

# Native Vegetation Clearance

## Port Augusta East Wastewater Treatment Plant Upgrade Data Report

Clearance under the *Native Vegetation Regulations 2017*

17 March 2026

Prepared by Renate Faast and Marcus Cooling



# Table of contents

1. Application information
2. Purpose of clearance
  - 2.1 Description
  - 2.2 Background
  - 2.3 General location map
  - 2.4 Details of the proposal
  - 2.5 Approvals required or obtained
  - 2.6 Native Vegetation Regulation
  - 2.7 Development Application information (if applicable)
3. Method
  - 3.1 Flora assessment
  - 3.2 Fauna assessment
4. Assessment outcomes
  - 4.1 Vegetation assessment
  - 4.2 Threatened Species assessment
  - 4.3 Cumulative impacts
  - 4.4 Addressing the Mitigation hierarchy
  - 4.5 Principles of clearance
  - 4.6 Risk Assessment
  - 4.7 NVC Guidelines
5. Clearance summary
6. Significant environmental benefit
7. Appendices
  - 7.1 Level 1 Clearance Application for Geotechnical works (submitted separately)
  - 7.2 Fauna Survey
  - 7.3 Bushland Vegetation Assessment Scoresheets (submitted in Excel format).
  - 7.4 Flora Species List

## Project AH091-1 Document Control

Report Ref.	Version	Issued	Issued to	Issued by
AH091-1	A	17 March 2026		Renate Faast
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### Report authors:

Renate Faast and Marcus Cooling

# 1. Application information

## Application Details

Applicant:	SA Water		
Key contact:			
Landowner:	SA Water (D55700 A7) Port Augusta Operations (D55700 A8)		
Site Address:	Old Power Station Rd		
Local Government Area:	Port Augusta City Council	Hundred:	
Title ID:	CR/5819/692 and CT/6325/957	Parcel ID	D55700 A7 and D55700 A8

## Summary of proposed clearance

Purpose of clearance	Clearance is required to upgrade the existing Port Augusta East Wastewater Treatment Plant (WWTP).
Native Vegetation Regulation	Vegetation clearance in this project is permitted under Regulation 12(34) - Infrastructure 5(1)(d) Clearance incidental to the construction or expansion of a building or infrastructure (and associated services) where the Minister has declared that the clearance is in the public interest.
Description of the vegetation under application	<u>Size, type and general condition</u> – <ul style="list-style-type: none"> <li>1.8959 ha regenerating chenopod shrubland in poor to moderate condition</li> </ul>
Total proposed clearance - area (ha) and number of trees	1.8959 ha area proposed to be cleared.
Level of clearance	<b>Level 4</b>
Overlay (Planning and Design Code)	N/A

Map of proposed clearance area



Map data is compiled from a variety of sources and hence its accuracy is variable.

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 Generated at: www.naturemaps.sa.gov.au  
 Datum: Geocentric Datum of Australia, 2020  
 Projection: Web Mercator (Auxiliary Sphere)



Mitigation hierarchy

The proposed track access has been designed to minimise clearance while supporting heavy vehicle movement, minimising earthworks, and maintaining ongoing accessibility under all conditions.

The site of the laydown area has been selected in an area of more sparse vegetation within a former biosolids lagoon.

SEB Offset proposal

Payment of **\$24,162.97** into the Fund

# 2. Purpose of clearance

## 2.1 Description

Upgrades to the existing Port Augusta East Wastewater Treatment Plant (WWTP).

## 2.2 Background

The Port Augusta East Wastewater Treatment Plant (WWTP) is situated on Old Power Station Rd, on the southeastern side of the town of Port Augusta (Figure 1). The existing plant was commissioned in 1980 with no significant upgrades completed since. The plant comprises of two aerated lagoons and two facultative polishing lagoons, operating in parallel. Treated effluent is discharged to an adjacent intertidal area of Spencer Gulf.

The Port Augusta Wastewater Treatment Plant Environment Improvement Program Upgrade project aims to optimise WWTP performance to minimise potential harm from effluent discharged to the receiving environment.

The proposed clearance area is shown in Figure 2.

## 2.3 General location map

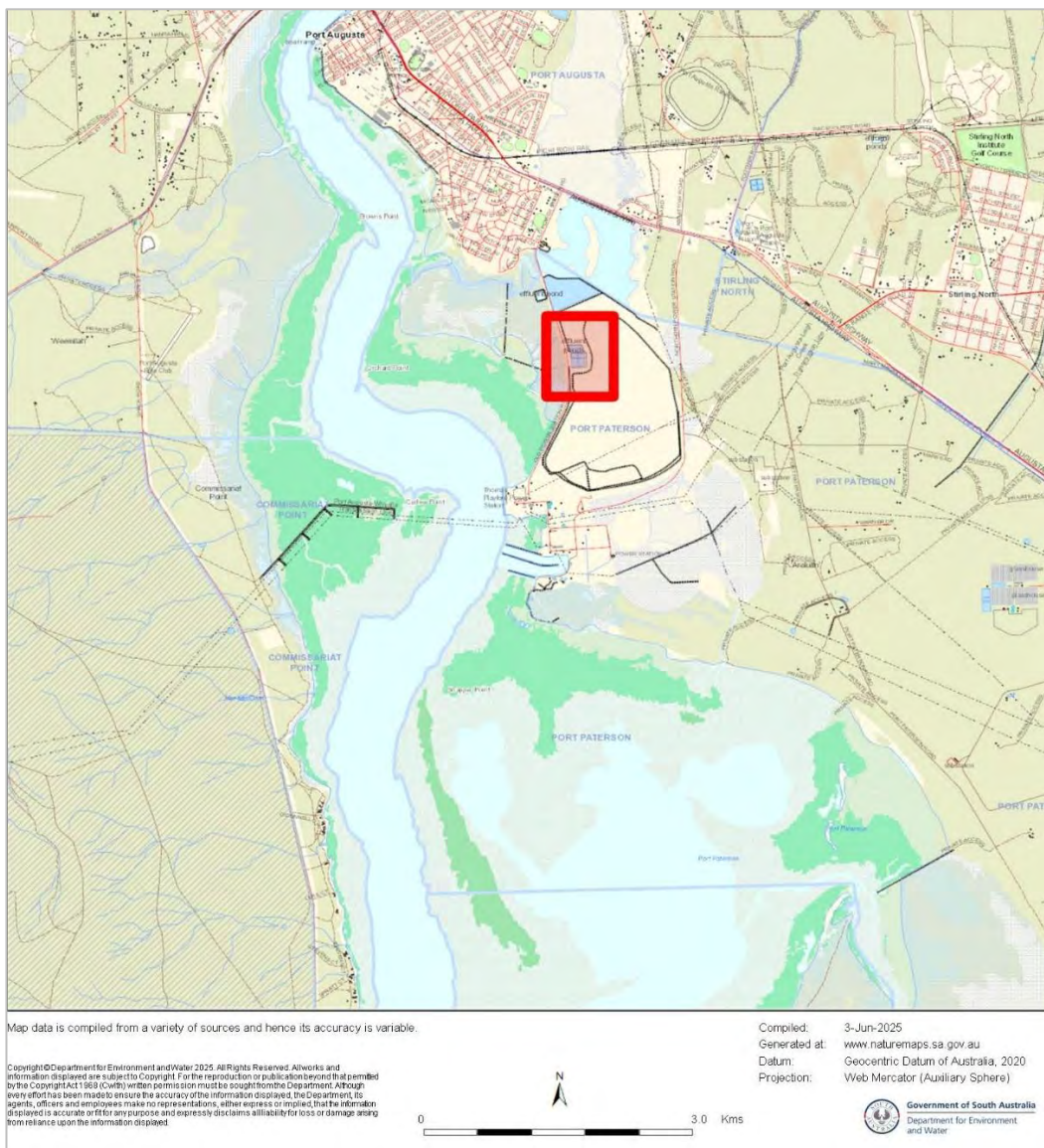
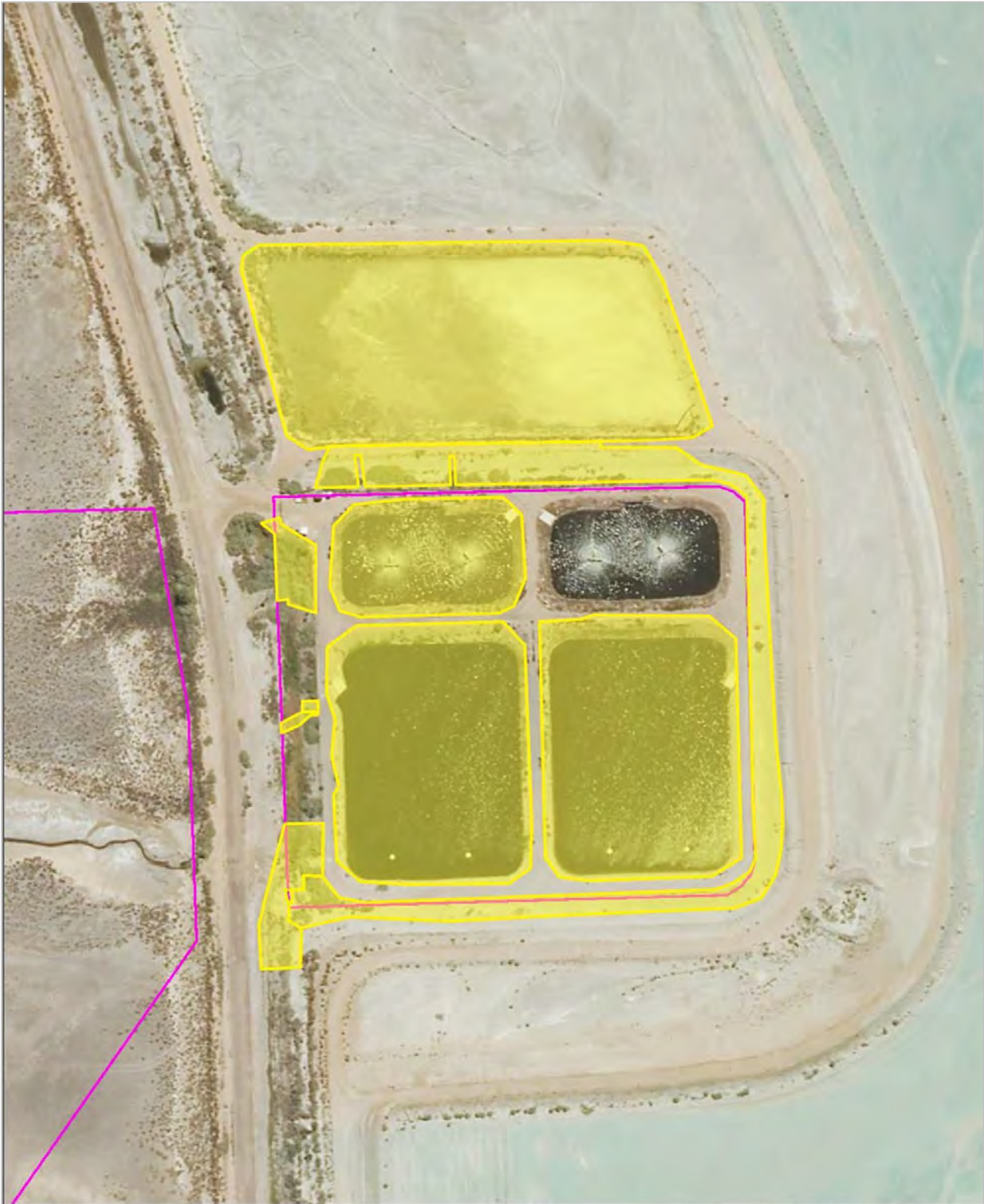


Figure 1. Location Map



Map data is compiled from a variety of sources and hence its accuracy is variable.

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Government of South Australia  
Department for Environment  
and Water

Figure 2. Site Map showing clearance area (yellow shading) and cadastral boundary (pink line)

## 2.4 Details of the proposal

The preferred option for the Port Augusta Wastewater Treatment Plant Environment Improvement Program involves a major plant upgrade including a change in treatment process to an activated sludge plant, installing new treatment infrastructure in Lagoon 1, and converting the existing facultative lagoons to sludge lagoons.

The majority of the construction will be within WWTP footprint, except for:

- 1) Temporary site facilities, laydown areas, component handling, parking and equipment storage associated with construction will be housed within the area directly to the north of the existing facultative lagoons, on land which SAW has an easement nominated as 'w'.
- 2) Temporary access tracks, to facilitate construction access and plant movements during construction. These are proposed to be located outside the existing fence (of WWTP) outside of SAW owned land.

A Level 1 Native Vegetation Clearance application was prepared by SA Water for geotechnical works required to inform the project and address outstanding risks. These geotechnical works required the clearance of native vegetation across five locations, ranging in area from 10 m<sup>2</sup> to 33 m<sup>2</sup>. Two plant communities were impacted by the works: (0.01 ha) of Association A2 and 0.007 ha of Association A3, totaling 0.017 ha of native vegetation. The SA Water Native Vegetation Clearance Report is provided in Appendix 1.

This clearance has been offset with a payment into the Native Vegetation Fund and is excluded from the current application footprint.

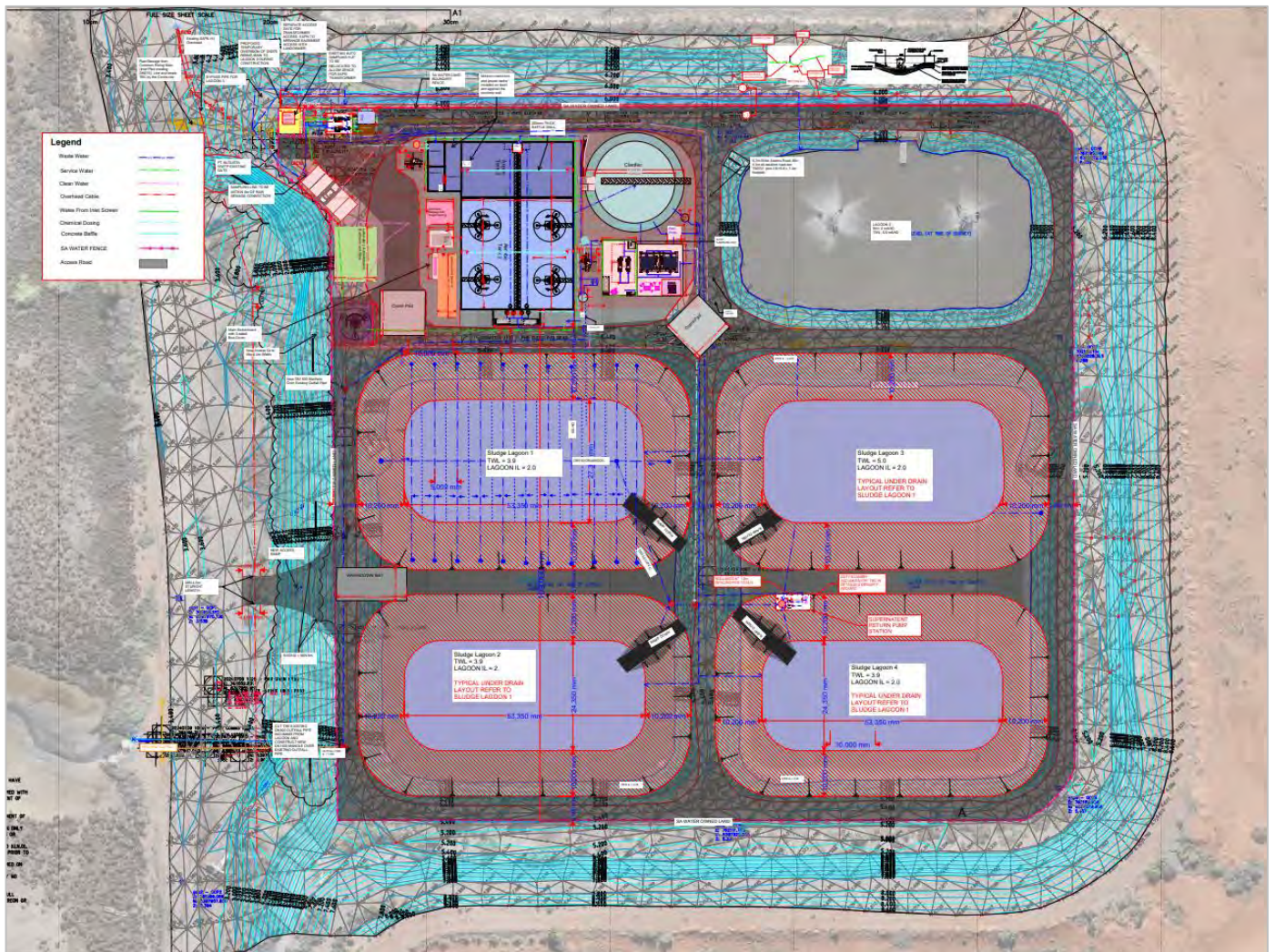


Figure 3. Site Layout and proposed works within the WWTP



## **2.5 Approvals required or obtained**

The site is subject to the:

- *Native Vegetation Act 1991*
- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) which protects impacts on Matters of National Environmental Significance – MNES)

## **2.6 Native Vegetation Regulation**

Vegetation clearance in this project is permitted under Regulation 12(34) - Infrastructure 5(1)(d) Clearance incidental to the construction or expansion of a building or infrastructure (and associated services) where the Minister has declared that the clearance is in the public interest.

## **2.7 Development Application information (if applicable)**

N/A

# 3. Method

## 3.1 Review of Flora and Fauna Records

Existing records of threatened flora and fauna were reviewed for a 5 km search radius centred on the site using:

- NatureMaps (19th May 2025)
- Atlas of Living Australia (2nd June 2025).
- EPBC Protected Matters Search Tool (2nd June 2025)
- South Australian Department for Environment and Water Biological Database of South Australia search (27th May 2025: Record set number DEWNRBDBSA250527-3)

Records with a locational reliability greater than 1km or occurring prior to 1995 in the NatureMaps and Atlas of Living Australia were excluded, along with records of exclusively marine species. For EPBC Protected Matters, species were only included if they are known to occur, or their habitat is known to occur, in the search area.

National Conservation Ratings are in accordance with the most recent EPBC Act Listing Status available in the Species Profile and Threats Database.

State Conservation Ratings are in accordance with the National Parks and Wildlife Act 1972.

## 3.2 Flora assessment

The vegetation field survey was undertaken on 21st May 2025. The location and extent of the works was identified from a conceptual plan provided by SA Water.

Vegetation associations were mapped by a search throughout the site to identify plant communities and assemblages based on overstorey and understorey composition and structure. Bushland Assessments were completed for each plant association as prescribed by the NVC's Bushland Assessment Manual (September 2024). This included recording the plant species present, the vegetation structure, and fauna habitat values. The site spans two Economy of Scale (EOS) values: 0.5 on the western side and 0.11 on the eastern side (Figure 4). Separate BAM scoresheets have been preferred for vegetation associations which span both EOS values.

Shapefiles were created for vegetation associations along with waypoints for photographs and other points of interest.

The suitability of the vegetation for rare and threatened fauna was assessed based on the known distribution and occurrence of species, their habitat requirements and the quality of habitat available at the site. Incidental observations of fauna present at the site were noted.

## 3.3 Fauna assessment

The fauna survey was conducted by David Armstrong.

A survey of the wildlife within and in the immediate surrounds (<20 meters) of the Port Augusta WWTP was conducted from 3rd to 5th March 2026. A total of 13.5 hours of observations were collected over five visits. Each visit was around two to four hours, ensuring that at least one visit occurred commencing before sunrise and towards sunset, when bird activity is usually at its peak, and during the early afternoon when reptile activity is usually at its highest level. Details of the methodology are provided in Appendix 2.



# 4. Assessment Outcomes

## 4.1 Vegetation Assessment

### General description of the vegetation, the site and matters of significance

The site is within the Port Augusta City Council in the South Australian Arid Lands Landscape region. The survey area is in the Arden IBRA Association of the South Australian Arid Lands Region. Native vegetation remnancy in the IBBRA Association is 95%, with 2% formally protected.

The project site lies in the Gawler Lakes IBRA Subregion which comprises extensive undulating calcareous plains that extend to the north of the Gawler Ranges and encompass Lake Gairdner, Lake Torrens, Lake Acraman and Island Lagoon complexes. The landscape is characterised by low-lying dunes and alluvial plains surrounding inland salt lakes and drainage lines. The subregion extends south to the highly saline inverse estuary of the northern Spencer Gulf. Native vegetation remnancy in the subregion is 62%.

The WWTP is located on the eastern side of a narrow tidal estuary fringed with extensive sandflats, mangroves and samphire shrublands. Port Paterson lies further south in a shallow embayment surrounded by mangroves and tidal flats up to 2 km wide.

Vegetation to the west of the WWTP supports an intertidal samphire shrubland. The plant is surrounded to the north, east and west by an expansive area formerly used to store fly ash from the Port Augusta North Power Station. Bottom ash from the power station was mixed with seawater and deposited in the ash dam. The power station was decommissioned in 2016 and the ash dam is now the subject of rehabilitation works.

The nearest protected areas are Winninowie CP, adjacent to the coast approximately 16 km to the south and Mount Brown CP, ~ 20 km east of the site. There are no Heritage Agreement properties within 30 km of the site.

Mean annual rainfall at the site is 260 mm from 1976 to 2005 (Naturemaps).

The dominant vegetation associations present within the survey area are regenerating chenopod shrublands in varying states of condition. Within the WWTP compound, native vegetation is largely confined to the embankment of the lagoons and is dominated by introduced species, particularly along the water's edge. Outside the compound, the chenopod shrubland is in better condition, dominated by *Atriplex nummularia*, *Nitraria billardiarei* and *Tecticornia* species.

Four vegetation communities will be impacted by the proposed works (Table 1; Figure 4).

**Table 1. Plant associations at study site.**

Vegetation	Location
A1 - <i>Sueda aegyptiaca</i> */ <i>Enchylaena tomentosa</i> degraded regenerating chenopod shrubland	- Inside WWTP compound around treatment lagoons
A2 - <i>Nitraria billardiarei</i> over <i>Tecticornia pergranulata</i> and * <i>Suaeda aegyptiaca</i> chenopod shrubland	- West of WWTP between fence and Old Power Station Rd
A3 - <i>Atriplex nummularia</i> / <i>Nitraria billardiarei</i> chenopod shrubland over <i>Tecticornia pergranulata</i>	- Outside of the WWTP along the southern, eastern and northern boundary fence.
A3b - <i>Atriplex nummularia</i> sparse chenopod shrubland	- Former biosolids lagoon north of WWTP. Proposed laydown area.

The site supports a moderate diversity of native plant species with 26 taxa identified across the vegetation associations (Appendix 4).

No Nationally- or State-threatened plant species were recorded.

Bushland Assessment Scoresheets and shapefiles are provided as separate attachments (Appendix 3).

**Details of the vegetation associates/scattered trees proposed to be impacted**

Vegetation Association	<b>Association A1. <i>Sueda aegyptiaca</i>*/ <i>Enchylaena tomentosa</i> degraded regenerating chenopod shrubland</b>
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Photo 9246 facing east at waypoint 138 from the northwest corner of the southeastern lagoon.


Latitude: -32.524245; Longitude: 137.790563



Photo 9245 facing west at waypoint 137 on the southwestern lagoon.

Latitude: -32.524235; Longitude: 137.790412

General description	<p>Plant Association A1 occurs on the lagoon embankments.</p> <p>The chenopod shrubland community has regenerated following the construction of the treatment lagoons, but is heavily infested with the introduced <i>Suaeda aegyptiaca</i>. Around the southwestern lagoon, invasive <i>Cynodon dactylon</i> (Couch Grass) dominates the water's edge.</p> <p>Despite the high level of weed invasion, the plant community supports a moderate diversity of native species, most commonly <i>Enchylaena tomentosa</i> (Ruby Saltbush), <i>Nitraria billardierei</i> (Nitre-bush) and <i>Maireana brevifolia</i> (Short-leaf Bluebush). Other native species include <i>Myoporum montanum</i> (Native Myrtle), <i>Scaevola spinescens</i> (Spiny Fanflower), <i>Maireana appressa</i> (Pale-fruit Bluebush), <i>Tecticornia pergranulata</i> (Black-seed samphire) and several <i>Atriplex</i> (Saltbush) species. A few highly scattered native grasses (<i>Austrostipa</i> sp. and <i>Enneapogon avenaceus</i>) were encountered.</p> <p>Other introduced species present include <i>Heliotropium curassavicum</i> (Smooth Heliotrope), <i>Carrichtera annua</i> (Ward's Weed) and a few small <i>Washingtonia filifera</i> (Cotton Palm).</p> <p>The community is in poor to moderate condition.</p> <p>During the vegetation survey, numerous waterbirds and terrestrial birds were observed using the treatment lagoons or fringing vegetation, including several species of ducks, ibis, dusky moorhen, grebe, welcome swallow, fairywren and white-fronted chat. A whistling kite was observed flying over the lagoons and surrounding shrublands.</p>				
Threatened species or community	<p><u>Nationally- and State-listed vegetation community:</u> None</p> <p><u>Nationally- and State-threatened flora observed:</u> None</p> <p><u>Nationally-threatened fauna that might utilise this vegetation community:</u></p> <ul style="list-style-type: none"> <li>- Blue-winged Parrot (Vulnerable)</li> </ul> <p><u>State-threatened fauna that might utilise this vegetation community:</u></p> <ul style="list-style-type: none"> <li>- Black Falcon (Rare)</li> <li>- Elegant Parrot (Rare)</li> <li>- Little Eagle (Vulnerable)</li> <li>- Peregrine Falcon (Rare)</li> <li>- Australasian Shoveler (Rare)</li> <li>- Blue-billed Duck (Rare)</li> <li>- Freckled Duck (Vulnerable)</li> <li>- Little Egret (Rare)</li> </ul>				
Landscape context score	1.08	Vegetation Condition Score	36.35	Conservation significance score	1.1
Unit biodiversity Score	43.18	Area (ha) EOS = 0.5 EOS = 0.11	0.1672 0.0612	Total biodiversity Score EOS = 0.5 EOS = 0.11	7.22 2.64

Vegetation Association	<b>Association A2. <i>Nitraria billardierei</i> over <i>Tecticornia pergranulata</i> and *<i>Suaeda aegyptiaca</i> chenopod shrubland</b>				
 <p data-bbox="244 981 1334 1048"><b>Photo 9247 at waypoint 139, facing south between the WWTP fence and Old Power Station Road. Latitude: -32.523837; Longitude: 137.789423</b></p>					
General description	<p>Plant Association A2 occurs to the west of the WWTP, between the compound fence and Old Power Station Rd. The area has been disturbed by past excavation.</p> <p>The shrubland is dominated by <i>Nitraria billardierei</i> and <i>Tecticornia pergranulata</i> but also supports a variety of other chenopods (e.g. <i>Enchylaena tomentosa</i>, <i>Maireana brevifolia</i>, <i>Atriplex nummularia</i> (Old-man Saltbush), <i>Maireana appressa</i>, <i>Threlkeldia diffusa</i> (Coast Bonefruit) and <i>Suaeda australis</i> (Austral Seablite)). <i>Sarcosoma praecox</i> and <i>Atriplex semibaccata</i> (Berry Saltbush) are present in the groundlayer.</p> <p>The introduced <i>Suaeda aegyptiaca</i> is a prominent component of the shrub layer, with dense mats of Couch Grass growing in wet depressions. A planted eucalypt in poor condition is present near the entrance gate. One small plant of the SA Declared weed <i>Lycium ferocissimum</i> (African Boxthorn) was recorded in the community.</p> <p>Plant Association A2 has a medium diversity of native species and is in poor to moderate condition.</p>				
Threatened species or community	<p><u>Nationally- and State-listed vegetation community:</u> None</p> <p><u>Nationally- and State-threatened flora observed:</u> None</p> <p><u>Nationally-threatened fauna that might utilise this vegetation community:</u></p> <ul style="list-style-type: none"> <li>- Blue-winged Parrot (Vulnerable)</li> </ul> <p><u>State-threatened fauna that might utilise this vegetation community:</u></p> <ul style="list-style-type: none"> <li>- Black Falcon (Rare)</li> <li>- Elegant Parrot (Rare)</li> <li>- Little Eagle (Vulnerable)</li> <li>- Peregrine Falcon (Rare)</li> </ul>				
Landscape context score	1.06	Vegetation Condition Score	38.62	Conservation significance score	1.08

Unit biodiversity Score	44.21	Area (ha)	0.1437	Total biodiversity Score	6.35
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Vegetation Association	<b>Association A3. <i>Atriplex nummularia</i> / <i>Nitraria billardiarei</i> chenopod shrubland over <i>Tecticornia pergranulata</i></b>
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Photo 9249 at waypoint 140, facing east outside the southern boundary fence.  
 Latitude: -32.525269; Longitude: 137.789703



Photo 9251 at waypoint 142 facing north outside the eastern boundary of the WWTP.

**Latitude: -32.525042; Longitude: 137.791421**

<p>General description</p>	<p>Plant Association A3 occurs as a narrow strip (up to 7 m wide) of chenopod shrubland outside of the WWTP along the southern, eastern and northern boundary fences.</p> <p>The community is dominated by <i>Atriplex nummularia</i> and <i>Tecticornia pergranulata</i> with <i>Nitraria billardierei</i>. The diversity of native species is lower than in associations A1 and A2 and includes <i>Maireana appressa</i>, <i>Atriplex lindleyi</i> (Baldo), <i>Threlkeldia diffusa</i>, <i>Sarcozona praecox</i>, <i>Lawrenca glomerata</i> (Clustered Lawrenca) and <i>Austrostipa sp.</i> (Spear-grass).</p> <p>Weed invasion is low, comprising mostly of scattered individuals of <i>Suaeda aegyptiaca</i>.</p> <p>Plant Association A3 is in poor to moderate condition.</p>				
<p>Threatened species or community</p>	<p><u>Nationally- and State-listed vegetation community:</u> None</p> <p><u>Nationally- and State-threatened flora observed:</u> None</p> <p><u>Nationally-threatened fauna that might utilise this vegetation community:</u></p> <ul style="list-style-type: none"> <li>- Blue-winged Parrot (Vulnerable)</li> </ul> <p><u>State-threatened fauna that might utilise this vegetation community:</u></p> <ul style="list-style-type: none"> <li>- Black Falcon (Rare)</li> <li>- Elegant Parrot (Rare)</li> <li>- Little Eagle (Vulnerable)</li> <li>- Peregrine Falcon (Rare)</li> </ul>				
<p>Landscape context score</p>	<p>1.06</p>	<p>Vegetation Condition Score</p>	<p>36.74</p>	<p>Conservation significance score</p>	<p>1.08</p>
<p>Unit biodiversity Score</p>	<p>42.06</p>	<p>Area (ha)</p> <p>EOS = 0.5</p> <p>EOS = 0.11</p>	<p>0.2178</p> <p>0.2976</p>	<p>Total biodiversity Score</p> <p>EOS = 0.5</p> <p>EOS = 0.11</p>	<p>9.16</p> <p>12.52</p>

Vegetation Association	<b>Association A3b. <i>Atriplex nummularia</i> sparse chenopod shrubland</b>				
	 <p data-bbox="363 996 1209 1064" style="text-align: center;"><b>Photo 9255 at waypoint 145 facing west inside the former biosolids lagoon.</b> <b>Latitude: -32.523001; Longitude: 137.791065</b></p>				
General description	<p>Plant Association A3b is a more sparse version of Association A3 growing at the site of the proposed laydown area.</p> <p>The chenopod shrubland comprises a similar suite of species which have regenerated within the old biosolids lagoon north of WWTP. <i>Atriplex nummularia</i> is the dominant shrub with <i>Maireana appressa</i>, <i>Atriplex lindleyi</i>, <i>Lawrenzia glomerata</i> and <i>Sarcozona praecox</i>.</p> <p>Weed invasion is low, comprising mostly of scattered individuals of <i>Suaeda aegyptiaca</i> and Ward's Weed.</p> <p>Plant Association A3b is in poor to moderate condition.</p>				
Threatened species or community	<p><u>Nationally- and State-listed vegetation community:</u> None</p> <p><u>Nationally- and State-threatened flora observed:</u> None</p> <p><u>Nationally-threatened fauna that might utilise this vegetation community:</u></p> <ul style="list-style-type: none"> <li>- Blue-winged Parrot (Vulnerable)</li> </ul> <p><u>State-threatened fauna that might utilise this vegetation community:</u></p> <ul style="list-style-type: none"> <li>- Black Falcon (Rare)</li> <li>- Elegant Parrot (Rare)</li> <li>- Little Eagle (Vulnerable)</li> <li>- Peregrine Falcon (Rare)</li> </ul>				
Landscape context score	1.06	Vegetation Condition Score	27.81	Conservation significance score	1.08
Unit biodiversity Score	31.84	Area (ha) EOS = 0.5 EOS = 0.11	0.4439 0.5645	Total biodiversity Score EOS = 0.5 EOS = 0.11	14.13 17.97

**Site map showing areas of proposed impact**

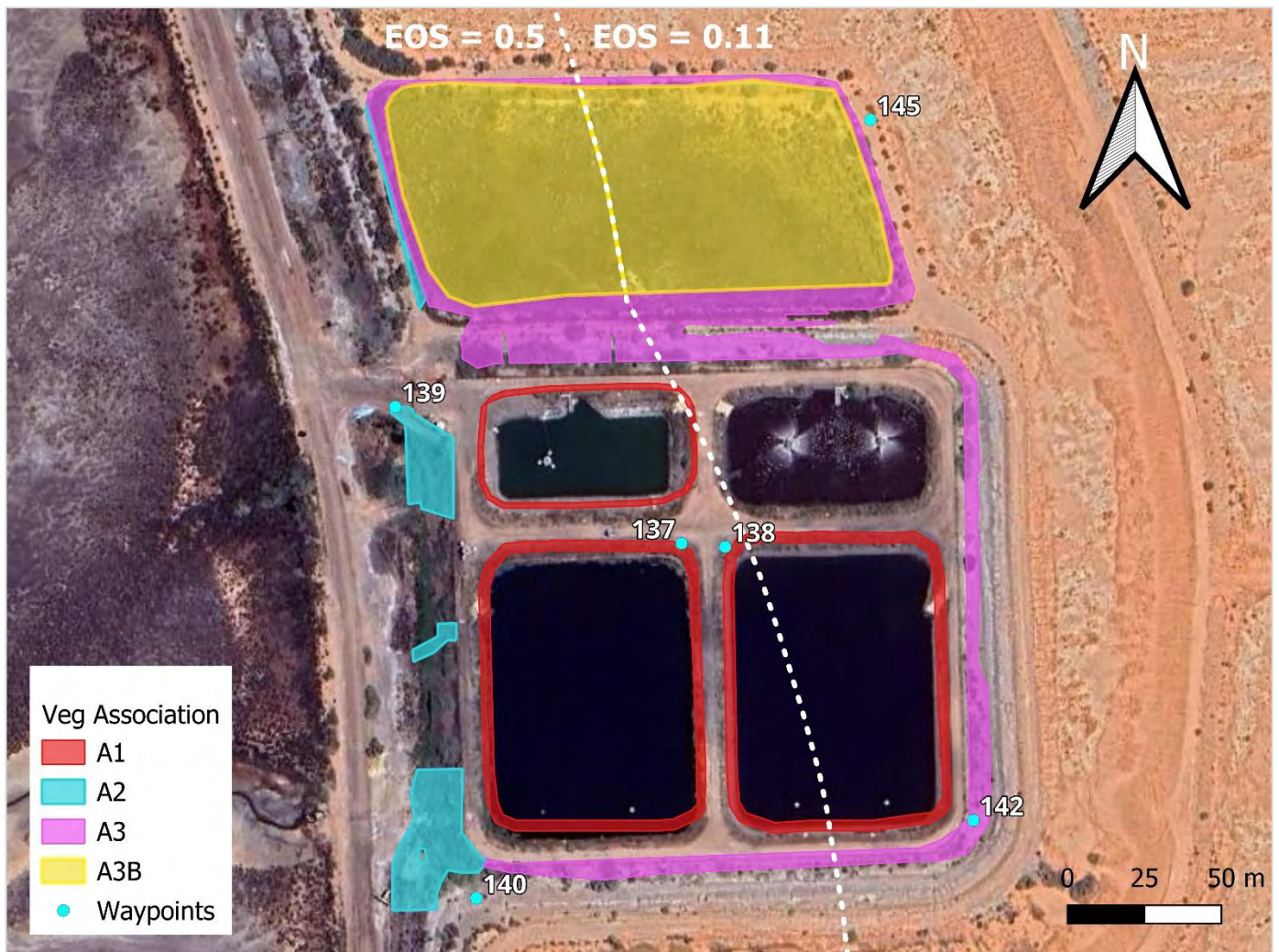


Figure 4. Site map showing proposed impact on vegetation associations, waypoints and Economies of Scale (EOS) values.

**Photo log**

Photo	Photo Direction	Waypoint	Description
9245	West	137	Vegetation Association A1
9246	East	138	Vegetation Association A1
9247	South	139	Vegetation Association A2
9249	East	140	Vegetation Association A3
9251	North	142	Vegetation Association A3
9255	West	145	Vegetation Association A3b

## 4.2 Threatened Species assessment

The Nationally Vulnerable Subtropical and Temperate Coastal Saltmarsh is likely to occur along the coastline to the west of Old Power Station Rd, but is not present at the site.

No Nationally- or State-threatened plant species were detected at the site.

The database searches identified three species of threatened flora recorded within 5 km since 1995:

- *Acacia pendula* Weeping Myall (SA Vulnerable). 1 record (2019) in Port Augusta almost 5 km away. The species grows in heavy alluvial clay soils on floodplains. It has distinctive foliage and would have been easily detectable if present at the site.
- *Malacocera gracilis* Slender Soft-horns (SA Vulnerable). In the Port Augusta vicinity this species is restricted entirely to powdery gypseous mounds in samphire shrubland and is associated with halophytic species such as *Disphyma crassifolium* (Rounded Noon-flower) and *Angianthus brachypappus* (Spreading Cup-flower). Vegetation and soils present at the survey site are unlikely to support this species.
- *Myoporum parvifolium* Creeping Boobialla (SA Rare) – 1 record (2009) growing in mallee shrubland 5 km west of the site. Habitat present at the survey site is unlikely to support this species.

One Nationally-threatened fauna species has been recorded within 5 km of the survey area:

- Blue-winged Parrot (Vulnerable)

While suitable foraging habitat for the Blue-winged Parrot is available in the chenopod shrublands, the only nearby record for the species is on the other side of the gulf, almost 5 km to the west of the site. The species was not observed during fauna surveys. The proposed works are unlikely to impact populations of this species.

Four State-threatened terrestrial bird species occur within 5 km of the site since 1995 and may use chenopod shrubland vegetation:

- Black Falcon (Rare)
- Elegant Parrot (Rare)
- Little Eagle (Vulnerable)
- Peregrine Falcon (Rare)

A further four State-threatened aquatic bird species recorded within 5 km of the site may use vegetation fringing the treatment lagoons (Association A1):

- Australasian Shoveler (Rare)
- Blue-billed Duck (Rare)
- Freckled Duck (Vulnerable)
- Little Egret (Rare)

The lagoons are deep and are surrounded by steep embankments which are unlikely to provide suitable foraging habitat for migratory wading birds.

Seventeen fauna species were recorded within the WWTP and adjacent surrounds during the fauna survey (Appendix 2). One of these (Elegant Parrot) is listed as Rare in South Australia and was observed flying over the site. The remaining species do not have a threat rating under state or federal legislation. All are generally common and widespread species within their known distribution and preferred habitats. Of the additional 12 species recorded in the greater area, the Eastern Osprey is rated Endangered and the Musk Duck Rare at the state level. These species exhibited no connection to the WWTP. Details of the fauna survey results are provided in Appendix 2.

The likelihood of habitat use for threatened species is assessed in Table 2.

**Table 2. Species observed on site or recorded within 5km of the application area since 1995, or the vegetation is considered to provide suitable habitat.**

Species Common Name	EPBC Act	NPW Act	Data Source	Date last recorded	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Actitis hypoleucos</i> Common Sandpiper		R	1	2011	A migratory species which flies to the Southern Hemisphere in the austral spring and summer. Utilises a wide range of coastal or inland wetlands, with varying levels of salinity. Mostly found around muddy margins or rocky shores and rarely on large coastal mudflats. Often associated with mangroves. Use artificial wetlands, including sewage ponds and saltworks.	Unlikely. There are 2 records near the bridge in Port Augusta, but there are no mudflats present around the lagoons.
<i>Aphelocephala leucopsis</i> Southern Whiteface	VU		1,5	2006	Found in a wide range of open woodlands and shrublands, usually dominated by acacias or eucalypts, with an understorey of grasses and/or shrubs. Foraging almost exclusively on the ground, they favour habitat with low tree densities and an herbaceous understorey with litter cover. Feeds on insects, spiders, and seeds.	Unlikely. No suitable habitat available at the site.
<i>Biziura lobata menziesi</i> Musk Duck		R	1,2	2016	Prefers deep water of large permanent swamps, lakes and estuaries but is occasionally seen on shallow or small waters, including sewage ponds and salt pans. Known to sleep on the water rather than needing a dry night roost on shore.	Unlikely. The species has been recorded at the treatment plant but is unlikely to interact with vegetation around the lagoons.
<i>Calidris acuminata</i> Sharp-tailed Sandpiper	VU		1,5	2013	Migratory species which spends the non-breeding season in southern Australia and New Zealand. Prefers muddy edges of shallow fresh or brackish wetlands, with inundated or emergent sedges, grass, saltmarsh or other low vegetation. Occurs in lagoons, swamps, lakes and pools near the coast as well as dams, waterholes and soaks, hypersaline inland salt lakes, saltworks and sewage farms. Use flooded paddocks, sedgeland and other ephemeral wetlands.	Unlikely. Recorded close by, however habitat available around the treatment lagoons is unlikely to suit the species.
<i>Calidris canutus</i> Red Knot	VU	E	2,5	2016	Migratory shorebird inhabiting intertidal mudflats, sandflats and sandy beaches or shallow pools on exposed rock platforms. Occasionally seen on terrestrial saline wetlands near the coast and on sewage ponds and saltworks.	Unlikely. There is 1 record in Bird Lake to the north of the site, but there are no suitable mudflats present around the treatment lagoons.
<i>Calidris ferruginea</i> Curlew Sandpiper	CR	E	2,5	2015	Migratory shorebird found in many Australian coastal sites and may also be seen inland in suitable wetland habitats. Feeding habitat includes exposed sandy or soft mud substrates on intertidal flats and beaches. Sometimes forages within flooded paddocks or inundated salt flats.	Unlikely. Record in mudflats north of WWTP, but there are no suitable substrates present around the treatment lagoons.

Species Common Name	EPBC Act	NPW Act	Data Source	Date last recorded	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Charadrius mongolus</i> Lesser Sand Plover	EN	E	1	1999	Migratory shorebird found on beaches of sheltered bays, harbours and estuaries where they forage on intertidal mudflats, salt pans and saltmarsh. Sometimes seen in mangrove habitats.	Unlikely. No suitable habitat available.
<i>Cladorhynchus leucocephalus</i> Banded Stilt		V	1	2021	A nomadic wading bird, found mainly in shallow saline and hypersaline waters of the inland and coast including ephemeral salt lakes, salt works, lagoons, salt- or clay pans and intertidal flats. Sometimes found in brackish or fresh water, including farm dams and sewage ponds.	Unlikely. Recorded in samphire flats opposite the WWTP but habitat around the treatment ponds is unlikely to provide suitable foraging grounds.
<i>Egretta garzetta nigripes</i> Little Egret		R	1	2015	A small heron which lives in a variety of freshwater and coastal habitats. Seen singly or in mixed flocks of egrets and ibises in tidal estuaries, mangroves, mudflats, saltmarshes, margins of shallow wetlands and rivers, sewage farms or on pasture among grazing stock. Feeds on fish, invertebrates, small reptiles and frogs, in shallow water or on land.	Likely. There are numerous records, including at the treatment lagoons. May use Association A1.
<i>Falco hypoleucos</i> Grey Falcon	VU	R	3,5	2001	Uses open woodlands and shrublands in semi-arid & arid regions but occasionally found near the coast. Also occurs near wetlands and watercourses where surface water attracts prey. The species frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses and has also been observed hunting in treeless areas and tussock grassland.	Unlikely. The species has been recorded once, in Stirling North, over 20 years ago. The site does not provide the preferred habitat for this species.
<i>Falco peregrinus</i> Peregrine Falcon		R	1	2020	Found in most habitats. In arid areas, it occurs mainly along timbered watercourses, in rugged ranges with waterholes or rock pools, and near reservoirs, rivers or lakes, where prey is likely to be abundant. Prefers to nest in cliffs and may use hollows in trees mainly along river systems or wetlands, where tall mature River Red Gums develop suitable hollows.	Likely. There are 2 records, in Port Augusta. May be attracted to the site by the waterbirds that use the lagoons.
<i>Falco subniger</i> Black Falcon		R	3	2006	Sparse woodland, shrubland, grassland in arid & semi-arid zones, especially Eucalypt-lined water-courses. Mainly over open plains and undulating land with large tracts of low vegetation, such as grassland, pasture, crops, chenopod plains, and saltmarsh. Often associated with wetlands (lakes, reservoirs, swamps, rivers, creeks, dams, waterholes, irrigation channels), especially in arid zone where prey (mostly small birds) concentrates at water.	Possible. There are 3 records, in Port Augusta. May be attracted to the site by the waterbirds that use the lagoons.
<i>Haematopus fuliginosus fuliginosus</i> Sooty Oystercatcher		R	1	2021	Shorebird preferring rocky intertidal shores or sandy beaches near intertidal mudflats shores, but also seen on coral reefs. Strictly marine coastal, usually within 50 m of shore. Commonly breed on offshore islands and rock stacks.	Unlikely. No suitable habitat available.

Species Common Name	EPBC Act	NPW Act	Data Source	Date last recorded	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Haematopus longirostris</i> Pied Oystercatcher		R	1	2015	Large wading bird which prefers intertidal mudflats and sandbanks as well as sandy ocean beaches. Nests above high water mark on beaches, estuaries and lagoons.	Unlikely. No suitable habitat available.
<i>Hieraaetus morphnoides</i> Little Eagle		V	1,3	2023	A widespread species found in open eucalypt forest or woodland, tree-lined watercourses, mallee and sheoak or acacia woodlands, occasionally in pine plantations. Nests in mature living trees. Open habitats used include grassland, crops, treeless dunefields, bluebush and saltbush plains, and sedge-covered floodplains.	Highly Likely. There are a few records close by, including at the sewage works.
<i>Hylacola pyrrhopygia pedleri</i> Chestnut-rumped Heathwren (Flinders Ranges)		V	1	2001	Primarily inhabits heathlands and dense undergrowth within Eucalypt forests and woodlands. It is commonly found in rocky areas. This small bird is adapted to living on the ground and in low shrubs, foraging for food and building domed nests near or on the ground.	Unlikely. One record at the rifle club almost 5 km west of the site. No suitable habitat available.
<i>Limosa limosa</i> Black-tailed Godwit	EN		2,5	1984	Migratory shorebird usually found in sheltered bays, estuaries, and lagoons with large intertidal mudflats, sandflats and/or saltmarshes. Further inland, the species can also be found around muddy lakes and within wetlands with water less than 10 cm deep.	Unlikely. The species has not been recorded nearby in over 40 years, and there is no suitable habitat available at the site.
<i>Lophochroa leadbeateri mollis</i> Pink Cockatoo (western)		R	3	2019	Lives in arid and semi-arid woodlands particularly <i>Eucalyptus</i> – <i>Callitris</i> – <i>Allocasuarina</i> assemblages. Sometimes among <i>Acacia</i> shrubland, grassland and open chenopod shrubland, but rarely far from trees. Often near wetlands, including watercourses, lakes and artificial watering points. Within these vegetation types, their main requirements are fresh surface water, and trees with suitable nesting hollows.	Unlikely. There are numerous records around Port Augusta, and although the chenopod shrublands offer suitable foraging grounds, there are no nearby trees.
<i>Macronectes giganteus</i> Southern Giant Petrel	EN	V	1	2000	Large sea bird which forages at sea on birds, fish and cephalopods, but also scavenges on land.	Unlikely. No suitable habitat present.
<i>Neophema chrysostoma</i> Blue-winged Parrot	VU	V	2,5	2015	Inhabits a variety of open habitats in coastal, sub-coastal and inland areas. Tends to favour grasslands and grassy woodlands and is often found near wetlands. Mainly forages on the ground on seeds of grasses and herbs, as well as in chenopod shrublands.	Possible. Suitable foraging habitat is available in associations A1, A2, A3 and A3b. There is one record almost 5 km west of the site.
<i>Neophema elegans</i> Elegant Parrot		R	1	2024	Occupy open coastal and inland habitats, including grasslands, mallee shrubland, dry, open woodland, chenopod plains and heathland. Sometimes seen in coastal saltmarsh, inland and coastal sandhills and beaches. Feed mainly on or near ground; often among seeding grass or low herbs or shrubs. Nest in hollow-bearing trees.	Highly Likely. Observed flying over WWTP. Suitable habitat available in associations A1, A2, A3 and A3b, and there are several records nearby.

Species Common Name	EPBC Act	NPW Act	Data Source	Date last recorded	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Numenius madagascariensis</i> Far Eastern Curlew	CR	E	1,5	2007	Migratory species. Non-breeding foraging habitat in Australia includes sheltered intertidal sandflats or mudflats often also near mangroves, on saltflats or saltmarsh, around rockpools and on ocean beaches near the tideline. The species has also been seen in saltworks and sewage farms.	Unlikely. Recorded at Port Paterson, however habitat available around the treatment ponds is unlikely to suit the species.
<i>Oxyura australis</i> Blue-billed Duck		R	1,2	2016	Almost wholly aquatic species preferring deep water in large, permanent wetlands. Gatherings form on large fresh open lakes, swamps and sewage ponds, particularly in winter. They breed in dense vegetation within or around wetlands, where rushes or sedges provide soft vegetation for nest-building.	Possible. May use the treatment lagoons, and association A1 for roosting. There are 2 records for the species at Bird Lake, north of the WWTP.
<i>Plectorhyncha lanceolata</i> Striped Honeyeater		R	1	2012	Occurs in a wide variety of habitats including open woodlands of mallee, native pine or mulga, semi-arid scrubland dominated by Acacia, but also heathland, urban gardens and mangroves on the coast.	Unlikely. No suitable habitat available.
<i>Pluvialis squatarola squatarola</i> Grey Plover	VU		1	1999	A regular migrant to Australia during the austral summer non-breeding. Forage mostly in mud or soft, wet sand of sandflats, intertidal mudflats, saltmarshes, and the beaches of oceanic coastlines, bays, and estuaries.	Unlikely. No suitable habitat around the treatment lagoons.
<i>Podiceps cristatus australis</i> Great Crested Grebe		R	1,2	2015	Inhabits wetlands from rivers and lakes to estuaries and sheltered bays, but favours large, deep, open bodies of fresh water. Feeds mostly on fish, taken mainly by diving in clear water. Known to sleep on the water rather than needing a dry night roost on shore.	Unlikely. The species is unlikely to interact with vegetation around the lagoons.
<i>Pandion haliaetus cristatus</i> Eastern Osprey		E	4	2026	Predominantly coastal, the species requires extensive areas of open fresh, brackish or saline water for foraging. Often breeds in a prominent position on rocky headlands, stacks, cliffs, in tall dead trees, or on artificial platforms. Feed mostly on fish although small terrestrial vertebrates, seabirds and crustacea also recorded.	Unlikely. Observed outside WWTP Survey area, and would not use habitat available at the site.
<i>Spatula rhynchotis</i> Australasian Shoveler		R	1,2	2016	Occurs in all types of wetlands but prefers large deep freshwater lakes and swamps which are heavily vegetated. It can also be found on open waters and occasionally along the coast.	Possible. Although not preferred habitat, the species may occasionally use the lagoons and roost in vegetation Association A1.
<i>Sternula nereis nereis</i> Fairy Tern	VU	E	1,5	2021	Shorebird inhabiting a variety of habitats including offshore, estuarine or lacustrine islands, wetlands, beaches and spits. They nest above the high water mark on sites where the substrate is sandy and the vegetation low and sparse. Nests consist of a shallow scrape in the sand often lined with small shells and vegetation.	Unlikely. No suitable habitat available.

Species Common Name	EPBC Act	NPW Act	Data Source	Date last recorded	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Stictonetta naevosa</i> Freckled Duck		V	1,2	2015	Found in terrestrial wetlands. Feeds by filtering and dabbling, which limits foraging to shallow productive waters or soft mud at wetland edges. During dry season or drought, birds move off ephemeral breeding swamps, and often occupy large permanent open waters with little emergent or aquatic vegetation, but they have also been recorded from rivers and river pools, farm dams, sewage ponds and saltpans.	Possible. Although not preferred habitat, the species may occasionally use the lagoons and roost in vegetation Association A1. Recorded in Bird Lake, north of the site.
<i>Tringa nebularia</i> Common Greenshank	EN		1,5	2019	Migratory species using a variety of permanent or ephemeral freshwater and marine wetlands, including swamps, lakes, rivers, creeks, waterholes and inundated floodplains, claypans and saltflats. Also uses artificial wetlands, including sewage farms, saltworks, dams and bore drains. Forages on mudflats at the edge of wetlands, in channels, or within shallows around the edge of waterbodies, often near or among mangroves or other sparse, emergent or fringing vegetation such as sedges or saltmarsh.	Unlikely. Recorded near the WWTP but habitat around the lagoons is unlikely to provide suitable foraging grounds.
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox	VU	R	3	2024	Live in a variety of habitats including native forests, woodland, mangroves and urban areas. The species has been recorded intermittently in South Australia for many decades, with a permanent camp becoming established in Adelaide from 2010. A new camp was recently found in Port Augusta. The species travels up to 50 km a night to feed on pollen, nectar and fruit from a wide range of trees and shrubs.	Unlikely. No suitable habitat available.

Source; 1- BDBSA, 2 - AoLA, 3 – NatureMaps 4 – Observed/recorded in the field, 5 - Protected matters search tool, 6 – others

EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable; NP&W Act; E= Endangered, V = Vulnerable, R= Rare

Regional Status Codes: EN = endangered; VU = vulnerable; RA = rare; NT = near threatened

Criteria for the likelihood of occurrence of species within the Study area.

Likelihood	Criteria
Highly Likely/Known	Recorded in the last 10 years, the species does not have highly specific niche requirements, the habitat is present and falls within the known range of the species distribution or; The species was recorded as part of field surveys.
Likely	Recorded within the previous 20 years, the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species.
Possible	Recorded within the previous 20 years, the area falls inside the known distribution of the species, but the area provides limited habitat or feeding resources for the species.

	Recorded within 20 -40 years, survey effort is considered adequate, habitat and feeding resources present, and species of similar habitat needs have been recorded in the area.
Unlikely	Recorded within the previous 20 years, but the area provides no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter. Recorded within 20 -40 years; however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area. No records despite adequate survey effort.

## 4.3 Cumulative impact

*When exercising a power or making a decision under Division 5 of the Regulations, the NVC must consider the potential cumulative impact, both direct and indirect, that is reasonably likely to result from a proposed clearance activity.*

### Clearance directly required for the application

Impacts directly related to the application involve the clearance of 1.8977 hectares of native vegetation across four vegetation associations.

Clearance of an additional 0.017 ha of native vegetation was required for preliminary geotechnical works at the site, and was carried out under a Level 1 clearance application submitted previously.

### Subsequent clearance that will be permitted or required

No subsequent clearance will be required.

### Indirect impacts

The lagoon embankments are heavily infested with weeds and the SA Declared weed African Boxthorn is present in the roadside verge. Soil disturbance and the movement of vehicles and machinery increases the risk of further spread and establishment of weeds.

### Future stages

The only future work possible is to install UV for reuse, however this is spatially accounted for in Lagoon No, 1. No further clearance is anticipated within the WTP footprint.

## 4.4 Address the Mitigation Hierarchy

*When exercising a power or making a decision under Division 5 of the Regulations, the NVC must have regard to the mitigation hierarchy. The NVC will also consider, with the aim to minimise, impacts on biological diversity, soil, water and other natural resources, threatened species or ecological communities under the EPBC Act or listed species under the NP&W Act.*

### **a) Avoidance – outline measures taken to avoid clearance of native vegetation**

Clearance of embankment vegetation is unavoidable for the necessary infrastructure upgrade.

The location of the proposed entrance/exit route is constrained by the road network, topography, and proximity to essential WWTP infrastructure, and clearance of some roadside vegetation is unavoidable.

### **b) Minimisation – if clearance cannot be avoided, outline measures taken to minimise the extent, duration and intensity of impacts of the clearance on biodiversity to the fullest possible extent (whether the impact is direct, indirect or cumulative).**

The proposed track access has been designed to minimise clearance while supporting heavy vehicle movement, minimising earthworks, and maintaining ongoing accessibility under all conditions. Alternative alignments explored either increase the footprint or require more complex earthworks in sensitive/steeper terrain.

The site of the laydown area has been selected in an area of more sparse vegetation within a former biosolids lagoon.

### **c) Rehabilitation or restoration – outline measures taken to rehabilitate ecosystems that have been degraded, and to restore ecosystems that have been degraded, or destroyed by the impact of clearance that cannot be avoided or further minimised, such as allowing for the re-establishment of the vegetation.**

Clearance is permanent and cannot be rehabilitated.

### **d) Offset – any adverse impact on native vegetation that cannot be avoided or further minimised should be offset by the achievement of a significant environmental benefit that outweighs that impact.**

Impacts will be offset by payment to the Native Vegetation Fund.

## 4.5 Principles of Clearance (Schedule 1, Native Vegetation Act 1991)

The NVC will consider Principles 1(b), 1(c) and 1(d) when assigning a level of Risk under Regulation 16 of the Native Vegetation Regulations. The NVC will consider all the Principles of clearance of the Act as relevant, when considering an application referred under the *Planning, Development and Infrastructure Act 2016*.

Principle of clearance	Considerations																				
<p><b>Principle 1a - it comprises a high level of diversity of plant species</b></p>	<p><u>Relevant information</u></p> <table border="1" data-bbox="391 481 1332 705"> <thead> <tr> <th>Vegetation Association</th> <th>No. Native</th> <th>No. Introduced</th> <th>Plant Diversity Score</th> </tr> </thead> <tbody> <tr> <td>A1</td> <td>15</td> <td>6</td> <td>21</td> </tr> <tr> <td>A2</td> <td>15</td> <td>6</td> <td>18</td> </tr> <tr> <td>A3</td> <td>11</td> <td>2</td> <td>15</td> </tr> <tr> <td>A3b</td> <td>7</td> <td>2</td> <td>12</td> </tr> </tbody> </table> <p><u>Assessment against the principles</u>  <b>Seriously at Variance</b> (Plant Diversity Score &gt;20):            - Vegetation Association A1  <b>At Variance</b> (Plant Diversity Score 10-20):            Vegetation Association A2, A3, A3b</p> <p><u>Moderating factors that may be considered by the NVC</u></p>	Vegetation Association	No. Native	No. Introduced	Plant Diversity Score	A1	15	6	21	A2	15	6	18	A3	11	2	15	A3b	7	2	12
Vegetation Association	No. Native	No. Introduced	Plant Diversity Score																		
A1	15	6	21																		
A2	15	6	18																		
A3	11	2	15																		
A3b	7	2	12																		
<p><b>Principle 1b - significance as a habitat for wildlife</b></p>	<p><u>Relevant information</u></p> <p>One Nationally-threatened is known to occur within 5 km of the survey area:            - Blue-winged Parrot (Vulnerable)</p> <p>Four State-listed species may use the chenopod shrublands:            - Black Falcon (Rare)            - Elegant Parrot (Rare)            - Little Eagle (Vulnerable)            - Peregrine Falcon (Rare)</p> <p>Four State-listed wetland bird species may use vegetation fringing the facultative lagoons:            - Australasian Shoveler (Rare)            - Blue-billed Duck (Rare)            - Freckled Duck (Vulnerable)            - Little Egret (Rare)</p> <table border="1" data-bbox="391 1500 1332 1691"> <thead> <tr> <th>Vegetation Association</th> <th>Threatened Fauna Score</th> <th>Unit biodiversity Score</th> </tr> </thead> <tbody> <tr> <td>A1</td> <td>0.1</td> <td>43.18</td> </tr> <tr> <td>A2</td> <td>0.08</td> <td>44.21</td> </tr> <tr> <td>A3</td> <td>0.08</td> <td>42.06</td> </tr> <tr> <td>A3b</td> <td>0.08</td> <td>31.84</td> </tr> </tbody> </table> <p><u>Assessment against the principles</u>  <b>Seriously at Variance</b> (Threatened fauna score <math>\geq 0.05</math> / Unit Biodiversity Score &gt;50):            - Vegetation Associations A1, A2, A3 and A3b  <b>At Variance</b> (Threatened Fauna Score of &lt;0.05): None</p> <p><u>Moderating factors that may be considered by the NVC</u>            The only nearby record for the Blue-winged Parrot is almost 5 km to the west, on the other side of the gulf. The proposed works are unlikely to impact populations of this species. The fauna survey concluded that the proposed works are unlikely to have a significant impact on populations of threatened fauna species.</p>	Vegetation Association	Threatened Fauna Score	Unit biodiversity Score	A1	0.1	43.18	A2	0.08	44.21	A3	0.08	42.06	A3b	0.08	31.84					
Vegetation Association	Threatened Fauna Score	Unit biodiversity Score																			
A1	0.1	43.18																			
A2	0.08	44.21																			
A3	0.08	42.06																			
A3b	0.08	31.84																			

<b>Principle 1c - plants of a rare, vulnerable or endangered species</b>	<u>Relevant information</u> No Nationally or State-threatened plant species were recorded.										
	<table border="1"> <thead> <tr> <th>Vegetation Association</th> <th>Threatened Flora Score</th> </tr> </thead> <tbody> <tr> <td>A1</td> <td>0</td> </tr> <tr> <td>A2</td> <td>0</td> </tr> <tr> <td>A3</td> <td>0</td> </tr> <tr> <td>A3b</td> <td>0</td> </tr> </tbody> </table>	Vegetation Association	Threatened Flora Score	A1	0	A2	0	A3	0	A3b	0
	Vegetation Association	Threatened Flora Score									
	A1	0									
A2	0										
A3	0										
A3b	0										
<u>Assessment against the principles</u> Seriously at Variance: None At Variance: None											
<u>Moderating factors that may be considered by the NVC</u> – N/A											
<b>Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered:</b>	<u>Relevant information</u> The vegetation associations are not part of a rare or threatened plant community. Threatened Community Score: – 1 for all vegetation associations										
	<u>Assessment against the principles</u> Seriously at Variance - None										
	<u>Moderating factors that may be considered by the NVC</u> – Not applicable										
<b>Principle 1e - it is significant as a remnant of vegetation in an area which has been extensively cleared.</b>	<u>Relevant information</u> Arden IBRA Association percent vegetation remnancy - 95% Gawler Lakes IBRA Subregion percent vegetation remnancy – 62% Total Biodiversity Score – 74.24										
	<u>Assessment against the principles</u> Seriously at Variance: No <b>At Variance</b> (Remnancy >30% and Total Biodiversity Score of 5-500): <b>Yes</b>										
	<u>Moderating factors that may be considered by the NVC</u>										
<b>Principle 1f - it is growing in, or in association with, a wetland environment.</b>	<u>Relevant information</u> The vegetation around the lagoons (Association A1) is associated with a wetland.										
	<u>Assessment against the principles</u> Seriously at Variance: Vegetation Association A1 At Variance: None										
	<u>Moderating factors that may be considered by the NVC</u> –										
<b>Principle 1g - it contributes significantly to the amenity of the area in which it is growing or is situated.</b>	<u>Relevant information</u> The vegetation is not located on a main road or near a tourist route. N/A										
	<u>Moderating factors that may be considered by the NVC</u> – N/A										

[Principles of Clearance](#) (h-m) will be considered by comments provided by the local NRM Board or relevant Minister. The Data Report should contain information on these principles where relevant and where sufficient information or expertise is available.

## 4.6 Risk Assessment

*Determine the level of risk associated with the application*

<b>Total clearance</b>	No. of trees	0
	Area (ha)	1.8959
	Total biodiversity Score	69.99
<b>Seriously at variance with principle 1(b), 1(c) or 1 (d)</b>		1 (b)
<b>Risk assessment outcome</b>		<b>Level 4</b>

## 4.7 NVC Guidelines

*Provide any other information that demonstrates that the clearance complies with any relevant NVC guidelines related to the activity.*

N/A

# 5. Clearance summary

## Clearance Area(s) Summary table

Block	Site	Species diversity score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Biodiversity score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
A	1	21	1	0	0.1	43.18	0.1672	7.22	1			7.94	\$3,732.44	\$205.28
A	2	18	1	0	0.08	44.21	0.1437	6.35	1			6.99	\$3,303.04	\$181.67
A	3	15	1	0	0.08	42.06	0.2178	9.16	1			10.08	\$4,756.38	\$261.60
A	3b	15	1	0	0.08	31.84	0.4439	14.13	1			15.54	\$7,332.75	\$403.30
<b>Total</b>							0.9726	<b>36.86</b>				<b>40.55</b>	<b>\$19,124.61</b>	<b>\$1,051.85</b>

## Totals summary table

Economies of Scale Factor	0.5
Rainfall (mm) Factor	260
SEB Points of Gain/ha Factor	7

SEB Uplift Factor	1.10
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Management Cost (\$/ha)	\$25,408.00
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Block	Site	Species diversity score	Threatened Ecological community Score	Threatened plant score	Threatened fauna score	UBS	Area (ha)	Total Biodiversity score	Loss factor	Loadings	Reductions	SEB Points required	SEB payment	Admin Fee
A	1	21	1	0	0.1	43.18	0.0612	2.64	1			2.90	\$297.93	\$16.39
A	3	15	1	0	0.08	42.06	0.2976	12.52	1			13.77	\$1,431.54	\$78.73
A	3b	15	1	0	0.08	31.84	0.5645	17.97	1			19.77	\$2,049.21	\$112.71
<b>Total</b>							0.9233	<b>33.13</b>				<b>36.44</b>	<b>\$3,778.68</b>	<b>\$207.83</b>

## Totals summary table

Economies of Scale Factor	0.11
Rainfall (mm) Factor	260
SEB Points of Gain/ha Factor	7

SEB Uplift Factor	1.10
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Management Cost (\$/ha)	\$25,408.00
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	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	69.99	76.99	\$22,903.29	\$1,259.68	\$24,162.97

# 6. Significant Environmental Benefit

A Significant Environmental Benefit (SEB) is required for approval to clear under Division 5 of the Regulations. The NVC must be satisfied that as a result of the loss of vegetation from the clearance that a SEB will result in a positive impact on the environment that is over and above the negative impact of the clearance.

## **ACHIEVING A SEB**

Indicate how the SEB will be achieved by ticking the appropriate box and providing the associated information:

Pay into the Native Vegetation Fund.

## **PAYMENT SEB**

The SEB Policy states that if a SEB is required as a result of an approved activity undertaken under the Regulations, the applicant has a choice of either providing an on-ground SEB or a Payment SEB. However, if a proposed clearance will have an offset obligation of greater than 150 SEB Points Required, the NVC will first request that a reasonable attempt be made to identify an on-ground SEB before a payment will be accepted.

If a proponent proposes to achieve the SEB by paying into the Native Vegetation Fund, summary information must be provided on the amount required to be paid and the manner of payment:

- Payment amount required (including admin. fee): **\$24,162.97**

# 7. Appendices

Appendix 1. Level 1 Clearance Application for Geotechnical works (submitted separately).

Appendix 2. Fauna Survey

Appendix 3. Bushland Vegetation Assessment Scoresheets associated with the proposed clearance area (submitted in Excel format)

Appendix 4. Flora Species List

**Appendix 2 – Fauna Survey (Author: David Armstrong).**

## Survey Method

A survey of the wildlife within and in the immediate surrounds (<20 meters) of the Port Augusta Waste Water Treatment Plant (WWTP) on Old Power Station Road to Port Paterson was conducted from 3rd to 5th March 2026. A total of 13.5 hours observations were collected over five timed visits, of around two to four hours over this period to ensure that at least one visit occurred commencing before sunrise and towards sunset, when bird activity is usually at its peak, and during the early afternoon when reptile activity is usually at its highest level (Fig 1).

Figure 1: Survey observation times and weather conditions.

Date			Temp	Weather	Obs Time
3/3/2026	Start	15:00	23 C	27 kph wind from SE, mostly clear sky	
	Finish	19:10	23 C	27 kph wind from SE, clear sky	4:10
4/3/2026	A Start	07:00	16 C	18 kph wind from SE, clear sky	
	Finish	09:00	18 C	24 kph wind from SE, clear sky	2:00
	B Start	12:00	24 C	24 kph wind from SE, clear sky	
	Finish	14:30	26 C	27 kph wind from SE, clear sky	2:30
	C Start	17:30	26 C	29 kph wind from SE, clear sky	
	Finish	19:40	23 C	26 kph wind from S, clear sky	2:10
5/3/2026	Start	06:50	17 C	11 kph wind from ESE, clear sky	
	Finish	09:30	21 C	18 kph wind from SE, clear sky	2:40
<b>Total Obs</b>					<b>13:30 hours</b>

## Results

Not surprisingly the number of species present within such a small area was not great. Only 13 species of birds, three reptiles and one mammal were confirmed associated with the target survey area (Appendix 1). Of these, only four of the bird species, the Little Grassbird, Purple-backed Fairywrens, Singing Honeyeaters and White-winged Fairywrens, and the three small reptile species could be described as resident.

Of the other birds recorded, the Brown Goshawk and Elegant Parrots were merely passing over, so had no direct contact with or dependence on the survey area. The Nankeen Kestrel seen on both afternoons was simply using the security fence posts as an observation point from which to swoop down onto food items, principally grasshoppers. The large number of Australian White Ibis (106 at highest count), a small number of Silver Gulls and two Australian Pelicans used the eastern bank of the south-west pond as an overnight roost, and judging from the lack of vegetation there, at least the ibis appear to use the site regularly (Fig 2). In fact, as each individual landed towards sunset it proceeded to the water's edge for a long drink. The Welcome Swallows and Tree Martins are probably regular visitors to the ponds searching for insects above the water. Whilst the Welcome Swallows are seen in small numbers periodically throughout the day, the Tree Martins arrive as a large group of around 100 within an hour of sunset visiting the south-west pond for a few minutes on their way to their night time roost. The small group of three Chestnut Teal were only seen once, at sunrise on the south-west pond, so may have roosted there overnight.

## Discussion + Comments

There are a variety of factors contributing to the poor species diversity at the WWTP, particularly when compared to the list obtained from database searches for a five kilometre radius area surrounding the site, which is regarded as a guide to the species which may be found within the target area.

The absence of any migratory wader bird species at the ponds is likely partly due to it being generally unsuitable habitat for these species as they feed and roost on and along the edges of tidal mudflats and beaches, but also as beginning in mid-February those from southern Australia embark on their return flights back to the northern hemisphere. Supporting this is that there were also none seen either on the tidal flats immediately to the west or on the mud flats adjacent to the mangroves towards Port Paterson.

The general paucity of water bird species present at the WWTP may also be at least partly attributed to the habitat preferences of some species. For example, a group of around 20 Musk Ducks were seen off Port Paterson at the time of the survey, but these are a diving species which require deep water and are known to sleep on the water rather than needing a dry night roost on shore. However, the recent flooding heavy rain across large portions of the Outback will have likely lured many to move inland in large numbers. In fact, this irregular movement inland creates mass breeding events around temporary waters, which are an essential recharge to the national population numbers of many waterbird species, when as the inland dries these birds return to their more traditional coastal and more permanent waters in temperate climate locations.

The target survey area around the WWTP is an isolated small area of dense shrub land, surrounded on three sides by a very sparse almost monoculture of revegetation of Old Man Saltbush and very little else, which is unsuitable habitat for most wildlife species to reside within. On the remaining west side is a low denser but patchy area of Samphire flats and tidal channels, which is also largely unsuitable habitat for most species. Even within the survey area the majority of small bird activity was on the western side of the security fence, within and around the densest vegetation dominated by large Nitre Bushes (*Nitraria billardierei*) (Fig 3).

There are minimal microhabitat shelter areas, such as leaf litter, bark on trees, domestic or farm rubbish such as sheets of corrugated iron within the survey area to provide targeted search locations for reptiles. Following recent heavy rain what shelter areas can be found are wet or at least damp underneath, rendering them unsuitable for sheltering reptiles, which can cope with cold by becoming torpid, but not wet and cold simultaneously. For example, the single Bynoe's Gecko found around the ponds was sheltering under a flat hose on top of a pond bank which was the best drained and driest location available.

## Additional Information

During the survey 12 other species were observed in different habitats nearby, but had no connection to or interaction with the WWTP. These were eleven bird and one reptile species (Fig 4) and were mostly associated with the mangroves or adjacent shrubby habitats on the levee bank nearby, along the road south from the WWTP towards Port Paterson.

Local staff mentioned past sightings of “brown snakes”, “goannas” and “rats” within the security fenced area. The snakes are most likely Eastern Browns (*Pseudonaja textilis*), the goannas will be the Gould’s Goanna (*Varanus gouldii*), and the rats are most likely Black Rats (*Rattus rattus*) but curiously no available data bases contain records for either of the large introduced rat species in or around Port Augusta. Lifetime Port Augusta resident (Paul Johnston) stated that the rats were commonly seen in town after the demolition of the old power stations. A segment of shed snake skin was found within the WWTP during the survey and confirmed the snake species identity as stated above.

Recent tracks and scats of both Red Kangaroos (*Macropus rufus*) and less of Western Grey Kangaroos (*Macropus fuliginosus*), as well as those of Red Foxes and at least one large dog were common in the general area, including around the outside of the security fence. However these animals clearly had no reliance on the WWTP due to the fence itself preventing them from accessing the treatment ponds.

Figure 4: list of additional species observed outside WWTP Survey area.

BIRDS	Chirruping Wedgebill	<i>Psophodes cristatus</i>
	Crested Pigeon	<i>Ocyphaps lophotes lophotes</i>
	Eastern Osprey	<i>Pandion haliaetus cristatus</i>
	Emu	<i>Dromaius novaehollandiae novaehollandiae</i>
	Grey Butcherbird	<i>Cracticus torquatus leucopterus</i>
	Magpielark	<i>Grallina cyanoleuca cyanoleuca</i>
	Musk Duck	<i>Biziura lobata menziesi</i>
	Rainbow Bee-eater	<i>Merops ornatus</i>
	Red Wattlebird	<i>Anthochaera carunculata</i>
	Sacred Kingfisher	<i>Todiramphus sanctus sanctus</i>
	White-browed Babbler	<i>Pomatostomus superciliosus</i>
REPTILES	Painted Dragon	<i>Ctenophorus pictus</i>

## Summary

None of the 17 wildlife species recorded within the WWTP and adjacent surrounds during the survey have a threat rating under either state or federal legislation. In fact all are generally common and widespread species within their known distribution and preferred habitats. Of the additional 12 species recorded in the greater area (Fig 4) the Eastern Osprey is rated endangered (E) and the Musk Duck rare (R) at state level. But as already mentioned, they exhibited no connection to the WWTP.

The species most seriously affected by planned works should they include removal of the denser vegetation outside the fence on the western side of the ponds are the Little Grassbird and Purple-backed Fairywrens. If the south-west pond, which contains the best quality water, is shut down, then the Australian White Ibis will need to find another suitable roost and drinking location. However, there is another WWTP off Footner Road on the north side of the Stuart Highway less than 3 kms to the north-east, which they could find and use for the same purposes.

Figure 2: Australian White Ibis roost area on east side of the south-west pond.



Figure 3: Nitre Bush (*Nitraria billardierei*) thicket on western side of WWTP.



Appendix 1: Species Recorded Within the Designated Survey Area (wastewater ponds and extending 20 meters into surrounding area).

Obs Session			3/03/2026	4/03/2026 A	4/03/2026 B	4/03/2026 C	5/03/2026
Time			15:00-19:10	07:00-09:00	12:00-14:30	17:30-19:40	06:50-09:30
<b>Birds</b>	Australian Pelican	<i>Pelecanus conspicillatus</i>	*		*		
	Australian White Ibis	<i>Threskiornis molucca</i>	*	*	*	*	
	Brown Goshawk	<i>Accipiter fasciatus fasciatus</i>			*		
	Chestnut Teal	<i>Anas castanea</i>		*			
	Elegant Parrot	<i>Neophema elegans elegans</i>		*			*
	Little Grassbird	<i>Poodytes gramineus</i>	*	*	*	*	*
	Nankeen Kestrel	<i>Falco cenchroides</i>	*		*		
	Purple-backed Fairywren	<i>Malurus assimilis</i>	*	*	*	*	*
	Silver Gull	<i>Chroicocephalus novaehollandiae</i>	*				
	Singing Honeyeater	<i>Gavicalis virescens</i>	*	*	*	*	*
	Tree Martin	<i>Petrochelidon nigricans</i>	*			*	
	Welcome Swallow	<i>Hirundo neoxena</i>	*	*	*	*	
	White-winged Fairywren	<i>Malurus leucopterus leuconotus</i>	*	*	*		*
<b>Reptiles</b>	Adelaide Snake-eye	<i>Morethia adelaidensis</i>			*		*
	Bynoe's Gecko	<i>Heteronotia binoei</i>			*		
	Dwarf Skink	<i>Menetia greyii</i>			*		
<b>Mammal</b>	Fox (Red Fox)	<i>Vulpes vulpes</i>	*				

## Appendix 4 – Flora Species List

Species	Common Name	Conservation Status		Vegetation Association			
		EPBC	SA	A1	A2	A3	A3b
<i>Acacia ligulata</i>	Umbrella Bush			+			
<i>Acacia sp.</i>	Wattle						+
<i>Acacia sp. 1</i>					+		
<i>Acacia sp. 2</i>					+		
<i>Atriplex lindleyi ssp. lindleyi</i>	Baldoo			+	+	+	+
<i>Atriplex nummularia ssp. nummularia</i>	Old-man Saltbush			+	+	+	+
<i>Atriplex semibaccata</i>	Berry Saltbush				+		
<i>Atriplex stipitata</i>	Bitter Saltbush			+			
<i>Atriplex vesicaria</i>	Bladder Saltbush			+			
<i>Austrostipa sp.</i>	Spear-grass			+		+	+
* <i>Carrichtera annua</i>	Ward's Weed			+			
* <i>Catapodium rigidum</i>	Rigid Fescue				+		
* <i>Cynodon dactylon var. dactylon</i>	Couch			+	+		
<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush			+	+		
<i>Enneapogon avenaceus</i>	Common Bottle-washers			+			
* <i>Eucalyptus</i> (planted)	Round-leaved Moort				+		
* <i>Heliotropium curassavicum</i>	Smooth Heliotrope			+			
<i>Lawrenzia glomerata</i>	Clustered Lawrenzia					+	+
* <i>Lycium ferocissimum</i>	African Boxthorn				+		
<i>Maireana appressa</i>	Pale-fruit Bluebush			+	+	+	+
<i>Maireana brevifolia</i>	Short-leaf Bluebush			+	+		
<i>Myoporum montanum</i>	Native Myrtle			+	+		
<i>Nitraria billardierei</i>	Nitre-bush			+	+	+	
<i>Salicornia quinqueflora ssp. quinqueflora</i>	Beaded Samphire			+			
<i>Sarcozona praecox</i>	Sarcozona				+	+	+
<i>Scaevola spinescens</i>	Spiny Fanflower			+			
* <i>Sonchus oleraceus</i>	Common Sow-thistle			+			
* <i>Suaeda aegyptiaca</i>				+	+	+	+
<i>Suaeda australis</i>	Austral Seablite				+		
<i>Tecticornia pergranulata ssp. divaricata</i>	Black-seed Samphire				+	+	
<i>Tecticornia pergranulata ssp. pergranulata</i>	Black-seed Samphire			+	+	+	
<i>Tecticornia pruinosa</i>	Bluish Samphire					+	
<i>Tecticornia tenuis</i>	Slender Samphire						
<i>Threlkeldia diffusa</i>	Coast Bonefruit				+	+	
* <i>Washingtonia filifera</i>	Cotton Palm			+	+		