

sketch ideas

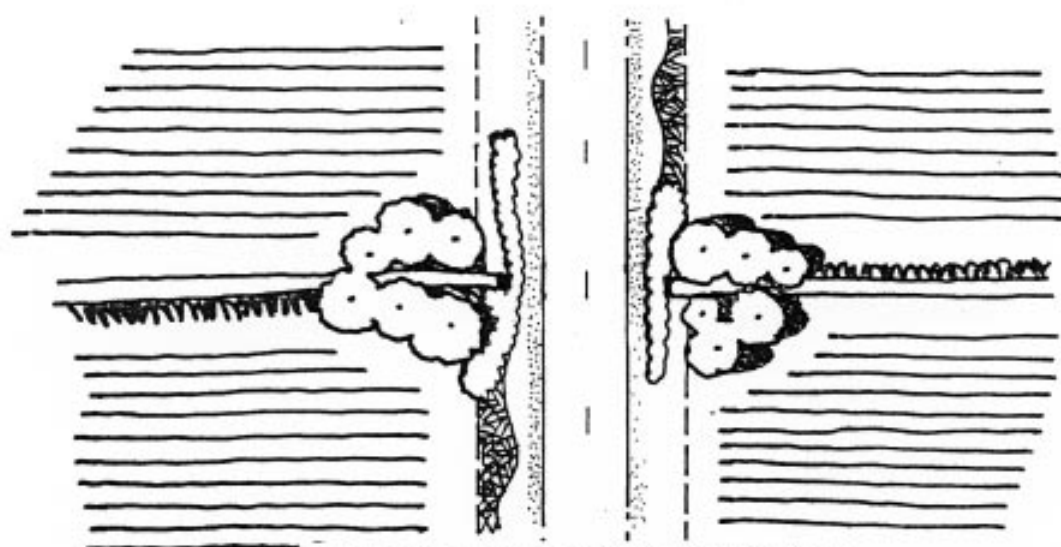
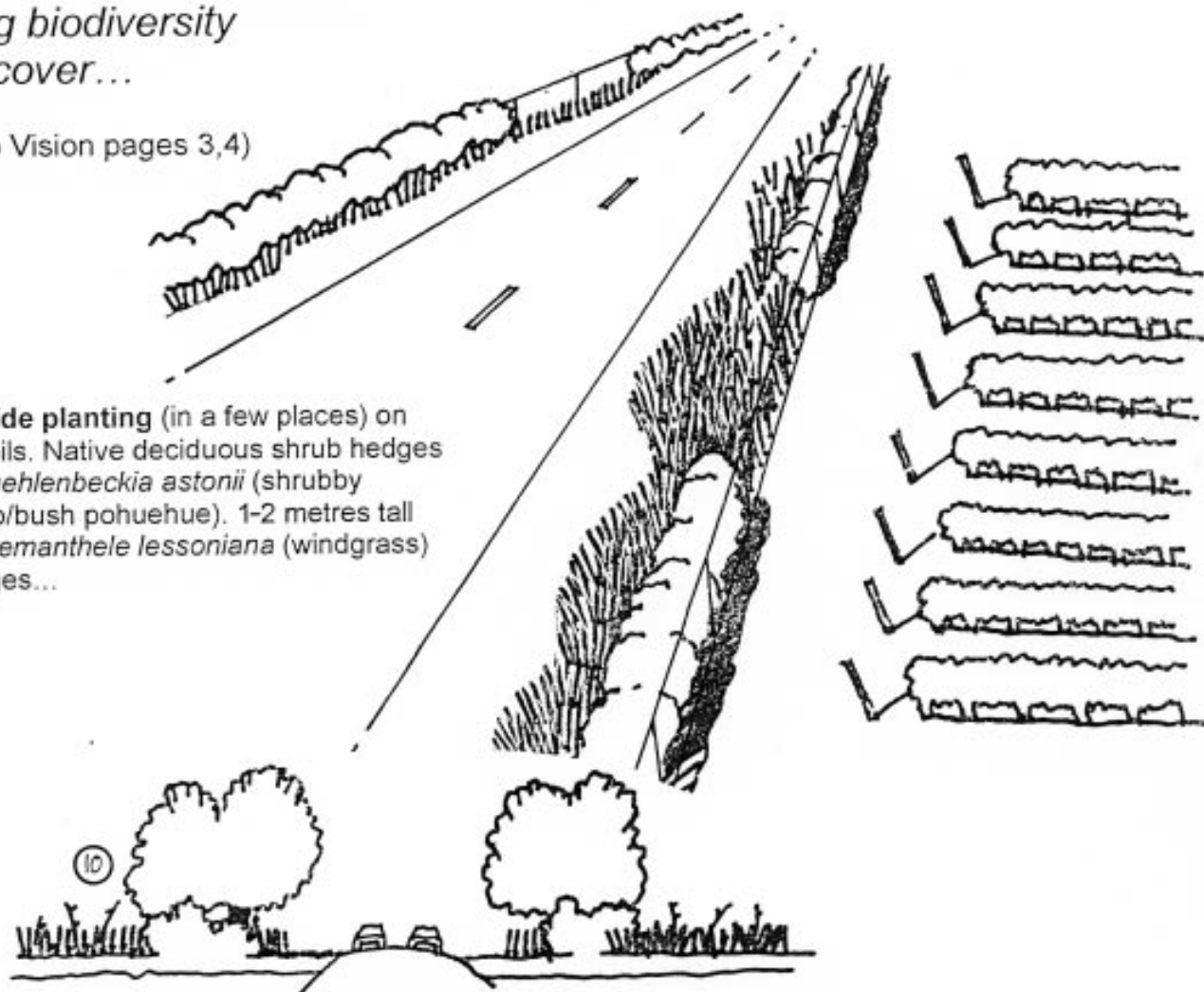
PLANTING OPPORTUNITIES

to contribute to a landscape framework and ecological health, increasing biodiversity and tree cover...

(no's refer to Vision pages 3,4)

9

Roadside planting (in a few places) on drier soils. Native deciduous shrub hedges e.g. *Muehlenbeckia astonii* (shrubby tororaro/bush pohuehue). 1-2 metres tall and *Anemanthele lessoniana* (windgrass) on verges...



10

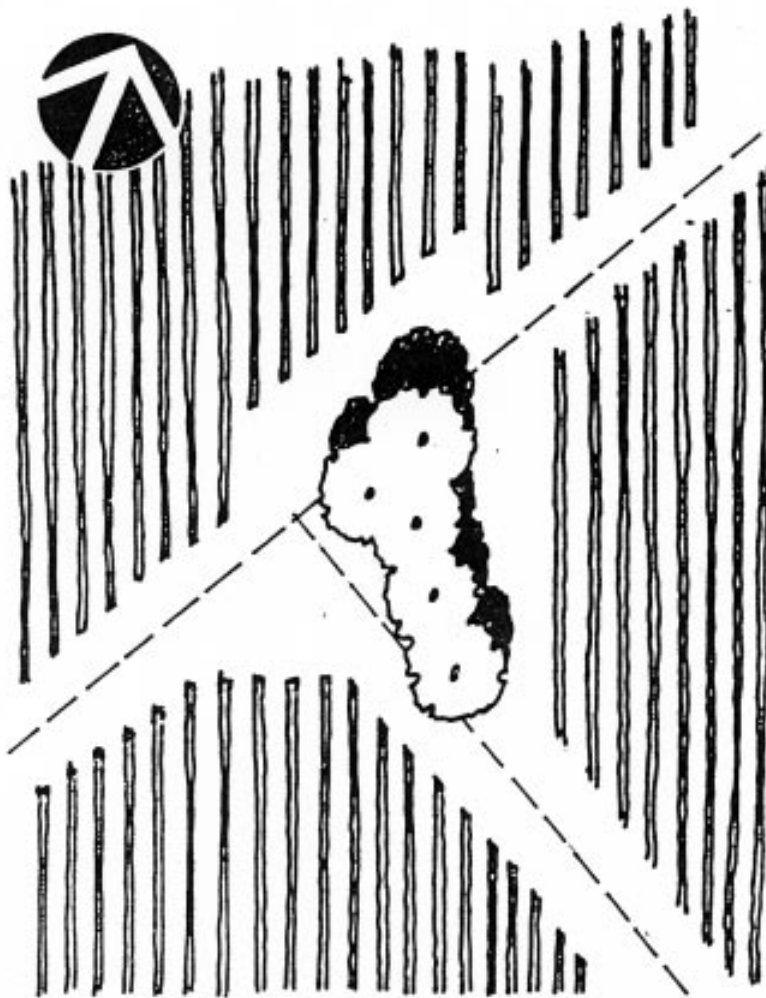
Expanding planting linkages. Continue watercourse under road via a culvert and keep planting going on other side of road along the watercourse...



sketch ideas PLANTING OPPORTUNITIES

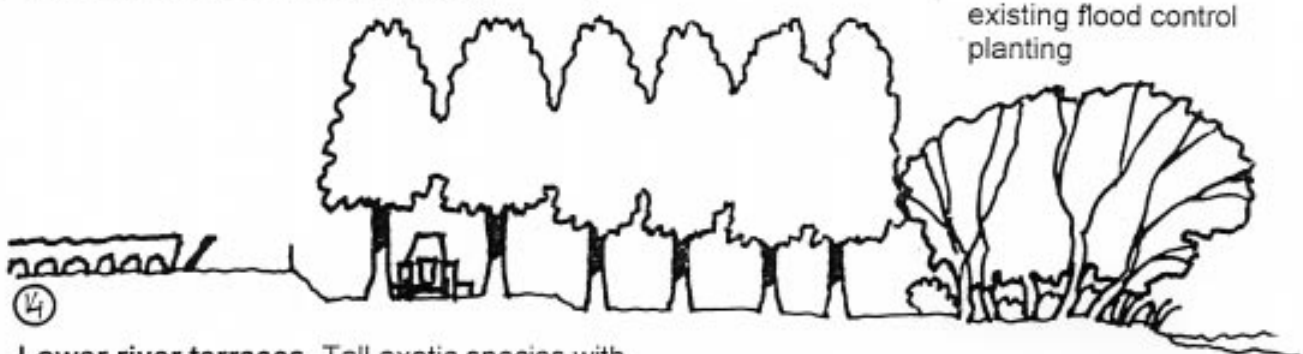
to contribute to a landscape framework and ecological health, increasing biodiversity and tree cover...

(no's refer to Vision pages 3,4)



④

Vineyard copse opportunities. Plant deciduous trees roughly aligned north-south...



④

Lower river terraces. Tall exotic species with clear trunks spaced so that a tractor and mower can maintain...

⑤

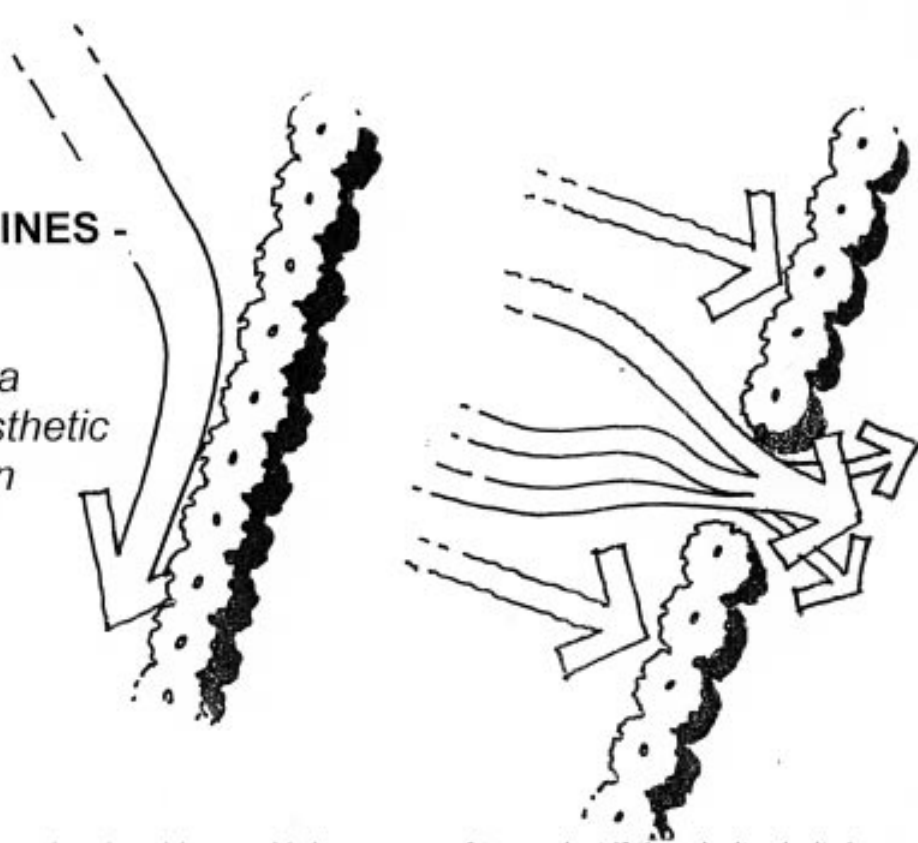
Change of slope planting opportunity. Plant deciduous trees with an underplanting of native grasses...



sketch ideas

PLANTING GUIDELINES - THE ELEMENT OF SHELTER

*to help contribute to a
logical, practical, aesthetic
shelter and specimen
tree framework*



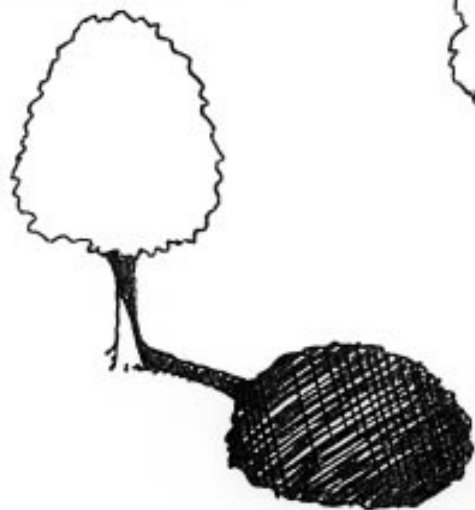
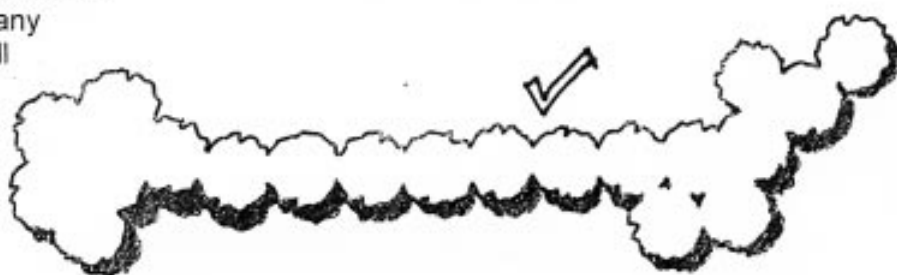
Shelterbelts. Not only are there visual problems with long rows of trees, but if the shelter belt does not lie at right angles to the path of the wind, then the wind can be accelerated along the belt. If the long row is broken by a gap for a gateway or power lines, this gap will become a wind funnel.

Where rows of windbreak planting are required, always try to run them *with* the lines of the land – the valleys, terraces, swales, waterways, soil boundaries, etc. A layout that does not relate to the landform will soon dominate the landscape. Permeable windbreaks of rounded form and soft colour will disrupt the landscape less than windbreaks of dark, dense, formal trees. Generally, broadleaved trees are less disruptive than conifers.

A straight row shelterbelt or roadway planting, should not suddenly start or stop. Each belt needs to be linked with other plantings, having a wider end group, and continue some way in another direction. If only lineal plantings are used, considerable care is needed with their siting as any straight line or geometric shape will become a dominant element



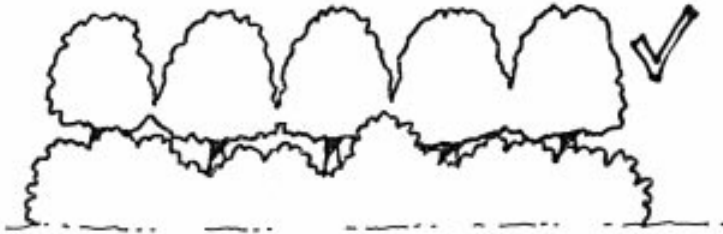
Avoid abrupt, straight shelterbelts



Deciduous trees with clear trunks at least 4m high provide good stock shade. The shade is projected away from the base of the tree and moves around during the day. The stock move with the shadow so that their camping is not concentrated in one place. Winter shade is minimal.

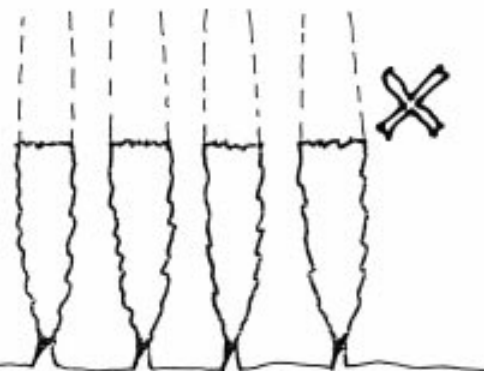
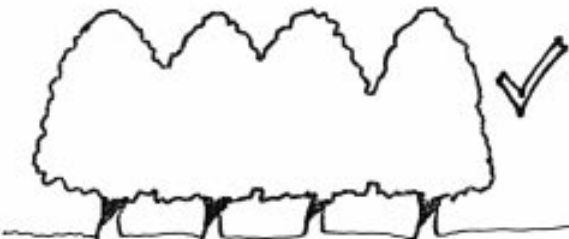


Add lower, denser shelter to the high permeable trees only if absolutely necessary, such as for critical stock or crop shelter. Any density immediately cuts the visual landscape flow (and could pond cold air). Soft form and colour in the lower storey is essential — never use conifers. If an understory is needed, use a mixture of the local native trees and shrubs e.g. South Island kowhai, tarata, kohuhu, manatu, kapuka, karamu, koromiko, mikimiki, shrubby tororaro, taupata, harakeke and toetoe, possibly adding some multi-use exotic plants such as fruiting, bee and stock fodder trees and shrubs.



Fussy, garden-style ornamental trees and shrubs should not be added to shelter belts or roadside plantings as they do not suit the broad rural landscape. Mix species informally in all plantings: never alternate different kinds.

Relatively even tree height is desirable for effective shelter. But avoid topping or hedging trees. Instead, plant trees that will grow to the desired height.



sketch ideas
**PLANTING GUIDELINES -
 THE ELEMENT OF SHELTER**
*to help contribute to a logical,
 practical, aesthetic
 shelter and specimen tree framework*

Expanding planting linkages (detail)

Maximise the planting opportunities wherever you can, and try to create linkages that will benefit both the ecological and the aesthetic.

Try and create a native grouping that has a dense surrounding to discourage predators from entering, and maximise the calm space inside.

When designing the plant layout, work outwards, keeping the long term taller tree species e.g. totara and matai, in the centre amongst other shade tolerant trees and shrubs, graduating outwards to the more hardy trees and shrubs that will tolerate climatic extremes better e.g. manatu, houhere, kohuhu, kapuka, tarata, ti kouka.

As you emerge from the forest 'patch' use the sun-loving smaller leafy and divaricating shrubs, karamu, koromiko, mikimiki and shrubby pohuehue amongst the flax-like plants and finally fringe with a range of low grasses massed separately in clumps, planted closely together and punctuate with the occasional kowhai.

Use soft frangible plants on the road verge such as massed grasses and flax-like plants, and, furthest from the road, cabbage trees in small groupings. On the steeper stream banks inside, mass plant with sedges and hardy shield ferns and at the toe of the bank where the water interface is, plant up with rushes.

This general layout philosophy could apply to any native grouping that one may wish to add to the Wairau Plain.

Plants from the 'SHORT LIST'

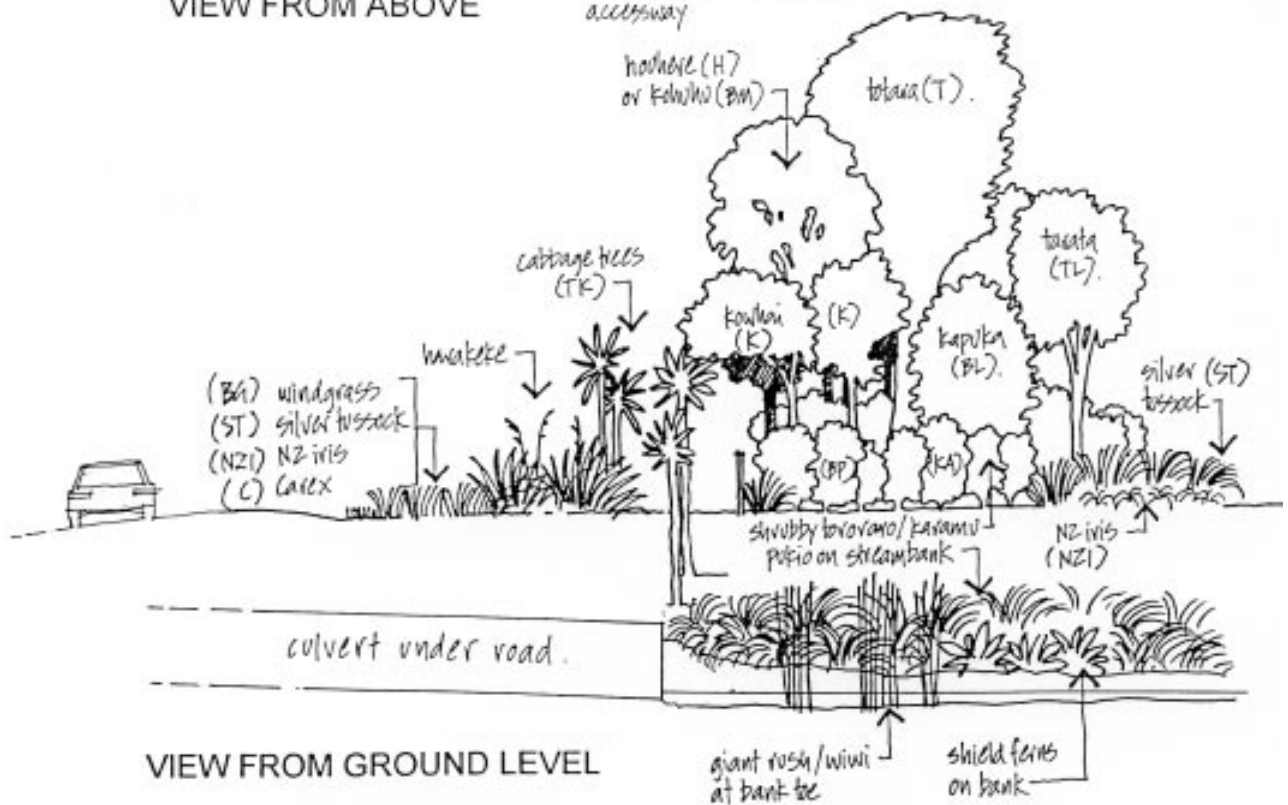
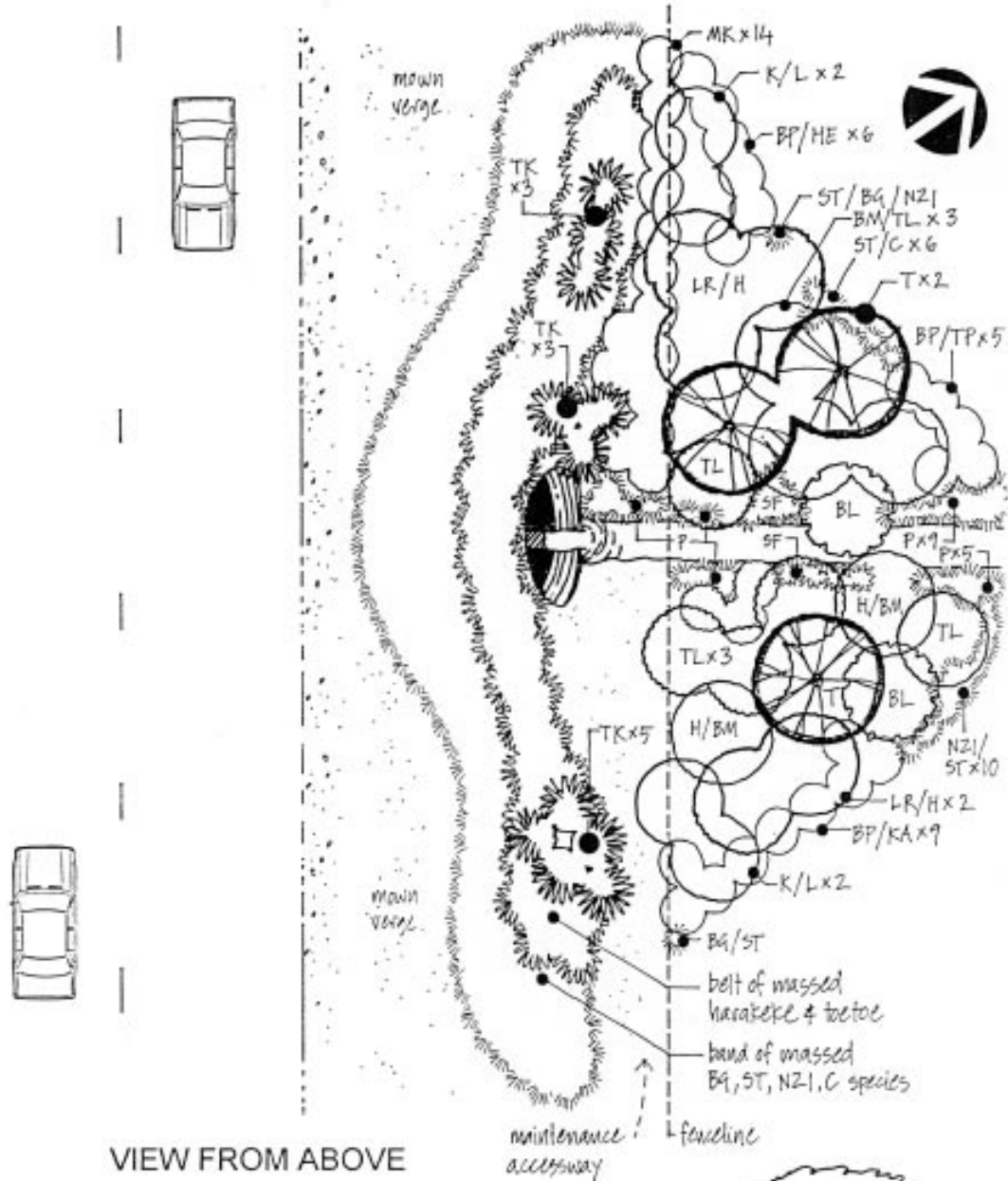
code	common name	botanical name
Trees (greater than 5 metres tall)		
H	houhere, narrow-leaved lacebark	<i>Hoheria angustifolia</i>
BL	kapuka, broadleaf	<i>Griselinia littoralis</i>
BM	kohuhu, black matipo	<i>Pittosporum tenuifolium</i> spp <i>tenuifolium</i>
L	lancewood, horoeka	<i>Pseudopanax crassifolius</i>
LR	manatu, lowland ribbonwood	<i>Plagianthus regius</i>
K	South Island kowhai	<i>Sophora microphylla</i>
TL	tarata, lemonwood	<i>Pittosporum eugenoides</i>
TK	ti kouka, cabbage tree	<i>Cordyline australis</i>
T	totara	<i>Podocarpus totara</i>
Shrubs (from 1 to 5 metres tall)		
KA	karamu	<i>Coprosma robusta</i>
HE	koromiko	<i>Hebe salicifolia</i>
MK	mikimiki, mingimingi	<i>Coprosma propinqua</i>
BP	shrubby tororaro/bush pohuehue	<i>Muehlenbeckia astonii</i>
TP	taupata (pre-European introduction)	<i>Coprosma repens</i>
Groundcovers & flax-like plants (less than 3 metres tall)		
BG	bamboo grass, windgrass	<i>Anemanthele lessoniana</i>
C	carex	<i>Carex comans</i>
C	carex	<i>Carex testacea</i>
	harakeke, NZ flax	<i>Phormium tenax</i>
NZI	NZ iris, mikoikoi	<i>Libertia ixioides</i>
P	pukio, makura, tussock sedge	<i>Carex secta</i>
SF	shield ferns; pikopiko; puniu	<i>Polystichum richardii</i> ; <i>P. vestitum</i>
ST	silver tussock, wiwi	<i>Poa cita</i>
	toetoe	<i>Cortaderia richardii</i>
	wiwi, giant rush	<i>Juncus pallidus</i>

sketch ideas

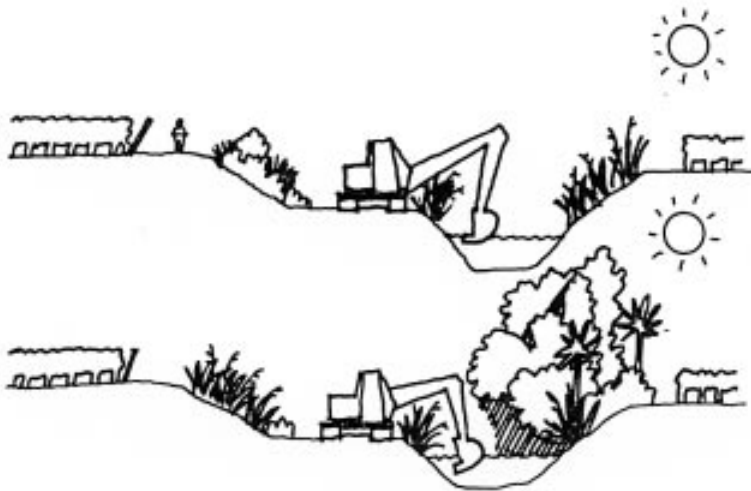
PLANTING OPPORTUNITIES

to contribute to a landscape framework and ecological health,
increasing biodiversity and tree cover...

(in reference particularly to point 10, 'A Wairau Plain Vision' pages 5 6)



sketches illustrating RIPARIAN TREATMENT for various types of waterways



Large waterways

Good

- Planting on 'non-productive' slopes
- Leave terrace open for access to maintain
- Potential cycleway on level above

Better

- Full riparian corridor on northern side to shade stream as much as possible



Typical existing situation

- Narrow slot drain, steep sided
- Little opportunity for riparian planting
- Closely fenced, very little shade
- Minimum habitat value
- Minimal buffers to nutrient runoff

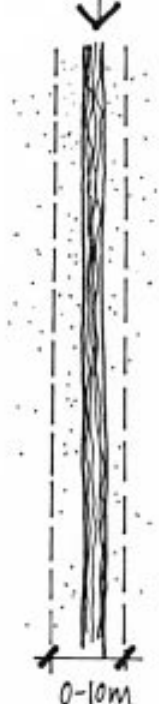
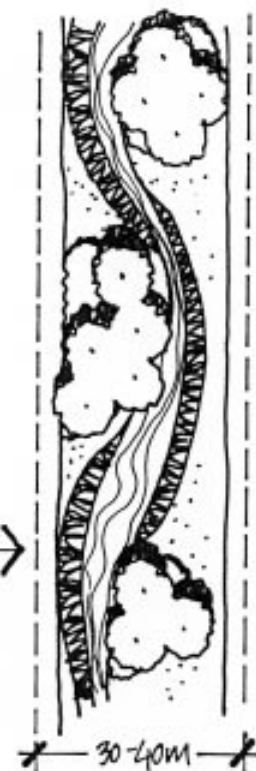


Small waterways

- Plant in clumps and drifts to enable access points for maintenance work
- Plant in between clumps with low grasses e.g. flax / sedges

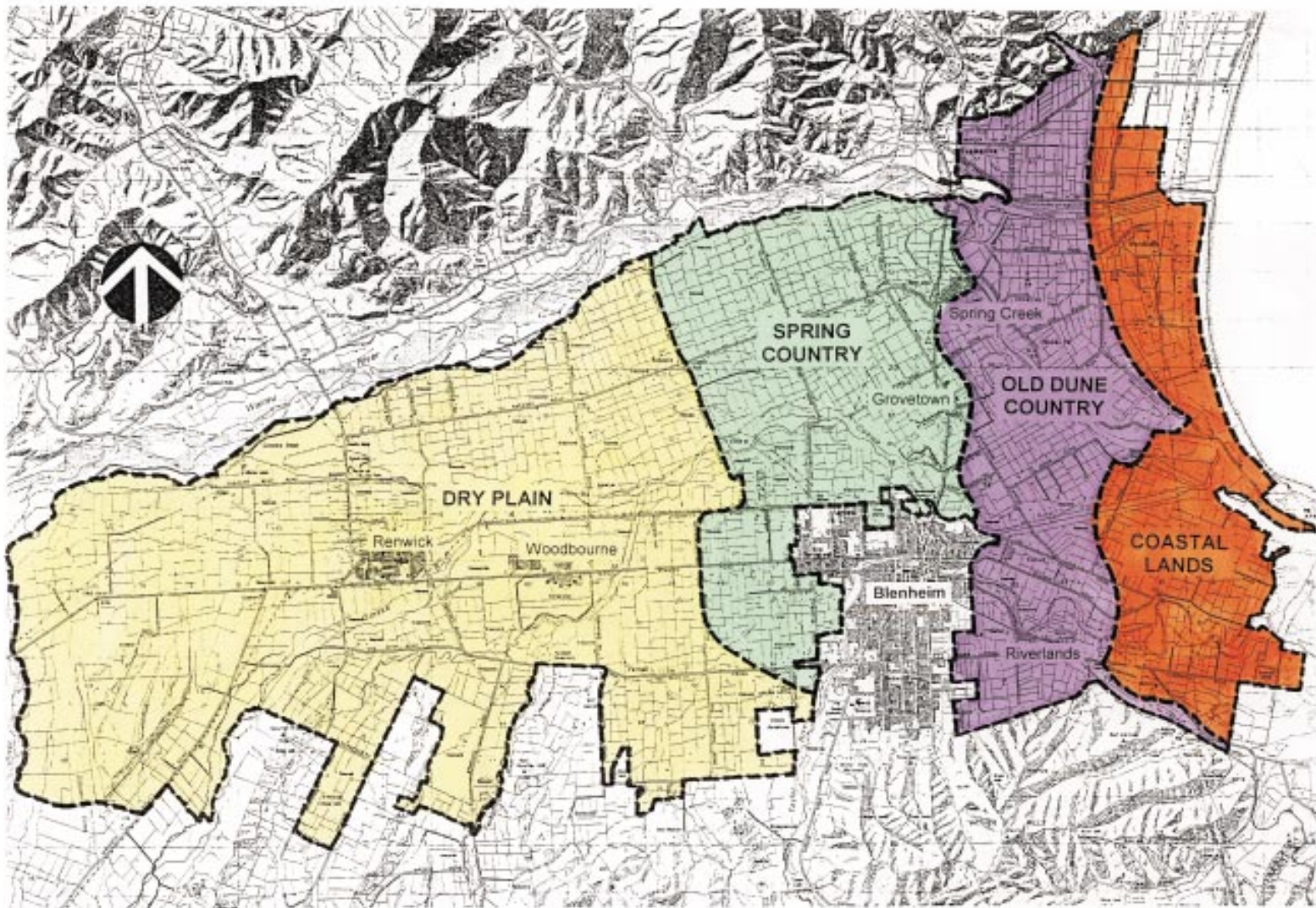
Potential situation

- Widen corridor and encourage meanders to reestablish; *through excavation (initially), then natural processes*
- Increased scope for larger scale shade planting etc. in clumps
- Semi-continuous belts of flax/sedges on banks
- Keep areas for sporadic access with excavator



Wairau Plain
Landscape Concept GUIDELINES

TYPES OF COUNTRY



NATIVE PLANTS FOR THE WAIRAU PLAIN

the 'short list' of recommended species to use in all types of country...

common name	botanical name	food	tolerances	use	notes
TREES (greater than 5 metres tall)			sun shade moist dry wind		
houhere, narrow-leaved lacebark	<i>Hoheria angustifolia</i>	F,I	■ ½ ■ ■ ■	1 st	AQFUSJ
kapuka, broadleaf	<i>Griselinia littoralis</i>	F,B,N,I	■ ■ ■ ■ ■	2 nd	ALHS
kohuhu, black matipo	<i>Pittosporum tenuifolium</i> spp <i>tenuifolium</i>	F,I	■ ■ ■ ■ ■	1 st	QUHS
lancewood, horoeka	<i>Pseudopanax crassifolius</i>	F,B,N,I	■ ½ ■ ■ ■	2 nd	AQUJ
manatu, lowland ribbonwood	<i>Plagianthus regius</i>	F,I	■ ½ ■ ½ ■	1 st	AQDFUHS
South Island kowhai	<i>Sophora microphylla</i>	N	■ ½ ½ ■ ■	2 nd	½ DFJT
tarata, lemonwood	<i>Pittosporum eugenioides</i>	F,I	■ ■ ½ ■ □	1/2	AQULHS
ti kouka, cabbage tree	<i>Cordyline australis</i>	F,N,I	■ ½ ■ ■ ■	1 st	AQFUP
totara	<i>Podocarpus totara</i>	F,N,B,I	■ ■ ■ ■ ■	2 nd	AUHS
SHRUBS (from 1 to 5 metres tall)					
karamu	<i>Coprosma robusta</i>	F	■ ■ ■ ■ ■	1 st	QBHS
koromiko	<i>Hebe salicifolia</i>	I	■ ½ ½ ½ ■	1 st	QFHT
mikimiki, mingimingi	<i>Coprosma propinqua</i>	F,I,L	■ ■ ■ ■ ■	1 st	AQBHST
shrubby tororaro/bush pohuehue	<i>Muehlenbeckia astonii</i>	F,N,L	■ □ ½ ■ ■	1 st	AQDHT
taupata (pre-European introduction)	<i>Coprosma repens</i>	F	■ ■ ■ ½ ■	1 st	AQLBH
GROUNDCOVERS & FLAX-LIKE PLANTS (less than 3 metres tall)					
bamboo grass, windgrass	<i>Anemanthele lessoniana</i>		½ ■ ■ ½ ½	1 st **	AQJ
carex	<i>Carex comans</i>	F	■ ½ □ ■ ■	1 st	AQJ
carex	<i>Carex testacea</i>		■ □ □ ■ ■	1 st	AQJ
harakeke, NZ flax	<i>Phormium tenax</i>	N,L	■ □ ■ ■ ■	1 st	AQFHS
NZ iris, mikoikoi	<i>Libertia ixioides</i>	F	½ ■ ■ ■ ■	1 st	AQFBJ
pukio, makura, tussock sedge	<i>Carex secta</i>		■ ½ ■ □ □ W	1 st	AQ
shield ferns; pikopiko; puniu	<i>Polystichum richardii</i> ; <i>P. vestitum</i>		½ ■ ■ □ □	2 nd	AJ
silver tussock, wiwi	<i>Poa cita</i>	F	■ □ ■ ■ ■	1 st	AQFJ
toetoe	<i>Cortaderia richardii</i>		■ □ ■ ■ ■	1 st	AQFHS
wiwi, giant rush	<i>Juncus pallidus</i>		■ ½ ■ ½ ■ W	1 st	AQFJ

KEY

Food: for *native birds* shown as:

F = Fruit/seed; N = Nectar; B = Bud/foliage; I = Insects. L = Fruit for *Lizards*

Tolerances: for *sunny, shady, moist, dry* and *windy* conditions shown as:

■ = tolerates or needs; □ = intolerant; ½ = tolerant of some; W = tolerates wet or flooded

Use: 1st = plant initially; 2nd = plant when shelter established; ** = can be invasive

Notes: A=attractive; Q=quick growing; D=deciduous; F=flowers showy;

U=upright growth form; L=bold leaves; B=showy berries;

H=can be clipped into hedge form; S=shelter value;

J=keeps juvenile form for some time; P=perfumed; T=twiggly

