Native Vegetation Clearance Proposal for the development of an aquaculture facility, Louth Bay

Data Report

Clearance under Section 28 of the *Native Vegetation Act 1991*

9 March 2023

Prepared by Matt Launer from BlackOak Environmental Pty Ltd

Table of contents

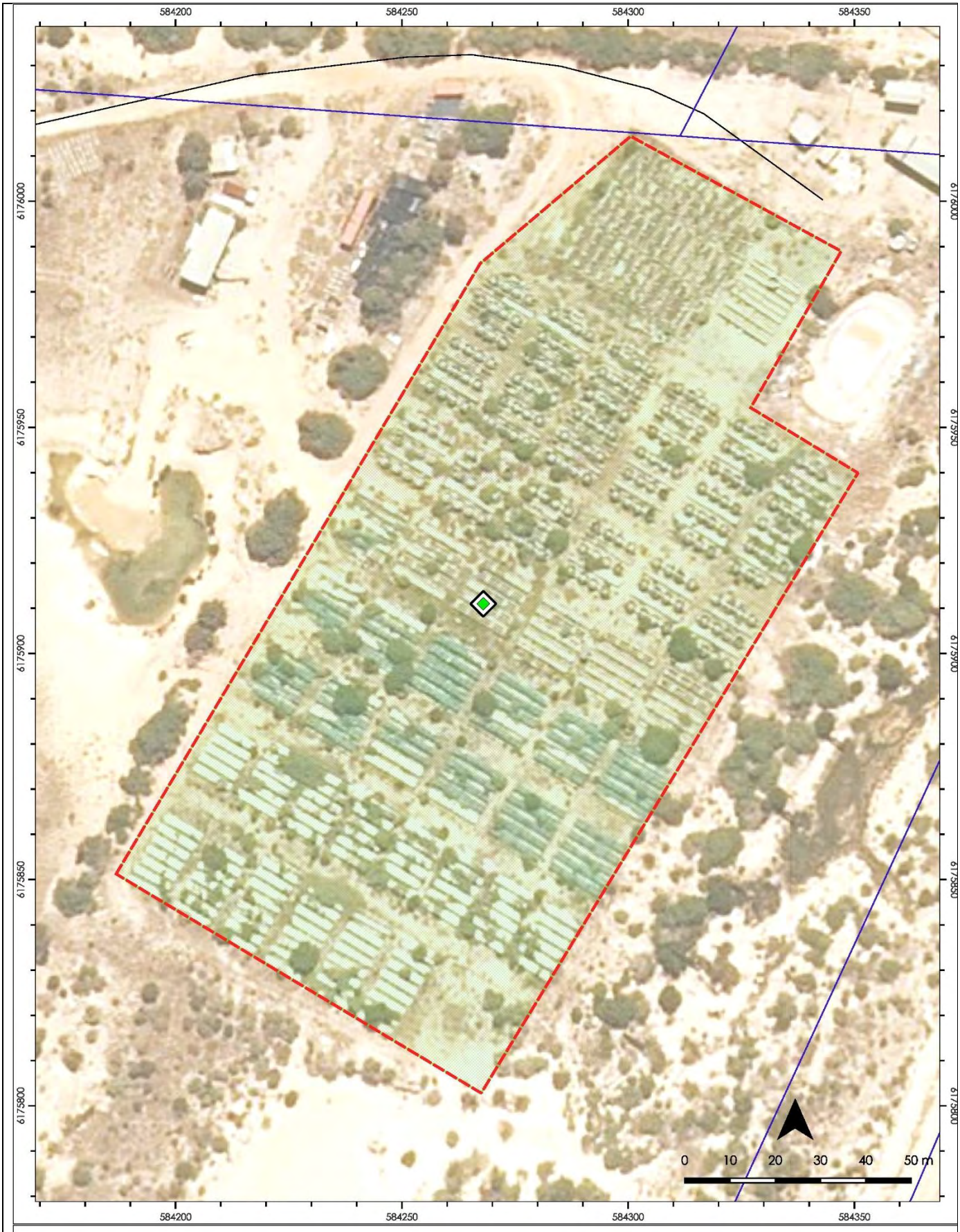
1. Application information

Application Details

Applicant:	[redacted] (CH4 Australia Pty Ltd)		
Key contact:			
Landowner:	[redacted] (Landowner approval lodged with Data Report)		
Site Address:	1976 Lincoln Highway, Louth Bay, S.A. 5607		
Local Government Area:	The District Council of Lower Eyre Peninsula	Hundred:	Louth (510700)
Title ID:	CT/5394/821	Parcel ID:	D17622 A4

Summary of proposed clearance

Purpose of clearance	The purpose of the of the clearance is to develop an aquaculture and production facility. This will include a series of tanks and ponds and a processing building.
Description of the vegetation under application	1.26 ha of *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa* considered to be in poor to moderate condition. All vegetation has naturally regenerated and is approximately 13 years old. The proposed development includes a processing building 40 x 30 m (1200 m^2) which will require a 10 m clearance buffer. This totals 3000 m^2 or 0.30 ha. If required this area may be assessed under *Regulation 12, Schedule 1; clause 33 - New dwelling or building*.
Total proposed clearance - area (ha) and number of trees	1.26 ha of *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa*. The Project area is 1.78 ha and contains approximately 0.51 ha of existing infrastructure such as tanks, pipes and drains.
Level of clearance	Level 4.
Overlay (Planning and Design Code)	The Project area is within the Conservation (Z0904), Rural (Z5404) and Rural Aquaculture (Z5411) Zones, the Visitor Experience (S6601) Sub Zone and the Native Vegetation (O4202) Overlay.
Map of proposed clearance area	


584200
584250
584300
584350
6176000
6175950
6175900
6175850
6175800
0 10 20 30 40 50 m
Vegetation association: Myoporum insulare, *Acacia cyclops, Olearia axillaris Tall Shrubland over *Ehrharta longiflora, Dianella brevicaulis and Ficinia nodosa
BAM Photopoint
Project area
Property boundary (Cadastre DCDB)
Data sources: Geoscience Australia, DEW, DPTI OpenStreetMap
Projection: GDA2020 Zone 53
13/04/2023
BlackOak Environmental

Seriously at variance with the Principles of clearance?	The proposed clearance area of 1.26 ha is seriously at variance with principle 1(a) and 1(b).
Substantially intact	The area of impact is not considered as being substantially intact due to the altered density and diversity of flora species in comparison to original (pre-European) vegetation of that community. This is a direct result of the area being cleared of vegetation in 2006. A land-based Abalone farm was developed in 2006 and was operational until 2010. All vegetation has naturally regenerated and is approximately 13 years old.
Mitigation hierarchy	The site was previously a land-based Abalone farm. All existing infrastructure will be utilised where possible, this includes: Drainage ponds, drainage pipes and sheds. The clearance footprint for the project is within the 1.78 ha which has been previously cleared of all vegetation. Measures taken to avoid indirect clearance of native vegetation during the development of the project will include: • Placing and storing equipment, vehicles and machinery away from nearby vegetated areas; • Placing soil stockpiles away from nearby vegetated areas; • Cleared vegetation to be disposed of to prevent further spread of weed species; • Clearly marking on ground areas that are to be avoided at all times to prevent unintended impacts or accidental clearance; and • Suppressing dust to prevent indirect impacts to nearby vegetated areas. The clearance of vegetation (1.26 ha of *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa* in poor to moderate condition) is considered permanent and therefore rehabilitation or restoration is not practicable.
SEB Offset proposal	The proponent is proposing to pay into the Native Vegetation Fund. The total payment required is $45,513.66 which includes an SEB payment of $43,140.91 and an administration fee of $2,372.75.

2. Purpose of clearance

2.1 Description

The purpose of the 1.26 ha of clearance is to develop an aquaculture and production facility to meet demand for the company's macroalgae enteric methane mitigation solution. Specifically, CH4 Australia Pty Ltd will undertake research and development in controlling the life cycle of Asparagopsis. Once this is achieved, Asparagopsis spores will be attached to biodegradable lines for seeding in sea growing systems. Cultivation in tanks and ponds of up to 170 m^3 are planned (Figure 1).

The site was previously a land-based Abalone farm. All existing infrastructure will be utilised where possible, this includes: Drainage ponds, drainage pipes and sheds (Figure 1). The proposed development includes a processing building 40 x 30 m (1200 m^2) which will require a 10 m clearance buffer. This totals 3000 m^2 or 0.30 ha. If required this area may be assessed under *Regulation 12, Schedule 1; clause 33 - New dwelling or building*.

Figure. 1. Site plan.

2.2 Background

Approximately 5.50 ha of native vegetation containing the subject land of 1.76 ha was cleared in 2006 (Appendix 5). A land-based Abalone farm was developed in 2006 and was operational until 2010. All infrastructure, covering a total area of 0.51 ha was left in place and vegetation started to naturally regenerate. The vegetation is now growing amongst the old infrastructure. CH4 Australia Pty Ltd is planning to remove the old infrastructure from the Abalone farm at the same time the vegetation clearance is carried out subject to approval.

The property that the subject land is within covers an area of 42.33 ha (CT/5394/821). The shoreline of the Spencer Gulf is located approximately 80 m south-east of the Project area.

The Project area is located within the Eyre Peninsula Landscape Management Region, the Flinders County, the Hundred of Louth and the District Council of Lower Eyre Peninsula.

The NPWSA Lincoln National Park (Rabbit Island) is located approximately 8.20 km south-east of the Project area (Figure 1). The Lincoln National Park (Rabbit Island) covers an area of 27.28 ha. The NPWSA Tucknott Scrub Conservation Park is located approximately 12 km north-west of the Project area (Figure 1). The Tucknott Scrub Conservation Park covers an area of 530 ha. The closest HA to the Project area is HA1409 (6.03 ha) which is located approximately 5.6 km to the south-west.

The Project area is situated within the Eyre Yorke Block (EYB) IBRA bioregion of SA, the Eyre Hills (EYB03) subregion and the Peake Bay IBRA association. The Peake Bay IBRA association covers 32,847 ha, of which 5,148 ha or 16% contains vegetation (DEW 2023).

2.3 General location map

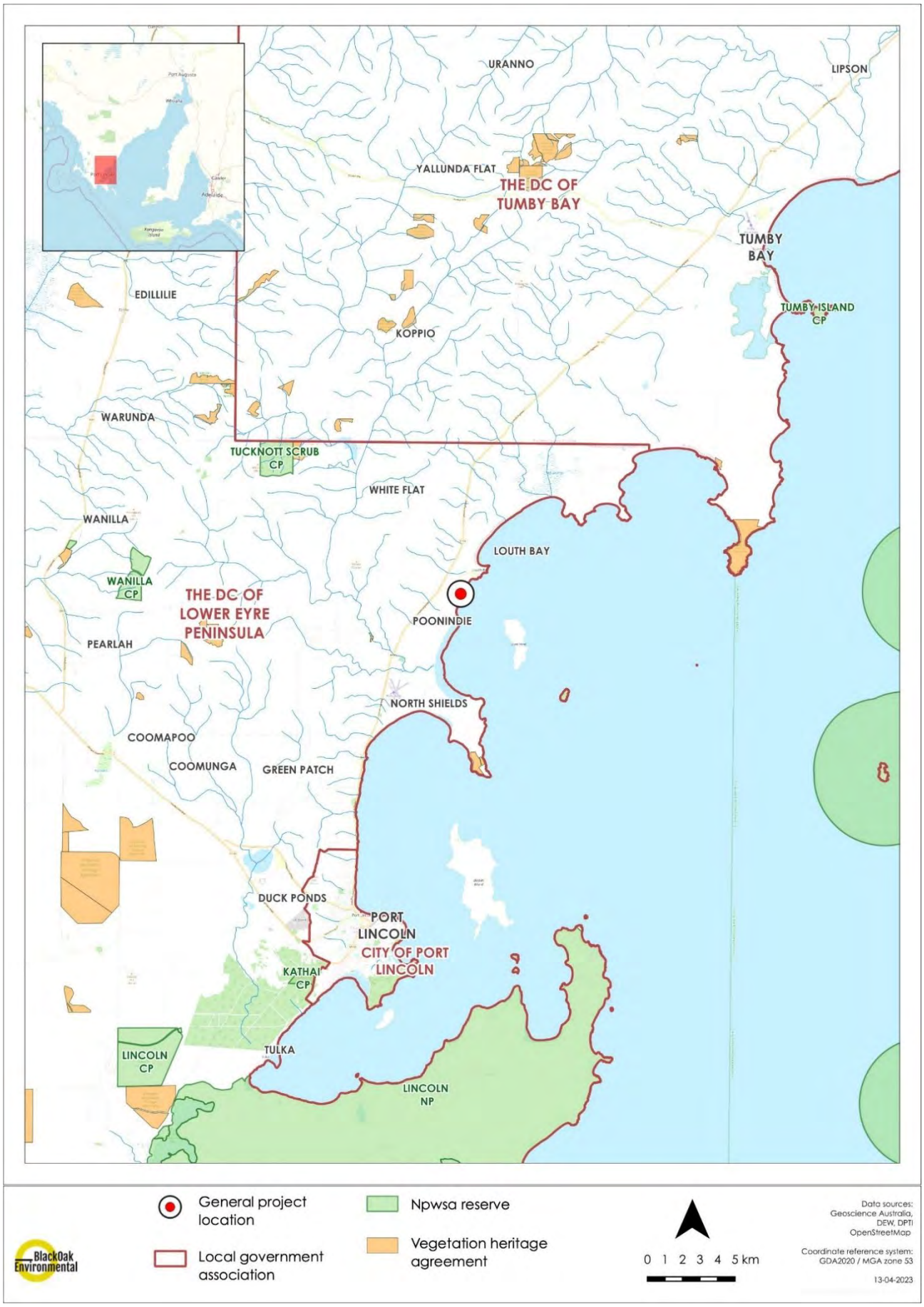


Figure 2. General location of the Project area.

Figure 3. Location of the Project area.

2.4 Details of the proposal

The site was previously a land-based Abalone farm. All existing infrastructure will be utilised where possible, this includes: Drainage ponds, drainage pipes and sheds. All vegetation has naturally regenerated and is approximately 13 years old. Clearance of vegetation will be restricted to the location of the land-based Abalone farm. The aquaculture and production facility will be developed in three stages as per Figure 1 and the Table below. Stage 4 is a proposed future development as shown in Figure 1.

Stage	Hectares	% of the Project area	Existing infrastructure breakdown (ha)	Vegetation clearance (ha)
1	0.63	35.36	0.18	0.45
2	0.54	30.35	0.16	0.38
3	0.61	34.29	0.18	0.43
Total	**1.78**	**100.00**	**0.51**	**1.26**

The GIS shapefiles for the proposed project will be provided on submission of the Native Vegetation Clearance Proposal.

2.5 Approvals required *or* obtained

Native Vegetation Act 1991

The *Native Vegetation Act 1991* (NV Act) provides protection for native vegetation in South Australia and sets out a process for applying to clear vegetation. The Act ensures that areas of high conservation value are protected, and that clearances are subject to a thorough assessment process. The Native Vegetation Council (NVC) is responsible for providing advice and making decisions about the removal and re-establishment of native vegetation. In line with the Act. Clearance under the NV Act is the subject of this assessment and proposal. There have not been any past clearance applications or approvals for the subject land. Approximately 5.50 ha of native vegetation containing the subject land of 1.76 ha was cleared in 2006 (Appendix 5).

Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) applies to any action which is likely to have a significant impact on a Matter of National Environmental Significance (MNES). There are nine MNES that act as "triggers" for the Commonwealth assessment and approval process. A Protected Matters Search Tool (PMST) report was generated on 10 March 2023 to identify MNES under the EPBC Act potentially occurring within 5 km of the Project area.

All MNES applicable to the Project area have been considered in this assessment and proposal.

National Parks and Wildlife Act 1972

The *National Parks and Wildlife Act 1972* (NPW Act) provides for the establishment and management of reserves for public benefit and enjoyment; to provide for the conservation of wildlife in a natural environment; and for other purposes. Impacts to flora and fauna species listed under National Parks Schedules have been considered in this assessment and proposal.

The NPWSA Lincoln National Park (Rabbit Island) is located approximately 8.20 km south-east of the Project area (Figure 1). The Lincoln National Park (Rabbit Island) covers an area of 27.28 ha. The NPWSA Tucknott Scrub Conservation Park is located approximately 12 km north-west of the Project area (Figure 1). The Tucknott Scrub Conservation Park covers an area of 530 ha.

2.6 Development Application information (if applicable)

The subject land is within the Conservation (Z0904), Rural (Z5404) and Rural Aquaculture (Z5411) Zones, the Visitor Experience (S6601) Sub Zone and the Native Vegetation (O4202) Overlay. The site of the development is within the Rural Aquaculture Zone.

3. Method

3.1 Flora assessment

A desktop assessment was conducted to assess the potential for any threatened flora species (both Commonwealth and State listed) to occur within the Project area. This was achieved by undertaking database searches of a 5 km buffer of the Project area, as specified in the Bushland Assessment Method (BAM) manual (NVC 2017).

A Protected Matters Report (PMR) using the Protected Matters Search Tool (PMST) was generated on 10 March 2023 to identify Matters of National Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DCCEEW 2023). The PMST is maintained by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and is used to identify flora species and ecological communities of national environmental significance that may occur or have suitable habitat within the Project area.

Species listed under South Australia's *National Parks and Wildlife Act 1972* (NPW Act) were identified via extraction of data from NatureMaps, obtained through the general query tool on NatureMaps (DEW 2023). The dataset was obtained on 10 March 2023 and used to identify threatened species that have been recorded within the 5 km buffer of the survey area. Known records of threatened species listed under the EPBC Act were also identified within this search.

The flora survey was conducted on 9 March 2023 by NVC accredited consultant Matt Launer. The flora assessment was performed in accordance with the BAM (NVC 2017). The Native Vegetation Council (NVC) BAM is suitable for assessing vegetation that is located within the agricultural region of South Australia. The BAM uses biodiversity 'surrogates' or 'indicators' to measure biodiversity value against benchmark communities. Each area to be assessed is termed an application area ('block'), within which different vegetation associations ('sites') are identified and compared to the Nature Conservation Society of South Australia's 'benchmark' vegetation communities.

A representative 1 ha quadrat was surveyed within the Project area. Three components of the biodiversity value of the site are measured and scored. These are: vegetation condition, conservation value and landscape context. The three component scores are combined to provide Unit Biodiversity Score (per ha) and then multiplied by the size (ha) of the site to provide a 'Total Biodiversity Score' for the site. This is used to calculate a Significant Environmental Benefit (SEB) area and value for payment into the Native Vegetation Fund derived from the clearance of native vegetation (NVC 2017).

The Project area was traversed on foot and a complete flora species list was recorded. This was carried out in addition to the BAM quadrat. The survey also included targeted searches for species listed under the NPW Act 1972 and the EPBC Act 1999.

3.2 Fauna assessment

A desktop assessment was conducted to assess the potential for any threatened fauna species (both Commonwealth and State listed) to occur within the Project area. This was achieved by undertaking database searches of a 5 km buffer of the Project area, as specified in the Bushland Assessment Method (BAM) manual (NVC 2017).

A Protected Matters Report (PMR) using the Protected Matters Search Tool (PMST) was generated on 10 March 2023 to identify Matters of National Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (DCCEEW 2023). The PMST is maintained by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) and is used to identify fauna species and ecological communities of national environmental significance that may occur or have suitable habitat within the Project area.

Species listed under South Australia's *National Parks and Wildlife Act 1972* (NPW Act) were identified via extraction of data from NatureMaps, obtained through the general query tool on NatureMaps (DEW 2023). The dataset was obtained on 10 March 2023 and used to identify threatened species that have been recorded within the 5 km buffer of the survey area. Known records of threatened species listed under the EPBC Act were also identified within this search.

The Project area was traversed on foot. All fauna species, signs of species (scats, tracks etc.) and potential habitat for fauna were recorded. The value of habitat for the threatened fauna species identified in the desktop assessment was also determined when surveying the Project area.

4. Assessment Outcomes

4.1 Vegetation Assessment

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

The Project area contained one vegetation association; *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa*. As previously mentioned, the Project area has been previously cleared for a land-based aquaculture facility. The vegetation under the current clearance application has naturally regenerated and is approximately 13 years old. The landform within, and immediately surrounding Project area is a heavily modified low coastal dune with white sands.

There is existing infrastructure within close proximity to the Project area, this includes: Drainage ponds, drainage pipes, sheds and vehicle access tracks.

The shoreline of the Spencer Gulf is located approximately 80 m south-east of the Project area. There is approximately 10% vegetation cover within 5 km of the Project area (NatureMaps 2023). The NPWSA Lincoln National Park (Rabbit Island) is located approximately 8.20 km south-east of the Project area. The Lincoln National Park (Rabbit Island) covers an area of 27.28 ha. The NPWSA Tucknott Scrub Conservation Park is located approximately 12 km north-west of the Project area. The Tucknott Scrub Conservation Park covers an area of 530 ha. The closest HA to the Project area is HA1409 (6.03 ha) which is located approximately 5.6 km to the south-west.

Details of the vegetation associations proposed to be impacted

Vegetation Association	*Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa*

DIRECTION
E (T)

53H 584271
6175914

ACCURACY 5 m
DATUM GDA2020

DIRECTION	53H 584270	ACCURACY 5 m
N (T)	6175915	DATUM GDA2020

General description	A total of 34 flora species were recorded within the *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa* which includes: 19 native species and 15 introduced species (Appendix 3). Three of the weed species recorded, *Diplotaxis tenuifolia* (Lincoln Weed), *Leptospermum laevigatum* (Coast Tea-tree) and *Lycium ferocissimum* (African Boxthorn) are listed as declared species under the *Landscape South Australia Act 2019*. The overstorey layer has a projective foliage cover of approximately 40% (mid-dense) and is an average height of 1.5 m. Dominant species included: *Myoporum insulare* (Common Boobialla), *Olearia axillaris* (Coast Daisy-bush), *Nitraria billardierei* (Nitre-bush) and the introduced species: *Acacia cyclops* (Western Coastal Wattle) and *Leptospermum laevigatum* (Coast Tea-tree). Approximately 50% of the groundcover layer contained native vegetation. Common species included: *Carpobrotus rossii* (Native Pigface), *Atriplex semibaccata* (Berry Saltbush), Austrostipa sp. (Spear-grass), *Dianella brevicaulis* (Short-stem Flax-lily) and *Threlkeldia diffusa* (Coast Bonefruit). Common introduced species included: *Ehrharta longiflora* (Annual Veldt Grass), *Aizoon pubescens* (Coastal Galenia), *Medicago polymorpha* (Burr-medic) and *Asphodelus fistulosus* (Onion Weed).				
Threatened species or community	There were no threatened ecological communities or conservation rated flora species recorded within the *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa* Bushland Assessment Quadrat.				
Landscape context score	1.15	Vegetation Condition Score	51.08	Conservation significance score	1.00

Unit biodiversity Score	58.75	Area (ha)	1.26	Total biodiversity Score	74.02

Site map showing areas of proposed impact

Figure 4. Vegetation association mapping and BAQ photopoint location within the Project area.

4.2 Threatened Species assessment

Threatened Ecological Communities

Three threatened ecological communities (TEC) were identified in the PMR as potentially occurring within 5 km of the Project area. These were:

- Eyre Peninsula Blue Gum (*Eucalyptus petiolaris*) Woodland (Endangered).
- Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia (Critically Endangered).
- Subtropical and Temperate Coastal Saltmarsh (Vulnerable).

No TEC's were recorded within the Project area during the field survey.

Provisional List of Threatened Ecosystems of SA

The vegetation association recorded within the Project area: *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa* is not listed under the Provisional List of Threatened Ecosystems of SA.

Nationally threatened flora

Eight nationally threatened flora species were identified in the PMR as potentially occurring within 5 km of the Project area. None of these species were listed as 'Species or species habitat known to occur in the area'. No threatened flora species listed under the EPBC Act were identified in the NatureMaps database search as being previously recorded within 5 km of the project area since 1995.

State threatened flora

One threatened flora species listed under the NPW Act was identified in the NatureMaps database search as being previously recorded within 5 km of the project area since 1995 (Figure 5). This was *Bothriochloa macra* (Red-leg Grass) (NPW Act: Rare). No threatened flora species were recorded during the field survey.

Nationally threatened fauna

Thirty-nine nationally threatened fauna species (30 birds, three marine reptiles, one shark, two fish, two marine mammals and one terrestrial mammal) were identified in the PMR as potentially occurring within 5 km of the Project area. Four of these species were listed as 'Species or species habitat known to occur in the area'. These were:

- Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit (*Limosa lapponica baueri*) (EPBC Act: Vulnerable, NPW Act: Rare).
- Australian Fairy Tern (*Sternula nereis nereis*) (EPBC Act: Vulnerable, NPW Act: Endangered).
- White-capped Albatross (*Thalassarche steadi*) (EPBC Act: Vulnerable).
- Eastern Hooded Plover, Eastern Hooded Plover (*Thinornis cucullatus cucullatus*) (EPBC Act: Vulnerable, NPW Act: Vulnerable).

The Fairy Tern (*Sternula nereis nereis*) (EPBC Act: Vulnerable, NPW Act: Vulnerable) and Great Knot (*Calidris tenuirostris*) (EPBC Act: Critically Endangered, NPW Act: Endangered) were identified in the NatureMaps database search as being previously recorded within 5 km of the Project area since 1995 (Figure 6).

Marine fauna species that were listed as 'Species or species habitat known to occur in the area' have been omitted from the assessment as a marine environment is not present within the project area. No nationally threatened fauna species were recorded during the field survey.

State threatened fauna

Nine state threatened fauna species (eight birds and one mammal species) listed under the NPW Act were identified in the BDBSA search as being previously recorded within 5 km of the project area since 1995 (Figure 6). Eight of the species have a conservation rating of rare under the NPW Act. These were:

- Musk Duck (*Biziura lobata menziesi*).
- Eastern Cattle Egret (*Bubulcus ibis coromandus*).
- Bush Stonecurlew (*Burhinus grallarius*).
- Cape Barren Goose (*Cereopsis novaehollandiae novaehollandiae*).
- Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*).
- Pied Oystercatcher (*Haematopus longirostris*).
- Rock Parrot (*Neophema petrophila zietzi*).
- Common Brushtail Possum (*Trichosurus vulpecula*).

The Diamond Firetail (*Stagonopleura guttata*) has a conservation rating of vulnerable under the NPW Act.

No threatened fauna species listed under the NPW Act were recorded during the field survey.

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)	NP&W Act	EPBC Act	Data source	Date of last record	Species known habitat preferences	Likelihood of use for habitat – Comments
Flora						
Bothriochloa macra (Red-leg Grass)	R		3	1997	Grows on a variety of soil types in humid areas but in drier areas is restricted to run-on areas on clay or loamy soils. It has a low to moderate frost tolerance, high drought tolerance.	Unlikely: Not recorded despite adequate survey effort.
Fauna						
Biziura lobata menziesi (Musk Duck)	R		3	2006	Musk Ducks are found only in Australia. They range from north-west Western Australia, through the south and east to southern Queensland, and can be found several hundred kilometres inland in some areas. Musk Ducks tend to be found in deep freshwater lagoons, with dense reed beds. They are normally seen singly or in pairs, but may form medium to large groups in the winter.	Unlikely: No suitable habitat within the Project area.
Bubulcus ibis coromandus (Eastern Cattle Egret)	R		3	1998	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. It has occasionally been	Unlikely: No suitable habitat within the Project area.

					seen in arid and semi-arid regions however this is extremely rare.	
Burhinus grallarius (Bush Stonecurlew)	R		3	2016	Inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber.	Unlikely: No suitable habitat within the Project area.
Calidris tenuirostris (Great Knot)	E	EN	3	2015	The Great Knot has been recorded around the entirety of the Australian coast, with a few scattered records inland. the species typically prefers sheltered coastal habitats, with large intertidal mudflats or sandflats. This includes inlets, bays, harbours, estuaries and lagoons. They are occasionally found on exposed reefs or rock platforms, shorelines with mangrove vegetation, ponds in saltworks, at swamps near the coast, salt lakes and non-tidal lagoons.	Unlikely: No suitable habitat within the Project area.
Cereopsis novaehollandiae novaehollandiae (Cape Barren Goose)	R		3	2022	The Cape Barren Goose is found on the south-eastern coast of Australia, the southern coast of Western Australia and in south-eastern Victoria. It is locally dispersive. The Cape Barren Goose is found on	Unlikely: Species may occur as irregular visitor in the area surrounding the Project area.

					offshore islands, usually granite, in areas of pasture, tussock grass or low heathy scrub.	
Haematopus fuliginosus fuliginosus (Sooty Oystercatcher)	R		3	2021	The Sooty Oystercatcher is widespread in coastal eastern, southern and western Australia. The Sooty Oystercatcher is strictly coastal, usually within 50 m of the ocean. It prefers rocky shores, but will be seen on coral reefs or sandy beaches near mudflats. It breeds on offshore islands and isolated rocky headlands.	Unlikely: Species may occur on beach approximately 80 m south-east of the Project area.
Haematopus longirostris (Pied Oystercatcher)	R		3	2021	The Pied Oystercatcher is found in coastal areas throughout the Australian continent except for areas of unbroken sea cliffs. They prefer mudflats, sandbanks and sandy ocean beaches and is less common along rocky or shingle coastlines.	Unlikely: Species may occur on beach approximately 80 m south-east of the Project area.
Limosa lapponica baueri (Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit)	R	VU	5		The Nunivak Bar-tailed Godwit has been recorded in the coastal areas of all Australian states. Occurs mainly in coastal habitats such as large intertidal sandflats, banks,	Unlikely: Migratory species which has a large foraging range.

					mudflats, estuaries, inlets, harbours, coastal lagoons and bays.	
Neophema petrophila zietzi (Rock Parrot)	R		3	2018	The Rock Parrot is confined to coastal habitats along Australia's southern coastline in South Australia and Western Australia, where it usually occurs within a few hundred metres of the shore. It is often recorded along rocky shores and islands, among low coastal scrub, or in sand dunes and on sandy beaches, where it is often seen along the strand line among beach cast seaweed.	Possible: The Rock Parrot could possibly be an irregular and short-term visitor to the Project area.
Stagonopleura guttata (Diamond Firetail)	V		3	2019	Endemic to south-eastern Australia, ranging from Carnarvon Ranges in Queensland to the Eyre Peninsula and Kangaroo Island in South Australia. Diamond Firetails are found in open grassy woodland, heath and farmland or grassland with scattered trees.	Unlikely: No suitable habitat within the Project area.
Sternula nereis nereis (Australian Fairy Tern)	E	VU	3, 5	2000	Within Australia, the Fairy Tern occurs along the coasts of Victoria, Tasmania, South Australia and Western Australia; occurring as far	Unlikely: Species may occur on beach approximately 80 m south-east of the Project area.

					north as the Dampier Archipelago near Karratha.	
Thalassarche steadi (White-capped Albatross)		VU	5		The White-capped Albatross is probably common off the coast of south-east Australia throughout the year.	Unlikely: Pelagic feeding, occasional vagrant.
Thinornis cucullatus cucullatus (Eastern Hooded Plover, Eastern Hooded Plover)	V	VU	5		The Hooded Plover is a small Australian beach nesting bird. It mainly occurs on wide beaches backed by dunes with large amounts of seaweed and jetsam, creek mouths and inlet entrances. Nests are found above the high-water mark on flat beaches, on stony terraces, or on sparsely vegetated dunes.	Unlikely: Species may occur on beach approximately 80 m south-east of the Project area.
Trichosurus vulpecula (Common Brushtail Possum)	R		3	2000	Common Brushtail Possums are found in Eucalyptus and Sheoak woodlands. As arboreal animals, they make their nests in tree hollows or other dark confined spaces such as hollow logs, dense vegetation or cork crevices.	Unlikely – No suitable habitat within the Project area.
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 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.

Figure 5. Threatened flora species identified within 5 km of the Project area in the BDBSA search. Only records since 1995 are shown.

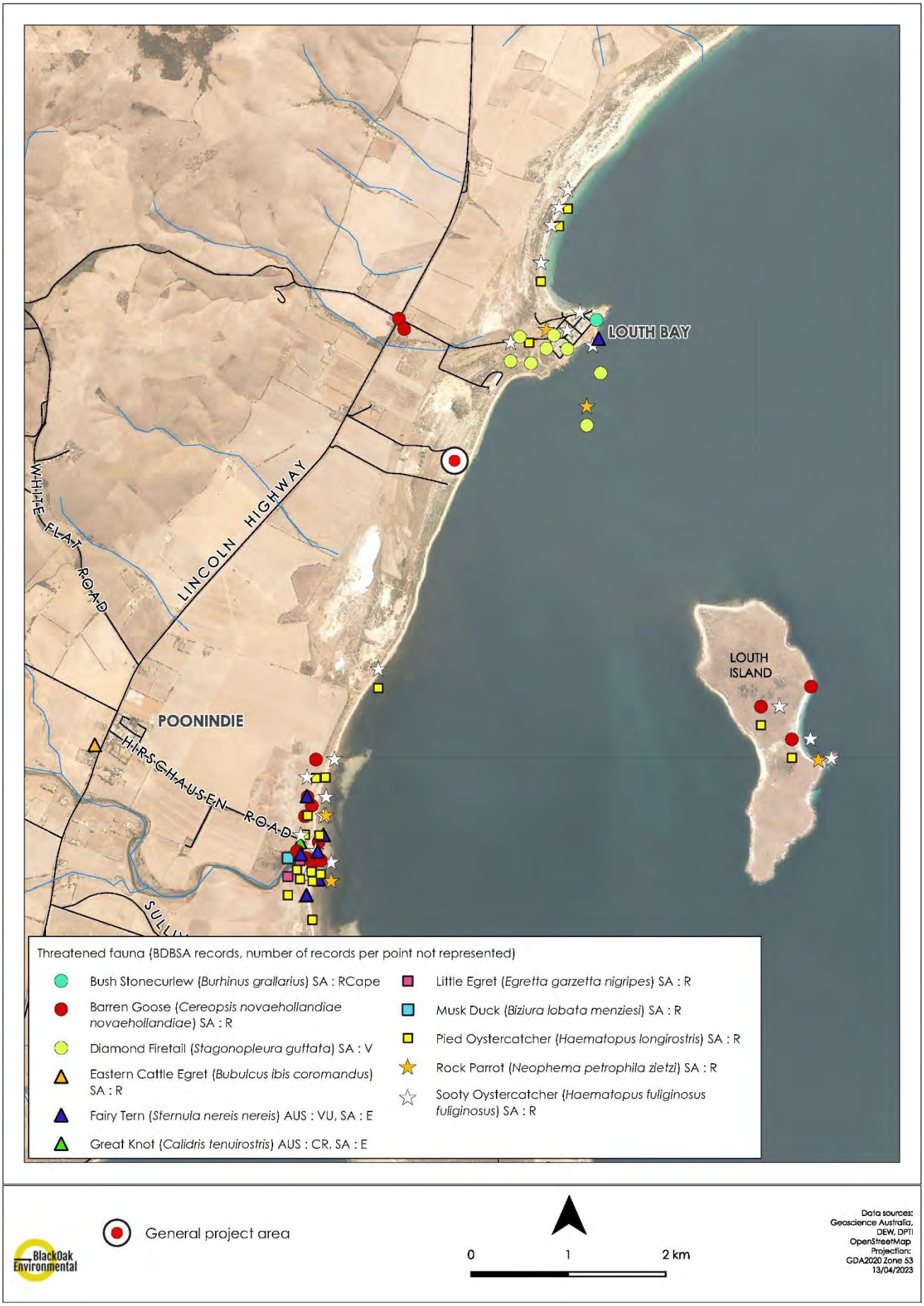


Figure 6. Threatened fauna species identified within 5 km of the Project area in the BDBSA search. Only records since 1995 are shown.

4.3 Presence of Substantially Intact Vegetation

If the vegetation is considered to represent a substantially intact stratum, the NVC cannot approve clearance, unless for the purpose of harvesting native vegetation (section 27(3)).

Provide information on whether the native vegetation constitutes a continuous intact stratum.

Approximately 5.50 ha of native vegetation containing the subject land of 1.76 ha was cleared in 2006 (Appendix 5). A land-based Abalone farm was developed in 2006 and was operational until 2010. All infrastructure, covering a total area of 0.51 ha was left in place and vegetation started to naturally regenerate. The vegetation is now growing amongst the old infrastructure.

The vegetation association contains three stratums; ground cover layer, midstorey layer and an overstorey layer. All three stratums are heavily modified as a direct result of the area being cleared of vegetation.

Whether the plants within the stratum are growing at original (pre-European) density for that community
The vegetation association contains three stratums; ground cover layer, midstorey layer and an overstorey layer. All three stratums are heavily modified as they are a direct result of previous vegetation clearance and change of land use, including a modification of landform. The existing infrastructure, covering a total area of 0.51 ha has also altered and restricted the structure and densities for all three stratums.

Fifteen introduced flora species were recorded within the *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa* vegetation association. The moderate cover abundance of introduced species such as *Aizoon pubescens* (Coastal Galenia), *Ehrharta longiflora* (Annual Veldt Grass), *Acacia cyclops* (Western Coastal Wattle), *Medicago polymorpha* (Burr-medic), *Asphodelus fistulosus* (Onion Weed), *Leptospermum laevigatum* (Coast Tea-tree) and *Lycium ferocissimum* (African Boxthorn) has also contributed to the modification of three stratums.

It contains a diversity of species similar to original (pre-European) vegetation of that community
A total of 19 native flora species were recorded within the *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa* vegetation association. The BCM benchmark community is 'EP 12.2 Coastal Shrublands of Stable Dunes & Cliff top Dunes'. The native plant species diversity score was 22 from a maximum benchmark score of 30. Whilst the native plant species diversity score was medium to high, the majority of the vegetation was dominated by eight species. These were: *Myoporum insulare* (Common Boobialla), *Olearia axillaris* (Coast Daisy-bush), *Nitraria billardierei* (Nitre-bush), *Carpobrotus rossii* (Native Pigface), *Atriplex semibaccata* (Berry Saltbush), *Austrostipa sp.* (Spear-grass), *Dianella brevicaulis* (Short-stem Flax-lily) and *Threlkeldia diffusa* (Coast Bonefruit).

It is part of a contiguous area of vegetation consisting of the stratum, including on adjacent properties, that is at least one hectare in area, and for linear patches, greater than 30m in width
Approximately 5.50 ha of native vegetation containing the subject land of 1.76 ha was cleared in 2006. The 5.50 ha of regrowth vegetation now connects with a patch of native vegetation covering 198 ha (NatureMaps 2023).

Does not contain introduced perennial species occupying greater than 20% cover within that stratum
The overstorey layer and midstorey layer contained introduced perennial species. The combined cover of *Acacia cyclops* (Western Coastal Wattle), *Leptospermum laevigatum* (Coast Tea-tree) and *Lycium ferocissimum* (African Boxthorn) within the overstorey stratum was estimated at 30%. The combined cover of *Acacia cyclops*, *Leptospermum laevigatum* and *Lycium ferocissimum* within the midstorey stratum was estimated at 15%.

Provide information on whether the native vegetation has been subject to degradation within the past 20 years.

Approximately 5.50 ha of native vegetation containing the subject land of 1.76 ha was cleared in 2006 (Appendix 5). A land-based Abalone farm was developed in 2006 and was operational until 2010. The landform within and immediately surrounding the Project area is a heavily modified low coastal dune with white sands.

Provide a key finding on whether any or all of the area of impact could be considered as substantially intact.

The area of impact is not considered as being substantially intact due to the altered density and diversity of flora species in comparison to original (pre-European) vegetation of that community. This is a direct result of previous vegetation clearance, change of land use including a modification of landform and introduction of 15 introduced flora species.

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

If the clearance is seriously at variance with one or more of the principles, the NVC cannot approve clearance, however, the Act provides the NVC with a degree of discretion in certain situations.

Principle of Clearance	Considerations
Principle 1a - it comprises a high level of diversity of plant species	Relevant information The Project area contained one vegetation association; *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa*. A total of 34 flora species were which included: 19 native species and 15 introduced species. No conservation rated flora species were recorded within the Project area. Bushland Plant Diversity Score – 22.
	Assessment against the principles Seriously at Variance *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa*. At Variance – Not applicable.
	Moderating factors that may be considered by the NVC *Amount of clearance related to area of remnant. Where only a very small area of vegetation will be impacted relative to the amount of vegetation within the local vicinity (less than 0.25% of the native vegetation within a 5 km radius to be impacted), this may reduce the impact from 'Seriously at variance' to 'At variance', or 'At variance' to 'Not at variance'.* The BCM benchmark community is 'EP 12.2 Coastal Shrublands of Stable Dunes & Cliff top Dunes'. The native plant species diversity score was 22 from a maximum benchmark score of 30. Whilst the native plant species diversity score was medium to high, the majority of the vegetation was dominated by eight species. These were: *Myoporum insulare* (Common Boobialla), *Olearia axillaris* (Coast Daisy-bush), *Nitraria billardierei* (Nitre-bush), *Carpobrotus rossii* (Native Pigface), *Atriplex semibaccata* (Berry Saltbush), *Austrostipa sp.* (Spear-grass), *Dianella brevicaulis* (Short-stem Flax-lily) and *Threlkeldia diffusa* (Coast Bonefruit). The proposed development will result in the clearance of 1.26 ha of *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa*. There is approximately 863.94 ha of native vegetation within a 5 km radius of the Project area (NatureMaps 2023). 0.25% of 863.94 ha equates to 2.16 ha, given the clearance area is less than 0.25% (1.26 ha) Principle 1a may be reduced from or 'At variance' to 'Not at variance'.
Principle 1b - significance as a habitat for wildlife	Relevant information A desktop assessment was conducted to assess the potential for any threatened species (both Commonwealth and State listed) that could occur within the Project area. Thirty-nine nationally threatened fauna species (30 birds, three marine reptiles, one shark, two fish, two marine mammals and one terrestrial mammal) were identified in the PMR as potentially occurring

	within 5 km of the Project area. Four of these species were listed as 'Species or species habitat known to occur in the area'. These were: • Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit (*Limosa lapponica baueri*) (EPBC Act: Vulnerable, NPW Act: Rare). • Australian Fairy Tern (*Sternula nereis nereis*) (EPBC Act: Vulnerable, NPW Act: Endangered). • White-capped Albatross (*Thalassarche steadi*) (EPBC Act: Vulnerable). • Eastern Hooded Plover, Eastern Hooded Plover (*Thinornis cucullatus cucullatus*) (EPBC Act: Vulnerable, NPW Act: Vulnerable). The Fairy Tern (*Sternula nereis nereis*) (EPBC Act: Vulnerable, NPW Act: Vulnerable) and Great Knot (*Calidris tenuirostris*) (EPBC Act: Critically Endangered, NPW Act: Endangered) were identified in the NatureMaps database search as being previously recorded within 5 km of the Project area since 1995. Nine state threatened fauna species (eight birds and one mammal species) listed under the NPW Act were identified in the BDBSA search as being previously recorded within 5 km of the Project area since 1995. Eight of the species have a conservation rating of rare under the NPW Act. These were: • Musk Duck (*Biziura lobata menziesi*). • Eastern Cattle Egret (*Bubulcus ibis coromandus*). • Bush Stonecurlew (*Burhinus grallarius*). • Cape Barren Goose (*Cereopsis novaehollandiae novaehollandiae*). • Sooty Oystercatcher (*Haematopus fuliginosus fuliginosus*). • Pied Oystercatcher (*Haematopus longirostris*). • Rock Parrot (*Neophema petrophila zietzi*). • Common Brushtail Possum (*Trichosurus vulpecula*). The Diamond Firetail (*Stagonopleura guttata*) has a conservation rating of vulnerable under the NPW Act. The Rock Parrot could possibly be an irregular and short-term visitor to the Project area. Five bird species and two mammal species were detected within the Project area during the survey. The mammal species detected were: Fox (Red Fox) (*Vulpes vulpes*) and Rabbit (European Rabbit) (*Oryctolagus cuniculus*). Both species are listed as declared animals under the *Landscape South Australia Act 2019*. None of the fauna species recorded are listed as threatened under the EPBC Act or NPW Act. Additional surveys within the Project area would likely result in additional species of regionally common birds and reptiles being recorded. Threatened Fauna Score – 0.00. Unit biodiversity Score – 58.75.
	<u>Assessment against the principles</u> <u>Seriously at Variance</u> *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa*. <u>At Variance</u> – Not applicable.
	<u>Moderating factors that may be considered by the NVC</u> Impact Significance The following criteria are used to determine whether an action will have a significant impact on listed threatened fauna species and therefore clearance will be raised to 'Seriously at variance'. A clearance action will have or is likely to have a significant impact on a threatened species if it may:

	• lead to a long-term decrease in the size of a population, or • reduce the area of occupancy of the species, or • fragment an existing population into two or more populations, or • adversely affect habitat critical to the survival of a species, or • modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline, or • result in invasive species that are harmful to a threatened species becoming established in the threatened species habitat, or • interfere with the recovery of the species. If the NVC are of the opinion that the clearance will not have a significant impact on fauna habitat, the clearance may be reduced to 'At variance'. <u>Significant benefit</u> If the SEB provides a benefit to the threatened species that is well over and above what is required in the SEB Policy and Guide, it may be reduced to 'At variance'. <u>Common species</u> If the vegetation provides habitat for native species that are relatively common, and the area of clearance is not considered essential habitat to maintain the local population, it may be reduced to 'At variance'. <u>Non-essential habitat</u> If the clearance is of non-essential habitat for threatened species and the clearance will have a negligible impact on that species local population over the long term (i.e., next 20 to 50 years), it may be reduced to 'At variance'.
Principle 1c - plants of a rare, vulnerable or endangered species	<u>Relevant information</u> Not applicable. Threatened Flora Score(s) - Not applicable.
	<u>Assessment against the principles</u> <u>Seriously at Variance</u> - List vegetation Associations & trees; Not applicable. <u>At Variance</u> – - List vegetation Associations & trees; Not applicable.
	<u>Moderating factors that may be considered by the NVC</u>
***Principle 1d - the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered*:**	<u>Relevant information</u> Not applicable. <u>Threatened Community Score</u> - Not applicable.
	<u>Assessment against the principles</u> <u>Seriously at Variance</u> - List vegetation Associations Not applicable.
	<u>Moderating factors that may be considered by the NVC</u> Not applicable.

Principle 1e - it is significant as a remnant of vegetation in an area which has been extensively cleared.	Relevant information The Project area is situated within the Eyre Yorke Block (EYB) IBRA bioregion of SA, the Eyre Hills (EYB03) subregion and the Peake Bay IBRA association. The Peake Bay IBRA association covers 32,847 ha, of which 5,148 ha or 16% contains vegetation (DEW 2023). There is approximately 863.94 ha of native vegetation within a 5 km radius of the Project area (NatureMaps 2023). All vegetation has naturally regenerated and is approximately 13 years old. A land-based Abalone farm was developed in 2006 and was operational until 2010. The infrastructure from the Abalone farm remains in place. The 1.26 ha of *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa* is considered to be in poor to moderate condition. Total Biodiversity Score – 74.02.
	Assessment against the principles Seriously at Variance Not applicable. At Variance *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa*.
	Moderating factors that may be considered by the NVC The following criteria are used to determine whether a clearance proposal will have a significant impact on a remnant in a highly landscape and therefore clearance will be raised to 'Seriously at variance' with this principle. An action has, will have, or is likely to have a significant impact on a remnant in a highly cleared landscape if it does, will, or is likely to: • impact on a tree species or vegetation community that has been selectively removed within the IBRA Association or IBRA Subregion and are therefore underrepresented in the vegetation that remains. • Impact on a remnants in relatively good condition, particularly if the vegetation within the IBRA Association or IBRA Subregion where vegetation has largely been degraded. *Quality of remnant* If the vegetation is in poor to very poor condition, is continuing to degrade and its long term (next 20 to 50 years) persistence is unlikely, then it may be reduced to 'At variance'.
Principle 1f - it is growing in, or in association with, a wetland environment.	Relevant information Not applicable.
	Assessment against the principles Seriously at Variance Not applicable. At Variance – Not applicable.
	Moderating factors that may be considered by the NVC Not applicable.
Principle 1g - it contributes significantly to the amenity of the area in which it is growing or is situated.	Relevant information Not applicable.
	N/A
	Moderating factors that may be considered by the NVC 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.

4.5 Address the Mitigation Hierarchy

The Native Vegetation Council will consider if the applicant has avoided and minimized the clearance of native vegetation as much as practically possible.

Describes the steps that have been taken to firstly avoid and then minimize impacts on native vegetation.

a) Avoidance

The site was previously a land-based Abalone farm. All existing infrastructure will be utilised where possible, this includes: Drainage ponds, drainage pipes and sheds. The clearance footprint for the project is restricted to the 1.78 ha which has been previously cleared of all vegetation.

b) Minimization

Measures taken to avoid indirect clearance of native vegetation during the development of the project will include:

- Placing and storing equipment, vehicles and machinery away from nearby vegetated areas;
- Placing soil stockpiles away from nearby vegetated areas;
- Cleared vegetation to be disposed of to prevent further spread of weed species;
- Clearly marking on ground areas that are to be avoided at all times to prevent unintended impacts or accidental clearance; and
- Suppressing dust to prevent indirect impacts to nearby vegetated areas.

c) Rehabilitation or restoration

The clearance of vegetation (1.26 ha of *Myoporum insulare*, **Acacia cyclops*, *Olearia axillaris* Tall Shrubland over **Ehrharta longiflora*, *Dianella brevicaulis* and *Ficinia nodosa* in poor to moderate condition) is considered permanent and therefore rehabilitation or restoration is not practicable.

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.

The owner is proposing to pay into the Native Vegetation Fund. The total payment required is $45,476.65 which includes an SEB payment of $43,105.83 and an administration fee of $2,370.82.

The NVC will only consider an offset once avoidance, minimization and restoration have been documented and fulfilled. The SEB Policy explains the biodiversity offsetting principles that must be met.

4.6 Risk Assessment

Determine the level of risk associated with the application

Total clearance	No. of trees	N/A
	Area (ha)	1.26
	Total biodiversity Score	74.02
Seriously at variance with principle 1(b), 1(c) or 1 (d)		Seriously at variance with principle 1(a) and 1(b).
Risk assessment outcome		Level 4

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
1.78	A1	22	1	0	0	58.75	1.26	74.03	1			77.73	$43,140.91	$2,372.75
						Total	**1.26**	**74.03**				**77.73**	**$43,140.91**	**$2,372.75**

Totals summary table

	Total Biodiversity score	Total SEB points required	SEB Payment	Admin Fee	Total Payment
Application	74.03	77.73	$43,140.91	$2,372.75	$45,513.66

Economies of Scale Factor	0.5
Rainfall (mm)	415

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.

PAYMENT SEB

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:

The proponent is proposing to pay into the Native Vegetation Fund. The total payment required is $45,513.66 which includes an SEB payment of $43,140.91 and an administration fee of $2,372.75. A breakdown of SEB payments and administration fees for stages1-3 is provided below.

Stage	SEB payment	Administration fee	Total payment
1	$15,242.22	$838.32	$16,080.54
2	$13,082.62	$719.54	$13,802.16
3	$14,780.99	$812.95	$15,593.94
Total	**$43,105.83**	**$2,370.82**	**$45,476.65**

7. Appendices

Appendix 1. Fauna Species List.

Fauna assessment

Five bird species and two mammal species were detected within the Project area during the survey (Refer to table below). The mammal species detected were: Fox (Red Fox) (*Vulpes vulpes*) and Rabbit (European Rabbit) (*Oryctolagus cuniculus*). Both species are listed as declared animals under the *Landscape South Australia Act 2019*.

None of the fauna species recorded are listed as threatened under the EPBC Act or NPW Act. Additional surveys within the Project area would likely result in additional species of regionally common birds and reptiles being recorded.

Class name	**Species name**	**Common name**
AVES	*Acanthagenys rufogularis*	Spiny-cheeked Honeyeater
AVES	*Gavicalis virescens*	Singing Honeyeater
AVES	*Hirundo neoxena neoxena*	Welcome Swallow
AVES	*Pomatostomus superciliosus*	White-browed Babbler
AVES	*Rhipidura leucophrys leucophrys*	Willie Wagtail
MAMMALIA	**Oryctolagus cuniculus*	Rabbit (European Rabbit)
MAMMALIA	**Vulpes vulpes*	Fox (Red Fox)

* = Introduced species.

Appendix 2. Bushland, Rangeland or Scattered Tree Vegetation Assessment Scoresheets associated with the proposed clearance and SEB Area (to be submitted in Excel format).

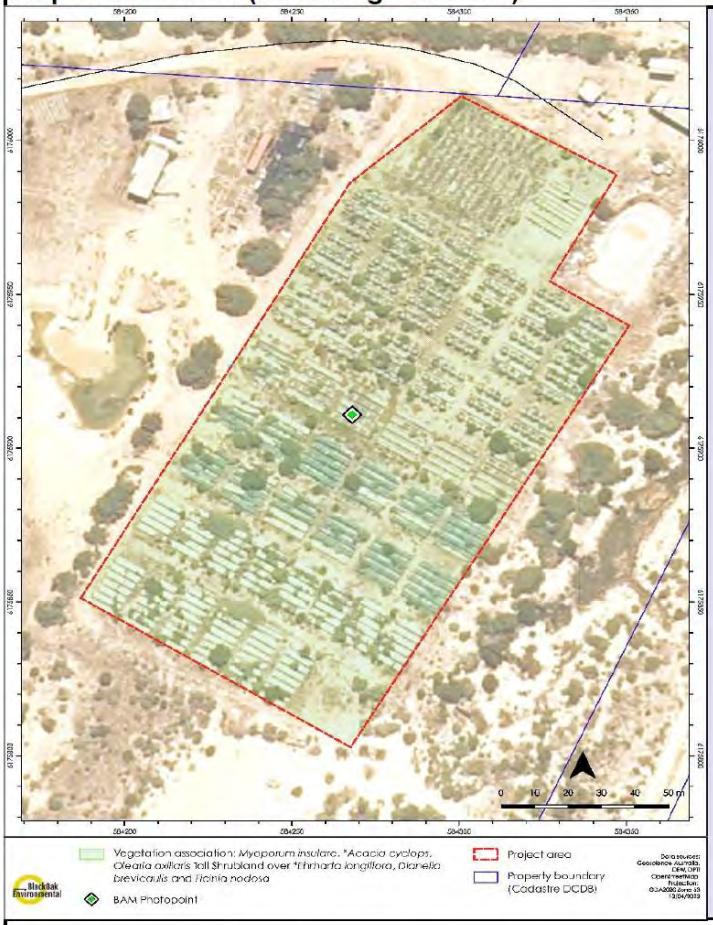
Bushland Assessment Scoresheets

(Version - 20 July 2022)

Block	A
Size of Block (Ha)	1.780
Landscapes Region	Eyre Peninsula
BCM Region	Eyre Peninsula
IBRA Association	Peake Bay
IBRA Subregion	Eyre Hills

ASSESSOR(S)	Matt Launer
DATE OF ASSESSMENT	8/03/2023

Map of the Block (Including the Sites)



Landscape Context Scores

% native veg. remaining in IBRA Assoc.	16
% native veg. remaining in IBRA subregion	29
0 - 10% = 0.05 pts; >10-20% = 0.04 pts; >20-30% = 0.03 pts; >30-60% = 0.02 pts; > 60 = 0 pts — **Score**	0.07

Score received for both IBRA assoc. and subregion then summed

Percent Vegetation Cover (5km radius) (%)	11
0-5% = 0 pts; >5-10% = 0.02 pts; >10-25% = 0.04 pts; >25-50% = 0.06 pts; >50-75% = 0.03 pt; >75-100% = 0 pts — **Score**	0.04

% native veg. protected IBRA Assoc.	6
0-10% = 0.03 pts; >10-20% = 0.02 pts; >20-40% = 0.01 pt; >40% = 0 — **Score**	0.03

Block Shape Cleared perimeter:Area (km/km2)	
Cleared Perimeter (m) =	287
Cleared Perimeter to area ratio	16.12
<6 = 0.03 pts; 6 to <12 = 0.02 pts; 12 to <18 = 0.01 pt — **Score**	0.01

Wetland or Riparian Habitat present	
Riparian zone present (Yes/No) = 0.02 pt	No
Swamp/wetland present (Yes/No) = 0.03 pts	No
(Swamp/wetland may be +/- riparian zone) — **Score**	0

Note; Blocks will score a minimum Landscape Context Score of 1

LANDSCAPE CONTEXT SCORE (max 1.25)	**1.15**

Plant Species Recorded (Native and Introduced)		Listed Species			Natives only		
Species	Common Name	EPBC	SA	Not in quadrat	Regen	Annual Herbs Spring survey	Introduced Species
Myoporum insulare	Common Boobialla				Yes		
Carpobrotus rossii	Native Pigface						
Olearia axillaris	Coast Daisy-bush				Yes		
Ficinia nodosa	Knobby Club-rush						
Enchylaena tomentosa var. tomentosa	Ruby Saltbush						
Dianella brevicaulis	Short-stem Flax-lily						
Rhagodia candolleana ssp.	Sea-berry Saltbush						
Acacia nematophylla	Coast Wallowa				Yes		
Nitraria billardierei	Nitre-bush						
Threlkeldia diffusa	Coast Bonefruit						
Austrostipa sp.	Spear-grass						
Adriana quadripartita	Coast Bitter-bush						
Acacia cupularis	Cup Wattle						
Rytidosperma sp.	Wallaby-grass						
Lepidosperma gladiatum	Coast Sword-sedge						
Atriplex semibaccata	Berry Saltbush						
Kennedia prostrata	Scarlet Runner						
Senecio pinnatifolius var. maritimus	Coast Groundsel						
Leptospermum laevigatum	Coast Tea-tree						*
Ehrharta longiflora	Annual Veldt Grass						*
Acacia cyclops	Western Coastal Wattle						
Asphodelus fistulosus	Onion Weed						*
Aizoon pubescens	Coastal Galenia						*
Reichardia tingitana	False Sowthistle						*
Lycium ferocissimum	African Boxthorn						*
Rumex acetosella	Sorrel						*
Cynodon dactylon var. dactylon	Couch						*
Lagurus ovatus	Hare's Tail Grass						*
Diplotaxis tenuifolia	Lincoln Weed						*
Scabiosa atropurpurea	Pincushion						*
Avena barbata	Bearded Oat						*
Piptatherum miliaceum	Rice Millet						*
Medicago polymorpha	Burr-medic						*
Senecio pterophorus	African Daisy						*

Threatened or Introduced Animal Species Recorded or Observed (Native and Introduced)		Threatened Species				Introduced Species
Species	Common Name	EPBC	SA	Past Record	Observed	
Vulpes vulpes	Fox (Red Fox)				Observed	*
Oryctolagus cuniculus	Rabbit (European Rabbit)				Observed	*
Acanthagenys rufogularis	Spiny-cheeked Honeyeater				Observed	
Hirundo neoxena neoxena	Welcome Swallow				Observed	
Pomatostomus superciliosus	White-browed Babbler				Observed	
Rhipidura leucophrys leucophrys	Willie Wagtail				Observed	
Gavicalis virescens	Singing Honeyeater				Observed	

Vegetation Condition Scores

SITE:	A1
BCM COMMUNITY	EP 12.2 Coastal Shrublands of Stable Dunes & Cliff top Dunes
VEGETATION ASSOCIATION DESCRIPTION	*Myoporum insulare , *Acacia cyclops , Olearia axillaris Tall Shrubland*
SIZE OF SITE (Ha)	1.26

Benchmarked attributes
(Scores determined by comparing to a Benchmark community)

Number of Native Species (Minus herbaceous annuals for spring Surveys)	19
Native Plant Species Diversity Score (max 30) from benchmark score *weighted by a factor of 2*	22.0
Number of regenerating native species	3
Regeneration Score (max 12) from benchmark community weighted by a factor of 1.5	6

Weed species (Top 5 Cover x Invasiveness)	Cover (max 6)	Weed Threat Rating (max 5)	C x I
Acacia cyclops	3	2	6
Lycium ferocissimum	2	4	8
Galenia pubescens var. pubescens	2	2	4
Leptospermum laevigatum	3	3	9
Cynodon dactylon var.	2	2	4
	Cover x Threat		31
Weed Score (max 15) from benchmark community			**3**

Native Plant Life Forms	**Cover rating**
Trees > 15m	
Trees 5 - 15 m	
Trees < 5m	
Mallee > 5m	
Mallee < 5m	
Shrubs > 2m	3
Shrubs 0.5 - 2m	4
Shrubs < 0.5	3
Forbs	2
Mat Plants	2
Grasses > 0.2m	1
Grasses < 0.2m	1
Sedges > 1m	
Sedges < 1m	1
Hummock grasses	
Vines, scramblers	1
Mistletoe	
Ferns	
Grass-tree	
Total	18

Native Plant Life Forms (max 20) from benchmark score *weighted by a factor of 2* **20.0**

Non-Benchmarked Attributes
(Scores determined from direct field observations)

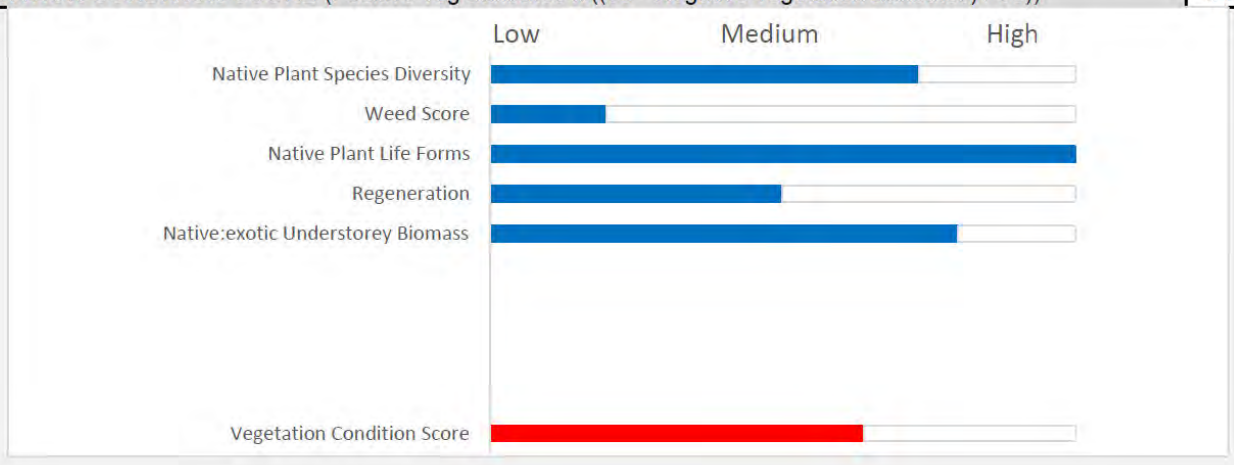
Native:exotic Understorey biomass Score (max 5)	**4**

Is the community naturally treeless?	☑
Tree attributes not scored for treeless communities or communities with only emergent trees	

Vegetation Condition Score calculation

Positive Vegetation Attributes Score = Native species diversity + Regeneration + Native Plant Life Forms
Fallen timber/debris + Hollow-bearing trees
- *If the community Score is Not Benchmarked (SNB) for regeneration this score is multiplied 1.24*
- *If the community is naturally treeless this score is multiplied by 1.29*

	61.92
Negative Vegetation Attributes Score = (15 - Weeds) + ((10 - (Biomass score x 2))exp2/2)	14.00
VEGETATION CONDITION SCORE (Positive veg attributes x ((80 - Negative vegetation attributes) / 80))	**51.08**



Conservation Significance Score

Is the vegetation association considered a Threatened Ecological community or Ecosystem?	Yes/No
State (Provisional List of Threatened Ecosystems of SA) **Rare** community (0.1 pt)	☐
State (Provisional List of Threatened Ecosystems of SA) **Vulnerable** community (0.2 pts)	☐
State (Provisional List of Threatened Ecosystems of SA) **Endangered** community (0.3 pts)	☐
Nationally (EPBC Act) V**ulnerable** community (0.35 pts)	☐
Nationally (EPBC Act) **Endangered** or **Critically Endangered** community (0.4 pts)	☐
Note; all sites will score a minimum Conservation Significance Score of 1 **Threatened Community Score**	1

Number of Threatened Flora Species recorded for the site (within the site)	Number
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species recorded (1 pt each)	0
State **Vulnerable** species recorded (2.5 pt each)	0
State **Endangered** recorded (5 pts each)	0
Nationally **Vulnerable** species recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species recorded (20 pts each)	0
0 = 0 pts; <2 = 0.04 pts; 2 - <5 = 0.08 pts; 5 - <10 = 0.12 pts; 10 - <20 = 0.16 pts; 20 or > = 0.2 pts	**0**
Threatened Flora Score	0

Potential habitat for Threatened Fauna Species (number observed or previously recorded)	Number
**If a species has both a State (NP&W Act) and National (EPBC Act) rating, it's only recorded for its National rating.*	
State **Rare** species observed or locally recorded (1 pt each)	0
State **Vulnerable** species observed or locally recorded (2.5 pt each)	0
State **Endangered** species observed or locally recorded (5 pt each)	0
Nationally **Vulnerable** species observed or locally recorded (10 pts each)	0
Nationally **Endangered** or **Critically endangered** species observed or locally recorded (20 pts each)	0
0 = 0 pts; <2 = 0.02 pts; 2 - <5 = 0.04 pts; 5 - <10 = 0.06 pts; 10 - <20 = 0.08pts; 20 or > = 0.1 pts	**0**
Threatened Fauna Score	0

CONSERVATION SIGNIFICANCE SCORE	1

Total Scores for the Site

	Score
LANDSCAPE CONTEXT SCORE	1.15
VEGETATION CONDITION SCORE	51.08
CONSERVATION SIGNIFICANCE SCORE	1.00

Vegetation Condition x Landscape Context x Conservation Significance =	
UNIT BIODIVERSITY SCORE	58.75
Total Biodiversity Score (Biodiversity Score x hectares)	74.02

Photo Point and Vegetation Survey Location

Direction of the Photo	
South	
GPS Reference	
Datum	WGS84
Zone (52, 53 or 54)	53H
Easting (6 digits)	584268
Northing (7 digits)	6175911
Description	

What is the purpose of Assessment? Clearance | SEB Area | Other

Assessment for Clearance

Loss Factor	1.0
Loadings for clearance of protected areas	
Reductions for rehabilitation of impact site	
SEB Points required	**77.72**

Approximate hectares required	9.72
Economies of Scale Factor	0.5
Mean Annual rainfall for the site (mm)	415
Payment into the fund (GST Exclusive)	**$44,864.03**
Administration fee (GST Inclusive)	**$2,467.52**

Appendix 3. Flora Species List.

Family name	**Species name**	**Common name**
AIZOACEAE	**Aizoon pubescens*	Coastal Galenia
	Carpobrotus rossii	Native Pigface
CHENOPODIACEAE	*Atriplex semibaccata*	Berry Saltbush
	Enchylaena tomentosa var. tomentosa	Ruby Saltbush
	Rhagodia candolleana ssp.	Sea-berry Saltbush
	Threlkeldia diffusa	Coast Bonefruit
COMPOSITAE	*Olearia axillaris*	Coast Daisy-bush
	**Reichardia tingitana*	False Sowthistle
	Senecio pinnatifolius var. maritimus	Coast Groundsel
	**Senecio pterophorus*	African Daisy
CRUCIFERAE	*#Diplotaxis tenuifolia*	Lincoln Weed
CYPERACEAE	*Ficinia nodosa*	Knobby Club-rush
	Lepidosperma gladiatum	Coast Sword-sedge
DIPSACACEAE	**Scabiosa atropurpurea*	Pincushion
EUPHORBIACEAE	*Adriana quadripartita*	Coast Bitter-bush
GRAMINEAE	*Austrostipa sp.*	Spear-grass
	**Avena barbata*	Bearded Oat
	**Cynodon dactylon var. dactylon*	Couch
	**Ehrharta longiflora*	Annual Veldt Grass
	**Lagurus ovatus*	Hare's Tail Grass
	**Piptatherum miliaceum*	Rice Millet
	Rytidosperma sp.	Wallaby-grass
LEGUMINOSAE	*Acacia cupularis*	Cup Wattle
	**Acacia cyclops*	Western Coastal Wattle
	Acacia nematophylla	Coast Wallowa
	Kennedia prostrata	Scarlet Runner
	**Medicago polymorpha*	Burr-medic
LILIACEAE	**Asphodelus fistulosus*	Onion Weed
	Dianella brevicaulis	Short-stem Flax-lily
MYOPORACEAE	*Myoporum insulare*	Common Boobialla
MYRTACEAE	*#Leptospermum laevigatum*	Coast Tea-tree
POLYGONACEAE	**Rumex acetosella*	Sorrel
SOLANACEAE	*#Lycium ferocissimum*	African Boxthorn
ZYGOPHYLLACEAE	*Nitraria billardierei*	Nitre-bush

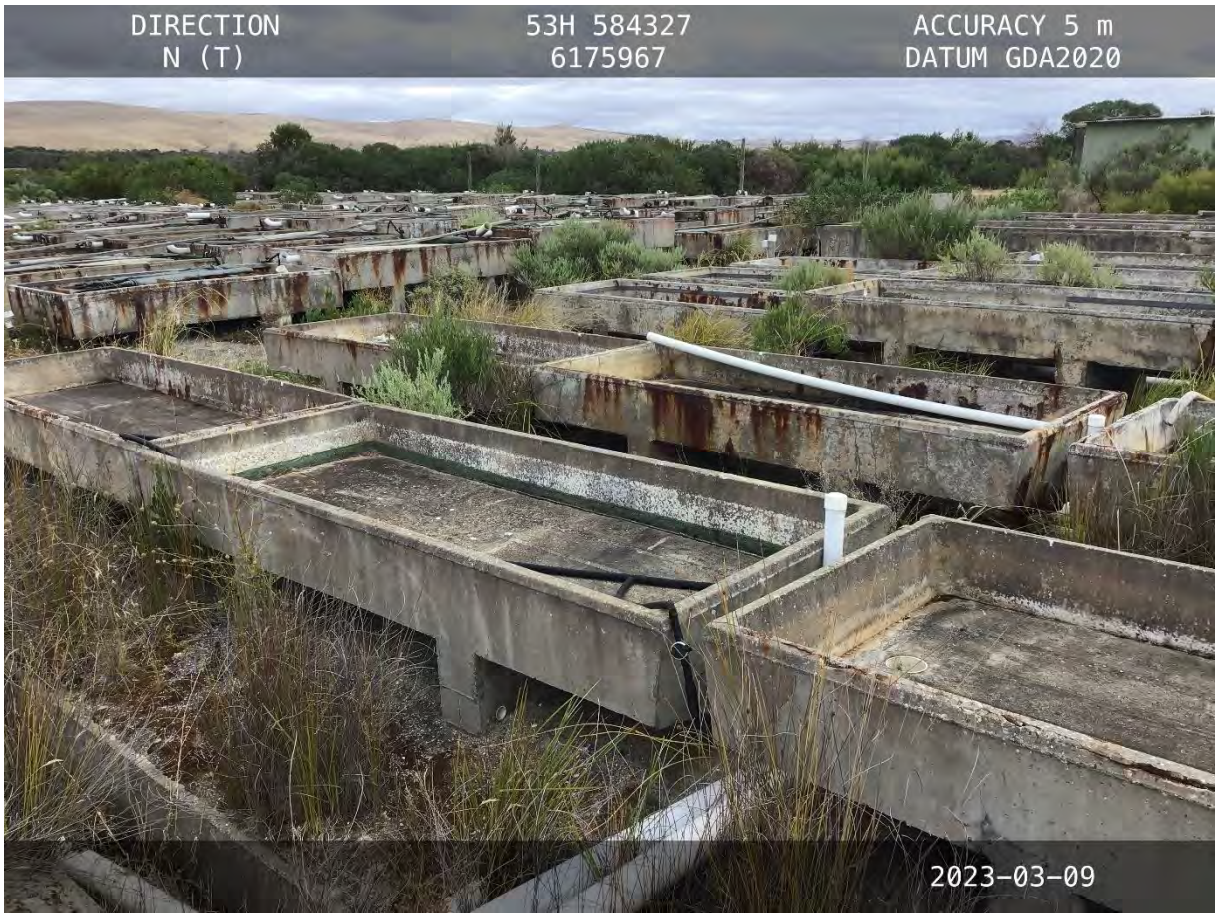
* = Introduced species.

= Weed species declared under the *Landscape South Australia Act 2019*.

Appendix 4. Additional photographs of the Project area.


DIRECTION
N (T)
53H 584291
6175848
ACCURACY 5 m
DATUM GDA2020
2023-03-09


DIRECTION
W (T)
53H 584348
6175924
ACCURACY 5 m
DATUM GDA2020
2023-03-09


DIRECTION
N (T)
53H 584327
6175967
ACCURACY 5 m
DATUM GDA2020
2023-03-09


DIRECTION
W (T)
53H 584329
6175984
ACCURACY 5 m
DATUM GDA2020
2023-03-09

Appendix 5. Extent of initial vegetation clearance in 2006 (Google Earth 2023).