise and prevent erosion. • Recycling/disposal of excess materials. • Spreading seed and planting trees to revegetate exposed soils. • Monitoring of site to ensure revegetation measures are effective and no major erosion or long-term ecological damage occurs as a result of construction works.

Machinery proposed to be utilised for the works would include:

- Work Vehicles
- An array of small plant,
- 5T excavator
- Crew trucks/utes

It is not anticipated stockpiles, construction offices or other amenities that would increase the subject site footprint are a requirement for this Proposal. Any stockpiles or machinery parking areas would be in pre-cleared and/or existing hardstand areas within the LRP.

2.4.2 Operation of the Proposal

The operational phase of the Proposal, considered as part of this REF, includes assessment of impacts associated with the solar arrays and pipework, and associated ancillary infrastructure once construction and site stabilisation works are complete. This also includes any cumulative impacts the Proposal is likely to have on renewable and finite resources in terms of sustainability, ecology, climate change, and the surrounding community.

2.5 Environmental safeguards

Throughout the environmental impact assessment undertaken in relation to the above Proposal, potential impacts on the environment were identified in relation to the following environmental ‘categories’:

- Applicable Acts and legislation
- Soils and Erosion
- Waterways
- Noise and Vibration
- Air Quality and Odour
- Non-Aboriginal Heritage
- Aboriginal Heritage
- Biodiversity
- Traffic and Transport
- Socio-economic Considerations

- Waste and Resource Use
- Visual Amenity
- Climate Change

Environmental Safeguards were then developed to address each of the identified impacts, to ensure that the residual impact upon the environment would not be significant. These Safeguards form part of the Proposal and will be implemented as part of Proposal delivery; Safeguards are summarised within each chapter and combined within Appendix D. With these environmental protection measures, the Proposal is unlikely to result in significant impacts within the above categories, which would have environmental, social and economic consequences for Parkes Shire Council, as the consent authority for these works.

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

As the proposed works are to be progressed by Council's nominated contractor, further information relating to the proposed construction methodology may be altered and released as the works progress. If the methodology alters the proposed activity such that the assessment undertaken in preparing this report cannot be relied on, further assessment of the proposed changes to the activity will be undertaken as an addendum to this report.

Pipeline & Solar Array – Review of Environmental Factors

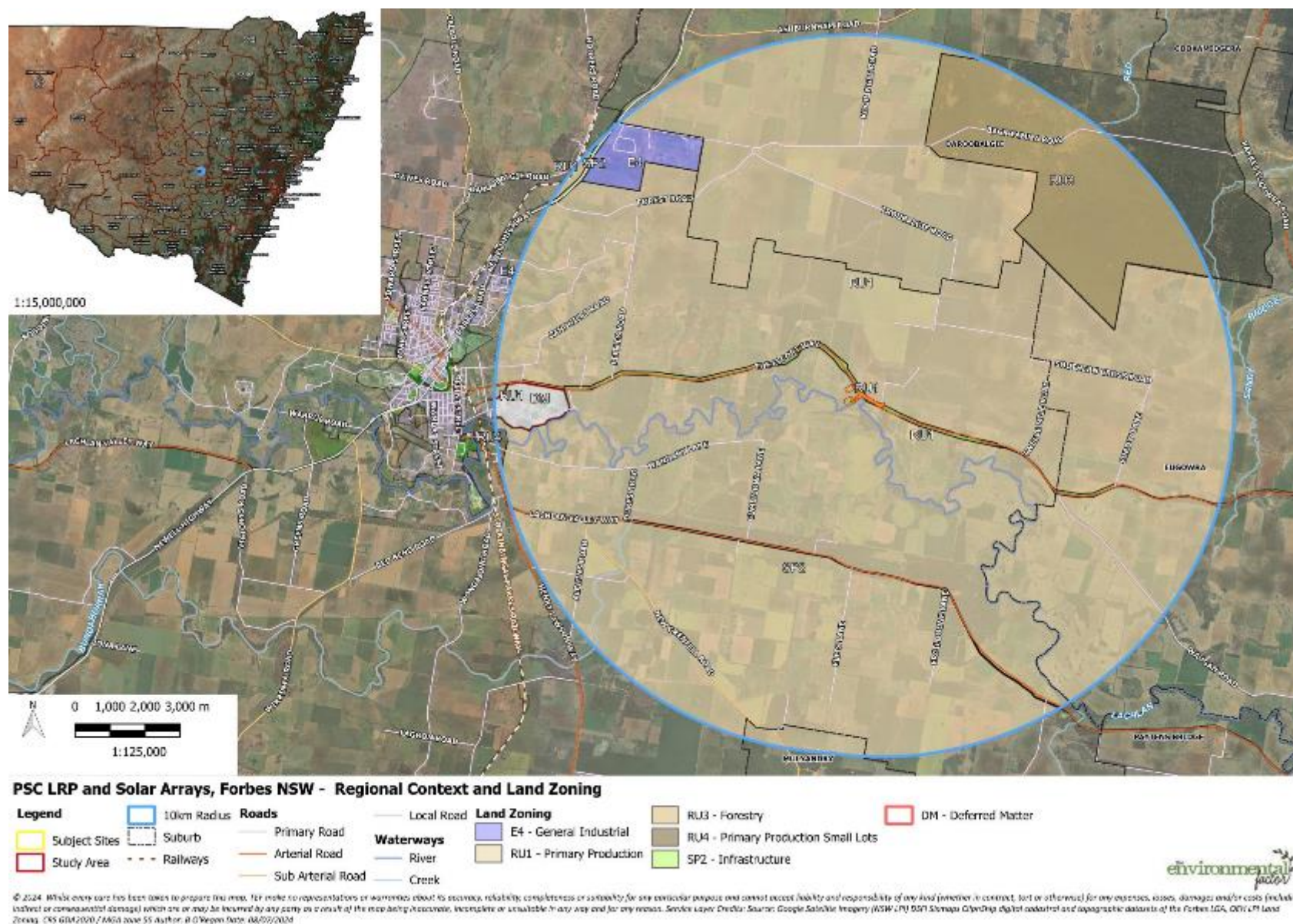


Figure 1 Regional context and land zoning



Figure 2 Study area and subject site

3 Legislative Context

The following legislation, policies, and guidelines applicable to the REF have been reviewed, and the implications have been assessed accordingly as part of this REF.

3.1 Commonwealth (Federal) Legislation

3.1.1 *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*

The EPBC Act ensures that actions likely to cause a significant impact on Matters of National Environmental Significance (MNES) undergo an assessment and approval process. Under the EPBC Act, an action includes a Proposal, undertaking or activity. 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 Government Minister for the Environment (the 'Minister').

MNES include:

- World Heritage properties
- National Heritage places
- Wetlands of international importance
- Listed threatened species and ecological communities
- Listed migratory species
- Commonwealth marine areas
- Nuclear actions
- A water resource, in relation to coal seam gas development and large coal mining development.

The EPBC Act has been addressed in the current assessment through:

- Desktop review to determine the MNES that are predicted to occur within the locality of the proposed scheme and hence could occur, subject to the habitats present.
- General field surveys for threatened biota and migratory species listed under the Act.
- Identification of suitable impact mitigation and environmental management measures for threatened biota, where required.
- Assessment of potential impacts on MNES, if appropriate.

Potential impacts on relevant MNES must be subject to Tests of Significance pursuant to the *EPBC Act Significant Impact Guidelines* (DEWHA 2009). If a significant impact is considered likely, a referral under the EPBC Act must be submitted to the Commonwealth Minister for Environment.

This REF assesses the likelihood of MNES occurring within the locality of the proposed activity, and their potential to be impacted by the proposed activity (refer Section 4.7 and Appendix B). No EPBC Act listed biota are considered at risk of impact as a result of the Proposal. As such, Significant Impact Criteria Assessments were not required.

3.2 State (NSW) Legislation, Policies and Guidelines

3.2.1 Biodiversity Conservation Act 2016 (BC Act)

The purpose of the *Biodiversity Conservation Act 2016* (BC Act) is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. In particular, the purpose of the BC Act (see section 1.3 of the BC Act) includes:

- to conserve biological diversity at bioregional and State scales (including declared areas of outstanding biodiversity value (AOBV)),
- to assess the extinction risk of species and ecological communities,
- to identify key threatening processes,
- to slow the rate of biodiversity loss, and
- to conserve threatened species.

Section 7.2 and 7.8 of the BC Act states that the determining authority must consider whether the proposed activity:

- is to be carried out in a declared AOBV,
- exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, and/or
- is likely to significantly affect threatened species, populations or ecological communities, or their habitats.

Section 7.3 of the BC Act sets out the tests for determining whether a proposed activity is, or is likely to significantly affect threatened species or ecological communities, or their habitats.

Areas of Outstanding Biodiversity Value (AOBV)

The Proposal does not propose works on a listed AOBV, and no significant impacts to any threatened species have been identified.

Biodiversity offsets scheme

This is addressed below in relation to the *Biodiversity Conservation Regulation 2017*.

Impacts to threatened species, populations or ecological communities, or their habitats

Section 4.7 of this REF addresses potential impacts to threatened species and Threatened Ecological Communities (TEC) covered under the BC Act. Section 4.7 and Appendix B finds that the Proposal is not likely to have a significant impact on threatened species, populations or ecological communities, or their habitats.

3.2.2 Biodiversity Conservation Regulation 2017 (BC Regulation)

The BC Regulation provides a number of considerations and practices to be implemented as part of the framework under the BC Act. For example, the BC Regulation:

- Establishes the Biodiversity Values Map that identifies land with high biodiversity value, as defined by clause 7.3(3) of the BC Regulation
- Identifies thresholds for the clearing of land mapped on the Biodiversity Values Map

- Identifies the threshold levels for when the Biodiversity Offsets Scheme (BOS) will be triggered,
- Outlines principles applicable to the determination of serious and irreversible impacts (SAII) to biodiversity values,
- Outlines rules that govern the types of offsets that can be used to meet an offset obligation under the BOS,
- Biodiversity certification criteria.

Biodiversity Values Map

Section 6.2(e) of the BC Act provides that the proponent of an activity that is assessed under Division 5.1, Part 5 of the EP&A Act can use the biodiversity assessment reports and offsetting measures implemented under Division 5.1 of the EP&A Act to comply with their BOS obligations under Part 6 of the BC Regulation. The Site area is not identified as high biodiversity value on the Biodiversity Values Map. Biodiversity Values are however mapped as encompassing the Lachlan River riparian zone, immediately south of the study area. As above, the Proposal is being assessed under Division 5.1 of the EP&A Act, and PSC is the proponent. PSC has elected to opt out of the BOS.

3.2.3 Crown Land Management Act 2016

The objectives of the *Crown Land Management Act 2016 (CLM Act)* are:

- a) To provide for the ownership, use and management of the Crown Land of NSW, and
- b) To provide clarity concerning the law applicable to Crown Land, and
- c) To require environmental, social, cultural heritage and economic considerations to be taken into account in decision-making about Crown Land, and
- d) To provide for the consistent, efficient, fair and transparent management of Crown Land for the benefit of the people of New South Wales, and
- e) To facilitate the use of Crown land by the Aboriginal people of New South Wales because of the spiritual, social, cultural and economic importance of land to Aboriginal people and, where appropriate, to enable the co-management of dedicated or reserved Crown land, and
- f) To provide for the management of Crown land having regard to the principles of Crown land management.

Where work is proposed on Crown land, the proponent of the proposed activity, must, obtain a right of access to the Crown land in accordance with the CLM Act.

No work is proposed to be undertaken on Crown Land, therefore approval from the NSW Crown Lands Department (Crown Lands) **is not required**.

3.2.4 Environmental Planning and Assessment Act 1979 (EP&A Act) and Environmental Planning and Assessment 2021 (EP&A Regulation 2021)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) forms the legal and policy platform for the assessment and approval of works in NSW and aims to ensure that public authorities examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment.

All development in NSW is assessed in accordance with the provisions of the EP&A Act and the *Environmental Planning and Assessment Regulation 2021 (EP&A Regulation)*.

The Proposal is being assessed under Division 5.1 of the EP&A Act. In accordance with s 5.5 of the EP&A Act, an REF examines and takes into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the Proposal. In considering the likely impact of the Proposal on the environment, the REF must consider the environmental factors specified in the DPE Guidelines (which simply adopt the factors specified in section 171(2) of the EP&A Regulation).

Section 5.1 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 1.4) includes: *‘(a) a public or local authority constituted by or under an Act’.*

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

The duties of the determining authority are set out in Division 5.1 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 5.7 provides that a determining authority shall not approve or carry out an activity that is likely to significantly affect the environment, unless it has considered an environmental impact statement in respect of the activity.

In addition, if the determining authority decides the Proposal would be likely to significantly affect a threatened species, population or ecological community or its habitat, for example, if it was to be carried out on an area of outstanding biodiversity value (AOBV), then it must:

- obtain and consider a species impact statement; and
- obtain the concurrence of the Environment Agency Head;
- or
- obtain and consider a biodiversity development assessment report, (section 7.8 and 7.12(3) BC Act).

This REF examines and considers to the fullest extent possible all matters affecting or likely to affect the environment under Division 5.1 of the EP&A Act.

This REF has identified that the Proposal is not likely to significantly affect the environment, as such, PSC will not need to obtain and consider an Environmental Impact Statement (EIS) before it carries out the Proposal (s 5.7 of the EP&A Act).

3.2.5 State Environmental Planning Policy (Transport and Infrastructure) (Transport and Infrastructure SEPP) 2021

The Transport and Infrastructure SEPP consolidates and repeals the provisions of 4 SEPPs, which includes the previous Infrastructure SEPP (ISEPP) 2007. The SEPP consolidation is administrative, and no policy changes have been made. It has been undertaken in accordance with section 3.22 of the EP&A Act. As with the previous version, the Transport and Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across the State, including for:

- Flood mitigation work (Division 7, Section 2.56)
- Parks and other public reserves (Division 12, Section 2.73)
- Roads and road infrastructure facilities (Division 17, Section 2.109)
- Sewerage systems (Division 18, Section 2.126)
- Soil conservation works (Division 19, Section 2.133)
- Stormwater management systems (Division 20, Section 2.137)
- Water supply systems (Division 24, Section 2.159)
- Waterway or foreshore management activities (Division 25, Section 2.165)

Each section of the SEPP provides for development that is permitted without consent.

The Transport and Infrastructure SEPP aims to facilitate the effective delivery of infrastructure across the State. Section 2.159 states that:

- (1) Development for the purpose of water reticulation systems may be carried out by or on behalf of a public authority without consent on any land.

‘Water reticulation system’ is defined in the Standard Instrument—Principal Local Environmental Plan 2006 to be a type water supply system.

Section 2.159(6) states that a reference to development for the purpose of a water supply system of any kind includes a reference to development for any of the following purposes if the development is in connection with the water supply system—

- (a) dams, reservoirs, weirs, levees, spillways and fishways,
- (b) catchment management works,
- (c) groundwater investigation works, groundwater bore stations, borefields, minewater works and the like,
- (d) access ways,
- (e) water intakes, pumping stations, pipelines, channels, tunnels, canals and aqueducts,
- (f) gauging and monitoring equipment,
- (g) power supply to the water supply system,
- (h) hydro-electric power generation equipment and associated connections to the electricity network,
- (i) construction works,
- (j) emergency works and routine maintenance works,
- (k) environmental management works,
- (l) schemes for the reuse of water treatment residuals,
- (m) maintenance depots.

The proposed works, which include the construction of an access way, power supply to a water supply system and the installation of pipework associated with water supply infrastructure, are appropriately characterised as development for the purpose of a water reticulation system under the Transport and Infrastructure SEPP. Pursuant to section 2.159(1), the proposed works can be carried out as activities under Division 5.1 of the EP&A Act without development consent.

The Proposal is not located on land reserved under the *National Parks and Wildlife Act 1974* and does not affect land or development regulated by the *Coastal Management Act 2016*, *State Environmental Planning Policy (Resilience and Hazards) 2021*, or *State Environmental Planning Policy (Precincts—Regional) 2021*.

3.2.6 Fisheries Management Act 1994 (FM Act)

The *Fisheries Management Act 1994* (FM Act) aims to conserve threatened species, populations and ecological communities of fish and marine vegetation native to NSW and to promote ecologically sustainable development, including the conservation of biological diversity. It also aims to reduce the threats faced by native fish and marine vegetation in NSW.

Section 220ZW of the FM Act provides the Secretary may grant a licence authorising a person to take action that is likely to result in one of the following:

- a) harm to a threatened species, population or ecological community,
- b) damage to a critical habitat,
- c) damage to a habitat of a threatened species, population or ecological community.

Section 220ZZ of the FM Act states if the action proposed to be taken by the applicant is not on land that is critical habitat, and the application for a licence is not accompanied by a species impact statement, the Secretary must determine whether the action proposed is likely to significantly affect threatened species, populations or ecological communities, or their habitats.

For the purposes of Division 5.1 of Part 5 of the EP&A Act, 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 (section 221ZX).

A permit under the FM Act is required for any work that involves:

- Activities involving dredging and reclamation work
- Activities temporarily or permanently obstructing fish passage
- Using explosives, electrical devices or other dangerous substances in a waterway
- Harming marine vegetation

Permits are required for works within a third order (or higher) streams (based on the Strahler system of stream order classification), and first and second order streams that are known or likely to be habitat for listed threatened species, populations or communities.

Section 4.7 and Appendix B of this REF addresses potential impacts to threatened species, populations and ecological communities covered under the FM Act. Section 4.7 and Appendix B finds that the Proposal is not likely to have a significant impact on threatened species, populations or ecological communities, or their habitats.

The Proposal includes works directly adjacent to the Lachlan River, which is mapped as containing Key Fish Habitat (KFH). As the subject site includes the mapped KFH area (Figure 7), a Part 7 Fisheries Permit will be required to allow for dredging or reclamation works within the waterway.

3.2.7 Heritage Act 1997 (Heritage Act)

The *Heritage Act* seeks to identify and protect items of cultural heritage value. The Heritage Council of NSW makes decisions about the care and protection of heritage places and items that have been identified as being significant to the people of NSW.

Automatic protection is afforded to 'relics' under the Heritage Act, defined as:

‘any deposit, artefact, object or material evidence that—

- (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and
- (b) is of State or local heritage significance’.

Formerly the *Heritage Act* protected any ‘relic’ that was more than 50 years old. Now the age determination has been dropped from the *Heritage Act* and relics are protected according to their heritage significance assessment rather than purely on their age.

Excavation of land on which it is known or where there is reasonable cause to suspect that ‘relics’ will be exposed, moved, destroyed, discovered or damaged is prohibited unless ordered under an excavation permit (section 139 *Heritage Act*).

Local, and NSW State historic heritage registers were consulted as part of preparation of this REF (Section 4.5); no listed heritage sites were found within the study area and no sites were deemed at risk of damage from the Proposal.

3.2.8 Local Land Services Act 2013

The *Local Land Services Act 2013* (LLS Act) regulates the clearing of native vegetation on all land in NSW mapped as Category 2 – Regulated Land as mapped on the Native Vegetation Regulatory Map.

The *Local Land Services Amendment Act 2016* (LLSA Act), which amended the *Local Land Services Act 2013*, authorised the making of the *Land Management (Native Vegetation) Code 2018 (Code)* (Div 5, Sch 1 of the LLSA Act). One of the aims of the Code is to authorise clearing of native vegetation on Category 2 regulated land under certain conditions and provide for the establishment and maintenance of set aside areas.

A review of the Native Vegetation Regulatory map (report generated May 2024) confirmed that the Study Area occurs on land mapped as unmarked / unclassified, Category 2 – Regulated Land coinciding with the Lachlan River, and Excluded land coinciding with The Escort Way. However, the clearing is to be carried out as part of an activity carried out by a determining authority, being PSC, after compliance with Part 5 of the EP&A Act, therefore the clearing is authorised under Division 3, 600(b)(ii). Therefore, this has not been considered further within this report.

3.2.9 National Parks and Wildlife Act 1974 (NPW Act)

The *National Parks and Wildlife Act 1974* (NPW Act) provides for the statutory protection of Aboriginal cultural heritage places, objects and features. This legislation aims to protect and preserve Aboriginal heritage values.

Part 6 of this Act refers to Aboriginal objects and places and prevents persons from impacting on an Aboriginal place or relic, without consent or a permit. The proposed works will not impact upon any Aboriginal sites, assuming the Environmental Safeguards as outlined in Section 4.6.4 are followed.

Section 4.6 of this REF further addresses potential impacts and assessment undertaken on Aboriginal Heritage associated with the proposed works.

3.2.10 NSW Biosecurity Act 2015 (Biosecurity Act)

The *Biosecurity Act 2015* (NSW) (**Biosecurity Act**) outlines mandatory measures that persons are to take with respect to biosecurity matters including the management of weeds (Schedule 1 Biosecurity Act). Under the

Biosecurity Act, the responsibilities for weed management by public and private landholders are consistent, reflecting that weed management is a shared community responsibility. The Biosecurity Act introduces the legally enforceable concept of a General Biosecurity Duty (GBD) (Part 3 of the Biosecurity Act). Priority weeds are listed within Regional Strategic Weed management Plans, however the GBD is not restricted to listed weeds.

The Biosecurity Act is administered by NSW Department of Primary Industries (DPI) which determines the weed species covered by regulatory tools including Prohibited Matters, Control Orders and Biosecurity Zones. Existing Local Control Authorities (Councils) continue to be responsible for enforcing weed legislation.

In addition, Forbes Shire Council is included in the Central West Regional Strategic Weed Management Plan 2023-2027. The plan outlines priority weeds for the local region and develops a cooperative and coordinated response for the removal and containment of target weed species.

Given the proximity of the Proposal to previously disturbed roadside vegetation, and agricultural land, it is anticipated that construction works as part of the Proposal have the potential to introduce and spread weed seeds/spores and water mould (e.g. *Phytophthora cinnamomi*). The preparation of a future CEMP will need include measures to ensure that the Proposal will adhere to both the Biosecurity Act and the requirements outlined in the Central West Regional Strategic Weed Management Plan 2023 – 2027 (Central West Local Land Services, 2022).

Priority weeds observed on site are described in Section 4.7.

3.2.11 NSW Guidelines for Controlled Activities on Waterfront Land (NSW DPI 2012)

Any works proposed within the defined riparian zone of a creek are to be carried out in accordance with the WM Act. Works undertaken on waterfront land (i.e., near a river, lake or estuary) require a controlled activity approval under Section 91 of the WM Act, unless defined as exempt.

Works are proposed in proximity to the Lachlan River. Parkes Shire Council, as a defined public authority, are exempt from the need to gain a controlled activity approval pursuant to clause 41 of the WM Regulation. While exempt, Council should still be aware of and follow these guidelines.

3.2.12 Protection of the Environment Operations Act 1997 (POEO Act)

The *Protection of the Environment Operations Act 1997* (POEO Act) is administered by the Environment Protection Authority (EPA), which is an independent statutory authority and the primary environmental regulator for NSW. The POEO Act regulates and requires licensing for environmental protection, including for waste generation and disposal, and for water, air, land and noise pollution.

The objects of this Act are as follows—

- a) to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development,
- b) to provide increased opportunities for public involvement and participation in environment protection,
- c) to ensure that the community has access to relevant and meaningful information about pollution,
- d) to reduce risks to human health and prevent the degradation of the environment by the use of mechanisms that promote the following—
 - i. pollution prevention and cleaner production,

- ii. the reduction to harmless levels of the discharge of substances likely to cause harm to the environment,
- iii. the elimination of harmful wastes,
- iv. the reduction in the use of materials and the re-use, recovery or recycling of materials,
- v. the making of progressive environmental improvements, including the reduction of pollution at source,
- vi. the monitoring and reporting of environmental quality on a regular basis,
- e) to rationalise, simplify and strengthen the regulatory framework for environment protection,
- f) to improve the efficiency of administration of the environment protection legislation,
- g) to assist in the achievement of the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

The Proposal does not constitute activities that are likely to generate significant pollution; however, consideration of the prevention of water, air, land and noise pollution is provided herein (refer Sections 4.2, 4.3, 4.4 and 4.10N).

3.2.13 Roads Act 1993

The *Roads Act 1993* regulates the use and management of public roads. Section 138 of the Roads Act requires that consent of the appropriate Roads Authority is obtained for certain work undertaken in, on or over a public road. Under Section 138 of the Roads Act:

1. A person must not—
 - b. Erect a structure or carry out a work in, on or over a public road, or
 - c. Dig up or disturb the surface of a public road, or
 - d. Remove or interfere with a structure, work or tree on a public road, or
 - e. Pump water into a public road from any land adjoining the road, or
 - f. Connect a road (whether public or private) to a classified road,

Otherwise, than with the consent of the appropriate roads authority.

2. A consent may not be given with respect to a classified road except with the concurrence of Transport for New South Wales (TfNSW).

Pertaining to the above, Forbes Shire Council (FSC) is the appropriate roads authority for the section of The Escort Way within the Subject Site and would provide the necessary permits to the contractors prior to work commencing, if and as required.

The Escort Way is identified as a Classified Road as per the TfNSW Schedule of Classified Roads and Unclassified Regional Roads (identified as a *Main Road*). The relevant local council is the roads authority of a main road in accordance with s 7 of the Roads Act. Works cannot be undertaken without the consent of the roads authority (being FSC) under section 138 of the Roads Act and TfNSW's concurrence. Therefore, Council will be required to complete a Section 138 application, with FSC the roads authority, and concurrence must be sought by FSC and from TfNSW.

3.2.14 Rural Fires Act 1997 (RF Act)

The RF Act came into force in 1997 to establish the NSW RFS and define its functions; to make provisions for the prevention, mitigation and suppression of rural fires; to repeal the *Bush Fires Act 1949*; to amend certain other Acts; and for other purposes. The objectives of this Act are to provide:

- a) For the prevention, mitigation and suppression of bush and other fires in local government areas and other parts of the State.
- b) For the co-ordination of bush firefighting and bush fire prevention throughout the State, and
- c) For the protection of persons from injury or death, and property from damage, arising from fires, and
- d) For the protection of infrastructure and environmental, economic, cultural, agricultural and community assets from damage arising from fires, and
- e) For the protection of the environment by requiring certain activities referred to in paragraphs (a)–(c1) to be carried out having regard to the principles of ecologically sustainable development described in section 6 (2) of the POEO Act.

Section 63(1) and 63(2) of the RF Act stipulate it is the duty of a public authority to take all practicable steps to prevent the occurrence of bush fires on, and to minimise the danger of the spread of a bushfire on or from any land vested in or under its control or management.

The study area is not mapped as being within a designated bushfire prone area. There are no applicable bushfire prone land requirements for the Proposal, as the Proposal relates primarily to water infrastructure. However, Council may consider restricting access to the adjacent Lachlan River Precinct (LRP) site on High or greater fire risk days.

3.2.15 Water Management Act 2000 (WM Act)

The *Water Management Act 2000* (WM Act), administered by the NSW Department of Climate Change, Energy, the Environment and Water, aims to ensure that water resources are conserved and properly managed for sustainable use benefiting both present and future generations. It provides formal means for the protection and enhancement of the environmental qualities of waterways and their in-stream uses as well as to provide for protection of catchment conditions.

Council is exempt from s 91E(1) under the WM Act for Proposals approved under Division 5.1 of the EP&A Act, in relation to all controlled activities that it carries out in, on or under waterfront land (cl 41 *Water Management (General) Regulation 2018*). While exempt, it is still recommended that Council be aware of the WM Act and adhere to the associated guidelines.

3.3 Community and agency consultation

3.3.1 Stakeholder consultation

Parkes Shire Council and its appointed contractor will continue to liaise with its agency stakeholders and members of the wider community throughout delivery of the construction and operational phases of the Proposal. Specifically, Council will ensure all interested and affected parties including businesses, government agencies, farming enterprises, landowners and residents within the impacted area are notified of the works at least fourteen (14) days prior to the commencement of work, and regular door to door verbal notifications will be given to affected landowners prior to works proceeding on or near their property. In particular, those property owners whose driveways and access will be disrupted by trenching and pipeline installation will need to be contacted individually, with alternate access arrangements made while works are being completed.

3.3.2 Private landowner consent

Landowner consent is required in order to lodge an application for development consent. However, it is noted in Section 3.2.5 of this REF that as the proposed works are able to be carried out without development consent,

following assessment under Division 5.1 of Part 5 of the EP&A Act. Landowner consent is not needed in order to undertake that assessment.

Furthermore, except for the works within the road reserve, the Proposal is to be undertaken on Council-owned land. Therefore there is no requirement to seek consent from private landowners in order to undertake the works (provided that a s138 Permit is obtained, as discussed above).

Council intends to continue to liaise with any neighbouring businesses and property owners with potential to be impacted by the works to ensure adequate engagement is undertaken, and, where appropriate, rectification works are completed.

3.3.3 Mitigation of impacts during construction and operation

The assessment within this REF has concluded that socio-economic impacts are expected to be minimal, confined to the construction phase, and are not likely to significantly negatively affect residents in proximity to the subject site. Several residents will be temporarily affected by the Proposal, with access hindered during construction works, however it is not anticipated that road or property access will be prevented at any given time; rather, a single lane of traffic will remain operable, or an appropriate diversion will be established. Minor impact to traffic on the Escort Way may be experienced during the construction phase, as surveying activities and construction works are executed within The Escort Way Road Reserve (which may require traffic control and a temporary reduced speed limit). Traffic impacts will be managed in accordance with a Section 138 Permit under the *Roads Act 1993*.

As noted in the Executive Summary, Section 2 ‘Proposal Description’, Section 6 ‘Certification’ and in the Environmental Safeguards developed for the Proposal (Appendix D), all work will be completed under the guidance of a CEMP to manage and minimise potential environmental impacts associated with the work. Additionally, once operational, the Proposal is not anticipated to result in any additional ongoing significant environmental or community impacts.

Given this conclusion, the likely impacts on surrounding residents are anticipated to be limited to the construction period. The CEMP will list the responsibility of PSC, and the appointed Contractor(s) to develop and distribute notification to local residents before, during and after the construction period. The adequate notification period for residents is fourteen (14) days prior to works commencement.

Table 4 Proposed local resident notifications

Impact/mitigation	Stakeholder	Notifications
Noise, dust	Adjacent landowners	<ul style="list-style-type: none"> • Notifications to adjacent landowners; traffic management plans, noise monitoring protocols, working hours.’ • Person to person contact to notify rural landowners of any dust anticipated to settle in adjacent farm dams.
Traffic and access	Local traffic	<ul style="list-style-type: none"> • Advertisement in local newspapers (Forbes Advocate), social media and FSC website advising of changed traffic conditions and delivery of construction loads
Working Hours	Local residents	<ul style="list-style-type: none"> • Letterbox drop of notification listing working hours, and measures to manage local impacts; lighting, truck deliveries and noise onsite.

Section 4 of this REF describes the site-specific environmental impacts and proposed environmental safeguards required to manage any impact during construction to be included in the CEMP.

3.3.4 Agency consultation and concurrent requirements

It is understood that Council will be undertaking all stakeholder engagement and community consultation activities internally, as per their community consultation plan. This includes liaison with TfNSW and FSC pertaining to the application under section 138 of the Roads Act and concurrence from TfNSW as stipulated under the Roads Act (refer 3.2.13). Council will also communicate with DPI Fisheries for the Part 7 Fisheries Permit.

3.3.5 Requirement to publicly display REF

As per the EP&A Regulations, determining authorities must keep the REF documentation including any appendices or addenda and make available for public access once a determination has been made. Section 171(4) of the EP&A Regulation requires the REF to be published on the determining authority's website or the NSW Planning Portal for an activity with:

- A capital investment value of more than \$5 million or,
- An approval or permit for activity that requires approval under:
 - FM Act sections 144, 201, 205 or 219, or
 - *Heritage Act 1977* section 57, or
 - *National Parks and Wildlife Act 1974* section 90 or
 - *Protection of the Environment operations Act 1997* sections 47-49 or 122, or
- If the determining authority considers it to be in the public interest.

There are allowances for exceptional circumstances where publication is not required; this is at the Planning Secretary's discretion. If the REF is to be published, the determining authority must place all relevant information on the determining authority's website or the NSW Planning Portal prior to the commencement of works.

Certain parts of the REF document may be sensitive, such as sensitive cultural information requested to be redacted by Aboriginal parties or cyber security impacts and mitigation measures. In these instances, the REF document content can be redacted where required. The REF document (excluding sensitive information) needs to be available online.

4 Environmental Assessment

This chapter describes the potential key environmental impacts associated with the Proposal, during both construction and operation, and the site-specific Environmental Safeguards which are to be implemented as part of the Proposal to ameliorate any potential impacts identified.

A summary of the Environmental Safeguards has been provided in Appendix D.

4.1 Soils and Erosion

4.1.1 Existing environment

The study area comprises two dominant features: The Escort Way and the vegetated road reserve adjacent to The Escort Way. Vegetation cover over soils was generally good, and subsequently soils were identified as stable and intact. Large stands of native vegetation occur in the wider study area, particularly along the Lachlan River and within the road reserve along the Escort Way and other roads and lanes.

The following soil and landscape types are mapped as occurring across the broader locality:

NSW (Mitchell) Landscape Soils

The Study Area is identified as occurring in the Eugowra Plains NSW Landscape to the north east, and the Lachlan-Bland Channels and Floodplains NSW Landscape to the south west as shown in Figure 3. The NSW Landscapes, as identified in the DECC NSW *'Descriptions for NSW (Mitchell) Landscapes'* (Version 2) publication are:

Eugowra Plains (Epl)

"Alluvial plains and lower hill slopes of Lachlan River terraces and tributary valleys on Quaternary alluvium. General elevation 250 to 300m, local relief 15m. Extensive red-brown earths and cracking clay soils. Extensively cleared and farmed originally carried White Cypress Pine (Callitris glaucophylla) and Grey Box (Eucalyptus microcarpa) with Yellow Box (Eucalyptus melliodora) communities and River Red Gum (Eucalyptus camaldulensis) adjacent to stream lines. Includes small areas of low bedrock hills."

Lachlan-Bland Channels and Floodplains (Lbc)

"Extensive Quaternary alluvial plains at the break in slope between the western slopes and western plains. Numerous tributary streams with levees and backplain swamps, occasional lakebed. General elevation 200 to 280m, local relief <10m. Grey cracking clays with gilgai along channels and in swamps. Low levees of red-brown sand or loamy sand on stream banks, extensive red-brown structured texture-contrast soils on the plain. Extensively cleared and cropped. Woodlands of Bimble Box (Eucalyptus populnea), Grey Box (Eucalyptus microcarpa), Yellow Box (Eucalyptus melliodora) and White Cypress Pine (Callitris glaucophylla) with grasses. River Red Gum (Eucalyptus camaldulensis) and River Cooba (Acacia stenophylla) along creeks, Black Box (Eucalyptus largiflorens) lining back-plain swamp margins. Lignum (Muehlenbeckia cunninghamii), Common Reed (Phragmites australis) and Cane Grass (Eragrostis australasica) on lake floors and larger swamps. Bull Oak (Allocasuarina luehmannii) and Belah (Casuarina cristata) on extensive gilgai."

Acid Sulphate Soils

Acid sulphate soils (ASS) are generally only considered a problem along coastal areas of NSW where ASL is <10 m and around wetlands of inland NSW. Inland ASS have also been associated with discharging saline groundwater, however, this occurrence is limited.

Figure 4 shows the ASS potential within the study area (SEED, 2021). The site and surrounding area is mapped as Bn(p4) ASS in inland lakes, waterways, wetlands and riparian lands. Bn(p4) denotes the following:

- B = a low probability of occurrence
- n = Sodosols, Chromosols and Dermosols
- (p) = potential ASS (sulphidic material)
- (4) = No necessary analytical data are available, and classifier has little knowledge or experience with ASS, hence classification is provisional.

Australian Soil Classification

Figure 5 shows the Australian Soil Classification (ASC, 2000) within 5 km of the study area. The study area is mapped as Chromosols in the northeastern extent of the study area and as Tenosols (alluvial) within closer proximity to the Lachlan River. Descriptions of these soil types are provided below:

Chromosols

Soils with strong texture contrast between A and B horizons. The latter are not strongly acid or sodic. These soils are widespread throughout Australia, and are widespread throughout Australia, and are amongst the most widespread soils used for Agriculture in Australia, particularly those with red subsoils.

Tenosols

Tenosols are characterised as having well structured, organic matter darkened surface horizons, but no significant pedologic development at depth.

4.1.2 Potential Soils and Erosion Impacts – Construction

This Proposal is intended to proceed along with others within the Program. Each proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative soil and erosion impacts. Given that PSC are responsible for all associated Proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

Disturbance of the ground to trench the pipeline increases the risk of erosion and subsequent sediment migration across the landscape and into adjacent waterways. The duration and intensity of rainfall during and after works will greatly influence the potential impacts to soils and contingency planning and preparation will be required to ensure these risks are minimised.

High winds have the potential to create dust / sedimentation / deposition issues during the construction phase. There is potential for erosion if work sites are left exposed for long periods of time without adequate safety measures to prevent runoff / wind erosion.

The use of fuels and chemicals, construction materials, and wastes may also pollute soils on site.

4.1.3 Potential Soils and Erosion Impacts – Operation

It is not anticipated that the proposed pipeline, solar arrays, access road, and ancillary infrastructure will increase any ongoing risks to the environment caused by erosion and sediment runoff following construction. However, any surface disturbance could potentially elevate the risks of soil erosion and sediment runoff after construction. Therefore, it is essential to conduct regular inspections immediately after completing the construction works and throughout the operation of the Proposal to ensure the effectiveness of site rehabilitation works and the stability of erosion and sediment controls, including drainage systems. Where sediment runoff is noted, this must be ameliorated immediately. The Environmental Safeguards listed in Section 4.1.4 must be adhered to throughout the operational phase of the Proposal to minimise environmental harm and socio-economic risk.

Table 5 Summary of soil and erosion impacts

Description	Y	N	Comments
Are there any known occurrences of salinity or acid sulfate soils in the area?	X		Yes, the study area is mapped as Bn(p4) – Low probability of occurrence as shown in Figure 4.
Does the Proposal involve the disturbance of large areas (e.g. >2 ha) for earthworks?		X	The Proposal involves the disturbance to an area of approximately 3.57 ha , however soil disturbance will be staged and reinstated progressively as works proceed, therefore minimising the exposed area at any given time.
Does the site have constraints for erosion and sedimentation controls such as steep gradients, narrow corridors or is located on private property?	X		The subject site is predominantly flat and located within the road reserve and Council owned Lot 81 in DP 750183 ('Tallawalla'). The road reserve is narrow, which may present minor constraints for ERSED controls.

4.1.4 Environmental Safeguards – Soil and Erosion

The Environmental Safeguards for Soils and Erosion are considered part of the Proposal and must be implemented. Safeguards include:

Construction

- No vegetation outside the approved direct impact footprint is to be impacted or removed; vegetation that is not approved for clearance is to be protected to ensure soils are not exposed unnecessarily.
- Minimise the length of time that soils are exposed by stabilising as soon as practical by seeding, spreading mulch, or installing erosion control blanket as appropriate.
- All areas where groundcovers/vegetation are required to be removed will require careful management during construction due to the higher erosion risks, including:
 - Erosion and sediment (ERSED) control measures are to be implemented and maintained to:
 - prevent sediment moving off-site and sediment laden water entering any drainage lines, drain inlets, or dams; and
 - reduce water velocity and capture sediment on site.
 - ERSED controls are to be installed prior to the commencement of works and checked and maintained on a regular basis (including clearing of sediment from behind barriers).

- ERSED control measures are not to be removed until the works are complete, and areas are stabilised.
- Monitoring and response actions with regard to ERSED controls will be incorporated within the Construction Environmental Management Plan (CEMP) for the Proposal, to be enforced by the appointed Contractor.
- Excavated areas are to be stabilized as soon as possible using the most appropriate combination of the following measures:
 - Hydromulching with appropriate native grass mixture and/or groundcover species,
 - Turfing with appropriate native grass mixture and/or groundcover species,
 - Seeding with appropriate native grass mixture and/or groundcover species; and/or
 - Revegetation using appropriate native tubestock or mature seedlings.
- The maintenance of established stockpile sites during construction is to be in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book) (Landcom 2004), including:
 - Stockpiles are recommended to be formed in accordance with the Blue Book Standard Drawing 4-1, and offsite/away from waterbodies.
 - Topsoil and subsoil are to be separated and protected from degradation, erosion or mixing with fill or waste. Materials are to be reused onsite where appropriate for infilling works, including re-spreading of topsoil as appropriate to enable rapid rehabilitation. Where onsite reuse cannot be accommodated, soil materials should be put to beneficial reuse elsewhere.
- If contaminated soils are encountered during construction, a site assessment is to be completed in accordance with Schedule A 'Recommended general process for assessment of site contamination' (NEPM 1999).
- If contaminated soils are encountered, they will be managed (and if necessary excavated, contained, treated and disposed of) in accordance with the law and relevant EPA and Council guidance.
- All chemical usage and storage during construction is to be in line with legislated requirements, to prevent Pollution of Land, which is prohibited under Section 142 A of the POEO Act.

Operation

- Monitoring of the site is to be undertaken to ensure ERSED controls remain in place until the site is re-stabilised, and to ensure no sediment is washed into any waterways following construction and before revegetation efforts are completed.
- Maintenance of vegetative cover on all exposed surfaces (not to be covered by road base/seal) to be undertaken to ensure the stability of soils on site into the future.
- Infill planting or additional spreading of appropriate native grass mixture and/or groundcover species to be undertaken until the entire site is stabilised.

Given the outlined environmental safeguards for Soils and Erosion will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to Soil and Erosion.

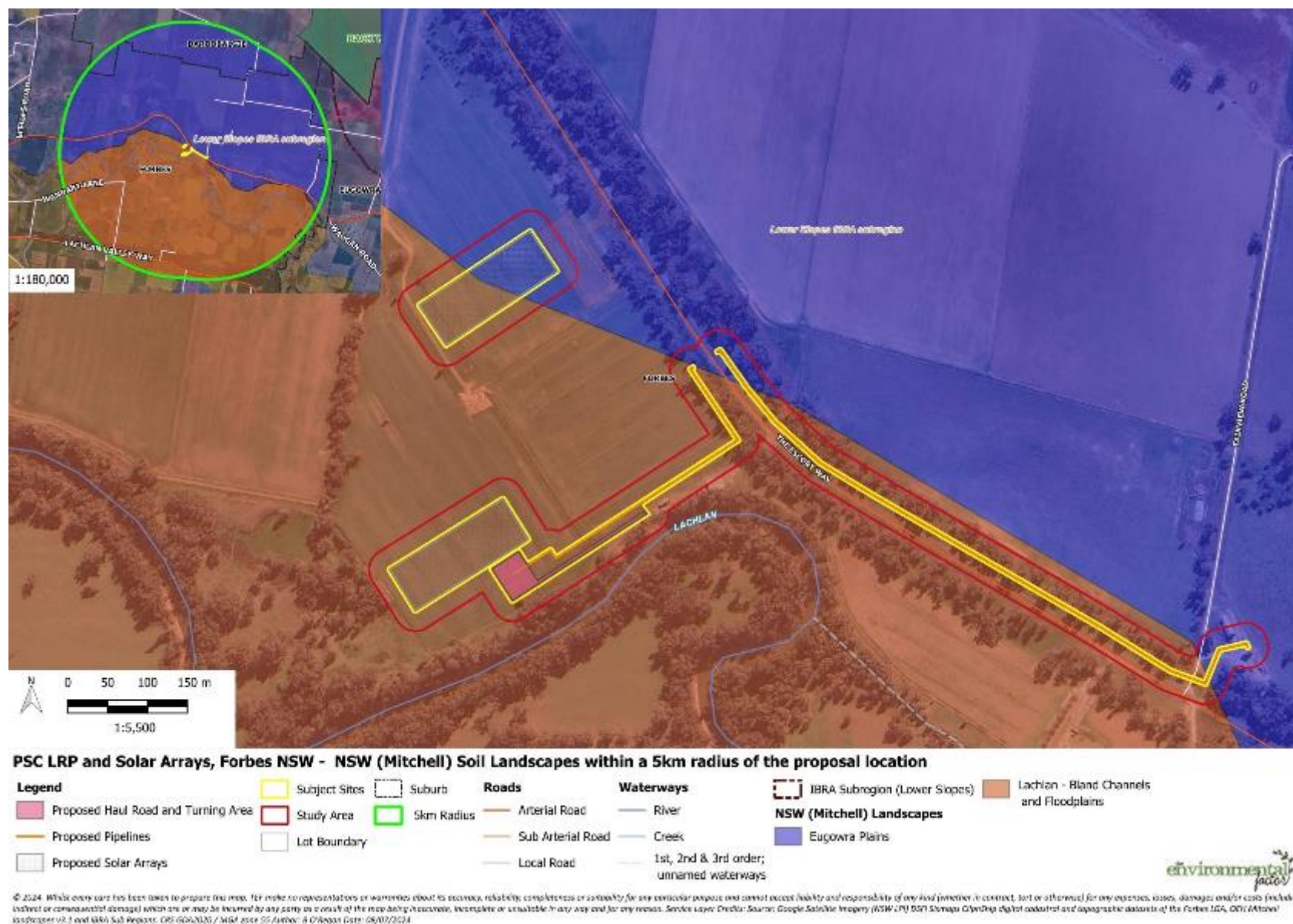


Figure 3 NSW (Mitchell) Landscapes occurring within 5km of the study area

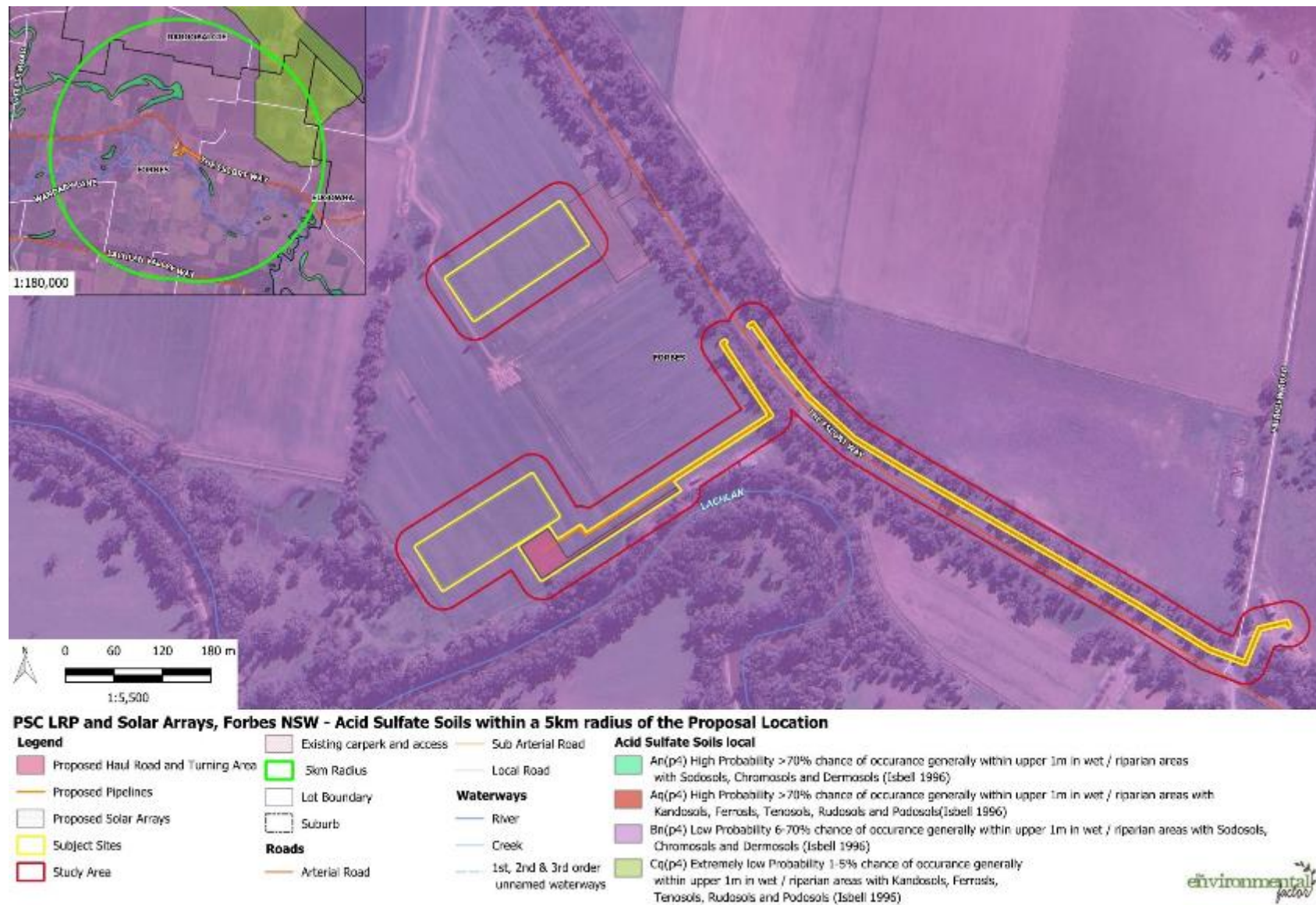
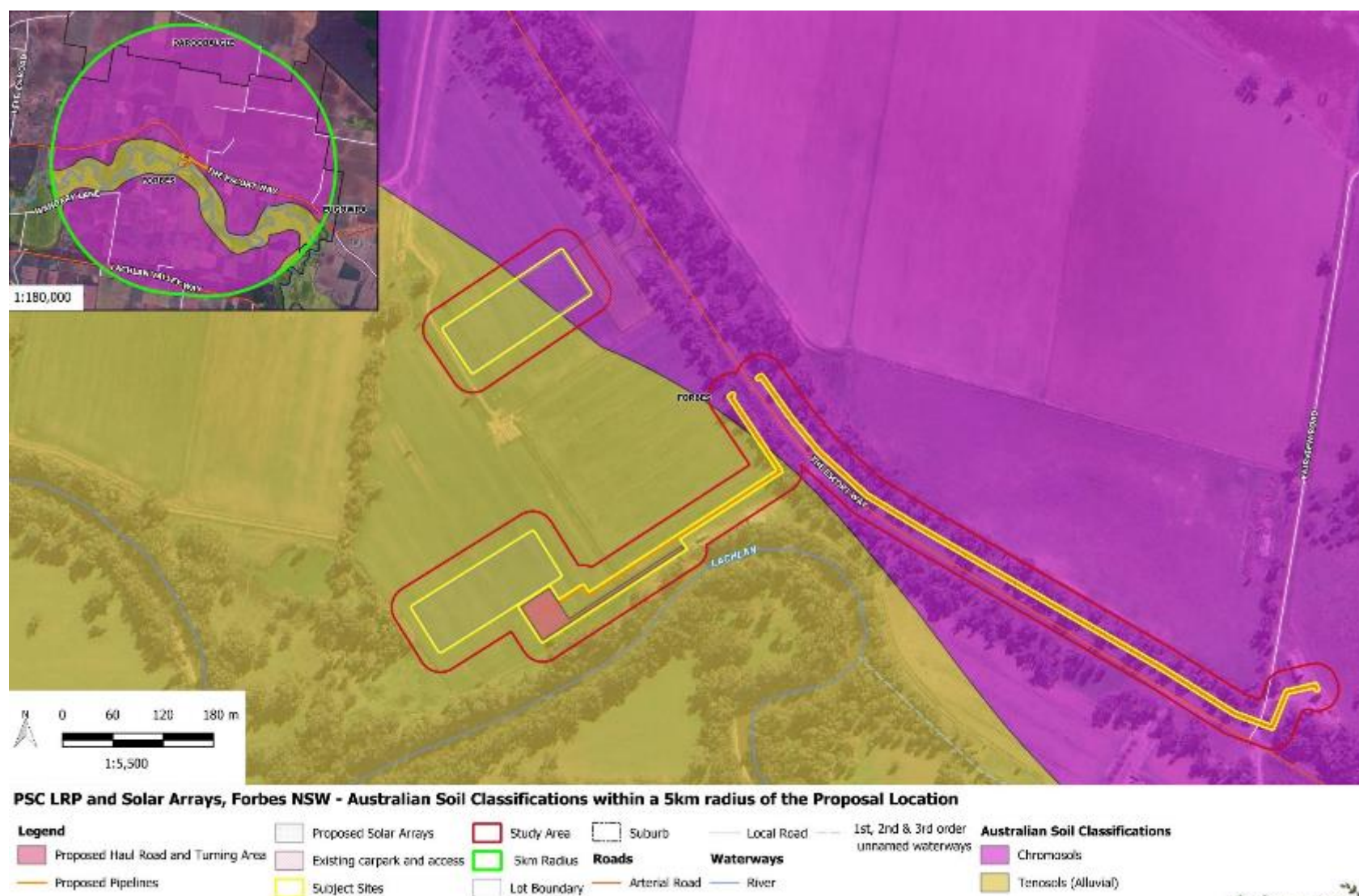


Figure 4 Acid Sulfate Soils potential mapped as occurring within 5 km of the study area.



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Figure 5 Australian Soil Classifications within a 5 km radius of study area

4.2 Surface and Groundwater

4.2.1 Existing environment

The Lachlan River is within the study area and passes approximately 60 m to the southeast of the proposed pipeline location. The Lachlan River is mapped as containing High Biodiversity Values as identified on the Biodiversity Values Map (BVM) and Key Fish Habitat (KFH). It is the fourth longest river in Australia, flowing westwards from its source on the Breadalbane Plain in the Great Dividing Range, through to the fertile plains of the Riverina, eventually terminating at the Great Cumbungi Swamp. The Lachlan River is the closest waterway mapped within proximity to the subject site, with the pipeline and access road located within the buffer zone of KFH of the Lachlan River.

The study area is largely flat, with the entire site mapped as containing shallow groundwater resources that could be easily contaminated from trenching (Forbes Local Environmental Plan 2013 and Figure 7). Land identified as sensitive land is protected under legislation to maintain the hydrological functions of riparian land, waterways and aquifers, including protecting water quality, natural water flows, the stability of the bed and banks of waterways, and groundwater systems. As the determining authority, Council must be satisfied that the development is designed to avoid, minimise, or mitigate any significant environmental impact the Proposal may cause. Wetlands (which are also classed as KFH) are mapped as occurring approximately 550 m to the north east of the study area.

Given the location of the Proposal and the requirement for excavation works and the exposure of soils, particular focus and consideration should be given to ensuring impacts on the Lachlan River are minimised and operation of the infrastructure considers the ongoing maintenance of water quality. The Safeguards provided below in Section 4.2.4 outline how this will be achieved.

The Proposal is immediately adjacent to the LRP, an area known for frequent flooding. There is a floodway within the study area, with a flood marker present used to indicate flood water passing over the road during a major flood event.

The Proposal is located within the Lachlan River Catchment (Figure 6), adjacent to the Lachlan River, which is identified as a major regulated river. There are a number of relevant water quality objectives that require consideration, including but not limited to: aquatic ecosystems; visual amenity; livestock water supply; homestead water supply; irrigation water supply; and drinking water at point of supply – groundwater.

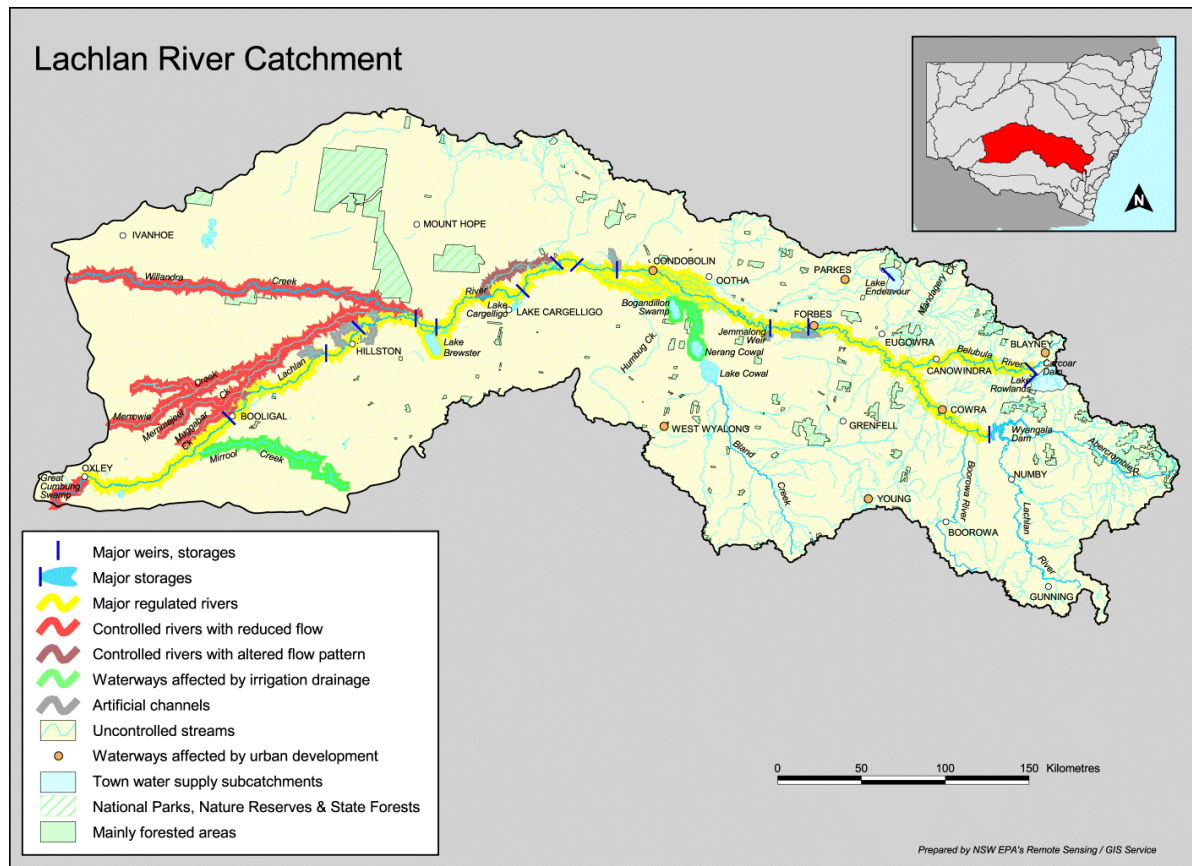


Figure 6 Lachlan River Catchment

The NSW Water Quality Objectives (WQOs) are a set of agreed environmental values and long-term goals for the surface waters of NSW. The WQOs can be useful in assessing the potential impact of developments, and they are based around eleven (11) specific community-based objectives which are flagged as relevant for each of the catchment areas. The Proposal is located in the Lachlan River catchment. The WQOs that are relevant to the wider catchments, along with their indicators and trigger values (NSW OEH 2006) are summarised in Table 6, including but not limited to: aquatic ecosystems; visual amenity; secondary contact recreation; primary contact recreation; livestock water supply; homestead water supply; irrigation water supply; aquatic foods; and drinking water at point of supply (Table 6).

Table 6 Relevant Lachlan River Water Quality Objectives

Water Quality Objective	Where WQO applies	Indicator	Numerical criteria (Trigger Value)
Aquatic ecosystems	All natural waterways	Refer ANZECC (2000)	Refer ANZECC (2000)
<i>Maintaining or improving the ecological condition of waterbodies and their riparian zones over the long term</i>			
Visual Amenity	All waterways particularly those used	Visual clarity and colour	Natural visual clarity should not be reduced by more than 20%

Water Quality Objective	Where WQO applies	Indicator	Numerical criteria (Trigger Value)
Aesthetic qualities of waters	for aquatic recreation and where scenic qualities are important		Natural hue of the water should not change by more than 10 points on the Munsell Scale The natural reflectance of the water should not be changed by more than 50%
		Surface film and debris	Oils and petrochemicals should not be noticeable as a visible film on the water, nor should they be detectable by odour. Waters should be free from floating debris and litter
		Nuisance organisms	Macrophytes, phytoplankton scums, filamentous algal mats, blue green algae, sewage fungus and leeches should not be present in unsightly amounts
Secondary contact recreation <i>Maintaining or improving water quality for activities such as boating and wading, where there is a low probability of water being swallowed</i>	All waters	Faecal coliforms	Median bacterial content in fresh and marine waters of < 1000/100 mL with 4 out of 5 samples < 4000/100 mL (minimum of 5 samples taken at regular intervals not exceeding one month).
		Enterococci	Median bacterial content in fresh and marine waters of < 230/100 mL
		Algae & blue-green algae	< 15 000 cells/mL
		Nuisance organisms	Use visual amenity guidelines. Large numbers of midges and aquatic worms are undesirable.
		Chemical contaminants	As per ANZECC (2000)
		Visual clarity and colour	Use visual amenity guidelines
		Surface films	Use visual amenity guidelines
Primary contact recreation <i>Maintaining or improving water quality for activities such as swimming in which there is a high probability of water being swallowed</i>	This objective applies in the immediate future to waters within and immediately upstream of recognised recreation sites. For many other waters, this is a long-term objective. Secondary contact recreation levels should apply in areas where primary contact recreation, such as	Turbidity	A 200 mm diameter black disc should be able to be sighted horizontally from a distance of more than 1.6 m (approximately 6 NTU).
		Faecal coliforms	Beachwatch considers waters are unsuitable for swimming if: the median faecal coliform density exceeds 150 colony forming units per 100 millilitres (cfu/100mL) for five samples taken at regular intervals not exceeding one month, or

Water Quality Objective	Where WQO applies	Indicator	Numerical criteria (Trigger Value)
	swimming, is unlikely to be achieved in the immediate future, owing to pollution.		<p>the second highest sample contains equal to or greater than 600 cfu/100mL (faecal coliforms) for five samples taken at regular intervals not exceeding one month. ANZECC 2000 Guidelines recommend:</p> <p>Median over bathing season of < 150 faecal coliforms per 100 mL, with 4 out of 5 samples < 600/100 mL (minimum of 5 samples taken at regular intervals not exceeding one month).</p>
		Enterococci	<p>Beachwatch considers waters are unsuitable for swimming if: the median enterococci density exceeds 35 cfu/100mL for five samples taken at regular intervals not exceeding one month, or the second highest sample contains equal to or greater than 100 cfu/100mL (enterococci) for five samples taken at regular intervals not exceeding one month. ANZECC 2000 Guidelines recommend:</p> <p>Median over bathing season of < 35 enterococci per 100 mL (maximum number in any one sample: 60-100 organisms/100 mL).</p>
		Protozoans	<p>Pathogenic free-living protozoans should be absent from bodies of fresh water. (Note, it is not necessary to analyse water for these pathogens unless temperature is greater than 24 degrees Celsius).</p>
		Algae & blue-green algae	< 15 000 cells/mL
		Nuisance organisms	<p>Use visual amenity guidelines. Large numbers of midges and aquatic worms are undesirable.</p>
		pH	5.0-9.0
		Temperature	15°-35°C for prolonged exposure.

Water Quality Objective	Where WQO applies	Indicator	Numerical criteria (Trigger Value)
		Chemical contaminants	Waters containing chemicals that are either toxic or irritating to the skin or mucus membranes are unsuitable for recreation. Toxic substances should not exceed the concentrations provided in tables 5.2.3 and 5.2.4 of the ANZECC 2000 Guidelines 2000.
		Visual clarity and colour	Use visual amenity guidelines
		Surface films	Use visual amenity guidelines
Livestock Water Supply <i>Protecting water quality to maximise the production of healthy livestock</i>	All surface and groundwater used to water stock	Algae and Blue Green algae	An increasing risk to livestock health is likely when cell counts of microcystins exceed 11,500 cells / mL and / or concentrations of microcystins exceed 2.3 ug/L expressed as microcystin-LR toxicity equivalents
		Salinity (EC)	As per ANZECC (2000)
		Thermotolerant coliforms (faecal coliforms)	<100 thermotolerant coliforms per 100mL
		Chemical contaminants	As per ANZECC (2000)
Irrigation Water Supply <i>Protecting the quality of waters applied to crops and pastures</i>	All current and potential areas of irrigated crops	Algae and blue green algae	Should not be visible. No more than low algal levels are desired to protect irrigation equipment
		Thermotolerant coliforms	Trigger values for thermotolerant coliforms in irrigation water used for food and non-food drops are provided in the ANZECC (2000)
		Heavy metals and metalloids	Long term and short-term trigger values are provided in the ANZECC (2000)
Homestead water supply <i>Protecting water quality for domestic use in homesteads, including drinking, cooking and bathing</i>	All homesteads that draw water from surface and groundwaters for domestic needs, including drinking water	Blue-green algae	Recommended twice weekly inspections during danger periods for storages with a history of algal blooms – no guideline values are set for cyanobacteria in drinking water.
		Turbidity	5 NTU; <1 NTU desirable for effective disinfection; >1 NTU may shield some micro-organisms from disinfection.

Water Quality Objective	Where WQO applies	Indicator	Numerical criteria (Trigger Value)
		Total dissolved solids	< 500 mg/L is regarded as good quality drinking water based on taste.
		Faecal coliforms	0 faecal coliforms per 100 mL (0/100 mL)
		pH	6.5 – 8.5
		Chemical contaminants	As per Australian Drinking Water Guidelines (NHMRC & NRMMC 2004)
Drinking water – Disinfection only Drinking water – clarification and disinfection Drinking water – Groundwater <i>Refers to the quality of drinking water drawn from the raw surface and groundwater sources before any treatment.</i>	These objectives apply to all current and future licensed offtake points for town water supply and to specific sections of rivers that contribute to drinking water storages or immediately upstream of town water supply offtake points. The objective also applies to subcatchments or groundwaters used for town water supplies.	Blue-green algae	Recommend twice weekly inspections during danger period for storages with history of algal blooms. >500 algal cells/mL - increase monitoring. < 2000 algal cells/mL - water may be used for potable supply. >2000 algal cells/mL - immediate action indicated; seek expert advice. >6500 algal cells/mL - seek advice from health authority. >15 000 algal cells/mL - may not be used for potable supply except with full water treatment, which incorporates filtration and activated carbon.
		Turbidity	Site-specific determinant.
		Salinity	<1500 µS/cm > 800 µS/cm causes a deterioration in taste.
		Faecal coliforms	0 faecal coliforms per 100 mL (0/100 mL)
		Total coliforms	95% of samples should be 0 coliforms/ 100 mL throughout the year. Up to 10 coliform organisms may be accepted occasionally in 100 mL. Coliform organisms should not be detected in 100 mL in any two consecutive samples.

Water Quality Objective	Where WQO applies	Indicator	Numerical criteria (Trigger Value)
Aquatic foods <i>Refers to protecting water quality so that it is suitable for the production of aquatic foods for human consumption and aquaculture activities</i>	The objective applies to all waters where aquatic foods are taken for non-commercial and commercial harvesting.	Dissolved Oxygen	> 6.5 mg/L (> 80% saturation)
		pH	6.5-8.5
		Chemical contaminants	See ANZECC 2000 guidelines, section 6.2.2.
		Algae & blue-green algae	No guideline is directly applicable, but toxins present in blue-green algae may accumulate in other aquatic organisms.
		Faecal coliforms	Guideline in water for shellfish: The median faecal coliform concentration should not exceed 14 MPN/100mL; with no more than 10% of the samples exceeding 43 MPN/100 mL. Standard in edible tissue: Fish destined for human consumption should not exceed a limit of 2.3 MPN E Coli /g of flesh with a standard plate count of 100,000 organisms /g.
		Toxicants (as applied to aquaculture activities)	Metals: Copper: less than 5 µgm/L. Mercury: less than 1 µgm/L. Zinc: less than 5 µgm/L. Organochlorines: Chlordane: less than 0.004 µgm/L (saltwater production) PCB's: less than 2 µgm/L.
		Physico-chemical indicators (as applied to aquaculture activities)	Suspended solids: less than 40 micrograms per litre (freshwater) Temperature: less than 2 degrees Celsius change over one hour.

4.2.2 Potential Surface and Groundwater Impacts – Construction

This Proposal is intended to proceed along with others within the Program. Each proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative surface and groundwater impacts. Given that PSC are responsible for all associated proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

Potential impacts to downstream surface waters relate directly to erosion and increased sedimentation during construction. This could result in impacts to the water quality within the adjacent Lachlan River.

There is also potential for spills of fuels and other contaminants arising from plant and machinery, which could enter surface waters during any works completed in proximity to drainage lines and waterways. Groundwater vulnerability mapping indicates sensitive ground water receivers throughout the study area.

If ERSED control measures and best practice design principles are adhered to, impacts to waterways as part of the construction of the pipeline, solar arrays and ancillary infrastructure are anticipated to be negligible.

4.2.3 Potential Surface and Groundwater Impacts – Operation

If ERSED measures and best practice design principles are adhered to, and the site is fully stabilised following construction works, impacts to waterways as part of operation of the Proposal are anticipated to be negligible.

Table 7 Waterways impacts summary

Description	Y	N	Comments
Are the works located within or adjacent to a waterbody or wetland? Waters are defined under Protection of the Environment Operations Act 1997 and water land and wetlands under section 198A of the <i>Fisheries Management Act 1994</i> and include rivers, streams, lakes, lagoons and constructed waterways, and dams.	X		The Lachlan River is within the study area and approximately 60 m from where the pipeline will be constructed.
Is a Fisheries Permit required? Part 7 Fisheries Permits are automatically required for any third order (or higher) stream under the <i>Fisheries Management Act 1994</i> (FM Act).	X		The Proposal includes works directly adjacent to the Lachlan River, which is mapped as containing KFH. As the subject site includes the mapped KFH area (Figure 7), a Part 7 Fisheries Permit will be required to allow for dredging or reclamation works within the waterway.
Will the proposed works be undertaken on a bridge?		X	The Proposal does not include any bridgework.
Are the works likely to require the extraction of water from a local water source (not mains)?		X	A water cart may be required to dampen soils during construction activities; water would be transported to site from an approved Council source.
Is the site identified as High or Moderate Groundwater Vulnerability?	X		The site is mapped as having high groundwater vulnerability that could be sensitive to earthworks and easily contaminated. Refer Figure 7.
Are the proposed works likely to have an effect on the surrounding water quality? This can include sediment migration, dust, and potential risks of fuel or chemical spills, to both surface and ground waters.		X	Potential for dust deposition in the Lachlan River and farm dams, and sediment migration off-site as well as contamination of the aquifer. Implementation of Environmental Safeguards identified in Section 4.2.4 would reduce the risk of this occurring.
Does the Proposal involve connection to, and use of a substantial volume of water from, any part of a water supply system owned by a Council?	X		A water cart may be required to dampen soils during construction activities; water would be transported to site from an approved Council source. Construction and operation are not anticipated to consume substantial volumes from Council's supply system

Description	Y	N	Comments
Does the Proposal involve the connection to, and a substantial impact on the capacity of, any part of a sewerage system owned by Council	X		Proposal does not include any works on any part of a sewerage system owned by Council.
Is the Proposal likely to have a substantial impact on stormwater management services provided by Council		X	No, the Study Area occurs outside the urban area and runoff from the site will not enter the stormwater system.
Are the works being carried out on flood liable land? (Written notification to the State Emergency Service may be required if the activity is a relevant provision under Division 1 (2.13) of the Transport and Infrastructure SEPP)	X		EPI mapping does not identify the study area as located in a flood area. Major flooding in recent years does however confirm the study area can be prone to flooding.
Is the Proposal being carried out on land that is within a coastal vulnerability area and is inconsistent with a certified coastal management program?		X	Works are not being carried out on land within a coastal vulnerability area.

4.2.4 Environmental Safeguards – Surface and Groundwater

The Environmental Safeguards for Surface and Groundwater are considered part of the Proposal and must be implemented. Safeguards include:

Construction

- Works to be completed in dry times (i.e. times of no current or predicted rainfall) to reduce the risk of pollutants and sediments being washed into nearby waterways or other surface waters.
- Appropriate erosion and sediment (ERSED) controls are to be installed and maintained during construction, to ensure sediment and pollutant laden surface water runoff does not enter adjacent waterways/drainage lines.
- Water moving through the site during construction is to be managed appropriately so as to prevent sediment migration and subsequent pollution of waters:
 - If 'dirty' site water is collected from within the direct impact footprint, it is to be redirected to filtration devices to trap sediments and other pollutants, and dissipate flow velocities, prior to discharging to the surrounding environment. Drainage and runoff should be controlled in such a way that no foreign substrates or materials leave the site.
 - 'Clean' water from outside the study area is to be diverted around the site, to avoid contamination and to prevent scour/erosion of the site during rainfall events during construction.
- All litter, including cigarette butts and food wrappers, is to be collected in a suitable receptacle and disposed of appropriately throughout the construction phase to ensure these do not end up polluting waters or aquatic environments.
- Re-fuelling of plant and equipment is to occur offsite, or in impervious bunded areas located a minimum of 40 metres from drains, drainage lines or dams.
- Vehicle wash-down and/or cement truck washout (if required) is to occur offsite unless it forms part of sediment control, where it is to occur in a suitably bunded area with controlled run-off.

- Monitoring of water quality is to be undertaken within culverts/waterways downstream of the site during and immediately following rainfall events, to identify if ERS&ED controls are functioning as intended. Visual inspections should be undertaken by an appropriately qualified person/s to determine if water is turbid, or if there is evidence of petrochemicals or other pollutants present as a consequence of construction activities.
- Segregate and stockpile topsoil removed from the area a minimum of 40 m from any waterway and on a flat, stable area. Use measures such as silt fences and holding ponds to prevent stockpile runoff from entering waterways.
- Biosecurity and water health protection measures should be implemented throughout the construction phase, including:
 - Machinery should arrive on site in a clean, washed condition, free of fluid leaks, pests and/or weeds/spores;
 - Regular weed control should be undertaken in disturbed areas throughout the construction period to prevent weed spread into waterways, if notifiable/listed weed material is present; and
 - Ensure all pesticide/herbicides used are registered for use within a waterway, as per NSW DPI guidelines. Alternatively, opt to remove weeds mechanically where possible.
- Spill response protocols for plant, equipment and chemicals used or stored on site during construction are to be available and accessible at all times to prevent and minimise potential for Pollution of Waters (s120 POEO Act).
- A Soil and Water Management Plan (SWMP) will be developed as part of the CEMP for the Proposal, detailing:
 - Water quality parameters to be adhered to (e.g. turbidity)
 - Appropriate monitoring locations and frequency
 - Location and types of ERS&ED controls
 - Proposed revegetation and stabilisation measures to be undertaken.

Operation

- Continue to undertake a water quality monitoring program in line with Council's requirements until all sites are completely stabilised; monitoring should include details of proposed baseline and downstream/dam water quality following any heavy rainfall.
- Subject site rehabilitation, including removal of weeds and revegetation using appropriate native species, is to be undertaken to ensure soil stability and prevention of sediment runoff from the site into the future. Revegetation must be maintained with a survival rate of >80%, as detailed in the CEMP.

Given the outlined environmental safeguards for Surface and Groundwater will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to Surface and Groundwater.

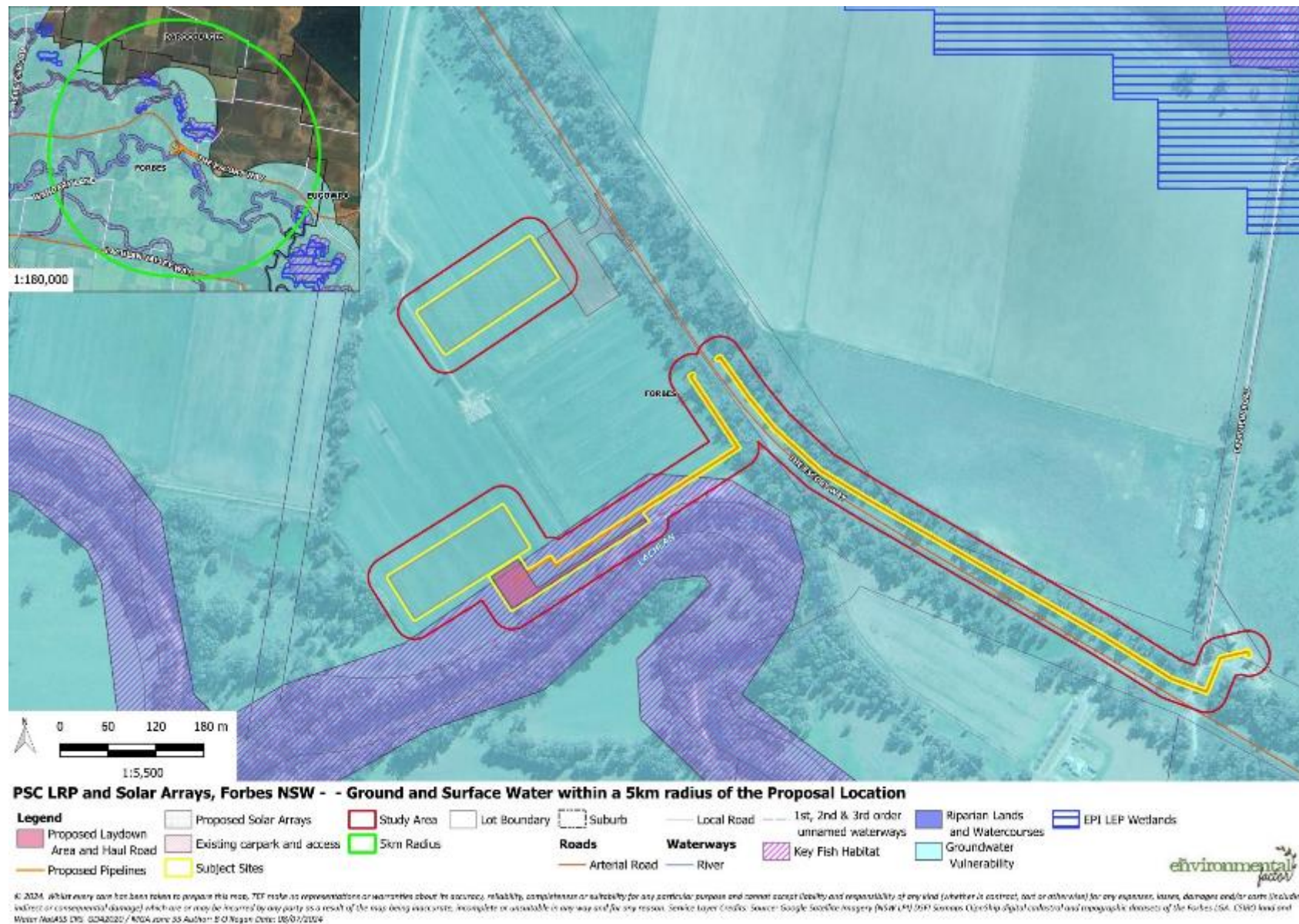


Figure 7 Waterways, surface and groundwater vulnerability within 5 km of the Subject Site

4.3 Noise and vibration

4.3.1 Existing environment

The study area occurs predominantly in a rural area, with background noise levels typically arising from traffic using The Escort Way, anthropogenic noises, livestock, wildlife, and inclement meteorological conditions (rain and wind).

The northeastern part of the study area is zoned SP2 – Infrastructure, and the south western part of the study area is zoned RU1 – Primary Production (refer Figure 1). There is one (1) private residence located approximately 100m south of the pipeline route on the Escort Way and three (3) private residences within 1 km of the subject site. The land adjacent to the study area is currently dedicated to cropping, with the exception of water supply infrastructure that includes the Lachlan River Pumping Station (LRPS) which is within the study area.

Cars and trucks travelling along The Escort Way are known to cause the main noise disturbance on site; however, noise observations are anecdotal / qualitative only, as no noise recording devices were used during the site assessment and no formal / specialised noise surveys have been completed as part of this REF.

4.3.2 Potential noise and vibration impacts – Construction

This Proposal is intended to proceed along with others within the Program. Each proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative noise and vibration impacts. Given that PSC are responsible for all associated proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

Noise impacts during construction are anticipated to arise from increased heavy vehicle and plant movements; vegetation clearing and grubbing as required; machinery and ancillary equipment including generator(s); excavators and other mechanical equipment including general engine noise and reverse alert beepers are expected as part of the construction phase. These noise impacts are anticipated to be short in duration and confined to the construction phase. Assuming the mitigation measures outlined in Section 4.3.4 are adhered to and early and effective community consultation is carried out, the Proposal is unlikely to cause significant disruption or constitute intrusive noise. Native species that are nesting, breeding or fledging are at risk of disruption by the noise and vibration generated by the Proposal.

Noise impacts to the local community including private residences, and other sensitive receivers would be limited to standard working hours and construction activities would be completed in accordance with best practice methods as outlined in the Interim Construction Noise Guidelines (ICNG).

It is anticipated that the Proposal would be completed within the following hours:

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

Generally, excessive noise impacts during construction would be intermittent and short-term.

Potential sensitive receivers should be consulted to ensure all potential disruptions and impacts are communicated and considered fully. Works and associated noise pollution should occur in line with the Protection of the Environment Operations (Noise Control) *Regulation 2017 and the Interim Construction Noise Guideline* (ICNG) (Department of Energy and Climate Change (DECC) 2009).

4.3.3 Potential noise and vibration impacts – Operation

Operation of the Proposal is not anticipated to generate significant additional noise or vibration during the operational phase beyond existing levels of anthropogenic noise within the study area. Ongoing maintenance activities and any future repair work do have the potential to generate noise as part of operations; however this is not anticipated to be significant.

Table 8 Summary of Noise and Vibration impacts

Description	Y	N	Comments
Are there any noise sensitive areas near the location of the proposed works? i.e., < 500m at nearest point, that may be affected by the works e.g. church, school, hospital, residences	X		There is one (1) private residence located approximately 100 m from the subject site.
Are the proposed works going to be undertaken during standard working hours detailed below? Monday – Friday: 7:00am to 6:00pm Saturday: 8:00am to 1:00pm Sunday and Public Holidays: No work	X		The proposed works would be undertaken during standard working hours. Proposed construction hours are as follows: <ul style="list-style-type: none"> Normal construction <ul style="list-style-type: none"> <input type="checkbox"/> Monday – Friday 7:00 am to 6:00 pm <input type="checkbox"/> Saturday – 8:00 am to 1:00 pm <input type="checkbox"/> Sundays and Public Holidays – No work
Is any explosive blasting required for the proposed works?		X	No need for blasting or rock breaking has been identified prior to the preparation of this REF. Some large rocks or floaters may need to be removed; however, it is expected that these will be removed by large heavy machinery.
Is there potential for ongoing operational noise to be generated post completion of works?		X	Operational noise is predicted to be consistent with existing noise activities at the site.

4.3.4 Environmental safeguards – Noise and Vibration

The Environmental Safeguards for noise and vibration are considered part of the Proposal and must be implemented. Safeguards include:

Construction:

- Noise emissions should be considered in terms of the Interim Construction Noise Guideline (ICNG) (Department of Energy and Climate Change (DECC) 2009).
- Noise impacts to the local community will be limited to recommended standard working hours as detailed in the Interim Construction Noise Guideline 2009 (ICNG). All activities and Proposal work, including the arrival and departure of vehicles delivering or removing materials to or from the site, shall be carried out between the hours of:
 - 7:00am to 6:00pm Monday to Friday,
 - 8:00am to 1:00pm Saturdays, and

- No work Sunday and Public Holiday
- Communication of intentions and timeframes to sensitive receivers will be undertaken in order to minimise misconceptions, uncertainty and negative reactions to noise. The site supervisor should supply a contact number to aid in community liaison.
- All noise and vibration complaints are to be handled in a timely manner in accordance with requirements under the POEO Act.
- The appointed contractor will incorporate Noise and Vibration Management strategies in the CEMP, and suitably induct all staff operating machinery on the site to ensure the standard working hours are adhered to, and that machinery movement (revving, reverse beepers) is kept to a minimum. This management plan must include the general noise and vibration management practices (AS 2436-2010).
- Plant deliveries and site access will occur quietly and efficiently, with parking allowed only within designated areas located away from nearby sensitive receivers.
- Simultaneous operation of high-level noise generating machinery should be avoided by operating at contrasting times or increasing the distance between the plant and the nearest identified receiver.
- High noise generating activities, should be carried out in continuous blocks, not exceeding three (3) hours with a minimum respite period between blocks of one (1) hour.
- Low-pitch tonal beepers should be installed where possible and reversing minimised on site.
- All engine covers are to be closed and machines that are not in use, shut down.
- Where possible, high noise generating activities such as loading and unloading and material dumps should be located as far as possible from the nearest receptors.
- Works should be timed to avoid prime breeding season (Spring) for the majority of native species residing in the area, and excessive noise and vibration can impact upon native species breeding habits and life cycles.

Given the outlined environmental safeguards will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to noise and vibration.

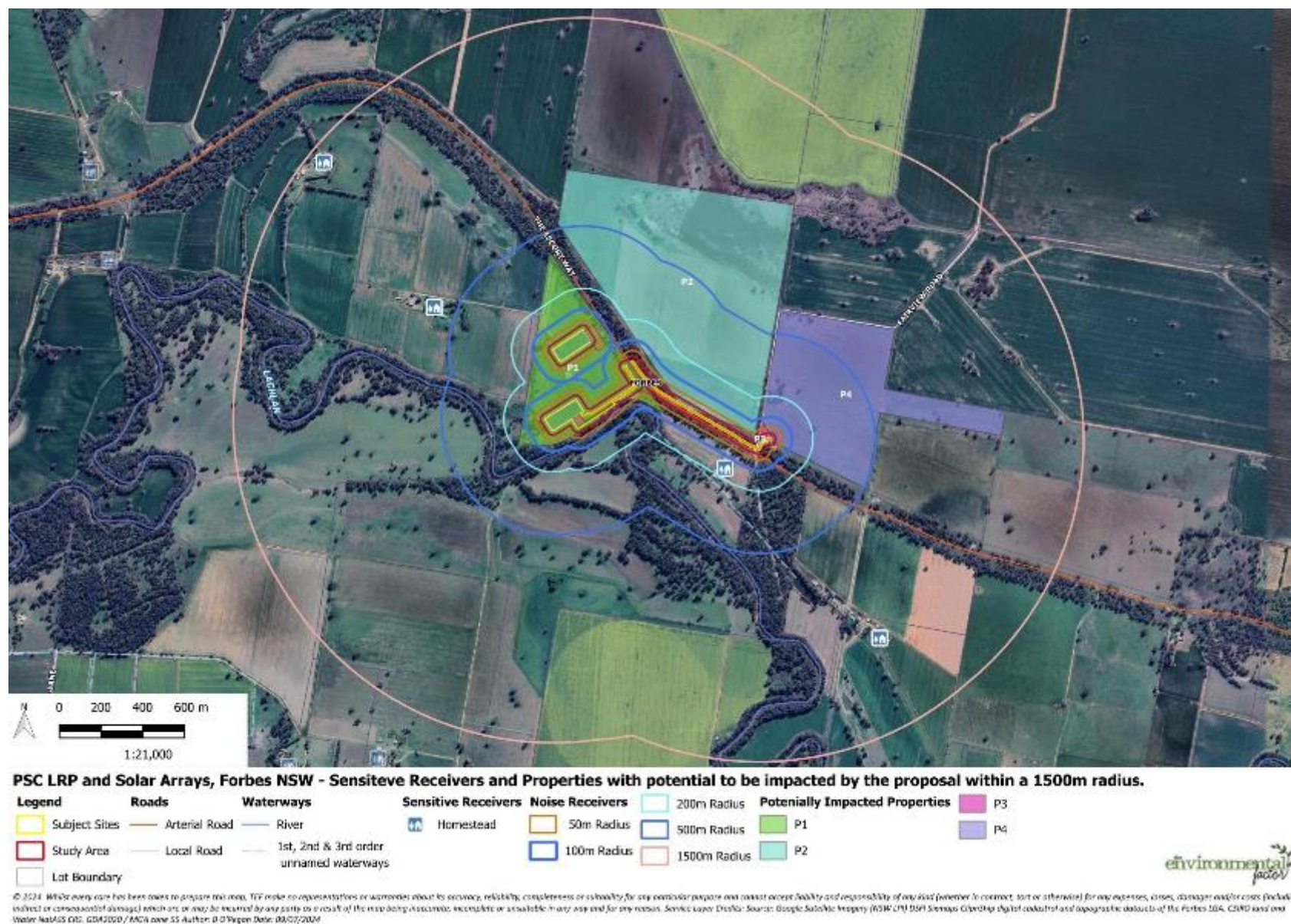


Figure 8 Sensitive receivers within a 1 500 m radius of the Proposal

4.4 Air quality

4.4.1 Existing environment

The Forbes region generally enjoys clean air; a lack of heavy industry and relatively low concentration of vehicles ensures that pollutant levels are relatively low. The primary air pollution emission sources that contribute to ambient air quality in the area include:

- Wind generated dust from exposed areas within the locality.
- Dust emissions from agricultural activities.
- Dust entrainment due to vehicle movements along unsealed and sealed town and rural roads with high silt loadings.
- Diesel and petrol fuel combustion emissions from road and non-road sources.
- Seasonal emissions from household wood burning.
- Episodic emissions from dust storms and vegetation fires (local and regional).

The closest real-time air quality monitoring is conducted at the Parkes air quality monitoring station, managed by the NSW Environmental Protection Authority (EPA). In March 2023, during field surveys, the station monitored particulate matter (PM₁₀ and PM_{2.5}), with air quality noted as Good in both parameters for which data can be reliably collected.

Long term meteorological data for the surrounding area is available from the Bureau of Meteorology (BoM) operated Automatic Weather Station (AWS) at Forbes Airport (Station number 065103). The Forbes Airport AWS is located approximately 20 km to the east of the subject site and records observations of a range of meteorological data including temperature, humidity and rainfall, wind speed and wind direction.

Temperature data collected at the Forbes Airport AWS indicates that January is the hottest month of the year, with mean maximum temperature of 34.5°C. July is the coolest month with a mean daily maximum temperature of 14.7°C. March is the wettest month with an average rainfall of 55.5 mm falling over 4.3 days. According to long-term records, there are on average 56 rain days per year, with a mean annual rainfall of approximately 493 mm. Forbes experiences a moisture deficit, with evaporation exceeding rainfall for all months, excluding June and July. The increased moisture deficit of the hotter months increases the dust erosion potential of exposed areas and therefore has important implications for fugitive dust erosion potential during the construction phase.

4.4.2 Potential Air Quality impacts – Construction

This Proposal is intended to proceed along with others in the Program. Each proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative air quality impacts. Given that PSC are responsible for all associated proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

Potential impacts to air quality may arise from airborne dust particles generated during earthworks, stockpiling and managing topsoil, transport and handling of soils and equipment, as well as the use of construction vehicles emitting exhaust fumes or other particulate matter. The extent of air pollution generated during construction depends on a number of factors, including the type of machinery used, construction

techniques, weather conditions and the cumulative effect of other construction activities in the near vicinity (e.g. agricultural activities such as ploughing).

Several residences may experience reduced levels of air quality during construction works due to dust created by earthworks. There is the possibility that air quality surrounding these residences could be impacted, however this is highly dependent on the prevailing wind direction and speed and is unlikely to be above dust levels experienced as a result of agricultural practices carried out within the study area. Sensitive receivers (Figure 8) have the potential to be negatively affected by changes in air quality due to construction activities. However, it is anticipated that the impacts to air quality caused by construction will be low and of short duration, provided environmental safeguards are implemented as described below (Section 4.4.4).

The impacts, primarily associated with pipeline construction which could result in fugitive dust emissions and air pollution from plant and other equipment and vehicles, are anticipated to be of short duration and minor in nature. If not properly controlled, dust emissions could result in deposition on adjacent flora which can impact on species' ability to photosynthesize. Additionally, if not adequately controlled, fugitive dust can be transported long distances and impact upon sensitive receivers.

4.4.3 Potential Air Quality impacts – Operation

Assuming the site is rehabilitated following construction works, operation of the Proposal is unlikely to cause any additional negative impact to air quality; it is anticipated the site will return to pre-construction conditions with negligible differences to air quality from routine operation and maintenance of the infrastructure.

Table 9 Summary of Air Quality impacts

Description	Y	N	Comments
Are the proposed works likely to result in large areas (>2ha) of exposed soils?		X	The proposed subject site is 3.57 ha, however soil disturbance will be staged and reinstated progressively as works proceed, therefore minimising the exposed area at any given time.
Are there any dust sensitive receivers located within the vicinity of the proposed works (<500m away at nearest point) during the construction period (i.e., church, school, hospital, residences)?		X	The nearest residential property is approximately 100 m to the south of the subject site.
Is there likely to be an emission to air of dust, smoke, steam or vehicle emissions?	X		Yes, the study area and locality contain fine, friable soils likely to result in dust emissions once disturbed. These may be mitigated by use of a water cart or other dust suppressants, and through use of appropriately maintained machinery and vehicles that meet emissions standards

4.4.4 Environmental safeguards –Air Quality

The Environmental Safeguards for Air Quality are considered part of the Proposal and must be implemented. Safeguards include:

Construction

- Daily visual construction dust monitoring should occur, with works to cease if dust plumes are occurring that have potential to impact areas outside the direct impact footprint.

- Speed limits of 40 km / hr or slower are to be enforced on access tracks and across the site during dry weather to keep dust to a minimum.
- An adequate water supply is to be provided on the construction site for effective dust/particulate matter suppression/mitigation. If synthetic dust suppressants are used, they must be biodegradable in nature and non-toxic for waterways.
- Earthworks and exposed areas/soil stockpiles are to be revegetated using appropriate native species to stabilise surfaces as soon as practicable to reduce risk of dust emissions from wind erosion.
- Only vegetation that has been approved for removal may be removed or otherwise impacted; intact vegetation stabilises soils and keeps dust to a minimum.
- Vegetation and other materials are not to be burnt on site, unless the vegetation material is a weed that prohibits transportation and disposal by other means.
- Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transit.
- Tracking of machinery carrying soil/spoil through nearby townships is to be avoided where possible.
- Stockpiles or areas that may generate dust are to be managed to suppress dust emissions.
- Dampening of exposed soils will be undertaken during weather conditions conducive to visible dust formation.
- Construction plant and equipment will be maintained in a good working condition in order to limit impacts on air quality through vehicle emissions.
- Fuel operated plant and equipment will not be left idle when not in use.
- Regular site inspections will be undertaken as part of air quality monitoring, and inspection results recorded by Council's Principal Contractor.
- Any dust complaints received during construction will be duly investigated in accordance with Council's requirements under the POEO Act.
- Any exceptional incidents that cause dust and/or air emissions, either on or off site, will be recorded, and the action taken to resolve the situation recorded in the site management logbook.

Operation

- Any exposed areas revegetated during construction are to be monitored and maintained until the areas are fully stabilised to reduce risk of erosion and dust emissions, as well as dust settling on nearby native vegetation and waterbodies.

Given the outlined environmental safeguards for Air Quality will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to Air Quality.

4.5 Non-Aboriginal heritage

4.5.1 Existing environment

Forbes has a rich cultural history, traditionally home to the Wiradjuri people, with a population boom related to the discovery of gold in the region in the early 1960's. The town has a number of important stock routes passing through, as well as a history of agriculture since the 1860's. The dominant land use throughout the Forbes region is agriculture including farming and grazing, which are fundamental to the local economy. Disturbance regimes associated with the land uses of the study area include vegetation clearing, cropping and grazing, access tracks, and residential dwellings.

Despite the Forbes region having a diverse and well recorded cultural history, a search of the Heritage Council of NSW administered heritage databases and the Forbes Local Environmental Plan (LEP) 2013 returned no records of historical heritage sites within 1 km of the study area.

After considering the potential impacts of the Proposal on non-Aboriginal heritage it was considered that a detailed heritage assessment was not deemed necessary for this Proposal and was not conducted.

4.5.2 Potential impacts to non-Aboriginal Heritage – Construction

Due to the recent and historic disturbance, including cropped land, road, and water infrastructure, it is highly unlikely that any items of non-Aboriginal Heritage would be discovered while constructing the solar array and pipeline.

No impacts to known surrounding heritage sites are anticipated, as none occur within the direct impact zone (subject site) or within proximity to the subject site. There is, however, always potential for the works to uncover unanticipated finds. The environmental safeguards outlined in Section 4.6.4 will provide additional protection measures to reduce the risk of harm to any such unanticipated finds.

4.5.3 Potential impacts to non-Aboriginal Heritage - Operation

No impacts to non-Aboriginal heritage are anticipated in the operation phase of the Proposal.

Table 10 Non-Aboriginal Heritage impacts summary

Description	Y	N	Comments
Are there any items of non-Aboriginal heritage located within the vicinity (1km) of the proposed works?		X	No items of non-Aboriginal heritage were identified.
If yes, list the item(s) and their heritage significance (i.e., s170 register, Council Register, State Heritage Register, National Heritage Register).	N/A		
Is the development on, or reasonably likely to have an impact on, a part of the Willandra Lakes Region World Heritage Property (if so, consultation is required with the World Heritage Advisory Committee and Heritage NSW),		X	The Proposal is not located in proximity to the Willandra Lakes Region World Heritage Property.
Is the Proposal likely to affect the heritage significance of a local heritage item, or of a heritage		X	No impacts are anticipated, as works are limited to the subject site where no heritage items are located.

Description	Y	N	Comments
conservation area, that is not also a State heritage item, in a way that is more than minor or inconsequential?			
Is further assessment of the potential impact on a listed heritage item required? And has this assessment been provided along with written notification to the local Council for the area in which the heritage item is located?		X	No further assessment is required

4.5.4 Environmental safeguards – non-Aboriginal Heritage

The Environmental Safeguards for non-Aboriginal Heritage are considered part of the Proposal and must be implemented. Safeguards include:

- The proposed works must be contained to the area assessed during the construction. If the proposed location is amended, further archaeological assessment may be necessary to determine if the proposed works will impact any items of historical significance.
- If archaeological remains or items defined as relics under the NSW Heritage Act 1977 are uncovered during the works, all works must cease in the vicinity of the material/find and Council's Manager Strategic Planning and Environmental Officer are to be contacted immediately.
- Council's workers and all staff must be made aware of the heritage sites and place that occur within the area and all care must be taken to avoid interference with and damage to these sites.
- Any newly discovered heritage sites must be clearly fenced/flagged with removable flagging or other temporary means to delineate their presence and in order to prevent them being harmed during the construction process.

Given the outlined Environmental Safeguards for non-Aboriginal heritage will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to non-Aboriginal Heritage.

4.6 Aboriginal heritage

4.6.1 Existing environment

The Wiradjuri are known to have permanently inhabited this area of the Central West for around 40,000 years or more, with the Lachlan River serving as a significant and central feature to the First Nations people. Today the Forbes region is a culturally rich and diverse community that celebrates the rich Aboriginal Heritage, as evidenced by a number of sculptures, and the Forbes Wiradjuri Dreaming Centre (WDC) adjacent to Lake Forbes, initiated by the Forbes Wiradjuri Community to promote Wiradjuri culture and stories. The WDC is a unique hub for educating the community and hosting cultural events, meetings and workshops by local Aboriginal volunteers.

The Tallawalla property and adjacent Escort Way road reserve has been assessed extensively in the past (see OzArk 2015a, EcoLogical 2022, OnSite CHM 2022, OzArk 2022, OzArk 2023a, OzArk 2023b, OzArk 2024). The corresponding survey area are identified in Figure 9 with heritage sites within 200 m of the study area identified in Figure 10. OzArk 2015a recorded one low density artefact scatter along the terrace landform of the Lachlan River. The site, PSC Pump Station OS1 with PAD (AHIMS ID# 43-3-0108) is approximately 200m x 100m and is identified in Figure 10. Following this report and assessment, it was recommended that Council apply for an Aboriginal Heritage Impact Permit (AHIP) before any work commenced. An AHIP (C0001096) was issued to Council in May 2015; the extents of the AHIP area are identified in Figure 10 and the AHIP has been included as Appendix C. The artefact scatter has since been salvaged (see OzArk, 2015). All surface artefacts were collected with the assistance of the Peak Hill Local Aboriginal Land Council (LALC); the subject site includes this AHIP area, which remains active until May 2025.

Since the AHIP was issued, another heritage assessment was conducted in late 2021 for the proposed construction of a 9 km water pipeline by PSC (EcoLogical 2022). This investigation area runs directly adjacent to the subject site and transects the AHIP area (Figure 9). The 2022 Aboriginal Cultural Heritage Assessment (ACHA) included a test excavation program that was developed in consultation with the Registered Aboriginal Party (RAP). The subsequent report by EcoLogical in 2022 concluded that, “no Aboriginal objects were identified following subsurface investigations, and enough information was gathered during archaeological investigations to understand the nature and extent of Aboriginal use of the study area. Archaeological investigations found no evidence of further Aboriginal objects within the study area outside the existing AHIMS site boundary (AHIMS ID 43-3-0108) and no cultural heritage values were identified for the study area beyond the existing AHIMS site”. As noted in Figure 9, there is a portion of the subject site encompassing the southern solar array area that is outside the approved ACHA/test pit area as defined in EcoLogical, 2022. The report notes in Section 7 – Recommendation 3 that, “if the proposed works are changed and there will be impacts beyond the (pipeline alignment) assessed area, then further investigation will be required, and an addendum ACHA/ATR undertaken. An addendum ACHA will require further consultation with RAPs”. As such, Council will require additional assessment in accordance with the Aboriginal ‘Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales’ of this unsurveyed area (Figure 9) prior to works proceeding.

An ADD to assess the 850 m section of proposed pipeline along the Escort Way (OzArk 2024) is the most recent report prepared within the study area. This report is accompanied by OzArk, 2023b, which assessed a section of the pipeline alignment as part of works associated with the Lachlan River PTP. The reports note that one (1) culturally modified tree AHIMS ID: 43-3-0206 (Escort Way ST 1) was identified during the 2023 assessment near the subject site (identified in Figure 10). In addition, one previously identified modified tree was noted 10 – 20 m north of the proposed pipeline alignment (identified as ‘Community Interest Tree’ in Figure 10). This

tree is not registered on AHIMS and is not Escort Way ST-1 (AHIMS ID: 43-3-0206). Although it does not appear on the AHIMS register, the tree is already fenced and both sites are not directly within the subject site.

4.6.2 Potential Aboriginal Heritage Impacts – Construction

Given the presence of multiple heritage sites surrounding the subject site, the Proposal has the potential for impacts to known Aboriginal heritage. In addition, there is also the possibility of encountering and impacting unknown archaeological material during works. It is therefore critical that all Safeguards identified in Section 4.6.4 are implemented to reduce the risk of direct impacts to Aboriginal heritage.

4.6.3 Potential Aboriginal Heritage Impacts – Operation

No adverse impacts to places, artefacts or Aboriginal Heritage sites are expected during use/operation of the Proposal assuming all safeguards listed in Section 4.6.4 are adhered to.

Table 11 Aboriginal Heritage impacts summary

Description	Y	N	Comments
Are the works likely to disturb previously undisturbed areas of the landscape? Check for good camping sites (flat, near water, availability of bush foods), mountain ridges, spurs or vantage points or rocky outcrops that may have ceremonial significance, and the presence of stone tools, shells or other evidence of human occupation.	X		Disturbance to previously undisturbed vegetated roadside corridor. This area has been assessed in OzArk, 2024.
Has an AHIMS register search been conducted?	X		Yes several– refer to various ADDs completed (listed in Section 7). OzArk, 2024 includes the most recent AHIMS register search.
Are there any known items of Aboriginal Heritage near the works area (< 1km)?	X		One (1) registered item was identified during field surveys in May 2023 (AHIMS ID: 43-3-0206), in addition to the previously recorded PAD (site 43-3-0108). Refer various assessments and reports completed (Section 7).
Is consultation with stakeholders required? E.g., the Local Aboriginal Land Council	X		Yes - Council must engage with Traditional Owners / RAPs so that they supervise excavation works to ensure the controls in the AHIP are followed and any unexpected finds can be managed with community members present (see Appendix C).
Is a National Parks and Wildlife Act Section 90 Permit (Aboriginal Heritage Impact Permit – AHIP) required for Aboriginal items potentially impacted by the works?	X		AHIP C001096 has been issued to permit impact to the AHIMS site that cannot be entirely avoided by the Proposal. The AHIP is active until May 2025 and has been included as Appendix C. Further assessment of unsurveyed area also required prior to works commencing.

4.6.4 Environmental Safeguards – Aboriginal Heritage

The Environmental Safeguards Aboriginal Heritage are considered part of the Proposal and must be implemented. Safeguards include:

- All land ground disturbance activities must be confined to within the subject site as this will reduce the risk of harm to Aboriginal objects in adjacent landforms. Should the parameters of the Proposal extend beyond the assessed areas, then further archaeological assessment is required.
- For the unsurveyed area shown in Figure 9, Council will require additional assessment in accordance with the Aboriginal 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' of this unsurveyed area prior to works proceeding.
- All staff and contractors involved in the proposed work should be made aware of the legislative protection requirements for all Aboriginal sites and objects and the conditions stipulated in AHIP C001096 (Appendix C).
- All staff and visitors should be inducted to site to ensure they are aware of the possible presence of sensitive Aboriginal heritage items located within the vicinity of the work site, and the protective measures that should remain in place throughout the works.
- Should unanticipated archaeological material be encountered during site works, all work must cease and an archaeologist contacted to make an assessment of the find. Further archaeological assessment and Aboriginal community consultation may be required prior to the recommencement of works. Any objects confirmed to be Aboriginal in origin must be reported to Heritage NSW
- If during works Aboriginal artefacts or skeletal material are noted, all work should cease and the procedures in the Unanticipated Finds Protocol (OzArk, 2024) should be followed.
- If any human remains are found, all works should stop immediately, the site should be secured and NSW police contacted immediately.
- The information in the various ADD reports meets the requirements of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. They should be retained as shelf documentation for five (5) years as they may be used to support a defence against prosecution in the event of unanticipated harm to Aboriginal objects.
- Specific management measures for the archaeological items recorded within the study area are as follows:

Escort Way St 1 and the Community Interest Tree

- Both sites are within close proximity, but can be avoided by the proposed works. To ensure that the risk of inadvertent harm to the site and the community interest tree is minimised, the following management measures should be adhered to during works:
 - The northern boundary of the works area on the eastern side of the Escort Way should be demarcated by temporary, high visibility flagging to contain all construction activities. The fencing alignment shown on Figure 4-1 in the OzArk 2023b ADD is preferable as it does not identify Escort Way ST 1 as an Aboriginal object that is visible from the road, which reduces the risk of vandalism.
 - The location of Escort Way ST 1 and the community interest tree should be marked on all construction plans and the CEMP as no-go areas.
 - Fencing to contain the construction area per Figure 4-1 in OzArk, 2023 will also facilitate the avoidance of the community interest tree.

Site 43-3-0108 and AHIP C001096

- The AHIP C001096 is valid until 25/05/2025. If works proceed after this date, further assessment and consultation with Heritage NSW is required.
- Any works undertaken within the boundary of AHIP C001096 must be conducted in accordance with the conditions of the permit. As the proponent, PSC, is the holder of this AHIP it will be their responsibility to ensure that the works comply.
- Council must engage with Traditional Owners / RAPs so that they supervise excavation works to ensure the controls in the AHIP are followed and any unexpected finds can be managed with community members present.

Given the outlined environmental safeguards will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to Aboriginal Heritage.



Figure 9 Aboriginal Heritage survey areas



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Figure 10 Aboriginal and non-Aboriginal heritage items within 200 m radius of subject site

4.7 Biodiversity

4.7.1 Existing environment

The subject site occurs along a road reserve adjacent to The Escort Way in Forbes LCA and in cultivated farmland within the LRP. The surrounding environment includes a mixture of predominantly cleared agricultural land, riparian vegetation along the riparian corridor of the Lachlan River and remnant woodland vegetation predominantly restricted to the road reserve of The Escort Way and other roadways. (refer Figure 1). The broader Locality is dominated by mixed use (cropping and grazing) agricultural farmland which has been mostly cleared of native vegetation. Some remnant scattered paddock and fence line trees persist in agricultural land, however, these generally lack connectivity due to historic clearing for current agricultural land use. Some areas containing gilgais and natural wetlands were identified via satellite imagery to the north of the subject site in adjacent agricultural land.

Wetlands are also mapped as occurring approximately 550 m to the north east of the subject site in adjacent farmland, and the Lachlan River occurs within the study area and is approximately 60 m to the south of the proposed pipeline alignment. An approximately 800 m linear section of the subject site falls within the Escort Way road reserve, with the rest of the subject site identified as being entirely within Lot 81 in DP750183.

Areas of mapped Terrestrial Biodiversity (as mapped in the Forbes LEP 2013) are mapped as occurring along The Escort Way road reserve, and within the riparian corridor along the Lachlan River to the south. These areas are mapped both within and adjacent to the subject site.

Flora

Remnant woodland within the study area within the road reserve of 'The Escort Way' was found to conform with the following Plant Community Types (PCTs):

- PCT 0 – Non-native
- PCT 5 - *River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion*. This community is predominantly restricted to the riparian corridor of the Lachlan River, and extends onto floodplains in the assessment area
- PCT 201 – *Fuzzy Box Woodland on alluvial brown loam soils mainly in the NSW South Western Slopes Bioregion*

Within the subject site, canopy vegetation was comprised of predominantly River Red Gums (*Eucalyptus camaldulensis*), with some Yellow Box (*Eucalyptus melliodora*) also recorded in the area, likely due to the proximity of the adjacent PCT 201 which was recorded on the northern side of The Escort Way, opposite the subject site. Given the dominance of River Red Gum within the subject site, the area was found to conform to PCT 5.

Groundcover vegetation within the subject site and wider study area within the road reserve of The Escort Way is highly degraded and dominated by predominantly exotic weed species. The road reserve of The Escort Way in the subject site was dominated by the exotic shrub *Sida rhombifolia* (Paddy's Lucerne), and exotic forbs such as *Lactuca serriola* (Prickly Lettuce), *Solanum elaeagnifolium* (Silverleaf Nightshade), *Eragrostis cilianensis* (Stinkgrass), *Echium plantagineum* (Pattersons Curse) and *Alternanthera pungens* (Khakie weed). No native shrub layer was present. Some scattered native groundcover species occurred including *Enteropogon sp* and *Austrostipa scabra*, however native groundcover was present only in low densities.

Priority Weeds

Silverleaf nightshade (*Solanum elaeagnifolium*) is listed as NSW Priority Weed for the Central West Region. No further flora species identified within the subject site are listed NSW Priority Weeds, or Weeds of National Significance (WoNS).

Given the high density of weed species within the subject site, work should be undertaken to control and reduce the spread of exotic weeds throughout the study area, particularly during the construction process.

Flora identified within the study area is presented in Table 12.

Table 12 Recorded flora species in the study area

Scientific name	Common name	Status
<i>Alternanthera pungens</i>	Khaki Weed	E
<i>Chenopodium album</i>	Fat Hen	E
<i>Chloris truncata</i>	Windmill Grass	N (GG)
<i>Conyza bonariensis</i>	Flaxleaf Fleabane	E
<i>Cyndon dactylon</i>	Couch Grass	N
<i>Echium plantagineum</i>	Patterson's Curse	E
<i>Enteropogon acicularis</i>	Curly Windmill Grass	N (GG)
<i>Eragrostis cilianensis</i>	Stinkgrass	E
<i>Eucalyptus camaldulensis</i>	River Red Gum	N (T)
<i>Eucalyptus conica</i>	Fuzzy Box	N (T)
<i>Eucalyptus melliodora</i>	Yellow Box	N (T)
<i>Lactuca serriola</i>	Prickly Lettuce	E
<i>Lepidium africanum</i>	Common Peppergrass	E
<i>Paspalum spp</i>	Crowngrass	E
<i>Phalaris</i>	Phalaris	E
<i>Rumex crispus</i>	Curled Dock	E
<i>Schinus areira</i>	Pepper Tree	E
<i>Sida rhombifolia</i>	Paddy's Lucerne	E
<i>Solanum elaeagnifolium</i>	Silver-leaved Nightshade	HTE, NSW Priority Weed
<i>Solanum nigrum</i>	Black-berry Nightshade	E
<i>Verbena bonariensis</i>	Purpletop	E
<i>Xanthium orientale</i>	Californian Burr	E
<i>Xanthium spinosum</i>	Bathurst Burr	HTE

E = Exotic, HTE = High Threat Exotic, N = Native, T = Tree, GG = Grass, F = Forb

Fauna

Fauna habitat within the subject site consisted of remnant woodland present along The Escort Way, the riparian corridor of the Lachlan River to the south, and cultivated farmland. A number of large trees, including habitat trees (hollow-bearing or containing nests) were observed within woodland in the road reserve and along the riparian corridor. In particular, hollow-bearing trees (HBTs) were concentrated along the banks of the Lachlan River.

Surveys undertaken identified thirteen (13) fauna species, all of which are native including twelve (12) bird species and one (1) reptile species identified near the Lachlan River. These species are listed in Table 13.

Table 13 Fauna species recorded in the study area during field surveys

Scientific name	Common name	NSW Status	EPBC Status
Birds			
<i>Cracticus tibialis</i>	Australian Magpie	-	-
<i>Chenonetta jubata</i>	Australian Wood Duck	-	-
<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	-	-
<i>Platycercus eximius</i>	Eastern Rosella	-	-
<i>Eolophus roseicapillus</i>	Galah	-	-
<i>Rhipidura albiscapa</i>	Grey Fantail	-	-
<i>Colluricincla harmonica</i>	Grey Shrike-thrush	-	-
<i>Manorina melanocephala</i>	Noisy Miner	-	-
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo	-	-
<i>Malurus cyaneus</i>	Superb Fairy-wren	-	-
<i>Rhipidura leucophrys</i>	Willie Wagtail	-	-
<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill	-	-
Reptiles			
<i>Pseudonaja textilis</i>	Eastern Brown Snake	-	-

Conservation Significance

No threatened species and/or ecological communities were recorded within the subject site during surveys, however the following Threatened Ecological Communities were recorded along The Escort Way in the study area, adjacent to the subject site:

- *Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions* – (Fuzzy Box Woodland) BC Act listed **endangered ecological community (EEC)**
- *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penneplain, Nandewar and Brigalow Belt South Bioregions* - (Grey Box Woodland) – BC Act listed **endangered ecological community (EEC)**

No further threatened species were observed during site assessments, however based on the habitat assessments undertaken, a total of thirty seven (37) threatened species were considered as having the potential to occur within the study area (Appendix B). These include:

- Superb Parrot, *Polytelis swainsonii*, Vulnerable under the BC and EPBC Act
- Brown Treecreeper (eastern sub-species), *Climacteris picumnus victoriae*, Vulnerable under the BC Act
- Grey-crowned Babbler (*Pomatostomus temporalis temporalis*)
- Dusky Woodswallow, *Artamus cyanopterus cyanopterus*, Vulnerable under the BC Act
- Little Lorikeet, *Glossopsitta pusilla*, Vulnerable under the BC Act
- Speckled Warbler, *Chthonicola sagittate*, Vulnerable under the BC Act
- Turquoise Parrot, *Neophema pulchella*, Vulnerable under the BC Act
- Varied Sitella, *Daphoenositta chrysoptera*, Vulnerable under the BC Act
- White-fronted Chat (*Epthianura albifrons*), Vulnerable under the BC Act
- Hooded Robin (*Melanodryas cucullata cucullata*), Vulnerable under the BC Act
- Diamond Firetail (*Stagonopleura guttata*), Vulnerable under the BC Act
- Flame Robin (*Petroica phoenicea*), Vulnerable under the BC Act
- Scarlet Robin (*Petroica boodang*), Vulnerable under the BC Act
- Dusky Woodswallow (*Artamus cyanopterus cyanopterus*), Vulnerable under the BC Act



Plate 1 PCT 5 within the study area



Plate 2 PCT 5 within the study area



Plate 3 PCT 201 in the study area



Plate 4 PCT 201 in the study area

4.7.2 Potential biodiversity impacts – construction

This Proposal is intended to proceed along with others within the Program. Each proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative impacts to biodiversity. Given that PSC are responsible for all associated proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

Native vegetation occurs within the subject site (canopy only). It is not anticipated that any impacts to canopy vegetation would occur given that there is no tree cover present in the subject site. It is anticipated that there is sufficient gap to allow the construction of the pipeline and road without impacting on any mature trees. Trees adjacent to the subject site are comprised of large, mature River Red Gum trees, several of which were recorded as containing hollows. Hollow Bearing Trees are not anticipated to be impacted as a result of the Proposal.

No threatened species and/or ecological communities were recorded within the subject site during surveys, however threatened species considered likely to occur (as described above) have been assessed for potential impacts (see Appendix B).

Given the limited anticipated direct impacts (exotic groundcover only), it is not anticipated that threatened species are likely to be impacted as a result of the Proposal. Up to thirty-seven (37) threatened species identified in the surrounding locality via desktop assessment are considered to have a moderate likelihood of

occurring, however given that habitat features specific to these species would not be impacted, and impacts are limited to a maximum of **3.57 ha** of predominantly exotic vegetation from a disturbed and degraded road reserve and farmland, harm to these species or their habitats is not anticipated. If construction methodology or footprints are amended, re-assessment of the impacts to threatened biota are required.

The nearest waterway (the Lachlan River) is located within the study area. No direct impacts to aquatic habitats are likely to result from the Proposal due to the small nature of the proposed works and distance from the banks of the river. Nonetheless the environmental safeguards relating to surface and groundwater contamination outlined in Section 4.7.4 must be adhered to.

Indirect impacts to biodiversity are expected to be minimal due to the short-term nature of the proposed works. It is not expected that clearing and construction noise and dust levels would be significant enough to impact species or ecological communities. There is a risk that the Proposal could further introduce and spread weeds and other pathogens to the site, and safeguard measures have been outlined in Section 4.7.4 to minimise the risk of this.

Key Threatening Processes (KTP) relating to the Proposal can be seen in Table 14.

If vegetation removal is required (i.e., trees), it is recommended that a qualified ecologist is present to conduct pre-clearing surveys immediately prior to vegetation removal, to assess for any potential fauna habitat, and subsequently fauna presence (threatened or otherwise), in order to minimise impacts. If habitat features are identified, these must be assessed for the potential to result in detrimental impacts to a threatened species if present. If a significant impact to threatened species is unlikely, habitat can be removed under the supervision of a qualified ecologist to rescue any potentially occurring fauna.

Further mitigation measures proposed for these works include timing of clearing to occur outside of key breeding times for fauna (Spring) where practicable, sediment and erosion control, stockpiling and earthworks in line with Bluebook requirements, and adherence to strict hygiene procedures to prevent the spread of weeds and other pathogens.

Table 14 Key Threatening processes related to the Proposal

KTP	Status	Comment
Clearing of native vegetation	BC Act; EPBC Act	Given that groundcover vegetation within the subject site is largely exotic and degraded by weed species, and no impacts to shrubs or the canopy layer is proposed, native vegetation is not anticipated to be impacted as a result of this Proposal.
Invasion of plant communities by perennial exotic grasses	BC Act	The study area is highly degraded by exotic weeds, and there is the potential for perennial exotic grasses to further invade native vegetation through disturbance during construction of the Proposal. Mitigation measures outlined in Section 4.7.4 are likely to effectively limit the operation of this KTP.

4.7.3 Potential biodiversity impacts – operation

No ongoing impacts to biodiversity are anticipated from operation of the Proposal.

Table 15 Biodiversity impacts summary

Description	Y	N	Comments
Are the proposed works likely to involve the removal, pruning or damage to any vegetation including, grass cover, shrubs, trees or Endangered Ecological Communities?		X	The proposed works are not anticipated to result in the pruning, removal or damage to any EECs. The PCT present in the subject site is comprised of a River Red Gum community, and is not a listed TEC.
Please list the number of trees and/or hollows to be removed as part of the proposed works.		X	No trees are anticipated to be impacted as a result of this work.
Are the works taking place in a roadside area designated as high or medium conservation value vegetation?	X		Remnant roadside vegetation is mapped as Environmentally Sensitive Land on the Terrestrial Biodiversity Map in the Forbes LEP 2013.
Are there any threatened, endangered, or native flora and/or fauna located within the vicinity of the proposed works?	X		Thirty seven (37) threatened species were considered as having the potential to be impacted as a result of the Proposal. Likelihood of Occurrence have been prepared for these species and have determined that no significant impacts are likely to occur as a result of the Proposal (see Appendix B).

4.7.4 Environmental safeguards - Biodiversity

The Environmental Safeguards for Biodiversity are considered part of the Proposal and must be implemented. Safeguards include:

Timing of vegetation clearing

- Where practicable, it is recommended to time the works outside of key breeding season (Spring) for the majority of native species likely to utilise the site for breeding to avoid nest abandonment, injury or death to native fauna.

Vegetation removal

- Clearly delineate vegetation to be removed/retained by a qualified arborist with the assistance of an ecologist, or similarly qualified professional, and induct all site personnel as to the approved extent of clearing. Ensure that no clearing of vegetation occurs outside of the marked boundary and retain mature trees and overhanging limbs wherever possible.
- Where any additional vegetation removal is proposed this must first be assessed to consider the cumulative impacts against the approved clearance footprint, and if appropriate supervised by a qualified ecologist.

Rehabilitation

- Any required revegetation activities will be undertaken using native species sourced from local seed wherever possible. Areas to be re-seeded may be marked in the CEMP as a record of rehabilitation efforts made. Vegetation cover should be returned to the site within a reasonably practicable timeframe post clearing to reduce soil exposure and loss.

General

- Vehicles and machinery to work from the sealed road and are not to extend beyond the direct impact footprint.
- All soils to be stockpiled at designated stockpile locations away from waterways, drainage lines and native vegetation in a cleared area, within pre-approved zones. Ensure these are appropriately stabilized in accordance with the 'Blue Book' (Landcom 2004).
- Appropriate erosion and sediment migration reduction/control measures should be in place.
- Where possible, heavy vehicles are not to be parked under tree drip lines/ leaf canopy to avoid compaction of soil, which is damaging to mature native trees and can cause dieback or tree mortality. Existing verges and cleared areas are to be used for parking as a first priority.
- All machinery and vehicles are to be clean and inspected prior to arriving on-site to reduce the spread of weeds and disease (e.g. *Phytophthora cinnamomi*) to the site.
- Strict hygiene protocols, including vehicle inspections, washdown and toolbox talks addressing weed management, must be followed to ensure that no environmental weeds spread around during works or are introduced to site as a result of the proposed works. If weeds are accidentally transported to site, or identified during construction activities, all weed material should be immediately contained and removed from site.
- Declared weeds must be managed according to requirements under the *Biosecurity Act 2015*. It is recommended that all Weeds of National Significance should be managed to ensure they do not spread, and where possible eradicated.

Operation

- Ongoing monitoring of planted vegetation will be undertaken to ensure adequate survival rates and to identify whether infill plantings should be undertaken.

Given the outlined environmental safeguards will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to Biodiversity.

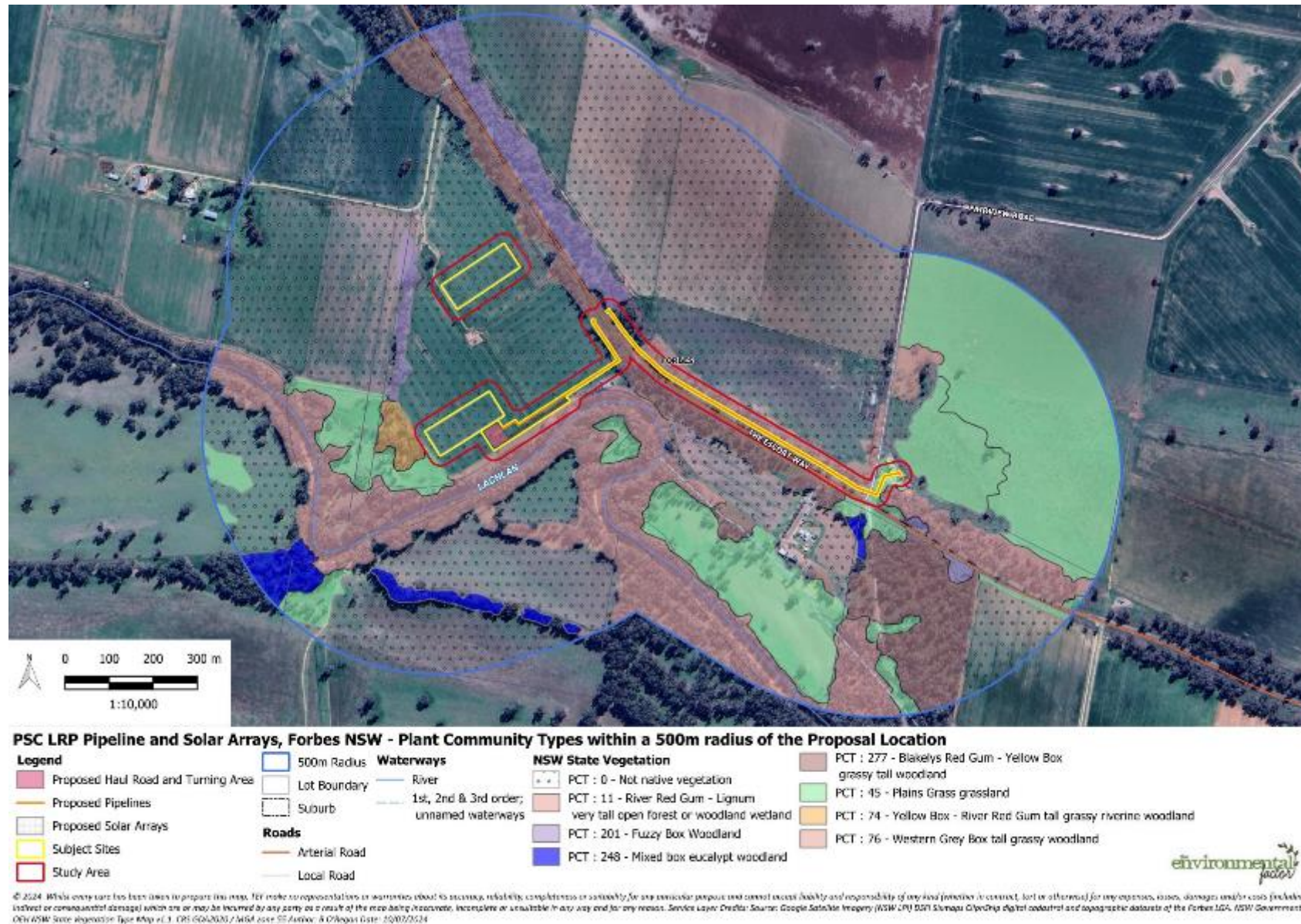


Figure 11 Plant community types within 500 m of Proposal

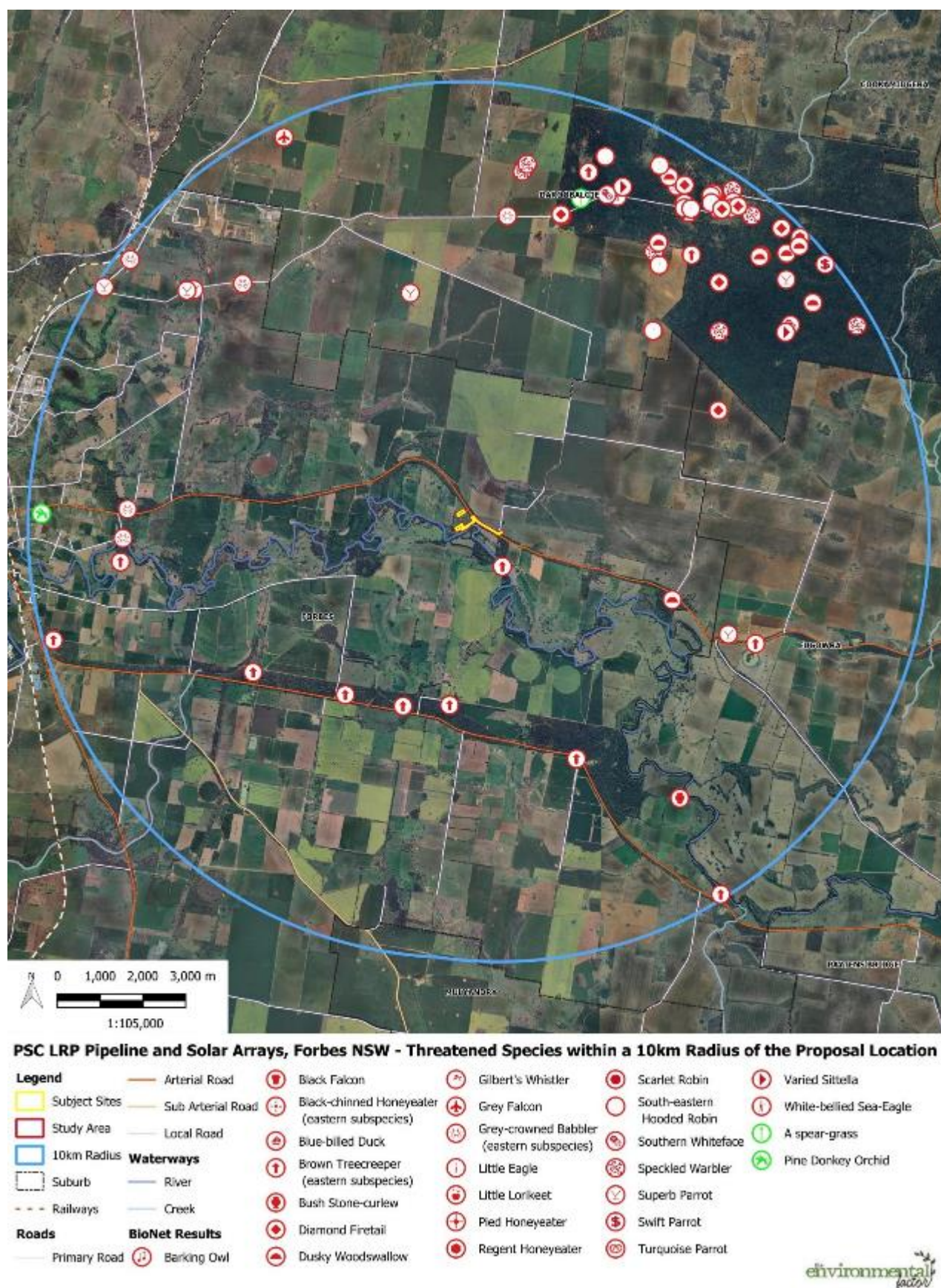


Figure 12 Threatened species records within 10 km of Proposal

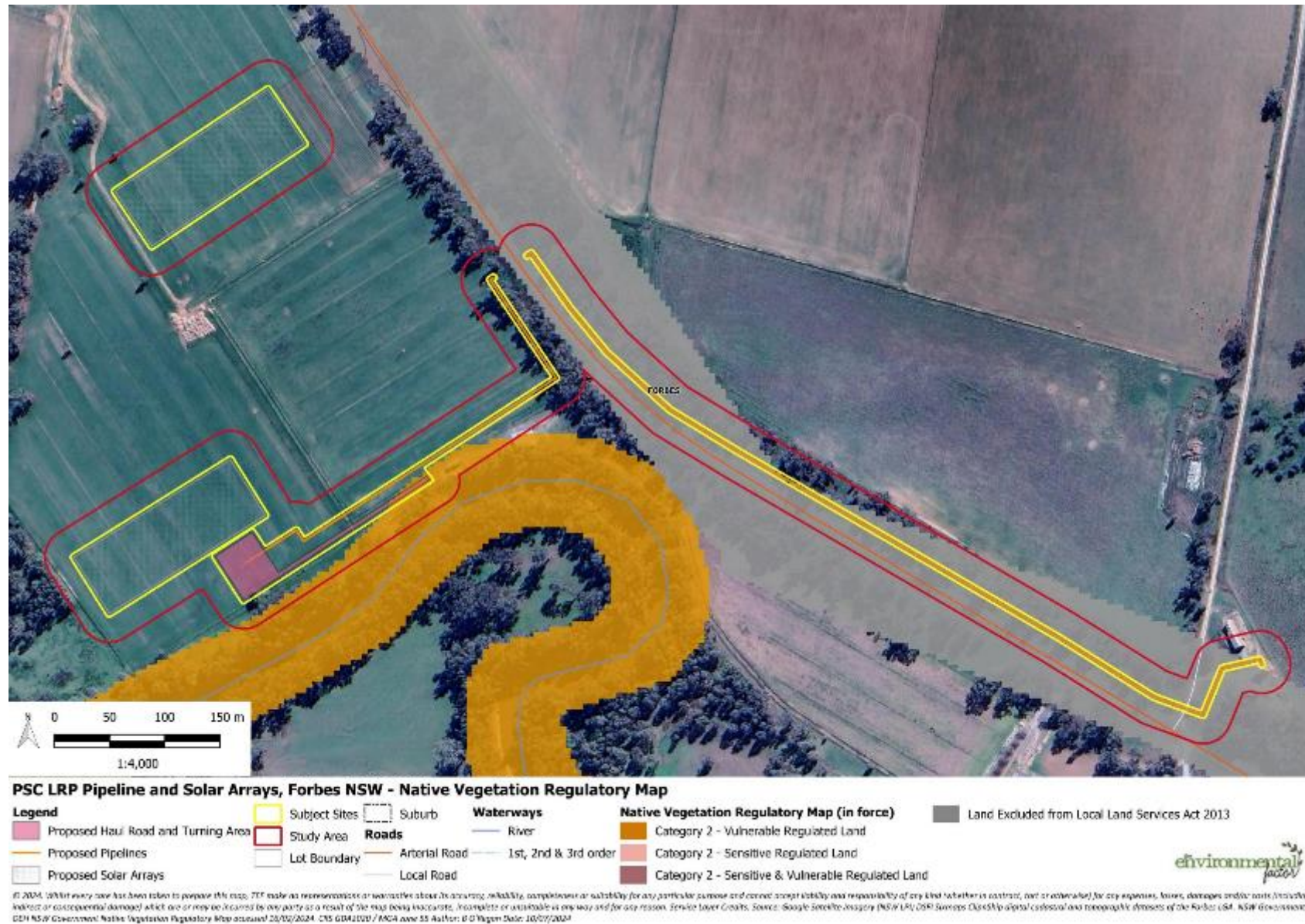


Figure 13 Native vegetation regulatory map



Figure 14 Biodiversity values



Figure 15 Survey effort and verified PCTs

4.8 Traffic and Transport

4.8.1 Existing environment

The subject site includes an approximately 850 m section of The Escort Way (refer Figure 2). The Escort way is an arterial road linking Forbes to Orange via Eugowra that experiences local traffic by rural residents and regular thoroughfare of farm machinery, trucks and heavy vehicles. The current speed limit is 110 km/hr and this will remain following completion of the construction phase of the Proposal.

During the site inspections, trucks and smaller vehicles travelling between regional towns were observed travelling at high speeds along The Escort Way. During construction of the pipeline, traffic management and delineation will be required as a key element in improving road user perception and navigation through the Proposal's limit of works.

The Escort Way currently has an approximate 6.6 m to 7 m wide seal, which is considered appropriate for the safe passage of vehicles on high flow roads.

A Traffic Management Plan (TMP) is required to be developed by PSC, to manage traffic (motorised and non-motorised) movements during the construction of the pipeline within the road reserve to guide the safe delivery of the Proposal. The TMP has not been provided for inclusion or reference in this REF.

4.8.2 Potential traffic and transport impacts – Construction

The Proposal is intended to proceed along with others within the Program. Each Proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative traffic and transport impacts. Given that PSC are responsible for all associated proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

While no lane or road closures are anticipated during construction works, construction crews would be present immediately adjacent to The Escort Way, therefore traffic control will be required during construction to facilitate the movement of traffic and allow for safe thoroughfare on the affected section of road. Consequently, delays affecting road users may be experienced during the construction phase of the project. This also has implications in relation to socio-economic factors, discussed in Section 4.9. There are no private property access ways identified within the study area that would be directly impacted, however it is anticipated that during construction, access along the affected section of The Escort Way and Fairview Road would be slowed or inconvenienced.

A TMP is required to be developed as part of the CEMP, to ensure that the safety of construction workers, vehicles, pedestrian and bicycles is considered whilst construction is in progress.

The Proposal would also generate a number of medium to heavy vehicle movements through the transport of machinery, fuel, general provisions and materials across the duration of the project which are likely to have a minor increase in traffic pressure for the duration of the Proposal. Light vehicles would be required to transport staff to and from the subject site and would also be used in various roles on site. Light and heavy vehicles are expected to enter the construction area and stockpile site location via the existing LRP access road, and the construction access point.

4.8.3 Potential traffic and transport impacts – Operation

No detrimental or negative impacts to traffic or transport are expected during normal use/operation of the Proposal. Repair and maintenance work on the pipeline does, however, have the potential to disrupt traffic flow, although this is anticipated to be infrequent and short in duration.

Table 16 Impacts to Traffic and Transport summary

Description	Y	N	Comments
Are the proposed works likely to result in major detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access to properties or businesses?		X	None anticipated
Will there be any permanent major detours made as a consequence of the works?		X	None anticipated
Does the proposal involve excavation that is not minor or inconsequential of the surface of, or a footpath adjacent to, a road for which a Council is the roads authority under the Roads Act 1993 (if the public authority that is carrying out the development, or on whose behalf it is being carried out, is not responsible for the maintenance of the road or footpath)		X	The Proposal includes some minor excavation works within footpaths and road surfaces within the subject site. It is anticipated that any disruption to pedestrians would be short in duration and confined to the construction phase.
Does the Proposal involve the installation of a temporary structure on, or the enclosing of, a public place that is under a Council's management or control that is likely to cause a disruption to pedestrian or vehicular traffic that is not minor or inconsequential	X		The Proposal is likely to cause a temporary disruption to vehicular traffic using The Escort Way that is not considered inconsequential.
Is the proposal likely to generate traffic that will strain the capacity of the road system in an LGA?		X	Proposal is anticipated to result in additional movement of construction vehicles during the construction phase. However, this is expected to be minor and confined to the construction period.

4.8.4 Environmental safeguards - Traffic and Transport

The Environmental Safeguards measures for Traffic and Transport are considered part of the Proposal and must be implemented. Safeguards include:

Construction

- Prior notice shall be given to landowners along The Escort Way to notify residents of the works to be completed, their timing and duration. Notification can be provided by various means including letterbox distribution, local paper (the Forbes Advocate) and through the FSC website. All consultation and notification should occur with enough time before works to allow residents to modify their travel plans if desired (1 – 2 weeks prior to commencement).
- Council's appointed contractor will consider the location of designated parking areas, stockpile locations, construction laydown sites, site offices, and access routes carefully in consideration of

creating inconveniences to local residents, and to the other environmental constraints. Any areas additional to those outside the mapped and considered areas as discussed within this REF will need to be assessed for additional and cumulative impacts prior to being established as part of the Proposal.

- A Traffic Control Plan (TCP) is to be developed in accordance with Australian Standards (AS 1742.3 – Traffic Control Devices for Works on Roads) and Roads and Maritime Traffic Control at Worksites manual to identify appropriate signage (and location) to advise motorists of upcoming changes in the road network. Any variation to the layout of the TCP on site is to be recorded and certified by accredited Roads and Maritime personnel.
- All road signs and marking will be in accordance with the TfNSW Guide to Signs and Markings; Australian Standards AS1742 and AS1743; and the Australian Roads Guide to Traffic Management.
- Traffic and transport complaints are to be monitored and addressed promptly where practicable.
- A Section 138 Permit under the *Roads Act 1993* must be obtained prior to construction activities commencing.

Operation

No further safeguards are considered necessary for the operational phase of the Proposal.

Given the outlined environmental safeguards will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to Traffic and Transport.

4.9 Socio-economic considerations

4.9.1 Existing environment

The Forbes LGA is a rural community with a population of approximately 9319 people (ABS, 2021) and a population density of 0.99 persons per square kilometre. In the 2021 Census, of the 9319 people in the Forbes LGA, 50.6% were female and 49.4% were male. The median age of people in Forbes was cited as 42 years, and the average number of people per household was 2.4.

There were 4,312 people who reported being in the labour force in the week before the Census night in Forbes. Of these 61.0% were employed full time, 29.5% part time, and 3.8% were unemployed. The largest industry of employment is Secondary Education, employing 4.8% of the workforce, followed by Primary Education, employing 3.7%, and Grain-Sheep or Grain-Beef Cattle Farming, employing 3.4% of the labour population.

While the Proposal is within the Forbes Shire, the benefits of the Proposal will however be felt in the Parkes Shire. Ultimately the Proposal seeks to secure ongoing access to permanent water from a variety of sources for the benefit of Parkes and its constituents as part of the broader Parkes Town Water Security Program.

Parkes is a rural community with a population of over 14,361 (ABS, 2021) and a population density of 2.43 persons per square kilometre. Copper Ore Mining is the number one employment industry in the Parkes LGA, employing 5.0% of the population, followed by Aged Care Residential Services, employing 3.7% of the population, and State Government Administration, employing 3.3% of the labour population.

The study area is located on both PSC owned land, and within and adjacent to The Escort Way, a classified state road, surrounded by agricultural land adjacent the Lachlan River, approximately 12 km east of the Forbes township.

Several residents will be temporarily affected by the Proposal, with access hindered during construction works, however it is not anticipated that road or property access will be prevented at any given time; rather, a single lane of traffic will remain operable, or an appropriate diversion will be established.

There are no private property driveways located within the road section to be impacted (Figure 8).

4.9.2 Potential socio-economic impacts- Construction

This Proposal is intended to proceed along with others within the Program. Each proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative socio-economic impacts. Given that PSC are responsible for all associated proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

During the construction phase of the Proposal, it is expected that local contractors from Forbes and/or Parkes regions will be employed. Approximately 4 contractors will be employed over a period of approximately 12 weeks to complete all facets of the Proposal, and it is anticipated that contractors will provide income to local cafes, businesses, and accommodation providers throughout the duration of the construction.

Due to the relative isolation of the site, it is not anticipated that any local residents will be directly impacted during the construction phase, with the closest private residences located approximately 100 m to the south of the study area, accessed via a sealed driveway directly off the south of The Escort Way. The 'Ulmarra' homestead is identified approximately 900 m to the west of the Study Area, and the 'Springfield' homestead

is identified approximately 1.4 km to the south of the Study Area, both accessed via a gravel road from The Escort Way.

Employment of local sub-contractors to undertake works, and adequate consultation and discussion with local communities could have positive socio-economic impacts during the construction phase.

Further detail of predicted socio-economic impacts arising from Traffic and Transport (Section 4.8), Noise and Vibration (Section 4.3), Waste and Resource Use (Section 4.10) and impacts to Visual Amenity (Section 4.11) are discussed in other chapters of this report.

4.9.3 Potential socio-economic impacts – Operation

The operation of the pipeline and solar arrays, as part of the overarching Parkes Town Water Security Program is anticipated to provide positive socio-economic impacts during its operation as it provides for greater water security for the residents of Parkes.

Table 17 Socio-economic impacts summary

Description	Y	N	Comments
Are the proposed works likely to impact on local business, require any property acquisition, or alter any access or parking arrangements for properties (either temporarily or permanently)?		X	Temporary disruption to local traffic, property access residents and transient visitors.
Is the development adjacent to land reserved under the National Parks and Wildlife Act 1974 or to land acquired under Part 1 of that Act (if so, consultation is required with the Office of Environment and Heritage)		X	Proposal is not adjacent to any land managed by National Parks.
Is the development on land in Zone C1 National Parks and Nature Reserves or in a land use zone that is equivalent to that zone, other than land reserved under the (if so, consultation is required with National Parks and Wildlife Act 1974 the Office of Environment and Heritage)		X	Proposal is not being completed on any land zoned C1.
Does the development comprise a fixed or floating structure in or over navigable waters (if so, consultation will be required with Transport for NSW)		X	Proposal does not involve any fixed or floating structures in or over navigable waters.
Is the development located on defence communications facility buffer land within the meaning of clause 5.15 of the Standard Instrument (if so, consultation is required with the Secretary of the Commonwealth Department of Defence, Note— Defence communications facility buffer land is located around the defence communications facility near Morundah. See the Defence		X	Proposal is not being carried out on defence communications facility buffer land.

Description	Y	N	Comments
Communications Facility Buffer Map referred to in clause 5.15 of Lockhart Local Environmental Plan 2012, Narrandera Local Environmental Plan 2013 and Urana Local Environmental Plan 2011			
Is the development on land in a mine subsidence district within the meaning of the Mine Subsidence Compensation Act 1961—(if so, consultation is required with the Mine Subsidence Board)		X	Proposal is not being carried out within a mapped mine subsidence district within the meaning of the <i>Mine Subsidence Compensation Act 1961</i>
Is the development within a Western City operational area specified in the Western Parkland City Authority Act 2018, Schedule 2 with a capital investment value of \$30 million or more — (if so, consultation is required with the Western Parkland City Authority constituted under that Act)		X	Proposal is not being carried out within the Western City operational area.

4.9.4 Environmental safeguards – Socio-Economic Impacts

The Environmental Safeguards for Socio-Economic impacts are considered part of the Proposal and must be implemented. Safeguards include:

- Considerate construction practices are to be implemented at all times during works, including the construction site is to be left in a clean and tidy manner at the end of each workday, and noise, air quality and visual amenity impacts are to be kept to a minimum.
- All materials purchased for the Proposal are to be of highest quality and most sustainable as possible, to reduce impacts to community and ratepayers through replacement of low-quality or faulty equipment in the future.
- Quality assurance is to be applied to all aspects of the Proposal, including design and construction to ensure best value for the local community.
- Disruption of traffic/private property access is to be minimised wherever possible and clear communication and planning between construction crew and landowners is to be undertaken.
- Community engagement is to be undertaken to obtain feedback on concerns, and address issues as they arise.
- Construction machinery and work vehicles to be discretely parked when not in use to reduce visual impact and ensure safe pullover is available where possible.

Given the outlined environmental safeguards will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts as a result of Socio-Economic impacts.

4.10 Waste and resource use

4.10.1 Existing environment

The subject site includes both remnant native bushland within the road reserve and cleared areas for The Escort Way road reserve (and the road itself). The broader area includes mixed use agricultural pasture cropping, with patches of remnant woodland. During the site visit it was noted the study area was generally tidy, with minor anthropogenic disturbance, including fencing, road construction and associated resource including signage; minimal disturbance in the form of discarded waste was observed on site and the area was considered generally tidy.

4.10.2 Potential waste and resource use – Construction

This Proposal is intended to proceed along with others within the Program. Each proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative socio-economic impacts. Given that PSC are responsible for all associated proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

The Proposal is not anticipated to generate a significant amount of waste, with a net import of construction materials.

Waste to be minimised through initiatives such as removed vegetation would be chipped and used onsite for ERSO controls.

Waste products generated by the construction phase of the Proposal may include but are not limited to:

- Soil and spoil, and excess civil construction materials
- Cleared vegetation
- Packaging
- Domestic and general waste

During construction a small number of light vehicles and plant will be required to convey personnel to site and undertake the works (e.g., excavation, lifting/movement of equipment and materials). Where possible, local contractors will be engaged, and construction materials sourced from nearby fill and/or locally. Pollution and greenhouse gas (GHG) emissions from construction machinery/vehicles operating on site must also be reduced wherever possible to minimise cumulative impacts on climate and air quality.

Other than rock/fill materials and vegetative waste, most of the materials utilised in the works will be non-renewable, finite resources. Their use would diminish the availability of some resources for future use and contribute to pollution and greenhouse gas emissions through both direct use of fuels and the embodied energy used in their production, and in association with the disposal of related waste products. The use of fossil fuels would also contribute to impacts on climate and air quality.

Construction works would require the following resources:

- Concrete
- Steel pipe joints
- Water main / product pipe (material tbc)

- Select fill (where spoil is not suitable for reuse)
- Water (potable, raw and reclaimed effluent where appropriate / if available)

Any additional material that may be required would be sourced from legally operating commercial suppliers and manufacturers within the area and surrounding towns. Where feasible, material with recycled content will be prioritised and sourced.

Energy consumption associated with the proposed works would include electricity and gas/petroleum-based fossil fuels. Electricity would be required to power site compounds and would be supplied from a portable generator. Fuel would also be required to power construction plant and other vehicles.

Any construction wastes/ contaminated materials will need to be handled carefully so as not to impact upon any sensitive environmental areas within the study area, and to ensure Council undertakes its responsibilities as environmental custodians, and to care for the health and safety of their employees, contractors and constituents. All wastes will be managed in accordance with the POEO Act and in accordance with EPA and Council guidelines.

In order to achieve higher levels of landfill diversion, it is critical to identify what materials can be recycled and where, so that appropriate arrangements can be made with service providers – other construction wastes may need to be transported farther afield to be recycled and avoid landfill. Regional collaboration amongst Council waste authorities and other industry partners may be required in order to maximise recycling and resource recovery efforts for the Proposal.

4.10.3 Potential waste and resource use – Operation

Once operational the pipeline and solar arrays are expected to generate little waste from time to time during planned and unplanned maintenance activities.

Table 18 Waste Impacts summary

Description	Y	N	Comments
Are the proposed works likely to generate >200 tonnes of waste material (contaminated and /or non-contaminated material)?		X	No; most excavated material will be reused on site
Are the proposed works likely to require a Licence from NSW EPA for waste?		X	No; the works do not and will not require discharges to the environment
Will the ongoing operation of the site post completion of works generate significant amount of waste?		X	No additional ongoing waste is expected to be generated post construction

4.10.4 Environmental safeguards – Waste and Resource Use

The Environmental Safeguards for Waste and Resource Use are considered part of the Proposal and must be implemented. Safeguards include:

- Resource management hierarchy principles are to be followed; namely, the avoidance, reduction, reuse and recycling of resources.

- If stockpile or laydown sites are required in locations that have not been considered as occurring within the impact footprint as part of this REF, additional approval/assessment may need to be sought prior to any clearing taking place.
- Requirements under the Landcom (2004) stockpile management procedure must be observed, including correct placement of earth banks (with sedimentation ponds) to divert water around stockpiles if placed on a slope, and/or filter fences erected below stockpiles to capture any sediment moving offsite.
- Bulk project waste (e.g. clean virgin excavated natural material or clean fill) sent to a site not owned by Council (excluding DPIE licensed landfills) for land disposal is to have prior formal written approval from the landowner.
- Waste is not to be burnt on site and all general waste will be contained and disposed of at suitable waste facilities.
- Where possible, materials with recycled content will be sourced, and minimum quantities ordered to reduce wastage.
- If contamination is encountered during construction, a site assessment must be undertaken in accordance with the Protection of the Environment Operations Act 1997 (POEO Act).
- Toilets will be provided for construction workers for the duration of the works to prevent human wastes entering the waterway.
- Waste management for construction projects should be undertaken in accordance with the NSW Waste Avoidance and Resource Recovery Act 2001. The objectives of the Act are:
 - To encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of Ecologically Sustainable Development (ESD),
 - To ensure that resource management options are considered against a hierarchy of the following order: Avoidance of unnecessary resource consumption, Resource recovery (including reuse, reprocessing, recycling and energy recovery), Disposal.
 - To provide for the continual reduction in waste generation,
 - To minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,
 - To ensure that industry shares with the community the responsibility for reducing and dealing with waste,
 - To ensure the efficient funding of waste and resource management planning, programs and service delivery,
 - To achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis,
 - To assist in the achievement of the objectives of the *Protection of the Environment Operations Act 1997*.
- Don't over-order – ensure quantities are carefully calculated and ordered so as to minimise waste. Where construction materials are leftover, these are to be beneficially used on other projects, or stored by Council until such a need arises.

Given the outlined environmental safeguards will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to Waste and Resource Use.

4.11 Visual amenity

4.11.1 Existing environment

The study area is located in a rural area with both native bushland in the adjacent road reserves and cleared paddocks. The general amenity along The Escort Way is pleasant with remnant native vegetation, minimal litter and tidy property entryways present.



Plate 5 Adjacent agricultural grazing land

4.11.2 Potential impacts to visual amenity- Construction

This Proposal is intended to proceed along with others within the Program. Each proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative impacts to visual amenity. Given that PSC are responsible for all associated proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

The visual amenity of the Study area will be impacted as works are completed. Short-term impacts to visual amenity during construction may include earthworks and removal of vegetation as well as the presence of construction machinery, equipment and vehicles and stockpile and compound sites. Due to the relatively minor scale of works and the low density of dwellings neighbouring the LRP and occurring along the section of The Escort Way to be impacted, visual amenity impacts during construction are anticipated to be generally low.

4.11.3 Potential impacts to visual amenity – Operation

The proposed pipeline is to be installed underground and as such will have negligible impacts to the visual amenity of the study area once the site has been rehabilitated.

The proposed two (2) solar arrays are to be constructed above ground and thus this infrastructure will permanently change the visual landscape once construction has been completed. This infrastructure will be visible from the Escort Way and the neighbouring Ulmarra property (although not from any homesteads in the vicinity) The section of the Escort Way adjacent to the LRP is lined with existing vegetation which will serve to partially screen this infrastructure and thereby mitigate visual impacts.

Table 19 Visual Amenity impacts summary table

Description	Y	N	Comments
Are the proposed works likely to have an impact on the visual amenity of the surrounding area? (i.e., removal of vegetation, stockpile sites, road widening etc.)	X		Temporary construction presence only that would be visible from The Escort Way users as well as ongoing impacts from the presence of new infrastructure within the LRP.
Will the development increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (note – the Dark Sky Region is land within 200 km of the Siding Spring Observatory.		X	Proposal will not increase the amount of artificial light in the sky. No floodlights or installation of lighting included in the Proposal.

4.11.4 Environmental safeguards – Visual Amenity

The Environmental Safeguards for Visual Amenity impacts are considered part of the Proposal and must be implemented. Safeguards include:

- Considerate construction practices are to be implemented at all times, to ensure the works areas are neat and visually not offensive, including to be kept free from rubbish, and stockpile sites actively managed.
- No additional, unauthorised clearing or destruction of vegetation is to occur.
- Vehicles are to be parked in designated areas only.
- Cleared, bare patches of ground that form part of the works are to be revegetated and restored following cessation of works.
- Obvious and intrusive signs/machinery/equipment are to be removed from the site at the first opportunity.
- Appropriate consultation will continue to be undertaken to inform businesses and residents of planned works, timing, and potential visual impacts.
- Any complaints received regarding visual amenity at the site are to be dealt with and rectified as soon as possible.

Operation

- Cleared, bare patches that form part of the works are to be revegetated and restored following cessation of works.
- Obvious and intrusive signs/machinery/equipment are to be removed from the site at the first opportunity.
- Any complaints received regarding visual amenity at the site are to be dealt with and rectified as soon as possible.

- Any impacts to property entrances, driveways or fencing are to be rectified in collaboration with the landholder/s as soon as possible, post completion of works in the vicinity.

Given the outlined environmental safeguards will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to Visual Amenity.

4.12 Climate Change

Given projected changes to climate across the globe, and the potential impacts for construction and operation of activities that this potentially poses, consideration has been given to the existing climatic conditions of the Proposal location. This has been completed to enable a comparison of current conditions against projected future conditions under various emissions scenarios.

4.12.1 Existing environment

Long-term meteorological data for Forbes (closest suitable weather station) is available from the Bureau of Meteorology's Forbes Airport (Station #065103) weather station, approximately 20 km to the west of the Proposal (BOM 2023). Temperature data collected since 1995 indicates that January is the hottest month of the year in Forbes with a mean maximum temperature of 34.4°C, and a mean minimum temperature of 14.7°C in July, which is the coolest month of the year. Rainfall data has been collected since 1995 and reveals that Forbes receives on average 526.7 mm of rain per year. Forbes experiences a moisture deficit, with evaporation exceeding rainfall for all months, excluding June and July. The increased moisture deficit of the hotter months increases the dust erosion potentials of exposed areas and therefore has important implications for fugitive dust control during the construction phase.

The NSW Government Office of Environment and Heritage (OEH) AdaptNSW division 'Climate Change snapshot' for Central West and Orana, states that the region is projected to continue to warm during the near future (2020 – 2039) and far future (2060 – 2079), compared to recent years (1990 – 2009). There is very high confidence that the average temperatures will increase across seasons. Warming is projected to be on average about 0.7°C in the near future, increasing to about 2.1°C in the far future. The number of hot days is projected to increase and the number of cold nights is projected to decrease.

Climate change projections are presented for emission scenarios that will impact the degree to which the climate is altered in the future; each of these is referred to as a 'representative concentration pathway' (RCP) and is representative of the concentration of global GHG emissions in the atmosphere under different emissions scenarios. For example, if GHG emissions are mitigated and reduced, the scenario is for 'low emissions' and is referred to as RCP 2.6; conversely, if little effort is made to reduce emissions and the current scenario is continued globally, a 'high emissions' concentration is referred to as RCP 8.5, indicating a high concentration of GHG emissions in the atmosphere moving forward, with potentially devastating impacts by the year 2100.

Under a high emissions scenario (RCP8.5), NSW and the ACT can expect an average annual temperature increase of around 1.4 - 2.3 °C, whereas large and sustained reductions in global GHG emissions (RCP2.6) reduce projected warming to around 0.7 - 1.4 °C. Specifically for Parkes, under emissions scenario RCP 8.5 for the projected time period of 2090, an increase in temperature of 4.2 °C is expected, combined with a drop of -12 % for rainfall (Climate Change in Australia, Analogues Explorer, 2021). Parkes and Forbes currently experience an average of 20–30 hot days each year; an additional 20 to 30 hot days are projected for these areas.

Parkes, Forbes and Cowra are predicted to experience an increase in rainfall across Summer, Autumn and Winter, and a decrease in Spring; rainfall changes are associated with changes in extremes, such as floods and droughts. The changes to water quality, potential for erosion and sediment migration, damage to infrastructure and localized flooding complications are associated with these sudden or extreme changes.

The subject site does not occur within a designated bushfire prone area (NSW Rural Fire Service, 2021), however with a harsher fire-weather climate predicted in the future (high confidence), improved water security in the area will help to ensure the safety of the community.

4.12.2 Potential impacts to climate change – Construction

This Proposal is intended to proceed along with others within the Program. Each proposal is independent and may or may not proceed on its own merits, however there may be construction activities that occur in parallel, which could result in cumulative air quality impacts. Given that PSC are responsible for all associated proposals, the construction impacts of this Proposal will be scheduled to minimise any cumulative effects of the separate proposals in the Program proceeding at the same time.

Throughout the construction phase of the project there will be use of in-demand materials. Use of these materials diminishes the availability of some resources for future use and contributes to pollution and GHG emissions through both direct use of fuels and the embodied energy used in the production of construction materials, and in association with the disposal of related waste products. The use of fossil fuels would also contribute to impacts on climate and air quality.

While these impacts would be negligible on global or national scales, efficient resource use should be adopted as a general operating principle, including use of locally sourced materials and locally based construction crews to reduce ‘carbon miles’ and increase efficiencies.

4.12.3 Potential impacts to climate change – Operation

Overall, the operation of the Proposal once constructed is anticipated to provide positive support to the Parkes community through improved water infrastructure and reduced energy consumption and is considered a responsible long-term decision for Council in the face of predicted climate change impacts, to make the upgrade to a long-term solution to infrastructure. The proposed upgrades will help to future-proof the water supply system by improving the quality, reliability and security of water being delivered to consumers. The two solar arrays will reduce energy demand from the grid, thus reducing Council’s carbon footprint.

4.12.4 Environmental safeguards – Climate Change

The Environmental Safeguards for Climate Change impacts are considered part of the Proposal and must be implemented. Safeguards include:

Construction

- Resource management hierarchy principles are to be followed:
 - Avoid unnecessary resource consumption as a priority.
 - Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery); and
 - Disposal is undertaken as a last resort (in accordance with the Waste Avoidance & Resource Recovery Act 2001).
- Council may elect to make a contribution to an accredited carbon offset program to offset greenhouse gas emissions.
- Quality assurance and life cycle of materials are to be considered when purchasing, to ensure the newly built infrastructure is resilient and structurally sound.

- Local resources are to be used wherever possible, to reduce waste and increase efficiencies and to encourage local economies with fewer 'carbon miles'.

Operation

- Operation of the pipeline and solar arrays is to be monitored and maintained per Council's routine management/maintenance strategy, to ensure lifecycle of infrastructure features extended and to reduce wastage from neglect / inadequate maintenance.

Given the outlined Environmental Safeguards will be implemented and maintained, it is not anticipated that the Proposal would result in significant impacts to Climate Change.

5 Consideration of State and Commonwealth environmental factors

This section considers the Proposal against key legislation and government policy. This section does not describe the legislation and policy in detail and guidance provided here does not constitute legal advice.

5.1 Matters of National Environmental Significance

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the following Matters of National Environmental Significance (MNES) are required to be considered to assist in determining whether the Proposal should be referred to the Australian Government Department of Climate Change, Energy, The Environment and Water (DCCEEW).

Table 20 Compliance with the EPBC Act

Factor	Impact
Any impact on a World Heritage property? State whether the Proposal would impact on a World Heritage property.	Nil
Any impact on a National Heritage place? State whether or not the Proposal would impact on a National Heritage place.	Nil
Any impact on a wetland of international importance?	Nil
Any impact on a listed threatened species or communities?	No significant impacts, refer Section 4.7
Any impacts on listed migratory species?	Unlikely, refer Section 4.7
Any impact on a Commonwealth marine area?	Nil
Any impact on the Great Barrier Reef Marine Park?	Nil
Does the Proposal involve a nuclear action (including uranium mining)?	Nil
Additionally, any impact (direct or indirect) on Commonwealth land?	Nil

5.2 Compliance with the EP&A Regulation 2021 Checklist

The factors which need to be taken into account when considering all possible matters affecting or likely to affect the environment by reason of an activity are specified in the DPE Guidelines (which simply adopt the factors specified in clause 171(2) of the EP&A Regulation). Those factors have been taken into account when considering all matters affecting or likely to affect the environment by reason of the Proposal, and are summarised in Table 21.

Table 21 Summary of compliance with the EP&A Regulation 2021 checklist

Environmental Factor	Will there be an impact?	Comments
(a) Any environmental impact on a community?	Yes, minor	Construction: Minor traffic delays for the community are possible during construction. Operation: Positive outcomes for the community are anticipated, through increased drought security and reduced energy demand.
(b) Any transformation of a locality?	Yes, minor	Construction: excavation and construction works within and adjacent to a public road will cause localised, temporary impacts. Removal of smaller trees adjacent to The Escort Way will alter the landscape. Operation: no transformation of locality following construction, as works are predominantly subterraneous.
(c) Any environmental impact on the ecosystems of a locality?	Yes, minor	Construction: Minor impact to groundcover and some canopy vegetation of ecosystem present, though not significant. Minor short-term indirect impacts to adjacent vegetation possible, not deemed significant (Section 4.7). Operation: return to previous condition is expected.
(d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?	No	Construction: clearance of native vegetation and earthworks likely to temporarily reduce aesthetic value of the site. Operation: after Proposal completed, the overall use and quality of the site is anticipated to be returned to previous condition.
(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 generations?	Potential	Construction: potential for impacts on known heritage items. Safeguards have been included to reduce risk. Proposal must adhere with conditions outlined in AHIP, which has been included as Appendix C. Operation: no impacts on heritage items are considered likely as part of operation of the Proposal.
(f) Any impact on habitat of any protected fauna (within the meaning of the National Parks and Wildlife Act 1974)?	Yes	Construction: Minor impacts to native species are expected (Refer Section 4.7), however this is not anticipated to be significant provided the Environmental Safeguards are adhered to. Operation: no removal of protected habitat is expected as part of operation of the Proposal.
(g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?	No	Construction: no significant impacts on flora and fauna are considered likely as a result of the Proposal Operation: no significant impacts on flora and fauna are considered likely as part of operation of the Proposal.

Environmental Factor	Will there be an impact?	Comments
(h) Any long-term effects on the environment?	No	Construction: no long-term effects on the environment expected provided environmental safeguards are implemented and site is fully stabilised and rehabilitated following completion of construction activities. Operation: no long-term effects on the environment expected provided environmental safeguards are implemented and site is fully stabilised and rehabilitated.
(i) Any degradation of the quality of the environment?	No	Construction: no degradation of the quality of the environment expected provided environmental safeguards are implemented and site is rehabilitated following construction works. Operation: degradation of environmental quality not expected from Proposal operation provided site is monitored and maintained for soil stability.
(j) Any risk to the safety of the environment?	No	Construction: no risk to safety of the environment provided environmental safeguards are implemented. Operation: no risk to safety of the environment provided environmental safeguards are implemented.
(k) Any reduction in the range of beneficial uses of the environment?	No	Construction: traffic on The Escort Way may be affected during construction, which will impact on the range of beneficial uses of the area. Operation: no reduction in the range of beneficial uses of the environment following construction.
(l) Any pollution of the environment?	Yes, minor	Construction: potential for minor temporary generation of pollutants such as sediment, noise, dust and vehicular emissions expected. Operation: pollution of the environment not expected from Proposal operation assuming the site is fully stabilised following completion of construction and maintained during operation
(m) Any environmental problems associated with the disposal of waste?	No	Construction: not anticipated to generate large volumes of waste and so impact not deemed significant. Operation: not anticipated to generate waste and so impact not deemed significant.
(n) Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply?	Yes, minor	Construction: not anticipated to consume large volumes of finite resources and so impact not deemed significant. Operation: not anticipated to consume finite resources and so impact not deemed significant
(o) Any cumulative environmental effect with other existing or likely future activities?	Yes, minor	Construction: potential for cumulative impacts associated with other construction activities in the Program, with the Proposal anticipated to have localised, minor and short-

Environmental Factor	Will there be an impact?	Comments
		term impacts on the environment assuming all Environmental Safeguards are implemented. Operation: site is anticipated to be largely consistent with current conditions once operational
(p) Any impact on coastal processes and coastal hazards, including those under proposed climate change conditions	No	Construction: not on the coast Operation: not on the coast
(q) Any applicable local strategic planning statement, regional strategic plan or district management plan made under Division 3.1 of the Act	Yes	PSC Community Strategic Plan: Parkes Shire 2035+. The CSP contains objective 3.41 – provide essential water and sewer infrastructure to meet the needs of our growing community.
(r) Any other relevant environmental factors	Yes	Construction: other factors considered include community and stakeholder consultation and property matters. Operation: no other factors have been considered other than those listed above

6 Certification

This REF provides a true and fair review of the Proposal in relation to its likely effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the Proposal.

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

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

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

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

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

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

Prepared by:	Reviewed and Endorsed for Certification by:
Name: G Stirling, S Dean, B O'Regan	Name: Graham Stirling
Title: Various	Title: TEF Project Manager & CEnvP - 1748
Date: 17/07/24	Date: 17/07/24

Determiner declaration and approval

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

Name: Andrew Francis

Title: Director of Infrastructure and Sustainability

Date: 08/08/2024

7 References

BOM 2024 weather observations at Forbes Airport weather station

Climate Change in Australia, 2024; Climate Analogues

<https://www.climatechangeinaustralia.gov.au/en/Proposals-tools/climate-analogues/analogues-explorer/>

DAWE 2023a Species Profile and Threats Databases

DAWE 2024 Protected Matters Search Tool for MNES listed under the EPBC Act.

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

DPI 2024 Priority Weeds of the Riverina NSW WeedWise

DPI 2024 Weeds of National Significance NSW WeedWise

DPIE 2024 Areas of Outstanding Biodiversity register Area of Outstanding Biodiversity Value register | NSW Environment, Energy and Science

DPIE 2024 Biodiversity Values Map <https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap>

DPIE 2024 Key threatening processes <http://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/about-threatened-species/key-threatening-processes>

DPIE 2024 NSW Government Vegetation Regulatory Map

<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=NVRMap> DPIE 2023 Bionet Wildlife Atlas Threatened species records, which holds data from a number of custodians.

EcoLogical 2022 Parkes Town Water Security Program Project 1 Aboriginal Cultural Heritage Assessment

OnSite CHM 2022 Cultural Heritage Management. Archaeological Test Excavation Report

New South Wales Flora online – PlantNET 2021 <http://plantnet.rbgsyd.nsw.gov.au/floraonline.html> NSW LPI mapping <https://maps.six.nsw.gov.au/>

NSW Planning and Environment Department 2018, planning portal <http://www.planning.nsw.gov.au/>

NSW Rural Fire Service (2021) www.rfs.nsw.gov.au

OEH 2018, Great Soil Group (GSG) Soil Type map of NSW

<http://www.environment.nsw.gov.au/eSpade2Webapp#> accessed May 2024

OzArk 2015a Parkes Water and Waste Water Augmentation Project

OzArk 2022 Aboriginal Due Diligence Assessment Report – Proposed Lachlan River Pre-Treatment Plant

OzArk 2023a Aboriginal Due Diligence Assessment Report – Additional Works – Lachlan River Pre-Treatment Plant

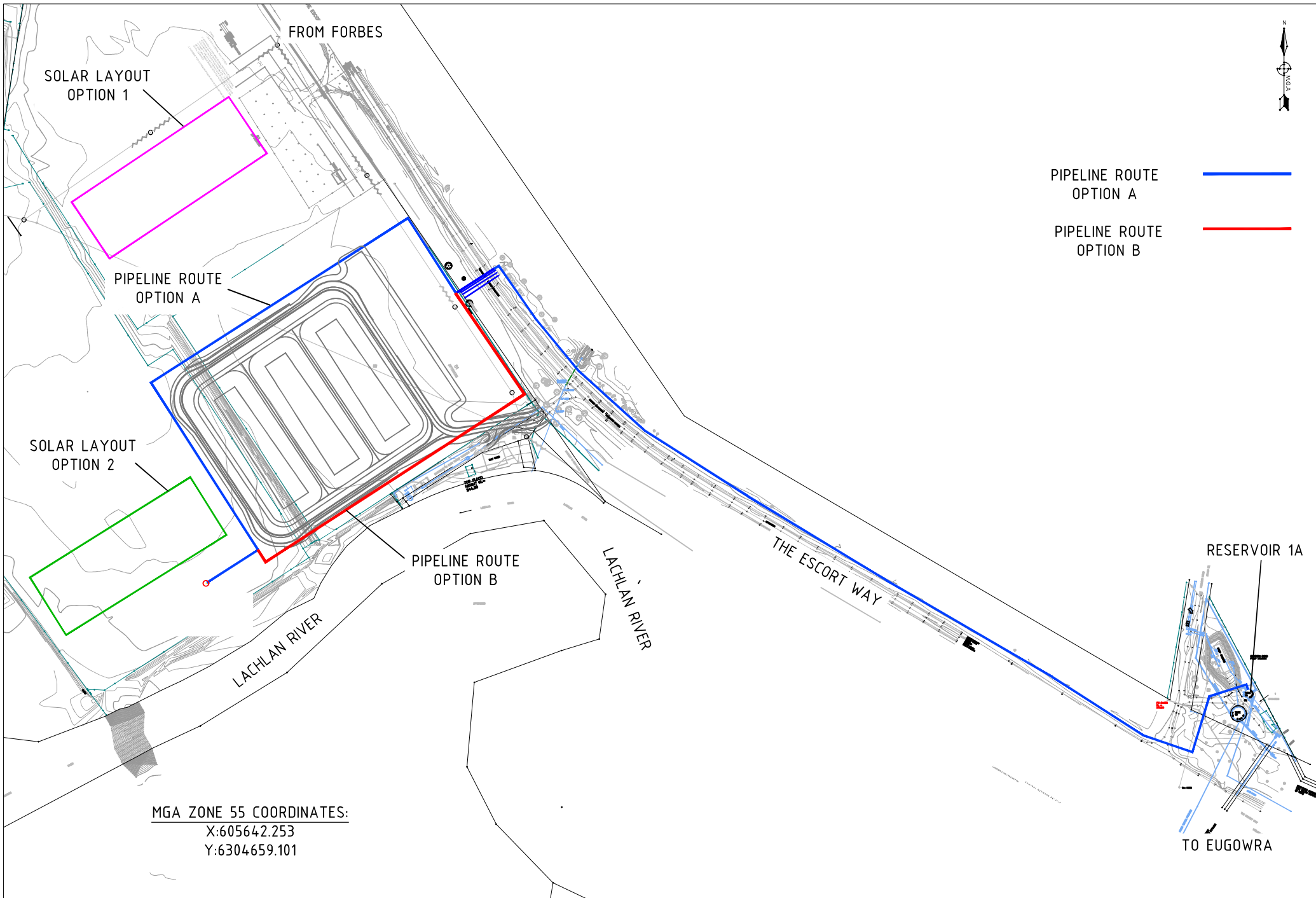
OzArk 2023b Addendum Aboriginal Due Diligence Assessment Report – Lachlan River Pre-Treatment Plant

OzArk, 2024 Aboriginal Heritage Due Diligence Assessment Report Lachlan Pipeline Duplication - DRAFT

8 Appendices

Appendix	Description
Appendix A	Design Drawings
Appendix B	Threatened Species Likelihood of Occurrence
Appendix C	Aboriginal Heritage Impact Permit
Appendix D	Summary of Environmental Safeguards

Appendix A Design Drawings





NOTES:

1. CONTOUR INTERVAL IS 0.2 METRES.

2. SERVICES SHOWN HAVE BEEN LOCATED WHERE POSSIBLE BY FIELD SURVEY. PRIOR TO ANY DEMOLITION, EXCAVATION OR CONSTRUCTION ON SITE, THE RELEVANT AUTHORITY SHOULD BE CONTACTED FOR POSSIBLE LOCATION OF FURTHER UNDERGROUND SERVICES & DETAILED LOCATION OF ALL SERVICES.

A1



Registered Surveyors
48 Reid St. Parkes, NSW
Ph: (02) 6862 2208
Email: arndellsurvey@bigpond.com

Rev	Date	Description	Approved

Reduction Ratio 1:500 @A1

Height Datum: AHD

Datum Source: GDA2020

Projection: MGA ZONE 55

0	25	50
SCALE 1:500		
Reference: 11604	Date: 10/05/2024	
Checked by: AA	Drawn by: BI	

Client: PARKES SHIRE COUNCIL

Project: LPDP

PLAN SHOWING DETAIL AND LEVELS AND PROPOSED HAUL ROAD AND LAYDOWN AREA LOT 81 DP750183

The Escort Way, Forbes

Drawing No.

Revision

Sheet 3 of 4

Appendix B Threatened Species Likelihood of Occurrence

The below assessment includes national and state significant species from the following sources:

- Bionet Atlas of NSW Wildlife
- DAWE database (PMST search)
- Current survey
- Search area is 10 km radius.
- Not considered further pelagic seabirds, shorebirds, sandpipers, turtles, whales, sharks - no preferred marine or coastal habitat in Study Area.

All habitat information is taken from NSW DPIE and Commonwealth DAWE Threatened Species profiles (DPIE 2023 & DAWE 2023) unless otherwise stated. The codes used in this table are:

- CE – Critically Endangered
- J – JAMBA
- E – Endangered
- R – ROKAMBA
- V – Vulnerable
- CEEC – Critically Endangered Ecological Community
- EP – Endangered Population
- EEC – Endangered Ecological Community
- C – CAMBA
- Mi – Migratory species

Table 22 Likelihood of occurrence definitions

Likelihood of occurrence	Definition
Known	Species recorded in the subject site or Subject Land
Likely	Species previously recorded within a 10 kilometre radius of the subject site and suitable habitat occurs within the subject site.
Possible	Species previously recorded within a 10 kilometre radius of the subject site but only marginal suitable habitat recorded. OR Species not previously recorded within a 10 kilometre radius of the subject site, but the Proposal footprint is within the species known distribution and suitable habitat occurs within the Subject Land.
Unlikely	Species previously recorded within a 10 kilometre radius of the subject site but no suitable habitat recorded.
Nil	Species not previously recorded within a 10 kilometre radius of the subject site and no suitable habitat occurs in the area.

Table 23 Likelihood of impact definitions

Likelihood of occurrence	Definition
High	Species / community is 'known' or 'likely' to occur within the study area and the Proposal will impact on important habitat resources.
Moderate	Species / community is 'known' or 'likely' to occur within the study area however the Proposal does not impact on important habitat resources.
Low	Species / community is unlikely to be impacted by the Proposal.
Nil	Species / community will not be impacted by the Proposal.

Table 24 Likelihood of occurrence and likelihood of impact

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
Aves						
<i>Anseranas semipalmata</i>	Magpie Goose	V	-	Bionet (7)	<p>The Magpie Goose is still relatively common in the Australian northern tropics, but had disappeared from south-east Australia by 1920 due to drainage and overgrazing of reed swamps used for breeding. Since the 1980s there have been an increasing number of records in central and northern NSW. Vagrants can follow food sources to south-eastern NSW.</p> <p>Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges. Equally at home in aquatic or terrestrial habitats; often seen walking and grazing on land; feeds on grasses, bulbs and rhizomes. Activities are centred on wetlands, mainly those on floodplains of rivers and large shallow wetlands formed by run-off; breeding can occur in both summer and winter dominated rainfall areas and is strongly influenced by water level; most breeding now occurs in monsoonal areas; nests are formed in trees over deep water; breeding is unlikely in south-eastern NSW.</p>	<p>Possible The species has been recorded in the locality</p> <p>Low Habitat resources are limited and unlikely to impact the species due to the Proposal.</p>
<i>Anthochaera phrygia</i>	Regent Honeyeater	CE	CE	PMST, Bionet (2)	<p>The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. Once recorded between Adelaide and the central coast of Queensland, its range has contracted dramatically in the last 30 years to between north-eastern Victoria and south-eastern Queensland. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests.</p>	<p>Possible The species has been recorded in the locality</p> <p>Low No habitat likely to support the species would be impacted</p>
<i>Aphelocephala leucopsis</i>	Southern Whiteface	-	V	Bionet (30)	<p>Southern Whiteface occur across most of mainland Australia south of the tropics. The species lives in a wide range of open woodlands and shrublands where there is an understorey of grasses or shrubs, or both. These areas are usually dominated by acacias or eucalypts on ranges, foothills and lowlands, and plains. Favours relatively undisturbed habitat with low tree densities and an herbaceous understorey litter</p>	<p>Unlikely The species has been recorded in the locality</p> <p>Low Habitat resources are limited and unlikely to</p>

<i>Scientific name</i>	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					cover. The species almost exclusively forages on the ground, mainly feeding on insects, spiders and seeds, largely gleaned from the bare ground or leaf litter. Birds build large bulky domed nests of grass, bark and roots, usually in a living or dead trees with hollows or crevices, although sometimes in low bushes. Breeds from July to October throughout most of the species range.	impact the species due to the Proposal.
<i>Apus pacificus</i>	Fork-tailed Swift	-	Mi	Bionet (4)	Recorded in all regions of NSW. Non- breeding, and almost exclusively aerial while in Australia. Occurs over urban and rural areas as well as areas of native vegetation.	Possible The species has been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Artamus cyanopterus cyanopterus</i>	Dusky Woodswallow	V	-	Bionet (69)	The Dusky Woodswallow is widespread from the coast to inland, including the western slopes of the Great Dividing Range and farther west. It is often recorded in woodlands and dry open sclerophyll forests, and has also been recorded in shrublands, heathlands regenerating forests and very occasionally in moist forests or rainforests. The understorey is typically open with sparse eucalypt saplings, acacias and other shrubs, often with coarse woody debris. It is also recorded in farmland, usually at the edges of forest or woodland or in roadside remnants or wind breaks with dead timber. The nest is an open shallow untidy cup frequently built in an open hollow, crevice or stump. Although Dusky Woodswallows have large home ranges, individuals may spend most of their time in about a 2 ha range and defend an area about 50 m around the nest. Dusky Woodswallows prefer larger remnants over smaller remnants. Competitive exclusion by Noisy Miners (<i>Manorina melanocephala</i>) is a significant threat to this species.	Possible The species has been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	PMST, Bionet (3)	Australasian Bitterns are widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. The Species favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha spp.</i>) and spikerushes (<i>Eleocharis spp.</i>), it hides during the day	Possible The species has been recorded in the locality Low

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. The species may construct feeding platforms over deeper water from reeds trampled by the bird; platforms are often littered with prey remains.	No habitat likely to support the species would be impacted
<i>Calidris ferruginea</i>	Curlew Sandpiper	E	CE	PMST	<p>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.</p> <p>The Curlew Sandpiper breeds in Siberia and migrates to Australia (as well as Africa and Asia) for the non-breeding period, arriving in Australia between August and November, and departing between March and mid-April.</p> <p>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.</p>	<p>Unlikely The species has not previously been recorded in the locality</p> <p>Low No habitat likely to support the species would be impacted</p>
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	V	E	PMST	<p>The Gang-gang Cockatoo is distributed from southern Victoria through south- and central-eastern New South Wales. In New South Wales, the Gang-gang Cockatoo is distributed from the south-east coast to the Hunter region, and inland to the Central Tablelands and south-west slopes. It occurs regularly in the Australian Capital Territory. It is rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee.</p> <p>In spring and summer, generally found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forests and woodlands, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. May also occur in sub-alpine Snow Gum (<i>Eucalyptus pauciflora</i>) woodland and occasionally in temperate rainforests. Favours old growth forest and woodland attributes for nesting and roosting. Nests are located in hollows that are 10 cm in diameter or larger and at least 9 m above the ground in eucalypts.</p>	<p>Unlikely The species has been recorded in the locality</p> <p>Low No habitat likely to support the species would be impacted</p>

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
<i>Calyptrorhynchus lathamii</i>	Glossy Black-Cockatoo	V	V	PMST, Bionet (1)	The species is uncommon although widespread throughout suitable forest and woodland habitats, from the central 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 (<i>Allocasuarina littoralis</i>) and Forest Sheoak (<i>A. torulosa</i>) are important foods. Inland populations feed on a wide range of sheoaks, including Drooping Sheoak, <i>Allocasuarina diminuta</i> , and <i>A. gymnathera</i> . Belah is also utilised and may be a critical food source for some populations.	Unlikely The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Certhionyx variegatus</i>	Pied Honeyeater	V	-	Bionet (1)	Widespread throughout acacia, mallee and spinifex scrubs of arid and semi-arid Australia. Occasionally occurs further east, on the slopes and plains and the Hunter Valley, typically during periods of drought. Inhabits wattle shrub, primarily Mulga (<i>Acacia aneura</i>), mallee, spinifex and eucalypt woodlands, usually when shrubs are flowering; feeds on nectar, predominantly from various species of emu-bushes (<i>Eremophila spp.</i>); also from mistletoes and various other shrubs (e.g. <i>Grevillea spp.</i>); also eats saltbush fruit, berries, seed, flowers and insects.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Chthonicola sagittata</i>	Speckled Warbler	V	-	Bionet (153)	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.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Circus assimilis</i>	Spotted Harrier	V	-	Bionet (8)	Occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges. Individuals disperse widely in NSW and comprise a single population. Occurs in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most	Possible The species has been recorded in the locality Low

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. Preys on terrestrial mammals (eg bandicoots, bettongs, and rodents), birds and reptile, occasionally insects and rarely carrion. Builds a stick nest in a tree and lays eggs in spring (or sometimes autumn), with young remaining in the nest for several months.	Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Climacteris picumnus victoriae</i>	Brown Treecreeper (eastern subspecies)	V	V	PMST, Bionet (206)	Endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges. Mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species; also found in mallee and River Red Gum (<i>Eucalyptus camaldulensis</i>) Forest bordering wetlands with an open understorey of acacias, saltbush, lignum, cumbungi and grasses. Sedentary, considered to be resident in many locations throughout its range; present in all seasons or year-round at many sites; territorial year-round. Up to 80% of the diet is comprised of ants; other invertebrates (including spiders, insects larvae, moths, beetles, flies, hemipteran bugs, cockroaches, termites and lacewings) make up the remaining percentage; nectar from Mugga Ironbark (<i>Eucalyptus sideroxylon</i>) and paperbarks, and sap from an unidentified eucalypt are also eaten. Hollows in standing dead or live trees and tree stumps are essential for nesting. Breeds in pairs or co-operatively in territories which range in size from 1.1 to 10.7 ha (mean = 4.4 ha).	Unlikely The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Daphoenositta chrysoptera</i>	Varied Sittella	V	-	Bionet (10)	The Varied Sittella is sedentary and inhabits most of mainland Australia except the treeless deserts and open grasslands. Distribution in NSW is nearly continuous from the coast to the far west. The Varied Sittella's population size in NSW is uncertain but is believed to have undergone a moderate reduction over the past several decades. Inhabits eucalypt forests and woodlands, especially those containing rough-barked species and mature smooth-barked gums with dead branches, mallee and Acacia woodland. Feeds on arthropods gleaned from crevices in rough or decorticating bark, dead branches, standing dead trees and small branches and twigs in the tree canopy.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted

<i>Scientific name</i>	<i>Common name</i>	<i>BC Status</i>	<i>EPBC Status</i>	<i>Source</i>	<i>Habitat requirements (OEI 2020b)</i>	<i>Likelihood of Occurrence and Likelihood of Impact</i>
<i>Epthianura albifrons</i>	White-fronted Chat	V		Bionet (6)	<p>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 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.</p> <p>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.</p>	<p>Possible</p> <p>The species has been recorded in the locality</p> <p>Low</p> <p>Habitat resources are limited and unlikely to impact the species due to the Proposal.</p>
<i>Falco hypoleucos</i>	Grey Falcon	V	V	PMST, Bionet (8)	<p>The Grey Falcon is sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. The breeding range has contracted since the 1950s with most breeding now confined to arid parts of the range. There are possibly less than 5000 individuals left. Population trends are unclear, though it is believed to be extinct in areas with more than 500mm rainfall in NSW.</p> <p>Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey.</p>	<p>Possible</p> <p>The species has been recorded in the locality</p> <p>Low</p> <p>Habitat resources are limited and unlikely to impact the species due to the Proposal.</p>
<i>Falco subniger</i>	Black Falcon	V	-	Bionet (11)	<p>Mostly occurring inland NSW. Inhabits woodland, shrubland and grassland in arid and semi-arid zones including agricultural land with scattered remnant trees. Usually associated with wetlands as they look for prey, and use standing dead trees to use as lookout posts. Habitat choice is often influenced by food availability.</p>	<p>Possible</p> <p>The species has been recorded in the locality</p> <p>Low</p> <p>Habitat resources are limited and unlikely to impact the species due to the Proposal.</p>
<i>Glossopsitta pusilla</i>	Little Lorikeet	V	-	Bionet (7)	<p>The Little Lorikeet is distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. NSW provides a large portion of the species' core habitat, with lorikeets</p>	<p>Possible</p> <p>The species has been recorded in the locality</p>

<i>Scientific name</i>	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					found westward as far as Dubbo and Albury. Nomadic movements are common, influenced by season and food availability, although some areas retain residents for much of the year and 'locally nomadic' movements are suspected of breeding pairs. The species forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity.	Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Grantiella picta</i>	Painted Honeyeater	V	V	PMST	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.	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	V	-	Bionet (9)	Distributed along the Australian coastline and well inland along rivers and wetlands, it's widespread in eastern NSW. Foraging habitat consists of coastal seas, rivers, fresh and saline lakes, lagoons, reservoirs and terrestrial habitats such as grasslands. Diet consists of waterbirds, turtles and fish. Resident pairs are territorial and occupy nesting territories of hundreds of hectares. Breeding habitat consists of large trees within mature open forest, gallery forest or woodland and reported that they avoid nesting near urban areas. Nest trees are typically large emergent eucalypts and often have emergent dead branches or large dead trees nearby which are used as 'guard roosts'. Nests are large structures built from sticks and lined with leaves or grass.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Hieraaetus morphnoides</i>	Little Eagle	V	-	Bionet (14)	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.	Possible The species has been recorded in the locality Low Habitat resources are limited and unlikely to

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
						impact the species due to the Proposal.
<i>Hirundapus caudacutus</i>	White-throated Needletail	-	V	PMST, Bionet (2)	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.	Possible The species has been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Lathamus discolor</i>	Swift Parrot	E	CE	PMST, Bionet (9)	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 <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Mugga Ironbark <i>E. sideroxylon</i> , and White Box <i>E. albens</i> . Commonly used lerp infested trees include Inland Grey Box <i>E. microcarpa</i> , Grey Box <i>E. moluccana</i> and Blackbutt <i>E. pilularis</i> .	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Leipoa ocellata</i>	Mallee Fowl	E	V	PMST	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	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					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.	
<i>Lophochroa leadbeateri</i>	Major Mitchell's Cockatoo	V	E	PMST	In NSW Major Mitchell's Cockatoo is found across the arid and semi-arid inland and is regularly as far east as about Bourke and Griffith, and sporadically further east than that. The species inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. It 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.	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Melanodryas cucullata cucullata</i>	Hooded Robin	V	E	PMST, Bionet (29)	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 <i>cucullata</i>) is found from Brisbane to Adelaide and throughout much of inland NSW, with the exception of the extreme north-west, where it is replaced by subspecies <i>picata</i> . 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.	Possible The species has been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Melithreptus gularis gularis</i>	Black-chinned Honeyeater	V	-	Bionet (19)	Extends south from central Queensland, through NSW, Victoria into south eastern South Australia, though it is very rare in the last state. In NSW it is widespread, with records from the tablelands and western slopes of the Great Dividing Range to the north-west and central-west plains and the Riverina. It is rarely recorded east of the Great Dividing Range, although regularly observed from the Richmond and Clarence River areas. It has also been recorded at a few scattered sites in the Hunter, Central Coast and Illawarra regions, though it is very rare in the latter.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (<i>Eucalyptus sideroxylon</i>), White Box (<i>E. albens</i>), Inland Grey Box (<i>E. microcarpa</i>), Yellow Box (<i>E. melliodora</i>), Blakely's Red Gum (<i>E. blakelyi</i>) and Forest Red Gum (<i>E. tereticornis</i>).	
<i>Neophema chrysostoma</i>	Blue-winged Parrot	-	V	PMST	Blue-winged Parrots breed on mainland Australia south of the Great Dividing Range in Victoria, South Australia and Tasmania. During the non-breeding period, from autumn to early spring, birds are recorded in western New South Wales and sometimes south-eastern NSW, particularly on the southern migration. Birds inhabit a range of habitats from coastal, sub-coastal and inland areas through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands. Can also be found in altered environments such as airfields, golf-courses and paddocks. Forage mainly near or on the ground for seeds of a wide range of native and introduced grasses, herbs and shrubs. Nests are made in hollows, preferably with a vertical opening, in live or dead trees or stumps, in eucalypt forests and woodlands within the breeding range.	Unlikely The species has not previously been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Neophema pulchella</i>	Turquoise Parrot	V	-	Bionet (44)	The Turquoise Parrot's range extends from southern Queensland through to northern Victoria, from the coastal plains to the western slopes of the Great Dividing Range. Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.	Possible The species has been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Ninox connivens</i>	Barking Owl	V	-	Bionet (2)	The Barking Owl is found throughout continental Australia except for the central arid regions. The owls sometimes extend their home range into urban areas, hunting birds in garden trees and insects attracted to streetlights. Extensive wildfires in 2019-20 reduced habitat quality further, burnt many old, hollow-bearing trees needed as refuge by prey species and reduced the viability of some regional owl populations. The species inhabit woodland and open forest, including fragmented remnants and partly cleared farmland. It is flexible in its habitat use, and hunting can extend in to closed forest and more open areas.	Possible The species has been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.

<i>Scientific name</i>	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEI 2020b)	Likelihood of Occurrence and Likelihood of Impact
					Sometimes able to successfully breed along timbered watercourses in heavily cleared habitats (e.g. western NSW) due to the higher density of prey found on these fertile riparian soils. The species typically roost in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as Acacia and Casuarina species.	
<i>Oxyura australis</i>	Blue-billed Duck	V	-	Bionet (14)	The Blue-billed Duck is endemic to south-eastern and south-western Australia. It is widespread in NSW, but most common in the southern Murray-Darling Basin area. The species disperses during the breeding season to deep swamps up to 300 km away, and is generally only during summer or in drier years that they are seen in coastal areas. The Blue-billed Duck prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover. It will fly if disturbed, but prefers to dive if approached.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Pachycephala inornata</i>	Gilbert's Whistler	V	-	Bionet (20)	The Gilbert's Whistler is sparsely distributed over much of the arid and semi-arid zone of inland southern Australia, from the western slopes of NSW to the Western Australian wheatbelt. The eastern population extends from the central NSW mallee (Yathong, Nombinnie and Round Hill NRs), south and east through the Cocoparra Range to Pomingalama Reserve (near Wagga Wagga) then north through the South West Slopes east as far as Cowra and Burrendong Dam, to the Goonoo reserves (with scattered records as far north as Pilliga). Occasional records are also made of this species in the Capertee Valley. The species is also recorded in River Red Gum forests along the Murray River valley between Mathoura and Wentworth, with the eastern populations (between Mathoura and Barham) apparently isolated from other NSW populations. West of Swan Hill, this population may interact with populations found to the north of the Murray River west of Balranald and as far north as the Scotia country (Tarawi NR and Scotia Sanctuary). The Gilbert's Whistler occurs in a range of habitats within NSW, though the shared feature appears to be a dense shrub layer. It is widely recorded in mallee shrublands, but also occurs in box-ironbark woodlands, Cypress Pine and Belah woodlands and River Red Gum forests, though at this stage it is only known to use this habitat along	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted

<i>Scientific name</i>	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					the Murray, Edwards and Wakool Rivers. Within the mallee the species is often found in association with an understorey of spinifex and low shrubs including wattles, hakeas, sennas and hop-bushes. In woodland habitats, the understorey comprises dense patches of shrubs, particularly thickets of regrowth Callitris pine. Parasitic 'cherries' (Exocarpus species) appear to be an important habitat component in Belah and Red Gum communities, though in the latter case other dense shrubs, such as Lignum and wattles, are also utilised.	
<i>Petroica boodang</i>	Scarlet Robin	V	-	Bionet (1)	The Scarlet Robin is found from south east Queensland to south east South Australia and also in Tasmania and south west Western Australia. In NSW, it occurs from the coast to the inland slopes. After breeding, some Scarlet Robins disperse to the lower valleys and plains of the tablelands and slopes. Some birds may appear as far west as the eastern edges of the inland plains in autumn and winter. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. This species lives in both mature and regrowth vegetation. It occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Petroica phoenicea</i>	Flame Robin	V	-	Bionet (3)	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.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Polytelis swainsonii</i>	Superb Parrot	V	V	PMST, Bionet (20)	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	Possible The species has been recorded in the locality Low

<i>Scientific name</i>	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEI 2020b)	Likelihood of Occurrence and Likelihood of Impact
					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 (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.	No habitat likely to support the species would be impacted
<i>Pomatostomus temporalis temporalis</i>	Grey-crowned Babbler (eastern subspecies)	V	-	Bionet (41)	The eastern subspecies (<i>temporalis</i>) 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.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Rostratula australis</i>	Australian Painted Snipe	E	E	Bionet (3)	In NSW many records of the Australian Painted Snipe are from the Murray-Darling Basin including the Paroo wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and more recently, swamps near Balldale and Wanganella. Other important locations with recent records include wetlands on the Hawkesbury River and the Clarence and lower Hunter Valleys. The species prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Stagonopleura guttata</i>	Diamond Firetail	V	V	Bionet (36)	The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. It is widely distributed in NSW, with a concentration of records from the Northern, Central and Southern Tablelands, the Northern, Central and South Western Slopes and the North West Plains and Riverina. Not commonly found in coastal districts, though there are records from near Sydney, the Hunter Valley and the Bega Valley. This species has a scattered distribution over the rest of NSW, though is very rare west of	Possible The species has been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.

<i>Scientific name</i>	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					the Darling River. Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands. Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland.	
<i>Stictonetta naevosa</i>	Freckled Duck	V	-	Bionet (14)	The Freckled Duck is found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system, particularly along the Paroo and Lachlan Rivers, and other rivers within the Riverina. The duck is forced to disperse during extensive inland droughts when wetlands in the Murray River basin provide important habitat. The species may also occur as far as coastal NSW and Victoria during such times. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea-tree. During drier times they move from ephemeral breeding swamps to more permanent waters such as lakes, reservoirs, farm dams and sewage ponds.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Tringa glareola</i>	Wood Sandpiper	-	Mi, -	Bionet (2)	In NSW there are records east of the Great Divide, from Stratheden and Casino, south to Nowra and elsewhere, mostly from the Riverina, but also from the Upper and Lower Western Regions. The Wood Sandpiper uses well-vegetated, shallow, freshwater wetlands, such as swamps, billabongs, lakes, pools and waterholes. They are typically associated with emergent, aquatic plants or grass, and dominated by taller fringing vegetation, such as dense stands of rushes or reeds, shrubs, or dead or live trees, especially Melaleuca and River Red Gums Eucalyptus camaldulensis and often with fallen timber. They also frequent inundated grasslands, short herbage or wooded floodplains, where floodwaters are temporary or receding, and irrigated crops. (Sourced from Australian Government Department of Agriculture, Water and the Environment - Species Profile - 2022)	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Tringa nebularia</i>	Common Greenshank, Greenshank	-	Mi, -	Bionet (1)	Common Greenshanks are common throughout Australia in the summer, found both on the coast and inland, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms and flooded crops.	Possible The species has been recorded in the locality Low

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
						No habitat likely to support the species would be impacted
<i>Tringa stagnatilis</i>	Marsh Sandpiper, Little Greenshank	-	Mi, -	Bionet (1)	Found around ephemeral wetlands, swamps, lagoons, saltmarshes, estuaries, floodplains and also regularly at sewage farms and saltworks. In south-east Australia they have been found to occur around inland saline lakes and coastal saltworks.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted
Fish						
<i>Bidyanus bidyanus</i>	Silver Perch	E	CE	PMST	Silver Perch are a moderate to large freshwater fish native to the Murray-Darling river system. They were once widespread and abundant throughout most of the Murray-Darling river system. They have now declined to low numbers or disappeared from most of their former range. Only one remaining secure and self-sustaining population occurs in NSW in the central Murray River downstream of Yarrawonga weir, as well as several anabranches and tributaries.	Nil Species not previously recorded, and no species habitat present (waterways) in study area NIL No habitat likely to support the species would be impacted
<i>Maccullochella macquariensis</i>	Trout Cod	E	E	PMST	The Trout Cod is endemic to the southern Murray-Darling river system, including the Murrumbidgee and Murray Rivers, and the Macquarie River in central NSW. The species was once widespread and abundant in these areas but has undergone dramatic declines in its distribution and abundance over the past century. The last known reproducing population of Trout Cod is confined to the Murray River below Yarrawonga downstream to Tocumwal.	Nil Species not previously recorded, and no species habitat present (waterways) in study area NIL No habitat likely to support the species would be impacted
<i>Maccullochella peelii</i>	Murray Cod	-	V	PMST	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	Nil Species not previously recorded, and no species

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					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.	habitat present (waterways) in study area NIL No habitat likely to support the species would be impacted
<i>Macquaria australasica</i>	Macquarie Perch	V	E	PMST	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.	Nil Species not previously recorded, and no species habitat present (waterways) in study area NIL No habitat likely to support the species would be impacted
Flora						
<i>Androcalva procumbens</i>		V	V	PMST	Mainly confined to the Dubbo-Mendooran-Gilgandra region, but also in the Pilliga and Nymagee areas and recent collections from the Upper Hunter. Grows on sandy soils, often on roadsides. Has been recorded in Tumbledown Red Gum and Mugga Ironbark communities, Broombush scrub, under mallee eucalypts with a Common Fringe-myrtle understorey, and in a recently burnt Ironbark and Callitris area. Also in <i>Eucalyptus fibrosa subsp. nubila</i> , Tumbledown Red Gum, White Box and White Cypress Pine woodlands north of Dubbo.	Unlikely The species has not previously been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Austrostipa metatoris</i>	A spear-grass	V	V	PMST	Most records occur in the Murray Valley with sites including Cunninyeuk Station, Stony Crossing, Kyalite State Forest (now part of Murrumbidgee Valley Regional Park) and Lake Benanee. Scattered records also occur in central NSW including Lake Cargelligo, east of Goolgowi, Condobolin and south west of Nymagee. Otherwise only known from near Bordertown in south east South Australia, where it may be locally extinct. Grows in sandy areas of the Murray Valley; habitats include sandhills, sandridges, undulating plains and flat open mallee country, with red to	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					red-brown clay-loam to sandy-loam soils. Associated species include <i>Eucalyptus populnea</i> , <i>E. intertexta</i> , <i>Callitris glaucophylla</i> , <i>Casuarina cristata</i> , <i>Santalum acuminatum</i> and <i>Dodonaea viscosa</i> .	
<i>Austrostipa wakoolica</i>	A spear-grass	E	E	PMST, Bionet (2)	<p>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).</p> <p>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.</p>	<p>Possible The species has been recorded in the locality</p> <p>Low No habitat likely to support the species would be impacted</p>
<i>Diuris tricolor</i>	Pine Donkey Orchid	V	-	Bionet (1)	<p>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.</p> <p>Disturbance regimes are not known, although the species is usually recorded from disturbed habitats.</p> <p>Associated species include <i>Callitris glaucophylla</i>, <i>Eucalyptus populnea</i>, <i>Eucalyptus intertexta</i>, Ironbark and Acacia shrubland. The understorey is often grassy with herbaceous plants such as Bulbine species.</p>	<p>Possible The species has been recorded in the locality</p> <p>Low No habitat likely to support the species would be impacted</p>
<i>Lepidium aschersonii</i>	Spiny Peppergrass	V	V	PMST	<p>Not widespread, occurring in the marginal central-western slopes and north-western plains regions of NSW (and potentially the south western plains). In the north of the State recent surveys have recorded a number of new sites including Brigalow Nature Reserve, Brigalow State Conservation Area, Leard State Conservation Area and Bobbiwaa State Conservation Area. Also known from the West Wyalong in the south of the State. Records from Barmedman and Temora areas are likely to be no longer present. Approximately 50% of the total <i>Lepidium aschersonii</i> recorded for Australia occurs in NSW.</p> <p>Found on ridges of gilgai clays dominated by Brigalow (<i>Acacia</i></p>	<p>Unlikely The species has not previously been recorded in the locality</p> <p>Low No habitat likely to support the species would be impacted</p>

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					<i>harpophylla</i>), Belah (<i>Casuarina cristata</i>), Buloke (<i>Allocasuarina luehmanii</i>) and Grey Box (<i>Eucalyptus microcarpa</i>). In the south has been recorded growing in Bull Mallee (<i>Eucalyptus behriana</i>). Often the understorey is dominated by introduced plants. The species grows as a component of the ground flora, in grey loamy clays. Vegetation structure varies from open to dense, with sparse grassy understorey and occasional heavy litter.	
<i>Lepidium monoplocoides</i>	Winged Peppergrass	E	E	PMST	Widespread in the semi-arid western plains regions of NSW. Collected from widely scattered localities, with large numbers of historical records but few recent collections. Also previously recorded from Bourke, Cobar, Urana, Lake Cargelligo, Balranald, Wanganella and Deniliquin. Recorded more recently from the Hay Plain, south-eastern Riverina, and from near Pooncarie. Occurs on seasonally moist to waterlogged sites, on heavy fertile soils, with a mean annual rainfall of around 300-500 mm. Predominant vegetation is usually an open woodland dominated by <i>Allocasuarina luehmannii</i> (Bulloak) and/or eucalypts, particularly <i>Eucalyptus largiflorens</i> (Black Box) or <i>Eucalyptus populnea</i> (Poplar Box). The field layer of the surrounding woodland is dominated by tussock grasses. Recorded in a wetland-grassland community comprising <i>Eragrostis australasicus</i> , <i>Agrostis avenacea</i> , <i>Austrodanthonia duttoniana</i> , <i>Homopholis proluta</i> , <i>Myriophyllum crispatum</i> , <i>Utricularia dichotoma</i> and <i>Pycnosorus globosus</i> , on waterlogged grey-brown clay. Also recorded from a <i>Maireana pyramidata</i> shrubland.	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Prasophyllum petilum</i>	Tarengo Leek Orchid	E	E	PMST	Occurs at 4 sites in NSW (Captains Flat Cemetery, Ilford Cemetery, Steves TSR at Delegate and Tarengo TSR near Boorowa). Also at Hall in ACT. Grows on relatively fertile soils in grassy woodland or natural grassland. Occurs in relatively moist, poorly drained areas.	Unlikely The species has not previously been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Prasophyllum sp. Wybong</i>	-	-	CE	PMST	Distributed within the Border Rivers (Gwydir, Namoi, Hunter), Central Rivers and Central West Natural Resource Management Regions. The	Unlikely

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
(C.Phelps ORG 5269)					species is known to occur in open eucalypt woodland and grassland. The species can be found in the EPBC listed threatened ecological community White-box Yellow-box Blakely's Red Gum Grassy Woodland and Derived Native Grassland (TSSC, 2009).	The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted
Swainsona murrayana	Slender Darling-pea	V	V	PMST	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 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.	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted
Swainsona recta	Small Purple-pea	E	E	PMST	Small Purple-pea was recorded historically from places such as Carcoar, Culcairn and Wagga Wagga where it is probably now extinct. Populations still exist in the Queanbeyan and Wellington-Mudgee areas. Over 80% of the southern population grows on a railway easement. It is also known from the ACT and a single population of four plants near Chiltern in Victoria. Before European settlement Small Purple-pea occurred in the grassy understorey of woodlands and open-forests dominated by Blakely's Red Gum <i>Eucalyptus blakelyi</i> , Yellow Box <i>E. melliodora</i> , Candlebark Gum <i>E. rubida</i> and Long-leaf Box <i>E. goniocalyx</i> . Grows in association with understorey dominants that include Kangaroo Grass <i>Themeda australis</i> , poa tussocks <i>Poa spp.</i> and spear-grasses <i>Austrostipa spp.</i>	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted

<i>Scientific name</i>	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
<i>Thesium australe</i>	Austral Toadflax	V	V	PMST	Found in small, scattered populations along the east coast, northern and southern tablelands. Occurs in grassland or grassy woodland, and is often found in association with Kangaroo Grass.	Unlikely The species has not previously been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Tylophora linearis</i>	-	V	E	PMST	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 <i>Eucalyptus fibrosa</i> , <i>Eucalyptus sideroxylon</i> , <i>Eucalyptus albens</i> , <i>Callitris endlicheri</i> , <i>Callitris glaucophylla</i> and <i>Allocasuarina luehmannii</i> .	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted
Amphibia						
<i>Crinia sloanei</i>	Sloane's Froglet	V	E	PMST	Sloane's Froglet has been recorded from widely scattered sites in the floodplains of the Murray-Darling Basin, with the majority of records in the Darling Riverine Plains, NSW South Western Slopes and Riverina bioregions in New South Wales. It has not been recorded recently in the northern part of its range and has only been recorded infrequently in the southern part of its range in NSW. At a number of sites where records are verified by museum specimens, the species has not been subsequently detected during more recent frog surveys in the vicinity (e.g. Holbrook, Nyngan, Wagga Wagga and Tocumwal). The low number of sites, low number of recorded individuals per site, and the low proportion of records of this species in regional surveys all indicate that a moderately low number of mature individuals exist. The apparent loss from previous recorded sites and decline in recording rates indicates that this is not just a rare or uncommonly encountered species, but that there has been a reduction in population size and	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted

Scientific name	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					range. It is typically associated with periodically inundated areas in grassland, woodland and disturbed habitats.	
Mammalia						
<i>Dasyurus maculatus</i>	Spotted-tailed Quoll	V	E	PMST, Bionet (1)	The range of the Spotted-tailed Quoll has contracted considerably since European settlement. It is now found in eastern NSW, eastern Victoria, south-east and north-eastern Queensland, and Tasmania. Only in Tasmania is it still considered relatively common. The species has been recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline. Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites. Females occupy home ranges of 200-500 hectares, while males occupy very large home ranges from 500 to over 4000 hectares. Are known to traverse their home ranges along densely vegetated creeklines.	Possible The species has been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Nyctophilus corbeni</i>	South-eastern Long-eared Bat	V	V	PMST	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 <i>Allocasuarina leuhmanni</i> and box eucalypt dominated communities, but it is distinctly 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.	Unlikely The species has not previously been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
<i>Phascolarctos cinereus</i>	Koala	E	E	PMST. Bionet (1)	The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In New South Wales, koala populations are found on the central and north coasts, southern highlands, southern and northern tablelands, Blue Mountains, southern coastal forests, with some smaller populations on the plains west of the Great Dividing Range. The species inhabit eucalypt woodlands and forests, and 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.	Possible The species has been recorded in the locality Low No habitat likely to support the species would be impacted

<i>Scientific name</i>	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
<i>Pseudomys novaehollandiae</i>	New Holland mouse	-	V	PMST	The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. Genetic evidence indicates that the New Holland Mouse once formed a single continuous population on mainland Australia and the distribution of recent subfossils further suggest that the species has undergone a large range contraction since European settlement. Known to inhabit open heathlands, woodlands and forests with a heathland understorey and vegetated sand dunes. It is a social animal, living predominantly in burrows shared with other individuals.	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	PMST	Grey-headed Flying-foxes are generally found within 200 km of the eastern coast of Australia, from Rockhampton in Queensland to Adelaide in South Australia. In times of natural resource shortages, they may be found in unusual locations. The species occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.	Unlikely The species has not previously been recorded in the locality Low Habitat resources are limited and unlikely to impact the species due to the Proposal.
Reptiles						
<i>Aprasia parapulchella</i>	Pink-tailed Worm Lizard	V	V	PMST	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 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.	Unlikely The species has not previously been recorded in the locality Low No habitat likely to support the species would be impacted
<i>Hemiaspis damelii</i>	Grey Snake	E	E	PMST	Distributed throughout the eastern interior, from central inland New South Wales, north to coastal areas near Rockhampton in Queensland (Cogger 2000; Hobson 2003; Wilson and Swan 2010; Hobson 2012). <i>Hemiaspis damelii</i> favours woodlands (typically brigalow <i>Acacia harpophylla</i> and belah <i>Casuarina cristata</i>), usually on heavier, cracking clay soils, particularly in association with water bodies or in areas with	Unlikely The species has not previously been recorded in the locality Low

<i>Scientific name</i>	Common name	BC Status	EPBC Status	Source	Habitat requirements (OEH 2020b)	Likelihood of Occurrence and Likelihood of Impact
					small gullies and ditches (gilgais) (Wilson and Swan 2010; Hobson 2012). (QLD Gov - Targeted Species Survey Guidelines - 2023)	No habitat likely to support the species would be impacted

Appendix C Aboriginal Heritage Impact Permit

Issue of Aboriginal Heritage Impact Permit

National Parks and Wildlife Act 1974



Office of
Environment
& Heritage

Your reference: n/a
Our reference: AHIMS No. 3844 / 15/1401
Notice number: C0001097
Contact: Phil Purcell 68835341

Parkes Shire Council

2 Cecile Street
PO Box 337
Parkes, NSW 2870

NOTICE OF THE ISSUE OF ABORIGINAL HERITAGE IMPACT PERMIT C0001096

Issued pursuant to section 90C(4) of the *National Parks and Wildlife Act 1974*

BACKGROUND

- A. Parkes Council (the applicant) applied to the Office of Environment and Heritage (OEH) under section 90A of the *National Parks and Wildlife Act 1974* (NPW Act) for an Aboriginal Heritage Impact Permit (AHIP). The AHIP application was in relation to remove Aboriginal objects.
- B. OEH received the application on 25/4/2015.

ISSUE OF ABORIGINAL HERITAGE IMPACT PERMIT

- 1. OEH has considered the application and supporting information provided, and matters under section 90K of the NPW Act and has decided to issue an AHIP C0001096 subject to conditions.
- 2. The AHIP is attached.
- 3. You should read the AHIP carefully and ensure you comply with its conditions. In particular please note the following conditions:

It is an offence under section 90J NPW Act to fail to comply with the conditions of the AHIP. The maximum penalty that a court may impose on an individual/corporation for failing to comply with this AHIP is if individual, \$275,000 or 1 year imprisonment or both (in circumstances of aggravation if an individual \$550,000 or 2 years imprisonment or both) if corporation, \$1.1m. OEH can also issue penalty notices for this offence.

Issue of Aboriginal Heritage Impact Permit

National Parks and Wildlife Act 1974



Sonya Ardill>

Senior Team Leader Planning

North West Operations

(by Delegation)

Date: 25 May 2015



**Office of
Environment
& Heritage**

INFORMATION ABOUT THIS NOTICE

- Details provided in this notice will be available on OEH's Public Register in accordance with section 188F of the NPW Act.

Variation of this AHIP

- This AHIP may only be varied on application by the AHIP holder or by OEH to correct typographical errors or resolve inconsistencies between conditions of the AHIP. A permit can only be varied by subsequent variation notices.

Appeals against this decision

- You can appeal to the Land and Environment Court against this decision. The deadline for lodging the appeal is 21 days after you were given notice of this decision.

AHIP number: NOTICE NO.

(AHIMS Permit ID: 3844)

AHIP Issued To:

NOTICE ISSUED TO

2 Cecile Street
PO Box 337
Parkes, NSW 2870

OEH Office issuing this AHIP

Office of Environment and Heritage

Regional Operations

North Branch

48-52 Wingewarra Street

Dubbo 2830

Telephone number: (02) 68835300

Fax number: (02) 88848675

Additional details for public register

a) Name of development or project	Parkes Water and Waste Water Augmentation Project
b) Location	Near Eugowra-Forbes Road, Lachlan River near Forbes
c) Local Government Area(s)	Forbes
d) Description of harm authorised	<ul style="list-style-type: none">• Movement only of certain Aboriginal objects• Community collection• Harm to certain Aboriginal objects through the proposed works
e) AHIP commencement date and duration	<i>Commencement:</i> On receiving this notice. <i>Duration:</i> 10 years

AHIP TO HARM ABORIGINAL OBJECTS

A. Background

- (i) On 23/4/2015 an application was made to the Chief Executive of the Office of Environment and Heritage (OEH) for an Aboriginal Heritage Impact Permit (AHIP) pursuant to s.90 of the *National Parks and Wildlife Act 1974* (the Act).
- (ii) OEH considered the application and supporting information provided, and matters under section 90K of the Act and decided to issue an AHIP subject to conditions.

B. AHIP issued subject to conditions

An AHIP is issued to harm Aboriginal objects identified in Schedules B and C, in accordance with the conditions of this AHIP.

This AHIP is issued pursuant to section 90 of the Act.

C. Commencement and duration of AHIP

This AHIP commences on the date it is signed unless otherwise provided by this AHIP.

Unless otherwise revoked in writing, this AHIP remains in force for:

- (i) 10 years from the date of commencement

D. Proposed Works

The works include upgrading existing water pumping station on the banks of the Lachlan River.

Note: A Dictionary at the end of the AHIP defines terms used in this document. Further information about this AHIP is also set out after the Dictionary.



.....
Sonya Ardill
Senior Team Leader Planning
North West Operations>
(by Delegation)
DATED: 25 May 2015

Aboriginal Heritage Impact Permit

Section 90 of the *National Parks and Wildlife Act 1974*



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LAND TO WHICH THIS AHIP APPLIES

Part of Lot 81, Section 10, DP 750183 Forbes Shire Council, being that area shown hatched in Figure 1, Attachment A.

CONDITIONS

The conditions of this AHIP specify the actions that are permitted and/or required in relation to areas and Aboriginal objects, which are detailed in the Schedules that follow.

Administrative Conditions

Responsibility for compliance with conditions of AHIP

1. The AHIP holder must ensure that all persons involved in actions or works covered by this AHIP (whether employees, contractors, sub-contractors, agents or invitees) are made aware of and comply with the conditions of this AHIP.

Project manager to oversee the actions relating to this AHIP

2. A suitably qualified and experienced individual must be appointed as a project manager who is responsible for overseeing, for and on behalf of the AHIP holder, all the actions relating to this AHIP.
3. The individual appointed as project manager must be the project manager nominated in the application form.
4. If an alternative to the nominated project manager is appointed, OEH must be notified of their contact details within 14 days of this appointment.

Actions must be in accordance with AHIP application

5. All actions on the land must be carried out in accordance with the application except as otherwise expressly provided by a condition of this AHIP.

Operational Conditions

Certain Aboriginal objects must not be harmed

6. All human remains in, on or under the land must not be harmed.

Certain Aboriginal objects may only be moved

7. The Aboriginal objects described in Schedule B1 may only be moved.

Community collection

8. The Registered Aboriginal Parties must be provided with an opportunity to collect Aboriginal objects within the development footprint area described in Attachment A.
9. The opportunity for community collection must be provided:
 - (a) To collect Aboriginal objects of interest for storage at the Peak Hill Local Aboriginal Land Council (LALC) or to relocate the objects to an area on site 43-3-0108 that will not be disturbed by the development project.

Aboriginal Heritage Impact Permit

Section 90 of the *National Parks and Wildlife Act 1974*



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- (b) must be before any harm of Aboriginal objects described in Schedule C can commence in the area, and
 - (c) to monitor ground disturbance for Aboriginal objects during works.
10. If an opportunity for community collection has been provided and this collection does not occur, the AHIP holder may proceed with any actions to harm Aboriginal objects described in Schedule C, in accordance with the conditions of this AHIP.

Harm of certain Aboriginal objects through the proposed works

11. The Aboriginal objects described in Schedule C may be harmed. Nothing in this condition authorised harm to Aboriginal objects described in Schedule A (whether human remains, Aboriginal objects or 'no-harm areas').
12. Aboriginal objects described in Schedule C must not be harmed unless:
- (a) all movement of Aboriginal objects described in Schedule B1 has occurred in the area,
 - (b) all excavations described in Schedule B2 have been completed in the area, and
 - (c) all opportunities for community collection of Aboriginal objects described in Schedule B3 have been provided in the area.

Long term management of certain Aboriginal objects

13. Aboriginal objects collected for storage will be placed under the care of the Peak Hill LALC through a Care Agreement.

Notification and Reporting Conditions

Notification of commencement and completion of actions

14. Written notice must be provided to the OEH office at least 7 days prior to the commencement of actions authorised by this AHIP.
15. Written notice must be provided to the OEH office within 7 days of the completion of actions authorised by this AHIP.

Copy of this AHIP and notices to be provided to Registered Aboriginal Parties

16. A copy of this AHIP must be provided to each Registered Aboriginal Party, within 14 days of receipt of the AHIP from OEH.
17. Where this AHIP is varied or transferred, a copy of the AHIP variation or transfer notice must be provided to each Registered Aboriginal Party, within 14 days of receipt of the notice.

Human remains

18. If any human remains (other than any human remains described in Schedule B4) are discovered and/or harmed in, on or under the land, the AHIP holder must:
- (a) not further harm these remains
 - (b) immediately cease all work at the particular location
 - (c) secure the area so as to avoid further harm to the remains
 - (d) notify the local police and OEH's Environment Line on 131 555 as soon as practicable and provide any available details of the remains and their location, and
 - (e) not recommence any work at the particular location unless authorised in writing by OEH.

Incidents which may breach the Act or AHIP

19. The AHIP holder must notify the OEH office in writing as soon as practicable after becoming aware of:
- (a) any contravention of s.86 of the Act not authorised by an AHIP, and/or
 - (b) any contravention of the conditions of this AHIP.

Reports about incidents which may breach the Act or AHIP

20. Where OEH suspects that an incident has occurred which may have breached the Act or AHIP, OEH may request a written incident report, which includes the following:
- (a) the nature of the incident
 - (b) the actual or likely impact of the incident on Aboriginal objects and/or Aboriginal places
 - (c) the nature and location of these Aboriginal objects and/or Aboriginal places, referring to and providing maps and photos where appropriate
 - (d) any conditions of an AHIP which may have been breached, and
 - (e) the measures which have been taken or will be taken to prevent a recurrence of the incident.
21. The incident report must be provided to the OEH office within the timeframe specified in the request.

Provision of Aboriginal Site Impact Recording Form

22. An Aboriginal Site Impact Recording Form must be completed and submitted to the AHIMS Registrar, for each AHIMS site identified in Schedules B and C, within 4 months of the completion of the actions authorised by this AHIP.

Note:

- (i) The Aboriginal Site Impact Recording Form can be found on the OEH website:
<http://www.environment.nsw.gov.au/licences/DECCAHISSiteRecordingForm.htm>
- (ii) Contact details for the AHIMS Registrar can be found on the OEH website:
<http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm>

General Conditions

Indemnity

23. The AHIP holder agrees to indemnify and keep indemnified, the Crown in right of NSW, the Minister administering the Act, the Chief Executive of OEH, and their employees, agents and contractors, in the absence of any willful misconduct or negligence on their part, from and against all actions, demands, claims, proceedings, losses, damages, costs (including legal costs), charges or expenses suffered or incurred by them resulting from:
- (a) any damage or destruction to any real or personal property; and
 - (b) injury suffered or sustained (including death) by any persons arising out of or in connection with any actions undertaken pursuant to this AHIP.

Release

24. The AHIP holder agrees to release to the full extent permitted by law, the Crown in right of NSW, the Minister administering the Act, the Chief Executive of OEH, and their employees,

Aboriginal Heritage Impact Permit

Section 90 of the *National Parks and Wildlife Act 1974*



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agents and contractors, in the absence of any willful misconduct or negligence on their part, from all suits, actions, demands and claims of every kind resulting from:

- (a) any damage or destruction to any real or personal property; and
- (b) injury suffered or sustained (including death) by any persons arising from or in connection with any actions undertaken pursuant to this AHIP.

Written notice

25. Any requirement to provide written notice to the OEH office in this AHIP may be complied with by faxing the notice to the OEH office's fax number or by sending by registered post to the OEH office's address. The OEH office's contact details are specified at the front of this AHIP.

SCHEDULES

The following schedules identify the areas and Aboriginal objects that are subject to the conditions of this AHIP.

Schedule A: Aboriginal objects which must not be harmed

A1 Human remains

All human remains in, on or under the land must not be harmed, other than any human remains identified in Schedule B4, as specified by the conditions of this AHIP.

Schedule B: Aboriginal objects that may be harmed through the certain actions

B1 Movement only

The following Aboriginal objects identified on AHIMS may only be moved in accordance with the conditions of this AHIP (excluding any Aboriginal objects described in Schedule A).

Portion of Site (whole or part)	AHIMS Site ID	Site Feature	Site Name	Information access restriction? (Y/N)	Easting	Northing	Datum
Part	43-3-0108	artefact	Lachlan River PSC Pump OS1	n	605849	6304754	GDA

B3 Community collection

Community collection may be carried out in the area marked on AHIP Application Area-Lachlan River PSC Pump OS1 with PAD Attachment A in accordance with the conditions of this AHIP.

The community collection area includes the following known Aboriginal objects, as identified on AHIMS (excluding any Aboriginal objects described in Schedule A):

Portion of Site (whole or part)	AHIMS Site ID	Site Feature	Site Name	Information access restriction? (Y/N)	Easting	Northing	Datum
Part	43-3-0108	artefact	Lachlan River PSC Pump OS1	n	605849	6304754	GDA

Aboriginal Heritage Impact Permit

Section 90 of the *National Parks and Wildlife Act 1974*



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Schedule C: Aboriginal objects which may be harmed through the proposed works

The Aboriginal objects described in this schedule may be harmed, but only in accordance with the conditions of this AHIP (excluding any Aboriginal objects described in Schedule A).

C1 Harm of Aboriginal objects identified on AHIMS

Portion of Site (whole or part)	AHIMS Site ID	Site Feature	Site Name	Information access restriction? (Y/N)	Easting	Northing	Datum
Part	43-3-0108	artefact	Lachlan River PSC Pump OS1	<i>n</i>	605849	6304754	GDA

C2 Areas where harm of Aboriginal objects is authorised

All Aboriginal objects in, on or under the land which is identified on the map titled AHIP Application Area-Lachlan River PSC Pump OS1 with PAD in Attachment A marked by the areas shaded in yellow stripes as stated in the map legend.

DICTIONARY

In this AHIP, unless the contrary is indicated the terms below have the following meanings:

Aboriginal object	has the same meaning as in the Act.
Act	means the <i>National Parks and Wildlife Act 1974</i> .
AHIMS	means the Aboriginal Heritage Information Management System maintained by OEH, as defined in s.90Q of the Act.
AHIP	means Aboriginal Heritage Impact Permit
AHIP holder	means the entity or person listed on the cover page under the heading "AHIP issued to".
Application	means the completed application form and all other documents in written or electronic form which accompanied the application when it was lodged or which were subsequently submitted in support of the application.
Community collection	means the collection of Aboriginal objects by one or all Registered Aboriginal Parties or their representatives.
Community collection area	means an area described as a community collection area in Schedule B3
Harm	has the same meaning as in the Act. In relation to Aboriginal objects, harm means the movement, damage, defacement and/or destruction of Aboriginal objects. In relation to an Aboriginal place, harm means the damage, defacement and/or destruction of the Aboriginal place.
Land	means the land described under the heading "Land to which this AHIP applies".
No-harm areas	means those areas described in Schedule A3.
OEH	Office of Environment and Heritage (NSW).
OEH office	means the office listed on the cover page of this AHIP.
Proposed works	means the works described under the heading "D. Proposed Works" at the front of this AHIP.
Public register	means the public register established under s.188F of the Act, that contains details of AHIPs issued by the Chief Executive of OEH, as described under the heading "Information about this AHIP".
Registered Aboriginal Parties	means the Registered Aboriginal Parties listed in the application.
Salvage excavation	means an archaeological excavation carried out in accordance with the methodology accompanying the application, as modified by the conditions of this AHIP. The purpose of salvage excavation is to recover a sample of Aboriginal objects as an archival record of Aboriginal life from a site that will be destroyed.
Salvage excavation area	means any area described as a salvage excavation area in Schedule B2.
Test excavation	means an archaeological excavation carried out in accordance with

Aboriginal Heritage Impact Permit

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methodology accompanying the application, as modified by the conditions of this AHIP. The purpose of test excavation is to collect a sample of Aboriginal objects, in order to establish the nature and extent of sub-surface Aboriginal objects and to assist in the assessment of management options for the site.

INFORMATION ABOUT THIS AHIP

Public Register

Under section 188F of the Act, the Chief Executive of OEH is required to keep a public register containing the details of each AHIP issued. The details of this AHIP that will be published on the public register are outlined on the front page of this AHIP.

The public register is available online at www.environment.nsw.gov.au

Appeals

Under section 90L of the Act, the AHIP holder may appeal to the Land and Environment Court if they are dissatisfied with any condition of this AHIP. The appeal must be lodged within 21 days of the date this AHIP was issued.

Penalties for breach of the Act or AHIP condition

Significant penalties can be imposed by the Land and Environment Court for harm to an Aboriginal object or Aboriginal Place other than as authorised by a condition of an AHIP, or for a breach of an AHIP condition. OEH can also issue penalty notices for a breach of the Act or AHIP condition.

Responsibility for obtaining all approvals and compliance with applicable laws

The AHIP holder is responsible for obtaining and complying with all approvals necessary to lawfully carry out the work referred to in this AHIP, including but not limited to development consents.

Other relevant provisions of the *National Parks and Wildlife Act*

Newly identified Aboriginal objects must be notified to the Chief Executive of OEH under s.89A of the Act using the form available online at www.environment.nsw.gov.au

Stop work orders, interim protection orders and remediation directions may be issued in certain circumstances to protect Aboriginal objects or places.

Obligation to report Aboriginal remains under Commonwealth laws

The AHIP holder may have additional obligations to report any discovery of Aboriginal remains under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*.

Exercise of investigation and compliance powers

Officers appointed or authorised under the Act may exercise certain powers and functions, including the power to enter land.

Duration of AHIP

This AHIP remains in force for the period specified in the AHIP.

Variation of AHIP

The AHIP holder may apply to the OEH office for a variation of any conditions of an AHIP, using the AHIP variation application form available online at www.environment.nsw.gov.au. Requests for significant variations must be accompanied by evidence of further consultation with Registered Aboriginal Parties and may include payment of fees.

Aboriginal Heritage Impact Permit

Section 90 of the *National Parks and Wildlife Act 1974*



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The conditions of an AHIP may be varied at any time by the Chief Executive of OEH in order to correct a typographical error or to resolve an inconsistency between conditions. The AHIP holder may appeal a decision of the Chief Executive of OEH to vary the conditions of the AHIP.

Transfer of AHIP

The AHIP holder may apply to transfer this AHIP to another person by using the AHIP transfer application form available online at www.environment.nsw.gov.au.

Surrender of AHIP

The AHIP holder may apply to surrender this AHIP by using the AHIP surrender application form available online at www.environment.nsw.gov.au. The surrender must be approved by the Chief Executive of OEH and may be subject to conditions.

Suspension and revocation of AHIP

An AHIP may be suspended or revoked at any time at the discretion of the Chief Executive of OEH. Prior to suspending or revoking the AHIP, the AHIP holder will be given notice and an opportunity to make submissions. The AHIP holder will be notified in writing of the final decision. The AHIP holder may appeal a decision to revoke the AHIP.

Entry to land

An AHIP does not automatically entitle its holder to enter land for the purpose of conducting work related to the AHIP. The AHIP holder is responsible for obtaining permission to enter land from the owner and/or occupier of the land.

Disclosure of information pursuant to lawful requirement

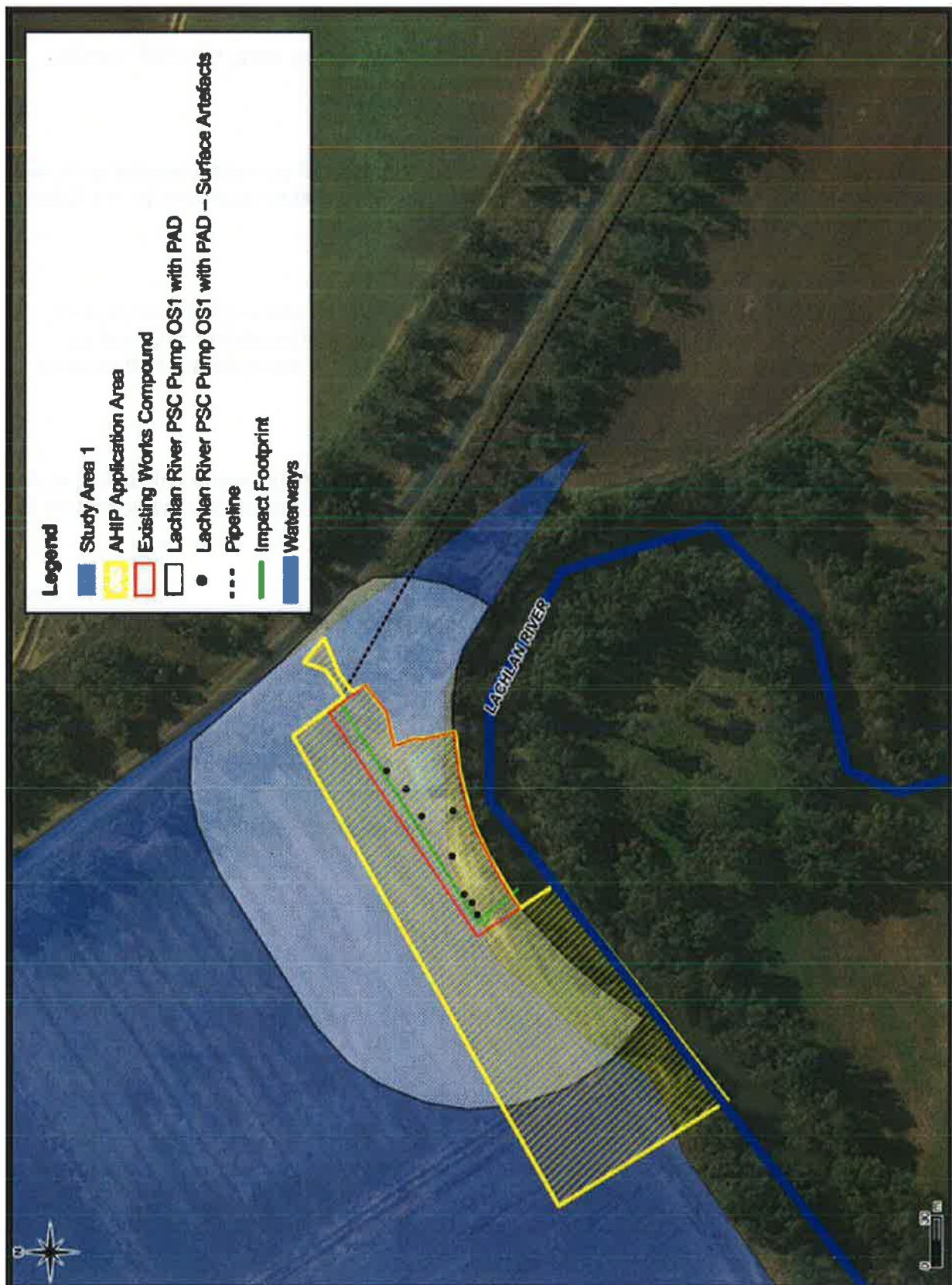
This AHIP does not prevent the disclosure of any information or document in OEH's possession in accordance with any lawful requirement.

Making copies of reports

By providing a report, the AHIP holder acknowledges that OEH can use the information in that report to inform its regulatory functions, note details of that report in AHIMS and include a copy of the report in its library which may be available to members of the public.

OEH is able to make copies of any reports provided to OEH under this AHIP.

APPENDIX A: AHIP Application Area - Lachlan River PSC Pump OS1 with PAD



Appendix D Summary of Environmental Safeguards

Soils and Erosion

Construction

- No vegetation outside the approved direct impact footprint is to be impacted or removed; vegetation that is not approved for clearance is to be protected to ensure soils are not exposed unnecessarily.
- Minimise the length of time that soils are exposed by stabilising as soon as practical by seeding, spreading mulch, or installing erosion control blanket as appropriate.
- All areas where groundcovers/vegetation are required to be removed will require careful management during construction due to the higher erosion risks, including:
 - Erosion and sediment (ERSED) control measures are to be implemented and maintained to:
 - prevent sediment moving off-site and sediment laden water entering any drainage lines, drain inlets, or dams; and
 - reduce water velocity and capture sediment on site.
 - ERSED controls are to be installed prior to the commencement of works and checked and maintained on a regular basis (including clearing of sediment from behind barriers).
 - ERSED control measures are not to be removed until the works are complete, and areas are stabilised.
- Monitoring and response actions with regard to ERSED controls will be incorporated within the Construction Environmental Management Plan (CEMP) for the Proposal, to be enforced by the appointed Contractor.
- Excavated areas are to be stabilized as soon as possible using the most appropriate combination of the following measures:
 - Hydromulching with appropriate native grass mixture and/or groundcover species,
 - Turfing with appropriate native grass mixture and/or groundcover species,
 - Seeding with appropriate native grass mixture and/or groundcover species; and/or
 - Revegetation using appropriate native tubestock or mature seedlings.
- The maintenance of established stockpile sites during construction is to be in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book) (Landcom 2004), including:
 - Stockpiles are recommended to be formed in accordance with the Blue Book Standard Drawing 4-1, and offsite/away from waterbodies.
 - Topsoil and subsoil are to be separated and protected from degradation, erosion or mixing with fill or waste. Materials are to be reused onsite where appropriate for infilling works, including re-spreading of topsoil as appropriate to enable rapid rehabilitation. Where onsite reuse cannot be accommodated, soil materials should be put to beneficial reuse elsewhere.
- If contaminated soils are encountered during construction, a site assessment is to be completed in accordance with Schedule A 'Recommended general process for assessment of site contamination' (NEPM 1999).
- If contaminated soils are encountered, they will be managed (and if necessary excavated, contained, treated and disposed of) in accordance with the law and relevant EPA and Council guidance.
- All chemical usage and storage during construction is to be in line with legislated requirements, to prevent Pollution of Land, which is prohibited under Section 142 A of the POEO Act.

Operation

- Monitoring of the site is to be undertaken to ensure ERSED controls remain in place until the site is re-stabilised, and to ensure no sediment is washed into any waterways following construction and before revegetation efforts are completed.
- Maintenance of vegetative cover on all exposed surfaces (not to be covered by road base/seal) to be undertaken to ensure the stability of soils on site into the future.
- Infill planting or additional spreading of appropriate native grass mixture and/or groundcover species to be undertaken until the entire site is stabilised.

Surface and Groundwater

Construction

- Works to be completed in dry times (i.e. times of no current or predicted rainfall) to reduce the risk of pollutants and sediments being washed into nearby waterways or other surface waters.
- Appropriate erosion and sediment (ERSED) controls are to be installed and maintained during construction, to ensure sediment and pollutant laden surface water runoff does not enter adjacent waterways/drainage lines.
- Water moving through the site during construction is to be managed appropriately so as to prevent sediment migration and subsequent pollution of waters:
 - If 'dirty' site water is collected from within the direct impact footprint, it is to be redirected to filtration devices to trap sediments and other pollutants, and dissipate flow velocities, prior to discharging to the surrounding environment. Drainage and runoff should be controlled in such a way that no foreign substrates or materials leave the site.
 - 'Clean' water from outside the study area is to be diverted around the site, to avoid contamination and to prevent scour/erosion of the site during rainfall events during construction.
- All litter, including cigarette butts and food wrappers, is to be collected in a suitable receptacle and disposed of appropriately throughout the construction phase to ensure these do not end up polluting waters or aquatic environments.
- Re-fuelling of plant and equipment is to occur offsite, or in impervious bunded areas located a minimum of 40 metres from drains, drainage lines or dams.
- Vehicle wash-down and/or cement truck washout (if required) is to occur offsite unless it forms part of sediment control, where it is to occur in a suitably bunded area with controlled run-off.
- Monitoring of water quality is to be undertaken within culverts/waterways downstream of the site during and immediately following rainfall events, to identify if ERSED controls are functioning as intended. Visual inspections should be undertaken by an appropriately qualified person/s to determine if water is turbid, or if there is evidence of petrochemicals or other pollutants present as a consequence of construction activities.
- Segregate and stockpile topsoil removed from the area a minimum of 40 m from any waterway and on a flat, stable area. Use measures such as silt fences and holding ponds to prevent stockpile runoff from entering waterways.
- Biosecurity and water health protection measures should be implemented throughout the construction phase, including:

- Machinery should arrive on site in a clean, washed condition, free of fluid leaks, pests and/or weeds/spores;
- Regular weed control should be undertaken in disturbed areas throughout the construction period to prevent weed spread into waterways, if notifiable/listed weed material is present; and
- Ensure all pesticide/herbicides used are registered for use within a waterway, as per NSW DPI guidelines. Alternatively, opt to remove weeds mechanically where possible.
- Spill response protocols for plant, equipment and chemicals used or stored on site during construction are to be available and accessible at all times to prevent and minimise potential for Pollution of Waters (s120 POEO Act).
- A Soil and Water Management Plan (SWMP) will be developed as part of the CEMP for the Proposal, detailing:
 - Water quality parameters to be adhered to (e.g. turbidity)
 - Appropriate monitoring locations and frequency
 - Location and types of ERSed controls
 - Proposed revegetation and stabilisation measures to be undertaken.

Operation

- Continue to undertake a water quality monitoring program in line with Council's requirements until all sites are completely stabilised; monitoring should include details of proposed baseline and downstream/dam water quality following any heavy rainfall.
- Subject site rehabilitation, including removal of weeds and revegetation using appropriate native species, is to be undertaken to ensure soil stability and prevention of sediment runoff from the site into the future. Revegetation must be maintained with a survival rate of >80%, as detailed in the CEMP.

Noise and Vibration

Construction:

- Noise emissions should be considered in terms of the Interim Construction Noise Guideline (ICNG) (Department of Energy and Climate Change (DECC) 2009).
- Noise impacts to the local community will be limited to recommended standard working hours as detailed in the Interim Construction Noise Guideline 2009 (ICNG). All activities and Proposal work, including the arrival and departure of vehicles delivering or removing materials to or from the site, shall be carried out between the hours of:
 - 7:00am to 6:00pm Monday to Friday,
 - 8:00am to 1:00pm Saturdays, and
 - No work Sunday and Public Holiday
- Communication of intentions and timeframes to sensitive receivers will be undertaken in order to minimise misconceptions, uncertainty and negative reactions to noise. The site supervisor should supply a contact number to aid in community liaison.
- All noise and vibration complaints are to be handled in a timely manner in accordance with requirements under the POEO Act.
- The appointed contractor will incorporate Noise and Vibration Management strategies in the CEMP, and suitably induct all staff operating machinery on the site to ensure the standard working hours are

adhered to, and that machinery movement (revving, reverse beepers) is kept to a minimum. This management plan must include the general noise and vibration management practices (AS 2436-2010).

- Plant deliveries and site access will occur quietly and efficiently, with parking allowed only within designated areas located away from nearby sensitive receivers.
- Simultaneous operation of high-level noise generating machinery should be avoided by operating at contrasting times or increasing the distance between the plant and the nearest identified receiver.
- High noise generating activities, should be carried out in continuous blocks, not exceeding three (3) hours with a minimum respite period between blocks of one (1) hour.
- Low-pitch tonal beepers should be installed where possible and reversing minimised on site.
- All engine covers are to be closed and machines that are not in use, shut down.
- Where possible, high noise generating activities such as loading and unloading and material dumps should be located as far as possible from the nearest receptors.
- Works should be timed to avoid prime breeding season (Spring) for the majority of native species residing in the area, and excessive noise and vibration can impact upon native species breeding habits and life cycles.

Air Quality

Construction

- Daily visual construction dust monitoring should occur, with works to cease if dust plumes are occurring that have potential to impact areas outside the direct impact footprint.
- Speed limits of 40 km / hr or slower are to be enforced on access tracks and across the site during dry weather to keep dust to a minimum.
- An adequate water supply is to be provided on the construction site for effective dust/particulate matter suppression/mitigation. If synthetic dust suppressants are used, they must be biodegradable in nature and non-toxic for waterways.
- Earthworks and exposed areas/soil stockpiles are to be revegetated using appropriate native species to stabilise surfaces as soon as practicable to reduce risk of dust emissions from wind erosion.
- Only vegetation that has been approved for removal may be removed or otherwise impacted; intact vegetation stabilises soils and keeps dust to a minimum.
- Vegetation and other materials are not to be burnt on site, unless the vegetation material is a weed that prohibits transportation and disposal by other means.
- Vehicles transporting waste or other materials that may produce odours or dust are to be covered during transit.
- Tracking of machinery carrying soil/spoil through nearby townships is to be avoided where possible.
- Stockpiles or areas that may generate dust are to be managed to suppress dust emissions.
- Dampening of exposed soils will be undertaken during weather conditions conducive to visible dust formation.
- Construction plant and equipment will be maintained in a good working condition in order to limit impacts on air quality through vehicle emissions.
- Fuel operated plant and equipment will not be left idle when not in use.
- Regular site inspections will be undertaken as part of air quality monitoring, and inspection results recorded by Council's Principal Contractor.

- Any dust complaints received during construction will be duly investigated in accordance with Council's requirements under the POEO Act.
- Any exceptional incidents that cause dust and/or air emissions, either on or off site, will be recorded, and the action taken to resolve the situation recorded in the site management logbook.

Operation

- Any exposed areas revegetated during construction are to be monitored and maintained until the areas are fully stabilised to reduce risk of erosion and dust emissions, as well as dust settling on nearby native vegetation and waterbodies.

Non-Aboriginal Heritage

- The proposed works must be contained to the area assessed during the construction. If the proposed location is amended, further archaeological assessment may be necessary to determine if the proposed works will impact any items of historical significance.
- If archaeological remains or items defined as relics under the NSW Heritage Act 1977 are uncovered during the works, all works must cease in the vicinity of the material/find and Council's Manager Strategic Planning and Environmental Officer are to be contacted immediately.
- Council's workers and all staff must be made aware of the heritage sites and place that occur within the area and all care must be taken to avoid interference with and damage to these sites.
- Any newly discovered heritage sites must be clearly fenced/flagged with removable flagging or other temporary means to delineate their presence and in order to prevent them being harmed during the construction process.

Aboriginal Heritage

- All land ground disturbance activities must be confined to within the subject site as this will reduce the risk of harm to Aboriginal objects in adjacent landforms. Should the parameters of the Proposal extend beyond the assessed areas, then further archaeological assessment is required.
- For the unsurveyed area shown in Figure 9, Council will require additional assessment in accordance with the Aboriginal 'Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales' of this unsurveyed area prior to works proceeding.
- All staff and contractors involved in the proposed work should be made aware of the legislative protection requirements for all Aboriginal sites and objects and the conditions stipulated in AHIP C001096 (Appendix C).
- All staff and visitors should be inducted to site to ensure they are aware of the possible presence of sensitive Aboriginal heritage items located within the vicinity of the work site, and the protective measures that should remain in place throughout the works.
- Should unanticipated archaeological material be encountered during site works, all work must cease and an archaeologist contacted to make an assessment of the find. Further archaeological assessment and Aboriginal community consultation may be required prior to the recommencement of works. Any objects confirmed to be Aboriginal in origin must be reported to Heritage NSW
- If during works Aboriginal artefacts or skeletal material are noted, all work should cease and the procedures in the Unanticipated Finds Protocol (OzArk, 2024) should be followed.
- If any human remains are found, all works should stop immediately, the site should be secured and NSW police contacted immediately.

- The information in the various ADD reports meets the requirements of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. They should be retained as shelf documentation for five (5) years as they may be used to support a defence against prosecution in the event of unanticipated harm to Aboriginal objects.
- Specific management measures for the archaeological items recorded within the study area are as follows:

Escort Way St 1 and the Community Interest Tree

- Both sites are within close proximity, but can be avoided by the proposed works. To ensure that the risk of inadvertent harm to the site and the community interest tree is minimised, the following management measures should be adhered to during works:
 - The northern boundary of the works area on the eastern side of the Escort Way should be demarcated by temporary, high visibility flagging to contain all construction activities. The fencing alignment shown on Figure 4-1 in the OzArk 2023b ADD is preferable as it does not identify Escort Way ST 1 as an Aboriginal object that is visible from the road, which reduces the risk of vandalism.
 - The location of Escort Way ST 1 and the community interest tree should be marked on all construction plans and the CEMP as no-go areas.
 - Fencing to contain the construction area per Figure 4-1 in OzArk, 2023 will also facilitate the avoidance of the community interest tree.

Site 43-3-0108 and AHIP C001096

- The AHIP C001096 is valid until 25/05/2025. If works proceed after this date, further assessment and consultation with Heritage NSW is required.
- Any works undertaken within the boundary of AHIP C001096 must be conducted in accordance with the conditions of the permit. As the proponent, PSC, is the holder of this AHIP it will be their responsibility to ensure that the works comply.
- Council must engage with Traditional Owners / RAPs so that they supervise excavation works to ensure the controls in the AHIP are followed and any unexpected finds can be managed with community members present.

Biodiversity

Timing of vegetation clearing

- Where practicable, it is recommended to time the works outside of key breeding season (Spring) for the majority of native species likely to utilise the site for breeding to avoid nest abandonment, injury or death to native fauna.

Vegetation removal

- Clearly delineate vegetation to be removed/retained by a qualified arborist with the assistance of an ecologist, or similarly qualified professional, and induct all site personnel as to the approved extent of clearing. Ensure that no clearing of vegetation occurs outside of the marked boundary and retain mature trees and overhanging limbs wherever possible.

- Where any additional vegetation removal is proposed this must first be assessed to consider the cumulative impacts against the approved clearance footprint, and if appropriate supervised by a qualified ecologist.

Rehabilitation

- Any required revegetation activities will be undertaken using native species sourced from local seed wherever possible. Areas to be re-seeded may be marked in the CEMP as a record of rehabilitation efforts made. Vegetation cover should be returned to the site within a reasonably practicable timeframe post clearing to reduce soil exposure and loss.

General

- Vehicles and machinery to work from the sealed road and are not to extend beyond the direct impact footprint.
- All soils to be stockpiled at designated stockpile locations away from waterways, drainage lines and native vegetation in a cleared area, within pre-approved zones. Ensure these are appropriately stabilized in accordance with the 'Blue Book' (Landcom 2004).
- Appropriate erosion and sediment migration reduction/control measures should be in place.
- Where possible, heavy vehicles are not to be parked under tree drip lines/ leaf canopy to avoid compaction of soil, which is damaging to mature native trees and can cause dieback or tree mortality. Existing verges and cleared areas are to be used for parking as a first priority.
- All machinery and vehicles are to be clean and inspected prior to arriving on-site to reduce the spread of weeds and disease (e.g. *Phytophthora cinnamomi*) to the site.
- Strict hygiene protocols, including vehicle inspections, washdown and toolbox talks addressing weed management, must be followed to ensure that no environmental weeds spread around during works or are introduced to site as a result of the proposed works. If weeds are accidentally transported to site, or identified during construction activities, all weed material should be immediately contained and removed from site.
- Declared weeds must be managed according to requirements under the *Biosecurity Act 2015*. It is recommended that all Weeds of National Significance should be managed to ensure they do not spread, and where possible eradicated.

Operation

- Ongoing monitoring of planted vegetation will be undertaken to ensure adequate survival rates and to identify whether infill plantings should be undertaken.

Traffic and Transport

Construction

- Prior notice shall be given to landowners along The Escort Way to notify residents of the works to be completed, their timing and duration. Notification can be provided by various means including letterbox distribution, local paper (the Forbes Advocate) and through the FSC website. All consultation and notification should occur with enough time before works to allow residents to modify their travel plans if desired (1 – 2 weeks prior to commencement).

- Council's appointed contractor will consider the location of designated parking areas, stockpile locations, construction laydown sites, site offices, and access routes carefully in consideration of creating inconveniences to local residents, and to the other environmental constraints. Any areas additional to those outside the mapped and considered areas as discussed within this REF will need to be assessed for additional and cumulative impacts prior to being established as part of the Proposal.
- A Traffic Control Plan (TCP) is to be developed in accordance with Australian Standards (AS 1742.3 – Traffic Control Devices for Works on Roads) and Roads and Maritime Traffic Control at Worksites manual to identify appropriate signage (and location) to advise motorists of upcoming changes in the road network. Any variation to the layout of the TCP on site is to be recorded and certified by accredited Roads and Maritime personnel.
- All road signs and marking will be in accordance with the TfNSW Guide to Signs and Markings; Australian Standards AS1742 and AS1743; and the Australian Roads Guide to Traffic Management.
- Traffic and transport complaints are to be monitored and addressed promptly where practicable.
- A Section 138 Permit under the *Roads Act 1993* must be obtained prior to construction activities commencing.

Operation

No further safeguards are considered necessary for the operational phase of the Proposal.

Socio-economic considerations

- Considerate construction practices are to be implemented at all times during works, including the construction site is to be left in a clean and tidy manner at the end of each workday, and noise, air quality and visual amenity impacts are to be kept to a minimum.
- All materials purchased for the Proposal are to be of highest quality and most sustainable as possible, to reduce impacts to community and ratepayers through replacement of low-quality or faulty equipment in the future.
- Quality assurance is to be applied to all aspects of the Proposal, including design and construction to ensure best value for the local community.
- Disruption of traffic/private property access is to be minimised wherever possible and clear communication and planning between construction crew and landowners is to be undertaken.
- Community engagement is to be undertaken to obtain feedback on concerns, and address issues as they arise.
- Construction machinery and work vehicles to be discretely parked when not in use to reduce visual impact and ensure safe pullover is available where possible.

Waste and resource use

- Resource management hierarchy principles are to be followed; namely, the avoidance, reduction, reuse and recycling of resources.
- If stockpile or laydown sites are required in locations that have not been considered as occurring within the impact footprint as part of this REF, additional approval/assessment may need to be sought prior to any clearing taking place.
- Requirements under the Landcom (2004) stockpile management procedure must be observed, including correct placement of earth banks (with sedimentation ponds) to divert water around

stockpiles if placed on a slope, and/or filter fences erected below stockpiles to capture any sediment moving offsite.

- Bulk project waste (e.g. clean virgin excavated natural material or clean fill) sent to a site not owned by Council (excluding DPIE licensed landfills) for land disposal is to have prior formal written approval from the landowner.
- Waste is not to be burnt on site and all general waste will be contained and disposed of at suitable waste facilities.
- Where possible, materials with recycled content will be sourced, and minimum quantities ordered to reduce wastage.
- If contamination is encountered during construction, a site assessment must be undertaken in accordance with the Protection of the Environment Operations Act 1997 (POEO Act).
- Toilets will be provided for construction workers for the duration of the works to prevent human wastes entering the waterway.
- Waste management for construction projects should be undertaken in accordance with the NSW Waste Avoidance and Resource Recovery Act 2001. The objectives of the Act are:
 - To encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of Ecologically Sustainable Development (ESD),
 - To ensure that resource management options are considered against a hierarchy of the following order: Avoidance of unnecessary resource consumption, Resource recovery (including reuse, reprocessing, recycling and energy recovery), Disposal.
 - To provide for the continual reduction in waste generation,
 - To minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,
 - To ensure that industry shares with the community the responsibility for reducing and dealing with waste,
 - To ensure the efficient funding of waste and resource management planning, programs and service delivery,
 - To achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis,
 - To assist in the achievement of the objectives of the *Protection of the Environment Operations Act 1997*.
- Don't over-order – ensure quantities are carefully calculated and ordered so as to minimise waste. Where construction materials are leftover, these are to be beneficially used on other projects, or stored by Council until such a need arises.

Visual Amenity

- Considerate construction practices are to be implemented at all times, to ensure the works areas are neat and visually not offensive, including to be kept free from rubbish, and stockpile sites actively managed.
- No additional, unauthorised clearing or destruction of vegetation is to occur.
- Vehicles are to be parked in designated areas only.
- Cleared, bare patches of ground that form part of the works are to be revegetated and restored following cessation of works.

- Obvious and intrusive signs/machinery/equipment are to be removed from the site at the first opportunity.
- Appropriate consultation will continue to be undertaken to inform businesses and residents of planned works, timing, and potential visual impacts.
- Any complaints received regarding visual amenity at the site are to be dealt with and rectified as soon as possible.

Operation

- Cleared, bare patches that form part of the works are to be revegetated and restored following cessation of works.
- Obvious and intrusive signs/machinery/equipment are to be removed from the site at the first opportunity.
- Any complaints received regarding visual amenity at the site are to be dealt with and rectified as soon as possible.
- Any impacts to property entrances, driveways or fencing are to be rectified in collaboration with the landholder/s as soon as possible, post completion of works in the vicinity.

Climate Change

Construction

- Resource management hierarchy principles are to be followed:
 - Avoid unnecessary resource consumption as a priority.
 - Avoidance is followed by resource recovery (including reuse of materials, reprocessing, recycling and energy recovery); and
 - Disposal is undertaken as a last resort (in accordance with the Waste Avoidance & Resource Recovery Act 2001).
- Council may elect to make a contribution to an accredited carbon offset program to offset greenhouse gas emissions.
- Quality assurance and life cycle of materials are to be considered when purchasing, to ensure the newly built infrastructure is resilient and structurally sound.
- Local resources are to be used wherever possible, to reduce waste and increase efficiencies and to encourage local economies with fewer 'carbon miles'.

Operation

Operation of the pipeline and solar arrays is to be monitored and maintained per Council's routine management/maintenance strategy, to ensure lifecycle of infrastructure features extended and to reduce wastage from neglect / inadequate maintenance