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Report to the Landcare Committee
from Phillip Purves, Senior Engineer, Flood Protection Group

Wainuiomata River Flood Hazard Assessment

1. Purpose

To advise the Landcare Committee of the outcome of the Wainuiomata River Flood Hazard Assessment.

2. Background

For many years now the Flood Protection Group has recognised the increased flood hazard that will result from further development of the lower Wainuiomata River floodplain, through the subdivision of rural properties into smaller rural-residential allotments.

The minimum size allotment in the rural area had previously been 40ha but the Hutt City Council's Proposed District Plan allows rural allotments down to 15ha. This reduction in minimum area has increased the pressure on floodplain development and the potential for creating flood hazards with consequent damages.

The Wainuiomata River Flood Hazard Assessment was accordingly included in the programme of floodplain investigations, to follow completion of the Waiwhetu Stream Management Plan in 1996/97. Increased demands from other investigation work saw a late start in 1997/98; but the programmed hydrology component was completed that year. Then, in order to allow for the accelerated Hutt River Floodplain Management Plan, the second stage of the Wainuiomata River Floodplain investigations were extended over two years, with completion due in June 2000. The work was completed, and a summary report produced, within the original total budget of \$159,400.

3. Floodplain Characteristics

The Wainuiomata floodplain can be divided into two distinct parts. The urban section is largely protected by stopbanking and the river is confined to its current course. The WRC maintains the channel to ensure the integrity of the flood protection works and the hydraulic model has generally confirmed the adequacy of the flood defence design.

The rural section is largely undeveloped and the river channel is free to move within the wider floodplain. There are no river control works, other than isolated protection works where the Coast Road is threatened by erosion. In one location a realignment of the river channel was carried out to relieve that threat.

4. Flood Hazard Assessment

The flood hazard assessment covers the main channel of the Wainuiomata River from upstream of the township (just above the confluence with the Wainuiomata Stream) to the mouth. Only minor flooding of residential land has been identified in the urban section and recommendations have been made for more detailed investigations before any remedial work is carried out.

The flood hazard prediction for the rural section of the Wainuiomata River Floodplain has provided the most useful information for proactively saving flood damages for future development. The rural flood hazard was analysed in relation to both the inundation risk and potential channel migration (erosion). The inundation risk is an immediate, or current, risk that could happen at any time, whereas the identified erosion risk provides a reasonable allowance for possible future migration of the river channel.

The summary report includes flood hazard maps that show the predicted extent of flooding in a 100 year return period flood event, including a shaded range of flood depths. These maps also delineate areas on the floodplain where buildings could be subject to structural damage, in a flood event of this magnitude, and areas where development could be subject to erosion due to possible channel migration in the future.

5. Use of Flood Hazard Information

It is intended to provide the Hutt City Council (HCC) with the results of the Wainuiomata Flood Hazard Assessment so that the hazard information can be used for planning and control of future development on the Wainuiomata River floodplain. The Flood Protection Group intends to continue working with the HCC to ensure that the information is used most effectively in whatever way the HCC wants to apply it. It is possible that the HCC could implement specific planning controls in its District Plan, but it is more likely that the flood hazard information will simply be taken into account when assessing specific development proposals on the Wainuiomata River floodplain.

Subdivision of rural land on the floodplain presents the greatest potential impact and the likely increased demand for river crossing points is of particular concern. The summary report has

identified the intention of the WRC not to manage or control the rural section of the Wainuiomata River, so that channel migration can be expected to continue in the future.

This potential migration could have a significant effect on river crossing points and it will be likely that these should continue to be fords, rather than bridges, except where the crossing point is located on a relatively stable reach. The Flood Protection Group will be able to assist the HCC in identifying acceptable bridge crossing locations.

There may be a demand for filling on the floodplain (outside of the erosion risk areas) in order to achieve sufficiently elevated sites for development. If this demand were to become significant then the Flood Protection Group would expect to carry out further analysis on the ultimate effects of mass filling on flood level predictions, particularly in relation to the loss of floodplain storage. The current flood hazard assessment is, however, considered to provide a good level of information for the control of floodplain development for the immediate future.

6. **Community Connection**

The Flood Protection Group consulted with the landowners on the Wainuiomata River floodplain at the time when the cross-section survey was being undertaken, in preparation for the hydraulic modelling component of the study. Discussions with the HCC will be needed to decide on how the community should be advised on the results of the investigations. The Flood Protection Group would expect to participate fully in the consultation.

7. **Recommendations**

That the Landcare Committee:

- (1) *Receive the report and note the findings of the Wainuiomata Flood Hazard Assessment study.*
- (2) *Note that the Wainuiomata Flood Hazard Assessment summary report will be referred to the Hutt City Council.*

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