



# BLENHEIM TOWN BRANCH DRAIN

JUNE 2019 | PRELIMINARY DESIGN | REV E





## Revision History

Revision No.	Prepared By	Description	Date
A	Kate McNeill	Consultation material	02/10/2018
B	Kate McNeill	For Client Review	19/12/2018
C	Jesse Byrne	For Client Review	21/02/2019
D	Kate McNeill	For Public Consultation	30/04/2019
E	Kate McNeill	For Public Consultation	27/06/2019

## Document Acceptance

Action	Name	Signed	Date
Prepared by	Kate McNeill		27/06/2019
Reviewed by	Jeremy Cooke		27/06/2019
on behalf of Beca Ltd			

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## Design Approach

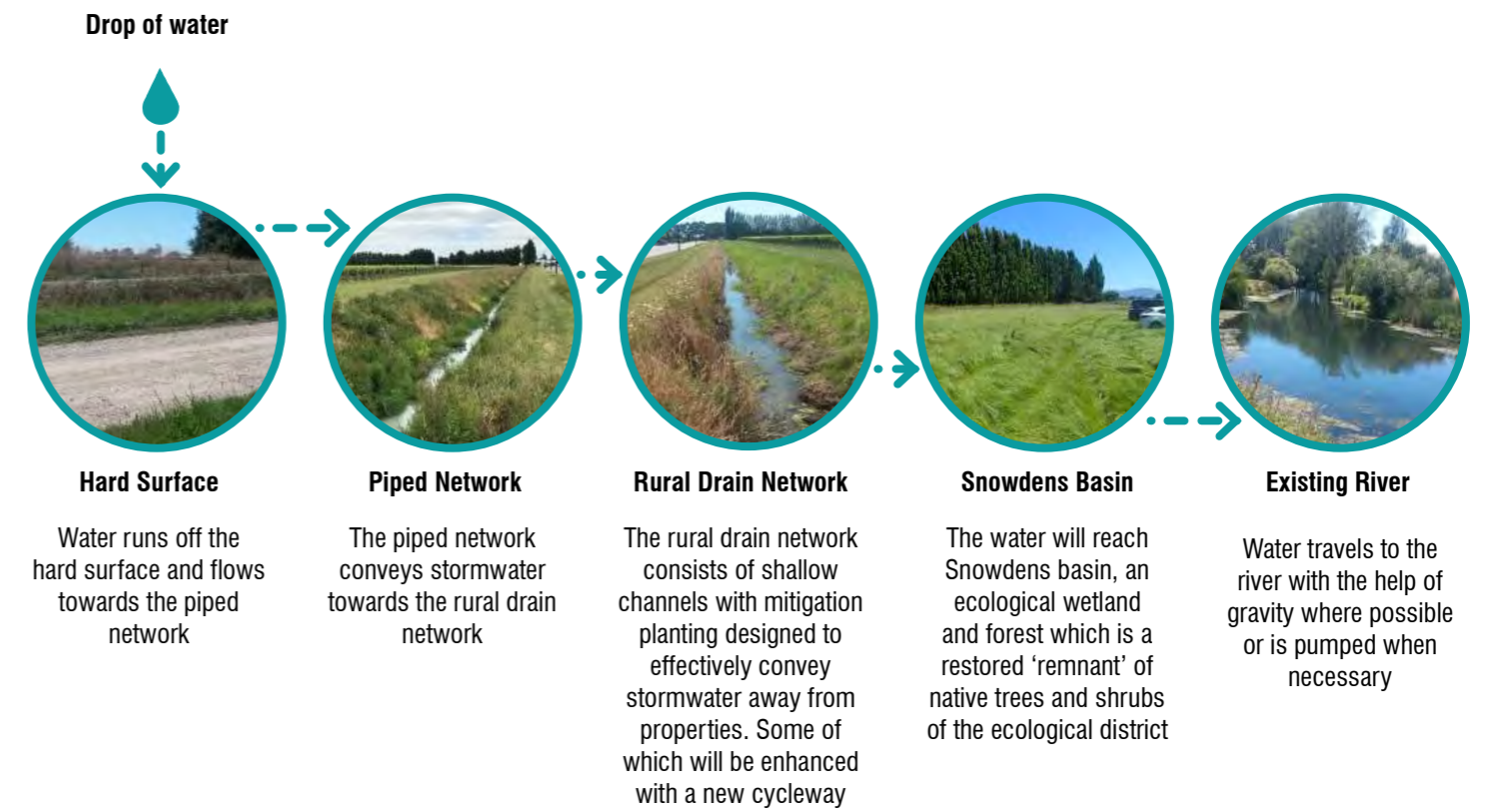
The Blenheim Town Branch Drain provides an opportunity to not only upgrade the drainage capacity, but to enhance the connectivity of the town and amenity of the space through the addition of a cycleway and Snowdens Basin as a destination.

Through a more holistic design approach and the use of planting, signage, seating and interpretation boards we can improve the amenity value the waterway provides and create a enjoyable and educational experience for users. This will help tell the story of the Wairau plains and the water that travels through them.

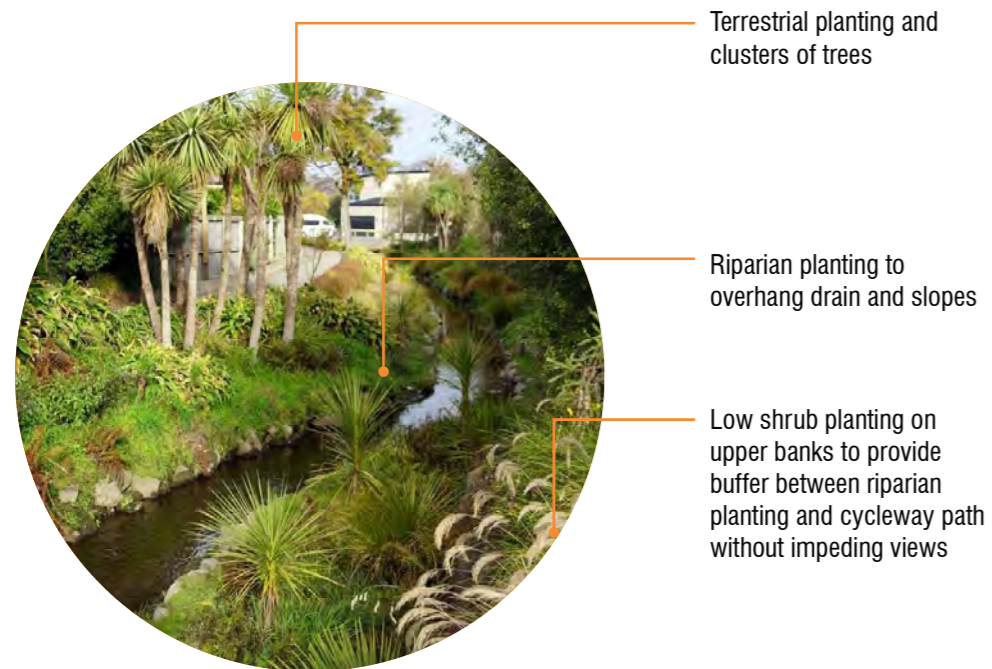
## The Story of Water

Assumptions:

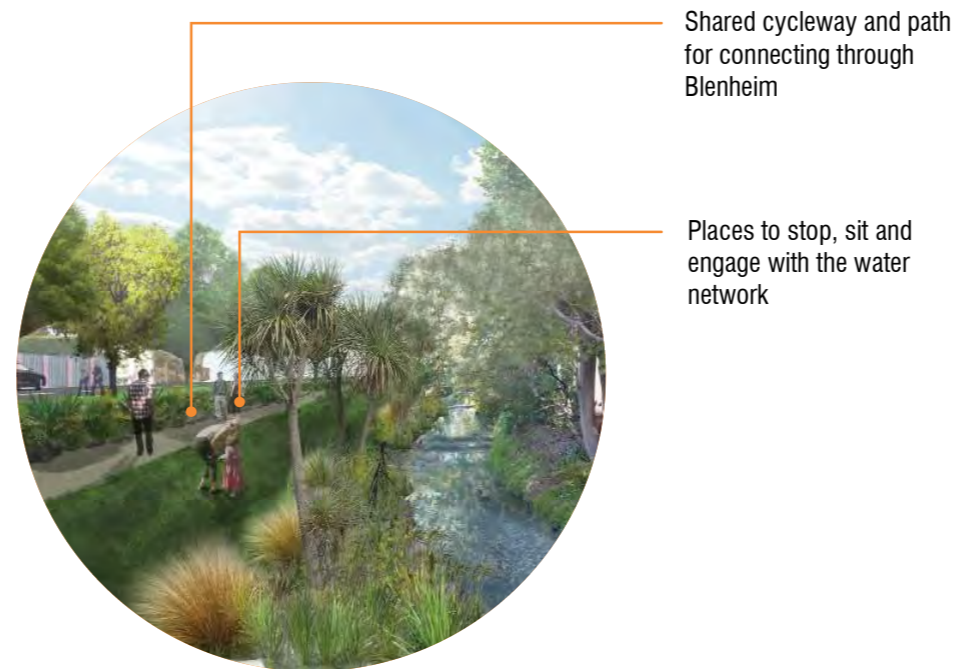
- During the summer it is expected that there will be permanent low flows and these will increase in winter
- During low flow events the drains and Snowdens basin will fill with some more water
- In high flow events, Snowdens Basin is expected to fill up to the 2.0m bund across the dam areas and will then be drawn down by pumps over a few days.



## Precedent imagery -Town Branch Drain and Cycleway



Example: Dudley Creek, Christchurch



Example: Artist's impression, Dudley Creek, Christchurch



Example: Interpretation board, Te Oranga Waikura, Christchurch



# Overall plan





# Town Branch Drain Planting



## PLANT / TREE MIX 1: UPPER BANK MIX



*Carex secta*  
Sedge



*Carex virgata*  
Swamp sedge



*Cyperus ustulatus*  
Giant umberella sedge



*Houheria angustifolia*  
Lacebark



*Pennantia corymbosa*  
Ribbonwood



*Cordyline australis*  
Cabbage tree



*Plagianthus regius*  
Ribbonwood



*Pseudopanax arboreus*  
Five finger



*Pseudopanax crassifolius*  
Lancewood



*Pseudopanax ferox*  
Fierce lancewood



*Sophora microphylla*  
Kowhai



## PLANT MIX 2: RIPARIAN MIX



*Austroderia fulvida*  
Toetoe  
Min %



*Arthropodium cirratum*  
Renga renga



*Cordyline australis*  
Cabbage tree



*Coprosma propinqua*  
Mingimingi



*Hebe salicifolia*  
Hebe



*Hoheria angustifolia*  
Lacebark



*Muehlenbeckia astonii*  
Shrubby tororaro



*Parablechnum minus*  
Swamp Kiokio



*Phormium cookianum*  
Mountain flax  
Min %



*Teucrium parvifolium*  
Teucrium



## PLANT MIX 3: AQUATIC/ WET MIX



*Apodasmia similis*  
Oi oi



*Carex maorica*  
Sedge



*Carex secta*  
Sedge  
Min %



*Carex virgata*  
Swamp sedge



*Cyperus ustulatus*  
Giant umberella sedge



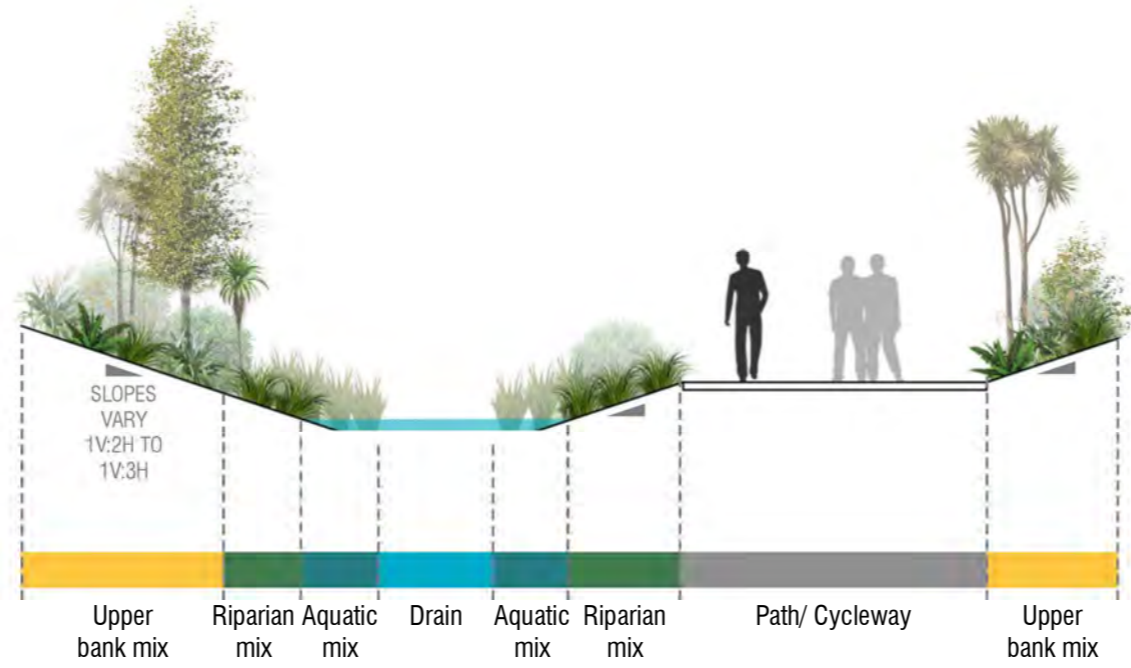
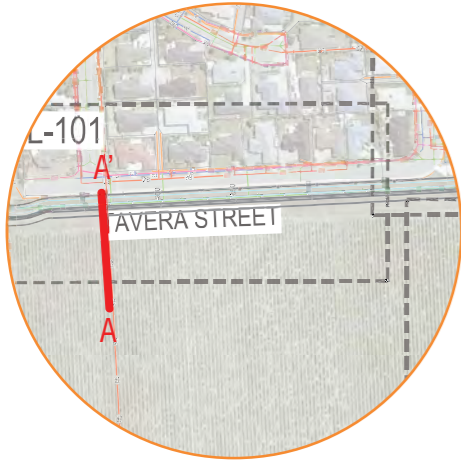
*Eleocharis acuta*  
Common spike sedge



*Parablechnum minus*  
Swamp Kiokio

\* Exotic Species

# Typical Section A-A'

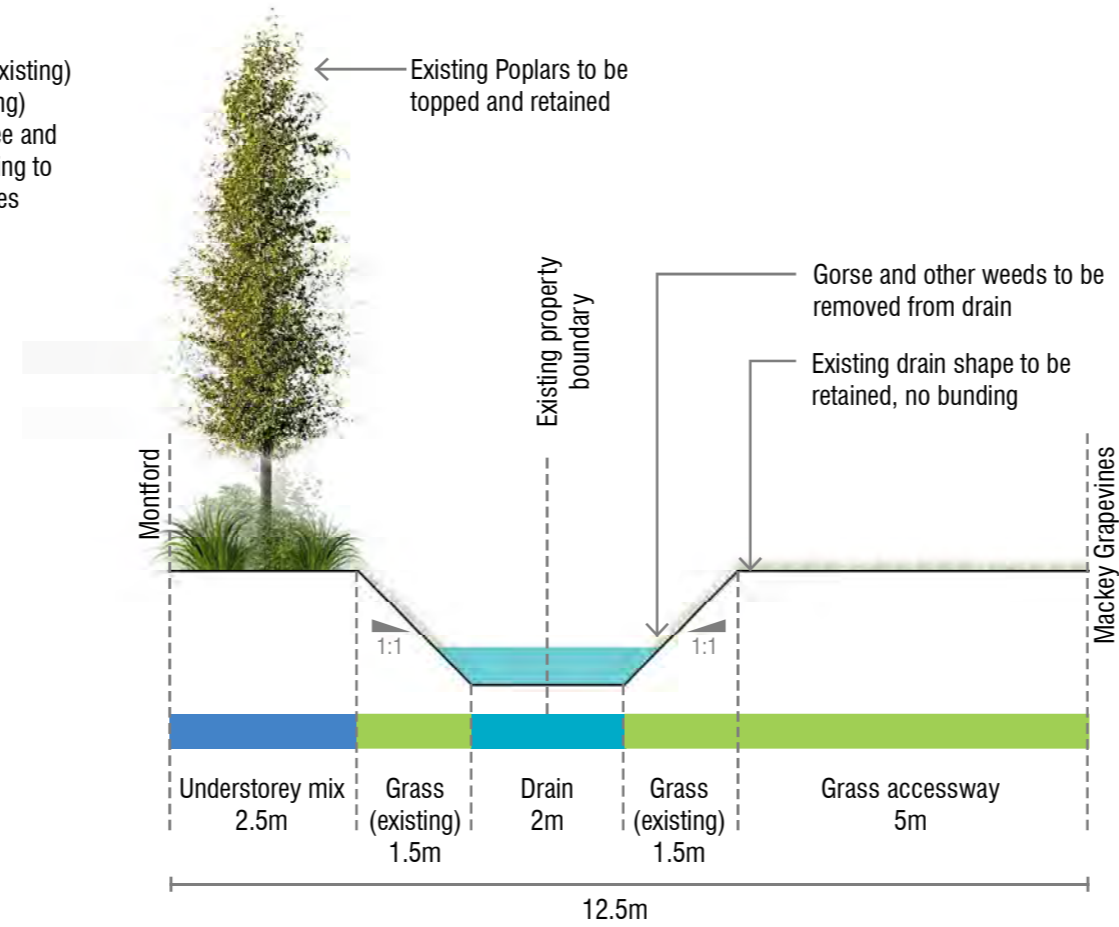




## North / South Drain Planting

### Existing waterway landscaping

2m drain width (existing)  
 1:1 slopes (existing)  
 2.5m width for tree and understorey planting to replace poplar trees



## Plant palette



*Austroderia fulvida*  
Toetoe



*Hebe salicifolia*  
Hebe



*Muehlenbeckia astonii*  
Shrubby tororaro



*Phormium cookianum*  
Mountain flax



*Pittosporum eugenioides*  
Lemonwood

## Ecological aspirations for Snowdens Basin



Example: Forest remnant of the ecological district



### Restoration / re-vegetation

Swamp forest restoration / re-vegetation that reflects the original ecosystems of the district. There are no significant areas of forest within 2km of the site (Significant Natural Areas Programme). This project provides an opportunity to create large area of forest in an otherwise depauperate ecological district.



### Birds

Presently, passerine birds are uncommon throughout this ecological district but are still in low numbers. Forested areas of the storage basin can provide nesting, foraging and roosting habitat for these species. Tree and shrub species included provide food for birds.



### Fish

There are few species observations recorded in the NZFFD but those along the river include common bully, shortfin eel and galaxid species. Provided that fish passage is created / maintained through Snowdens Drain, the storage dam could also provide habitat for these native species. Shaded channels will also enhance instream values.



### Planting typologies

Vegetation type - Kahikatea forest (MF4) between spines (higher lying areas) with channel margins of low density flaxland/sedgeland with emergent cabbage trees (low lying areas). Low density planting is a challenge as weeds will infill especially where it is periodically dry. e.g. Te Oranga Waikura

## Precedent imagery - Snowdens Basin



Example: St Kilda Wetland, Cambridge

Shared access for cyclists, pedestrians around the loop track on the top of the embankment



Example: Te Oranga Waikura, Christchurch (Pre plant establishment photo)

## Planting constraints



Seasonal variation of the water table through out the year with some areas drying out during the summer months



Frequency of inundation during high rainfall events (<1 yr or >2 yr etc)

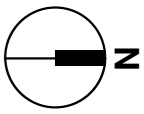


Biomass (planting density and species) growth inhibiting storage capacity. It is difficult to establish good ecological outcomes such as canopy closure if plant density is too low



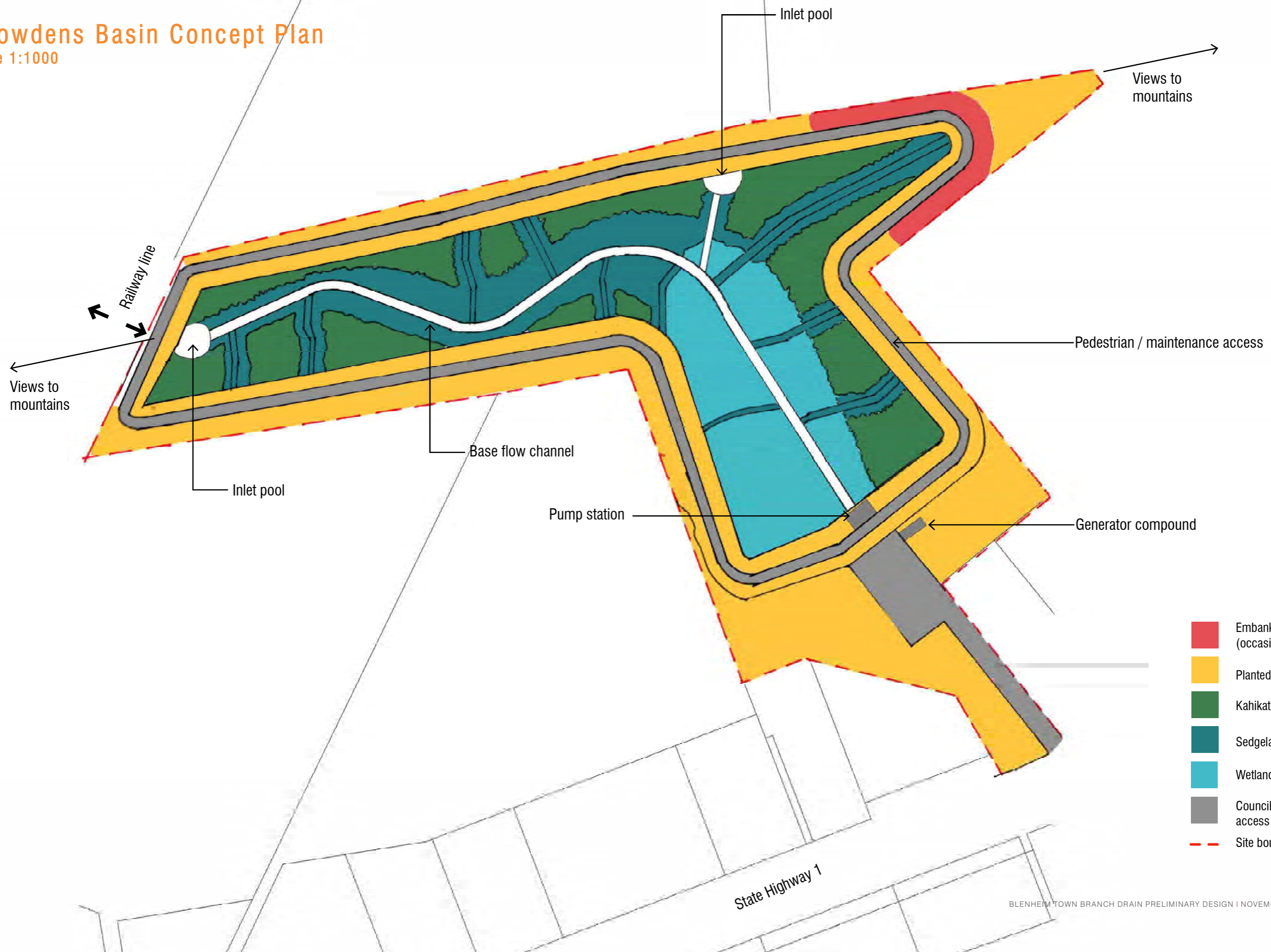
Maintenance of channels (especially the baseflow channel)  
Channels will require cleaning out if it becomes overgrown which is not good for biodiversity





# Snowdens Basin Concept Plan

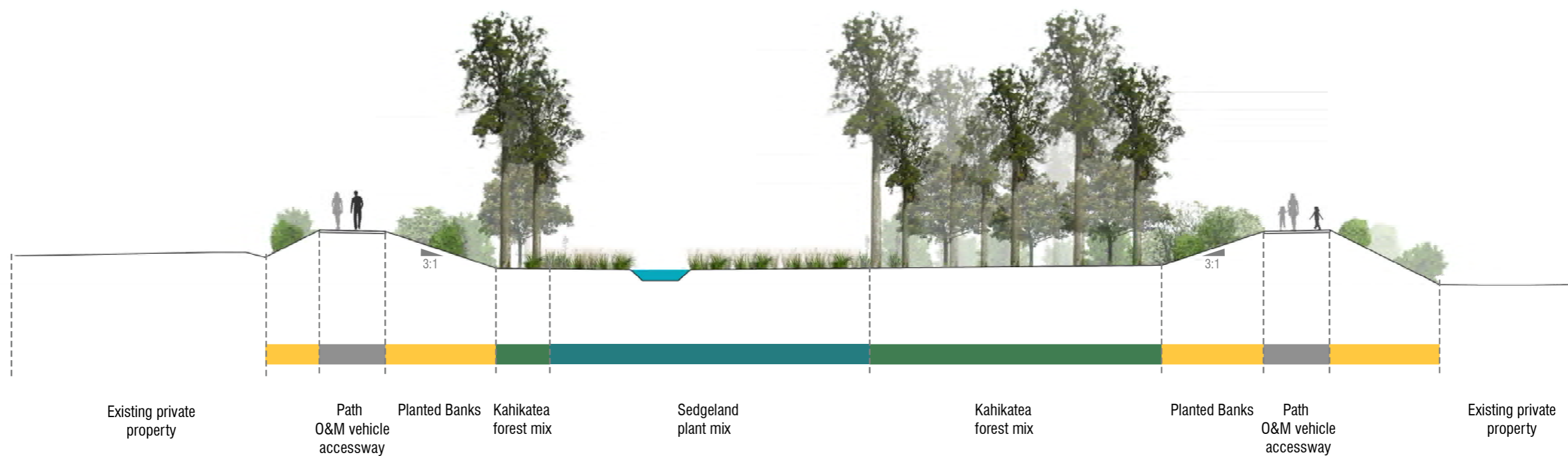
Scale 1:1000



- Embankment planting (occasional inundation)
- Planted banks
- Kahikatea forest
- Sedgeland planting
- Wetland planting
- Council maintenance access
- Site boundary



# Snowdens Basin Typical Section B-B'





# Snowdens Basin Planting Palette



## KAHIKATEA FOREST ZONE / BASIN (PERIODICALLY DRY)



*Carpodetus serratus*  
Putaputaweta



*Coprosma tenuicaulis*  
Swamp coprosma



*Dacrydium dacrydioides*  
Kahikatea



*Hoheria angustifolia*  
Lacebark



*Laurelia novae-zelandiae*  
Pukatea



*Leptospermum scoparium*  
Manuka



*Myrsine australis*  
Mapou



*Parablechnum minus*  
Swamp Kiokio



*Prumnopitys taxifolia*  
Matai



## SHALLOW RUSH ZONE (MOSTLY WET)



*Baumea rubiginosa*  
Twig rush



*Carex geminata*  
Rautahi



*Carex secta*  
Purei



*Cordyline australis*  
Cabbage tree



*Cyperus ustulatus*  
Giant umbrella sedge



*Eleocharis acuta*  
Spike sedge



*Schoenoplectus tabernaemontani*  
Lake club rush



## CHANNEL MARGINS / SWAMP ZONE (PERIODICALLY DRY)



*Carex virgata*  
Swamp sedge



*Cyperus ustulatus*  
Giant umbrella sedge



*Cordyline australis*  
Cabbage tree



*Parablechnum minus*  
Swamp kiokio



*Phormium tenax*  
Flax



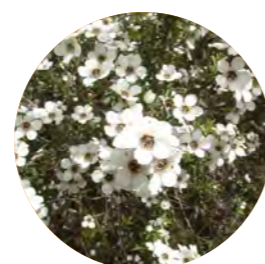
## DRY BANK PLANTINGS (SHRUB OR TREES)



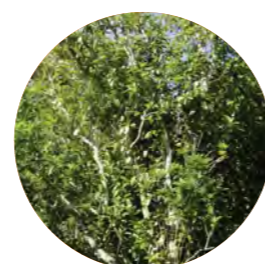
*Coprosma robusta*  
Karamu



*Dacrydium cupressium*  
Rimu



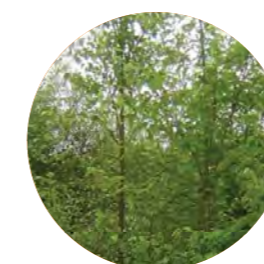
*Leptospermum scoparium*  
Manuka



*Melicytus ramiflorus*  
Mahoe



*Myrsine australis*  
Mapou



*Plagianthus regius*  
Lowland ribbonwood



*Podocarpus totara*  
Totara



# Snowdens Basin Pump Station and Generator - Artists Impression



Planted bank

Pump station building with similar timber screen finish

Generator equipment within timber screen compound

Planted bank



Approximate location of view captured in artists impression



# Materials Palette



## FURNITURE



Street Furniture NZ  
Macrocarpa heavy  
weight timber bench

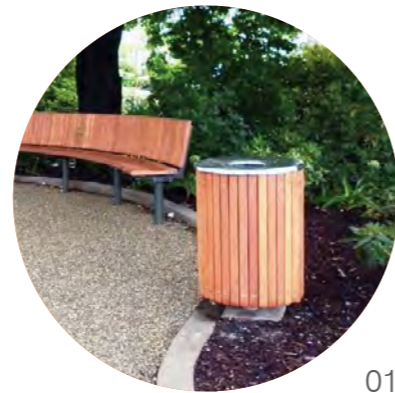
01



Street Furniture NZ  
Macrocarpa light  
weight timber seat

02

## BINS



Street Furniture NZ  
Timber slatted bin

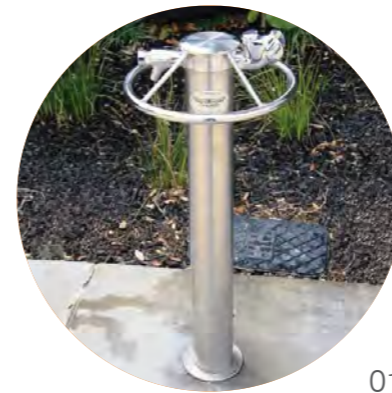
01



Urban Effects  
Spencer Bin - W

02

## DRINKING FOUNTAINS



Street Furniture NZ  
LW Classic Foun-  
tain

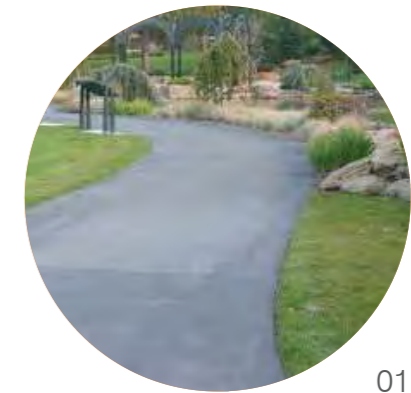
01



Mountain Fresh  
Dog Bowl Fountain  
F5A

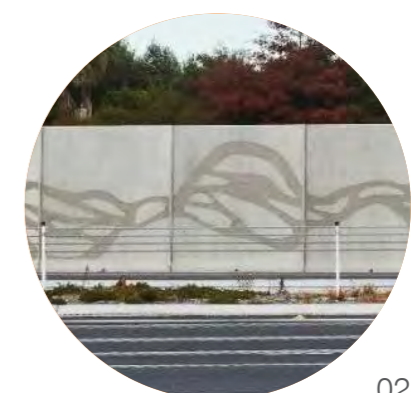
02

## PATHS



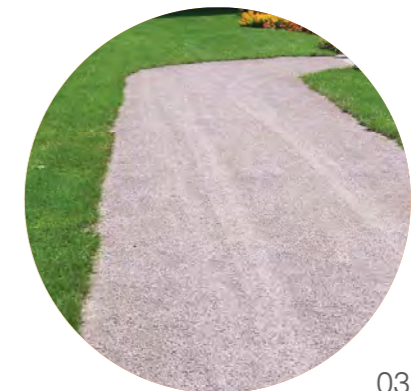
Asphalt with  
timber edging

01



Concrete with  
sand blasted  
detail

02



Crusher dust/  
gravel path

03