

# LAN-67608 – Auckland Council – Muriwai Beach Dune Restoration

## Planting Plan

### Overview

The dune will be replanted with the appropriate sequence of foredune through to backdune vegetation. Planting will reflect the natural vegetation patterns present within the coastal zone of Muriwai Regional Park. The depth of foredune vegetation is not compromised and will provide a responsive active front to coastal influences however, the backdune vegetation sequence is compressed due to recreational constraints. Due to this compression factor elements of backdune sequences that naturally occur within the wider Muriwai Regional Park will be intermixed according to habitat suitability and function of vegetation cover.

### Ecosystem Reference for Planting Composition

Muriwai dunes and shrublands comprise one dominant ecosystem Spinifex-pingao-grassland/sedgeland (DN2) with components of two others; Oioi-knobby clubbrush sedgeland (DN5) and totara-kanuka-broadleaved forest (WF5). The majority of the restoration plantings reflect DN2 and the early successional variant of WF5 (variant a). However, the old surf club site has forest dominated by pohutukawa transitioning into WF5 (variant b) on the knoll south of the restoration site. Planting lists and relative proportions have been selected to reflect ecosystems that occur across Muriwai Regional Park. Ecosystems are further described in appendix 1.

### Planting Areas

The foredune (10 to 20m wide from toe of dune) will be planted with spinifex, and interplanted with smaller groups of pingao over the upper dune slope and transition to backdune vegetation. Spinifex will also be included in backdune transition to increase the buffer of the interactive foredune. This transition zone is delineated as a 5m strip running parallel to the current dune crest (figure 1).

The transition area at the crest of the foredune will include at its most landward side a transition into woody vineland (DN5) dominated by pohuehue with occasional toe toe and tauhinau. Landward from the woody vineland the vegetation will transition into early successional WF5 vegetation.

The proposed width of backdune revegetation area considered at this site varies between 10m and 30m, depending on the available space and site constraints to still meet recreational demands and without compromising seaward views from the grassed reserve.



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## PLANTING AREAS MURIWAI DUNE RESTORATION HISTORIC SURF CLUB SITE



Scale @ A3  
 = 1:500

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**Auckland Council**  
 Te Kaitiaki o Te Matiri Aotearoa

### **Enrichment Planting**

Enrichment plantings will be considered relative to the appropriate habitat and position within the site once the primary plantings of the backdune area are well established. It is expected that enrichment planting can occur within 5 years of initial planting.

### **Maintenance of Plantings**

All plantings will be monitored for survival and replacement plants will be made available and planted within the next planting season. The site will be monitored for weeds and these will be controlled annually.

### **Ecosourcing**

All plants will be ecosourced from the Kaipara and northern part of the Waitakere ecological districts.

### **Supervision**

Prior to planting and in particular for the backdune sequences and enhancement planting the laying out of plants will be supervised by experienced staff.

### **Scheduling**

Area	Planting Season
Foredune A	2015/2016
Transition A	2015/2016
Backdune A	2016/2017
Foredune B	2016/2017
Transition B	2016/2017
Backdune B	2016/2017
Enrichment Backdune A and B	2022/2023
Maintenance Planting	2017/2018 annually

### **Plant Numbers per Annum**

2015/2016	5895
2016/2017	8142
2017/2018	700 (5% of 14,000)
2022/2023	83

### **Plant Lists and Proportions.**

- Kawakawa (*Piper excelsum*) is not included as this will readily self colonise once shelter from other shrubs becomes established.

<b>Muriwai Old Surf Club Foredune</b>						
<b>Species</b>	<b>Common name</b>	<b>Proportion</b>	<b>Spacing (m)</b>	<b>No. of Plants</b>		<b>Grade</b>
				<b>Stage A</b>	<b>Stage B</b>	
Spinifex sericeus	spinifex, kowhangatara	80	0.5	3622	3764	root trainer
Ficinia spiralis	pingao	20	0.5	906	941	root trainer
<b>totals</b>				<b>4528</b>	<b>4705</b>	

<b>Muriwai Old Surf Club Transition</b>						
<b>Species</b>	<b>Common name</b>	<b>Proportion</b>	<b>Spacing (m)</b>	<b>No. of Plants</b>		<b>Grade</b>
				<b>Stage A</b>	<b>Stage B</b>	
Spinifex sericeus	spinifex, kowhangatara	68	0.5	1048	1030	root trainer
Ficinia spiralis	pingao	17	0.5	262	258	root trainer
Austroderia splendens	toetoe	5	1	19	19	pb3
Muhlenbeckia complexa	pohuehue	5	1	19	19	pb3
Ozothamnus leptophylla	tauhinu	5	1	19	19	pb3
<b>totals</b>		<b>100</b>		<b>1367</b>	<b>1345</b>	

<b>Muriwai Old Surf Club Initial backdune planting</b>						
<b>Species</b>	<b>Common name</b>	<b>Proportion</b>	<b>Spacing (m)</b>	<b>No. of Plants</b>		<b>Grade</b>
				<b>Stage A</b>	<b>Stage B</b>	
Austroderia splendens	toetoe	5	1	72	33	pb3
Muhlenbeckia complexa	pohuehue	10	1	144	65	pb3
Ozothamnus leptophylla	tauhinu	5	1	72	33	pb3
Ficinia nodosa	knobby clubrush	10	1	144	65	pb3
Carex flagellifera	trip me up	5	1	72	33	pb3
Kunzea amathicola	kanuka	30	1	431	196	pb3
Pseudopanax lessonii	houpara	5	1	72	33	pb3
Pittosporum crassifolium	karo	5	1	72	33	pb3
Coprosma macrocarpa subsp. minor	coastal coprosma	10	1	144	65	pb3
Metrosideros excelsa	pohutukawa	15	1	215	98	pb3
<b>totals</b>		<b>100</b>		<b>1438</b>	<b>654</b>	

<b>Muriwai Old Surf Club Stage A Enrichment backdune planting</b>						
<b>Species</b>	<b>Common name</b>	<b>Proportion</b>	<b>Spacing (m)</b>	<b>No. of Plants</b>		<b>Grade</b>
				<b>Stage A</b>	<b>Stage B</b>	
Podocarpus totara	totara	20	5	11	5	pb8
Melicytus ramiflorus	mahoe	40	5	23	10	pb8
Alectryon excelsus	titoki	10	5	6	3	pb8
Corynocarpus laevigatus	karaka	20	5	11	5	pb8
Vitex lucens	puriri	10	5	6	3	
<b>totals</b>		<b>100</b>		<b>57</b>	<b>26</b>	

# Appendix 1

Ecosystem Descriptions from

Singers, N., Osborne, B., Hill, K., Lovegrove, T., Jamieson, A., Webb, C., Hill, S., Andrews, J., Sawyer, J.W.D. (2013) Indigenous terrestrial and freshwater ecosystems of Auckland. (Unpublished)

Dune 2 (DN2) Spinifex-pingao-grassland/sedgeland – IUCN Endangered: Characterised by highly specialised pioneer dune building plants including spinifex, pingao, and shore bindweed the ecosystem includes the pohuehue, tauhinu and sand coprosma vineland.

Dune 5 (DN5) Oioi-knobby clubrush sedgeland - IUCN Not Evaluated: Dune plains behind mobile dunes where sand is eroded down to the water table or impenetrable layer. Characterised by a mosaic of areas that are periodically submerged wetland communities separated by small sand ridges with drier communities. Species include *Carex pumila*, *Sellieria*, *Isolepis* and *Lilaeopsis novaezelandiae*, *Myriophyllum votschii*, and *Limosella lineata*. These are succeeded by taller plants such as knobby clubrush, umbrella sedge and oioi.

This ecosystem occurs as dune hollows and deflations rather than extensive dune plains with the taller species present.

Warm Forest 5 (WF5) totara-kanuka-broadleaved forest (Dune Forest)-IUCN Critically Endangered: This is a critically endangered ecosystem with composition reflecting environmental gradients of age since dune stabilisation, soil fertility and topography.

There are two regional variants; a) early successional kanuka on dunes and b) Podocarp-broadleaved forest (includes pohutukawa-dominated remnants). Due to ongoing disturbance from human induced change such as forestry, vehicle damage, and feral animals much of the Muriwai sites are characterised by variant (a).