



Wilcannia Water Treatment Plant Review of Environmental Factors

Report Number: P-FY20220669/1 November 2021

> Prepared For Central Darling Shire Council





Trim Project No. DIR20/823 Report Number: P-FY20220669/1

Document Control

Vorsion	Author	Reviewer	Approved for Issue	
version			Name	Date
Draft v1	Mitch Pearce	Kristen Parmeter	Liz Mathieson	08.11.2021
Draft v2	Mitch Pearce	Kristen Parmeter	Liz Mathieson	15.11.2021
Final	Mitch Pearce	Kristen Parmeter	Liz Mathieson	25.11.2021

Mitch Pearce Environmental Scientist

Public Works Advisory, 4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150 Locked Bag 5022, Parramatta NSW 2124

p 02 6648 2000

e mitch.pearce@finance.nsw.gov.au | w www.publicworksadvisory.nsw.gov.au

Cover photo: Google Maps Street View, accessed October 2021

© Crown in right of the State of NSW through the Department of Regional NSW 2021

This publication is copyright and may incorporate material to which an individual maintains moral rights. Other than for the purposes of and subject to the conditions prescribed under the Copyright Act 1968, no part of it may, in any form or by any means, be reproduced, altered, manipulated, stored in a retrieval system or transmitted without prior written consent of the copyright owner or owner of moral rights. Any enquiries relating to consents and use of this publication, including by NSW Government agencies, must be addressed to Public Works Advisory.

While this document has been formulated with all due care, the State of New South Wales does not warrant or represent that the document is free from errors or omissions, or that it is exhaustive. The State of NSW disclaims, to the extent permitted by law, all warranties, representations or endorsements, express or implied, with regard to this document including but not limited to, all implied warranties of merchantability, fitness for a particular purpose, or non-infringement. The State of NSW further does not warrant or accept any liability in relation to the quality or accuracy of this document and no responsibility is accepted by the State of NSW for the accuracy, currency, reliability and correctness of any information in this document provided by the client or third parties.

All references to Public Works Advisory are taken to be references to the Department of Regional NSW for and on behalf of the State of New South Wales.

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Declaration

This Review of Environmental Factors (REF) has been prepared by Public Works Advisory, Department of Regional NSW on behalf of the Central Darling Shire Council. The report presents the assessment of potential impacts that may result from activities associated with the Proposal to construct and operate a new Water Treatment Plant (WTP) to replace the existing Wilcannia WTP that was built in the 1980's and is reaching the end of its design life. All works would be carried out within the boundary of the existing Wilcannia WTP site.

The Central Darling Shire Council is a public authority and a determining authority as defined in the *Environmental Planning & Assessment Act 1979* (EP&A Act). The Proposal satisfies the definition of an activity under the Act, and as such, Central Darling Shire must assess and consider the environmental impacts of the Proposal before determining whether to proceed.

This REF has been prepared in accordance with Sections 5.5 and 5.7 of the EP&A Act and Clause 228 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Reg). It provides a true and fair assessment of the proposed activity 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 proposed activity.

On the basis of this REF it is concluded that:

- (1) the proposed activity is not likely to have a significant impact on the environment. An Environmental Impact Statement (EIS) is not required.
- (2) the proposed activity is not likely to significantly affect threatened species, populations, ecological communities, or critical habitat. A Species Impact Statement (SIS) is not required.
- (3) the proposed activity is not likely to affect or being carried out on any Commonwealth land, or significantly affect any Matters of National Environmental Significance.

The proposed activity is recommended to proceed, subject to implementation of measures to avoid, minimise or manage environmental impacts listed in this REF.

Author & Qualifications Mitch Pearce B.Env.Sc, LLB		
Designation	Environmental Scientist	
Reviewer & Qualifications	Kristen Parmeter B.Sc (hons)	
Designation	Environmental Scientist	
Organisation	Public Works Advisory, Department of Regional NSW	
Signature	K Pat	
Date	25.11.2021	

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



Verification and Determination

Verifier

I have examined this REF and the Declaration by Mitch Pearce (the author) and accept the report on behalf of Central Darling Shire Council (the proponent).

Name	
Designation	
Organisation	
Signature	

Determination

I accept the report and determine that the activity may proceed.

Name	
Designation	
Organisation	
Signature	



Executive Summary

This REF has been prepared by Public Work Advisory, Department of Regional NSW on behalf of the Central Darling Shire Council. The REF presents the investigations undertaken into the environmental impacts that may result from activities associated with the Proposal to construct and operate a new WTP to replace the existing Wilcannia WTP within the same site. The objective of the Proposal is to replace Wilcannia's existing WTP that was built in the 1980's and is reaching the end of its design life.

Project Summary

The Wilcannia WTP site is located in north western New South Wales within the Central Darling Shire local government area (LGA) at 16-34 Hood Street, Wilcannia (Lot 1 DP 807546).

The proposed new WTP facility would consist of the following:

- New WTP infrastructure and plant building (single storey including control and plant rooms, laboratory, dosing and chlorine rooms)
- Two new clearwater tanks and pumps
- Refurbishment and upgrade of two existing sedimentation lagoons
- New onsite access road
- New gates and fencing (as required)

The proposed new Wilcannia WTP would increase the water security, reliability and quality for the Wilcannia community.

Environmental Planning

The applicable environmental planning instrument for the Proposal is *State Environmental Planning Policy (Infrastructure) 2007* (SEPP (Infrastructure) 2007). Clause 125(3A) of SEPP (Infrastructure) 2007 allows development for the purpose of water treatment facilities undertaken by or on behalf of a public authority to proceed without consent on land in a prescribed zone, defined in clause 124 of SEPP (Infrastructure) 2007.

The Proposal meets the provisions of SEPP (Infrastructure) 2007 and can proceed without the need to obtain development consent. Central Darling Shire Council is the determining authority for the activity.

Impacts and Mitigation

A number of short-term construction impacts associated with noise, dust, traffic and waste management are predicted. It has been assessed that these impacts can be managed to avoid or minimise impacts to the environment through the implementation of appropriate mitigation measures.

The Proposal would not significantly affect any Aboriginal heritage sites, listed threatened species, fauna populations or communities provided appropriate mitigation measures are implemented.

Based on the outcomes of the assessment presented in this REF, it is concluded that by adopting the identified safeguards, the Proposal is unlikely to result in significant adverse environmental impacts.



Contents

ABBF	REVIA	ATIONS	IX
1.	Ιντι	RODUCTION	1
	1.1	Background and Proposal Objectives	1
	1.2	Overview of the Proposed Works	1
	1.3	Land Ownership	2
2.	2. STATUTORY FRAMEWORK		3
	2.1	Environmental Planning Instruments	3
		 2.1.1 Central Darling Local Environmental Plan 2012 2.1.2 State Environmental Planning Policy (Infrastructure) 2007 2.1.3 State Environmental Planning Policy (Koala Habitat Protection) 2021 	3 4 4
	2.2	Relevant Legislation	4
		2.2.1 Environmental Planning and Assessment Act 1979 (NSW)2.2.2 Local Government Act 1993	4 5
		2.2.3 Work Health and Safety Act 2011 & Regulation 2017	5
		2.2.4 Protection of the Environment Operations Act 1997 (NSW)	5
		2.2.6 National Parks and Wildlife Act 1974 (NSW)	6
		2.2.7 Water Management Act 2000 (NSW)	7
		2.2.8 Biodiversity Conservation Act 2016 (NSW)	7
		2.2.9 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth	h)7
	23	2.2.10 Native Title Act 1993 (Commonwealth)	8
	2.5	Agency Consultation	9
3	NE		11
5.	3 1	Evisting Infrastructure and Water Quality Issues	11
	5.1	3.1.1 Existing Water Treatment Plant	11
		3.1.2 Wilcannia WTP Water Quality Issues	14
	3.2	Option Evaluation	16
		3.2.1 Option 1- Do Nothing	16
		3.2.2 Option 2: Upgrade Existing WTP	16
		3.2.3 Option 3: Construct New WTP3.2.4 Preferred Option	17 17
4.	Pro	DPOSAL DESCRIPTION	18
	4.1	Description of the Proposed Works	18
	4.2	Description of the Works	22
	4.3	Construction Methodology	25
		4.3.1 Construction Equipment	25
		4.4 Construction Environmental Management	25
5.	EN	/IRONMENTAL ASSESSMENT	27

Public Works Advisory

Wilcannia WTP

Review of Environmental Factors

5.1	Assessment Methodology	27
5.2	Location and Land Use	27
	5.2.1 Construction Impacts	28
	5.2.2 Operational Impacts	28
F 0	5.2.3 Mitigation	28
5.3		29
	5.3.1 Construction Impacts	29
	5.3.2 Operational impacts	32
5.4	Traffic and Access	32
	5.4.1 Construction Impacts	33
	5.4.2 Operational Impacts	33
	5.4.3 Mitigation	33
5.5	Air Quality	34
	5.5.1 Construction Impacts	34
	5.5.2 Operational Impacts	35
5.6	5.5.3 Mitigation	35
5.0	Solis, Geology and Water	30
	5.6.1 Construction impacts	30 36
	5.6.3 Mitigation	37
5.7	Flora and Fauna	38
	5.7.1 Construction Impacts	39
	5.7.2 Operational Impacts	39
	5.7.3 Mitigation	39
5.8	Waste Management	40
	5.8.1 Construction Impacts	40
	5.8.2 Operational impacts	40 40
5.9	Visual Amenity	41
	5.9.1 Construction Impacts	41
	5.9.2 Operational Impacts	41
	5.9.3 Mitigation	41
5.10	DAboriginal Heritage	41
	5.10.1 Construction Impacts	42
	5.10.2 Operational Impacts	43
51	5.10.3 Mitigation	43 43
5.1	E 11.1 Construction Imposts	40
	5.11.1 Construction impacts	43 43
	5.11.3 Mitigation	43
5.12	2Hazards and Risks	44
	5.12.1 Operational Impacts	44

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1

Wilcannia WTP

44

46

46

47

47

48

51

53

53

55

55

56

58

59

60

62

63

64



Table 5-3 Aboriginal Heritage Desktop - Database Search Results	42
Table 5-2 Summary of Relevant Vibration Criteria	31
Table 5-1 Construction Equipment Sound Power Level	29
Table 4-1: Wilcannia WTP Water Quality Goals	20
Table 3-1 Summary of water quality data at Treated Water Reservoir	14

6.2.2 Noise and Vibration 6.2.3 Traffic and Access 6.2.4 Air Quality 6.2.5 Water Quality and Erosion and Sediment Control 6.2.6 Flora and Fauna 6.2.7 Waste Management 6.2.8 Visual Amenity 6.2.9 Heritage 6.2.10 Hazards and Risks 7. **CONCLUSIONS** 8. REFERENCES **APPENDIX A – CONSIDERATION OF CLAUSE 228** APPENDIX B – PLANS **APPENDIX C – CONSULTATION RESPONSES APPENDIX D – FLORA AND FAUNA AND AHIMS SEARCH RESULTS**

LIST OF FIGURES

Public Works Advisorv

6.

5.12.2 Mitigation Measures

6.1 Construction Environmental Management Plan

6.2 Environmental Management Measures

6.2.1 Location and Land Use

ENVIRONMENTAL MANAGEMENT

Figure 1-1 Location Map of Wilcannia	1
Figure 1-2: Aerial view of Wilcannia WTP (outlined in red)	2
Figure 2-1: Wilcannia WTP site land zoning under the Central Darling LEP 2012	3
Figure 3-1: Process Flow Diagram of Wilcannia WTP	13
Figure 4-1: Wilcannia WTP Process Flow Diagram	21
Figure 4-2: Wilcannia WTP General Arrangement	24

Table 2-1 Summary of Approvals and Requirements9 Table 2-2 Agency Consultation9

LIST OF TABLES

PAGE

49 50

PAGE



Abbreviations

ADWG	Australian Drinking Water Guidelines	
ARI	average recurrence interval	
BC Act	Biodiversity Conservation Act 2016	
Council	Central Darling Shire Council	
CEMP	Construction Environmental Management Plan	
d	day	
EES	The Environment, Energy and Science Group of DPIE (formerly OEH)	
EP&A Act	Environmental Planning and Assessment Act 1979	
EP&A Regulation	Environmental Planning and Assessment Regulation 2000	
EPA	Environment Protection Authority	
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999	
EPL	Environmental Protection License	
ESCP	Erosion and Sediment Control Plan	
GAC	Granular Activated Carbon	
kL	kilolitre	
L	litre	
LALC	Local Aboriginal Land Council	
LEP	Local Environmental Plan	
LGA	Local Government Area	
OEH	Office of Environment and Heritage (now EES)	
OEMP	Operation Environmental Management Plan	
PFD	Process Flow Diagram	
POEO Act	Protection of The Environment Operations Act 1997	
PWA	Public Works Advisory	
S	second	
SEPP	State Environmental Planning Policy	
TMP	Traffic Management Plan	
UF	Ultra Fine	
WHS	Work, health and safety	
WM Act	Water Management Act 2000	

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



WMP	Waste Management Plan
WTP	Water Treatment Plant
yr	year

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



1. Introduction

1.1 Background and Proposal Objectives

The Wilcannia WTP is located in the remote north west of New South Wales within the Central Darling Shire Council Local Government Area (LGA) at 16-34 Hood Street, Wilcannia (Lot 1 DP 807546). The Wilcannia WTP was constructed in the 1980's and uses conventional treatment processes including coagulation, flocculation and sedimentation, followed by filtration. A chain mesh and barbed wire security fence is located along the property boundary to prevent unauthorised access to the WTP site. The existing WTP is managed and operated by the Central Darling Shire Council (Council).

The Wilcannia WTP is reaching the end of its design life and Council have identified the need to replace the existing Wilcannia WTP with a new WTP, to meet key water quality targets for the supply of water to the Wilcannia community. The new WTP would be a membrane filtration WTP with additional processes capable of treating 1.2 ML/d of water.

The location and aerial views of Wilcannia and the WTP are provided in Figure 1-1 to Figure 1-2.

1.2 Overview of the Proposed Works

The proposed WTP facility would consist of the following:

- New WTP infrastructure and plant building (single storey including control and plant rooms, laboratory, dosing and chlorine rooms and new oxidation, flocculation, clarification and filtration units/tanks)
- Two (2) upgraded sedimentation lagoons (sludge lagoons) with increased capacity, approximately 16 m x 60 m area (per lagoon) in plan
- A new clearwater tank and pumps
- New onsite access road
- New gates and fencing (as required)

The individual components of the WTP facility are discussed further below.

Plant Building

The WTP building would be a one story brick and Colorbond building $(15m (L) \times 10m (W) \times 5m (H))$. The plant would be suitable for unattended operation, designed for a fail-safe operation, and during power failure would restart automatically on resolution of power.

This building would house the following:

- Control room (including thermal insultation and air-conditioning);
- Membrane filtration;
- All mechanical equipment including air blowers, air compressors, feed pumps, etc;
- All electrical switch boards and control panel for the WTP;

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



- Laboratory space;
- Amenities (single shower and accessible toilet with a separate entrance, and a wash basin); and
- Chlorination system.

Tanks and Pump

A poly clear water tank with a minimum capacity of 150 kL would be provided at the WTP site to balance the flow distribution from the WTP to the town reservoirs.

A new clear water pump would be provided to pump the treated water from the WTP to the town reservoir and to the reticulation. Clear water from these pumps would be connected to the existing clearwater rising main by cutting into the pipeline at a suitable location on the WTP site.

Sedimentation Lagoons

The two existing sedimentation (sludge) lagoons for water treatment wastewater collection purposes would be refurbished and upgraded to increase their storage capacity. The upgraded lagoons would each be approximately 16 m x 60 m in size (comprising a 972 m² area per lagoon), with a combined 3,490 m³ capacity.

Access Road

The contractor would provide an all-weather access road within the WTP site. The access road would be designed to accommodate the loadings and access for large, non-articulated chemical delivery trucks.

Gates and Fencing

A man proof chain link security fence would be maintained around the proposed new WTP.

One (1) 8 m double leaf mechanically operated gate would be provided at the main entrance to the site.

1.3 Land Ownership

The Wilcannia WTP (Lot 1 DP 807546) is on land owned by the Central Darling Shire Council.



Wilcannia WTP



Review of Environmental Factors

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Wilcannia WTP

Review of Environmental Factors



Figure 1-2: Aerial view of Wilcannia WTP (outlined in red)

Source: SIX Maps, accessed September 2021

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1





2. Statutory Framework

This section presents the statutory planning and strategic policy context for the Proposal.

2.1 Environmental Planning Instruments

2.1.1 Central Darling Local Environmental Plan 2012

The Wilcannia WTP is located within the Central Darling LGA. The Wilcannia WTP is located on land zoned SP2 Infrastructure (Water Treatment) under the *Central Darling LEP 2012*, as shown in Figure 2-1.

The objectives of the SP2 Infrastructure zone are:

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

Development for the purpose of water treatment systems is permissible with consent under this zoning.



Figure 2-1: Wilcannia WTP site land zoning under the Central Darling LEP 2012 *Source: Central Darling LEP 2012 Land Zoning Map – Sheet LZN_006A*

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



However, as discussed in Section 2.1.2 below, the SEPP (Infrastructure) 2007 is the relevant planning instrument for the proposed works and as such the planning provisions of the LEP do not apply. Furthermore, Clause 5.12(1) of the LEP states that the LEP does not restrict or prohibit, or enable the restriction or prohibition of, the carrying out of any development, by or on behalf of a public authority, that is permitted to be carried out with or without development consent, or that is exempt development, under SEPP (Infrastructure) 2007.

2.1.2 State Environmental Planning Policy (Infrastructure) 2007

SEPP (Infrastructure) 2007 aims to assist in the effective delivery of public infrastructure throughout the State by improving certainty and regulatory efficiency through a consistent planning assessment and approvals regime for public infrastructure and services across NSW. The SEPP provides clear definition of environmental assessment and approval process for public infrastructure and services facilities.

Clauses 125(3A) of SEPP (Infrastructure) 2007 allows development for the purpose of water treatment facilities by or on behalf of a public authority to proceed without consent on land in a prescribed zone. Prescribed zones are defined in clause 124 and include SP2 Infrastructure. The Wilcannia WTP is located on SP2 zoned land and therefore meets the requirements under clause 125(3A) and can proceed without the need to obtain development consent.

2.1.3 State Environmental Planning Policy (Koala Habitat Protection) 2021

The State Environmental Planning Policy (Koala Habitat Protection) 2021 (SEPP (Koala Habitat Protection) 2021) aims to encourage the conservation and management of areas of natural vegetation that provides habitat for koalas to support a permanent free-living population over their present range and reverse the current trend of koala population decline. SEPP (Koala Habitat Protection) 2021 does not apply to proposals assessed under Part 5 of the EP&A Act, however, it has been taken into consideration for this REF.

The Council is listed under Schedule 1 of the SEPP (Koala Habitat Protection) 2021, however, the Wilcannia WTP is located on land that has been heavily disturbed and is unlikely to constitute 'Core Koala Habitat' so the provisions of SEPP (Koala Habitat Protection) 2021 would not apply to the Proposal.

2.2 Relevant Legislation

2.2.1 Environmental Planning and Assessment Act 1979 (NSW)

The applicable environmental planning instrument for the works is SEPP (Infrastructure) 2007, which provides the permissibility for the proposed development (refer to Section 2.1.2). As the SEPP (Infrastructure) 2007 removes the need for development consent for the proposed Wilcannia WTP upgrade, these works would be assessed under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Council is the proponent and the determining authority for the Proposal.

This REF has been prepared in accordance with Section 5.5 and 5.7 of the EP&A Act, which requires that the proponent take into account, to the fullest extent possible, all matters affecting or likely to affect the environment due to the proposed activity. Consideration of the factors listed under Clause 228 of the *Environmental Planning and Assessment Regulation 2000*

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



(EP&A Reg) has been used to assist in assessing the significance of the project, and is provided in Appendix A.

2.2.2 Local Government Act 1993

Section 60 of the *Local Government Act 1993* (LG Act) states that approval is required from the Department of Planning, Industry and Environment – Water (DPIE - Water) to construct or extend water treatment works. A section 60 approval for the works would therefore be required.

2.2.3 Work Health and Safety Act 2011 & Regulation 2017

The *Work Health and Safety Act* 2011 and Regulation 2017 (WH&S Act, WH&S Reg) are the statutes that direct the control and management of workplace practices and handling of hazardous materials by work teams. SafeWork NSW is the regulator for the WH&S Act and WH&S Reg in NSW. Hazardous materials includes asbestos, asbestos containing materials (ACMs), synthetic mineral fibres (SMF), lead in paint, polychlorinated biphenyls (PCBs), and Phenols (e.g. Bakelite electrical fixtures).

The storage and handling of dangerous goods is regulated under Part 7.1 of the *Work Health and Safety Regulation 2017*. SafeWork NSW must be notified if any dangerous goods, stored and handled above statutory defined quantities are to be used (as per clause 328 of the Regulation). If the proposed Wilcannia WTP is likely to exceed the storage threshold of 100 kg of dangerous goods, notification to SafeWork NSW would be required.

The *Work Health and Safety Regulation 2017* requires that a register of hazardous chemicals used, handled or stored at the workplace must be kept. The register is to include:

- A list of hazardous chemicals used, handled or stored, and
- The current safety data sheet for each hazardous chemical listed.

2.2.4 Protection of the Environment Operations Act 1997 (NSW)

The NSW Environment Protection Authority (EPA) is responsible for the administration of the *Protection of the Environment Operations Act 1997* (POEO Act). The POEO Act regulates air, noise, land and water pollution. Activities listed under Schedule 1 of the POEO Act are scheduled activities which require an Environment Protection Licence (EPL).

There are no planned discharges of supernatant or chemical waste from the new Wilcannia WTP. The Proposal does not constitute a schedule activity as listed under Schedule 1 of the POEO Act and therefore an EPL is not required.

The EPA would be the Appropriate Regulatory Authority in relation to environmental pollution matters. All works undertaken in relation to the Wilcannia WTP upgrade would be in accordance with the provisions of the POEO Act and best environmental management practices.

Section 120 of the POEO Act states that it is an offence to pollute waters without a licence. No operational discharges from the WTP are anticipated during operation of the upgraded Wilcannia WTP. The construction works can proceed without causing water pollution and a licence under s120 of the POEO Act would therefore not be required.

Other relevant provisions of the POEO Act which the Proposal would need to comply with include:

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



- **Review of Environmental Factors**
- Section 115 It is an offence to dispose of waste in a manner that harms or is likely to harm the environment.
- Section 116 It is an offence to cause any substance to leak, spill or otherwise escape (whether or not from a container) in a manner that harms or is likely to harm the environment
- Section 124 The occupier of any premises who operates any plant in or on those
 premises in such a manner as to cause air pollution from those premises is guilty of an
 offence if the air pollution so caused, or any part of the air pollution so caused, is caused
 by the occupier's failure (a) to maintain the plant in an efficient condition, or (b) to operate
 the plant in a proper and efficient manner.
- Section 139 The occupier of any premises who operates any plant (other than control equipment) at those premises in such a manner as to cause the emission of noise from those premises is guilty of an offence if the noise so caused, or any part of it, is caused by the occupier's failure: (a) to maintain the plant in an efficient condition, or (b) to operate the plant in a proper and efficient manner.
- Section 142A A person who pollutes land is guilty of an offence.
- Section 167 The occupier of any premises must maintain any control equipment installed at the premises in an efficient condition. The occupier of any premises must operate any control equipment installed at the premises in a proper and efficient manner.

2.2.5 Protection of the Environment Operations (Waste) Regulation 2014 (NSW)

The *Protection of the Environment Operations (Waste) Regulation 2014* sets out the provisions with regards to non-licensed waste activities and non-licensed waste transporting, in relation to the way in which waste must be stored, transported, and the reporting and record-keeping requirements.

The proposed works would be undertaken to be consistent with the requirements of this regulation.

2.2.6 National Parks and Wildlife Act 1974 (NSW)

The National Parks and Wildlife Act 1974 (NPW Act) provides for the statutory protection of Aboriginal cultural heritage places, objects and features. Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm. It is a defence against prosecution for unintentionally harming Aboriginal Objects if due diligence had been exercised to determine that no Aboriginal object would be harmed, or the harm or desecration was authorised by an Aboriginal heritage impact permit (AHIP).

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (OEH, 2010) has been considered in assessing the likelihood of encountering previously unrecorded items of Aboriginal cultural heritage during the construction works.

An Aboriginal Heritage Information Management Systems (AHIMS) database search did not identify any Aboriginal sites or places in or near the WTP site. The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW, 2010) has been considered



in assessing the likelihood of encountering items of Aboriginal cultural heritage during the construction works. An Aboriginal Heritage Impact Permit (AHIP) is not required and the works can proceed with caution and in accordance with the mitigation measures in this REF (see Section 5.10).

2.2.7 Water Management Act 2000 (NSW)

The objects of the Water Management Act 2000 (WM Act) are to provide for the sustainable and integrated management of the water sources of the state for the benefit of both present and future generations.

The existing river water intake on the Darling River would be used to supply the upgraded WTP. No works associated with the new WTP would be undertaken within "waterland" which is defined under the WM Act to be defines waterfront land as the bed of any river, lake or estuary and any land within 40 meters of the river banks, lake shore or estuary mean high water mark.

The new WTP would take water under Council's existing Water Access License (WAL), therefore it is considered that the proposed works would not require any other approvals under the WM Act. Any water taken above the current entitlement would require Council's licence to be modified under Section 89 of the WM Act.

2.2.8 Biodiversity Conservation Act 2016 (NSW)

The Biodiversity Conservation Act 2016 (BC Act) protects species of threatened flora and fauna, endangered populations and endangered ecological communities and their habitats in NSW. It also lists Key Threatening Processes that adversely affect threatened species, populations or ecological communities or that may cause species, populations or ecological communities or that may cause species, populations or ecological communities that are not threatened to become threatened. The impacts of any works that may affect 'threatened species', as listed in the BC Act, must be properly assessed. Impacts can include the destruction of threatened species habitat or potential habitat and threatened ecological communities.

The WTP site is previously disturbed and only minor groundcover vegetation removal would be required for the Proposal. Therefore, it is considered that the Proposal would not have a significant impact on any threatened flora and fauna species, populations or communities, or their habitats as listed under the BC Act (see Section 5.7).

2.2.9 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) provides for Commonwealth involvement in development assessment and approval in circumstances where there exist 'matters of national environmental significance'. Matters of national environmental significance include:

- World heritage properties;
- National heritage places;
- Wetlands of international importance;
- Nationally threatened species and ecological communities;
- Migratory species;

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



- Commonwealth marine areas;
- The Great Barrier Reef Marine Park;
- Nuclear actions (including uranium mining);
- A water resource, in relation to coal seam gas development and large coal mining development;
- Other matters protected under the EPBC Act include;
- The environment, where actions proposed are on, or will affect Commonwealth land and the environment; and
- The environment, where Commonwealth agencies are proposing to take an action.

It is not anticipated that any matters of national environmental significance or other protected matters as listed under the EPBC Act would be significantly impacted by the Proposal, as the works would be located within previously disturbed areas of the existing WTP site (see Section 5.7).

2.2.10 Native Title Act 1993 (Commonwealth)

The *Native Title* Act 1993 (Cwth) sets up processes to determine where native title exists, how future activity impacting upon native title may be undertaken, and to provide compensation where native title is impaired or extinguished. The Act gives Indigenous Australians who hold native title rights and interests—or who have made a native title claim—the right to be consulted and, in some cases, to participate in decisions about activities proposed to be undertaken on the land.

The proposed works are on private land and native title is therefore extinguished.



2.3 Summary of Approvals

The following table provides a summary of the approvals required for the Proposal.

Table 2-1 Summary of Approvals and Requirements

Agency	Requirements	Reference
Council	Determination of Proposal	Part 5 of EP&A Act
DPIE - Water	Approval to construct water treatment works	Section 60 LG Act

2.4 Agency Consultation

Relevant government agencies were consulted during the preparation of the REF. A list of agencies that were contacted and a summary of their responses are provided in Table 2-2 below. Copies of the responses received are provided in Appendix C.

Table 2-2 Agency Consultation

Agency	Summary of Comments	Response / Where Addressed in REF
Department of Planning, Industry and Environment - Water	No Response	N/A
Department of Planning, Industry and Environment, NSW Environment, Energy and Science	No Response	N/A
Environment Protection Authority (EPA)	 Strategies to minimise the need for and the impact of any water discharges from the Proposal. If a discharge to waters is required, the EPA should be informed as this may trigger the need for an Environment Protection Licence under the POEO Act. Potential noise impacts from the pump station should be considered against the Noise Policy for Industry (EPA, 2017) and mitigation measures implemented where necessary. Details of any waste streams expected to be generated by the 	Sections 5.6, 5.3.2, 5.3.3, 5.8, 5.12

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1

Wilcannia WTP



Review of Environmental Factors

Agency	Summary of Comments	Response / Where Addressed in REF
	Proposal and how they will be managed.Appropriate chemical storage to minimise any environmental risks	
NSW Health – Water Unit	No comment on the REF. Comment on the design of the Wilcannia WTP to ensure treatment of pathogens from water extracted from the Wilcannia weir.	Section 3



3. Need for the Project and Option Evaluation

This section provides the context for the need of the Proposal and describes the option evaluation process. The information in this section has been extracted from the *Wilcannia Water Supply Scheme – WTP – Geotechnical Investigation* (PWA, 2017) and the *Wilcannia Water Supply System Scoping Report* (City Water Technology, 2016).

3.1 Existing Infrastructure and Water Quality Issues

3.1.1 Existing Water Treatment Plant

The existing Wilcannia WTP was constructed in the 1980's and is approaching its design life. The Wilcannia WTP uses conventional treatment processes including coagulation, flocculation and sedimentation, followed by filtration to treat raw surface water, extracting from a weir pool on the Darling River and raw bore water from Union Bend.

The current water supply system in Wilcannia has a history of failure and interruptions to water supply, resulting from:

- Inadequate, ageing infrastructure
- Drought prone water supply sources
- Unsuitable back-up water supplies
- The remoteness of the location

Raw Surface Water

The raw water from the Darling River is pumped to a non-potable 25 ML Raw Water reservoir. Surface water supplied from the reservoir represents 65% of the total water consumed. It is reticulated untreated and generally unmetered. The remaining 35% received in the Raw Water Reservoir is diverted to the WTP for treatment.

The Darling River has a history of no flow periods with the longest recorded period of no flow being 365 days between January 1902 and January 2003. With appropriate restrictions and a system of pumps placed on the river bed to transfer water from one weir pool to the next, it is possible to maintain a water supply (with reduced volume) for a period of twelve months from the first day of no flow.

The treatment process for raw surface water is:

- Raw water enters Wilcannia WTP into the Balance Tank where it is dosed with Powdered Activated Carbon (PAC) for taste and odours and algal toxins when necessary. The water can also be dosed with chlorine solution for oxidation of iron and manganese.
- Water is dosed with aluminium sulphate (alum) upstream of the flocculation tank for coagulation. A dosing point is available for alkali (soda ash) dosing, but is not normally used.



- Flocculated water is directed into a sedimentation tank. From the sedimentation tank, supernatant is dosed with chlorine for manganese removal before passing through a mono-media sand filter.
- Filtered water is dosed with chlorine for primary and secondary disinfection, followed by soda ash for final pH correction. A fluoride dosing point is available, but fluoride dosing facilities have not been commissioned.
- Filtered water flows into the Clearwater Well, where it is pumped into the Treated Water Reservoir to gravity feed the reticulation network.

Raw Bore Water

During times of no flow at the weir, water is currently sourced from one bore at Union Bend. An additional bore is soon to be available for use. Bore water is aerated and stored at the 22 kL Balance Tank before being supplied to the WTP.

The treatment process for raw bore water is:

- Raw water is pumped directly from the bore to the aerator (to remove volatile gases and to oxidise dissolved iron and manganese) located atop a balance tank.
- The water enters the balance tank and is dosed with sodium hypochlorite to oxidise iron and manganese for removal by filtration.
- The water then enters the treatment train as for surface water.

Reticulation

Treated water is reticulated from the Wilcannia WTP to the Wilcannia Township and drinking water is distributed to two Aboriginal Communities: Warrali and Mallee.

A conceptual flow diagram for the existing Wilcannia WTP is shown in Figure 3-1 below.



Wilcannia WTP

Review of Environmental Factors



Figure 3-1: Process Flow Diagram of Wilcannia WTP

Source: HydoScience DWMS, 2013

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1





3.1.2 Wilcannia WTP Water Quality Issues

The *Wilcannia Water Supply System Scoping Report* (City Water Technology, 2016) identified several water quality issues at the existing Wilcannia WTP. The results of the Wilcannia treated water operational data at the Treated Water Tank can be found below in Table 3-1.

Table 3-1 Summary of water quality data at Treated Water Reservoir

Source: Council data 2011-2012

Parameter (unit)	ADWG guideline	Total samples (exceedances)	Average
рН	Aesthetic: 6.5 – 8.5	128 (0)	7.62
Turbidity (NTU)	Aesthetic: < 5	146 (59)	2.04
Free chlorine (mg/L)	Health: ≤ 5	21	2.13
Total chlorine (mg/L)	N/A	87	2.23
Aluminium (mg/L)	Aesthetic: ≤ 0.2	1 (31)	0.17
Iron (mg/L)	Aesthetic: ≤ 0.3	92	0.045
Manganese (mg/L)	Aesthetic: ≤ 0.1	21	0.142

The key issues identified with the above results are:

- Turbidity is an indicator of filtration performance and presence of pathogenic protozoa such as Cryptosporidium and Giardia. Turbidity in treated water can lessen the effectiveness of chlorine for disinfection purposes by shielding chlorine-sensitive pathogens from inactivation. The acceptable turbidity health target for treated water as prescribed by the Australian Drinking Water Guidelines (ADWG) (2011) is less than 1 NTU at the point of disinfection. Filtered water should be targeted at 0.2 NTU and should not exceed 0.5 NTU at any time.
- Free chlorine residual measured at the point of supply is an indication of protection against chlorine-sensitive pathogens throughout a reticulation. The ADWG recommends a free chlorine residual between 0.2 – 5.0 mg/L, with a maximum level of 5 mg/L at which no negative effects have been detected in studies. Free and total chlorine residual is measured at the Treated Water Reservoir and thus gives no indication of the residual in the distribution for protection against chlorine-sensitive pathogens.
- Metals removal (manganese and iron) may occasionally be required at Wilcannia WTP. If not optimised, soluble metals can move through the treatment plant without being removed by aeration, oxidation, sedimentation and/ or filtration. This can cause aesthetic problems



in the reticulation, with consumers complaining of coloured water, stained laundry and plumbing fixtures.

 Aluminium levels in the treated water exceed the aesthetic limit occasionally. This is most likely due to alum coagulation not being optimised. Aluminium residual can later form floc in the distribution system causing water to appear cloudy or milky, leading to consumer complaints.

Treated water quality as measured from the service water reservoir as part of NSW Health Drinking Water Monitoring Program found that:

- Turbidity on average exceeds disinfection targets (i.e. <1 NTU) indicating poor disinfection performance.
- Aluminium occasionally exceeds aesthetic guidelines indicating poor upstream coagulation performance.

Sampling for disinfection by-products was undertaken by NSW Health as part of the Aboriginal Communities Water and Sewage Program. Disinfection by-products (DBPs) exceeded the ADWG health limits on four occasions over the sample period. Due to warm temperatures and above ground rising mains to the Warrali and Mallee Communities, there are issues with the formation of DBPs. Ongoing research into appropriate dosing regimens is required by the operators to achieve optimal residuals and minimise the development of DBPs.



3.2 **Option Evaluation**

The options considered for the Wilcannia WTP include:

- Option 1: Do Nothing
- Option 2: Upgrade Existing WTP
- Option 3: Construct New WTP

3.2.1 Option 1- Do Nothing

The Do Nothing option means that no augmentation to the town's water security would occur in the foreseeable future with the current inadequate supply left to face potential climate change impacts and water quality issues left unresolved. Adoption of this option would result in an already insecure water supply becoming even more insecure.

Although adoption of this option offers the advantage of avoiding up front capital contributions, it carries the following disadvantages or areas of concern that Council would need to address:

- Significant "operational costs" in those years of emergency supply and water restrictions.
- Very high risk profile for Council.
- An unacceptable option for the community.

The Do Nothing option is therefore not considered acceptable.

3.2.2 Option 2: Upgrade Existing WTP

This option would involve upgrade of the existing WTP to address current issues described in Section 3.1.1.

The Scoping Study (NSW Public Works, 2016) identified the following prohibitive factors in relation to an upgrade of the existing WTP:

- The current filtered water demand exceeds the capacity of the WTP in summer months.
- There is a regular occurrence of algae in the raw water which cannot be treated with the current WTP process.
- There are many WHS issues with operating the raw water pumps which are set-up in a dry well arrangement.
- High levels of organic carbon may also be present in the raw water which again cannot be treated with the current WTP process.
- The condition of the equipment and structures has deteriorated due to age and there are several Work Health and Safety issues.
- The plant cannot be taken off-line for any major maintenance without interrupting supply to the town.

Based on the above factors, it was concluded that an upgrade or improvement of the existing WTP was not an acceptable option.



3.2.3 Option 3: Construct New WTP

The Public Works Advisory Scoping Study determined that constructing a new WTP to completely replace the existing Wilcannia WTP was the preferable option as it would increases the water security, reliability and quality of water supplied to the Wilcannia community and resolve the WHS issues at the existing Wilcannia WTP.

In light of the above factors and those issues with the existing WTP identified in the Wilcannia Water Supply System Scoping Report (City Water Technology, 2016) and the scoping study by Public Works Advisory, construction of a new WTP at the existing Wilcannia WTP site, rather than an upgrade of the existing facility is the preferred option.

3.2.4 Preferred Option

The preferred option is to construct a new replacement WTP at the existing WTP site. The Do Nothing and the Upgrade options are not considered acceptable (as described in Section 3.2.1 and 3.2.2 above) and therefore the preferred option is a new WTP to completely replace the existing ageing infrastructure. The preferred option is described further in Section 4.



4. **Proposal Description**

This section provides a description of the Proposal.

4.1 Description of the Proposed Works

The proposed new WTP would be designed to operate at a treated water production rate of 1.2 ML/d. It would be required to produce treated water that meets or betters the Australian Drinking Water Guidelines (ADWG). WTP layout plans are provided in Appendix B.

Raw water for the new WTP would be taken from a weir pool on the Darling River and during times of no/low flow, raw bore water from Union Bend.

The new WTP would involve the following general treatment process:

- Raw water supply flow control
- Oxidation with chlorine (gas) dosing for iron and manganese removal
- Pre-soda ash dosing for pH adjustment (if required)
- Oxidation contact tanks
- Coagulant dosing for coagulation
- Flocculation
- Clarification (lamella clarifier)
- Ultra Fine (UF) Filtration
- Granular Activated Carbon (GAC) Filtration
- Ultraviolet (UV) disinfection
- Disinfection chlorine dosing
- Chlorine contact tank (clear water storage tank)
- Post soda ash dosing for pH adjustment (if required as part of the final design)
- Trim chlorine (gas) dosing for disinfection

Raw water for the new Membrane Filtration WTP would be obtained from the raw water rising main into the WTP site. Raw water would first be pumped into oxidation tanks where pre-dose chemicals such as chlorine gas and soda ash may be dosed.

The water treatment plant process would consist of aeration, chemical pre-dosing, coagulation, flocculation, and conventional clarification followed by UF filtration and GAC filtration, UV treatment, chlorination and pH correction, as necessary. Treated water would then be pumped to a clear water storage tank and town reservoir for use.

Backwash/wash wastewater and clarifier sludge generated in the WTP would be collected for settling in one of the existing upgraded sludge lagoons and supernatant would be returned to



WTP inlet works. The dried sludge cake in the lagoons would be removed mechanically, as required.

The proposed water treatment plant would be designed to produce a nett production throughput of 1.2 ML of treated water per day, exclusive of all losses, plant usage, plant downtime and wastewater generated, and regardless of water quality and temperature.

Based on the available water quality data the proposed new WTP would be able to treat for the following requirements as shown in Table 4-1 below. The main components of the WTP are described further in Section 4.2 below. A diagram of the treatment process can be seen in Figure 4-1 below.



Table 4-1: Wilcannia WTP Water Quality Goals

Deremeter	Unit	Requirement		
Falameter	Unit	95 th percentile	Absolute	
True Colour	Hazen Units (HU)	≤ 5	≤ 10	
Turbidity	Nephelometric Turbidity Unit (NTU)	≤ 0.2	≤ 0.3	
рН	-	7.6 ±0.4	7.0 - 8.2	
Chlorine	mg/L	0.5	-	
Total Iron	mg/L	≤ 0.08	≤ 0.1	
Total Manganese	mg/L	≤ 0.02	≤ 0.05	
Total Aluminium	mg/L	≤ 0.01	≤ 0.2	
Total Alkalinity	mg/L CaCO₃	≥ 30	≥ 40	
Calcium Carbonate Precipitation Potential (CCPP)	-	-	-5 to 0	
Total Dissolved Solids	mg/L	-	< 500	
E. Coli or thermotolerant coliforms (CFU/100mL)	-	-	< 1	
Pathogens	≥ 3 log inactivation of <i>Crypto</i> across the entire process			
Total trihalomethanes	mg/L	≤ 0.15	≤ 0.25	
Nitrates	mg/L	-	≤ 10	
Hardness	mg/L	-	150	
Hydrogen Sulphide	mg/L	≤ 0.02	≤ 0.05	
Taste and Odour	-	Acceptable to most people		
Pesticides	-	Comply with ADWG (2011)		

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



Wilcannia WTP

Review of Environmental Factors



Figure 4-1: Wilcannia WTP Process Flow Diagram

Source: Membrane Systems Australia, 2021

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



4.2 Description of the Works

The proposed WTP facility would consist of the following:

- New WTP infrastructure and plant building (single storey including control and plant rooms, laboratory, dosing and chlorine rooms and new oxidation, flocculation, clarification and filtration units/tanks)
- Two (2) upgraded sedimentation lagoons (sludge lagoons) with increased capacity, approximately 16 m x 60 m area (per lagoon) in plan
- A new clear water tank and pumps
- New onsite access road
- New gates and fencing (as required)

The layout of the new WTP is shown in Figure 4-2 below.

Plant Building

The WTP building would be a one story Colorbond building $(15m (L) \times 10m (W) \times 5m (H))$ on a concrete slab. The plant would be suitable for unattended operation, designed for a fail-safe operation, and during power failure would restart automatically on resolution of power.

This building would house the following:

- Control room (including thermal insultation and air-conditioning);
- Membrane filtration;
- All mechanical equipment including air blowers, air compressors, feed pumps, etc;
- All electrical switch boards and control panel for the WTP laboratory space;
- Chemical storage;
- Amenities (accessible toilet and a wash basin); and
- Chlorination system.

Clarification

The clarification process would be carried out by a lamella plate clarifier with a design raw water flow rate of 1,210 m³/day. The overall clarifier dimensions would be approximately 6.7 m long x 3.1 m wide x 3.2 m high.

Tanks and Pumps

Two new oxidation tanks would be provided to assist with flow control to the flocculator and clarifier. A new 45 kL filter feed tank would be required to receive water from the clarifier and new pump system would be required to transfer water from the filter feed tank

A poly clear water tank with a minimum capacity of 150 kL would be provided at the WTP site to balance the flow distribution from the WTP to the town reservoirs.



Two new 60 m³ clearwater pumps would be provided to pump the treated water from the WTP to the town reticulation network. Clearwater pumps would be connected to the existing clearwater rising main by cutting into the pipeline at a suitable location.

A new pump would also be required to transfer water from the sedimentation lagoons back to the WTP inlet works.

Sedimentation (Sludge) Lagoons

The two existing sedimentation lagoons for water treatment wastewater collection purposes would be refurbished and upgraded to increase their total storage capacity to 3490 m^3 (approx. 16 m (w) x 60 m (l) x 1.8 m (d) area, per lagoon). The existing lagoons are located the southwest of the new WTP in the centre of the WTP site, as shown in Figure 1-2.

All the wastewater produced in the WTP would be collected within the sedimentation lagoons except the Clean in Place (CIP) cleaning waste from the UF filtration system which would be discharged to a dedicated underground sump for further treatment.

The sedimentation lagoons are designed to operate with one lagoon in operation and the second one drying.

Solids in the Clarifier and UF waste and GAC backwash water would flow to the sludge lagoons via the neutralisation underground pit. During operation, wastewater would be retained in the lagoons to settle particles to the bottom of the lagoon and. the settled solids in the lagoons would be thickened and dewatered over time.

The dried sludge cake in the sedimentation lagoons would be removed mechanically. Supernatant from the lagoons would be returned to the WTP inlet works.

Access Road

The contractor would provide an all-weather access road within the WTP site. The access road would be designed to accommodate the loadings and access for large, non-articulated chemical delivery trucks.

Gates and Fencing

A man proof chain link security fence would be maintained around the proposed new WTP. One (1) 8 m double leaf mechanically operated gate would be provided at the main entrance to the site, as required



Wilcannia WTP





Figure 4-2: Wilcannia WTP General Arrangement

Source: Membrane Systems Australia, 2021

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1




4.3 Construction Methodology

The proposed construction method would depend on a number of factors including the contractor's method, chosen plant and equipment and program. The contractor would be required to submit a Work Method Statement and Construction Environmental Management Plan (CEMP) to Council prior to commencement.

The methodology for the WTP is likely to involve the following steps:

- Establish worker compound, storage and set down areas
- Establish environmental and traffic controls.
- Upgrade sedimentation (sludge) lagoons.
- Erect WTP main building.
- Erect clarifier, oxidation and filter feed tanks.
- Erect carpark, fencing and signage.
- Backfill, stabilise and restore disturbed areas.
- Make good/repair any damage caused to assets during the construction process.
- Removal of storage containers and equipment from site, and
- Clean-up site and remove all materials and equipment from the site and make good.
- Clean site and any facilities used during the construction process.

Note: The existing WTP decommissioning process is unconfirmed at present.

4.3.1 Construction Equipment

The proposed construction method would depend on a number of factors including the final detailed design and the contractor's method, equipment and program. However, the following equipment is likely to be used for the WTP construction:

- Backhoe/excavator
- Trucks carrying construction materials
- Air compressor, concrete vibrator, concrete mixer
- Dewatering pump
- Ancillary pumps and holding tanks
- Light vehicles to transport construction workers.

4.4 **Construction Environmental Management**

Construction of the Proposal would be undertaken in accordance with a Construction Environmental Management Plan (CEMP) that would be prepared by the construction contractor/s and approved by Council prior to commencement. The CEMP would incorporate all of the mitigation measures identified in this REF as well as any conditions of the





determination and any other licence/approval conditions. The CEMP would also incorporate an emergency response plan in case of a pollution incident, a complaint handling procedure and a 24 hour telephone contact number. The complete list of the mitigation measures recommended in this REF is provided in Section 6.



5. Environmental Assessment

This section identifies and characterises the likely potential impacts associated with the construction and operational phases of the project. Where considered necessary, feasible mitigation measures are identified. Environmental management procedures based on these mitigation measures are outlined in Section 6.

5.1 Assessment Methodology

The key objectives of this assessment are to:

- Identify those facets of the environment likely to be affected by the Proposal during both construction and operation;
- Identify the sensitivity of the site;
- · Identify and characterise the associated impacts; and
- Identify and evaluate feasible mitigation measures for the identified impacts.

Section 3 of the *Guidelines for preparing a Review of Environmental Factors* (OEH, 2016) has been used to assist in the identification of issues for assessment in this REF.

Environmental issues of relevance to the Proposal include:

- Land Use;
- Noise and Vibration;
- Traffic and Access;
- Air Quality;
- Soils, Geology and Water;
- Flora and Fauna;
- Waste Management;
- Visual Amenity;
- Heritage;
- Hazards and risks

5.2 Location and Land Use

Wilcannia is a small town within the Central Darling Shire LGA in western NSW, approximately 945km west-northwest of Sydney. The existing WTP site is located within a residential area on the north-western side of Hood Street, Wilcannia (Lot 1 DP 807546). The site is broadly bounded by Hood Street to the south-east; Field Street to the south-west; Barkindji Drive to the north-west; and residential properties / grassed open space to the north-east.

There are currently two sedimentation (sludge) lagoons which occupy the majority of the southwestern part of the WTP site. The lagoon embankments are irregular and the exposed batters are shallow. The total depth of the lagoons is not known as they appear to be infilled with



sediment and are completely overgrown with bulrush. The exposed batter slopes are highly variable and are obscured by bulrush and long grass with some shrubs/small trees along the top of the embankments at the northern end of the sludge lagoons.

Land uses adjoining the WTP site is surrounded by low density residential land. The closest residences to the existing WTP are located approximately 40m to the north-east and 40m to the south. The Darling River is located 550m to the south of the WTP.

5.2.1 Construction Impacts

The construction works may result in some minor disruptions to the Wilcannia community. Any such disruptions would be temporary and relatively short term (approximately 20 weeks) in nature. Potential impacts associated with noise and dust are discussed further in Sections 5.3 and 5.5 below.

The proposed new WTP would be located on land that has already been disturbed for the existing WTP site. The WTP site is surrounded by residential dwellings and no significant impacts to land use on adjoining residential properties are anticipated during construction.

It is considered that the long-term positive impact to the Wilcannia community would outweigh any temporary adverse construction impacts. All construction activities would be carried out with due diligence, duty of care and best management practices. This would be documented in the project specific CEMP.

5.2.2 Operational Impacts

The new WTP would be consistent with the current land use at the site. The new WTP would result in improved quality of Wilcannia's potable water supply and improved water security through times of drought and low flow in the Darling River. The new WTP would also increase the sustainability of Wilcannia's water supply by reducing water loss through degrading infrastructure.

5.2.3 Mitigation

Construction

- Best management construction impacts are to be documented in a project specific CEMP.
- No construction activities (e.g. tree clearing, stockpiling etc.) would be undertaken on private property surrounding the WTP site without prior approval. Appropriate security, supervision and access controls would be put in place and properly monitored to ensure no access by unauthorised personnel, either to the work area or via the work area to adjoining areas not under the ownership of Council.
- The WTP site security fencing and areas disturbed during construction would be reinstated to their pre-construction condition.
- Council could provide a 24-hour telephone number so that any issues relating to the operation of the new infrastructure can be clarified and complaints dealt with by those able to respond.
- Restoration of the areas disturbed during construction would be undertaken so that these areas are returned to their pre-construction condition.



5.3 Noise and Vibration

The nearest sensitive receivers to the Wilcannia WTP are residential properties located approximately 40m to the south of the WTP on the opposite side of Hood Street. No background noise monitoring has been undertaken as part of REF. Using Figure 2.2 of the *Noise Guide for Local Government* (DECCW, 2010) as a guide, the area surrounding the Wilcannia WTP can be classified as a quiet suburban area with a predicted background level of 40 dB(A).

5.3.1 Construction Impacts

During standard (construction) working hours, noise goals in the *Interim Construction Noise Guidelines (DECC, 2009a)* (ICNG) are 10 dB(A) above the Recorded Background Level (RBL) with a maximum of 75 dB(A) (with respite periods). The construction noise level objective for the works would therefore be 50 dB(A) during standard working hours.

The works would be undertaken over a period of approximately 20 weeks.

Noise impacts were estimated based on the *Interim Construction Noise Guideline* and AS 2436-2010 Guide to Noise and Vibration on Construction, Demolition and Maintenance sites and the ICNG. The typical A-weighted sound power levels for equipment which may be required to undertake the construction works are listed in Table 5-1 below.

Equipment	Typical Sound Power Levels (dB)	Sound Pressure Level at 40m distance (dB(A))
Excavator/Backhoe	104	61
Concrete pump truck	108	65
Compressor	101	58
Truck (>20 tonne)	107	64
Light vehicles	106	63
Hand held tools	102	59
Machine mounted drill	116	73

Table 5-1 Construction Equipment Sound Power Level

Based on maximum sound power levels of 116 dB(A) (for external works), it is anticipated that construction noise at the nearest residential receivers located approximately 40m from the WTP site would exceed the recommended maximum daytime noise management level of 50 dB(A) and are unlikely to, but may potentially, exceed the highly affected noise level of 75 dB(A) which may cause detrimental noise impacts to the surrounding sensitive receivers (DECCW, 2009).

It is noted that these levels are considered to be a conservative estimate, as they are based on maximum noise levels assuming that all machinery/construction equipment would be used simultaneously. It is anticipated that this would occur rarely, if at all during the construction of the Proposal, and furthermore the actual noise levels experienced would vary depending on



the nature of the activities being undertaken. Construction impacts would be temporary and construction hours would be restricted to the normal daytime construction hours as specified by the Environmental Protection Authority (EPA), being 7am to 6pm Monday to Friday and 8am to 1pm Saturdays. No works would occur on Sundays or public holidays.

The ICNG states that, where the predicted noise level is greater than the noise affected level, all feasible and reasonable work practices should be applied to meet the noise affected level. Furthermore, all potentially impacted adjoining and adjacent properties should be informed of the Proposal, the expected noise levels and duration, as well as contact details. Where the noise level is above the highly affected noise level, the determining authority (in this case, Council) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account:

- excavation or removal of any materials using machinery of any kind, including compressors and jack hammers, must be limited to between 7.30am and 5.00pm Monday to Friday, with a respite break of 45 minutes between 12pm and 1pm.
- times identified by the community when they are less sensitive to noise (such as before and after school for when located near schools, or mid-morning or mid-afternoon when located near residences); and
- if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

Therefore, appropriate control measures to minimise noise impacts would be implemented during construction as part of the contractor's CEMP. Site and project-specific measures to control noise would be determined by the construction contractor based on the construction methodology, with the CEMP required to be submitted for approval prior to commencement of construction of the Proposal. Identification of appropriate control measures should include consideration of Tables 4 - 10 of the ICNG, which present a summary of options for work practices with lower noise impact. The CEMP for the construction of the Proposal would address site-specific issues, including noise reduction practices, so as to minimise impacts to adjoining properties.

Appropriate and practical measures would be implemented to mitigate noise impacts during construction (see Section 5.3.3).

British Standard (BS) 6472 – 1992, Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz) is recognised as the preferred standard for assessing the 'human comfort' criteria. There is no Australian Standard that sets criteria for the assessment of building damage caused by vibration. Guidance of limiting vibration values is attained from reference to German Standard DIN 4150-3: 1999 Structural Vibration – Part 3: Effects of vibration on structures. Table 5-2 provides a summary of the relevant criteria.



Table 5-2 Summary of Relevant Vibration Criteria

Human comfort intermittent vibration limits (BS 6472-1992)			
Receiver Type	Time of Day	Preferred Value	Recommended Max
Suburban	Day	0.2 m/s1.75	0.4 m/s1.75
Guideline values for short-term vibration on structures (DIN 4150-3: 1999)			
Receiver Type	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz
Buildings used for commercial purposes, industrial buildings, and buildings of similar design.	20mm/s	20 – 40 mm/s	40 – 50 mm/s
Dwellings and buildings of similar design and/or occupancy.	5 mm/s	5 – 15 mm/s	15 – 20 mm/s

The equipment used during construction would produce levels of vibration that are unlikely to exceed the structural vibration limit, but may exceed the human health criteria temporary when compacting materials.

Mitigation measures required to minimise noise and vibration impacts during construction are outlined in Section 5.3.3 below. Based on the above, and subject to implementation of mitigation measures, the Proposal is considered to have only minor, short term localised impacts to nearby sensitive receivers.

5.3.2 Operational Impacts

The proposed works would generate some operational noise from the WTP site, however as the Proposal involves the replacement of the existing WTP infrastructure, the noise impacts associated with the new WTP would be similar to those existing and would not be a new noise source in the region.

The NSW Noise Policy for Industry (NPfI) (EPA, 2017) contains the relevant noise criteria for operational noise. The EPA is currently reviewing the NPfI to clarify assessment processes and modernise the document without significantly altering the main principles, processes or the recommended noise management levels for suburban and rural environments.

The NPfI recommends a noise management level of 5 dB(A) above the background level with an acceptable noise limit of:

- 50 dB(A) for rural environments during the day (7am to 6pm);
- 45 dB(A) for rural environments during the evening (6pm to 10pm); and
- 40 dB(A) for rural environments during the night (10pm to 7am).

During detailed design, the Contractor would be required to verify operational noise emissions to demonstrate that selected plant and equipment complies with NPfI requirements at the



nearest sensitive receptors. During operation, vibration from the operation of the WTP would not be discernible at the boundary of the site.

5.3.3 Mitigation

Construction

- Control measures to minimise noise and vibration impacts on adjoining land would be implemented during construction as part of the contractor's CEMP, which would require review by Council prior to commencement of works. The CEMP would address site specific issues, including limited work hours and noise and vibration reduction practices, taking into consideration EPA's *Interim Construction Noise Guideline* (in particular Tables 4–10) and Assessing Vibration: A Technical Guideline (in particular mitigation measures in Section 3). Mitigation measures to minimise noise and vibration impacts would include:
 - Optimum siting of work areas, vehicle and plant parking areas, materials stockpiles and equipment storage areas in locations where potential acoustic and vibration impacts would be minimised;
 - Regular maintenance of all plant and machinery used for the project;
 - Identify locations where construction noise and vibration is most intrusive and develop strategies to reduce impacts for these areas.
- Works would be undertaken during normal work hours i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays; and no work would be undertaken on Sundays, Public Holidays or outside these work hours.
- All reasonable practical steps shall be undertaken to reduce noise and vibration from the site.
- Community notification would be undertaken where appropriate and where work is likely to cause offensive noise or vibrations and impact the public and adjoining landowners.

Operation

- Operational noise emissions would be verified to demonstrate selected plant and equipment complies with NPfI requirements at the nearest sensitive receptor. This would be achieved through post-compliance monitoring to validate the noise emissions and to identify the need for additional mitigation measures.
- All community complaints received regarding the WTP would be recorded and responded to by Council.

5.4 Traffic and Access

Wilcannia has a small population – approximately 745 people and generally low traffic volumes. The WTP is accessed by an unsealed access track located off Hood Street. Traffic volumes along Hood Street are expected to be low, with vehicles travelling al low to moderate speeds.



Review of Environmental Factors

5.4.1 Construction Impacts

Construction works would take up to 20 weeks. Construction vehicles and staff would enter the WTP via the unsealed access road off Hood Road. The existing WTP site is anticipated to have sufficient area to accommodate the construction compound and a parking area within the boundaries or immediately adjacent to the existing WTP site. The construction workforce would vary according to the work being carried out, the construction method and contractor's program.

The additional traffic associated with the construction works (in terms of both numbers and types of vehicles) would not be noticeable to the residents of Wilcannia due to the relative low traffic volumes. Consequently, additional traffic is considered unlikely to impose a significant additional load upon the existing local road network or significantly affect pedestrian safety.

Management measures may be required at the Hood Street turnoff to the site, particularly for any trucks movements during construction works. The contractor would assess visibility and safety of the turn off to the site as part of the CEMP and determine if any further controls would be needed, such as signage to warn motorists of trucks entering and leaving the site.

There is the potential that construction traffic travelling on Wilcannia WTP internal unsealed access track could result in degradation of the track condition and mud tracking onto public roads in wet weather. It should be assessed prior to construction if required, including the provision of any erosion and sedimentation controls, to withstanding the anticipated heavy vehicle movements during construction. Following completion of the works, all access roads/tracks would be restored to their pre-existing condition.

Whilst construction works may cause some inconvenience to local residents, overall any impacts would be minor, localised and short-term. The affected community would be notified in advance of the proposed construction work program and advised of any issues such as access to individual properties. The increased traffic during construction is not predicted to have a significant impact on local traffic flow or result in significant additional loads upon the existing road network.

5.4.2 Operational Impacts

Following the new WTP construction, the existing operational requirements for access to the WTP would continue. The main access road to the WTP would allow for heavy vehicle access for any operational or maintenance requirements. The entire WTP site would continue to be contained within a man-proof security fence. No operational impact associated with ongoing site access is anticipated.

5.4.3 Mitigation

Construction

- The contractor would include traffic management measures as part of the CEMP, to be reviewed by Council prior to commencement of works.
- Prior to the commencement of works, existing access tracks and roads that would be used by heavy vehicles would be assessed for adequacy and upgraded where necessary. Appropriate drainage would be provided for any unsealed tracks utilised during the works

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



to ensure that vehicle movements do not cause erosion and sedimentation of nearby waterways.

- Any disturbance to landowners due to vehicle movements and associated noise would be minimised by adhering to the working hours outlined in Section 5.3.3 of the REF. The contractor would avoid any inconvenience to residences/landowners, and all access gates would remain in their original condition following completion of the works.
- Any temporary access tracks required for the works would be located to minimise disturbance to the existing environment. Following completion of the works the temporary tracks would be removed, topsoil provided and re-grassed. Existing tracks would be restored to their condition prior to works.
- All traffic would comply with all applicable traffic laws and regulations including speed limits.
- All vehicles transporting spoil would be covered and filled to maximum capacity to minimise vehicle movements.
- All roads, kerbs, gutters and footpaths damaged as a result of construction are to be restored to their pre-construction condition.
- All sealed roads would be kept clean and free of dust and mud at all times. Where material is tracked onto sealed roads, it would be removed immediately so that road pavements are kept safe and trafficable.

5.5 Air Quality

While industry, commercial and household air emissions can be a source of pollution, it is unlikely that these sources are significantly impacting on the ambient air quality levels surrounding the Wilcannia WTP. Air quality in Wilcannia and the surrounding area would be predominately impacted by vehicle emissions and construction works.

A search of the National Pollution Inventory (NPI) indicates that the nearest facility that reports emissions to the NPI is the Bulla Park Compressor Station – gas supply, located approximately 120km to the east of Wilcannia WTP. The distance between the two sites means the receptors surrounding the WTP are not impacted by pollutants from the Bulla Park Compressor Station operations.

5.5.1 Construction Impacts

The new WTP would be constructed within the boundaries of the existing WTP site. The main impact to air quality during construction is expected to arise from the generation of airborne localised dust associated with earthworks. This is not anticipated to cause notable adverse environmental impacts unless the weather is particularly windy. Dust suppression methods, including the use of water carts, would be applied on windy days to prevent dust being transported off site.

No significant Greenhouse Gas (GHG) emissions are anticipated during construction. Construction vehicle movements and the use of fuel powered construction equipment would emit GHGs (mainly CO_2), however the quantity and duration of use of vehicles, plant and



equipment for construction works would be limited, and therefore the works are not considered to have a significant impact on state or national GHG emission levels. Any emissions would occur only intermittently and are expected to be minor and temporary. It would be unlikely that they would contribute to a permanent detectable reduction in local air quality.

With implementation of the recommended mitigation measures, potential air quality impacts during construction are considered minor and unlikely to be significant.

5.5.2 Operational Impacts

Operation of the Wilcannia WTP is not anticipated to have any adverse air quality impacts.

The sedimentation lagoons area has the potential to create dust emissions. However, vegetation would re-establish in the lagoons and therefore the incidence of dust generated from the lagoons is likely to be low.

5.5.3 Mitigation

- Construction vehicles and equipment would be suitably serviced within the six-month period prior to commencement of construction activities and all necessary maintenance undertaken during the construction period to meet EPA air quality requirements.
- The excessive use of vehicles and powered construction equipment would be avoided.
- All construction machinery would be turned off when not in use to minimise emissions.
- Construction contractors would monitor dust generation potential.
- Dust suppression methods including the use of water carts would be applied where required (i.e. on windy days when earthworks and vehicle movements are generating dust which may cause a nuisance to others). Under extreme wind conditions, construction activities are to be temporarily suspended if construction activities are generating dust emissions.
- Any stockpiled spoil/fill would be protected to minimise dust generation.
- Vehicles transporting spoil from the sites would be covered.
- Bare surfaces are to be vegetated or sealed as soon as possible.
- Burning matter of any kind would not be permitted on site.

5.6 Soils, Geology and Water

Geology and Soils

The Wilcannia 1:1250 000 geological map (series sheet SH 54-16) identifies the of the WTP site to be flat to gently undulating plains of red and brown clayey sand, loam and lateritic soils. The NSW SEED Map identified the Wilcannia WTP to be located on soils classified as chromosols. Chromosols are soils that display a strong texture contrast between surface and subsoil horizons.

Waterways

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



The Darling River is the closest watercourse to the Wilcannia WTP as is located approximately 500m to the south east of the Proposal site.

5.6.1 Construction Impacts

In general, earthworks and ground disturbances associated with the construction works could result in sediment and other materials leaving the site via wind or water movement. Aspects of the Proposal identified as potentially impacting on water quality includes:

General earthworks for the foundations of the new plant building, tanks and sedimentation lagoon refurbishment and upgrade,

- Access to and from the site by construction vehicles,
- The movement of spoil around the site,
- Temporary spoil stockpiles,

Given the flat nature of the site, it is assessed that the construction works can be managed through the implementation of appropriate sediment and erosion controls to prevent sedimentation and erosion during the works. Despite the moderate level of earthworks, the risk of adverse water quality impacts is determined to be low. Mitigation measures would be required to be implemented in the event of heavy rainfall events during construction works.

Runoff from cleared areas and stockpiles of soil and disturbance by construction works could lead to short-term increases in sediment loading. Implementation of an Erosion and Sediment Control Plan (ESCP) in accordance with *NSW Landcom (2004) Managing Urban Stormwater* – *Soils and Construction* and remediation of the site post construction would mitigate the risk of construction impacts on local drainage lines.

Accidental spillage of fuels, hydraulic fluids and lubricating oils used in the operation of construction equipment could result in the release of hydrocarbons and metals which may end up in local drainage lines. Several mitigation measures are recommended in Section 5.6.3 to manage and mitigate potential spill incidents.

It is not anticipated that groundwater would be encountered during the construction works. However, if groundwater is encountered, it would need to be managed so that it does not result in pollution, including sedimentation. Groundwater devoid of sediment or contaminants would be disposed of in a way that does not cause erosion. Groundwater may need to be suitably settled (i.e. using baffle tanks or similar) or filtered prior to being dispersed of over vegetated ground surfaces. The overall impact is assessed to be low.

Given the implementation of the recommended mitigation measures detailed in Section 5.6.3 the impacts during construction are unlikely to be significant.

5.6.2 Operational Impacts

The WTP site would be appropriately landscaped post construction, including topsoiling and grassing to design level/grades, which would significantly reduce the potential for erosion at the site.

The WTP site is currently fenced-off to prevent unauthorised access and would continue to have security fencing in place during operation. As such, the risk of human exposure to contaminated soil at the site is considered to be negligible.

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



The operation of the WTP would not result in any discharges of backwash water to the environment. Backwash wastewater (supernatant) from the filters would be returned to the sedimentation lagoons and inlet works for treatment. The two sedimentation lagoons are earthen clay lined and impermeable.

The new plant would include appropriate stormwater handling system (to be designed by the successful contractor as per Council's requirements). Stormwater from the roofs and run-off from impermeable areas would be diverted to the new stormwater system or drainage area.

5.6.3 Mitigation

Construction

- A detailed Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP. The ESCP would describe the site-specific measures to be implemented for all works areas, in accordance with the guidelines outlined in the 2004 Landcom publication *Managing Urban Stormwater: Soils and Construction*, 4th edition ("The Blue Book") and *Volume 2a Installation of Services.* The ESCP would need to be site specific and would need to address the following issues to prevent erosion, sediment loss and water quality impacts:
 - Identification of site-specific sediment and erosion control measures wherever erosion is likely to occur.
 - Identification of any environmentally sensitive areas on or near construction sites to ensure runoff is diverted away from sensitive areas.
 - Requirements for vegetation clearing to be kept to a minimum.
 - Retention of all surface runoff on-site and where possible stormwater from off site would be diverted around the construction site.
 - Backfilling and stabilising of trenches once pipelines or other underground services are installed.
 - Location of construction compounds (at least 50m from any the drainage line).
 - Location and management of stockpiles, such as locating stockpiles away from the drainage line near the works areas.
 - Regular inspection of all erosion and sediment controls, especially when rain is expected and directly after any rain events.
- All areas where ground disturbance has occurred would be stabilised following completion of works to ensure there is no erosion hazard and restored to their pre-construction condition. This would involve, where required, reshaping the ground surface, covering it with topsoil excavated from the site and re-establishing an appropriate vegetation cover.
- Any excess spoil would either be spread across the ground in nearby areas in such a manner as to avoid creating an erosion hazard or removed off site for disposal in accordance with relevant Council and EPA waste requirements.
- The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for notification of pollution incidents to the required authorities in



accordance with s. 147 to 153 of the POEO Act and requires response actions to be implemented in order to address any risks such as incidents posed to the environment, property or surrounding communities.

- Any disposal of wastewater or fluids generated as part of construction works would be undertaken in a manner that does not cause water pollution. The CEMP would document an appropriate offsite disposal facility for treatment and disposal.
- A site-specific spill management plan would be prepared and include the following requirements:
 - Emergency spill kits are to be kept at the site (vehicle kits).
 - Refueling of machinery to be undertaken in a dedicated area within the construction compound appropriately protected as outlined in the spill management plan.
 - Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any drainage line.
 - Any hazardous materials stored on site would be stored in the compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there.
 - Workers would be trained in the spill management plan and the use of the spill kits.
- All vehicles transporting spoil would be covered and filled to maximum capacity to minimise vehicle movements.

Operation

 Notification to the EPA in accordance with Part 5.7 of the POEO Act is to be undertaken where a pollution incident occurs during an activity so that material harm to the environment is caused or threatened.

5.7 Flora and Fauna

The existing Wilcannia WTP site has been previously cleared of vegetation and is subject to routine maintenance such as slashing and mowing. The ground surface in this half of the WTP is mostly grass ground cover and bare earth with several scattered trees throughout the site and some medium to large gum trees located on the south-western boundary fence line. The two sedimentation lagoons onsite contain bulrush, reeds and are grassed along the embankments.

The WTP site is not considered to support high quality habitat resources for any threatened species. A search of the NSW BioNet Atlas indicates 11 threatened species protected under the *Biodiversity Conservation Act 2016* have previously been recorded within a 10km x 10km radius of the WTP site, including nine threatened bird species, one threatened reptile species and one threatened plant species. None of the listed threatened species have been recorded within the WTP site. An EPBC Act Protected Matters Report for a 10km by 10km area surrounding the WTP site identified no world heritage properties or national heritage places, three wetlands of international importance, one listed threatened ecological communities, 14

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



listed threatened species, and 7 listed migratory species that may or are likely to occur, or have habitat, in the area. These search results are provided in Appendix D.

Overall, the area of the WTP site to be affected by the new WTP has very limited habitat potential due to its highly disturbed nature, and the threatened species or communities listed as occurring within a 10 km radius of the site are not anticipated to be utilising the site for primary habitat.

5.7.1 Construction Impacts

The proposed works would require minor vegetation removal comprising grass cover, bulrushes, reeds and potentially some scattered shrubs. No tree removal is proposed as part of the works. The works associated with the new WTP would occur within a highly disturbed and cleared area of the existing WTP site. Given the disturbed nature, the WTP site is considered to have limited habitat value and therefore construction works are not anticipated to impact significantly on any fauna habitat of conservation value.

The Proposal is not anticipated to impact on any Matters of National Environmental Significance listed under the EPBC Act or threatened species, populations and endangered ecological communities, or their habitats, which are listed under NSW *Biodiversity Conservation Act 2016*.

Overall, any impacts on flora and fauna as a result of the Proposal are considered to be negligible.

5.7.2 Operational Impacts

The operation of the new WTP is not expected to result in any impact to flora and fauna. The terrestrial flora and fauna habitat at the site could be improved with the planting of endemic species.

5.7.3 Mitigation

Construction

- Appropriate hygiene strategies are to be identified and implemented during the construction phase of the development to minimise the infestation and spread of noxious weeds as a result of the works.
- Removal of vegetation in general would be kept to the minimum necessary.
- Vehicles and machinery would utilise existing tracks and cleared areas where possible to access the site during construction.
- The works are to be undertaken in accordance with AS 4970-2009 Protection of trees on development sites (Australian Standards 2009).

Operation

 The WTP site should be monitored for the spread of weeds and appropriate control measures implemented.



5.8 Waste Management

5.8.1 Construction Impacts

Construction waste including excess materials and packaging waste would be generated by the Proposal. Excess spoil is expected to be reused on the WTP site where feasible. All weeds would be removed and if soil removal is required offsite, it would be tested, classified and disposed of at a suitably licenced facility.

Other identified sources of waste would include personnel waste. All waste would be removed from site post construction.

5.8.2 Operational Impacts

No new waste streams are expected to be generated by the new WTP at the existing WTP site. Backwash water would be returned to the headworks for treatment and would not be discharged to the environment.

Sludge would be dried in one of the two sedimentation lagoons at the WTP. Once dried, the sludge would be removed off site for disposal. Dried sludge would be managed by Council and is likely to be transported off site to landfill, as required.

5.8.3 Mitigation

Construction

- A Waste Management Plan (WMP) would be prepared as part of the CEMP by the construction contractor for the management of waste generated during construction works. The WMP must be prepared in accordance with the applicable waste management provisions of the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations (Regulation) 2014.* The WMP would follow the resource management hierarchy principles embodied in the *Waste Avoidance and Resource Recovery Act 2001* and the *NSW Government Resource Efficiency Policy 2014.* It would include, but not necessarily be limited to, the following:
 - Non-recyclable waste and containers would be regularly collected and disposed of at a licensed landfill or other disposal site in the area. Waste oil would be sent to approved recyclers.
 - The worksite would be left tidy and rubbish free each day prior to leaving site and at the completion of construction.
 - Transportation of waste must be done in a manner that avoids the waste spilling, leaking or otherwise escaping from the vehicle or plant used to transport the waste. Waste would be transported to a place that can lawfully receive that waste.
- All waste removed from the site would be classified as per the *Waste Classification Guideline: Part 1* (EPA 2014) and disposed of appropriately, and all non-recyclable waste would be disposed of at an appropriate licensed waste disposal facility.
- If any contaminated material is encountered during earthworks, work shall cease, the site secured and a safe work method statement(s) and appropriate practices shall be implemented. Any contaminated material would be classified first and then stored,



transported and disposed of in accordance with EPA requirements at an EPA licensed waste facility.

 If practicable, surplus excavated materials/fill would be reused onsite as part of rehabilitation and restoration works. Any surplus spoil disposed of in this manner would be seeded to minimise the likelihood of it being transported offsite through wind or water action.

Operation

- Biosolid management is to be undertaken in accordance with *Environmental Guidelines* for the Use and Disposal of Biosolids Products (EPA, 2000).
- Contamination of surface waters would be prevented by the installation of runoff diversions or runoff collection controls.

5.9 Visual Amenity

The proposed new WTP would be located within the existing Wilcannia WTP site. The surrounding land use context is described in Section 5.2. The WTP is located in a low-density residential setting dominated by stand alone dwellings.

5.9.1 Construction Impacts

The main visual impacts during the construction period would be from equipment and vehicles used during construction works and a temporary site perimeter fence, stockpiling and site compound. Visual impacts resulting from construction would be short term due to the duration of the works.

5.9.2 Operational Impacts

The new WTP would result in the decommissioning of the existing WTP building and the construction of new infrastructure onsite. The overall visual impact from the new WTP infrastructure is predicted to be low as it would be consistent with the existing water treatment infrastructure at the site and is predicted to have a minimal additional impact on the visible aesthetics of the area.

5.9.3 Mitigation

Construction

• Visual impacts of the new WTP would be ameliorated through appropriate landscaping and screen planting, if considered necessary.

5.10 Aboriginal Heritage

A desktop search was conducted on the following databases targeting the Wilcannia WTP site to identify any potential previously recorded aboriginal heritage sites or objects within the area. The results of this search are summarised in Table 5-3 below and a copy of the AHIMS search is provided in Appendix D.



Table 5-3 Aboriginal Heritage Desktop - Database Search Results

Name of Database Searched	Date of Search	Type of Search	Comment
Heritage NSW Aboriginal Heritage Information Management System (AHIMS);	26.08.21	WTP site- Lot 1 DP807546	No registered AHIMS sites within the Proposal study areas (or within 200 metres of the Proposal site).
National Native Title Claims /Determinations Search	15.11.21	NSW	No Native Title Claims or determinations cover the Proposal site.
Commonwealth Heritage Listings	15.11.21	NSW	No Aboriginal places listed on either the National or Commonwealth heritage lists are located within the Proposal site
Local Environment Plan	07.09.21	Central Darling LEP 2012	No Aboriginal places noted occur near the Proposal site.

5.10.1 Construction Impacts

Construction works are not anticipated to impact significantly on any item or place having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations.

The *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW* (DECCW, 2010) has been used in assessing the likelihood of encountering items of Aboriginal cultural heritage during the construction works. Overall, it is considered reasonable to conclude that there are no known Aboriginal objects or a low probability of objects occurring in the area of the proposed WTP works, for the following reasons:

- No Aboriginal objects or places have been recorded within at least 200 m of the WTP site, in accordance with a search of the AHIMS database;
- No landscape features such as rock shelters, sand dunes, waterways, waterholes or wetlands are present at the WTP site or within 200 m of the site that are likely to indicate presence of Aboriginal objects; and
- The area of works would occur within previously disturbed areas of WTP site, including areas that have been subject to extensive above and below ground disturbance for existing infrastructure and current WTP operations.

Therefore, it is considered that further archaeological investigations and/or an Aboriginal Heritage Impact Permit are not required and that the Proposal can proceed with caution due to the lack of known Aboriginal items or landscape features that are likely to indicate presence of Aboriginal objects, and the previous disturbance of the WTP site.



In the event that any potential Aboriginal cultural heritage items are found during the proposed construction works, the works should cease and the safeguards listed below would be applied.

5.10.2 Operational Impacts

There would be no heritage impacts during operation of the new WTP.

5.10.3 Mitigation

Construction

- All land and ground disturbance activities must be confined to within the Proposal area, as this would eliminate 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 may be required.
- All staff and contractors involved in the proposed work should be made aware of the legislative protection requirements for all Aboriginal sites and objects.
- During works, if Aboriginal artefacts or skeletal material are noted, all work should cease and the procedures in the Unanticipated Finds Protocol should be followed.
- In the event that Aboriginal burials are unexpectedly encountered during the activity, work
 must stop immediately, the area secured to prevent unauthorised access and NSW Police
 and Heritage NSW contacted.
- Work crews should undergo cultural heritage induction to ensure they recognise Aboriginal artefacts and are aware of the legislative protection of Aboriginal objects under the NPW Act and the contents of the Unanticipated Finds Protocol.

5.11 Historic Heritage

There are no State or local heritage listings that apply to the Wilcannia WTP site.

5.11.1 Construction Impacts

During and post-construction, the Proposal is not anticipated to impact on any item or place having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations

5.11.2 Operational Impacts

There would be no heritage impacts during operation of the new WTP.

5.11.3 Mitigation

Construction

 As part of an induction, in the unlikely event that any historical relics or sites are identified workers should be aware of their responsibilities under the provisions of the *Heritage Act 1977*. In this event all works must cease and the area be protected until a qualified archaeologist inspects the site and provides management advice in consultation with Heritage NSW.

Hunter New England | South Coast | Riverina Western | North Coast | Sydney





5.12 Hazards and Risks

5.12.1 Operational Impacts

A number of chemicals that can be classified as Dangerous Goods under the ADG Code would continue to be stored on site and include:

- Liquefied Chlorine gas Class 2.3
- Caustic Soda (sodium hydroxide) Class 8 (to be confirmed in final design)

Class 2.3 substances are classified as toxic gases. These are defined as substances that are known to be so toxic or corrosive to humans as to pose a hazard to health.

Class 8 substances are classified as corrosive substances. These are defined as substances which, by chemical action, would cause severe damage when in contact with living tissue, or, in the case of leakage, would materially damage, or even destroy, other goods or the means of transport.

Class 6.1 goods are classified as toxic. They are substances that are liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.

Dangerous good storage notification to SafeWork NSW would be undertaken for the above chemicals.

The quantities of chemicals that would be stored are all below the relevant thresholds that would trigger additional requirements under *State Environmental Planning Policy* 33 – *Hazardous and Offensive Development.*

The risk of chemical spills is considered to be low. All chemicals used in the treatment process would be stored on site within bunded areas. Bunds would be sized to contain 10% in addition to the chemical volumes stored (ie a minimum of 110% of chemicals stored within them).

Public safety hazards are unlikely beyond the boundary of the WTP site. Chemicals stored and used at the WTP are required to be stored in accordance with Australian Standards and SafeWork NSW guidelines, adequately sealed within infrastructure and appropriately bunded. Chemicals may be required to be disposed of during operation of the WTP.

Requirements for the storage, handling and disposal of chemicals during operation would be undertaken in accordance with the relevant Safety Data Sheets and included in the WTPs Operational Environmental Management Plan.

For the protection of the public, the entire WTP site including the lagoons would be fenced. The man proof fencing would also consist of one double leaf manual gate at the entrance.

The existing WTP would remain operational until the new plant is commissioned. Therefore, there would be no interruption of the water supply to the community.

5.12.2 Mitigation Measures

Construction

• Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any waterway or drainage line.

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



- Any hazardous materials stored on site would be stored in the compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there.
- Workers would be trained in the spill management plan and the use of the spill kits.

Operation

- SafeWork NSW would be notified regarding the storage of dangerous goods at the site.
- The transport and handling of all chemicals used in the operation of the Wilcannia WTP would be undertaken in accordance with all relevant SafeWork NSW guidelines including the following:
 - Code Of Practice: Managing Risks Of Hazardous Chemicals In The Workplace (SafeWork NSW, August 2019).
 - Code Of Practice: Labelling Of Workplace Hazardous Chemicals (SafeWork NSW, August 2019).
- Liquid chemical storage and filling areas would be located in bunded areas designed to accommodate 110% of the total capacity delivered and are to include appropriately designed drainage and safety equipment.
- Storage tanks would be regularly inspected and maintained to ensure their integrity. Plant personnel would be trained for proper and safe operation of these facilities.
- Specific requirements for the management of chemicals associated with the WTP would be detailed in an Operational Environmental Management Plan.
- Safety Data Sheets for chemicals used in the treatment process are to be available on site at all times.
- All hazardous substances are to be listed in a register together with the relevant Safety Data Sheets. Employees are to have access to this register.
- Fuel and lubricants for machinery maintenance are to be stored and managed appropriately.
- Appropriate signage is to be maintained where chemicals are stored.
- The Operational Environmental Management Plan would be periodically reviewed to assess the efficacy of all management procedures. Identified shortcomings would be remedied to ensure these continue to be effective.



6. Environmental Management

6.1 Construction Environmental Management Plan

Preparation of a Construction Environmental Management Plan (CEMP) is mandatory for all projects undertaken by or on behalf of government agencies or where funding is being provided by the government.

The CEMP would be developed to ensure that appropriate environmental management practices are followed during a project's construction and/or operation. Council would review the CEMP for this Proposal, which should include the following elements, as described in the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004):

	Introduction to the document
Background	
	Description of the Proposal and project details
	The context for the CEMP in regard to the overall project
	The CEMP objectives
	The contractor's environmental policy
	Environmental management structure of the organisation and specific team responsibilities with respect to the CEMP and its implementation
Environmental	Approval and licensing requirements relevant to the project
Management	Reporting requirements
	Environmental training
	Emergency contacts and response
	A project specific risk assessment
	A detailed list of environmental management safeguards and controls
Implementation	CEMP sub plans for specific environmental controls
	A detailed schedule assigning responsibility to each environmental management activity and control
	Environmental monitoring
Monitor and Poviow	Environmental auditing
	Corrective action
	CEMP review and document control procedures

Table 6-1 Construction Environmental Management Plan Structure

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Review of Environmental Factors

The CEMP would include a risk assessment which ensures that the safeguards identified in this REF, as well as any others that are considered relevant, are effectively translated into actual construction techniques and environmental management activities, controls, and monitoring/verification to prevent or minimise environmental impacts. The CEMP should also identify the requirements for compliance with relevant legislation and any other regulatory requirements to ensure environmental safeguards described throughout this REF are implemented. The environmental management objectives and supporting actions presented in this section are intended to assist in this process.

The following details the environmental objectives during construction and the proposed mitigation to be included in the CEMP. This list is not definitive, and additional measures detailed as part of the determination of the project and conditions of any other approvals must also be included. Operational safeguards are also included.

6.2 Environmental Management Measures

6.2.1 Location and Land Use

Objective

• Minimise impacts to surrounding land users during construction and operation

Actions

Action/Phase	Responsibility
Pre-construction	
The affected local community is to be consulted with regard to the construction works, predicted program and any access requirements.	Council
Construction	
Best management construction impacts are to be documented in a project specific CEMP.	Contractor
The WTP site security fencing and areas disturbed during construction would be reinstated to their pre-construction condition.	Contractor
No construction activities (e.g. tree clearing, stockpiling etc.) would be undertaken on private property surrounding the WTP site without prior approval. Appropriate security, supervision and access controls would be put in place and properly monitored to ensure no access by unauthorised personnel, either to the work area or via the work area to adjoining areas not under the ownership of Council.	Contractor
Council could provide a 24-hour telephone number so that any issues relating to the operation of the new infrastructure can be clarified and complaints dealt with by those able to respond.	Council

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Review of Environmental Factors

Action/Phase	Responsibility
Pre-construction	
Restoration of the areas disturbed during construction would be undertaken so that these areas are returned to their pre-construction condition.	Contractor

6.2.2 Noise and Vibration

Objective

- Compliance with relevant recommendations specified in the Interim Construction Noise Guideline (DECC, 2009).
- Avoidance/minimisation of noise impacts on nearby sensitive noise receivers.

Actions

Action/Phase	Responsibility
Construction	
Control measures to minimise noise and vibration impacts on adjoining land would be implemented during construction as part of the contractor's CEMP, which would require review by Council prior to commencement of works. The CEMP would address site specific issues, including limited work hours and noise and vibration reduction practices, taking into consideration EPA's <i>Interim Construction Noise Guideline</i> (in particular Tables 4–10) and <i>Assessing Vibration: A Technical Guideline</i> (in particular mitigation measures in Section 3). Mitigation measures to minimise noise and vibration impacts would include:	Contractor
acoustic and vibration impacts would be minimised;	
2. Regular maintenance of all plant and machinery used for the project;	
3. Identify locations where construction noise and vibration is most intrusive and develop strategies to reduce impacts for these areas.	
Works would be undertaken during normal work hours i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays; and no work would be undertaken on Sundays, Public Holidays or outside these work hours.	Contractor
All reasonable practical steps shall be undertaken to reduce noise and vibration from the site.	Contractor
Community notification would be undertaken where appropriate and where work is likely to cause offensive noise and impact the public and adjoining landowners.	Contractor

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Action/Phase	Responsibility
Operation	
Operational noise emissions would be verified to demonstrate selected plant and equipment complies with NPfI requirements at the nearest sensitive receptor. This would be achieved through post-compliance monitoring to validate the noise emissions and to identify the need for additional mitigation measures.	Contractor
All community complaints received regarding the WTP would be recorded and responded to by Council.	Council

6.2.3 Traffic and Access

Objective

- Ensure that construction vehicles do not cause excessive inconvenience to road and pedestrian users.
- Ensure the safety of road users and construction personnel for the duration of the works.
- Minimise the pollution impacts resulting from the use of vehicles during construction.

Actions

Action/Phase	Responsibility
Pre-construction	
Prior to the commencement of works, existing access tracks and roads that would be used by heavy vehicles would be assessed for adequacy and upgraded where necessary. Appropriate drainage would be provided for any unsealed tracks utilised during the works to ensure that vehicle movements do not cause erosion and movement of sediment from the construction site.	Contractor
Construction	
The contractor would include traffic management measures as part of the CEMP, to be reviewed by Council prior to commencement of works.	Contractor
Any disturbance to landowners due to vehicle movements and associated noise would be minimised by adhering to the working hours outlined in Section 5.3.3 of the REF. The contractor would avoid any inconvenience to residences/landowners, and all access gates would remain in their original condition following completion of the works.	Contractor
Any temporary access tracks required for the works would be located to minimise disturbance to the existing environment. Following completion of	Contractor

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Review of Environmental Factors

Action/Phase	Responsibility
the works the temporary tracks would be removed, topsoil provided and re- grassed. Existing tracks would be restored to their condition prior to works.	
All traffic would comply with all applicable traffic laws and regulations including speed limits.	Contractor
All vehicles transporting spoil would be covered and filled to maximum capacity to minimise vehicle movements.	Contractor
All roads, kerbs, gutters and footpaths damaged as a result of construction are to be restored to their pre-construction condition.	Contractor
All sealed roads would be kept clean and free of dust and mud at all times. Where material is tracked onto sealed roads, it would be removed immediately so that road pavements are kept safe and trafficable.	Contractor

6.2.4 Air Quality

Objective

- Avoidance/minimisation of off-site dust nuisance to neighbouring residences and the community.
- Minimisation of air quality impacts resulting from machinery and vehicle emissions.
- Minimisation of air quality impacts resulting from operational activities.

Actions

Action/Phase	Responsibility
Pre-construction	
Construction vehicles and equipment would be suitably serviced within the six-month period prior to commencement of construction activities and all necessary maintenance undertaken during the construction period to meet EPA air quality requirements.	Contractor
Construction	
The excessive use of vehicles and powered construction equipment would be avoided.	Contractor
Construction contractors would monitor dust generation potential.	Contractor
Dust suppression methods including the use of water carts would be applied where required (i.e. on windy days when earthworks and vehicle movements are generating dust which may cause a nuisance to others). Under extreme	Contractor

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Review of Environmental Factors

Action/Phase	Responsibility
wind conditions, construction activities are to be temporarily suspended if construction activities are generating dust emissions.	
Any stockpiled spoil/fill would be protected to minimise dust generation.	Contractor
Vehicles transporting spoil from the sites would be covered.	Contractor
Bare surfaces are to be vegetated or sealed as soon as possible.	Contractor
Burning matter of any kind would not be permitted on site.	Contractor

6.2.5 Water Quality and Erosion and Sediment Control

Objective

- To effectively manage sediment and erosion control during the construction stage of the project.
- Prevention/minimisation of impacts to the waterways during the construction works.

Actions

Action/Phase	Responsibility
Construction	
A detailed Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP. The ESCP would describe the site-specific measures to be implemented for all works areas, in accordance with the guidelines outlined in the 2004 Landcom publication <i>Managing Urban Stormwater: Soils and Construction</i> , 4th edition ("The Blue Book") and <i>Volume 2a Installation of Services</i> . The ESCP would need to be site specific and would need to address the following issues to prevent erosion, sediment loss and water quality impacts:	
• Identification of site-specific sediment and erosion control measures wherever erosion is likely to occur.	
• Identification of any environmentally sensitive areas on or near construction sites to ensure runoff is diverted away from sensitive areas.	Contractor
Requirements for vegetation clearing to be kept to a minimum.	
• Retention of all surface runoff on-site and where possible stormwater from off site would be diverted around the construction site.	
Backfilling and stabilising of trenches once pipelines or other underground services are installed.	
Location of construction compounds (at least 50m from any the drainage line).	

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Action/Phase	Responsibility
• Location and management of stockpiles, such as locating stockpiles away from the drainage line near the works areas.	
• Regular inspection of all erosion and sediment controls, especially when rain is expected and directly after any rain events.	
All areas where ground disturbance has occurred would be stabilised following completion of works to ensure there is no erosion hazard and restored to their pre-construction condition. This would involve, where required, reshaping the ground surface, covering it with topsoil excavated from the site and re-establishing an appropriate vegetation cover.	Contractor
Any excess spoil would either be spread across the ground in nearby areas in such a manner as to avoid creating an erosion hazard or removed off site for disposal in accordance with relevant Council and EPA requirements.	Contractor
The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for notification of pollution incidents to the required authorities in accordance with s. 147 to 153 of the POEO Act and requires response actions to be implemented in order to address any risks such as incidents posed to the environment, property or surrounding communities.	Contractor
Any disposal of wastewater or fluids generated as part of construction works would be undertaken in a manner that does not cause water pollution. The CEMP would document an appropriate offsite disposal facility for treatment and disposal.	Contractor
A site-specific spill management plan would be prepared and include the following requirements:	
• Emergency spill kits are to be kept at the site (vehicle kits).	
• Refueling of machinery to be undertaken in a dedicated area within the construction compound appropriately protected as outlined in the spill management plan.	
• Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any drainage line.	Contractor
• Any hazardous materials stored on site would be stored in the compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there.	
• Workers would be trained in the spill management plan and the use of the spill kits.	
All vehicles transporting spoil would be covered and filled to maximum capacity to minimise vehicle movements.	Contractor

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



Action/Phase	Responsibility
Operation	
Notification to the EPA in accordance with Part 5.7 of the POEO Ac undertaken where a pollution incident occurs during an activity so t material harm to the environment is caused or threatened.	ct is to be hat Council

6.2.6 Flora and Fauna

Objective

- Avoidance/minimisation of impacts to flora and fauna
- Minimise clearing of vegetation
- Avoid weed invasion
- Prevention/minimisation of impacts to surrounding waterbodies

Actions

Action/Phase	Responsibility
Construction	
Appropriate hygiene strategies are to be identified and implemented during the construction phase of the development to minimise the infestation and spread of noxious weeds as a result of the works.	Contractor
Removal of vegetation in general would be kept to the minimum necessary.	Contractor
Vehicles and machinery would utilise existing tracks and cleared areas where possible to access the site during construction.	Contractor
The works are to be undertaken in accordance with AS 4970-2009 Protection of trees on development sites (Australian Standards 2009).	Contractor
Operation	
The WTP site should be monitored for the spread of weeds and appropriate control measures implemented.	Council

6.2.7 Waste Management

Objective

- Compliance the provisions of the *Protection of the Environment Operations (Waste) Regulation 2014.*
- Maximise reuse/recycling of waste material and minimise waste disposed of to landfill.

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



Actions

Action/Phase	Responsibility
Construction	
A Waste Management Plan (WMP) would be prepared as part of the CEMP by the construction contractor for the management of waste generated during construction works. The WMP must be prepared in accordance with the applicable waste management provisions of the <i>Protection of the</i> <i>Environment Operations Act 1997</i> and the <i>Protection of the Environment</i> <i>Operations (Regulation) 2014.</i> The WMP would follow the resource management hierarchy principles embodied in the <i>Waste Avoidance and</i> <i>Resource Recovery Act 2001</i> and the <i>NSW Government Resource Efficiency</i> <i>Policy 2014.</i> It would include, but not necessarily be limited to, the following:	Contractor
• Non-recyclable waste and containers would be regularly collected and disposed of at a licensed landfill or other disposal site in the area. Waste oil would be sent to approved recyclers.	
• The worksite would be left tidy and rubbish free each day prior to leaving site and at the completion of construction.	
• Transportation of waste must be done in a manner that avoids the waste spilling, leaking or otherwise escaping from the vehicle or plant used to transport the waste. Waste would be transported to a place that can lawfully receive that waste.	
All waste removed from the site would be classified as per the <i>Waste Classification Guideline: Part 1</i> (EPA 2014) and disposed of appropriately, and all non-recyclable waste would be disposed of at an appropriate licensed waste disposal facility.	Contractor
If any contaminated material is encountered during earthworks, work shall cease, the site secured and a safe work method statement(s) and appropriate practices shall be implemented. Any contaminated material would be classified first and then stored, transported and disposed of in accordance with EPA requirements at an EPA licensed waste facility.	Contractor
If practicable, surplus excavated materials/fill would be reused onsite as part of rehabilitation and restoration works. Any surplus spoil disposed of in this manner would be seeded to minimise the likelihood of it being transported offsite through wind or water action.	Contractor
Operation	
Biosolid management is to be undertaken in accordance with <i>Environmental Guidelines for the Use and Disposal of Biosolids Products</i> (EPA, 2000).	Council

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Review of Environmental Factors

Action/Phase	Responsibility
Contamination of surface waters would be prevented by the installation of runoff diversions or runoff collection controls.	Council

6.2.8 Visual Amenity

Objective

• Protect the visual amenity of the locality for neighbouring land users and the local community.

Actions

Action/Phase	Responsibility
Construction	
Visual impacts of the new WTP would be ameliorated through appropriate landscaping and screen planting, if considered necessary.	Contractor

6.2.9 Heritage

Objective

• Minimise potential impacts to items and places of historic and Aboriginal cultural heritage due to the works

Actions

Action/Phase	Responsibility
Construction	
All land and ground disturbance activities must be confined to within the Proposal area, as this would eliminate 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 may be required.	Contractor
All staff and contractors involved in the proposed work should be made aware of the legislative protection requirements for all Aboriginal sites and objects.	Contractor
During works, if Aboriginal artefacts or skeletal material are noted, all work should cease and the procedures in the <i>Unanticipated Finds Protocol</i> should be followed.	Contractor
In the event that Aboriginal burials are unexpectedly encountered during the activity, work must stop immediately, the area secured to prevent unauthorised access and NSW Police and Heritage NSW contacted	Contractor

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1



Review of Environmental Factors

Action/Phase	Responsibility
Work crews should undergo cultural heritage induction to ensure they recognise Aboriginal artefacts and are aware of the legislative protection of Aboriginal objects under the NPW Act and the contents of the <i>Unanticipated Finds Protocol.</i>	Contractor
As part of an induction, in the unlikely event that any historical relics or sites are identified workers should be aware of their responsibilities under the provisions of the <i>Heritage Act 1977</i> . In this event all works must cease and the area be protected until a qualified archaeologist inspects the site and provides management advice in consultation with Heritage NSW.	Contractor

6.2.10 Hazards and Risks

Objective

• Comply with Safe Work NSW and minimise the occurrence of hazards during the construction and operation of the WTP.

Actions

Action/Phase	Responsibility
Construction	
Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any waterway or drainage line.	Contractor
Any hazardous materials stored on site would be stored in the compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there.	Contractor
Workers would be trained in the spill management plan and the use of the spill kits.	Contractor
Operation	
SafeWork NSW would be notified regarding the storage of dangerous goods at the site.	
The transport and handling of all chemicals used in the operation of the Wilcannia WTP would be undertaken in accordance with all relevant SafeWork NSW guidelines including the following:	
Code Of Practice: Managing Risks Of Hazardous Chemicals In The Workplace (SafeWork NSW, August 2019).	Council
Code Of Practice: Labelling Of Workplace Hazardous Chemicals (SafeWork NSW, August 2019).	

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



Review of Environmental Factors

Action/Phase	Responsibility
Liquid chemical storage and filling areas would be located in bunded areas designed to accommodate 110% of the total capacity delivered and are to include appropriately designed drainage and safety equipment.	Council
Storage tanks would be regularly inspected and maintained to ensure their integrity. Plant personnel would be trained for proper and safe operation of these facilities.	Council
Specific requirements for the management of chemicals associated with the WTP would be detailed in an Operational Environmental Management Plan.	Council
Safety Data Sheets for chemicals used in the treatment process are to be available on site at all times.	Council
All hazardous substances are to be listed in a register together with the relevant Safety Data Sheets. Employees are to have access to this register.	Council
Fuel and lubricants for machinery maintenance are to be stored and managed appropriately.	Council
Appropriate signage is to be maintained where chemicals are stored.	Council
The Operational Environmental Management Plan would be periodically reviewed to assess the efficacy of all management procedures. Identified shortcomings would be remedied to ensure these continue to be effective.	Council



7. Conclusions

The Proposal would potentially cause short term construction impacts such as increased dust levels and minor traffic impacts however these impacts are considered to be minor and temporary.

The main adverse environmental impact potentially associated with the Proposal would involve increase noise impacts to the surrounding residential community during the construction of the new Wilcannia WTP. However, if the mitigation measures outlined in this REF document are implemented, the impacts of the construction noise and other environmental risks can be mitigated such that they would not be significant.

The Proposal would benefit the community in the Wilcannia community, by improving the quality and reliability of the drinking water and addressing safety and health concerns associated with the operation of the existing WTP.

On the basis of the information presented in this Review of Environmental Factors and taking into consideration Clause 228 of the EP&A Act Regulation, Section 5.5 of the EP&A Act it is concluded that by adopting the recommended safeguards, it is unlikely that there would be significant environmental impacts associated with the proposed Wilcannia WTP works and therefore an Environmental Impact Statement is not required.



8. References

Department of Environment and Climate Change, 2009, Interim Construction Noise Guideline

Department of Environment and Conservation (NSW), 2006, Assessment and Management of Odour from Stationary Sources in NSW (Technical Framework and Technical Notes)

Department of Environment, Climate Change and Water, 2010, *Due Diligence Code of Practice* for the Protection of Aboriginal Objects in NSW

Environment Protection Authority, 2017, Noise Policy for Industry

Landcom, 2004, *Managing Urban Stormwater: Soils and Construction, 4th Edition (The Blue Book)*

National Transport Commission (2017) Australian Dangerous Good Code

NHMRC (2011) Australian Drinking Water Guidelines

NSW Public Works (2016) Ivanhoe, White Cliffs and Wilcannia Water Supply Upgrades – Scoping Study (Report No: WSR16047)

NSW Public Works (2017) Wilcannia Water Supply Scheme Water Treatment Plan Interim Report on Geotechnical Investigation

City Water Technology (2016) Wilcannia Water Supply System Scoping Report for Central Darling Shire Council



Appendix A – Consideration of Clause 228

Clause 228 of the EP&A Regulation 2000 stipulates, for purposes of Part 5 of the Act, the factors that must be taken into account when consideration is being given to the likely impact of an activity on the environment.

A determining authority is only required to consider the following matters where an EIS has been prepared for a Part 5 activity under the EP&A Act. However, the following information is provided to assist determining authorities in making determinations consistent with those made for an activity requiring preparation of an EIS.

The various factors and findings following environmental assessment are presented below.

(a) any environmental impact on a community

There is the potential for some temporary noise, visual, and local traffic impacts during the construction works. Mitigation measures would be implemented to minimise these impacts.

Positive impact to the community is predicted post construction with improved potable water supply.

(b) any transformation of a locality

The works would be constructed on the site of the existing WTP. All disturbance to ground surfaces during construction would be rehabilitated post construction.

(c) any environmental impact on the ecosystems of the locality

The Proposal would have minimal impact on the ecosystems of the locality.

(d) any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality

No impacts identified.

(e) any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations

No impacts identified.

(f) any impact on the habitat of protected animals (within the meaning of the Biodiversity Conservation Act 2016)

No impacts identified

(g) any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air

The proposed activity would not have any significant impact on any animal, plant or other form of life listed under the *Biodiversity Conservation Act* 2016 or the *Environment Protection and Biodiversity Act* 1999

(h) any long-term effects on the environment

No negative long-term impacts on the environment predicted.

Hunter New England | South Coast | Riverina Western | North Coast | Sydney

Report No. P-FY20220669/1




Review of Environmental Factors

(i) any degradation of the quality of the environment

Temporary degradation may occur during construction due to the earthworks and general site disturbances.

(j) any risk to the safety of the environment

No impacts anticipated

(k) any reduction in the range of beneficial uses of the environment,

No impacts anticipated

(I) any pollution of the environment,

No impacts anticipated

(m) any environmental problems associated with the disposal of waste

Safeguards would be implemented to prevent any impacts associated with the handling and disposal of waste materials. Waste management would be undertaken in accordance with EPA guidelines.

(*n*) any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply

Wilcannia WTP not predicted to increase water scarcity from surrounding environment due to multiple water extraction options (Darling River and bore water extraction).

(o) any cumulative environmental effect with other existing or likely future activities

The Proposal has been designed in consideration of future water volume requirements.

(p) any impact on coastal processes and coastal hazards, including those under projected climate change conditions.

None identified.



Wilcannia WTP

Review of Environmental Factors









6

DRAWINGS FOR PLANNING APPROVAL ONLY



Due to oblique nature of satellite image, it is difficult to show modelled layover correctly.

D

С

 \blacksquare

В

	А
CLIENT Control Darlings Shire	
Central Darlings Shire	
TITLE Wilcannia water Treatement Plant	
1	























7	8













				D 27/	/08/2021	INCLUDED COMMENTS	OF REVIEW C	BD	RS			PROJECT:	WIL C A
				C 05/	/08/2021	INCLUDED COMMENTS (OF REVIEW B	BD	RS	DRAWN:	BD		WILCA
		WATER		B 26/	/07/2021	FOR 25% DESIGN REVI	EW	BD	RS	APPROVED:	RS	TITLE:	
G		COVE TREATMENT SPECIALISTS		A 4/	/02/2021	FOR TENDER		BD	RS		NTS		Symb
				SSUE DA	ATE	DESCRIPTIC	N	DRN	APPD	DATE: 01	/05/2021		
	AUSTRALIA			Th or tro	These drawings are not to be used, copied, reproduced, or transmitted in any way without the written consent of MSA.							DWG:	ICDSCW2
	1	2	3			4		5				6	



Fau	lipment Idei	ntifiers					
	Acreter			٨			
AL	Aerator			A			
RI RI	Blower		_				
	Circuit Proc	lkor					
CD	Compress						
	Conoral Electrical	Fauinment					
EL	Conorol Equin						
EQ	E-Stop	inent					
ES	E-Stop						
F 3	Flow Switt			В			
IM	Limit Swit	ch	_				
15	Level Swit	ch					
1.1							
мт	Light/ Edi	np					
PI		. (Causa)					
		(Gauge)					
P5	Pressure Sw	itch					
PU SM	Pump Statia Niu			С			
SM	Static Mix	er					
	Serisor	int					
5F SV	Vertical Saturat	or Pipe					
5V TK		or Pipe					
	Automatia)	(alua					
VA							
	Variable Erequer						
	Manual Va						
	Brassura Baliat			D			
	Pressure Relief						
	Fressure Regulat	ing valve					
70	Limit Switch						
20	Limit Switch Open						
71	Limit Switch Open						
	Possition Sv Blate Clari	lior					
	Air Reliefe \		_				
AR ST	All Reliefe A	dive					
DM ST	Rotor Mot	or		Г			
				E			
	Air Pacieu	er	_				
	Air Drye		_				
- CC	Calibration C	linder					
CC Calibration Cylinder							
out th	ne particular						
ed to	display the type	e					
				Г			
evels which are							
nd also	alarm limits						
i a aiot							
to disp	olay open and						
ININIA W	AIER IREAIMENT	rlan I					
ificati	n			~			
uuu		1		G			
	0.01 1.0	REV	Sheet: 18				
59-PID	-001-18	D)F: 18				
7			8	Δ3			



Wilcannia WTP

Review of Environmental Factors

Appendix C – Consultation Responses

Hunter New England | South Coast | Riverina Western | North Coast | Sydney



Sydney Office 4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150 Locked Bag 5022, Parramatta NSW 2124 Tel 02 9240 8500 | TTY 1300 301 181 ABN 19 948 325 463 | www.publicworksadvisory.nsw.gov.au

Department of Planning, Industry and Environment - Water 4 Parramatta Square 12 Darcy Street Parramatta NSW 2150

Email: water.enquiries@dpie.nsw.gov.au

Dear Sir/Madam

Wilcannia Water Treatment Plant - Review of Environmental Factors

Public Works Advisory has been engaged by the Central Darling Shire Council (CDSC) to prepare a Review of Environmental Factors (REF) to assess the environmental impacts associated with a proposal to construct a new Water Treatment Plant (WTP) at the existing Wilcannia Water Treatment Plant site located in Wilcannia, NSW.

The proposed development is permissible without consent under clause 125(3A) of *State Environmental Planning Policy (Infrastructure) 2007.* Therefore, a REF is currently being prepared in accordance with the provisions of Part 5 of the *Environmental Planning and Assessment Act 1979* and clause 228 of the *Environmental Planning and Assessment Regulation 2000.* CDSC would be the determining authority for the development.

The purpose of this letter is to notify the Department of Planning, Industry and Environment (DPIE) - Water of the proposed development and to provide DPIE - Water the opportunity to comment on the proposal.

Project Background

CDSC is proposing to construct a new WTP at the existing Wilcannia WTP site, located at 16-34 Hood Street, Wilcannia (Lot 1 DP 807546).

The Wilcannia WTP was constructed in the 1980's and uses conventional treatment processes including coagulation, flocculation and sedimentation, followed by filtration. The WTP is reaching the end of its design life and CDSC have identified the need to replace the existing WTP with a new treatment plant and associated plant building to meet key water quality targets for the supply of water to the Wilcannia community. The new WTP will be a membrane filtration WTP with additional processes capable of treating 1.2 ML/d.

The proposed new WTP facility would consist of the following:

• New WTP infrastructure and plant building (single storey - including control and plant rooms, laboratory, dosing and chlorine rooms)

- Two new clearwater tanks and pumps
- New onsite access road and car park
- New gates and fencing (as required)

Aerial photos of the site, location of the proposed new WTP and concept plans have been provided in Attachment A.

The operation of the new Wilcannia WTP would result in positive impacts to the Wilcannia Community and surrounding area, particularly with regard to improved drinking water quality and resolve the existing WTP's health and safety issues, through the replacement of the existing ageing Wilcannia WTP facility.

If you would like to provide comments on the proposal for consideration in the REF, please provide these by 1 November 2021 to <u>mitch.pearce@finance.nsw.gov.au</u>.

Yours sincerely

MAL 12

Mitch Pearce Environmental Scientist

11 October 2021

Attachment A



Figure 1: Wilcannia WTP Location (Lot 1 DP 807546 highlighted in yellow) Source: SIX Maps, accessed October 2021



Figure 2: Wilcannia WTP (highlighted in yellow) Source: SIX Maps, accessed October 2021



Figure 3: Concept Plan of the Proposed New Wilcannia WTP

Source: Membrane Systems Australia, July 2021



Figure 4: Proposed New Wilcannia WTP Overlayed on Existing WTP Site Source: Membrane Systems Australia, September 2021

From:	Sandy Leask
То:	Mitch Pearce; HSSG-WaterQual
Subject:	RE: Wilcannia Water Treatment Plant - Consultation Letter
Date:	Wednesday, 3 November 2021 6:07:34 PM
Attachments:	image004.jpg
	image005.jpg
	image006.jpg
	image007.png
	image008.jpg

Hello Mitch

Thank you for the opportunity to comment on the Review of Environmental Factors for the proposed new Wilcannia water filtration plant. NSW Health has no comments on the REF. NSW Health repeats its concern that the plant's processes must be suitable to address the hazards in the raw water supply and to provide a safe supply of drinking water to the people of Wilcannia. In particular NSW Health notes the increase in the pathogen risk created by moving the Wilcannia Weir to be downstream from the town and the sewage treatment plant. It is important that the plant's design addresses these increased risks. I am sorry that I have taken so long to reply to you. Please contact me using the details below if you would like to discuss these comments.

Regards

Sandy

Sandy Leask

Senior Policy Advisor, Water Unit Environmental Health Branch NSW Health

Street Address - 1 Reserve Rd ST LEONARDS 2065 Postal Address - Locked Mail Bag 961 NORTH SYDNEY NSW 2059 Tel. 02 9391 9893 | Fax. 02 9391 9960 | Mob. 0402 703 928 | sandy.leask@health.nsw.gov.au http://www.health.nsw.gov.au/environment/water/Pages/default.aspx Water Unit on-call 02 9391 9939 | 0491 227 423 (no SMS)



Visit the <u>NSW Health website</u> for the latest information on COVID-19.



From: Mitch Pearce <Mitch.Pearce@finance.nsw.gov.au>
Sent: Tuesday, 12 October 2021 11:32 AM
To: HSSG-WaterQual <HSSG-WaterQual@health.nsw.gov.au>

Subject: Wilcannia Water Treatment Plant - Consultation Letter

Hello,

The Public Works Advisory (PWA) has been engaged by Central Darling Shire Council to prepare a Review of Environmental Factors (REF) for a proposal to construct a new Water Treatment Plant at the existing Wilcannia Water Treatment Plant located at 16-34 Hood Street, Wilcannia (Lot 1 DP 807546). Further details regarding the proposal are provided in the attached letter.

The purpose of the attached letter is to invite your organisation to provide comments on the proposal, as well as any matter you wish to be addressed in the REF.

If you have any comments, it would be appreciated if you could provide a response prior to 2 November 2021.

Kind regards

Mitch Pearce Environmental Scientist | Environment and Planning

Public Works Advisory | Department of Regional NSW **T** 02 6648 2000 | **M** 0422 068 150 | **E** <u>mitch.pearce@finance.nsw.gov.au</u> 359 Harbour Drive, Coffs Harbour NSW 2450

publicworksadvisory.nsw.gov.au |www.regional.nsw.gov.au

	2
ſ	?

The Department of Regional New South Wales acknowledges that it stands on Country which always was and always will be Aboriginal land. We acknowledge the Traditional Custodians of the land and waters, and we show our respect for Elders past, present, and emerging. We are committed to providing places in which Aboriginal people are included socially, culturally, and economically through thoughtful and collaborative approaches to our work.

This email message and any attached files is confidential and intended solely for the use of the individual or entity to whom it is addressed and may contain information that is privileged, confidential and/or exempt from disclosure under applicable law. If you have received this email in error, delete all copies and notify the sender.

This email is subject to copyright. No part of it should be reproduced, published, communicated or adapted without the copyright owner's written consent. No employee or agent is authorised to conclude any binding agreement on behalf of the Department of Customer Service (DCS) by email without express written confirmation.

The views or opinions presented in this email are solely those of the author and do not necessarily represent those of the DCS. DCS accepts no liability for any loss or damage arising from the use of this email and the recipient should check this email and any attached files for the presence of viruses.

***** ****

This message is intended for the addressee named and may contain confidential information. If you are not the intended recipient, please delete it and notify the sender.

Views expressed in this message are those of the individual sender, and are not necessarily the views of NSW Health or any of its entities.

29 October 2021



DOC21/891531-1

Public Works Advisory Department of Regional NSW Locked Bag 5022 PARRAMATTA NSW 2124

By email: mitch.pearce@finance.nsw.gov.au

Attention: Mr Mitchell Pearce, Environmental Scientist

Request for comments - Wilcannia Water Treatment Plant

Dear Mr Pearce

I refer to your letter dated 11 October 2021 to the Environment Protection Authority (EPA) regarding the Review of Environmental Factors (REF) to be prepared for the proposed construction of the new Wilcannia Water Treatment Plant (WTP) at the existing Wilcannia Water Treatment Plant located at Lot 1 DP 807546, 16-34 Hood Street Wilcannia, NSW (the proposal).

The EPA has responsibilities for pollution control and environmental management under the Protection of the Environment Operations Act 1997 (POEO Act).

The EPA has reviewed the information provided in your letter and the proposed works may have the potential for causing water quality and noise impacts. To minimise the potential impacts the following should be addressed in the REF:

- Strategies to minimise the need for and the impact of any water discharges from the proposal. • If a discharge to waters is required, the EPA should be informed as this may trigger the need for an Environment Protection Licence under the POEO Act.
- Potential noise impacts from the pump station should be considered against the *Noise Policy* • for Industry (EPA, 2017) and mitigation measures implemented where necessary.
- Details of any waste streams expected to be generated by the proposal and how they will be • managed.
- Appropriate chemical storage to minimise any environmental risks •

If you have any further enquiries about this matter please contact Marjorie Pereira, Operations Officer by telephoning 02 6969 0713 or by electronic mail at info@epa.nsw.gov.au

Yours sincerely

SNun canon

SHELLEY NANCARROW A/Unit Head **Regulatory Operations Regional**

Phone +61 2 6969 0700 Fax +61 2 6969 0710 PO Box 397 Phone 131 555 (from outside NSW)

TTY 133 677

Griffith ABN 43 692 285 758 NSW 2680 Australia Suite 7 130-140 Banna Ave Griffith NSW 2680 Australia

www.epa.nsw.gov.au info@epa.nsw.gov.au



Wilcannia WTP

Review of Environmental Factors

Appendix D – Flora and Fauna and AHIMS Search Results

Hunter New England | South Coast | Riverina Western | North Coast | Sydney


Your Ref/PO Number : Wilcannia WTP Client Service ID : 616960

Date: 26 August 2021

Public Works Advisory 66 Harrington Street Sydney New South Wales 2000

Attention: Kristen Parmeter

Email: kristen.parmeter@finance.nsw.gov.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 1, DP:DP807546, Section : - with a Buffer of 200 meters, conducted by Kristen Parmeter on 26 August 2021.

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



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

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

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

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

Important information about your AHIMS search

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



Australian Government

Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

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

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

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

Report created: 05/10/21 15:33:32

Summary Details Matters of NES Other Matters Protected by the EPBC Act Extra Information Caveat Acknowledgements



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

Coordinates Buffer: 10.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	14
Listed Migratory Species:	7

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	12
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	10
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)	[Resource Information]
Name	Proximity
Banrock station wetland complex	300 - 400km upstream
<u>Riverland</u>	300 - 400km upstream
The coorong, and lakes alexandrina and albert wetland	500 - 600km upstream

Listed Threatened Ecological Communities

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

Name	Status	Type of Presence
Coolibah - Black Box Woodlands of the Darling	Endangered	Community likely to occur
Riverine Plains and the Brigalow Belt South Bioregions		within area

Listed Threatened Species		[Resource Information]		
Name	Status	Type of Presence		
Birds				
Amytornis modestus				
Thick-billed Grasswren [84121]	Vulnerable	Species or species habitat likely to occur within area		
Calidris ferruginea				
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area		
Falco hypoleucos				
Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area		
Grantiella picta				
Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area		
Pezoporus occidentalis				
Night Parrot [59350]	Endangered	Extinct within area		

Rostratula australis Australian Painted Snipe [77037]

Endangered

Species or species habitat may occur within area

[Resource Information]

Fish				
Maccullochella macquariensis				
Trout Cod [26171]	Endangered	Species or species habitat may occur within area		
Maccullochella peelii				
Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area		
Mammals				
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area		
Plants				

	Status	Type of Presence
[4143]	Vulnerable	Species or species habitat may occur within area
<u>Austrostipa metatoris</u> [66704]	Vulnerable	Species or species habitat may occur within area
<u>Calotis moorei</u>		
Moore's Burr-daisy [55381]	Endangered	Species or species habitat known to occur within area
Lepidium monoplocoides		
Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area
Solanum karsense		
Menindee Nightshade [7776]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species		[Resource Information
* Species is listed under a different scientific name on t	he EPBC Act - Threatened	Species list.
Name	Threatened	Type of Presence
Migratory Marine Birds		
Migratory Marine Birds <u>Apus pacificus</u> Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Marine Birds <u>Apus pacificus</u> Fork-tailed Swift [678] <u>Migratory Terrestrial Species</u>		Species or species habitat likely to occur within area
Migratory Marine Birds Apus pacificus Fork-tailed Swift [678] Migratory Terrestrial Species Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area Species or species habitat may occur within area
Migratory Marine Birds Apus pacificus Fork-tailed Swift [678] Migratory Terrestrial Species Motacilla flava Yellow Wagtail [644] Migratory Wetlands Species		Species or species habitat likely to occur within area Species or species habitat may occur within area
Migratory Marine Birds Apus pacificus Fork-tailed Swift [678] Migratory Terrestrial Species Motacilla flava Yellow Wagtail [644] Migratory Wetlands Species Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat likely to occur within area Species or species habitat may occur within area Species or species habitat likely to occur within area
Migratory Marine Birds Apus pacificus Fork-tailed Swift [678] Migratory Terrestrial Species Motacilla flava Yellow Wagtail [644] Migratory Wetlands Species Actitis hypoleucos Common Sandpiper [59309] Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area Species or species habitat may occur within area Species or species habitat likely to occur within area

likely to occur within area

Calidris melanotos Pectoral Sandpiper [858]

Gallinago hardwickii Latham's Snipe, Japanese Snipe [863] Species or species habitat may occur within area

Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land

[Resource Information]

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

Name Commonwealth Land - Telstra Corporation Limited

Listed Marine Species

[Resource Information]

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

Name Threatened Type of Presence

Name	Threatened	Type of Presence
Birds		
<u>Actitis hypoleucos</u> Common Sandpiper [59309]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<u>Ardea ibis</u> Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
<u>Calidris ferruginea</u> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat likely to occur within area
<u>Calidris melanotos</u> Pectoral Sandpiper [858]		Species or species habitat may occur within area
<u>Chrysococcyx osculans</u> Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
<u>Gallinago hardwickii</u> Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
<u>Haliaeetus leucogaster</u> White-bellied Sea-Eagle [943]		Species or species habitat may occur within area
<u>Merops ornatus</u> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<u>Motacilla flava</u> Yellow Wagtail [644]		Species or species habitat may occur within area

Rostratula benghalensis (sensu lato)

Painted Snipe [889]

Endangered*

Species or species habitat may occur within area

Extra Information

Invasive Species

[Resource Information]

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

Name Type of Presence Status

Name	Status	Type of Presence
Birds		
Columba livia		
Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus		
House Sparrow [405]		Species or species habitat likely to occur within area
Sturnus vulgaris		
Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula		
Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Canis lupus familiaris		
Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus		
Goat [2]		Species or species habitat likely to occur within area
Felis catus		
Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus		
Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Sus scrofa		
Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes		
Red Fox, Fox [18]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-31.55277 143.3807

Acknowledgements

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

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

-Australian Institute of Marine Science

-Reef Life Survey Australia

-American Museum of Natural History

-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania

-Tasmanian Museum and Art Gallery, Hobart, Tasmania

-Other groups and individuals

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

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

© Commonwealth of Australia Department of Agriculture Water and the Environment GPO Box 858 Canberra City ACT 2601 Australia +61 2 6274 1111 Data from the BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Public Report of all Valid Records of Threatened (listed on BC Act 2016) ,Commonwealth listed ,CAMBA listed or ROKAMBA listed Entities in selected area [North: -31.50 West: 143.33 East: 143.43 South: -31.60] returned a total of 17 records of 11 species.

Report generated on 5/10/2021 3:28 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Reptilia	Pythonidae	2819	Antaresia stimsoni		Stimson's Python	V,P		1	The billing image current for displaced
Animalia	Aves	Anatidae	0216	Oxyura australis		Blue-billed Duck	V,P		1	The black longe sense to deploye
Animalia	Aves	Accipitridae	0218	Circus assimilis		Spotted Harrier	V,P		1	The bland image named in displayed
Animalia	Aves	Accipitridae	0231	^^Hamirostra melanosternon		Black-breasted Buzzard	V,P,3		1	
Animalia	Aves	Accipitridae	0225	Hieraaetus morphnoides		Little Eagle	V,P		1	The biast image cannot be simplest
Animalia	Aves	Scolopacidae	0163	Calidris acuminata		Sharp-tailed Sandpiper	Р	C,J,K	1	
Animalia	Aves	Scolopacidae	0161	Calidris ferruginea		Curlew Sandpiper	E1,P	CE,C,J,K	1	1 The bland image research in displayed
Animalia	Aves	Cacatuidae	8857	^Calyptorhynchus banksii samueli		Red-tailed Black-Cockatoo (inland subspecies)	V,P,2		7	
Animalia	Aves	Cacatuidae	0270	^Lophochroa leadbeateri		Major Mitchell's Cockatoo	V,P,2		1	The bind improvement for single-
Animalia	Aves	Climacteridae	8127	Climacteris picumnus victoriae		Brown Treecreeper (eastern subspecies)	V,P		1	The black map owned to deploy
Plantae	Flora	Asteraceae	9457	Calotis moorei		A burr-daisy	E1	Е	1	The initial image current for displaced.



4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150 Locked Bag 5022, Parramatta NSW 2124 www.publicworksadvisory.nsw.gov.au

Document No. P-FY20220669/1