

# upstream

The Waiwhetu Project newsletter



**Welcome to the second newsletter of the Waiwhetu Project. This marks the end of Phase 1 of the Project and a significant point in the Project's progress to date.**

Please take the opportunity that this newsletter provides to learn about the preferred structural options for flood protection of the lower reaches of the Awamutu and Waiwhetu streams and gain further understanding of the contaminated sediments remediation proposed as part of the lower Waiwhetu flood protection works.

In the first edition of Upstream we invited community members to become part of the consultation process for the Project as community representatives in a consultation group. The Waiwhetu Project Consultation Group has now met three times with representatives from all areas of the Waiwhetu community. The group's feedback has been invaluable in guiding decision-makers and technical team members in the progression of structural flood protection and remediation options.

You can hear the views of Consultation Group members and discuss the Project with technical team members and Councillors at the upcoming public meeting in October. I hope to see you there.

*Mayor David Ogden, Hutt City.*



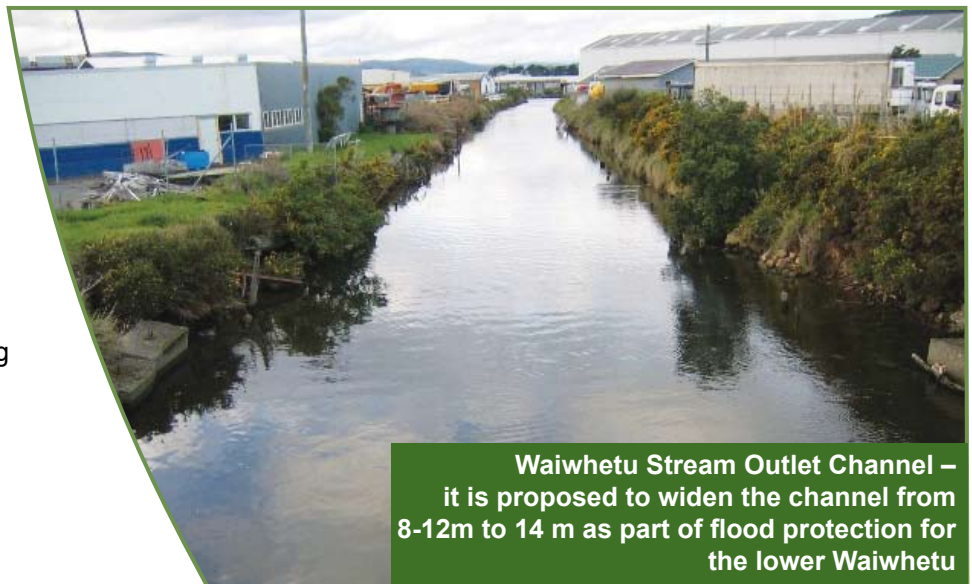
## IN THIS ISSUE WE:

- Give you an update on the progress of the Waiwhetu Project.
- Summarise the Flood Protection options recently endorsed by the Waiwhetu Stream Advisory Committee (WSAC).
- Update you on progress with the contaminated sediments remediation.
- Invite you to attend a Public meeting on **Saturday 7th October** from 10am – 12pm at Gracefield School Hall.

## INVITATION TO PUBLIC MEETING

Saturday 7th October, 10am – 12pm  
Gracefield School, Bell Rd, Waiwhetu

- Find out what is happening with the Waiwhetu Project.
- Have your questions and concerns answered by the experts.
- Take the chance to have your say.



**Waiwhetu Stream Outlet Channel – it is proposed to widen the channel from 8-12m to 14 m as part of flood protection for the lower Waiwhetu**

## PREFERRED FLOOD PROTECTION OPTIONS FOR THE WAIWHETU AND AWAMUTU STREAMS

A key outcome of the first phase of investigation for the Waiwhetu Project, is preferred flood protection options for the lower Waiwhetu and Awamutu Streams. Further investigation of these options was endorsed by the Waiwhetu Stream Advisory Committee on the 7th of September.

### Lower Waiwhetu Stream

The option preferred for the lower Waiwhetu Stream will provide flood protection up to a 50 year return period flood. It will cost \$24.5 million and provide financial benefits that are conservatively estimated at 1.6 times that of the costs. This cost includes the remediation of contaminated sediments in the lower reaches of the Waiwhetu. The option involves:

- Widening the outlet channel at the stream mouth from 8-12 metres to 14 metres wide,
- Removing contaminated sediments by digging out the channel from the mouth up to White's Line East and widening the channel by 2 metres,
- Removing the old Hutt Park Bridge and replacing it with a services bridge that includes pedestrian access,
- Making alterations to the Seaview Rd, Bell Rd and Wainui Rd bridges to reduce obstructions to water flow and prevent damage to bridge foundations, and
- Building stopbanks and floodwalls along the stream berms.



Example of floodgates (Opahu Stream)



Example of Floodwalls (Hutt River)

The preferred option allows for the height of the flood defences to be increased in the future should source control (retaining rain where it falls) prove inadequate to minimise flooding. This will be of particular concern should climate change increase the intensity and frequency of rainfall events.

### Awamutu Stream

The option preferred for the Awamutu Stream will provide flood protection up to a 100 year return period flood. It will cost \$6.1 million and will provide financial benefits 2.7 times that of the cost. The option involves:

- Upgrading bridges and culverts including the replacement of the Elizabeth and York St railway culverts,
- Installing a floodgate at the outlet of the Awamutu stream to prevent backflow from the Waiwhetu,
- Installing a pump station to pump water past the floodgates into the Waiwhetu Stream.
- Building stopbanks and floodwalls along the Awamutu from where it meets the Waiwhetu to Whites Line East.

At the completion of Phase 2 (refer back page for details of Phase 2) the draft floodplain management plan will be presented to the public for consultation. Following this the Plan will be considered for inclusion in the Hutt City Council's and Greater Wellington Regional Council's Long Term Council Community Plans.

## CONTAMINATED SEDIMENT REMEDIATION

Heavy metals and other contaminants hazardous to human and ecological health are present in the Waiwhetu streambed sediments. The most heavily contaminated sediments are located between the railway bridge at Bell Rd and upstream of Seaview Rd. The cost of remediation of these contaminated sediments is around \$6 million. It is hoped that some or a large portion of this cost will be met by the Ministry for the Environment (MfE).

The technique proposed involves excavation of the contaminated sediments from the bed of the Waiwhetu Stream and disposal at the Silverstream Landfill. This is termed in-stream remediation. Other options for remediation that were considered included containing the contaminated sediments in their current location by diverting the Waiwhetu Stream into a new course through Hutt Park. A review of in-stream excavation projects in New Zealand and

internationally has been done to find a suitable and acceptable methodology for the Waiwhetu Stream in-stream remediation. In brief this involves:

- Excavation of contaminated sediments using digging machinery within "cells" as illustrated in the picture below of a similar project in Ohio, USA. Once all contaminated sediments have been removed from a cell, new cells will be created downstream and the process repeated. Cells will be created by forming an upstream and downstream barrier (e.g. using steel sheet piling) that crosses the full width of the stream and prevents the stream from entering the cell.
- Stream flows from the upstream side of the cell will be pumped downstream of the works area (as shown in the bottom picture). Water entering the cell will be kept to a minimum. Any water in the cell being excavated will be pumped into

the cell downstream where sediments can settle out before re-entering the stream. Any flood flows will be able to flow over the barriers.

In conjunction with the funding application to the MfE the following investigations will take place:

- A probe survey will be carried out to confirm the volume of contaminated sediments;
- An excavation and landfill disposal trial will take place;
- An assessment of possible ecological effects of the remediation works will be undertaken; and
- Investigation into the options for preventing continuing inflow of contaminants into the stream from the industrial area will be continued.

Consultation will also continue on contaminated sediment remediation during Phase 2.



Phase 1

- Overview of historic status of stream and floodplain.
- Identification of issues and potential flood protection options.
  - Publication of flood maps and Issues Report.
- Flood hazard assessment including damage assessment, risk and economic evaluations.

Major Structural Investigations

- Awamutu Stream
  - Investigate structural means to alter flooding.
- Waiwhetu Stream
  - Investigate structural means to alter flooding such as extending stopbanks.
  - Integrate environmental works with flood protection

Prepare Phase 1 report.

Completed

### CONSULTATION GROUP MEMBERS VIEWS ON THE WAIWHETU PROJECT

"It is easy for us to expect 'somebody' to fix 'the problem'. However, different parties face different aspects of the flooding problem. Solutions to one part of the problem may have serious potential to either create new problems or increase existing problems elsewhere. It appears to be a difficult balancing act to decide on and implement the best solutions. We need to be aware of each others concerns and needs when considering the flooding problem" - *Industry Consultation Group Member*

"We've invested in a community that we like living in. I want to ensure our children and future generations don't have a big mess to deal with in future. I would like to get this problem sorted or managed to a point where we can go on with living not worrying every time we have heavy rain" - *Residential Consultation Group Member*

Phase 2

WE ARE HERE

- Phase 2 Investigations
  - Source control investigation (priority)
  - Culvert outlet upgrades
  - Site development controls
  - Valuation of floodway easements
- Flood proofing properties
- Bridge waterway improvements
- General waterway improvements
- Upper catchment protection
- Flood warning and evacuation

Sept 06 – June 07

June 07

Phase 3

Greater Wellington and Hutt City Council approves Waiwhetu Stream Floodplain Management Plan

Plan implementation

## PHASE 2 INVESTIGATIONS

The studies below will be undertaken in Phase 2. The studies will recommend concepts for flood mitigation and environmental enhancement for the entire floodplain, focussing on the floodplain upstream of Whites Line East, which has not been studied in any detail in Phase 1:

- **Source Control Investigations:** how planning measures could control stormwater at its source (retain rain where it falls) to reduce or delay peak flood flows into the Waiwhetu and Awamutu streams. This investigation is a priority as the maximum design standard possible will be dependent on the findings.
- **Upper Catchment Protection:** will look at planning measures to minimise the very high sediment and debris loadings that can occur during major slips and during green fields development of sites within the upper catchment.
- **Culvert Outlet Upgrades:** how major stormwater outlets discharging into the Waiwhetu Stream can be upgraded to manage inflows of contaminants, reduce backflows, and in some areas, reduce discharges to the Waiwhetu Stream, thus creating detention storage within the catchment.
- **Site Development Controls:** planning measures to control discharges from development (both stormwater and sediment).
- **Valuation of Floodway Easements:** investigate the value of obtaining easements to protect against future development of the floodway corridors which are currently in private ownership.
- **Flood Proofing Properties:** a focus on the isolated, low-lying, properties that may not be able to be protected by reducing flood levels. Policy options and arrangements for supporting the flood-proofing of individual houses will need to be considered.
- **Bridge Waterway Improvements:** options to improve the waterways around the bridges that currently limit the maximum flood carrying capacity of the stream.
- **General waterway improvements:** propose "isolated works" that can be undertaken in a number of areas to improve the stream alignment through localised widening and bank stabilisation. The investigation will also propose a sustainable management regime to address community concerns regarding the stream environment that can be addressed through maintenance and improve weed control.
- **Flood Warning and Evacuation:** formalise the interim arrangements that have been put in place following the 2004 floods to improve flood warning and the processes to assist with evacuation and the protection of low-lying properties.



From left to right, swales, rain barrels and roof tanks.

### TO PROVIDE YOUR FEEDBACK OR FOR FURTHER INFORMATION:

- Write to us at the Waiwhetu Stream Project, Greater Wellington, PO Box 11646, Wellington.
- Visit the Waiwhetu Stream Project website at <http://www.gw.govt.nz/story12409.cfm>
- Or contact Julia Lindesay or John Eyles

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### Waiwhetu Project Progress

Further details on the results of progress made on the Waiwhetu Project during Phase 1 can be found in the Phase 1 Summary Report available online at

<http://www.gw.govt.nz/story12409.cfm>.