

6.3 Plant schedules

Two areas have been identified that would benefit from indigenous planting (see Figure 2). Area 1 comprises a strip of coastal margin near the Seacrest Drive access. Area 2 comprises rank grass, pampas and gorse situated east of Reflection Drive. Recommended planting locations are presented in Figure 2.

Area 1 contains some existing indigenous vegetation so this planting will comprise filling in the gaps between these. Area 1 has been divided into two zones for planting. Zone 1a comprises the immediate coastal margin. Zone 1b comprises the upper coastal slope above Zone 1a.

Plant schedules have been compiled for each area based on physical site characteristics and existing vegetation cover. These are based on species that would occur naturally on sites with these characteristics. Other factors considered include the selection of species that are likely to have a relatively high growth rate and survival rate. These planting schedules are presented in Tables 1-3 below.

6.3.1 Coastal margin planting zone

The coastal margin zone is defined as that area immediately adjacent to the mangrove wetland and comprises Zone 1a. This area should be planted with coastal/saltmarsh species such as oioi and pohuehue.

Table 1: Plant schedule for Zone 1a

Species	Common Name	Grade	Spacing (m)	Number
<i>Apodasmia similis</i>	oioi	PB3	0.5	35
<i>Carex geminata</i>		PB3	0.5	35
<i>Cordyline australis</i>	ti kouka, cabbage tree	PB3	0.75	15
<i>Cortaderia fulvida</i>	toetoe	RT	0.75	23
<i>Muehlenbeckia complexa</i>	pohuehue	PB3	0.75	30
<i>Phormium cookianum</i>	wharariki	PB3	0.75	30
<i>Plagianthus divaricatus</i>	saltmarsh ribbonwood	PB3	0.75	23
TOTAL				191

6.3.2 Coastal Margin Upper Slope

The coastal margin upper slope zone is defined as that area situated above the immediate coastal margin and comprises Zone 1b. This area should be planted with coastal shrub species such as cabbage tree, kanuka, karamu, kumerahou, manuka and toetoe. Species that when mature are of low to medium height should be planted along the top half of the planting area to maintain view shafts across the upper harbour. Taller species can be planted lower down the slope where they will not impact on views.

Table 2: Plant schedule for Zone 1b

Species	Common Name	Grade	Spacing (m)	Number
<i>Astelia banksii</i>	kakaha	PB3	0.75	64
<i>Blechnum novae-zelandiae</i>	kiokio	PB3	0.75	50
<i>Clematis paniculata</i>	puawananga	PB3	4	25
<i>Coprosma repens</i>	taupata	PB3	0.75	86
<i>Cordyline australis</i>	ti kouka, cabbage tree	PB3	0.75	43
<i>Corokia buddleoides</i>	korokio	PB3	0.75	64
<i>Cortaderia fulvida</i>	toetoe	RT	0.75	107
<i>Dodonaea viscosa</i>	akeake	PB3	0.75	21
<i>Entelea arborescens</i>	whau	PB3	0.75	17
<i>Gahnia xanthocarpa</i>	gahnia	RT	0.75	64
<i>Geniostoma rupestre</i>	hangehange	PB3	0.75	21
<i>Hebe stricta</i>	koromiko	PB3	0.75	86
<i>Libertia ixioides</i>	mikoikoi	PB3	0.75	55
<i>Macropiper excelsum</i>	kawakawa	PB3	0.75	43
<i>Metrosideros perforata</i>	white rata	PB3	4	25
<i>Myoporum laetum</i>	ngaio	PB3	0.75	17
<i>Olearia solandri</i>	coastal tree daisy	PB3	0.75	64
<i>Parsonsia heterophylla</i>	NZ jasmine	PB3	4	25
<i>Phormium cookianum</i>	wharariki	PB3	0.75	107
<i>Pomaderris kumerahou</i>	kumerahou	PB3	0.75	43
<i>Sophora microphylla</i> ¹	kowhai	PB3	4	9
<i>Uncinia uncinata</i>	hookgrass	PB3	0.5	100
TOTAL				1,136

1. Tall species

6.3.3 Area 2 Planting

Area 2 planting zone is located between Reflection Drive and the West Park Marina complex. This area is recommended for planting to minimise ongoing weed establishment in this area.

Table 3: Plant schedule for Area 2

Species	Common Name	Grade	Spacing (m)	Number
<i>Astelia banksii</i>	kakaha	PB3	0.75	29
<i>Blechnum novae-zelandiae</i>	kiokio	PB3	0.75	100
<i>Coprosma lucida</i>	shining karamu	PB3	0.75	86
<i>Coprosma robusta</i>	karamu	PB3	0.75	432
<i>Cordyline australis</i>	ti kouka, cabbage tree	PB3	0.75	173
<i>Corokia buddleoides</i>	korokio	PB3	0.75	173
<i>Cortaderia fulvida</i>	toetoe	RT	0.75	346
<i>Corynocarpus laevigatus</i>	karaka	PB3	0.75	35
<i>Cyathea dealbata</i>	ponga	PB3	0.75	35
<i>Dicksonia fibrosa</i>	wheki ponga	PB3	0.75	35
<i>Dicksonia squarrosa</i>	wheki	PB3	0.75	121
<i>Entelea arborescens</i>	whau	PB3	0.75	29
<i>Geniostoma rupestre</i>	hangehange	PB3	0.75	173
<i>Griselinia lucida</i>	puka	PB3	0.75	23
<i>Hedycarya arborea</i>	pigeonwood	PB3	0.75	173
<i>Leptospermum scoparium</i>	manuka	PB3	0.75	229
<i>Macropiper excelsum</i>	kawakawa	PB3	0.75	173
<i>Metrosideros perforata</i>	white rata	PB3	4	25
<i>Myoporum laetum</i>	ngaio	PB3	0.75	29
<i>Myrsine australis</i>	mapou	PB3	0.75	69
<i>Phormium tenax</i>	harakeke, flax	PB3	0.75	86
<i>Pomaderris kumerahou</i>	kumerahou	PB3	0.75	346
<i>Sophora microphylla</i>	kowhai	PB3	4	35
<i>Weinmannia silvicola</i>	towai	PB3	4	20
TOTAL				2,950

1. Tall species

6.4 Plant stock and availability

All plants should be sourced from the Waitakere or Tamaki Ecological Districts in line with Waitakere City Councils eco-sourcing Code of Practice.

Waitakere City Council has ordered plants in advance from local nurseries for supply in April 2006, and comprise a mix of root trainer and PB3 grade plants.

6.5 Plant spacing

Plant spacing should generally be at 0.75 metre centres (including any existing indigenous vegetation), ensuring relatively rapid canopy closure to assist reducing the opportunity for weed establishment. This equates to 17,500 plants per hectare.

Plant spacing for sedges on the immediate coastal margin (Zone 1a) should be at 0.5 m centres (40,000 plants per hectare) as these species are smaller when mature and require larger numbers to minimise the establishment of weed species, than do species that are larger when mature.

6.6 Weed suppressant material trial

Waitakere City Council is undertaking a trial using weed suppressant material in the Area 2 planting as part of their herbicide reduction strategy. This will involve installation of weed suppressant material in planting areas. Four sites, including a control site, have been selected (Figure 2). Trial areas will be located in rectangular areas and will be permanently marked with pegs during the trial period. Each trial area will cover approximately 100m².

7. TIMING

Timing is based on the Waitakere City Council financial year of 1 July to 30 June.

Year 1:

TASK	TIMING
1. Initial weed control	October – December
2. Follow up weed control	March – April
3. Site preparation (weedeating, rubbish clearance etc)	March – April
4. Planting	May – June

Year 2:

TASK	TIMING
1. Blanking (as required)	September
2. Ongoing follow up weed control and monitoring	October – November March-April

Years 3, 4 and 5:

TASK	TIMING
1. Ongoing follow up weed control and monitoring	October – November March – April

8. CONSENTS

8.1 Coastal Edge Natural Area

The majority of Marina Esplanade is designated as a 20m Coastal Edge Natural Area and Coastal Edge Buffer in the Waitakere District Plan. The following rule applies:

Rule 2.1 (c) states:

Activities meeting the following Performance Standards are *Permitted Activities*.

- “(c) any *vegetation alteration* of
- (i) *exotic vegetation* which is less than 6.0 metres in height and less than 600mm in girth (as measured at any point higher than 1.4m above the ground), and

- (ii) vegetation listed in the Environmentally Damaging Plants Appendix,

provided that any *clearance* does not exceed 10% of the Riparian Margin/Coastal Edge on the site.

Weed control operations in Marina Esplanade Reserve will not result in the clearance of more than 10% of vegetation within the Riparian Margin/Coastal Edge of the site. Therefore, no resource consent is required for the removal of the environmental weed species.

8.2 General Natural Area

Part of Marina Esplanade (area between Reflection Drive and West Park Marina) is designated as General Natural Area in the Waitakere District Plan. The following rule applies:

Rule 2.1.(a) states:

Activities meeting the following Performance Standards are *Permitted Activities*.

- “(a) any *vegetation alteration* of
- (i) *native vegetation* and *exotic vegetation* which is less than 6.0 metres in height and less than 600mm in girth (as measured at any point higher than 1.4m above the ground), and
 - (ii) vegetation listed in the Removable Vegetation Appendix and the Environmentally Damaging Plants Appendix,

provided that any *clearance* does not exceed a *total cleared area* of 500m², and is not in the Open Space Environment.”

The removal of gorse and pampas in Planting Area 2 will require a resource consent as this area exceeds 500 m².

REFERENCES

Agrichemical Users' Code of Practice: NZ Agrichemical Education Trust.

Auckland Regional Council: Pest Facts No.30: Plant Pests of the Auckland Region

Auckland Regional Council. 2002: Regional Pest Management Strategy 2002-2007

Auckland Regional Council: Riparian Zone Management Guidelines (TP148).

New Zealand Standard NZS 8409 2004: The Management of Agrichemicals.

Waitakere City Council, 2001: Eco-sourcing Code of Practice & Ethics

Wildland Consultants Ltd 2002a: Environmental Weed Management Plan for Opanuku Stream – Opanuku Reserve, Henderson Park, Shona Reserve, Vintage Reserve, Plumber Domain, Opanuku Stream Reserve, Border Road Esplanade Reserve, Palomino Reserve, Henderson Valley Park. *Wildland Consultants Ltd Contract Report no. 556*. 10pp plus maps.

Wildland Consultants Ltd 2002b: Environmental Weed Management Plan for Henderson Creek Reserves – Henderson Creek Esplanade Reserve, Flanshaw Esplanade Reserve, Sherwood Park, Colletta Esplanade, Epping Esplanade, Chilcott Brae, Tui Glen Reserve, Cranwell Park, Cranwell Esplanade and Falls Park. *Wildland Consultants Contract Report no. 558*. 12pp plus maps.

Wildland Consultants Ltd 2004: Weed Management Plan for Riparian Restoration Sites – Project Twin Streams. *Wildland Consultants Ltd Contract Report No. 870*. 33pp plus appendices.

APPENDIX 1

List of pest plant species recorded in Marina Esplanade.

Common name	Species
agapanthus	<i>Agapanthus praecox</i>
arum lily	<i>Zantedeschia aethiopica</i>
bear's breeches	<i>Acanthus mollis</i>
blackberry	<i>Rubus fruticosus</i> agg.
brush cherry	<i>Syzygium australe</i>
brush wattle	<i>Paraserianthes lophantha</i>
buttercup bush	<i>Senna multiglandulosa</i>
canna lily	<i>Canna indica</i>
China doll	<i>Rademacheria sinica</i>
Chinese privet	<i>Ligustrum sinense</i>
fruit salad plant	<i>Monstera deliciosa</i>
gazania	<i>Gazania linearis</i>
gorse	<i>Ulex europaeus</i>
hydrangea	<i>Hydrangea macrophylla</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
loquat	<i>Eriobotrya japonica</i>
macrocarpa	<i>Cupressus macrocarpa</i>
maritime pine	<i>Pinus pinaster</i>
Mexican devil	<i>Ageratina adenophora</i>
moth plant	<i>Araujia sericifera</i>
orange cestrum	<i>Cestrum aurantiacum</i>
pampas	<i>Cortaderia selloana</i>
Phoenix palm	<i>Phoenix canariensis</i>
radiata pine	<i>Pinus radiata</i>
red hot poker	<i>Kniphofia uvaria</i>
shrub balsam	<i>Impatiens sodenii</i>
three cornered garlic	<i>Allium triquetrum</i>
tradescantia	<i>Tradescantia fluminensis</i>
tree privet	<i>Ligustrum lucidum</i>
tuber ladder fern	<i>Nephrolepis cordifolia</i>
woolly nightshade	<i>Solanum mauritianum</i>

APPENDIX 2

RECOMMENDED CONTROL TECHNIQUES FOR SELECTED WEED SPECIES

Weed	Control Method(s)	Chemical(s)	Application Rate	Timing	Remarks
Agapanthus (<i>Agapanthus praecox</i>)	Dig out and dispose off site	-	-	Year round	Only if this can be done without posing a weed hygiene risk
	Knapsack – foliar spray	Grazon	100ml per 10 litres water plus 20ml pulse	October-March	Not when flowering or seeding
	Knapsack – foliar spray	Escort	5g per 10 litres water plus 20ml pulse	October-March	Not when flowering or seeding
Arum lily (<i>Zantedeschia aethiopica</i>)	Hand pull seedlings/small plants	-	-	Year round	Only if this can be done without posing a weed hygiene risk Monitor for re-growth. Spray immediately following cutting.
	Dig out and dispose off site	-	-	Year round	
	Cut and spray stems of large plants	Escort	5g per 10 litres water	October-March	
Blackberry (<i>Rubus fruticosus</i> agg.)	Knapsack – foliar spray	Escort	5g per 10 litres water	December-April	
	Knapsack – foliar spray	Grazon	60ml per 10 litres water	December-April	
Brush cherry (<i>Syzygium australe</i>)	Handpull seedlings/small plants	-	-	Year round	
	Cut and treat stumps	Grazon	1 part Grazon to 20 parts water	October-April	
	Drill and inject	Escort	20g Escort per litre water, plus 2 ml pulse	October – April	
Brush wattle (<i>Paraserianthes lophantha</i>)	Handpull seedlings/small plants	-	-	Year round	
	Cut and treat stumps	Grazon	1 part Grazon to 20 parts water	October-April	
	Drill and inject	Escort	20g Escort per litre water, plus 2 ml pulse	October – April	
Buttercup bush (<i>Senna multiglandulosa</i>)	Handpull seedlings/small plants	-	-	Year round	

A101

Weed	Control Method(s)	Chemical(s)	Application Rate	Timing	Remarks
	Cut and treat stumps	Grazon	1 part Grazon to 20 parts water	October-April	
Canna lily (<i>Canna indica</i>)	Dig out and dispose off site	-	-	Year round	Monitor for re-growth
China doll (<i>Radermacheria sinica</i>)	Handpull seedlings/small plants	-	-	Year round	
	Cut and treat stumps	Grazon	1 part Grazon to 20 parts water	October-April	
Cestrum (<i>Cestrum</i> spp.)	Handpull seedlings/small plants	-	-	Year round	
	Cut and treat stumps	Grazon	1 part Grazon to 20 parts water	October-March	
Chinese privet (<i>Ligustrum sinense</i>)	Seedlings – hand pull	-	-	November-April	
	Trees – drill and inject	Escort	20g Escort per litre water, plus 2ml pulse	November-April	
	Saplings - cut and stump treat	Grazon	1 part Grazon to 20 parts water	November-April	
Fruit salad plant (<i>Monstera deliciosa</i>)	Handpull seedlings/small plants	-	-	Year round	
	Cut and treat stump	Grazon	1 part Grazon to 20 parts water	October-March	
Gazania (<i>Gazania linearis</i>)	Knapsack – foliar spray	Escort	5g per 10 litres water	November-March	
Gorse (<i>Ulex europaeus</i>)	Knapsack – foliar spray	Escort	5g per 10 litres water plus 10mls pulse	Year round	Only foliar spray where non-target species are not present
	Cut and treat stumps	Grazon	1 part Grazon to 20 parts water	Year round	
Japanese honeysuckle (<i>Lonicera japonica</i>)	Knapsack – foliar spray	Versatill	40-50mls Versatill to 10 litres water	October-March	Pull away from non-target species before spraying. Spray to run off. Ensure no epiphytic attachment.
	Cut and treat stems	Grazon	1 part Grazon to 20 parts water	October-March	Do not pull cut vegetation from host plant
Loquat (<i>Eriobotrya japonica</i>)	Handpull seedlings/small plants	-	-	Year round	


A102

Weed	Control Method(s)	Chemical(s)	Application Rate	Timing	Remarks
	Cut and treat stump	Grazon	1 part Grazon to 20 parts water	October-March	
Macrocarpa (<i>Cupressus macrocarpa</i>)	Handpull seedlings/small plants	-	-	Year round	
	Ring bark or fell	-	-	Year round	
Mexican devil (<i>Ageratina adenophora</i>)	Knapsack – foliar spray	Glyphosate	100ml per 10 litres water	October-March	
Moth plant (<i>Araujia sericifera</i>)	Cut and treat stump	Escort	1 part Grazon to 20 parts water	October-March	Leave cut vegetation in host to die off. Remove seed pods if possible.
	Cut and treat stump	Picloram (Vigilant gel)	Apply gel to cut stem	October-March	Leave cut vegetation in host to die off. Remove seed pods if possible.
Pampas (<i>Cortaderia selloana</i> , <i>C. jubata</i>)	Knapsack – foliar spray	Glyphosate	10ml per litre water	October-March best results	Use clean water and thoroughly soak centre of large plants.
	Knapsack – foliar spray	Gallant	150ml per 10 litres water plus crop oil	October-March	Best on smaller plants.
Phoenix palm (<i>Phoenix canariensis</i>)	Seedlings – hand pull	-	-	November-April	
	Cut and stump treat	Grazon	1 part Grazon to 20 parts water	November-April	
Pine (<i>Pinus</i> spp.)	Handpull seedlings/small plants	-	-	Year round	
	Ring bark or fell	-	-	Year round	
Red hot poker (<i>Kniphofia uvaria</i>)	Foliar spray	Escort	5g per 10 litres water	October-March	
Shrub balsam (<i>Impatiens sodenii</i>)	Cut and treat stumps	Escort	5g per litre water	October-March	
Three cornered garlic (<i>Allium triquetrum</i>)	Knapsack – foliar spray	Grazon	15ml per 10 litres water	September-December	
Tradescantia (<i>Tradescantia fluminensis</i>)	Knapsack – foliar spray	Grazon	10ml per litre water + 2ml Pulse per litre water	November-March	Pull away from non-target species before spraying.
Tree privet (<i>Ligustrum lucidum</i>)	Cut and treat stumps	Grazon	1 part Grazon to 20 parts water	November-March	
	Drill and inject	Escort	20g Escort per litre water, plus 2ml pulse	November-March	

A103

Weed	Control Method(s)	Chemical(s)	Application Rate	Timing	Remarks
Tuber ladder fern (<i>Nephrolepis cordifolia</i>)	Knapsack – foliar spray	Escort	5g per 10 litres water	March to May	
Woolly nightshade (<i>Solanum mauritianum</i>)	Seedlings/small plants – hand pull	-	-	Year round	
	Trees – drill and inject	Escort	20g Escort per litre water, plus 2ml pulse	Year round	
	Saplings - cut and treat stump	Picloram (Vigilant gel)	Apply gel to cut stems	Year round	
	Saplings - cut and treat stump	Grazon	1 part Grazon to 20 parts water	Year round	

A1014



WEED MANAGEMENT AND PLANTING
PLAN FOR WEST HARBOUR
ESPLANADE RESERVE

AUGUST 2005

Contract Report No. 1157

Report prepared for

WAITAKERE CITY COUNCIL
PRIVATE BAG 93-109
HENDERSON
WAITAKERE CITY



WILDLAND CONSULTANTS LTD, 15C/2 SATURN PLACE, PO BOX 303 376, NORTH HARBOUR
Ph 09 448 5996, Fax 09 448 5997

99 SALA STREET, P.O. BOX 7137, TE NGAE, ROTORUA
Ph 0508 WILDNZ, Fax 07-343-9018, email ecology@wildlands.co.nz, www.wildlands.co.nz

A105

CONTENTS

1.	INTRODUCTION	1
2.	PROJECT OBJECTIVES	1
3.	BACKGROUND	1
4.	METHODOLOGY	1
	4.1 Environmental weed survey	1
	4.2 Recommended areas for planting	2
5.	ENVIRONMENTAL PEST PLANTS	2
	5.1 Distribution and abundance	2
	5.2 Pest plant control priorities	4
	5.3 Pest plant management recommendations	5
	5.4 Erosion and sediment control	9
	5.5 Disposal of material	9
6.	PLANTING RECOMMENDATIONS	9
	6.1 Site preparation	9
	6.2 Maintenance	10
	6.3 Plant schedules	12
	6.3.1 Coastal Margin Upper Slope	12
	6.4 Plant stock and availability	14
	6.5 Plant spacing	14
7.	TIMING	14
8.	CONSENTS	15
	8.1 Protected Natural Area	15
	8.2 Coastal Edge Natural Area	15
	REFERENCES	16
	APPENDICES	
1.	List of pest plant species recorded in West Harbour Esplanade	17
2.	Recommended control techniques for selected weed species	18

© Wildland Consultants Ltd 2005

This report has been produced by Wildland Consultants Ltd for Waitakere City Council, in whom copyright is vested. The right of Wildland Consultants Ltd to be identified as the authors of this report in terms of Section 96 of the Copyright Act 1994 is hereby asserted.

1. INTRODUCTION

Wildland Consultants Ltd was engaged to map environmental pest plant distributions and identify areas for planting in West Harbour Esplanade, West Harbour, Waitakere City, in preparation for weed control and planting in 2006. Weed species present within the reserve were identified and their distribution and abundance mapped and described.

Recommended areas for planting within the reserves were identified and mapped. Plant schedules of suitable plant species were prepared.

A staged programme of weed control and planting was prepared. Resource consents requirements and any other consents necessary in order to undertake vegetation control and planting preparation were identified.

2. PROJECT OBJECTIVES

- Map the distribution and density of invasive or environmental weeds of Waitakere (Figure 1)
- Identify and recommend areas for planting, including suitable species.
- Compile a staged programme of weed control and planting.
- Identify resource consent requirements or any other consents necessary in order to undertake vegetation control and planting preparation.

3. BACKGROUND

West Harbour Esplanade (8.84 ha) is located on the margin of the upper Waitemata Harbour and extends from Luckens Reserve in the north to Moire Park in the west. The reserve mostly comprises a strip of coastal vegetation and grassed areas. A public footpath runs along part of the reserve between West Harbour Drive and Constable Lane. There is also a public footpath from Renoir Street to the shoreline. Some parts of the reserve comprise steep slopes above the coast.

Weed control has been undertaken in several areas of the reserve in the past.

4. METHODOLOGY

4.1 Environmental weed survey

The project area was surveyed for environmental pest plants in July 2005. Areas where revegetation planting should be undertaken were also identified.

Environmental weeds are adventive species that threaten the ecological processes and values within the project area.

Field survey methods were based on previous pest plant inventories undertaken by Wildland Consultants Ltd (2002a, 2002b, 2004). The field survey involved a walk through the project area noting locations and distributions of pest plants. During the survey, particular attention was given to the margins of the reserve, clearings within the reserve and areas of previous weed control operations as these areas are most vulnerable to pest plant invasion/re-invasion.

Environmental weed distributions and densities were mapped in the field onto hard copy prints of digital orthophotographs. The maps were then used for data input into ArcGIS 8.3 (GIS programme). The distribution of each environmental weed species was digitised. Weed species were labelled with their common name and a brief description of the extent of the infestation, either as a percentage cover or as a number of individuals, overlain on the aerial photograph. A map showing weed distribution and density was prepared and is presented in Figure 1.

The relative priority for the control of each environmental pest plant infestation has been assessed based on the Auckland Regional Pest Management Strategy (ARC 2002), the ecological values of the infestation area, the relative vulnerability of the vegetation and habitats present, the level of threat posed by the pest plant species, and the size of the infestation.

Weed species were identified along with their relative priority for control. Weed species were then grouped by priority level (see Section 5.2 below).

4.2 Recommended areas for planting

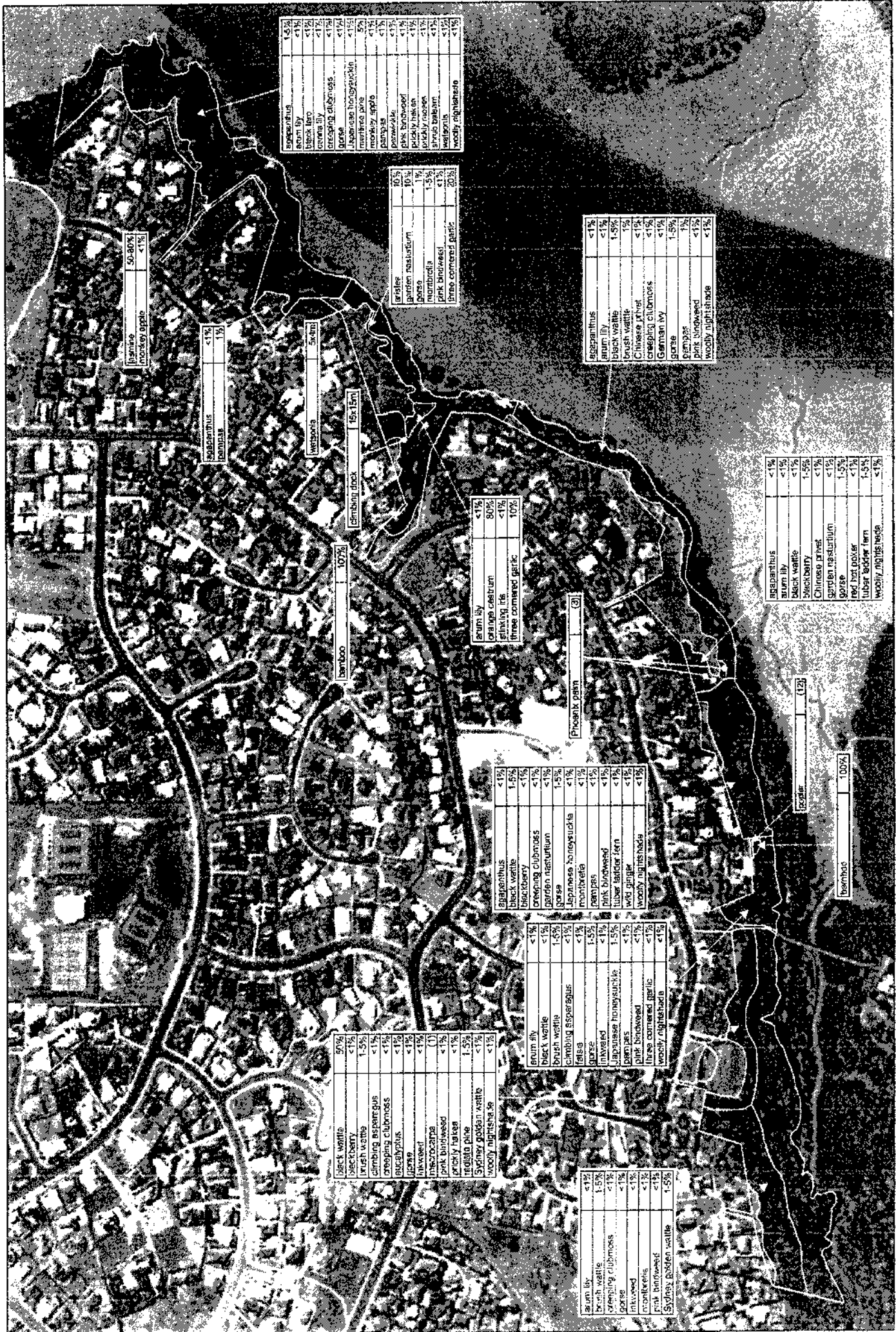
Areas suitable for planting were identified during the field survey. Areas recommended for planting include areas where weed infestations will be an ongoing problem and open areas within existing plantings/vegetation. A map showing recommended planting locations was prepared and is presented in Figure 2. One area was identified for planting (comprising two sub-units) during the survey.

Waitakere City Council has ordered a range of plant species from a local nursery for planting projects throughout the city's parks and reserves in 2006. Planting schedules detailing suitable species from this plant supply list were compiled and are presented in Section 6.3.

5. ENVIRONMENTAL PEST PLANTS

5.1 Distribution and abundance

Forty species were identified as pest plant species and their relative priority for control has been identified. The distribution and abundance of weed infestations in West Harbour Esplanade is presented in Figure 1.



agapanthus	1.5%
arum lily	<1%
black wattle	<1%
brush wattle	<1%
climbing fig	<1%
gorse	<1%
Japanese honeysuckle	<1%
manringo pine	<1%
monkey apple	5%
ponytail	<1%
pyramidal	<1%
pink birchwood	<1%
prickly hakea	<1%
prickly nassella	<1%
shrub balmint	<1%
wedgelia	<1%
woolly nightshade	<1%

garlic	10.5%
garden nasturtium	10.5%
gorse	1%
macbratida	1.5%
pink blueweed	4.5%
three cornered garlic	30.5%

agapanthus	<1%
arum lily	<1%
black wattle	1.5%
brush wattle	1%
Chinese privet	<1%
creeping clubmoss	<1%
Gambian ivy	<1%
gorse	1.5%
manringo	1%
pink blueweed	<1%
woolly nightshade	<1%

banana	50.80%
monkey apple	4.1%

agapanthus	<1%
banana	1%

veronica	5.1%
----------	------

climbing dock	15-15%
---------------	--------

bamboo	10.7%
--------	-------

arum lily	<1%
orange caesium	80%
pink holly leaf	<1%
three cornered garlic	10%

Phoenix palm	3%
--------------	----

agapanthus	<1%
arum lily	<1%
black wattle	<1%
blackberry	1.5%
Chinese privet	<1%
garden nasturtium	<1%
gorse	1.5%
red hot poker	<1%
tuber loddier fern	1.5%
woolly nightshade	<1%

agapanthus	<1%
black wattle	1.5%
blackberry	<1%
creeping clubmoss	<1%
garden nasturtium	<1%
gorse	1.5%
Japanese honeysuckle	<1%
manringo	4.1%
manringo	<1%
pink blueweed	<1%
tuber loddier fern	<1%
wild ginger	<1%
woolly nightshade	<1%

Regina	1.2%
--------	------

bamboo	100%
--------	------

black wattle	50%
blackberry	<1%
brush wattle	1.5%
climbing fig	<1%
creeping clubmoss	<1%
gaulthier	<1%
honeyeater	<1%
manringo	1%
prickly hakea	<1%
regatta pine	<1%
Sydney golden wattle	1.5%
woolly nightshade	<1%

arum lily	<1%
black wattle	<1%
brush wattle	1.5%
climbing fig	<1%
gorse	1.5%
invaded	<1%
Japanese honeysuckle	1.5%
manringo	<1%
pink blueweed	<1%
three cornered garlic	<1%
woolly nightshade	<1%

arum lily	<1%
brush wattle	1.5%
creeping clubmoss	<1%
gorse	<1%
invaded	<1%
pink blueweed	<1%
Sydney golden wattle	1.5%

Figure 1. Distribution and Abundance of Pest Plants in West Harbour Esplanate

A109

5.2 Pest plant control priorities

Class One

Environmental pest plants that are Total Control pest plant species and Containment pest plant species identified in the Auckland Regional Council's Regional Pest Management Strategy (ARC 2002). Whilst Auckland Regional Council are required to control Total Control pest plant species, landowners have a requirement to control Containment pest plant species.

One Class One pest plant species was recorded in West Harbour Esplanade.

- woolly nightshade (*Solanum mauritianum*) (Containment pest plant species – Removal)

Class Two

Environmental pest plant species are those present in low numbers for which total control in the study area is feasible, and those that are potential or actual threats to the ecological processes or values of the reserve. Pest plant species for which there is little or no information on their ecological role(s), but which may pose a threat, have also been included in this class (based on field observations).

- agapanthus (*Agapanthus praecox*)
- aristeia (*Aristea ecklonii*)
- arum lily (*Zantedeschia aethiopica*)
- black taro (*Alocasia* sp.)
- canna lily (*Canna indica*)
- Chinese privet (*Ligustrum sinense*)
- climbing asparagus (*Asparagus scandens*)
- climbing dock (*Rumex sagittatus*)
- cotoneaster (*Cotoneaster glaucophyllus*)
- creeping clubmoss (*Selaginella kraussiana*)
- fatsia (*Fatsia japonica*)
- German ivy (*Senecio mikanioides*)
- Japanese honeysuckle (*Lonicera japonica*)
- monkey apple (*Acmena smithii*)
- montbretia (*Crocasmia x crocosmiiflora*)
- pampas (*Cortaderia selloana*)
- Phoenix palm (*Phoenix canariensis*)
- prickly hakea (*Hakea sericea*)
- prickly Moses (*Racosperma verticillatum*)
- red hot poker (*Kniphofia uvaria*)
- shrub balsam (*Impatiens sodenii*)
- stinking iris (*Iris foetidissima*)
- tuber ladder fern (*Nephrolepis cordifolia*)