Native Vegetation Clearing Referral – Site Inspection Report
Sand Back Pass Pipeline and Pathway Upgrades

Report by –
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Introduction

The Shire of Esperance has proposed to clear 0.570 ha of vegetation within several reserves, for the purpose of sand pipeline and pedestrian path construction. This is located along Castletown foreshore, west of Bandy Creek, within the Esperance Townsite.

The Sand Back Pass Pipeline and Pathway Upgrades will run concurrently as one project, to reduce unnecessary clearing associated with the two projects. Significant portions of the vegetation will be cleared to enable access by construction machinery, once the projects are completed, areas not occupied by infrastructure will be rehabilitated.

Portions of the site had previously been approved a part of CPS 7548/2 SOE070 and SOE077, only parts of the site had been cleared before the expiration of the CPS 7548/2 permit, and design modifications have been made since the initial approval under CPS 7548/2.

The mixed-use pathway design has been altered to shift the pathway away from the mature Norfolk Island Pines, this will significantly reduce maintenance cost associated with tree roots damaging the path.

Map

Figure 1. Location of Sand Back Pass Pipeline and Pathway Upgrades and previously approved CPS 7548/2 SOE070 and SOE077

Table 1. Tenure of the proposed Bandy Creek Pathway clearing permit.

Description	Land Owner	Land Use
Castletown Quays Road Reserve	Shire of Esperance	Road reserve
Norseman Road Reserve	Shire of Esperance	Road reserve
Reserve 27318	Shire of Esperance	Recreation
Reserve 36993	Shire of Esperance	Recreation

Sand Back Pass Pipeline

The pipeline is required to provide a long-term solution to the coastal erosion along the Esperance Bay. The pipeline and associated infrastructure have been located in previously cleared areas, however small sections require additional clearing.

Foreshore renourishment of the area is ongoing and has been undertaken annually since the 1980's to minimise erosion, maintain the beach and coastline and protect infrastructure especially the adjacent road (Castletown Quays) and RAC Esperance Holiday Park. Sand renourishment is currently being completed via trucking sand from sand supplies within the Esperance townsite. CPS 5692, CPS 7891 and CPS 8568 have previously been cleared for sand extraction to supply the foreshores sand renourishment. Approval of this project will enable the Shire of Esperance to reduce its overall clearing within the Esperance townsite.

Significant amounts of this renourishment sand wash up further along Castletown Quays towards Bandy Creek causing dunes in this section to expand. This is particularly noticeable at the staircase at the Castletown Quays road end where the stairs have been inundated.

It is proposed to run the sand renourishment project slurry pipeline along the existing and new pathways from Bandy Creek to the Esperance Town Jetty. This will require approximately 3,500m of pipe, 17 access pits, 3 booster pump locations, 4 offtake points into the compartments and a control system conduit. The electric booster pump station would be located around Chaplin Street and Phyllis Street.

Desktop survey

Prior to the site inspection the site was run through the Shire of Esperance's Desktop Environmental Impacts Spatial Interrogation Program (DEISIP). This program interrogates a number of Local, State and Federal spatial data sets to assess against the ten clearing principles for native vegetation regulated under Schedule of the *Environmental Protection Act 1986* (WA).

The site sits within the Recherche subregion of the Esperance Plains IBRA region. The Beard Vegetation Association, Fanny Cove 42, described as: "Shrublands; mallee & acacia scrub on south coastal dunes" is mapped as occurring at this site. This is an appropriate vegetation association for the site. 96.09% of this vegetation association remains, 94.87% of this vegetation association within the Shire of Esperance, and 94.56% within the Esperance Plains IBRA region.

Threatened or priority flora within a 20 km radius was identified prior to conducting the site inspection. (Appendix 1). Scans of pressed herbarium specimens, photos and keys were taken into the field to ensure appropriate specimens were collected.

Previous flora and weed surveys carried out by the Shire of Esperance for projects close to the site were also consulted including:

- Shire of Esperance Weed Survey, Castletown Quays (2017)
- CPS 9124 (2020)
- CPS 7548/1 SOE014 (2017)
- CPS 7548/1 SOE063 (2021)
- CPS 7548/1 SOE070 (2022)
- CPS 7548/1 SOE077 (2023)

To assess fauna, the DBCA Threatened and Priority Fauna (2022) dataset was searched via a 20km buffer of the project area.

Site Inspection

A site inspection was conducted by Katherine Walkerden, Shire of Esperance's Environmental Officer, on the 10/11/2022 and 16/11/2022, as part of the inspection for CPS 7548/2 SOE070. The inspection was completed for CPS 7548/2 SOE070 which covered a much larger area, some of the clearing areas running concurrently to the Castletown Quays and Norseman Road were shifted slightly to accommodate an improved design. Given that the more recent designs are immediately adjacent to the CPS7548/2 SOE070 project area an additional inspection was not deemed necessary.

The soil at the site was deep sand. This matched the desktop description of soils; "Calcareous deep sands associated pale deep sands and minor calcareous shallow sands" and geology; "Quaternary coastal sands mostly calcareous and unconsolidated".

A single vegetation community was identified within the project area. It was described as common immediate coastal fore-dune shrubland, with swales dominated by *Lepidosperma gladiatum* and *Tetragonia implexicoma,* the slopes by *Acacia cochlearis* and *Rhagodia baccata,* and the ridges dominated by *Spyridium globulosum*. It is believed that the Beard (1973) vegetation associations identified in Section 3.6 are an appropriate match for the vegetation community observed.

Vegetation condition varied between a very good and degraded condition (Keighery 1994), with heavy weed invasion seen at parts of the site. Vegetation condition varies across the site, ranging from very good condition in the centre of the intact vegetation to completely destroyed at certain sections of the foreshore. Areas in degraded condition had extensive previous disturbance mainly from informal walk trails, high weed burden and scattered rubbish.

Quantifying vegetation by condition:

- There is 0.327 ha in an excellent condition
- There is 0.133 ha in a good condition
- There is 0.110 ha in a degraded condition

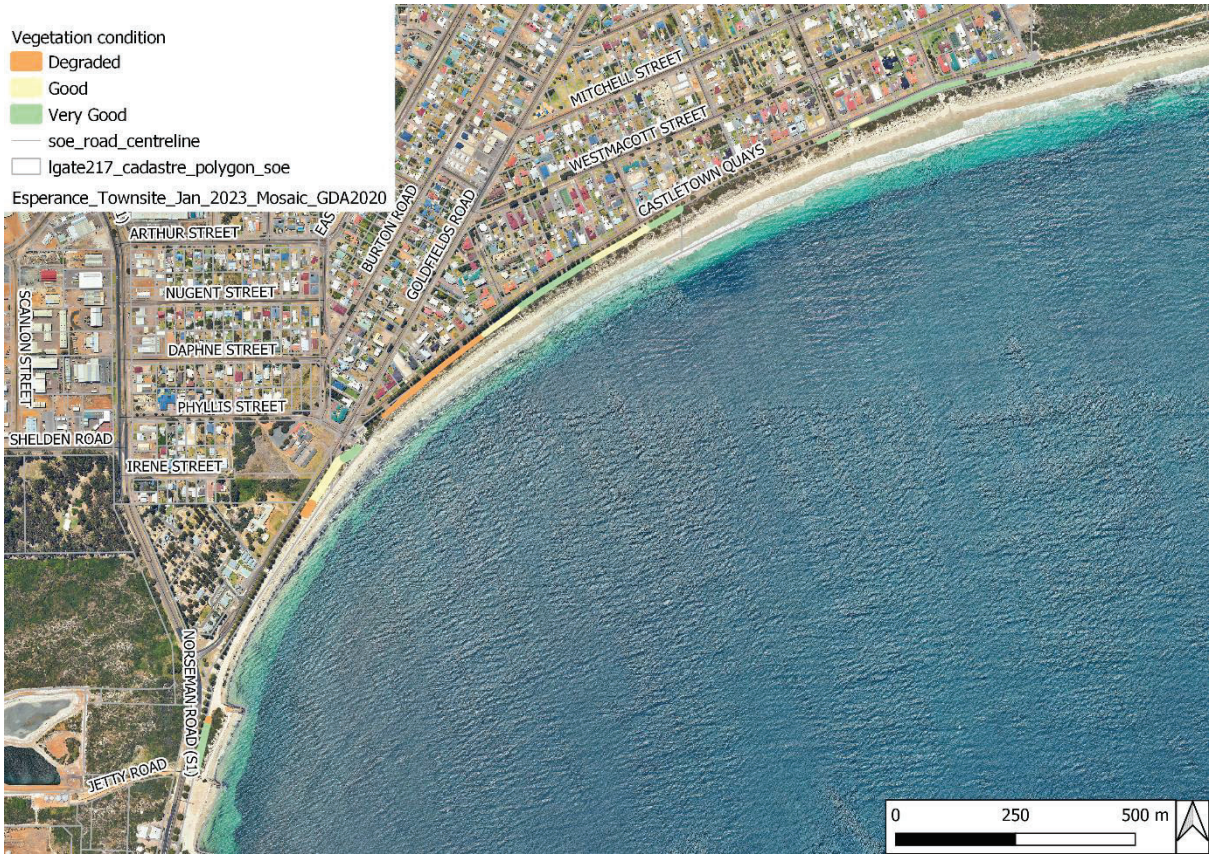

Figure 2. Vegetation condition within the proposed Sand Back Pass Pipeline and Pathway Upgrades.

Evidence of rabbits was observed throughout the area, which is supported by regular complaints from the local residents to the Shire. There is no evidence of any recent fires and unknown when the last fire had occurred.

Dieback Information Delivery and Management System (DIDMS; GAIA Resources, SCNRM & State NRM 2020) shows no data of *Phytophthora cinnamomi* or other *Phytophthora* sp. There are no other Dieback samples in the surrounding area. The vegetation present is mostly not susceptible to *P. cinnamomi* and would likely be classified as uninterpretable. However, there is always a possibility that other plant pathogens could be introduced to species that are susceptible within the area. Proposed works will be conducted using appropriate hygiene measures to limit spreading of diseases, including clean down of vehicles and machinery before entering the site.

The project area is within a buffer zone of the Vulnerable EPBC listed Threatened Ecological Community (TEC) 'Subtropical and Temperate Coastal Saltmarsh (Saltmarsh)', with a small patch of this TEC located 1.4km away from the proposed area. The vegetation within the site does not match this TEC.

The project area is also within the buffer zone of the Endangered EPBC listed TEC 'Proteaceae dominated Kwongkan shrublands of the southeast coastal floristic province of Western Australia', this TEC was listed as being 450 metres from the project area, however the site inspection confirmed there was no proteaceous species present within the project area and the vegetation therefore did not meet the description of this TEC. No other TECs or PECs were relevant to the project area.

A total of 31 native flora species were found and additional 23 non-native flora species were identified during the survey. No threatened or priority flora were identified.

Photos

Figure 3. Photo of vegetation present within the project area. Taken at 400012m E 6255470m N GDA95 Zone 51, facing west. Taken by Katherine Walkerden on 16/11/2022.

Figure 4. Photo of vegetation present within the project area. Taken at 399143m E 62550590m N GDA95 Zone 51, facing west. Taken by Katherine Walkerden on 16/11/2022.

Appendix 1. Incidental species list

Table 2. Incidental list of flora species present within proposed CPS 7548/1 SOE070 Sand Backpass Pipeline (Note the current additional project area is immediately adjacent to the CPS7548/2 SOE070 project area and likely has all the same species).

Family	Taxon	Common name	Invasive
Aizoaceae	*Carpobrotus virescens*	Coastal Pig Face	
Aizoaceae	*Drosanthemum candens*	Rodondo Creeper	*
Aizoaceae	*Tetragonia implexicoma*	Bower Spinach	
Apiaceae	*Daucus glochidiatus*	Native Carrot	
Araucariaceae	*Araucaria heterophylla*	Norfolk Pine	*
Asteraceae	*Arctotheca populifolia*	Cape Beach Daisy	*
Asteraceae	*Erigeron bonariensis*	Fleabane	*
Asteraceae	*Gazania linearis*	Treasure Flower	*
Asteraceae	*Olearia axillaris*	Coastal Daisybush	
Asteraceae	*Senecio elegans*	Purple Groundsel	*
Asteraceae	*Senecio pinnatifolius*	Variable Groundsel	
Asteraceae	*Sonchus oleraceus*	Common Sowthistle	*
Brassicaceae	*Cakile maritima*	Sea Rocket	*
Chenopodiaceae	*Atriplex isatidea*	Coast Saltbush	
Chenopodiaceae	*Rhagodia baccata*	Berry Salt bush	
Chenopodiaceae	*Threlkeldia diffusa*	Coastal Bone Fruit	
Crassulaceae	*Aeonium arboreum*	Tree Aeonium	*
Crassulaceae	*Crassula alata*		*
Cyperaceae	*Ficinia nodosa*	Knotted Club Rush	
Cyperaceae	*Isolepis marginata*		
Cyperaceae	*Lepidosperma gladiatum*	Coastal Saw Sedge	
Ericaceae	*Leucopogon parviflorus*	Coastal beard heath	
Euphorbiaceae	*Euphorbia paralias*	Sea Spurge	*
Euphorbiaceae	*Euphorbia terracina*	Geraldton Carnation Weed	*
Fabaceae	*Acacia cochlearis*	Rigid Wattle	
Fabaceae	*Acacia cyclops*	Coastal Wattle	
Fabaceae	*Acacia saligna*	Orange Wattle	
Fabaceae	*Melilotus indicus*	Annual Yellow Sweetclover	*
Fabaceae	*Pultenaea heterochila*		
Geraniaceae	*Pelargonium capitatum*	Rose Pelargonium	*
Goodeniaceae	*Scaevola crassifolia*	Thick leaved Fan Flower	
Hemerocallidaceae	*Dianella brevicaulis*	Flax or Blueberry Lilly	
Lauraceae	*Cassytha racemosa*	Dodder Laurel	
Lauraceae	*Cassytha sp.*	Dodder Laurel	
Myrtaceae	*Melaleuca pentagona var. pentagona*		
Olacaceae	*Olax phyllanthi*		
Orchidaceae	*Microtis sp.*	Mignonette Orchid	
Orobanchaceae	*Orobanche minor*	Common Broomrape	*
Pittosporaceae	*Billardiera heterophylla*	Australian Blue bell	
Poaceae	*Avellinia festucoides*		*

Poaceae	*Avena barbata*	Slender Wild Oat	
Poaceae	*Bromus sp.*	Brome grass	*
Poaceae	*Cynodon dactylon*	Couch	*
Poaceae	*Ehrharta longiflora*	Annual Veldt Grass	*
Poaceae	*Eragrostis curvula*	African Lovegrass	*
Poaceae	*Lagurus ovatus*	Hare's Tail Grass	*
Poaceae	*Poa porphyroclados*		
Poaceae	*Spinifex hirsutus*	Coastal Spinifex	
Polygalaceae	*Polygala myrtifolia*	Butterfly Bush	*
Primulaceae	*Lysimachia arvensis*	Scarlet Pimpernell	*
Ranunculaceae	*Clematis pubescens*	Common Clematis	
Rhamnaceae	*Spyridium globulosum*	Basket Bush	
Scrophulariaceae	*Myoporum insulare*	Coastal Boobialla	
Thymelaeaceae	*Pimelea ferruginea*		

Appendix 2: Threatened and Priority flora species identified within 20 km

Data provided by Department of Biodiversity, Conservation and Attractions (DBCA) and Western Australian Herbarium in May 2022 was used to assess threatened flora (TF), priority flora (PF), and threatened (TEC) and priority (PEC) ecological communities within 20 km radius of the site. Specifically, spatial data included;

- WAHerb extract (DBCA 2023).
- Threatened and Priority Reporting (TPFL; DBCA 2023).
- Esperance District Threatened Flora (DBCA 2022).

Species	WA Status	Distance from site
Cyathostemon sp. Esperance (A. Fairall 2431)	P1	1.80
Hibbertia carinata	P1	16.40
Lobelia archeri	P1	6.54
Schoenus sp. Grey Rhizome (K.L. Wilson 2922)	P1	16.86
Comesperma griffinii	P2	16.19
Dampiera decurrens	P2	16.28
Goodenia exigua	P2	16.19
Goodenia quadrilocularis	P2	17.03
Hibbertia turleyana	P2	16.03
Leucopogon corymbiformis	P2	7.66
Myriophyllum muelleri	P2	1.67
Paracaleana parvula	P2	7.14
Tecticornia indefessa	P2	15.01
Adelphacme minima	P3	5.32
Astartea reticulata	P3	16.78
Austrobaeckea uncinella	P3	10.65
Austrostipa mundula	P3	17.85
Brachyloma mogin	P3	4.85

Comesperma calcicola	P3	13.02
Dampiera sericantha	P3	19.54
Dampiera triloba	P3	6.48
Daviesia pauciflora	P3	9.05
Eucalyptus famelica	P3	16.45
Eucalyptus foliosa	P3	7.53
Eucalyptus semiglobosa	P3	16.69
Galium leptogonium	P3	14.58
Gonocarpus pycnostachyus	P3	7.02
Hopkinsia adscendens	P3	12.39
Kunzea salina	P3	17.06
Lepidium fasciculatum	P3	1.80
Leucopogon apiculatus	P3	16.10
Leucopogon interruptus	P3	1.80
Persoonia scabra	P3	15.99
Pityrodia chrysocalyx	P3	17.27
Pterostylis faceta	P3	16.30
Styphelia rotundifolia	P3	1.93
Banksia prolata subsp. calcicola	P4	19.38
Corysanthes limpida	P4	5.52
Eucalyptus insularis subsp. insularis	P4	1.80
Eucalyptus missilis x	P4	3.42
Eucalyptus preissiana subsp. lobata	P4	16.30
Grevillea baxteri	P4	2.05
Kennedia beckxiana	P4	17.65
Myosotis australis subsp. australis	P4	2.38

Appendix 3: Threatened fauna species identified within 20 km

Assessment of Threatened and Priority fauna potentially occurring within 20 km of the site was conducted utilising the following sources:

- DBCA Threatened Fauna database (DBCA 2023);

Taxon	Common name	Conservation Code	Distance from site (km)
Cereopsis novaehollandiae grisea	Recherche Cape Barren goose	VU	0.01
Hydroprogne caspia	Caspian Tern	MI	0.15
Thalasseus bergii	Crested tern	MI	0.24
Tringa nebularia	Common greenshank	MI	0.24
Actitis hypoleucos	Common Sandpiper	MI	0.29
Calyptorhynchus latirostris	Carnaby's cockatoo	EN	0.38
Apus pacificus	Fork-tailed swift	MI	0.43

Dermochelys coriacea	leatherback turtle	VU	0.48
Eubalaena australis	southern right whale	VU	0.73
Thalassarche chlororhynchos	Atlantic yellow-nosed albatross	VU	1.36
Notamacropus irma	western brush wallaby	P4	1.45
Calyptorhynchus sp. 'white-tailed black cockatoo'	white-tailed black cockatoo	EN	1.45
Thinornis rubricollis	Hooded plover	P4	1.67
Neophoca cinerea	Australian sea-lion	EN	1.67
Ardenna carneipes	Flesh-footed Shearwater	VU	1.67
Calidris ruficollis	Red-necked stint	MI	1.67
Calidris acuminata	Sharp-tailed sandpiper	MI	1.67
Stercorarius antarcticus lonnbergi	Brown Skua	P4	1.67
Westralunio carteri	Carter's freshwater mussel	VU	1.67
Calidris canutus	Red knot	EN	1.72
Calidris ferruginea	Curlew Sandpiper	CR	1.72
Pluvialis squatarola	Grey plover	MI	1.72
Oxyura australis	Blue-billed duck	P4	2.15
Leipoa ocellata	malleefowl	VU	2.18
Tringa glareola	Wood sandpiper	MI	2.28
Calidris alba	sanderling	MI	2.29
Charadrius leschenaultii	Greater sand plover	VU	2.51
Acanthophis antarcticus	southern death adder	P3	2.54
Arctocephalus forsteri	New Zealand fur-seal	OS	2.55
Plegadis falcinellus	Glossy ibis	MI	2.66
Falco peregrinus	Peregrine falcon	OS	2.99
Calidris melanotos	Pectoral Sandpiper	MI	3.03
Limosa lapponica	Bar-tailed godwit	MI	3.16
Tringa stagnatilis	Marsh sandpiper	MI	3.92
Tringa brevipes	Grey-tailed tattler	MI and P4	3.92
Arenaria interpres	Ruddy turnstone	MI	6.17
Calidris tenuirostris	Great knot	CR	6.17
Diomedea exulans	wandering albatross	VU	6.35
Isoodon fusciventer	quenda	P4	7.09
Oceanites oceanicus	Wilson's storm-petrel	MI	7.48
Numenius phaeopus	Whimbrel	MI	7.48
Ardenna tenuirostris	Short-tailed shearwater	MI	7.48
Puffinus huttoni	Hutton's shearwater	EN	7.48
Thalassarche cauta cauta	Shy albatross	VU	7.48
Elanus scriptus	Letter-winged kite	P4	9.69
Charadrius bicinctus	Double-banded Plover	MI	13.39
Atelomastix dendritica	Recherche atelomastix millipede	VU	13.49
Pluvialis fulva	Pacific golden plover	MI	13.64
Charadrius mongolus	Lesser Sand Plover	EN	13.64
Pandion haliaetus	Osprey	MI	16.53
Parantechinus apicalis	Dibbler	EN	17.53
Stercorarius parasiticus	Arctic jaeger	MI	17.56
Carcharias taurus	grey nurse shark	VU	18.09

References

DER, Department of Environmental Regulation (2014). *A guide to the assessment of applications to clear native vegetation – Under Part V Division 2 of the* Environmental Protection Act 1986. Published December 2014, Perth, Western Australia. Accessed via https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf.