

Native Vegetation Clearance

Port Augusta West Wastewater Treatment Plant: Construction of biosolids hardstand

Data Report

Clearance under the *Native Vegetation Regulations 2017*

19 December 2023

Prepared by



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. Appendices
 - 6.1 Flora Species List
 - 6.2 Additional works separate to this project
 - 6.3 Bushland Vegetation Assessment Scoresheets (submitted in Excel format).

1. Application information

Application Details

Applicant:	SA Water		
Key contact:	[REDACTED] SA Water Senior Environmental Impact Assessment Officer 250 Victoria Square Adelaide SA 5000		
Landowner:	SA Water		
Site Address:	187 Madland Street, Port Augusta West, SA 5700		
Local Government Area:	Port Augusta City Council	Hundred:	Copley
Title ID:	CR/5757/970	Parcel ID	H540200 S259

Summary of proposed clearance

Purpose of clearance	Clearance is required for the construction of a new biosolids hardstand, evaporation lagoon and widening of a vehicle access track.
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	<ul style="list-style-type: none">3.161 ha chenopod shrubland in good condition
Total proposed clearance - area (ha) and number of trees	3.161 ha chenopod shrubland
Level of clearance	Level 4
Overlay (Planning and Design Code)	N/A

Map of proposed clearance area:



Mitigation hierarchy	<p>Clearance of native vegetation has been avoided by withdrawing initial plans to install underground pipelines from the hardstand to the WWTP treatment lagoon.</p> <p>Clearance of native vegetation has been minimised by incorporating the existing hardstand area and access road into the works footprint.</p> <p>Vegetation composition and condition was mapped across the entire land parcel prior to finalising the project design.</p> <p>Alternative locations for the hardstand were investigated to minimise vegetation impacts, however these options were found to be operationally unviable.</p>
SEB Offset proposal	Payment of \$24,387.96

2. Purpose of clearance

2.1 Description

It is proposed to clear native vegetation to construct a new biosolids hardstand at the Port Augusta West Wastewater Treatment Plant. An existing access road will require widening to accommodate B-double trucks.

2.2 Background

The Port Augusta West Wastewater Treatment Plant (WWTP) treats wastewater from the Port Augusta area and also receives biosolids from multiple WWTP locations across South Australia.

Previous approval for the clearance of 0.94 ha of native vegetation clearance was obtained in 2010 (Application No. 2010_3094) for the construction of the existing hardstand and associated access road (data extracted from NatureMaps (1st November 2023)).

To meet the capacity requirements based on the existing, and foreseen, volume of biosolids required to be stored and managed on site, a recent biosolids management strategy for the plant has identified the need for the following project works:

- Construction of a new biosolids hardstand with ancillary evaporation lagoon
- Construction of a swale around the hardstand, draining into the evaporation lagoon
- Upgrading the existing access road for B-double truck carrying 30-tonne load
- Construction of a ring-route access road suitable for a B-double truck

2.3 General location map

The Port Augusta Wastewater Treatment Plant is located at 187 Madland St, Port Augusta West, approximately 3.5 km west of the city centre (Figure 1). The area of proposed clearance associated with the construction of a new hardstand, evaporation lagoon and widened access road is outlined in Figure 2.

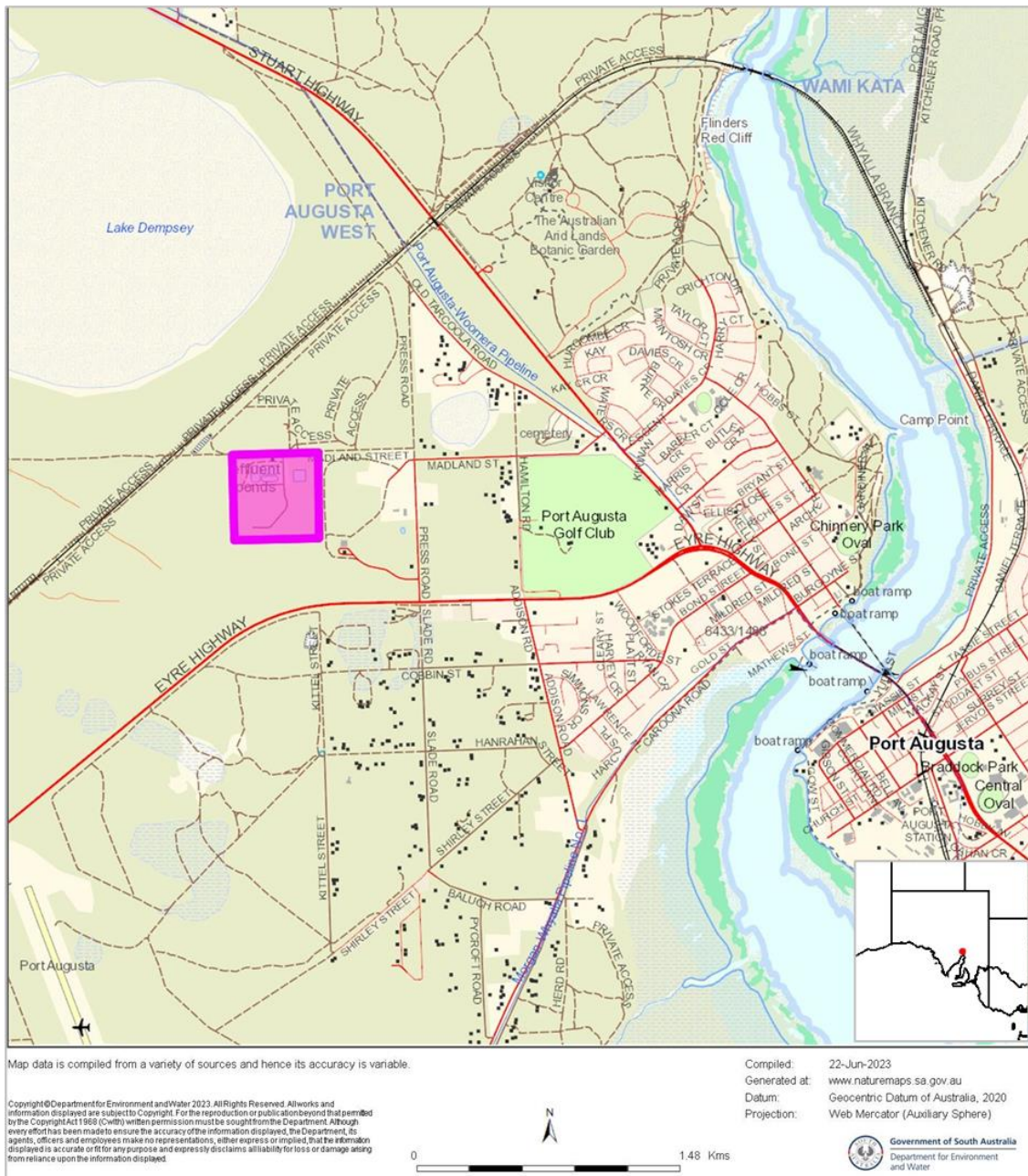


Figure 1. Site Location

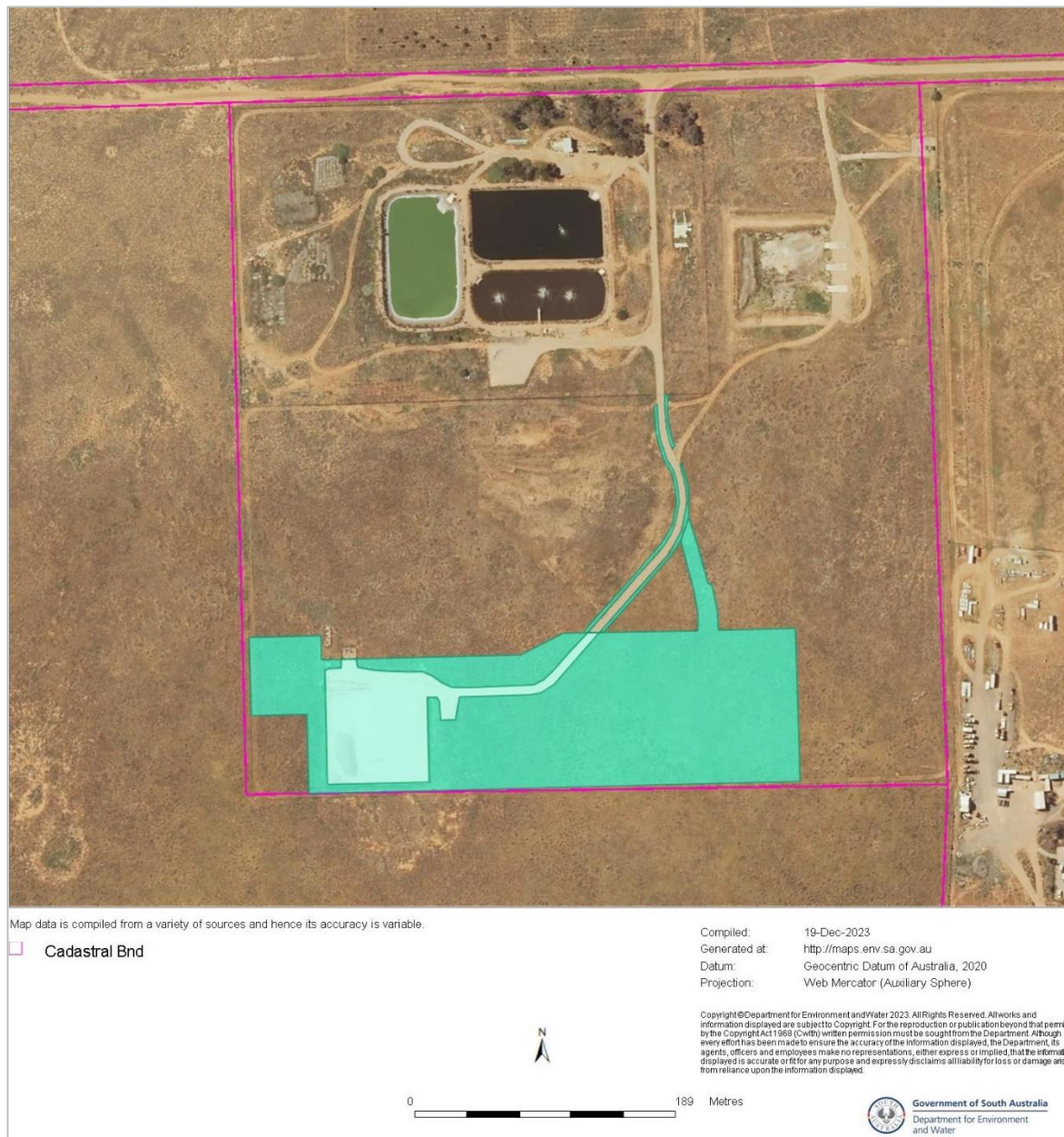


Figure 2. Site map showing area of proposed clearance.

2.4 Details of the proposal

The proposed works affect 3.161 ha of native vegetation in the southern portion of the land parcel. They comprise expanding an existing hardstand, constructing an evaporation lagoon, and widening the existing access road by 2 m either side (Figure 3). A detailed design plan is attached with this report.

The proposed area of clearance incorporates the need for:

- Heavy vehicle (B Double) access and ring-route to minimise vehicle damage to the hardstand and provide a safe working area for drivers and operational staff.
- Adequate area for stormwater / biosolids supernatant management and retention, to ensure no overflow to the environment and to allow for adequate surface area for evaporation from the new retention basin (to be built ancillary to the hardstand).
- Sufficient hardstand space to meet capacity requirements based on the existing, and foreseen, volume of biosolids to be stored and managed on site, from multiple WWTP locations across South Australia.
- Widening of the access road to facilitate operational activities whilst construction is undertaken.

- At least 100 m buffer between the hardstand and neighbouring landowner / sensitive receptors (i.e. the Dept. of Infrastructure & Transport), as required per EPA Guidelines for the safe handling and reuse of biosolids in South Australia. This involved locating the hardstand away from the eastern boundary and keeping an adequate distance from the WWTP amenity buildings.

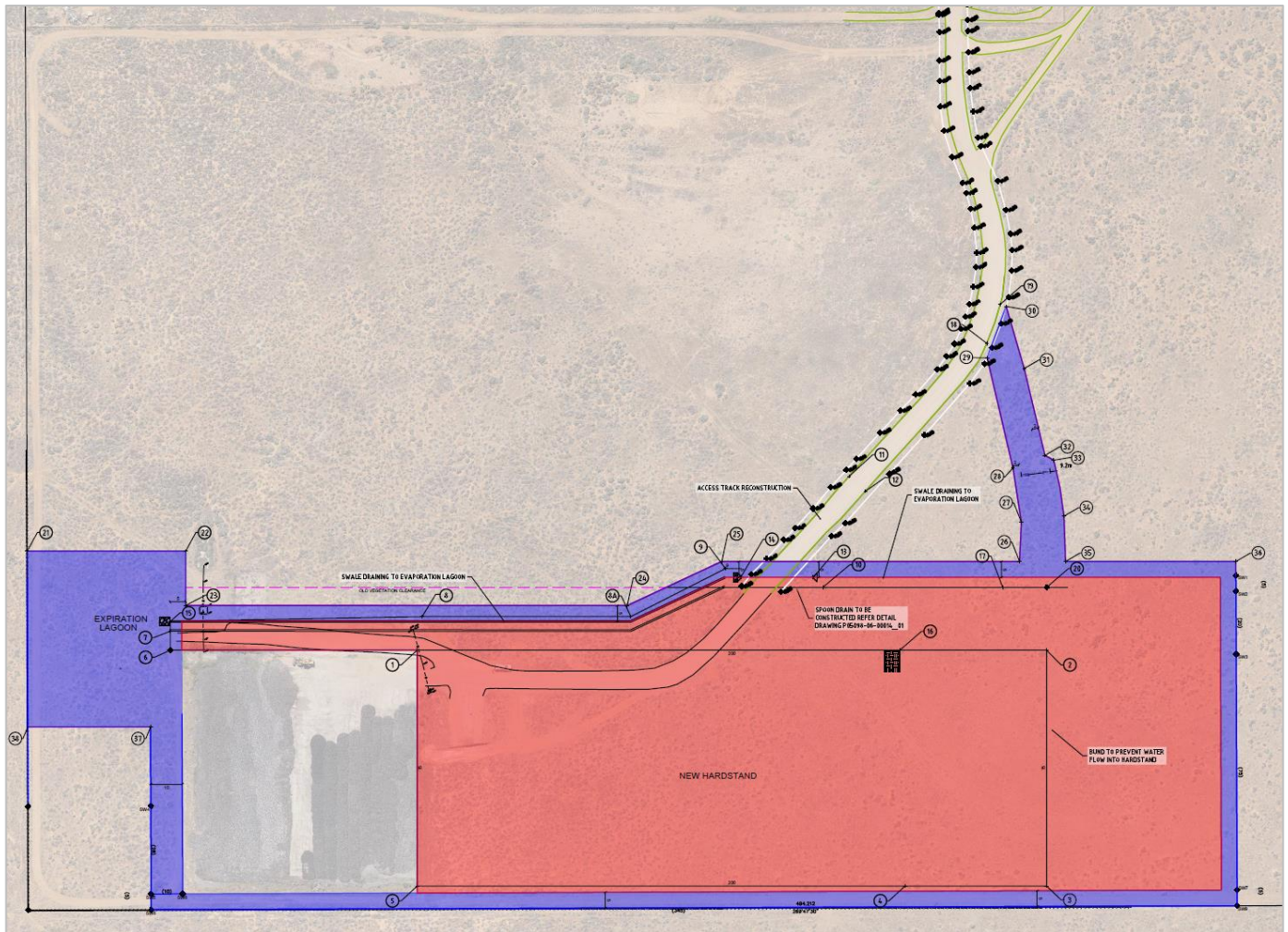


Figure 3. Design plan for works around hardstand and access road.

2.5 Approvals required or obtained

Under the *Native Vegetation Act 1991*, approval is required to remove native vegetation for this project.

The project potentially affects the habitat of one Matter of National Environmental Significance: Blue-winged Parrot (EPBC Vulnerable).

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)

Not applicable

3. Method

3.1 Flora assessment

The site is within the Port Augusta City Council and is therefore subject to the Native Vegetation Council (NVC) Bushland Assessment method for assessing native vegetation.

Records of threatened flora and ecological communities were reviewed for a 5 km search radius centred on the site using NatureMaps, Atlas of Living Australia and the EPBC protected matters search tool (31st May 2023). Records of species with a locational reliability > 1 km or occurring prior to 1995 were excluded. 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.

The field survey was undertaken on 8th and 9th June 2023. 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, structure and condition.

Bushland Assessments were completed for each plant association. This included recording the plant species present, the vegetation structure, and habitat values offered by the plant community. As BCM regions do not extend into the South Australian Arid Lands landscape region, the Eyre Peninsula Bioregion was used in the Bushland Assessment Scoresheets to enable calculation of weed scores.

3.2 Fauna assessment

Records of threatened fauna were reviewed for a 5 km search radius centred on the site using NatureMaps, Atlas of Living Australia and the EPBC protected matters search tool (31st May 2023). Records with a locational reliability > 1 km or occurring prior to 1995 were excluded, along with records of aquatic or 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*.

SA Water has sought advice from Matt Laurner (Black Oak Environmental) and Native Vegetation Branch (G. Carpenter, 21 July 2023) regarding fauna surveys targeting threatened species identified as potentially utilising habitat at the site. The likelihood of detecting these species (particularly nomadic species) is considered to be low, and the NVB has confirmed that no additional fauna surveys are required for the clearance application.

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 study area lies in the Gawler IBRA Association of the Gawler Bioregion. Native vegetation remnancy in the IBRA Association is 88% of which 4% is formally protected.

The project site is 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 comprises low-lying dunes and alluvial plains surrounding inland salt lakes and drainage lines. Soils are saline sandy loam over moist compacted clay. The extensive sandy plains in the vicinity of the study area support a low open shrubland of *Atriplex vesicaria*, *Maireana astrotricha*, +/- *Maireana pyramidata*, +/- *Rhagodia spinescens* over grasses and *Sclerolaena* spp. Small areas of *Callitris glaucophylla* over *Dodonaea* spp. and chenopods, or tall open hummock grasslands with emergent *Acacia ligulata* occur on dunes and hill slopes.


The survey site is on a sandy plain 10-15 m above sea level, approximately 600 m south-east of Lake Dempsey and 3 km west of the highly saline inverse estuary of the Northern Spencer Gulf.

The site is located within a large expanse of contiguous chenopod shrubland. The nearest protected areas lie 22 km to the north-east (Dutchman's Stern CP), 26 km east (Mount Brown CP) and 23 km south-east (Winninowie CP) of the project site.

Mean annual rainfall at the site is 254 mm from 1976 to 2005 (NatureMaps).

One vegetation association will be impacted by the works and is described below. The existing hardstand area, access road and 3 m wide cleared track along the western and southern boundary fence do not contain native vegetation.

Details of the vegetation association proposed to be impacted

Vegetation Association	Association A1. <i>Maireana astrotricha</i> , <i>Atriplex vesicaria</i> , <i>Maireana pyramidata</i> low open chenopod shrubland over <i>Sclerolaena</i> spp. and grasses				
					
Photo 9126 at waypoint 105 facing west towards the existing hardstand area.					
Latitude: -32.47962; Longitude: 137.726114					
General description	<p>This chenopod shrubland association covers most of the undisturbed vegetation across the southern area of the site. The shrubland is dominated by bluebushes such as <i>Maireana astrotricha</i> and <i>M. pyramidata</i>, saltbushes (<i>Atriplex vesicaria</i> and <i>A. holocarpa</i>) and a variety of bindyi shrubs including <i>Sclerolaena constricta</i> and <i>S. ventricosa</i>. Native perennial grasses (<i>Austrostipa nitida</i>, <i>Enneapogon avenaceus</i>) and herbs (<i>Erodium crinitum</i> and <i>Oxalis perennans</i>) occur in the groundlayer.</p> <p>The exotic Ward's Weed (<i>Carrichtera annua</i>) is prevalent throughout the community, with Coastal Galenia (<i>Aizoon pubescens</i>) occurring along track edges and in disturbed areas.</p> <p>The vegetation community is in very good condition with a high diversity of native species, good regeneration and minor weed invasion.</p>				
Threatened species or community	<p>No plant species of national or state conservation significance were recorded. The plant association may provide habitat for one nationally threatened species:</p> <ul style="list-style-type: none">- Blue-winged Parrot (Vulnerable). <p>An additional three species, threatened at the state level may use the vegetation community: Australian Bustard (Vulnerable), Little Eagle (Vulnerable), Black Falcon (Rare) and Restless Flycatcher (Rare).</p>				
Landscape context score	1.06	Vegetation Condition Score	72.95	Conservation significance score	1.08
Unit biodiversity Score	83.51	Area (ha)	3.161	Total biodiversity Score	263.98

Site map showing areas of proposed impact

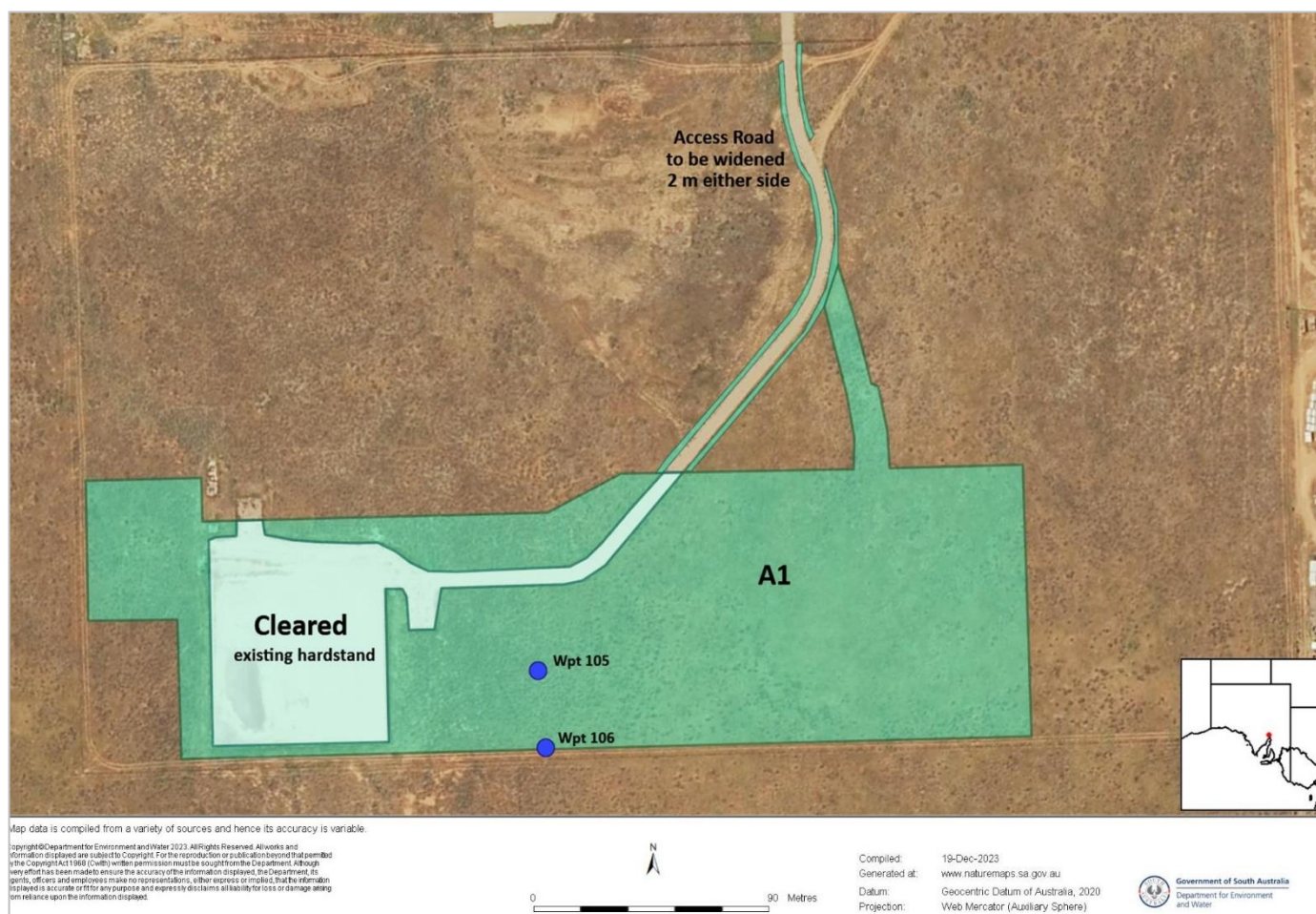


Photo log

Photo	Photo Direction	Description	Way-point	Coordinates (Zone 53)	
				Easting	Northing
9124	east	Vegetation Association A1	105	756187.8	6403125.7
9125	south	Vegetation Association A1	105	756187.8	6403125.7
9126	west	Vegetation Association A1	105	756187.8	6403125.7
9127	north	Vegetation Association A1	105	756187.8	6403125.7
9128	east	Cleared southern boundary Track	106	756190.2	6403095.1

4.2 Threatened Species assessment

The EPBC Protected Matters Search Tool identified one nationally threatened ecological community as likely to occur within 5 km of the study area:

- “Subtropical and Temperate Coastal Saltmarsh” – VULNERABLE

This community does not occur at the site.

One State-threatened plant species has been recorded within 5 km of the survey site:

- *Myoporum parvifolium* (Creeping Boobialla) - Rare

This species was not observed at the site.

Threatened terrestrial fauna reported from within 5 km of the site since 1995 are listed in Table 1, including an assessment of habitat suitability for each species.

Three EPBC-listed species have been recorded within 5 km of the project site:

- Southern Whiteface (Vulnerable)
- Blue-winged Parrot (Vulnerable)
- Grey-headed Flying-fox (Vulnerable)

Of these, only the Blue-winged Parrot is likely to use the chenopod shrubland.

Four state-listed species recorded within 5 km of the proposed works may use the chenopod shrubland:

- Australian Bustard (Vulnerable)
- Black Falcon (Rare)
- Little Eagle (Vulnerable)
- Restless Flycatcher (Rare)

Several native fauna species were observed incidentally during the field survey. The Spotted Harrier, Australian Pipit, Welcome Swallow, Zebra Finch, Galah, Fairy Wren, Australian Magpie, Magpielark and Western Grey Kangaroo were recorded in the chenopod shrubland. The presence of feral animals was indicated by scats of sheep and European rabbit.

Table 1. 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 of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Ardeotis australis</i> Australian Bustard		V	2,3	2019	Large ground-dwelling bird which inhabits low chenopod shrublands, grasslands and open grassy woodlands. Occasionally seen in pastoral and cropping country, golf courses and near dams. Breeds on the ground on low sandy ridges or stony rises between grassland and protective shrubland cover.	Highly likely. Several records in chenopod shrubland within 5 km of the site.
<i>Falco subniger</i> Black Falcon		R	2,3	2018	Mostly occurring in sparse woodland, shrubland and grassland in arid and semi-arid zones, especially tree-lined (<i>Eucalypt</i>) watercourses. The species uses scattered trees for perching and nesting.	Highly Likely. May hunt over chenopod shrublands. Several records within 5 km of the site.
<i>Neophema chrysostoma</i> Blue-winged Parrot	VU	V	2,5	2017	Coastal, sub-coastal and inland areas with grasslands, grassy woodlands and semi-arid chenopod shrubland with native and introduced grasses, herbs and shrubs. Use scattered trees for perching and hollows.	Highly Likely. Suitable habitat available and there are several records in the Australian Arid Lands Botanical Gardens.
<i>Hieraaetus morphnoides</i> Little Eagle		V	2	2020	A widespread species found in open eucalypt forest or woodland, tree-lined watercourses, and sheoak or acacia woodlands. Nests in mature living trees.	Highly Likely. May hunt over chenopod shrublands. Numerous records within 5km of the site.
<i>Myiagra inquieta</i> Restless Flycatcher		R	2	2016	The species is found across Australia in open forests, woodlands, in river red gums near water, coastal scrubs, semi-arid shrublands and farmland. It feeds on insects and builds its nest in the fork of a tree, often near water.	Possible. More likely in nearby woodlands. Only a few records nearby.
<i>Climacteris affinis</i> White-browed Treecreeper		R	2	2019	Occurs in a range of semi-arid and arid tall shrublands and woodlands across the southern half of Australia. Vegetation communities are usually dominated by Acacia, Casuarina or Callitris species, with both dense and open understoreys.	Unlikely. Chenopod shrubland is not preferred habitat. Possible in nearby woodland.
<i>Aphelocephala leucopsis</i> Southern Whiteface	VU		2,5	2022	Small sedentary bird found in a wide range of open woodlands and shrublands, usually dominated by acacias or eucalypts, with an understorey of grasses and/or shrubs. They favour habitat with low tree densities and an herbaceous understorey with litter cover. The species forages almost exclusively on the ground, feeding on insects, spiders, and seeds.	Unlikely. Chenopod shrubland is not a preferred habitat. Possible in nearby woodland.
<i>Pachycephala inornata</i> Gilbert's Whistler		R	2	2017	A sedentary bird which is sparsely distributed over much of the arid and semi-arid zone of inland southern Australia. It inhabits semi-arid tall mallee with sparse shrubby understorey as well as woodland habitats with dense patches of shrubs.	Unlikely. Chenopod shrubland is not a preferred habitat. Possible in nearby woodland.

Species Common Name	EPBC Act	NPW Act	Data Source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
<i>Corcorax melanorhamphos</i> White-winged Chough		R	2	2015	Open forest and woodlands, including mallee, often preferring wetter areas with plentiful leaf-litter for feeding, and available mud for nest building.	Unlikely. Chenopod shrubland is not a preferred habitat.
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox	VU	R	2	2018	Found in a variety of habitats including native forests, woodland, mangroves and urban areas.	Unlikely. Only two records and chenopod shrubland does not provide essential habitat.
<i>Melanodryas cucullata</i> Hooded Robin	EN*	R	2	2009	A shy, mostly sedentary bird occurring in dry eucalypt and acacia woodlands and shrublands with an open understorey, some grassy areas and a complex ground layer. Critical habitat is structurally diverse featuring mature eucalypts, saplings, some small shrubs and a ground layer of moderately tall native grasses.	Unlikely. No suitable habitat available. *The single record does not identify the subspecies. The site is at western edge of <i>M. cucullata cucullata</i> range (EPBC EN), and the eastern edge of <i>M. c. westralensis</i> range (Not listed as threatened).
<i>Egretta garzetta nigripes</i> Little Egret		R	3	2010	A small heron which lives in a variety of freshwater and coastal habitats including the shores of lakes, rivers, ponds, lagoons, mangroves, swamps, mudflats, sandy beaches and reefs.	Unlikely. The species may use the wastewater treatment ponds, but the impacted vegetation is not suitable habitat for the Little Egret.
<i>Plectorhyncha lanceolata</i> Striped Honeyeater		R	2	2012	The Striped Honeyeater is principally found inland in drier open forests and woodlands, such as mallee and mulga, but also occurs in riparian woodlands. It feeds mainly on insects and spiders, but will also eat nectar, seeds and fruit.	Unlikely. Only one record in Port Augusta since 1995.

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

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 provide 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

Direct Impacts

The direct impact of the works is the clearance of 3.261 Ha of native vegetation

Indirect Impacts

Potential indirect impacts of the works include:

- Spread of pest plants from infested areas to relatively intact vegetation
- Increased dust generation from increased traffic on the access road and hardstand area.
- Pest plant establishment in the gutter surrounding the hard stand.
- Noise generation during construction and ongoing operational activities, which may impact fauna species in the vicinity

Note that the site is already subject to high levels of dust and noise disturbance by heavy vehicles operating at the existing hardstand area.

Past impacts in the vicinity of the works

The proposed new hardstand area encompasses 0.94 ha of native vegetation previously cleared (Application No. 2010_3094) for the construction of the existing hardstand and associated access road.

Other works at the site

Additional works at the same site but separate to this project will proceed independently and ahead of the works proposed in this report:

- Installing new washdown bay
- Construction of a storage shed to house a front-end loader

These works are located adjacent to the treatment lagoons and existing infrastructure in the north-western part of the land parcel (Appendix 2). The works would impact less than 0.05 ha of native vegetation and are expected to represent a Level 2 Clearance. SA Water has received advice from the Native Vegetation Branch (G. Carpenter, 7 Aug 2023) confirming that the two project scopes can be submitted as separate clearance applications.

4.4 Address the Mitigation Hierarchy

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

Mapping of vegetation associations across the entire land parcel was conducted prior to finalising the works plans.

The original project scope included construction of an underground PVC discharge pipeline (for the hardstand run-off/stormwater) from the hardstand to the WWTP treatment lagoon. After raising concern about the associated vegetation impact, the need for this element was risk-assessed and the pipeline omitted. In the infrequent event the discharge is required, a temporary lay-flat hose will be used.

The location of the hardstand is restricted by requirements to provide a buffer from neighbouring landholders and existing buildings (as detailed in section 2.4).

b) Minimization – if clearance cannot be avoided, outline measures taken to minimize 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 project design minimises vegetation clearance by incorporating the existing hardstand and internal access road into the works footprint.

An option was considered whereby the hardstand is re-orientated 90 degrees, which would have incorporated a small patch of more degraded chenopod shrubland. However, this is not preferred operationally due to the slope of the land, the aspect of the sun on the stockpiles, and inadequate existing road access to the hardstand. The potential minimisation of impact for this option was very small.

SA Water's Pt Augusta West Land Management Plan ensures that all land management activities undertaken on site are consistent with SA Water's land management policy, procedures and standards. The plan includes land management practices around weeds, pest animals, fire risk, and existing flora & fauna and will inform the monitoring and control of weeds that may become established in the gutter surrounding the hardstand.

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 minimized, such as allowing for the re-establishment of the vegetation.

Vegetation cleared to widen the access road during construction activities will be allowed to regenerate once the works are complete.

The clearance of the vegetation within the hardstand area is permanent and cannot be rehabilitated.

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

Clearance will be offset with a payment to the Native Vegetation Fund.

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

The Native Vegetation Council 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 Native Vegetation Council 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			
Principle 1a - it comprises a high level of diversity of plant species	Vegetation Association	Number of Native plant species	Number of exotic plant species	Native plant species diversity score
	A1	20	2	28
	<u>Assessment against the principles</u> Seriously at Variance (Native plant species diversity score >20) - A1			
	<u>Moderating factors that may be considered by the NVC</u> The site lies within a large expanse of chenopod shrubland, in an area that has a relatively high percentage of native vegetation cover (78% within a 5km radius). The clearance area under application represents less than 0.05% of the native vegetation within a 5 km radius.			
Principle 1b - significance as a habitat for wildlife	<u>Relevant information</u> Threatened species that are likely to use the chenopod shrubland are: <ul style="list-style-type: none">- Blue-winged Parrot (EPBC Vulnerable, SA Vulnerable)- Australian Bustard (SA Vulnerable)- Black Falcon (SA Rare)- Little Eagle (SA Vulnerable)- Restless Flycatcher (SA Rare) The site is contiguous with an extensive tract of chenopod shrubland where the species may occur.			
	Vegetation Association	Threatened Fauna Score	Unit biodiversity Score	
	A1	0.08	83.51	
	<u>Assessment against the principles</u> Seriously at Variance (Threatened Fauna Score ≥0.05; Biodiversity Score >50): - A1			
	<u>Moderating factors that may be considered by the NVC</u> The listed species are mostly nomadic and highly mobile and may use the chenopod shrubland sporadically for hunting or foraging. The proposed clearance lies within an extensive contiguous tract of chenopod shrubland and does not impact the continuity of vegetation corridors. The vegetation is not considered to be habitat that is critical to the survival of a species. Given the relatively small area of clearance in relation to the extent of surrounding native vegetation and habitat, clearance is not expected to significantly affect populations of threatened species or their potential for recovery.			

Principle 1c - plants of a rare, vulnerable or endangered species	<u>Relevant information</u> No threatened flora species were recorded for the site. Threatened Flora Score - A1: 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> – Not applicable
Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered:	<u>Relevant information</u> The site does not support plant communities that are rare, vulnerable or endangered. Threatened Community Score Association A1 - 1
	<u>Assessment against the principles</u> Seriously at Variance – None
	<u>Moderating factors that may be considered by the NVC</u>
Principle 1e - it is significant as a remnant of vegetation in an area which has been extensively cleared.	<u>Relevant information</u> Vegetation remnancy in the Gawler IBRA Association is 100% Vegetation remnancy in the Gawler Volcanics IBRA Subregion is 100% The chenopod shrubland is generally in good health with a moderate-high diversity of native species and low abundance and diversity of exotic plants. Total Biodiversity Score – 271.9
	<u>Assessment against the principles</u> Seriously at Variance - No At Variance – Yes
	<u>Moderating factors that may be considered by the NVC</u> Given the relatively small area of clearance in relation to the extent of surrounding vegetation, clearance is not expected to significantly impact the remnant.
Principle 1f - it is growing in, or in association with, a wetland environment.	<u>Relevant information</u> The vegetation is not associated with a wetland environment.
	<u>Assessment against the principles</u> Not Applicable
	<u>Moderating factors that may be considered by the NVC</u> - Not Applicable
Principle 1g - it contributes significantly to the amenity of the area in which it is growing or is situated.	<u>Relevant information</u> The site is located within private property and is not visible from any public roads. It does not contribute to the amenity of the area.
	N/A
	<u>Moderating factors that may be considered by the NVC</u> – Not applicable

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.

Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	N/A
	Area (ha)	3.161
	Total biodiversity Score	263.98
Seriously at variance with principle 1(b), 1(c) or 1 (d)	1(b)	
Risk assessment outcome	Level 4	

4.6 NVC Guidelines

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

Not applicable

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	28	1	0	0.08	83.51	3.161	263.98	1			277.17	\$23,116.55	\$1,271.41
						Total	3.161	263.98				277.17	\$23,116.55	\$1,271.41

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	263.98	277.17	\$23,116.55	\$1,271.41	\$24,387.96

Economies of Scale Factor	0.11
Rainfall (mm)	254

Risk level Level 2, 3 or 4	4
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7. Appendices

Appendix 1. Flora Species List

Appendix 2. Detailed Design Plans (submitted separately)

Appendix 3. Additional works separate to this project

Appendix 4. Bushland Vegetation Assessment Scoresheets (submitted separately in Excel format)

Appendix 1. Flora Species recorded in vegetation associations

Native Species	Common Name	Conservation Status		A1
		EPBC	SA	
<i>Atriplex holocarpa</i>	Pop Saltbush			+
<i>Atriplex vesicaria</i>	Bladder Saltbush			+
<i>Austrostipa nitida</i>	Balcarra Spear-grass			+
<i>Dissocarpus paradoxus</i>	Ball Bindyi			+
<i>Enchylaena tomentosa</i>	Ruby Saltbush			+
<i>Enneapogon avenaceus</i>	Common Bottle-washers			+
<i>Erodium crinitum</i>	Blue Heron's-bill			+
<i>Gunniopsis quadrifida</i>	Sturt's Pigface			+
<i>Maireana appressa</i>	Pale-fruit Bluebush			+
<i>Maireana astrotricha</i>	Low Bluebush			+
<i>Maireana pyramidata</i>	Black Bluebush			+
<i>Malacocera tricornis</i>	Goat-head Soft-horns			+
<i>Oxalis perennans</i>	Native Sorrel			+
<i>Salsola australis</i>	Buckbush			+
<i>Sclerolaena brachyptera</i>	Short-wing Bindyi			+
<i>Sclerolaena constricta</i>				+
<i>Sclerolaena diacantha</i>	Grey Bindyi			+
<i>Sclerolaena intricata</i>	Tangled Bindyi			+
<i>Sclerolaena ventricosa</i>	Salt Bindyi			+
<i>Tetragonia eremaea</i>	Desert Spinach			+
¹ <i>Acacia oswaldii</i>	Umbrella Wattle			*
¹ <i>Carpobrotus rossii</i> ¹	Native Pigface			*
¹ <i>Convolvulus remotus</i>	Grassy Bindweed			*
¹ <i>Dissocarpus biflorus</i> var.	Two-horn Saltbush			*
¹ <i>Maireana brevifolia</i>	Short-leaf Bluebush			*
¹ <i>Minuria cunninghamii</i>	Bush Minuria			*
¹ <i>Nitraria billardierei</i>	Nitre-bush			*
¹ <i>Rhagodia spinescens</i>	Spiny Saltbush			*
¹ <i>Sclerolaena obliquicuspis</i>	Oblique-spined Bindyi			*
¹ <i>Sida intricata</i>	Twiggy Sida			*
¹ <i>Tecticornia tenuis</i>	Slender Samphire			*
Exotic Species				
<i>Aizoon pubescens</i>	Coastal Galenia			+
<i>Carrichtera annua</i>	Ward's Weed			+

*Recorded outside the survey quadrat.

Appendix 3. Additional works separate to this project

Additional clearance is required for the construction of a storage shed near the northern boundary of the site and the installation of a washdown bay to the east of the treatment ponds. No widening of existing access roads is required north of the internal east-west fence line.

The works will proceed independently and ahead of the works proposed in this report. They comprise a total clearance area of 0.045 ha of vegetation association A1 (58 m² for shed + 389.03 m² for washdown bay) and represent a Level 2 Clearance. SA Water is seeking internal approval for these works.



Clearance of 58 m² of vegetation association A1 is required for the construction of a new shed near the northern boundary of the site.



Clearance of 389 m² of vegetation association A1 is required for a washdown bay to the east of the treatment ponds.