



Report 05.24
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Committee Landcare
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Flood Damage, Western Rivers – January 2005

1. Purpose

1. To inform the Landcare Committee of the flood event that occurred on 5 and 6 of January 2005, the flood damage incurred and repairs required.
2. To seek approval to recommend to the Council the proposed funding of flood damage repairs, including access to the Flood Contingency Reserve and River Rate Reserves.
3. To seek approval to recommend to the Council to bring forward expenditure of \$82,000 capital provision from 2005/06 for the construction of additional edge protection works in the Otaki River.
4. To seek the Committee's view on bringing forward house raising in Otaihanga in response to the flood event.

2. Significance

The matters in this report do not trigger the significance policy of the Council or otherwise trigger section 76(3)(b) of the Local Government Act 2002.

3. January 5/6 flood event

The January 5/6 flood event was caused by a fairly typical northwesterly airstream. The event, including recorded rainfall and river flows, is described in detail in the technical report prepared by Laura Watts from the Resource

Investigations Department and titled "*The 5 – 6 January 2005 storm in the Wellington region : Hydrology and meteorology*". The summary below was taken from this report:

The January 2005 storm was caused by a moist northwesterly airstream and a quasi-stationary front within this airstream moving over the lower North Island. Heavy rain fell in parts in the Akatarawa and Whakatikei hills, the Kapiti coast, Lower Hutt, Porirua and the Orongorongo range in the few hours leading up to midnight on 5 January. As the quasi-stationary front moved

north again, sustained heavy rainfall fell in the northern Tararua range from midnight until about 4 am on 6 January.

Although the storm lasted for about 12 hours, it was characterised by significant rainfall over a 4 to 6 hour period, making it a relatively short storm compared to other recent flood-producing storms. The return period of the rainfall for this duration was up to 35 years in the Tararua range, 40 years in the upper Akatarawa and Waikanae catchments, 70 years in the upper Whakatikei catchment, and 25 years in the western foothills of the Tararua range.

The resulting floods were most significant in the Kapiti and Hutt catchments. The highest flows on record were recorded in the Otaki, Waikanae, Akatarawa and Whakatikei Rivers, and in the Hutt River at Birchville. The return period of the peak river flows resulting from this storm are estimated to be:

- 80 years for the Akatarawa and Waikanae Rivers;
- 60 years for the Whakatikei River;
- 40 years for the Otaki River;
- 25 years for the Hutt River;
- 12 years for the Mangaroa River;
- 10 years for the Mangaone Stream; and
- 5 years for the Waiwhetu Stream.

All other monitored water ways in the Wellington region had less than a 5-year return period flood”.

The flood events were short and sharp with river levels rising and then falling very quickly. Peak levels in the Waikanae and Otaki Rivers were the highest recorded and significantly larger than in 1998. The Hutt River flow measured at Taita was about the same as measured in 1998 but peak flood levels measured at Hathaway Avenue in Lower Hutt were about 350 – 400mm higher than in 1998. The upper Hutt River flow as measured at Birchville was greater than 1998.

The recorded flow in the Waiwhetu Stream was substantially less than in February 2004 which was a 45 year return period event.

4. Flood damage assessment

The January 5/6 flood event caused significant damage to property and infrastructure in areas not protected by flood protection works. Generally our schemes performed very well and system damages were lower than in 1998 despite the higher flows. A full description of the event and its impacts on a river by river basis is available by request.

Detailed surveys of damage to private properties have been completed in Otaihanga and in Hathaway Ave in Lower Hutt. Assessment of damages to our flood protection systems is complete, and we have made a good start to inspecting and offering advice to landowners in the Reikorangi and Akatarawa Valleys.

Damage to private property and infrastructure

Damage included:

- Flooding of about 23 properties (11 with water in the home) and the Boating Club hall at Otaihanga in the early hours of Thursday 6 January 2005.
- Extensive flooding of the El Rancho holiday camp where about 650 people had to be evacuated. The flood also inundated the former Blake Property off Nimmo Ave East on which there are some rented cottages.
- Extensive flooding of farmland below the state highway at Te Horo. The water entered at least one house, some glasshouses, blocked septic tanks and required emergency clearing of the Pahiko Drain and the Mangaone Stream.
- Extensive damage to properties adjoining all the various Waikanae River tributaries in the Reikorangi valley. The Reikorangi Valley contains a large number of lifestyle properties, many of which have a river boundary. The houses on these properties seem to have been well located and were largely unaffected by the floods.
- In Hathaway Ave, Lower Hutt, water entered 10 houses with two more affected over the rest of their property. About 10 cars were damaged. The floods also damaged Council's own 56 Connolly Street property where about 1.2m of water entered the main office building.
- All the Golf Courses along the Hutt River suffered flood damage. Water entered the Boulcott Golf Club rooms and damaged the Te Marua Golf Club's new works following the big slip in February 2004. The flood also caused further erosion to the river boundary of the Manor Park Golf Course (**Attachment 2** – letter from the Manor Park Golf Club) which now requires investigation.
- Bank erosion to a number of properties adjacent to the Akatarawa River. Damage included extensive flooding and erosion to a blueberry farm and major damage to the Akatarawa Valley Road.
- Extensive flooding adjacent to the Pauatahanui Stream through Judgeford, including flooding and damage to State Highway 58.
- Significant flooding of properties adjacent to the Pinehaven Stream. Three houses were evacuated during the event but it is understood that water did not enter any houses. The flood caused the final collapse of a section of private retaining wall in one property which will need to be removed as it is constricting the waterway.
- Flooding adjacent to Convent Road, Otaki from the Waitohu Stream. We understand water entered at least one house.

Damage to Greater Wellington managed schemes and watercourses

Most damage to watercourses and flood protection assets managed by Greater Wellington occurred in the three main western rivers, the Hutt, Otaki and Waikanae. In all three rivers our stopbanks and alignment control works performed very well, except for the brand new Otaihanga flood wall where subsequent investigations revealed a missing flapgate.

However significant system damages did occur and these are detailed, including repair estimates in **Attachment 1**.

Hutt River

- In general, moderate damage only given the size of the event. However the flood has substantially exacerbated a number of “stress areas” which now require some action. Key “stress areas” are the bed degradation at Elbow Park/Maoribank, bank erosion adjacent to the Manor Park golf course and the need to repair and strengthen the existing Avalon works.
- The repair cost estimates provide for the usual clean up of the berms, access tracks, the Hutt River trail, top ups to existing rock structures and some in-channel work etc.
- The estimates provide for the repair of a section of the existing gabion work at Elbow Park and some toe strengthening of the works, but are not a full solution to the ongoing bed degradation that is occurring between the Birchville recorder and the Totara Park bridge.
- The estimates provide for a 150m extension of bank stabilisation works at the downstream of the Manor Park golf course. This is not a full solution to the erosion that is occurring over the Manor Park reach. Discussions over the options, priority and cost allocation of works is appropriate before a more comprehensive solution can be considered by the Committee.
- The flood risks to the Hathaway Avenue properties will remain until the new stopbank is constructed. In the mean time we aim to meet the residents and get some improved flood warning procedures in place.
- Gravel levels in the lower river appear to have affected flood levels compared to 1998 and accordingly have reduced freeboard on our existing stopbanks. At the peak of the flood we only had 0.5m of freeboard on the stopbank at Connolly Street. We have engaged consultants Connel Wagner to resurvey a number of cross sections in the lower river. If this confirms the ongoing further build-up of gravel in the lower reaches a more aggressive gravel extraction programme may need to be adopted compared to that presented to the Hutt River Advisory Committee in October 2004.

Otaki River

- The flood caused few problems in the Otaki River and the proposed flood damage repair schedule can again be considered very modest given the size of the event.

- The flood has eroded the beach at the toe of the cliffs (Upper Rahui south bank) and as part of our management policy of trying to maintain a central alignment we have allowed for some significant in channel works at this location.
- Generally all the new works held up well. We do have to repair part of the main Chrystals realignment wall lining. The first significant maintenance of the original lining since its construction in 1992.
- The flood extended the erosion at the Transmission Lines in the lower river. This years budget provides for the construction of 200m of new rock works at a cost of \$206,000. We propose to extend the works to 260m and fund this by bringing forward the \$82,000 provision in 2005/06, to make a total job budget of \$288,000. Costs have also increased due to rock supply rates and the additional berm filling required following the flood.

Waikanae River

- The 80 year return period event in the Waikanae River was a major test of all our new works. The new Kauri-Puriri stopbank had no problems. The new river works from the State Highway down to Maple Lane did their job well but significant repair is required. The major disappointment was the failure of the new floodwall at Otaihanga due to a missing flapgate – now in place. The wall had to be constructed over a complex stormwater network and the design missed one flapgate on a line from a roadside sump.
- Jammed floodgates also let some water through the newly raised section of Otaihanga Road (although not to the extent of causing flooding in houses), at Nimmo Ave West and caused problems for the El Rancho holiday camp. While Greater Wellington is not responsible for maintaining any of these floodgates, we will follow their maintenance up with the relevant owner.
- The rock works in the State Highway 1 to Maple Lane reach will require reshaping and top up including an allowance for bed degradation. The flood also extensively damaged the bed level control weir immediately downstream of the State Highway 1 bridge, a Transit New Zealand asset.
- We need to remove a large quantity of flood debris from the channel and have made some provision for clean-up/repair of the Pukekawa Reserve and the south bank access track.
- The Waikanae river mouth was due to be cut this February. The flood largely realigned the mouth for us, and the proposed cut has now been deferred. Repairs are required to the mouth control groyne.
- We will be resurveying the lower reaches of the river to check on the gravel levels post flood. The normal 5-yearly survey of the river was completed just before Christmas. We are under considerable pressure from the Otaihanga community to take more gravel from the lower reaches and cut the mouth more often.
- The Kapiti Coast District Council arranged for a post-flood meeting with the Otaihanga community on Thursday, 27 January. The key concern of

the residents was the perceived lack of floodwarning of such a major event. We will work with KCDC and the community to put in an improved flood warning procedure.

- Eight residents have expressed an interest in raising their houses prior to completing their flood damage repairs. Two houses were raised after the 1998 floods. House raising/flood proofing is one of the chosen options in the Waikanae Floodplain Management Plan for flood mitigation at Otaihangā and provision is included in the Flood Protection operating plan in 2006/07 (\$117,000) and 2007/08 (\$117,000) for this work. There is logic (plus some cost savings which may not accrue to Council) to bringing forward this work and raising the houses prior to the owners completing their flood damage repairs. However there is no funding in the current financial year (or next) for this work and bringing forward the work needs to be considered against any other priority Council has. The decision on whether to bring the house raising forward needs to be made promptly so that the home owners and their insurance companies know where they stand.

Kapiti minor watercourses

- The flood damage estimates provide for some alignment works on the upper Waitohu Stream, additional drain clearing on the Mangaone Stream and removal of debris from the Waimeha mouth.

Wellington minor watercourses

- We need to remove a damaged private flood wall from the Pinehaven Stream. The owner will be contributing to the replacement wall. Although this will improve the channel capacity through this particular property, the capacity is still well below optimum capacity. A number of residents are growing increasingly concerned about the flood risk to their properties from the Pinehaven Stream. A flood plan investigation is proposed for 2006/07.
- The flood, including the short sharp storm on Saturday 8 October 2005 did some further damage to the Speedys debris arrestor which was planned to be rebuilt this summer. The additional work caused by the floods will delay the rebuild and we propose to only undertake a \$3,000 temporary repair in the interim. We also need an additional \$12,000 for the full rebuild which will occur next financial year.

Isolated Works

Like February 2004, damage was not just confined to the sections of rivers and streams managed by Greater Wellington. We have logged 80 calls for advice, and in some instances assistance with river and stream management works. Some of these jobs will be eligible for a financial contribution under Council's Isolated Works funding policy.

The table below provides a summary of the calls for assistance and progress with our response to date:

January 5/6 flood event response to request for advice summary			
	Total requests to date	Responded	Outstanding
Akatarawa	8	5	3
Hutt	7	4	3
Reikorangi	22	4	18
Te Horo	5	2	3
Waikanae	5	1	4
Whiteman's Valley	8	2	6
Other areas	25	17	8
Total number of requests to date	80	35	45

We have ordered some new aerial photography of the Reikorangi and lower Akatarawa Valleys, and the Pauatahanui Stream to help with the advice work.

5. Flood damage estimates

Our initial assessment put the cost of the flood damage repairs at around \$750,000. However, following the more detailed assessment and costing process that figure has risen.

The total system flood damage estimate is provided as follows:

Hutt River	\$ 591,500
Otaki River	\$ 214,500
Waikanae River	\$ 255,600
Kapiti watercourses	\$ 13,900
Pinehaven Stream	\$ 15,000
Total	\$1,090,500

In addition we recommend:

- The budget for new capital works on the right bank on the lower Otaki River be increased from \$206,000 to \$288,000 by bringing forward the

expenditure of the 2005/06 provision of \$82,000. The increased cost in 2004/05 will be \$3,000 for interest on drawing the loan sooner than planned.

- Funds of up to \$25,000 are available under the Isolated Works funding policy to provide financial assistance to landowners undertaking eligible flood repair works mostly in the Reikorangi Valley.
- Provision is made for the estimated \$20,000 additional management expenditure in Kapiti to cover additional staff time, and survey and aerial photography costs as a result of our flood response.

The total of all costs above is **\$1,138,500**.

Following the request from the residents, the Committee may also wish to consider the request for immediate raising up to 6 houses at Otaihanga at a budget of \$40,000 per house, or a total of up to \$240,000 for house raising.

6. Flood damage response strategy

A summary of the proposed response to the flood damage incurred as a result of the January storm is as follows:

- Complete repairs to assets and watercourses as set out in **Attachment 1** to a total value of \$1,090,500 as soon as practicable. Rock supply and resource issues mean this schedule of work will carry over into the 2005/06 financial year before it is completed.
- Increase the extent of our current contract with John Ray Ltd for works on the right bank of the Otaki River, downstream of State Highway 1 to a total length of about 260m.
- Advise the affected residents of Council's decision regarding the possibility of bringing forward the raising of up to 6 houses in Otaihanga. If required prepare a project plan following consultation with affected residents, for implementing any house raising approved by Council.
- Contact residents in Convent Road, Otaki to ascertain the extent of the flooding from the Waitohu Stream and see if there are any changes in the community's views (previously canvassed through the Waitohu Stream study) on the need for flood mitigation works.
- Resurvey gravel levels in the lower reaches of the Hutt and Waikanae Rivers, analyse the outcomes and determine whether any new or amended extraction strategies are required. If so then we will implement the new strategy.
- Further progress current investigations into bed degradation problems in the Birchville recorder to Totara Park bridge reach of the Hutt River, consider management options and make recommendations to the Hutt River Advisory Committee as appropriate.

- Work with the Kapiti Coast District Council, Hutt City Council and community representatives to put in place improved flood warning procedures for Otaihanga, Waikanae and Hathaway Avenue, Lower Hutt.
- Work with officers from Upper Hutt City Council to confirm the required scope of the proposed flood plan investigation for the Pinehaven Stream, so that the project can be confirmed or amended as part of preparing Council's next LTCCP.
- Enter discussions with the Manor Park Golf Club to come up with a plan for managing the erosion along the Hutt River boundary and the deposition of sediments from the tributary catchment on the western side of State Highway 2. In the interim we will progress up to 150m of edge stabilisation works at the downstream end of the course to secure the existing works and provide some protection to the golf course.
- Work our way through the schedule of requests for assistance as resources permit, and provide funding assistance where appropriate.

Comments

Repair works are already underway. This includes clean up of berms and removal of debris (mostly trees) from the floodways. We have also completed an urgent repair on the Waitohu Stream.

We now managed to get out and about over most flooded areas, (except for Convent Road in Otaki) and make contact with the affected residents. Similarly we have made initial responses to about half the requests for advice from landowners affected by the floods.

Staff attended the Otaihanga community meeting held by KCDC in Paraparaumu, and are ready to participate in the plan to develop an improved flood warning system with the community. We will hold a similar meeting with Hathaway Ave residents in early March.

We have recommended increasing the extent of the new lower Otaki River edge protection works because the recent floods have increased the size of the existing erosion scarp and there are efficiencies in getting this work done now while we have a contractor geared up and onsite.

The request from some Otaihanga residents to bring forward the house raising is a more difficult matter as it has significant financial implications. In addition you will need to consider the priority of Otaihanga against other communities at similar risk. We propose to present the pro's and con's of bringing forward this work to members at the meeting to assist in the decision making.

7. Financial considerations

Flood Damage Repairs

As noted above, the total cost of the recommended flood repairs, the isolated works and the additional management expenditure in Kapiti is **\$1,138,500**.

This work is proposed to be allocated as follows:

Flood Protection forecast surplus	\$506,000
Flood Contingency Reserve	\$176,000
River Rates Reserves	\$446,500
Private landowner contribution	\$ 10,000
Total funding required	\$1,138,500

The three river rate reserves that will be funding the local share are Hutt City, Upper Hutt City and Kapiti Coast District. Both the Hutt Valley river rate reserves have adequate funds to cover these damages.

However, the Kapiti Coast District and the Flood Contingency Fund (which funds the regional share) will both be in large deficits following the withdrawals needed this year, and in previous years.

The predicted deficits in these two reserves following completion of this work are:

Kapiti Coast District river rate reserve	\$310,000U
Flood Contingency reserve	\$330,000U

The Council's current programme is inadequate to clear these deficits. In particular the deficit in the Kapiti Coast District river rate would have to be cleared by an increase in local river rates, which could have a significant effect on total GWRC rates on the Kapiti Coast. We will prepare a revised programme as part of finalising the 2005/06 Annual Plan.

Otaihanga House Raising

The Flood Protection Operating Plan includes provision of \$117,000 in 2006/07 and again in 2007/08 for house raising/flood proofing Otaihanga. Based on previous estimates this would allow about 6 houses to be raised, although there has been significant cost increases in house construction over the last couple of years.

If the raising/flood proofing of 6 Otaihanga houses was to be brought forward to this summer we consider a budget of \$40,000 per house or a total of \$240,000 would be required. This work would need to be rate funded (not loan funded) because no community asset is created. The share of the rate funding would be 50% from the regional rate and 50% from the Kapiti Coast District river rate.

Because we would be undertaking the job this financial year, the financial implication of this is the local share (\$120,000) would be funded from another

withdrawal from the river rate reserve, which would increase the deficit in this reserve to \$430,000.

The regional share (\$120,000) would be funded by the Flood Protection forecast surplus which would essentially reduce the amount of the surplus that would be available for the flood damages discussed above. This would in turn mean that the additional \$120,000 flood works no longer able to be funded from surplus would come from the Flood Contingency reserve, which would increase the deficit in that reserve to \$450,000.

8. Timing of proposed works and recommended changes to the Flood Protection 2005/06 Proposed Operating Plan.

Flood damage repairs

The scheduled flood damage repairs will probably not be completed by the end of the current financial year – 30 June 2005, as we are unlikely to be able to resource the rock, heavy machinery and labour to complete by that date. Our aim will be to complete the work by December 2005 which may require work in the river beyond the normal 30 May cut off date (fish spawning season).

Otaki River capital works

The additional Otaki River capital works can be completed this summer as it requires only a relatively minor adjustment to the current contract with John Ray Ltd. Bringing forward the works would mean deleting the \$82,000 from the 2005/06 Annual Plan. The additional debt servicing in 2005/06 of \$4,000 could be absorbed within the current Flood Protection budget.

Clearing the deficit in the Kapiti Coast District river rate reserve

With the expected deficit in the Kapiti Coast District river rate (excluding the impact of the Otaihanga house raising) of \$310,000, Council will need to consider increasing the Kapiti Coast District river rates over the next few years, beginning in 2005/06. We recommend the increased reserve contributions be considered as part of finalising the 2005/06 Annual Plan.

Otaihanga House Raising

The speed at which this work can proceed (should Council decide to bring this work forward) will depend on how quickly homeowners can get plans drawn/building permits approved and building contractors mobilised. There is a strong incentive to get the work done so that homes can be repaired and made liveable again. In 1998 the raising of the two houses took over six months to complete.

9. Communication

There is a high degree of communication interest on these matters so we will relay this information directly to those involved.

10. Recommendations

1. *That the report be received and the contents noted.*
2. *That the Landcare Committee recommend to Council that it:*
 - (a) *Approve the expenditure of \$1,138,500 to undertake flood damage repair work in the western rivers and streams as set out in Attachment 1 to this report, to make funds available under the isolated works policy and to undertake survey and ongoing management in Kapiti.*
 - (b) *Approve funding of the \$1,138,500 flood damage repair expenditure by reallocation of \$506,000 from the projected Flood Protection surplus, withdrawal of \$176,000 from the Flood Contingency Reserve and withdrawal of \$446,500 the River Rate Reserves and note that a private contribution of \$10,000 is proposed.*
 - (c) *Approve the bringing forward of \$82,000 expenditure from 2005/06 (loan funded) for extending the new capital edge protection works on the lower Otaki River.*
 - (d) *That it considers whether additional rates should be levied in 2005/06, as part of finalising the 2005/06 Annual Plan, to start clearing the projected reserve deficits in the Kapiti River Rate Reserve and the Flood Contingency Reserve.*
3. *That the Landcare Committee consider the requests from Otaihanga residents to bring forward the raising/flood proofing of up to 6 houses at a cost of \$40,000 per house, or a total of up to \$240,000, and makes a recommendation to Council for a final decision.*

Report prepared by:

Report approved by:

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Attachment 1: Flood Damage Estimates

Attachment 2: Letter from Manor Park Golf Club dated 26 January 2005