

Biodiversity Management Plan

for
Revegetation of Foredunes at Newport Beach

21 October 2024



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File Number: BMPOCT24

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We acknowledge the traditional owners of this land and pay respect to Elders, past, present and emerging.

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1. Introduction

This Biodiversity Management Plan (BMP) describes how two areas of dune will be revegetated as Coastal Fore-dune Wattle Scrub to compensate the permanent removal of 101m² dune vegetation and the temporary disturbance of 127m² as a result of upgrade works to the Newport Surf Life Saving Club (SLSC).

The works set out in this BMP are to be carried out after civil construction (including the construction of the buried coastal protection works) and the Construction Environment Management Plan (CEMP) works have been completed.

A CEMP has also been prepared which sets out works that are required to be carried out during construction. This includes the ordering of the suitable plant material, the installation of temporary environment protection fences and the construction of permanent wind erosion and access control fences at the two sites. Once the buried secant wall has been constructed and the fence has been built, the dune habitat revegetation area will be managed by this BMP.

This BMP should be read in conjunction with the CEMP, and both documents are to be included in a brief or tender for the works described.

The CEMP and BMP works will be carried out by the Northern Beaches Council (Council) or its suitably qualified contractors, including qualified bush regenerators as relevant.

1.1 Background

Northern Beaches Council is wishing to upgrade the Newport Beach Surf Life Saving Club pursuant to DA2021/2173. Part of the works will involve installing coastal protection works in the form of a secant pile wall with reinforced concrete capping beam that will extend under the normal finished level to the north of the SLSC.

The finished secant pile wall will be ultimately buried below the normal beach sand level, however, the construction process will require excavation into the sand dune to the north of the surf club. The promenade on the north end of the development site is proposed to be extended by 4.5m into the existing sand dune to allow for movement of equipment and watercraft out of the side of the renovated surf club. The sand dune is currently covered with native Coastal Fore-dune Wattle Scrub vegetation.

The sand dune is currently covered with native Coastal Fore-dune Wattle Scrub vegetation. The proposed works are anticipated to permanently remove 101m² and temporarily disturb 127m² of native dune vegetation. The location of these works is shown in Map 2

A Biodiversity Management Plan (BMP) has been prepared to manage replanting and offsetting of this vegetation. The BMP establishes two management areas. The first management area is in the sand dune directly to the north of the Newport SLSC, being the location of the temporarily disturbed native dune vegetation which will be reinstated following completion of construction work (Area 1). The second management area is 300m further north along Newport Beach where native vegetation will be planted to offset the permanently removed vegetation (Area 2). These management areas are shown in Map 1

During construction, any unintentional disturbance to the Coastal Fore-dune Wattle Scrub needs to be prevented and if any further vegetation is disturbed, additional dune vegetation will need to be reinstated as compensation.

The location of these areas are shown on Map 1.

1.1.1 *Adjacent and Nearby Habitat*

There is a sealed carpark to the west of the beach and large Norfolk Island Pine trees to the north and south of the Surf Life Saving Club building. Areas of fore-dune vegetation extend across the length of the beach to the north and south.

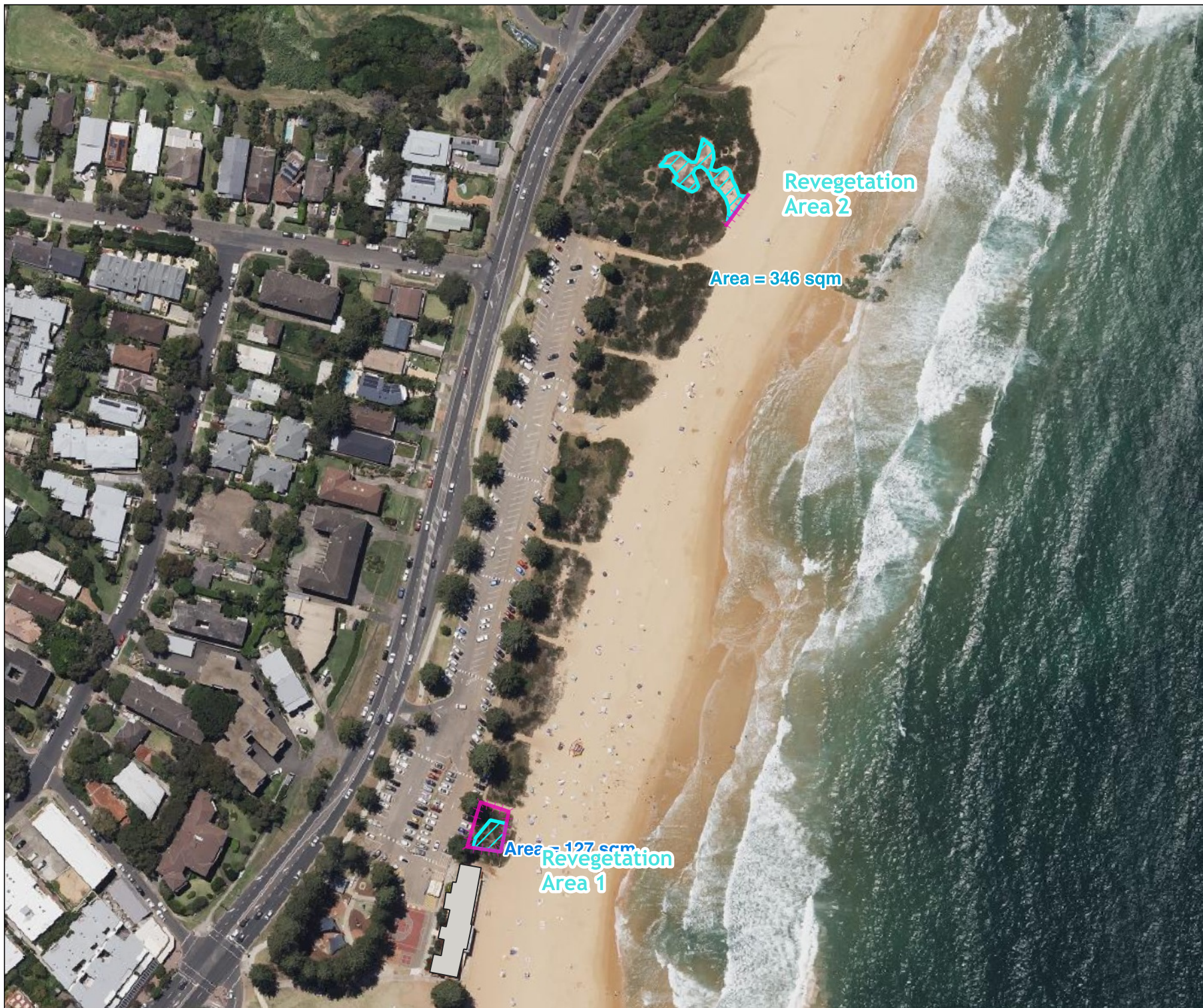
1.2 Aims of this Biodiversity Management Plan

The aims of this Biodiversity Management Plan are to revegetate the two sand dune areas with suitable native plants, establish and maintain growth of vegetation by watering and weeding and monitoring and adapting the ecological management to unforeseen circumstances.

The Biodiversity Management Plan is a tool to assist the developer and the manager to meet the requirements of legislation and the requirements of the conditions of consent.

The objectives will be achieved by the following actions:

- Planting local providence vegetation species in appropriate species mixes and relative abundances in each Management Area
- Planting schemes will mimic the natural structure and species mixture of the Coastal Fore-dune Wattle Scrub community
- Removing and eradicating weeds using the most appropriate and effective bush regeneration techniques applied by qualified bush regenerators.
- Apply adaptive management to respond to unexpected or changing environmental and manmade factors including drought, pathogens, pest species, tree health, watering and drainage etc. Decisions will be determined by a qualified and experienced Site Ecologist and documented in the monitoring reports.





Revegetation Area 2

Area = 346 sqm

Revegetation Area 1

Legend

Newport SLSC

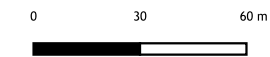
-  Existing Surf Club
-  Permanent Wind Reduction and Access Restriction Fence Dune Fence total 80m
-  Dune Habitat Revegetation Area 1 of 2 127 sqm
-  Dune Habitat Revegetation Area 2 of 2 346 sqm

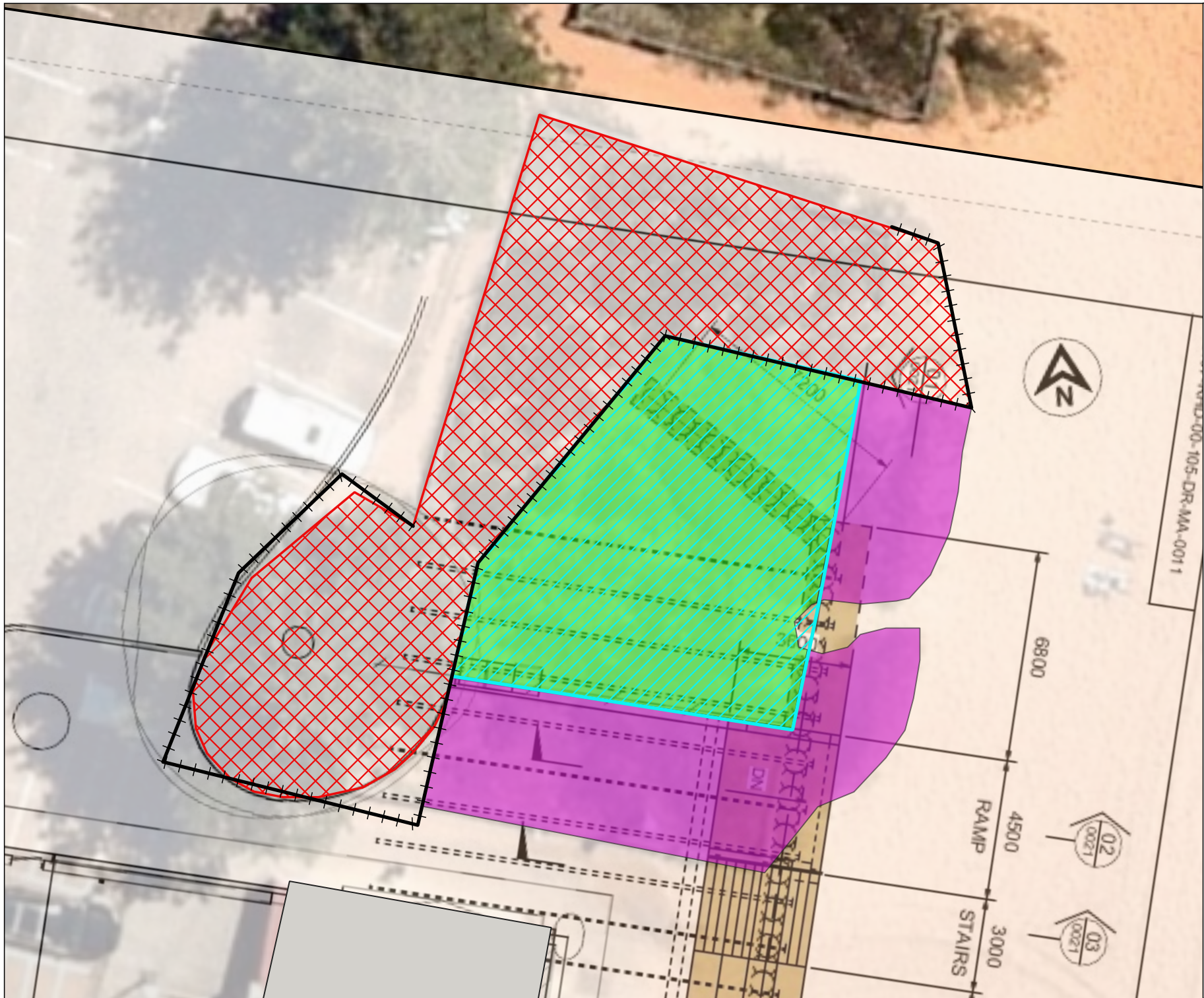
Aerial Image by:
NSW Six Map Spatial Services Portal

BMP Map 1
Foredune
Revegetation Areas

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Date: 21/10/2024
Cartographer: Nicholas Skelton
Version: 1.0
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Server/Projects/Current/GIS/Maps
Projection: GDA 94 MGA 56






Legend



Newport SLSC

-  Existing Surf Club
-  Temporary Construction Habitat Protection Fence
-  Dune Habitat Revegetation Area 1 of 2 127 sqm

Footprint

-  Habitat Protection Area Construction Access Prohibited

Biodiversity Impact

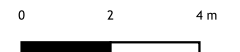
-  Permanent Vegetation Removal 105 sqm
-  Temporary Vegetation Removal 123 sqm

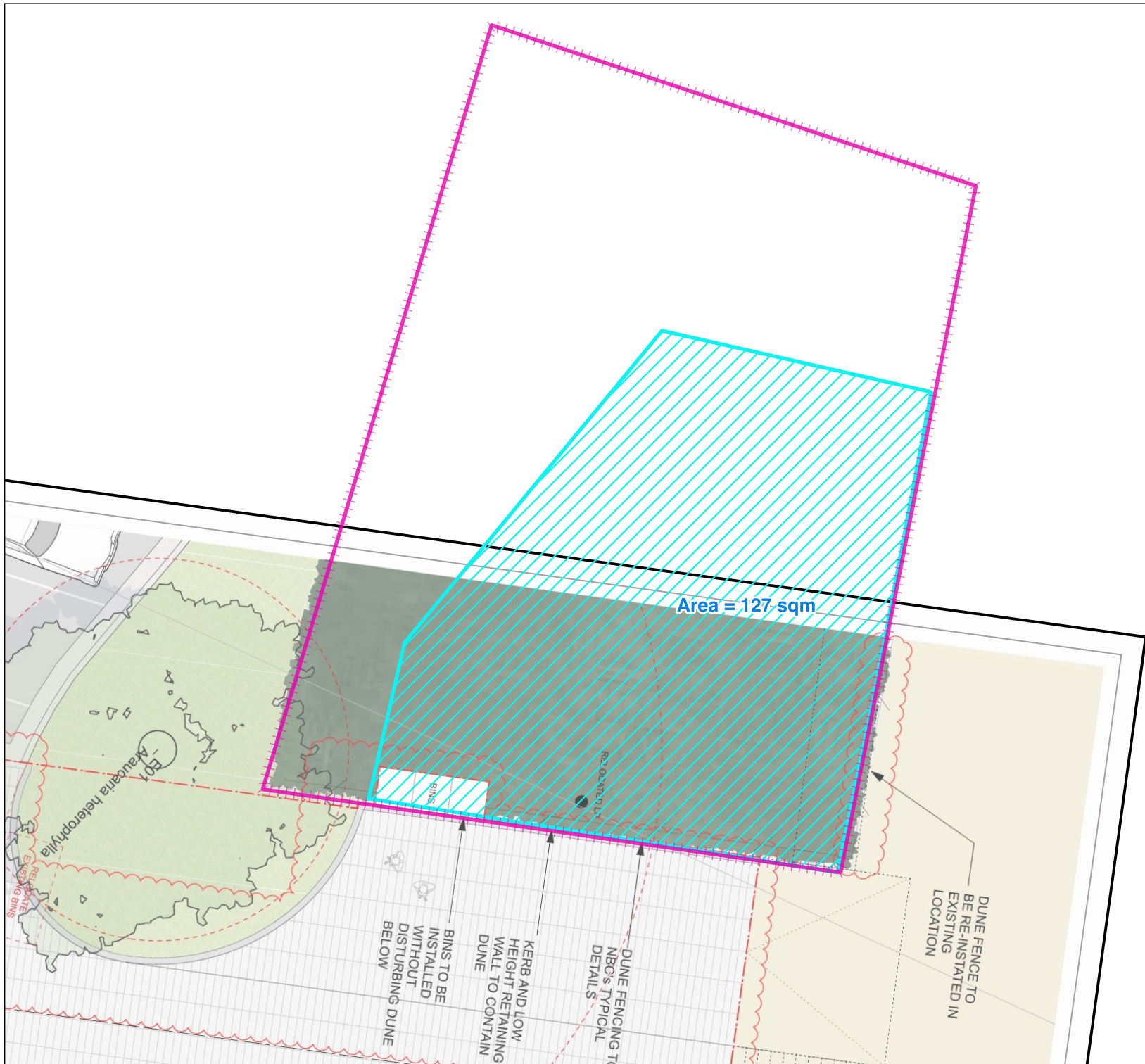
Basemap is the Coastal Engineering Plans prepared by Royal Haskoning.

**BMP Map 2
Biodiversity Impact
and
Habitat Protection**


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Legend

- Newport SLSC
-  Permanent Wind Reduction and Access Restriction Fence
Dune Fence total 80m
 -  Dune Habitat Revegetation
Area 1 of 2 127 sqm

Basemap is the Landscape Site Plan by ADRIANO PUPILLI ARCHITECTS Version E

**BMP Map 3
Compensation
Revegetation
Area 1**

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Legend

Newport SLSC

Permanent Wind reduction and Access Restriction Fence

Dune Habitat Restoration Area 2/2 346 sqm

Aerial Image by: NSW Six Map Spatial Serv

Map 4 Compensation Revegetation Area 2/2



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0 10 20 m



BMP Photo Page 1 - Core Native Species to be Planted



Photo 1. *Acacia longifolia subsp. sophorae* (Coastal Wattle)



Photo 2. *Carpobrotus glaucescens* (Pig Face)



Photo 3. *Ficinia nodosa* (Club Rush)



Photo 4. *Scaevola calendulacea* (Dune Fan Flower)



Photo 5. *Spinifex sericeus* (Coastal Spinnifex)

BMP Photo Page 2 - Additional Native Species to be Planted



Photo 6. *Banksia integrifolia* (Coastal Banksia)



Photo 7. *Correa alba* (White Correa)



Photo 8. *Leptospermum laevigatum* (Coastal Tea Tree)



Photo 9. *Pelargonium austral* (Native Storksbill/ Wild Geranium)

BMP Photo Page 3 - Dune Revegetation Progress, End Goal & Irrigation



Photo 11. Dune after 3 months at Curl Curl Beach



Photo 12. Dune after 6 months at Curl Curl Beach



Photo 13. Dune community after 12 months at Curl Curl Beach



Photo 14. Final State of Revegetated Dunal Areas (French, K 2010)



Photo 10. Recommended Sprinkler to be used for Irrigation: Gardena Circular Sled Sprinkler Tango

9 General Ecological Management

The ecological works described in this report has a total area of 473sqm and is made up of two Management Areas:

- Area 1, Dune Habitat Revegetation 127sqm, adjacent to the surf club
- Area 2, Dune Habitat Revegetation 346sqm, 300m north of the surf club along Newport Beach

The location of these zones is shown on the Map 1.

9.1 Restoration Performance Criteria and Quantifiable Goals

The objective of this Biodiversity Management Plan is to achieve the required Performance Criteria for each Stage and each management zone that are described below. These goals are to be written into the bush regeneration contract.

Performance Criteria and Quantifiable Goals to be met for the ecological works on the site are:

- The areas shown on Maps are stable Coastal Fore-dune Wattle Scrub with a cover of >70% after 2 years
- The soil surface is not to be left bare
- No signs of wind erosion
- No weeds
- All plantings must be maintained to achieve an 90% survival rate
- Best practice bush regeneration techniques must be used at all times
- No fertiliser, pesticides or insecticides are to be used.

9.2 Bush Regeneration Contractor

The Bush Regenerator or Council staff are to be employed to do the planting watering and other works in this plan.

The weed control work and planting are only to be undertaken by qualified bush regeneration persons with minimum TAFE Bush Regeneration Certificate III qualification and supervised by a worker with minimum TAFE Bush Regeneration Certificate IV qualification. For a list of bush regeneration companies, see the Australian Association of Bush Regenerators website: www.aabr.org.au

9.5 Adaptive Management for Uncertain Biodiversity Impacts

Adaptive management may be necessary to respond to unexpected or changing environmental and manmade factors including drought, pathogens, pest species, tree health, irrigation problems and drainage etc. Decisions will be determined by a qualified and experienced Site Ecologist.

Other unpredictable circumstances that may occur include rabbits, possums, brush turkeys and dumping of rubbish that may need adaptation of management.

10 Revegetation Works and Planting

Planting is to be with native sand dune species specified below. These are to be local providence tube stock. The tubestock are to be planted at a density of 5 plants per square metre, 4 plants of mixture of the core species and one of the Additional species list. Plants must be ordered 3 months in advance of planting and sourcing from more than one nursery is likely needed. An additional 20% of plants is to be ordered and are only to be delivered to site as needed to replace deaths and burials.

Core majority plants 4 per sqm

- *Acacia sophorae*
- *Carpobrotus glaucescens*
- *Ficinia nodosa*
- *Scaevola calendulacea*
- *Spinifex sericeus*

Additional plants 1 per sqm

- *Banksia integrifolia*
- *Correa alba*
- *Leptospermum laevigatum*
- *Pelargonium australe*

Irrigation of the whole site is to be set up to automatically water plants on timer every night (2-3 hours for each area in turn and a night) for a minimum of 24 months. The functioning of the watering is to be checked weekly. Irrigation is essential to establish the revegetation due to the salt spray and desiccation that occurs at dune site. In the last month the amount of watering should be halved to harden off the plants and encourage deep root growth.

There is a council tap located on the second most northern beach public access track in the carpark, which is 120 metres south of dune Area 2. We recommend running a hose through the dune and under the most beach northern public access track to irrigate plants.

Weeding must be undertaken as needed.

Weekly **monitoring** inspections to check and repair watering, fence, weeds and trampling. Replacement planting of any plants lost will need to be replaced on a 3 monthly basis.

Contingency adaptive management will be necessary to modify the management to allow for contingencies such as, rabbits, storms, arson, erosion, tracks, trampling etc that may occur. Contact the Site Ecologist as needed.

Wind controlling mesh (as detailed in the CEMP) can be removed after 2 years if no wind erosion is apparent.

Then **long-term management** including weed control and repairs as needed will be carried out as part of Council's usual beach dune maintenance program. Northern Beaches Council has extensive experience in the long-term prevention of wind erosion of sand dunes using fences and revegetation in a way that does not detract from the natural character, scenic value, biological diversity and ecosystem integrity or resilience.

Notes:

- Coir logs are not proposed to be used as there has been bonfires at this site in the past.
- Plants must be propagated from material within 10km of this site.
- Due to the planting requirements sourcing from more than one nursery will be required.
- Pre-ordering many months in advance is needed for large amounts and for trees.

- 120% of the amount of plants specified in the planting schedule should be ordered from a bush regeneration nursery to account for a likely 20% plant loss. Any extra stock is to be available at the nursery until the end of the 2 year period.
- All new plantings will need to be watered at time of planting and weekly if the weather is dry.
- All pots are to be entirely weed free. Any trays with a weed will be rejected at the cost of the supplier.
- 5g of water storage crystals are to be incorporated into the soil at the base of the planting hole.
- Planting is to aim for a wide distribution of each species.
- Care needs to be taken to ensure hoses do not damage plants.

A list of plant nurseries that supply suitable material is:

- Indigo Native Nursery,
Lot 57 Wattle Road, Ingleside NSW 2101
Ph: 9970 8709
Mob: 0488 528 722
Email: info@indigonursery.com.au
- Cicada Glen Nursery, - Waratah,
1 Chiltern Road
Ingleside, NSW, 2101
cicadaglennursery@outlook.com
- Harvest Seeds and Native Plants, - small
281 Mona Vale Road, Terrey Hills NSW 2084
Ph: 9450 2699
Email: marina@harvestseeds-nativeplants.com.au
- Kulgoa Wholesale Nursery, - mostly trees in bigger pots
297 Kulgoa Crescent, Terrey Hills NSW 2084. Ph: 9450 1217
Email: sales@kulgoa.com.au

11 Timing/Duration BMP

Once the buried sea wall civil works and the dune recontouring has been completed in accordance with the CEMP, the dune area will be revegetated and stabilised in accordance with this Biodiversity Management Plan BMP.

- Planting and watering is commence **as soon as the northern part of the seacant pile wall is built**, the dune has been recontoured and the permanent 1.2m high fence with coir mesh has been installed in accordance with the CEMP.
- Watering is to be done **daily** using an automatic system which is to be checked **weekly**.
- Monitoring and repair of planting, fences, paths or damage is to be carried out **monthly**.
- The BMP works are to lasting **2 years** from issue of the Construction Certificate.

Biodiversity Management Works: 2 year period

11.1.1 Suitable Weed Removal Methods

No native plant species are to be harmed.

Only qualified bush regenerators are to carry out these works.

Weeds can be controlled by only using industry standard bush regeneration techniques.

Suitable techniques are shown in Appendix A

12 References

- Ermert S. and Clapp L. 1998, Gardener's Companion to Weeds, How to identify and control more than 150 common weeds and invasive plants in Australia. Lansdowne Publishing Pty Ltd.
- Fairley A. and Moore P. 1989, Native Plants of the Sydney District. An Identification Guide. Kangaroo Press and The Society for Growing Australian Plants.
- French, K (2010) A Framework to Guide Ecological Restoration: Coastal Foredune Scrub and Temperate Littoral Rainforest. South Coast. University of Wollongong, Wollongong.
- Muyt A. 2001, Bush invaders of South-East Australia, A guide to the identification and control of environmental weeds found in South-Eastern Australia. R.G and F.J Richardson.
- Robinson. L. 1994, Field Guide to the Native Plants of Sydney, Kangaroo Press.

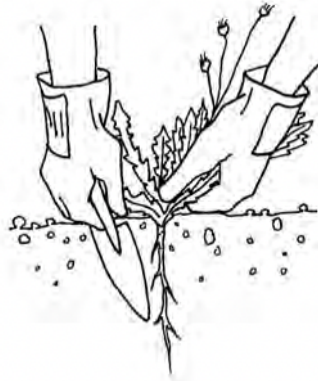
13 Appendix A - Weed Control Methods

Personal Protection Equipment (PPE): hat, gloves, long sleeves/pants, boots, sunscreen and insect repellent. Additional PPE when using herbicides, such as safety glasses, respirator. Always wash hands after use.

Modified from Garden Escapees & Other Weeds of Bushland & Reserves
3rd Edition 2015 mid North Coast Weeds Co-ordinating Committee.

1. Hand pull/dig (using knife/trowel)

- rake back leaf litter.
- cut down alongside plant.
- grasp stem or leaves at ground level and pull firmly while loosening soil from roots with knife/trowel.
- shake excess soil from roots and bag for removal or place plant on rock/log to die.
- replace leaf litter. e.g. Inkweed, Thistle.



2. Crown cut (using knife)

- only the underground growing heart of the plant needs to be removed.
- rake back leaf litter.
- grasp plant at ground level, gathering stems together, insert knife and cut in a circular motion to remove crown.
- replace disturbed soil/leaf litter and gently pat down. e.g. Ground Asparagus.



3. Skirting (using secateurs and herbicide)

- as low as possible, depending on access, gather and cut all vines around tree.
- apply herbicide IMMEDIATELY (within 10 seconds of cutting) to ground cut stems first, then aerial stems.
- check for reshooting within 6 weeks, retreating where necessary.
e.g. Morning Glory, Moth Vine, Ivy.
Note: NOT suitable for vines with aerial tubers e.g. Madiera Vine.

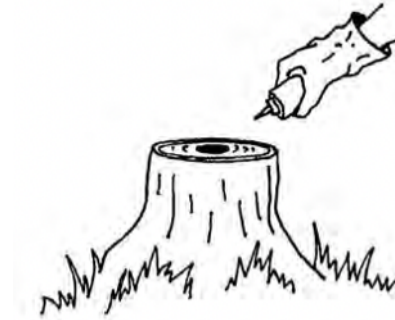


4. Stem scrape (using knife and herbicide)

- working close to ground, scrape along the stem of the plant for about 15-30 cm to expose vascular tissue.
- apply herbicide to exposed vascular tissue IMMEDIATELY (within 10 seconds of scraping).
- take care not to ringbark entire stem.
- leave plant insitu until completely dead, and re-treat if necessary.
e.g. Madiera Vine, Ochna, Senna, Morning Glory.



5. Cut and Paint (using saw and herbicide)



- the plant should not have aerial tubers.
- appropriate on woody weeds up to 10cm basal stem diameter.
- cut stem horizontally close to ground, below any branching stems or side shoots.
- apply herbicide to cambium layer IMMEDIATELY within 10 seconds of making cut.
e.g. Bitou Bush, Lantana, Privet.

PPE: hat, gloves, safety glasses, long sleeves/ pants, boots sunscreen and insect repellent.

The NSW Department of Primary Industries has developed a Management guide application for smart devices entitled “NSW Weed Wise” that is available online free of charge. Contact the Noxious Weeds Officer at your local Council or visit <http://weeds.dpi.nsw.gov.au/> for further details.

Appendix B: Plant list

with summaries of Status, Floristics and Cover

Newport Surf Club

5 July 2024

by Nicholas Skelton, GIS Environmental Consultants



Plant Species List

Part of Site	Genus and Species	Family	Common Name	Status	Growth Form
Site	<i>Acacia longifolia</i> var. <i>sophorae</i>	FABACEAE	Coastal Wattle	Native to NSW	Shrub
Site	<i>Carpobrotus glaucescens</i>	AIZOACEAE	Pig Face	Native to NSW	Herb
Site	<i>Correa alba</i>	RUTACEAE		Native to NSW	Shrub
Site	<i>Isolepis nodosa</i>	CYPERACEAE	Knobby Club-rush	Native to NSW	Sedge
Site	<i>Lomandra longifolia</i>	LOMANDRACEAE	Spiny-headed Mat-rush	Native to NSW	Herb
Site	<i>Myoporum boninense</i> subsp. <i>australe</i>	MYOPORACEAE	Boobialla	Native to NSW	Shrub
Site	<i>Rhagodia candolleana</i> subsp. <i>candolleana</i>	CHENOPODIACEAE		Native to NSW	Herb
Site	<i>Spinifex sericeus</i>	POACEAE	Spinifex	Native to NSW	Grass
Site	<i>Tetragonia tetragonoides</i>	AIZOACEAE	Warrigal Greens, Native Spinach	Native to NSW	Herb
Site	<i>Acetosa sagittata</i>	POLYGONACEAE	Turkey Rhubarb	Weed	Vine
Site	<i>Araucaria heterophylla</i>	ARAUCAREACEAE	Norfolk Island Pine	Non Native	Tree
Site	<i>Bidens pilosa</i>	ASTERACEAE	Cobbler's Pegs, Pitchforks	Weed	Herb
Site	<i>Cakile edentula</i>	BRASSICACEAE	Sea Rocket	Weed	Herb
Site	<i>Conyza bonariensis</i>	ASTERACEAE	Fleabane	Weed	Shrub
Site	<i>Ehrharta erecta</i>	POACEAE	Ehrharta	Weed	Grass
Site	<i>Hydrocotyle bonariensis</i>	APIACEAE	Kurnell Curse	Weed	Herb
Site	<i>Parietaria judaica</i>	URTICACEAE	Asthma Weed, Pellitory	Weed	Herb
Site	<i>Solanum nigrum</i>	SOLANACEAE	Black-berry Nightshade	Weed	Herb
Garden	<i>Acacia longifolia</i> var. <i>sophorae</i>	FABACEAE	Coastal Wattle	Native to NSW	Shrub
Garden	<i>Banksia integrifolia</i> subsp. <i>integrifolia</i>	PROTEACEAE	Coastal Banksia	Native to NSW	Tree
Garden	<i>Dianella congesta</i>	PHORMIACEAE		Native to NSW	Herb
Garden	<i>Doryanthes excelsa</i>	AGAVACEAE	Gynea Lily	Native to NSW	Herb
Garden	<i>Hibbertia scandens</i>	DILLENIACEAE	Golden Guinea Flower	Native to NSW	Vine
Garden	<i>Isolepis nodosa</i>	CYPERACEAE	Knobby Club-rush	Native to NSW	Sedge
Garden	<i>Pandanus tectorius</i>	PANDANIFLORAE	Screw Pine	Native to NSW	Tree
Garden	<i>Aspidistra elatior</i>	LILLIACEAE	Cast Iron Plant	Weed	Herb
Garden	<i>Agave attenuata</i>	AGAVACEAE	Century Plant	Weed	Herb
Garden	<i>Aloe</i> ssp.	LILLIACEAE	Aloe	Weed	Herb
Garden	<i>Ehrharta erecta</i>	POACEAE	Ehrharta	Weed	Grass
Garden	<i>Lillitrope</i> sp. Cultivar	LILLIACEAE	Lillitrope	Weed	Herb
Garden	<i>Sonchus oleraceus</i>	ASTERACEAE	Sow Thistle	Weed	Herb