

Revegetation Management Plan

Construction of a telecommunications tower
John Fisher Park, Curl Curl, NSW

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Acknowledgement of Country

4Pillars acknowledges the Traditional Owners of the land on which this site is located, the people of the Dharug nation. We pay our respects to their Elders past and present.

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1 Introduction

4Pillars Environmental Consulting (4Pillars) was engaged by Lendlease Ltd to prepare a Revegetation Management Plan (RMP) for vegetation impacted by the construction of a telecommunications tower and the implementation of the approved regeneration plan at John Fisher Park, Curl Curl, NSW.

1.1 Proposed development

Development of a telecommunications facility in John Fisher park.

1.2 Objectives

The current objectives are to reinstate Swamp Oak Forest along a riparian edge of the lagoon. The native plants aim to significantly increase the habitat for native fauna and help to maintain a wildlife corridor linking the foreshore area with the immediate surrounding bushland areas.

1.3 Scope of work

4Pillars' scope of work was as follows:

- Preparation of the RMP; and
- Implementation of the RMP.

1.4 Site context

The site context is outlined in the report Titled 'John Fisher Park Telecommunications Facility – Flora and Fauna Assessment and Biodiversity Management Plan, prepared by EcoLogical and dated 23 July 2019 (FFA).

The area to be revegetated as part of this plan is a small section of John Fisher Park, Lot 7356 DP1167221, on Abbott Road, North Curl Curl. Although the area has been historically cleared, Estuarine Swamp Oak Forest and Estuarine Reedlands have been mapped by OEH within the proposed development footprint. Both of these vegetation communities are part of the Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner Bioregions community, an Endangered Ecological Community under the Biodiversity and Conservation Act 2016 (BC Act) and listed as Endangered under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

The construction of the telecommunications facility is proposed to take place in a historically disturbed area. The study area is adjacent to mown grass sports fields and was an area that was previously a Council landfill site.

From aerial imagery sighted 2021, it is evident that other revegetation works have been completed by council in the area adjacent to the telecommunications tower.

2 Revegetation Area

The area to be revegetated as part of this plan is a small section of John Fisher Park. The area is cleared of any native established bushland and is mostly mown grass. Planted vegetation is located within the area.

This area is identified in the FFA as an 'L-shaped' area approximately 20 m long and 6 m wide. The total area to be revegetated is approximately 75 m² (see Figure 3).

3 Revegetation methods

3.1 Site Preparation

Site preparation works will be completed as required for the successful establishment of revegetation works. The areas that have experienced clearing of planted vegetation and/or significant soil disturbance from the development of the telecommunications tower will need to be prepared. This may include ripping / de compaction of soils, weed removal and spot spraying of weeds within the revegetate area, removal of rubbish and erection of fences to protect area during plant establishment.

3.2 Plant establishment

3.2.1 Plant species

Planting of trees, shrubs, Hiko or Viro cells for grasses and other groundcover species is the preferred method for revegetation works. Plant seed/cutting material used should be sourced from local provenance nurseries using seed collected from the local northern beaches area. A recommended planting list as provided by Northern Beaches Council is provided in Table 1. Tree species to be installed, have been chosen to be of a life form sapling age (3-15 years old and approx. 0.5-3 m tall). Saplings were chosen in order to minimise the habitat loss due to the works and to increase the survivability rate of the trees.

Table 1: Recommended plant species

Life Form	Scientific Name	Common Name
Tree (to 15m) (Sapling)	<i>Banksia integrifolia</i>	Coastal Banksia
	<i>Eucalyptus robusta</i>	Swamp Mahogany
Shrub (to 6 m) (Tubestock)	<i>Leptospermum laevigatum</i>	Coastal Tea Tree
	<i>Myoporum boninense</i>	Boobialla
	<i>Melaleuca nodosa</i>	Prickly-leaved Tea-tree
	<i>Melaleuca hypericifolia</i>	Hillock Bush
	<i>Correa alba</i>	White Correa
	<i>Westringia fruticosa</i>	Coastal Rosemary
	<i>Baloskion tetraphyllum</i>	Plume Rush
Groundcover (to 1m) (tubestock/hiko/viro cell)	<i>Lomandra longifolia</i>	Spiny-headed Mat Rush
	<i>Dianella caerulea</i>	Blue Flax Lily
	<i>Juncus kraussii</i>	
	<i>Juncus usitatus</i>	Sea rush

3.2.2 Pre-treatment of plants

Each individual planted will be soaked in a plant tonic for at least 1-2 hours or sprayed with leaf absorbent fertiliser (e.g. Seasol™) to reduce transplant shock.

3.2.3 Sourcing of saplings

All plants species required for the revegetation should be sourced from local Northern Beaches nurseries and garden centres where possible. In the case of required species being unavailable, nurseries from other areas will be used.

3.2.4 Timing

Revegetation will be conducted in the shoulder months (early spring or early autumn) to prevent shock to young saplings and reduce exposure to frost or drought conditions.

3.2.5 Installing of saplings

All species planted as part of this revegetation plan will be spread evenly across the area, in accordance with the general rules outlined below:

- Canopy species will be spaced out and planted with approximately 4-5 metre of lineal spacing (25 individuals).
- Shrubs will be planted at a density of approximately 1 per square metre (75 individuals).
- Ground covers will be planted at a density of 3-4 per square metre (300 individuals in clusters, *hiko* or *viro* cells).

The hole to be dug for each plant should be at least 25-50% larger than the current pot the plant is in, this gives ample room for root growth. To each hole, appropriate native soil mixes will be added to increase survivability. Water crystals or other wetting agents will also be added to each plant hole in accordance with the manufacturer's directions. This will increase the water holding capacity of the soil and reduce the watering schedule required. All plants will 'watered in' on the day of installation. Further irrigation will be completed during monitoring (up to 1 months after initial installation) at the discretion of the consultant, factoring in recent and coming weather events.

Tree guards will be installed around each plant to protect the young plants from extreme weather, herbivorous grazing and potential herbicide drift during weed maintenance. If available, bio-degradable tree guards are to be preference over plastic guards. If plastic guards are used, they are to be removed when plants are sufficiently established.

Native woodchip mulch will be spread throughout the planted area to a thickness of approximately 15-20 mm. This will assist with weed control and soil moisture retention. This will be completed after planting is complete.

3.3 Weed management

Control of weeds within the revegetation area can be undertaken by manual hand removal and spot spraying with herbicide. Hand removal is the preferred method for weed removal on site is hand removal, as it does not involve chemicals that could impact other vegetation or threatened fauna as well as minimal physical disturbance. Herbicide use must be followed as outlined in section 3.3.1. 4Pillars will inspect potential weed invasion, and remove accordingly within the first month after installation. After this period, maintenance responsibilities will be handed over by council.

3.3.1 Herbicide Use

Where herbicide is to be used for weed control, the following measures will be implemented:

- Personnel will have completed pesticide training - Competency level AQF2 or AGF3.
- Requirements for chemical use under the Pesticides Act 1999 and Regulation 2009 will be met, such as community notification measures.
- Personnel will read and adhere to the information contained on herbicide labels.
- The supervisor will prepare a Pesticides Application Record Sheet
https://www.dpi.nsw.gov.au/__data/assets/pdf_file/0011/188687/pesticide-application-form.pdf.
- Personnel will use the appropriate technique of application for the identified weed (Table 5).
- Personnel will avoid application of herbicides during times when plants will be dormant such as winter and the hottest times of day in summer.
- Personnel will avoid application during windy conditions and before rain.
- Personnel will avoid application near waterways and other sensitive receivers. Where this is unavoidable select herbicides, which are suitable for the environment.

3.4 Access management

Generally, public access to the revegetation areas will be restricted to increase the success rate of the program, which will be achieved through the implementation of various measures discussed below.

3.4.1 Fencing

Temporary fencing will be erected around the revegetation area.

3.4.2 Signage

Signage will be placed on temporary fencing identifying the rehabilitation area. Educational material regarding the value of the vegetation as outlined on the Northern Beaches Council website could also be displayed on the temporary fencing.

3.4.3 Pathway

A pathway should be established during the planting to ensure the consultant as adequate access to the area for future monitoring and maintenances withing the area.

4 Monitoring and Maintenance

4.1 Monitoring

4Pillars will monitor the revegetated area weekly for the first month after the initial planting. The area will be inspected by foot in transects, ensuring each plant species is in good condition, protective coverings are intact, and weeds are absent. Other observations of the area can include vandalism, rubbish, and high tide events.

4.1.1 Photo monitoring

Photo monitoring points will be established in the planting area to highlight changes in the vegetation through time. The initial photos must be taken prior to works commencing (i.e. the before shot) with subsequent photos being taken after significant works (e.g. planting, mulching) and then annually. All successive photo-points will maintain the same view angle to allow direct comparison over time. At least three photo points will be provided across the revegetation area. The location and image data from photo points will be provided in the final report

For each photo:

- Mark the location of the photo point/s and take a compass bearing of the direction of photo.
- Label each digital image with a unique reference number that indicates where the photo was taken (i.e. the photo monitoring point) and the date it was taken.

4.2 Maintenance

4Pillars will complete any required maintenance within the revegetated area for the first month after planting. Any issues identified within the weekly inspections will be addressed by the consultant on the day (if possible).

Where weed species are seen within the revegetated area, they should be identified (if possible) and removed by hand or by spot spraying.

4.3 Reporting

A brief report outlining work undertaken by the consultant will be prepared after each weekly visit and at the end of the consultant's maintenance period. These reports will be submitted to the Client, who may provide the reports to Council, as needed. Items addressed in the reports will include:

- A summary of works carried out within the period;
- An approximation of the time spent on each task;
- Any observations and any problems which impact on the implementation of the BMP; and
- Any recommendations for future works and/or actions.

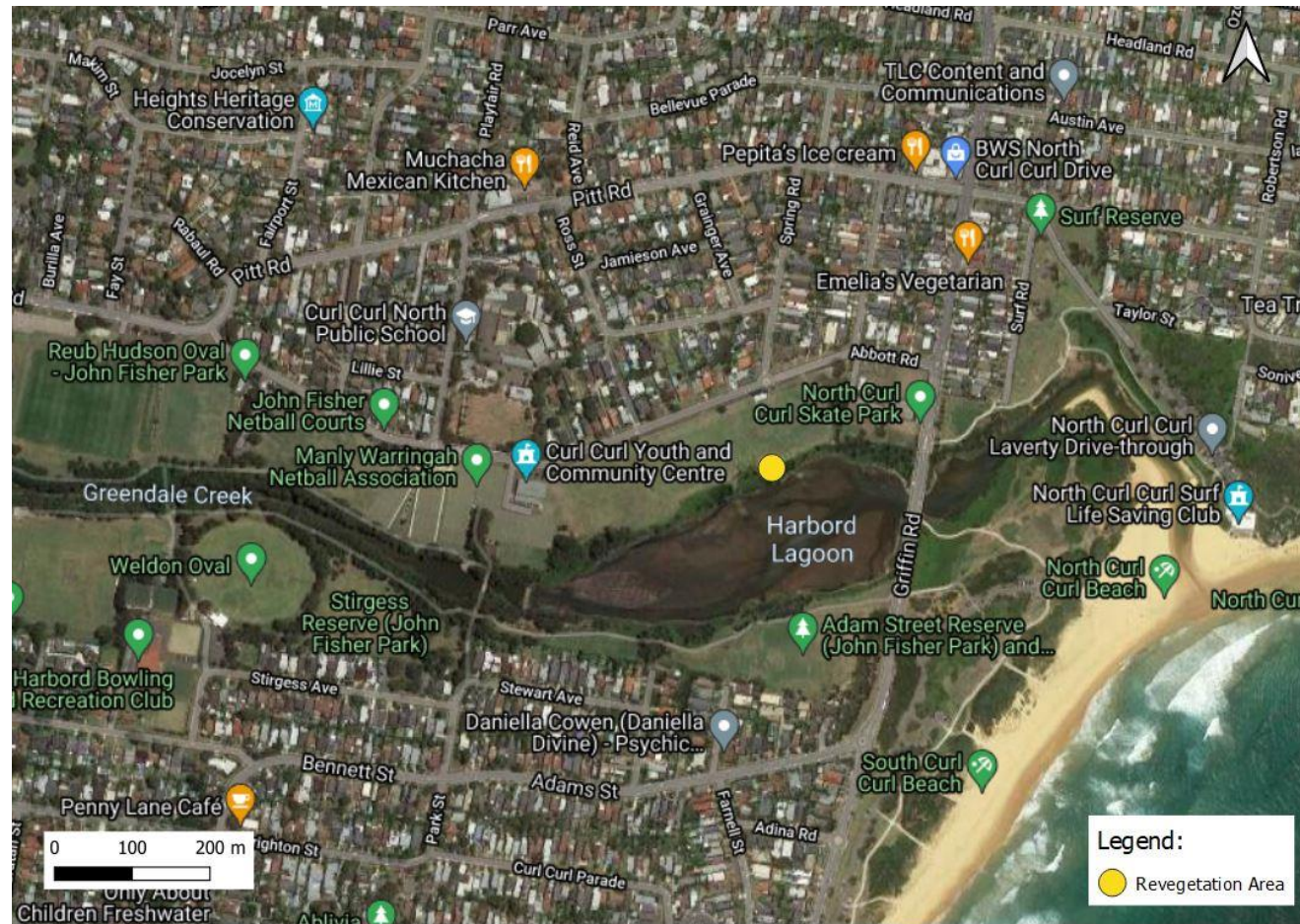
5 Conclusion

The implementation of this RMP as written will achieve the requirements of the project Development Consent in relation to revegetation works. 4Pillars is confident that the revegetation scope of work proposed will be sufficient to restore impacted vegetation communities to an appropriate successional state. This, in time, will restore the habitat value and ecological services provided by the existing vegetative community.



Figure 1: East facing image of the Site taken in 2019, showing recently planted tube stock.

Site locality



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Figure 2: Site locality.

Revegetation Area



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Date:	26/20/21	Image source: QGis		

Figure 3: Revegetation Area as outlined in the FFA.