

# Town Branch Drain and Snowdens Basin Upgrades

## Background

The objective of the Town Branch Drain and Snowdens Basin project is:

*Upgrades to the Redwood Street and Town Branch Drain stormwater network to increase the outfall capacity of the network to reduce flooding vulnerability and flood impacts, and to enable subdivision of undeveloped residential zoned land.*

The Redwood Street and Town Branch Drain stormwater systems remove stormwater from 280 hectares of southern and eastern Blenheim, representing approximately 25% of the Blenheim urban stormwater area.

The management of stormwater has been identified by the Marlborough District Council (MDC) as a key issue for Blenheim. The pressures placed on the capacity of the existing Redwood Street and Town Branch Drain stormwater network by development will exacerbate a number of existing flooding related issues in and around Blenheim. In addition, the water quality of receiving waterways is being adversely impacted.

Hydraulic modelling of several upgrade options, costing, and an assessment of the advantages/disadvantages was completed in 2015. A Multicriteria Analysis process identified the preferred upgrade option as diversion of the majority of stormwater flow to the Town Branch Drain for subsequent outfall to the lower Ōpaoa River, via a storage ponding area in low lying land known as Snowdens Basin. A new pump station at Snowdens Basin will complement the existing Abattoir and Alabama Road pump stations. These improvements will make a material improvement to the Redwood Street and Town Branch Drain system capacity, and significantly reduce the risk and frequency of ponding events in low lying areas including in the vicinity of Hale Street and Francis Street. The upgrades will also enable planned developments in the east of Blenheim, enable required replacement of aged infrastructure upstream, and provide additional security and resilience to the entire stormwater system through provision of additional outfall capacity to the Ōpaoa River.

The project to upgrade the network gives MDC the opportunity to invest in improvements to drainage performance and also enhancements to improve the amenity of the drains and surrounding areas (for example landscape, ecology, recreational values). In particular, the Town Branch Drain network is located on the outskirts of Blenheim in a rural environment with some sections backing onto residential properties and the network provides an opportunity to improve community connectivity and increase function and amenity by way of a multidisciplinary project.

## What is proposed

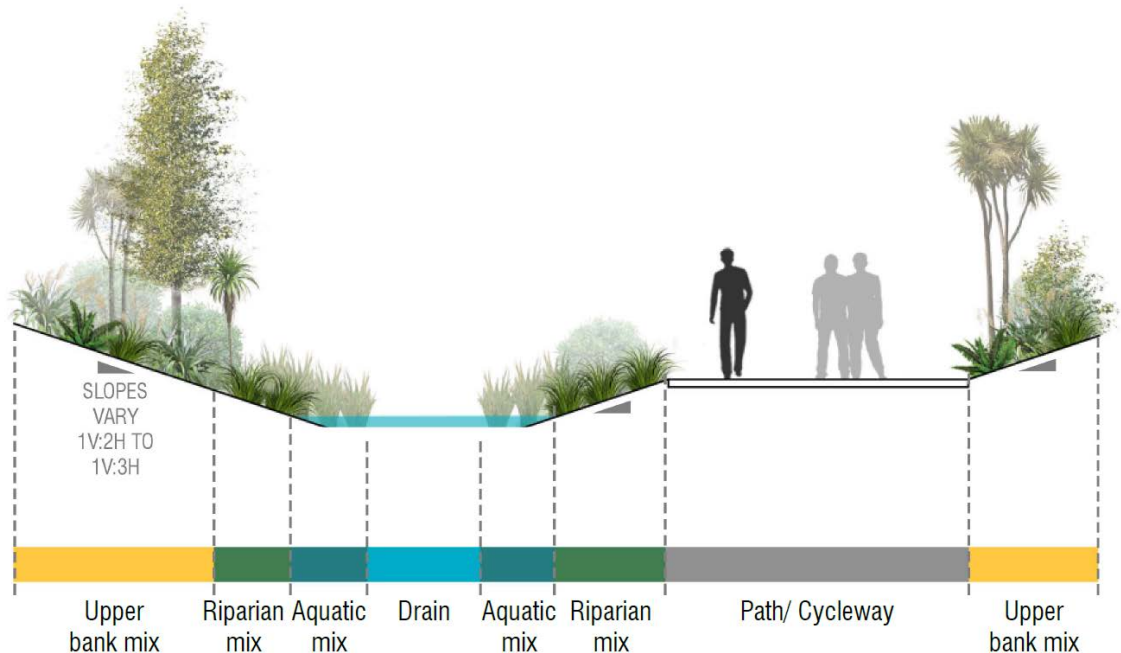
The upgrade works need to ensure that the drainage function of the Town Branch Drain network is improved (through additional capacity, storage, and pumping), while also ensuring that cultural, recreational, ecological, landscape and heritage values are taken into consideration. Therefore, wherever possible, the waterway area has been increased by widening the channel which increases the capacity of the waterway and enables a 'naturalised' bank profile (rather than hard engineering structures). Refer to Attachment 1 for details of the design philosophy.

Refer to the Attachment 2 for details of the proposed upgrades. Key upgrade elements include:

- Additional capacity in the **Town Branch East-West Drain**, maintenance access, landscaping, and inclusion of the shared cycleway/pathway
- Modifications to the **Railway Drain** from Cambourne Basin to improve stability, access, and conveyance
- Additional capacity in the **Abattoir Drain**, maintenance access, landscaping, and inclusion of the shared cycleway/pathway
- Maintenance and landscaping in the **Town Branch North-South Drain**, removal of the northern flow control gate
- Diversion of flood stormwater from Abattoir Drain to Snowdens Basin, through new culverts under the Railway
- Storage of stormwater in **Snowdens Basin**, landscaping to create a wet-footed forest and improve biodiversity amenity
- A **pump station** at Snowdens Basin to take flood stormwater from Snowdens Basin to the Ōpaoa River
- New outfall pipes under State Highway 1 to convey water from the Pump Station to the river.

There are a number of common features throughout the Town Branch Drain waterway designs, refer to Figure 1:

- Battered/sloped waterway banks to maintain geotechnical stability
- Landscaped banks to add amenity, habitat, and bank stability. A focus on planting on northern waterway banks to improve waterway shading
- A 1.5m wide base to enable maintenance of habitat and ecology
- A 4m wide maintenance bench and shared cycleway/pathway.



**Figure 1 - Typical upgraded drain section**

The upgrades to the stormwater network are a long-term permanent asset for the community, in which ongoing maintenance is important to retain the function and form of the waterways, basin, and pump station. Accordingly, the widened waterways include a Maintenance Bench to provide access to Council for landscaping and drain maintenance activities. A shared cycleway/pathway will be incorporated into the bench to create a new connection between State Highway 1, the existing Railway cycleway, and Redwood Street. The work will be in keeping with Council's Walking and Cycling Strategy, and the district Stormwater Strategy.

Snowdens Basin was identified as a key feature to store (attenuate) peak flows from the catchment. Once the capacity of the basin is exceeded, the proposed pump station will pump stormwater directly to the river via an outfall. Due to the ground and groundwater conditions at the site, a wet footed-forest has been proposed for the basin. Forest planting is in keeping with the existing environmental conditions, will provide some stormwater quality treatment, will have reduced ongoing maintenance requirements compared to other options, and will provide enhanced biodiversity in the area.

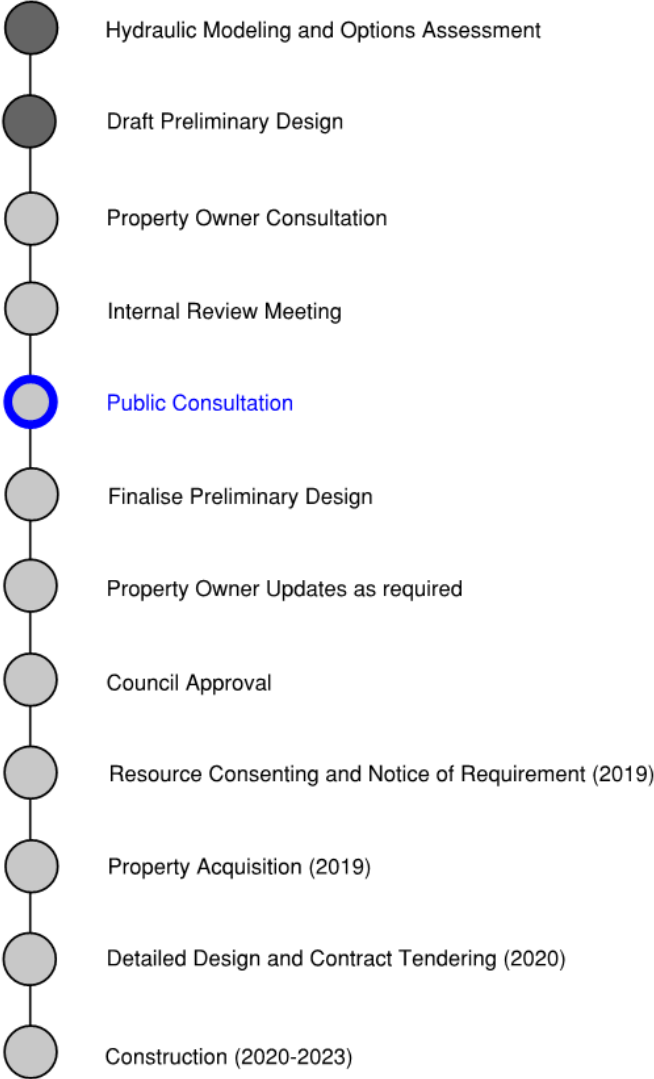
The pump station will be constructed mostly within the basin embankment. The exception is a small electrical control building, and the power generator housed in an acoustic container. Landscaping will help to screen these features from adjoining properties.

Snowdens Basin will have the following features:

- Culverts conveying stormwater under the railway from Abattoir Drain
- Construction of a basin to provide stormwater storage
- A base flow channel and inlet/outlet pools
- "Wet-footed forest" landscaping of the basin floor and embankments
- An access track along the crest of the basin embankment
- Construction of a pump station, and associated electrical and generator equipment
- Replacement of the existing gravity outfall pipeline to the Ōpaoa River
- New pump station outfall pipelines to the Ōpaoa River.

Refer to Attachment 2 plans for more detail on the proposed works.

# Project Status

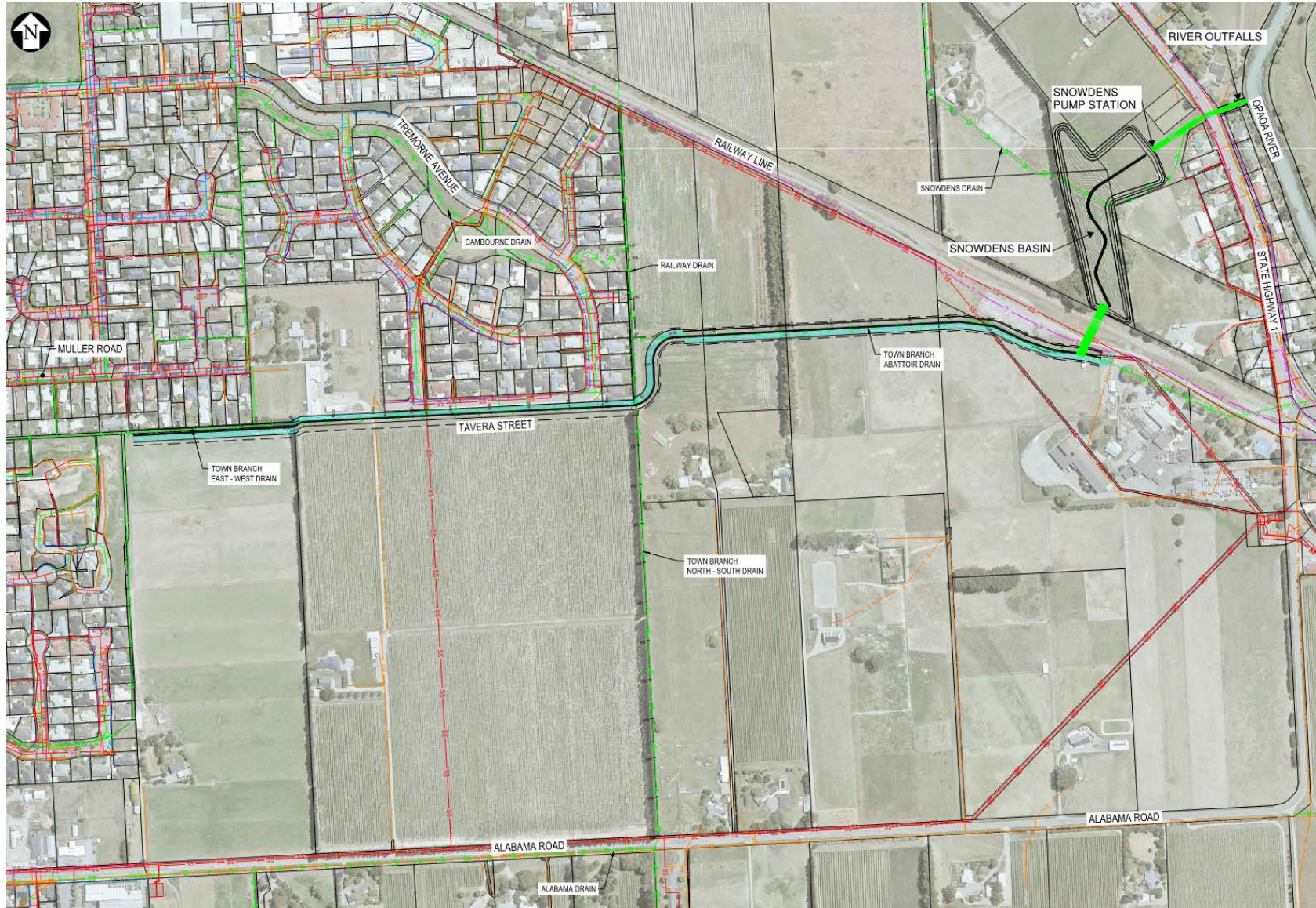


## Public open day

Public open day will be held from 10.00am - 4.00pm on Wednesday 2 October 2019 at Marlborough District Council.



# Location Map



Contact the Marlborough District Council project manager

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Attachment 1

**Design Philosophy**

Attachment 2

**Draft Preliminary Design Plans**