ecological associates pty ltd

Native Vegetation Clearance

Winninowie Pipeline

Data Report

Clearance under the *Native Vegetation Regulations 2017*

4 April 2022

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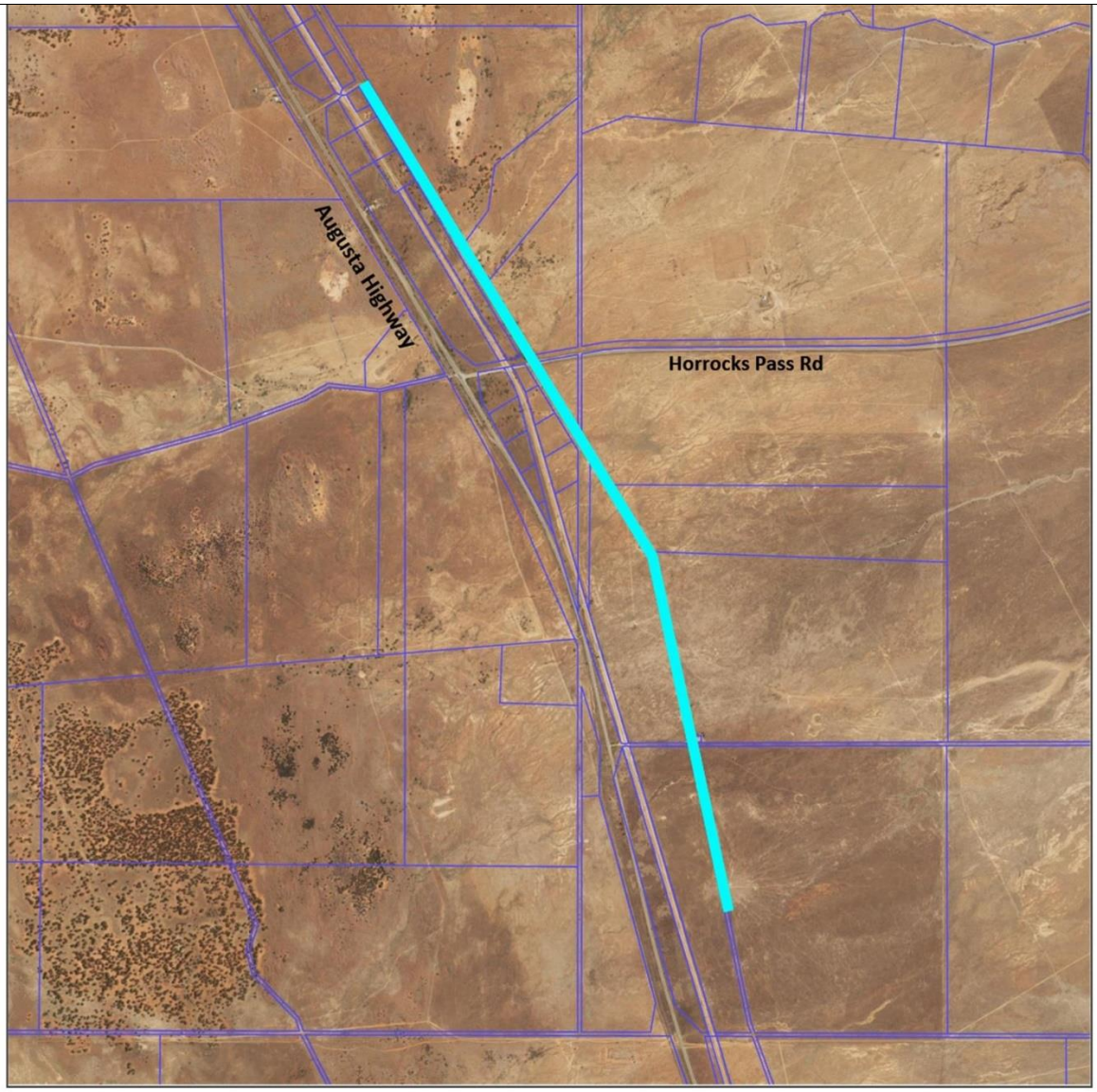
1. Application information

Application Details

Applicant:	SA Water Corporation		
Key contact:	Andy Mlynowskyj Environmental Impact Assessment Officer SA Water, 250 Victoria Square Adelaide 5000 Ph. 0421 950 782		
Landowner:	*Commissioner of Highways*		
Site Address:	Unmade Road Reserve, Winninowie		
Local Government Area:	Port Augusta City Council	Hundred:	Davenport and Woolundunga
Title ID:	N.A.	Parcel ID	N.A.

Summary of proposed clearance

Purpose of clearance	Replace a section of water main relay over 5.1 km
Native Vegetation Regulation	Regulation 12, Schedule 1; clause 34, Infrastructure
Description of the vegetation under application	0.92 ha of low chenopod shrubland in good condition 0.06 ha of tall open *Acacia victoriae* shrubland in good condition 1.9 ha of grazed chenopod shrubland 0.024 ha of chenopod shrubland with severe weed infestation 0.036 ha of *Acacia victoriae* shrubland with severe weed invasion.
Total proposed clearance - area (ha) and number of trees	4.3 ha of shrubland are proposed to be cleared.
Level of clearance	Level 4
Overlay (Planning and Design Code)	N/A



Mitigation hierarchy	Impacts on native vegetation have been avoided by locating the construction corridor over cleared land in the existing track north of Horrocks Pass Road. Impacts have been minimised by limiting the width of the impact corridor to the minimum required to carry out the works. To prevent the spread of pest plants within the site or from the site, SA Water will issue a Project Environmental Management Plan with performance standards that must be met. The contractor will be required to provide a Construction Environmental Management Plan that will set out plant hygeine controls to conform with the the requirements of the Landscape Act.
SEB Offset proposal	**Payment of $16,312.65**

2. Purpose of clearance

2.1 Description

SA Water is proposing to install approximately 5.1 km of new 200 mm water main relay at Winninowie.

2.2 Background

The site is located approximately 17 km south-east of Port Augusta (Figure 1). The pipeline route runs 300 to 500 m to the east of and broadly parallel to Augusta Highway. The route follows an existing unmade road reserve and crosses Horrocks Pass Rd. The vegetation under application includes pastoral used for livestock grazing.

The section of the route north of Horrocks Pass Road is 1.7 km long. This section utilises an existing track with an additional 4 m of clearance required on the eastern side.

The clearance corridor south of Horrocks Pass Rd is 12 m wide and extends for ~3.2 km.

2.3 General location map

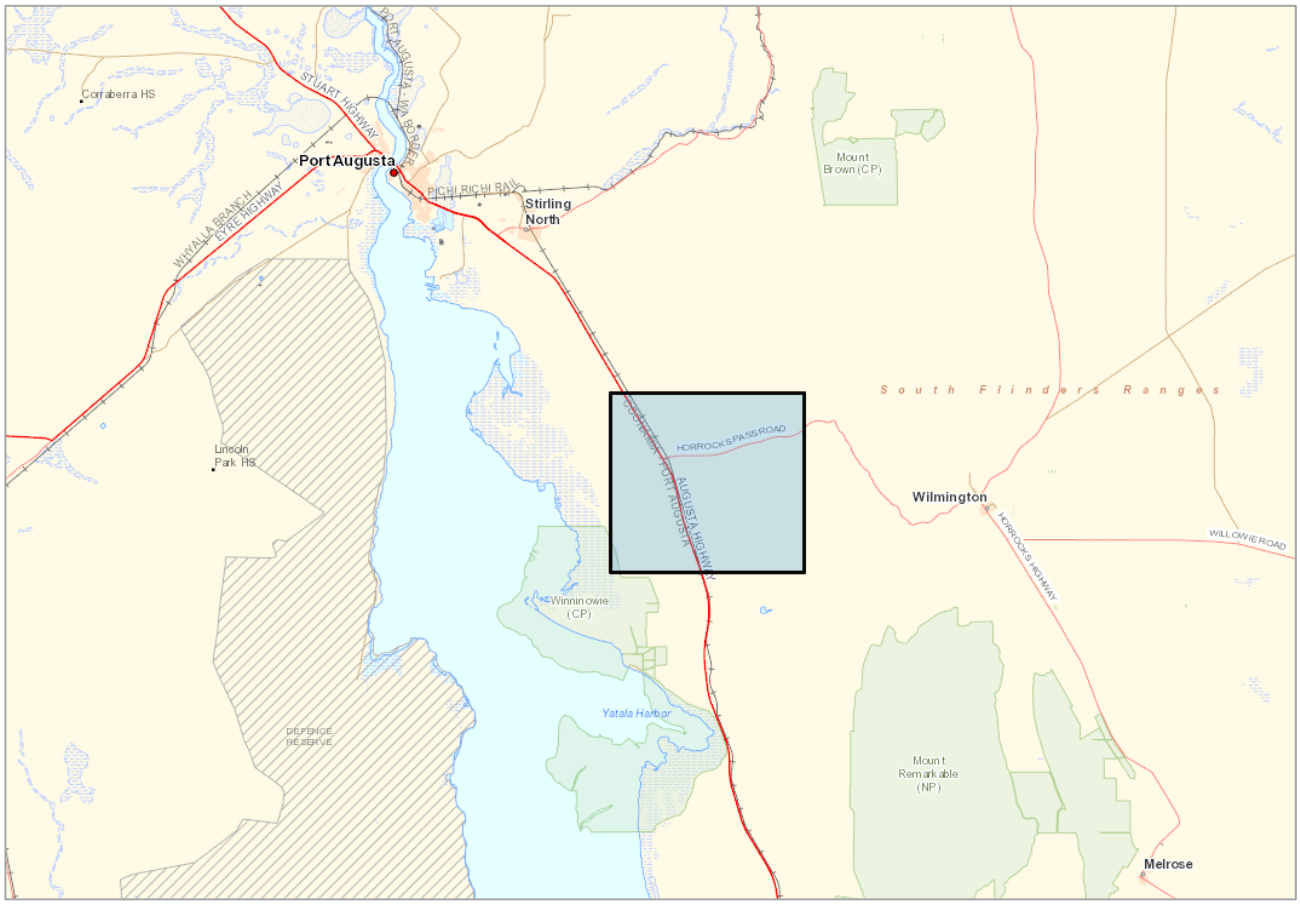


Figure 1. General Location Map

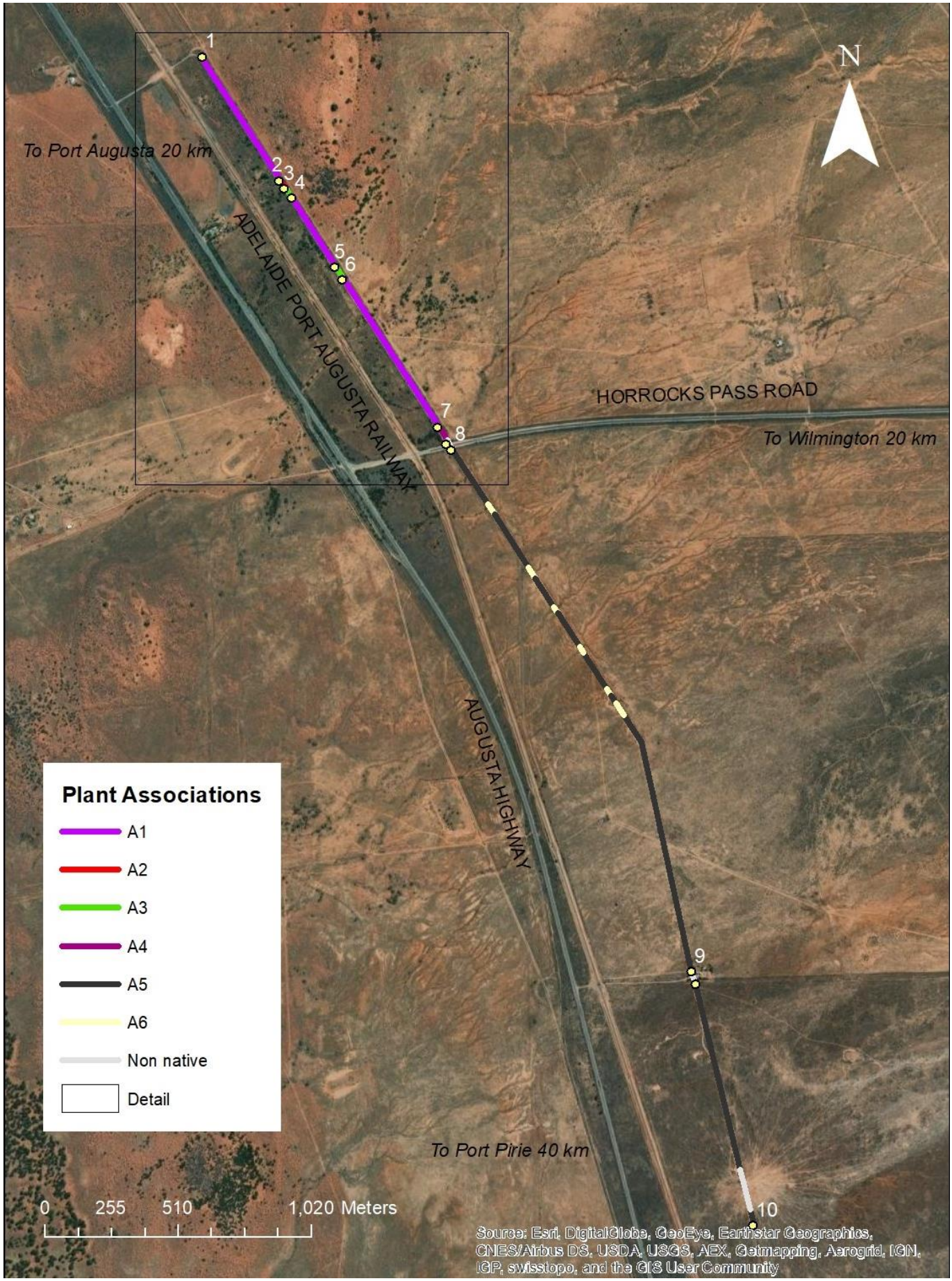


Figure 2 Site map showing vegetation associations along proposed clearance area. See **Error! Reference source not found.**3 for insert detail.

2.4 Details of the proposal

SA Water plans to replace and upgrade an existing water main relay with a new 200 mm pipe.

The pipe will be buried in a trench approximately 1 m wide excavated by a Vermeer. The disturbance corridor includes the trench, Vermeer track, pipe and spoil stockpile and support vehicle movement.

North of Horrocks Pass Road the existing 4 m wide track will provide part of the work area and 4 m of native vegetation clearance is required. South of Horrocks Pass Road the route will broadly follow an existing unfenced road easement. There is some existing disturbance but generally a 12 m wide corridor will be impacted.

2.5 Approvals required *or* obtained

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

2.6 Native Vegetation Regulation

The proposal is required in connection with the construction of infrastructure which falls under Regulation 12, Schedule 1; clause 34 (Infrastructure) of the Native Vegetation Act.

2.7 Development Application information (if applicable)

3. Method

3.1 Flora assessment

A field assessment of the clearance area was undertaken on 9th March 2022. The likelihood of detecting threatened species at this time of year was improved with above average rainfalls in January (January 2022: 78.4 mm; Monthly Average: 21.6 mm (Bureau of Meteorology Data at Port Augusta (Stirling North)).

Vegetation associations were inspected and photographed, and the bearing and location of each photograph recorded. The species composition, density and structure of the vegetation were described according to the Bushland Assessment methodology (Native Vegetation Council).

A desk-top review was conducted to identify threatened species and ecological communities within a 5 km search radius centred along the route. The databases site interrogated were NatureMaps, the Atlas of Living Australia and the EPBC protected matters search tool (25th March). Records prior to 1995 were excluded.

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

3.2 Fauna assessment

Matters of National Environmental Significance (MNES) known to occur within a 5 km search radius were identified using the EPBC protected matters search tool (25th March 2022). Records of threatened fauna reported since 1995 were reviewed for a 5 km search radius along the route using NatureMaps and AoLA (25th March 2022). Records of aquatic species were excluded.

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*.

Fauna species and potential habitat observed during the field assessment were noted. No rated fauna species were observed.

4. Assessment Outcomes

4.1 Vegetation Assessment

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

The site is within the Gawler Lakes IBRA subregion, consisting of depositional undulating plains overlain with sand sheets and dunes, with occasional silcrete capped rises.

The proposed clearance area is located at an elevation of 45 m AHD on a plain abutting the western escarpment of the Flinders Ranges between Nectar Brook in the south and Port Augusta in the north. Soils are deep, with loamy surfaces over red clayey subsoils. Average annual rainfall is 300 mm (1976-2005; NatureMaps).

The is pastoral land used for grazing sheep. The nearest protected area (Winninowie Conservation Park) lies on the coast approximately 5 km to the south-west.

The site supports a low open chenopod shrubland intersected by shallow drainage lines that support a taller and more dense low open *Acacia victoriae* woodland. Vegetation in the northern section is generally in good condition and has a relatively high diversity of native plant species. There are several sites where the overstory and/or understory are dominated by exotic species.

The chenopod shrubland south of Horrocks Pass Rd is grazed by sheep and is dominated by less palatable or disturbance resistance plant species. There are a isolated patches where native species diversity is higher, usually associated with tree cover or around shallow depressions that hold water for longer.

Signs of disturbance in the northern section were limited to vehicle tracks and feral animals (rabbit diggings), and grazing pressure was observed to be minimal. In the southern section, the impacts of grazing and soil disturbance caused by livestock were more evident, particularly in the vicinity of watering points.

Fauna species observed using the vegetation include fairy wrens (*Malurus* spp.), galahs (*Eolophus roseicapilla*), zebra finches (*Taeniopygia guttata*), crested pigeons (*Ocyphaps lophotes*), noisy miners (*Manorina melanocephala*), Australian magpies (*Gymnorhina tibicen*), little ravens (*Corvus mellori*), western grey kangaroos (*Macropus fuliginosus*) and European rabbits (*Oryctolagus cuniculus*).

The proposed clearance route is 4 - 12 m wide and 4.9 km long, traversing through six vegetation associations (A1, A2, A3, A4, A5 and A6; Figure 2). A1, a low chenopod shrubland, is the dominant association north of Horrocks Pass Rd, intersected by small areas of tall open Acacia victoriae shrubland over a good (A2) or degraded (A4) chenopod understory. There is also a small section of chenopod shrubland (A2) with a Schinus molle overstorey.

A5 comprises a grazed low open chenopod shrubland and is the dominant plant association in the southern section, intersected by small areas of A6, a grazed tall open shrubland that grows along drainage lines. Three sections of non-native vegetation occur around the intersection with Horrocks Pass Rd, around a private residence at the end of Church Rd, and around a stock watering point near the end of the route.

Five species of SA Declared Weeds were recorded within the proposed clearance area:

- *Cenchrus ciliaris* (Buffel Grass) occurs in plant associations A1, A4 and A5. The species is patchily distributed in A1 but is a dominant feature of the understorey in A4 and in the section of non-native vegetation around the intersection with Horrocks Pass Rd. Within A5, it occurs inside the entrance gate to the southern section on Horrocks Pass Rd.
- *Lycium ferocissimum* (African Boxthorn) is a minor component of all plant associations.
- *Tribulus terrestris* (Caltrop) was found sparsely scattered within association A3.
- *Xanthium spinosum* (Bathurst Burr) occurs as large infestations and as smaller patches throughout association A5 and in A6.
- *Marrubium vulgare* (Horehound) occurs as a minor component of plant associations A5 and A6.

Site map showing areas of proposed impact

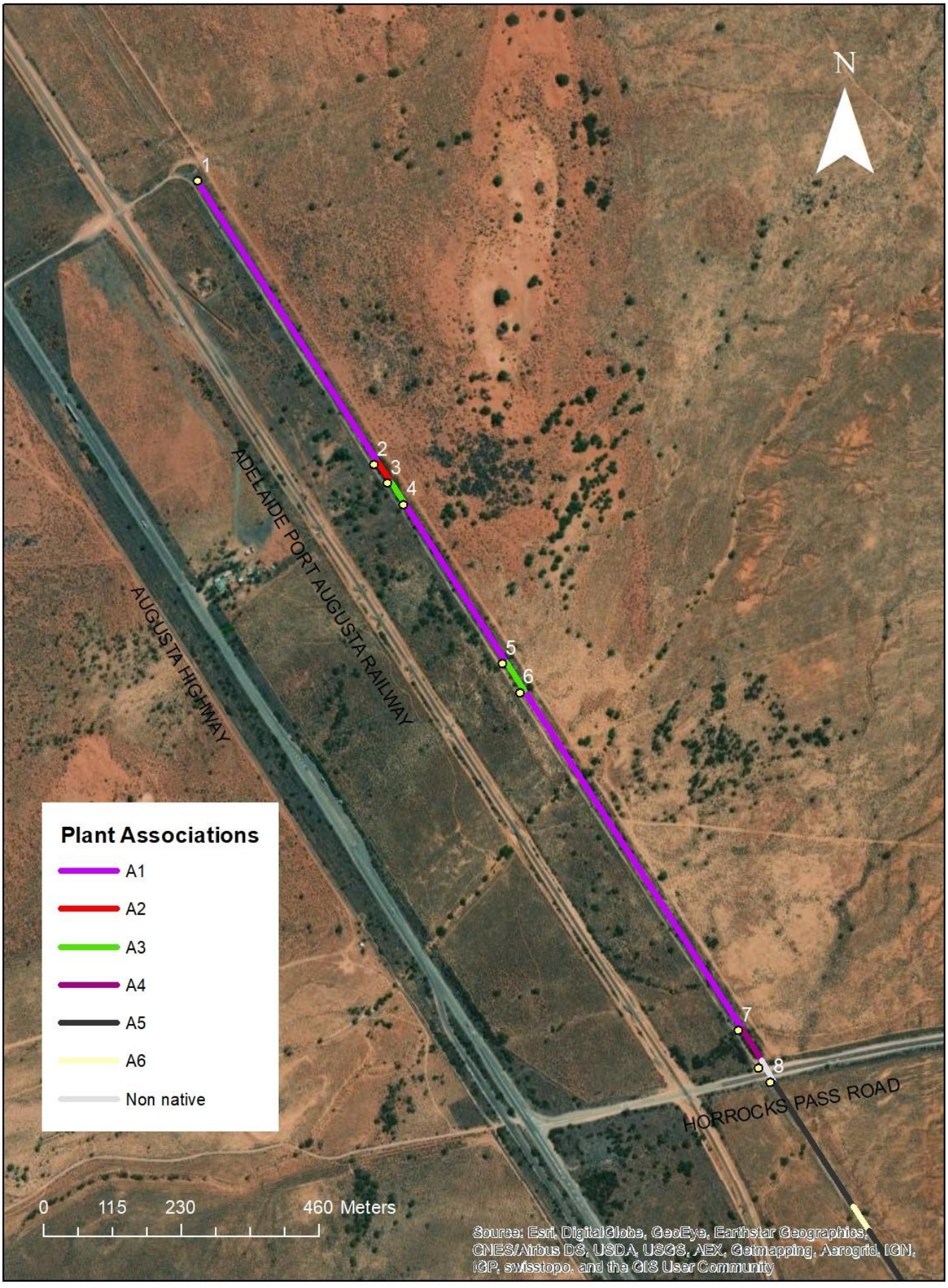


Figure 3. Site map with vegetation associations (A1-A4) along proposed clearance area north of Horrocks Pass Rd

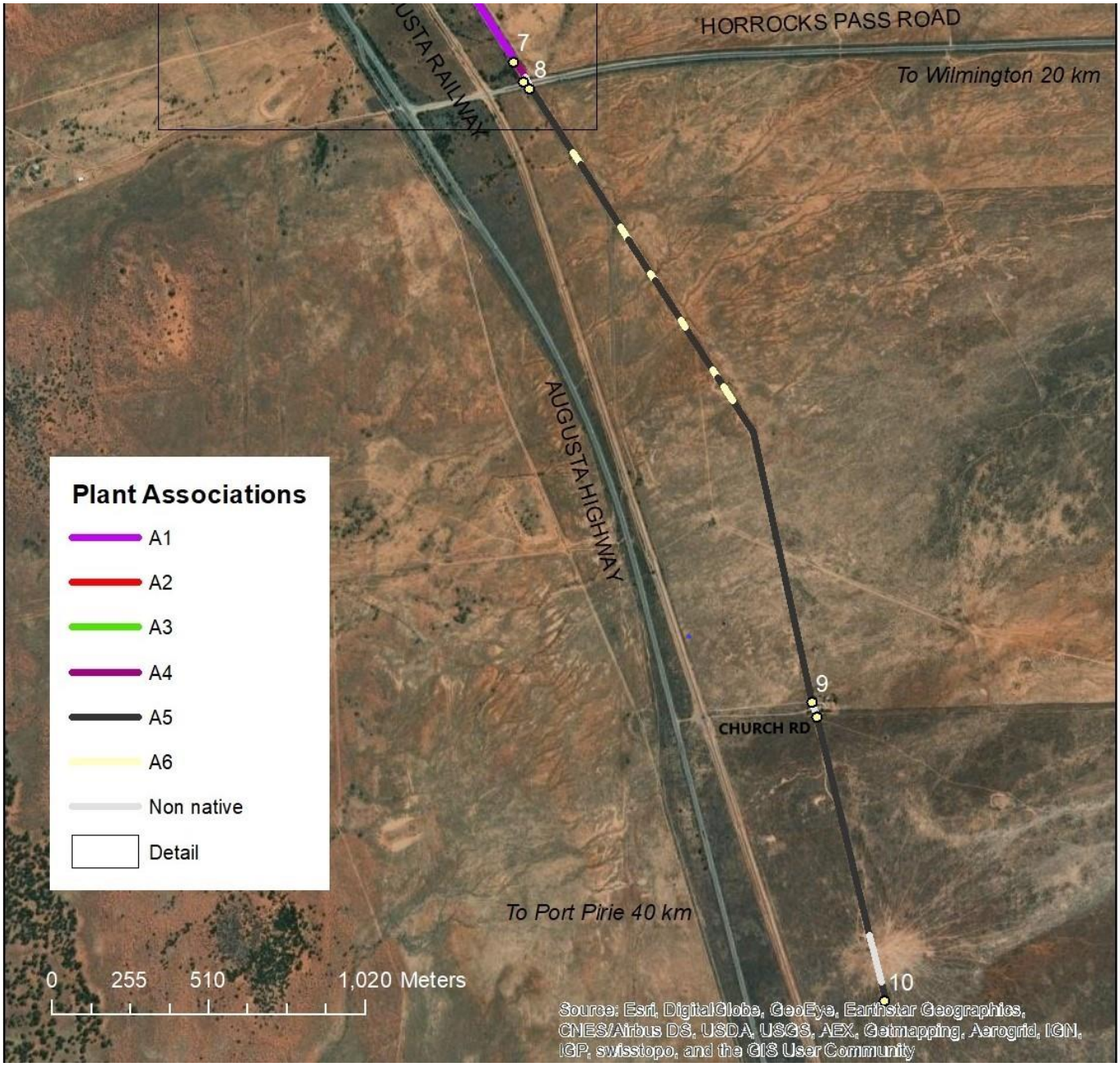


Figure 4. Site map showing vegetation associations A5 and A6 along proposed clearance area south of Horrocks Pass Rd

Vegetation Association	**A1: *Maireana pyramidata* and *Dissocarpus paradoxus* low chenopod shrubland with emergent *Acacia victoriae***

Photo 4530, facing south. View of chenopod shrubland dominated by *Dissocarpus paradoxus* with emergent *Acacia victoriae* and *Senna artemisioides*.

Photo 4535, facing south-east at waypoint 628. View of chenopod shrubland dominated by *Maireana pyramidata* with emergent *Acacia victoriae*.

Photo 4544 showing Buffel Grass growing in waterway (facing south at waypoint 638).

General description	This is the predominant vegetation association within the northern section of the proposed clearance route and consists of a low chenopod shrubland dominated by *Maireana pyramidata* (Black Bluebush) and *Dissocarpus paradoxus* (Ball Bindyi). The community also contains a diversity of other chenopod shrubs (e.g. *Sclerolaena obliquicuspis* (Oblique-spined Bindyi), *Rhagodia spinescens* (Spiny Saltbush), *Enchylaena tomentosa* (Ruby Saltbush), *Einadia nutans* (Climbing Saltbush)) and native groundlayer species (e.g. *Dysphania cristata* (Crested Crumbweed), *Osteocarpum acropterum* (Tuberculate Bonefruit), *Sida spp., Boerhavia domini* (Tar-vine), *Convolvulus remotus* (Grassy Bindweed), *Euphorbia ferdinandi*). Emergent *Acacia victoriae* (Elegant Wattle) shrubs and a few *Senna artemisiodes* and *Pimelea microcephala* (Shrubby Riceflower) occur as scattered individuals. Open areas are dominated by introduced *Carrichera annua* (Ward's Weed) but also contain the native grasses *Austrostipa nitida* (Balcarra Spear-grass) and *Enneapogon avenaceus* (Common Bottle-washers), as well as a number of other exotic species including *Asphodelus fistulosus* (Onion Weed), *Heliotropium europaeum* (Common Heliotrope) and *Aizoon pubescens* (Coastal Galenia). A few small patches of *Cenchrus ciliaris* (Buffel Grass), a state declared weed, were found growing near the edge of the existing track (waypoint 625) and in a waterway (waypoint 638, photo 4544). *Lycium ferocissimum* (African Boxthorn), also a state declared weed, is a very minor component of the association. Native plant species diversity is relatively high compared to the benchmark community for coastal plain shrubland (>70%) and the vegetation is in good condition with no significant signs of grazing or disturbance. All age classes of perennial plant species (including grasses) are present.
Threatened species or community	The site may provide habitat for two threatened bird species that have been recorded within 5 km of the site: *Neophema chrysostoma* (Blue-winged Parrot) (SA Vulnerable) and *Neophema elegans* (Elegant Parrot) (SA Rare).

Landscape context score	1.12	Vegetation Condition Score	64.36	Conservation significance score	1.04
Unit biodiversity Score	74.97	Area (ha)	0.6196	Total biodiversity Score	46.45

Vegetation Association	**A2: *Schinus molle* over Chenopod Shrubland**

Photo 4537, facing south-east at waypoint 629. View of *Schinus molle* over chenopod shrubland.

General description	The introduced *Schinus molle* (Pepper Tree) makes up the entire canopy in the vegetation association, however the understorey is dominated by chenopod shrubs (Ball Bindyi, Oblique-spined Bindyi, *Maireana brevifolia* (Short-leaf Bluebush), Ruby Saltbush, *Salsola australis* (Buckbush), and other native shrubs (Shrubby Riceflower) and grasses (Balcarra Spear-grass). Native plant species diversity is low compared to the benchmark chenopod shrubland community. Exotic species are a minor component of the understorey and included African Boxthorn, Ward's Weed and *Mesembryanthemum aitonis* (Angled Iceplant).				
Threatened species or community	The site may provide habitat for two threatened bird species that have been recorded within 5 km of the site: *Neophema chrysostoma* (Blue-winged Parrot) (SA Vulnerable) and *Neophema elegans* (Elegant Parrot) (SA Rare).				
Landscape context score	1.12	Vegetation Condition Score	30.76	Conservation significance score	1.04
Unit biodiversity Score	35.83	Area (ha)	0.015	Total biodiversity Score	0.54

Vegetation Association	**A3: *Acacia victoriae* Open Tall Shrubland**

Photo 4539. View of *Acacia victoriae* shrubland. facing south-east at waypoint 632.

General description	The vegetation association is characterised by a taller shrub layer of Elegant Wattle over a chenopod shrub layer comprised of similar species to those in Vegetation Association A1. Ball Bindyi and Black Bluebush are the dominant understorey species, along with a variety of other native shrubs (e.g. Spiny Saltbush, Mealy Saltbush, Shrubby Riceflower, Climbing Saltbush, Tuberculate Bonefruit, *Sida intricata* (Twiggy Sida), grasses (Balcarra Spear-grass, Common Bottle-washers), as well as vines and herbs (Tar-vine, Grassy Bindweed, *Vittadinia sulcata* (Furrowed New Holland Daisy). *Lysiana exocarpi* (Harlequin Mistletoe) grows in a number of the Elegant Wattle shrubs. Two declared weeds, *Tribulus terrestris* (Caltrop) and African Boxthorn, were recorded but are a minor component of the vegetation community. Other exotic species found in the ground layer include Ward's Weed, Onion Weed, Common Heliotrope and Coastal Galenia. Native plant species diversity is relatively high compared to the benchmark community (>60%) and the vegetation is in good condition showing no significant signs of grazing or disturbance. All age classes of perennial plant species (including grasses) are present.
Threatened species or community	The site may provide habitat for two threatened bird species that have been recorded within 5 km of the site: *Neophema chrysostoma* (Blue-winged Parrot) (SA Vulnerable) and *Neophema elegans* (Elegant Parrot) (SA Rare).

Landscape context score	1.12	Vegetation Condition Score	60.76	Conservation significance score	1.04
Unit biodiversity Score	70.77	Area (ha)	0.039	Total biodiversity Score	2.76

Vegetation Association	**A4: *Acacia victoriae* Open Tall Shrubland with Degraded Understory**

Photo 4539, facing south-east at waypoint 642. View of *Acacia victoriae* shrubland with understory dominated by Buffel Grass.

General description	The vegetation association has a tall shrub layer comprised of Elegant Wattle, over a highly degraded understorey dominated by Buffel Grass and Coastal Galenia. African Boxthorn and Onion Weed are also present. The wattles support Harlequin Mistletoes, and there are some native shrubs (Spiny Saltbush, Shrubby Riceflower, Black Bluebush, Ball Bindyi) and grasses (Balcarra Spear-grass) in the understorey. Native plant species diversity is low (<20% that expected in the benchmark community).				
Threatened species or community	The site may provide habitat for two threatened bird species that have been recorded within 5 km of the site: *Neophema chrysostoma* (Blue-winged Parrot) (SA Vulnerable) and *Neophema elegans* (Elegant Parrot) (SA Rare).				
Landscape context score	1.12	Vegetation Condition Score	26.04	Conservation significance score	1.04
Unit biodiversity Score	30.33	Area (ha)	0.025	Total biodiversity Score	0.76

Vegetation Association	**A5: Grazed Chenopod Shrubland**

Photo 4555, facing south-east at waypoint 649.

Photo 4560, at waypoint 654, showing dense infestation of Bathurst Burr.

Photo 4556, at waypoint 650, showing small patches of Bathurst Burr and Onion Weed along vehicle tracks.

Photo 4551, facing south-east at waypoint 644, showing infestation of Buffel Grass by the entrance gate on Horrocks Pass Rd.

Photo 4551, facing north at waypoint 660, showing reduced plant cover near watering point at the southern end of the proposed clearance route. A stock watering point is visible in the distance, where native vegetation is absent.

General description	The vegetation association consists of a low open chenopod shrubland subjected to livestock grazing. It is dominated by chenopod species that are more resistant to trampling and less palatable to stock (e.g. Black Bluebush, *Atriplex holocarpa* (Pop Saltbush), Buckbush, *Sclerolaena divaricata* (Tangle Bindyi) and Oblique-spined Bindyi. No native grasses or herbaceous species were found in the community. The SA Declared weed*, Xanthium spinosum* (Bathurst Burr) occurs in dense patches (e.g. waypoint 654, photo 4560) as well as scattered along vehicle tracks ((waypoint 650, photo 4556). A dense patch of Buffel Grass is growing near the gate entrance at Horrocks Pass Rd at the northern end of the vegetation association (waypoint 644, photo 4551). Two other SA Declared weeds: African Boxthorn and *Marrubium vulgare* (Horehound) are a minor component of the vegetation community. Native plant species diversity is low (<30% of benchmark community). There are large areas of bare ground and evidence of soil disturbance (sheep tracks) throughout the community, increasing in severity near a water source at the southern end of the proposed clearance route. Plant cover is reduced closer to the water source (waypoint 660, photo 4551).
Threatened species or community	The site may provide habitat for two threatened bird species that have been recorded within 5 km of the site: *Neophema chrysostoma* (Blue-winged Parrot) (SA Vulnerable) and *Neophema elegans* (Elegant Parrot) (SA Rare).

Landscape context score	1.13	Vegetation Condition Score	26.96	Conservation significance score	1.04
Unit biodiversity Score	31.68	Area (ha)	3.34	Total biodiversity Score	105.83

Vegetation Association	**A6: Grazed tall open shrubland in drainage features**

Photo 4558, facing north-east at waypoint 652, showing a small stand of Umbrella Wattle (background) with Bush Minuria and Shrubby Riceflower in the foreground.

Photo 4559, facing south-east at waypoint 653, showing an individual Elegant Wattle supporting a higher diversity of native species beneath its canopy.

General description	The vegetation association is restricted to shallow drainage features that traverse the chenopod shrubland of Vegetation Association A5. These areas hold water for longer and support a taller stratum of shrubs and greater diversity of species. The association consists of seven small stands of shrubs, or sometimes an individual shrub, that moderate the microclimate under their canopy. Overstorey species were *Acacia oswaldii* (Umbrella Wattle), Elegant Wattle and the introduced Pepper Tree. Native understorey species associated with drainage lines or growing under canopies include *Minuria cunninghamii* (Bush Minuria), Shrubby Riceflower, Ruby Saltbush, Grassy Bindweed, *Sclerolaena brachyptera* (Short-wing Bindyi) as well as the chenopod species found in the surrounding Vegetation Association A5. Exotic species growing in the community include *Solanum nigrum* (Black Nightshade), Bathurst Burr and African Boxthorn.				
Threatened species or community	The site may provide habitat for two threatened bird species that have been recorded within 5 km of the site: *Neophema chrysostoma* (Blue-winged Parrot) (SA Vulnerable) and *Neophema elegans* (Elegant Parrot) (SA Rare).				
Landscape context score	1.13	Vegetation Condition Score	45.28	Conservation significance score	1.04
Unit biodiversity Score	53.21	Area (ha)	0.287	Total biodiversity Score	15.27

Photo log

Photo	Photo Direction	Description	Waypoint	Coordinates (Zone 53)	
				Easting	Northing
4530	South	Vegetation Association A1	625	6387800	773154.4
4535	South-east	Vegetation Association A1	628	6387580	773278.3
4537	South-east	Vegetation Association A2	629	6387375	773392.9
4539	South-east	Vegetation Association A3	632	6387320	773429.5
4544	South	Vegetation Association A1 - Buffel Grass growing in waterway	638	6386833	773706.4
4549	South-east	Vegetation Association A4	642	6386365	773962.7
4551	South-east	Vegetation Association A5 – Buffel Grass near entrance gate	644	6386306	773996.1
4555	South-east	Vegetation Association A5	649	6384654	774729.4
4556		Vegetation Association A5 –small patches of Bathurst Burr	650	6384814	774708
4558	North-east	Vegetation Association A6	652	6385298	774583.2
4559		Vegetation Association A6	653	6386016	774168.7
4560	South-east	Vegetation Association A5 – dense infestation of Bathurst Burr	654	6386008	774169
4566	North	Vegetation Association A5 – reduced plant cover closer to water source	660	6383346	774963.2

4.2 Threatened Species assessment

Two threatened fauna species that may use the vegetation communities were recorded in the database search, both have a State Rating under the *NP&W Act*.

The Blue-winged Parrot was last recorded in 2008 in Winninowie Conservation Park, approximately 5km away. There have been several sightings of the Elegant Parrot close to the proposed clearance area, the latest in 2016 near the Augusta Highway. Both species utilise chenopod shrublands as a food resource.

Species (common name)	**NP&W Act**	**EPBC Act**	**Data source**	**Year of last record**	**Species known habitat preferences**	**Likelihood of use for habitat – Comments**
Neophema chrysostoma (Blue-winged Parrot)	V		2	2008	Coastal, sub-coastal and inland areas with grasslands, grassy woodlands and semi-arid chenopod shrubland with native and introduced grasses, herbs and shrubs. Forage mainly on the ground for seeds of grasses and herbaceous plants.	Highly likely. Suitable feeding habitat present.
Neophema elegans (Elegant Parrot)	R		2	2016	Wide variety of habitats including grasslands, shrublands, mallee, woodlands, bluebush plains, heathlands, saltmarsh and farmland. Usually feed on the ground, on seeds of grasses or low-growing shrubs.	Highly likely. Suitable feeding habitat present.
Source; 1- BDBSA, 2 - AoLA, 3 – NatureMaps 4 – Observed/recorded in the field, 5 - Protected matters search tool, 6 – others NP&W Act; E= Endangered, V = Vulnerable, R= Rare; EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable						

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 provide 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

This is a stand alone project that is not dependent on or contingent on othe works that involve vegetation clearance.

4.4 Address the Mitigation Hierarchy

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

Impacts on native vegetation have been avoided by locating the construction corridor over cleared land in the existing track north of Horrocks Pass Rd.

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).

Impacts on vegetation have been minimised by limiting the width of the impact corridor to the minimum required to carry out the works.

To prevent the spread of pest plants within the site or from the site, SA Water will issue a Project Environmental Management Plan with performance standards that must be met. The contractor will be required to provide a Construction Environmental Management Plan that will set out plant hygeine controls to conform with the the requirements of the Landscape Act.

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.

There are no plans to rehabilitate or restore vegetation at the site. SA Water has an easement for the site but does not have ongoing care or control of the vegetation

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.

Vegetation clearance will be offset by 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	Relevant information Vegetation Association A1: 24 native species + 11 introduced species Vegetation Association A2: 7 native species + 6 introduced species Vegetation Association A3:

	20 native species + 9 introduced species Vegetation Association A4: 7 native species + 4 introduced species Vegetation Association A5: 8 native species + 9 introduced species Vegetation Association A6: 16 native species + 8 introduced species **Bushland Plant Diversity Score –** Vegetation Association A1: 27 Vegetation Association A2: 12 Vegetation Association A3: 24 Vegetation Association A4: 9 Vegetation Association A5: 14 Vegetation Association A6: 24
	Assessment against the principles **Seriously at Variance** Vegetation Association A1, A3, A6 (Bushland Plant Diversity Score >20) **At Variance –** Vegetation Association A2 and A5 (Bushland Plant Diversity Score 10-20)
	Moderating factors that may be considered by the NVC The proposed clearance area comprises a narrow strip surrounded largely by uncleared agricultural land used for livestock grazing. The vegetation to be impacted represents a very small area relative to the native vegetation within the local vicinity (~0.4% of native vegetation within a 1 km radius).
Principle 1b - significance as a habitat for wildlife	Relevant information NPW SA Act – Vulnerable Blue-winged Parrot NPW SA Act – Rare Elegant Parrot **Threatened Fauna Score** Vegetation Association A1: 0.04 Vegetation Association A2: 0.04 Vegetation Association A3: 0.04 Vegetation Association A4: 0.04 Vegetation Association A5: 0.04 Vegetation Association A6: 0.04 **Unit biodiversity Score** Vegetation Association A1: 74.97 Vegetation Association A2: 35.83 Vegetation Association A3: 70.77 Vegetation Association A4: 30.33 Vegetation Association A5: 31.68 Vegetation Association A6: 53.21

	Assessment against the principles **Seriously at Variance** Vegetation Association A1, A3, A6 (Unit Biodiversity Score >50) **At Variance** Vegetation Association A2, A4, A5 (Threatened Fauna Score <0.05)
	Moderating factors that may be considered by the NVC The vegetation under application consists of a narrow strip within an extensive remnant where equivalent habitat is available. In this context, clearance of a 4 - 12 m wide corridor would present minimal disruption to the dispersal of threatened fauna and is unlikely to lead to long-term adverse effects on populations of threatened species. Clearance is considered to be 'non-essential' habitat.
Principle 1c - plants of a rare, vulnerable or endangered species	Relevant information No threatened plant species were recorded in both on-ground and database searches including species that may be present but undetectable at the time of assessment (e.g. orchids). **Threatened Flora Score(s)**: Vegetation Association A1, A2, A3, A4, A5 and A6: 0
	Assessment against the principles **Not At Variance** Vegetation Association A1, A2, A3, A4, A5, A6
	Moderating factors that may be considered by the NVC
***Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered*:**	Relevant information No threatened ecological communities were identified. **Threatened Community Score** Vegetation Associations A1, A2, A3, A4, A5, A6: 1.0
	Assessment against the principles **Not At Variance** Vegetation Association A1, A2, A3, A4, A5, A6
	Moderating factors that may be considered by the NVC
Principle 1e - it is significant as a remnant of vegetation in an area which has been extensively cleared.	Relevant information Glendella IBRA Association percent vegetation remnancy (%): 28% St Vincent IBRA Subregion percent vegetation remnancy (%): 8% **Total Biodiversity Score = 171.59**
	Assessment against the principles **Seriously at Variance** Vegetation Association A1, A2, A3, A4, A5, A6 (Total Biodiversity Score 5-500 and IBRA Subregion remnancy 3 - 10%)
	Moderating factors that may be considered by the NVC
Principle 1f - it is growing in, or in association with, a	Relevant information The vegetation is not associated with a wetland
	Assessment against the principles Seriously at Variance - None At Variance – None

wetland environment.	Moderating factors that may be considered by the NVC
Principle 1g - it contributes significantly to the amenity of the area in which it is growing or is situated.	Relevant information The vegetation lies within private property and the clearance area is set back at least 300 m from the Augusta Highway. Clearance will not contribute significantly to the amenity of the area.
	N/A
	Moderating factors that may be considered by the NVC

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

Total clearance	No. of trees	0
	Area (ha)	4.33
	Total biodiversity Score	171.59
Seriously at variance with principle 1(b), 1(c) or 1 (d)		1(b)
Risk assessment outcome		**Level 4**

4.7 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	27	1	0	0.04	74.97	0.6196	46.45	1			48.77	$4,185.81	$230.22
A	2	12	1	0	0.04	35.83	0.015	0.54	1			0.56	$48.43	$2.66
A	3	24	1	0	0.04	70.77	0.039	2.76	1			2.90	$248.71	$13.68
A	4	9	1	0	0.04	30.33	0.025	0.76	1			0.80	$68.33	$3.76
A	5	14	1	0	0.04	31.68	3.34	105.81	1			111.10	$9,534.82	$524.42
A	6	24	1	0	0.04	53.21	0.287	15.27	1			16.03	$1,376.12	$75.69
						Total	**4.3256**	**171.59**				**180.17**	**$15,462.22**	**$850.42**

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	171.59	180.17	$15,462.22	$850.42	**$16,312.65**

Economies of Scale Factor	0.11
Rainfall (mm)	300

Risk level Level 2, 3 or 4	4

Principle	Seriously at variance	Vegetation Association	At variance	Vegetation Association
a - Plant species diversity	Yes	A1, A3, A6	Yes	A2, A5
b - Wildlife habitat	Yes	A1, A3, A6	Yes	A2, A4, A5
c - Rare plant species				
d - Rare plant communities				
e - Remnancy	Yes	All		
f - Wetland				

6. Significant Environmental Benefit

A Significant Environmental Benefit (SEB) is required for approval to clear under Division 5 of the *Native Vegetation Regulations 2017*. The NVC must be satisfied that as a result of the loss of vegetation from the clearance that an SEB will result in a positive impact on the environment that is over and above the negative impact of the clearance.

ACHIEVING AN SEB

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

☐ Establish a new SEB Area on land owned by the proponent.

☐ Use SEB Credit that the proponent has established. Provide the SEB Credit Ref. No. _____

☐ Apply to have SEB Credit assigned from another person or body. The application form needs to be submitted with this Data Report.

☐ Apply to have an SEB to be delivered by a Third Party. The application form needs to be submitted with this Data Report.

☒ Pay into the Native Vegetation Fund. Provide details below

7. Appendices

Appendix 1. Native Flora Species List

Appendix 2. Exotic Flora Species List

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

APPENDIX 1. Native Flora Species List

		Vegetation Association					
Species name	**Common Name**	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**
Acacia ligulata	Umbrella Bush	+					
Acacia oswaldii	Umbrella Wattle						+
Acacia victoriae ssp. victoriae	Elegant Wattle	+		+	+		+
Atriplex holocarpa	Pop Saltbush					+	+
Austrostipa nitida	Balcarra Spear-grass	+	+	+	+		
Boerhavia dominii	Tar-vine	+		+			
Convolvulus remotus	Grassy Bindweed	+		+			+
Dissocarpus paradoxus	Ball Bindyi	+	+	+	+		
Dysphania cristata	Crested Crumbweed	+					
Einadia nutans ssp. nutans	Climbing Saltbush	+		+			+
Enchylaena tomentosa var.	Ruby Saltbush	+	+				
Enchylaena tomentosa var. tomentosa	Ruby Saltbush						+
Enneapogon avenaceus	Common Bottle-washers	+		+			
Euphorbia dallachyana	Caustic Weed			+			
Euphorbia ferdinandi var. appendiculata		+					
Heliotropium europaeum	Common Heliotrope	+		+			
Lysiana exocarpi ssp. exocarpi	Harlequin Mistletoe	+		+	+		
Maireana brevifolia	Short-leaf Bluebush		+				
Maireana pyramidata	Black Bluebush	+		+	+	+	+
Minuria cunninghamii	Bush Minuria						+
Osteocarpum acropterum var. acropterum	Tuberculate Bonefruit	+		+		+	+
Oxalis perennans	Native Sorrel			+			
Pimelea microcephala ssp. microcephala	Shrubby Riceflower	+	+	+	+		+
Rhagodia parabolica	Mealy Saltbush			+			
Rhagodia spinescens	Spiny Saltbush	+		+	+	+	+
Salsola australis	Buckbush	+	+	+		+	+
Sclerolaena brachyptera	Short-wing Bindyi						+
Sclerolaena divaricata	Tangled Bindyi					+	+
Sclerolaena obliquicuspis	Oblique-spined Bindyi	+	+	+		+	+
Sclerolaena patenticuspis	Spear-fruit Bindyi					+	+
Senna artemisioides ssp. petiolaris		+					
Sida ammophila	Sand Sida	+					
Sida fibulifera	Pin Sida	+					
Sida intricata	Twiggy Sida	+		+			
Solanum petrophilum	Rock Nightshade	+					
Vittadinia sulcata	Furrowed New Holland Daisy			+			

APPENDIX 2. Exotic Flora Species List

			Vegetation Association					
Species name	**Common Name**	**SA Declared Weed**	**A1**	**A2**	**A3**	**A4**	**A5**	**A6**
Aizoon pubescens	Coastal Galenia		+		+	+		
Asphodelus fistulosus	Onion Weed		+		+	+	+	+
Brassica tournefortii	Wild Turnip		+	+				
Carrichtera annua	Ward's Weed		+	+	+			
Cenchrus ciliaris	Buffel Grass	Yes	+		+	+	+	
Chenopodium murale	Nettle-leaf Goosefoot						+	+
Citrullus amarus	Bitter Melon		+	+				
Conyza bonariensis	Flax-leaf Fleabane		+					
Cynodon dactylon var. dactylon	Couch				+			
Datura leichhardtii	Leichhardt's Thorn-apple						+	+
Lycium ferocissimum	African Boxthorn	Yes	+	+	+	+	+	+
Marrubium vulgare	Horehound	Yes					+	
Mesembryanthemum aitonis	Angled Iceplant		+	+				
Mesembryanthemum nodiflorum	Slender Iceplant						+	+
Oligocarpus calendulaceus					+			
Schinus molle	Pepper-tree			+				+
Schismus barbatus	Arabian Grass		+					
Solanum nigrum	Black Nightshade						+	+
Sonchus oleraceus	Common Sow-thistle		+		+			
Tribulus terrestris	Caltrop	Yes			+			
Xanthium spinosum	Bathurst Burr	Yes					+	+