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Report to the Landcare Committee
from Graeme Campbell, Project Manager, Flood Protection

**Otaki Floodplain Management Plan : Upper Rahui Improvements Project
Completion Report**

1. Purpose

To report to the Committee on the completion of the Upper Rahui Improvements Project and to inform the Committee on the success of the improvements.

2. Summary

The Upper Rahui Improvements Project was successfully completed in January 2001. The works were completed slightly over budget but to the timeframe agreed by all parties. While the construction work has been completed, more work is required to centralise the channel and it will take a further three to five years before the protection plantings fully establish. The project has already produced benefits, with minimal flood and erosion damage to north bank properties during the October 2000 flood event. However, the south bank cliffs remain unprotected and continue to suffer ongoing erosion.

3. Background

In May 1996 seven landowners on the north bank of the Otaki River near Rahui made a submission to the Council asking it to consider undertaking river improvement work to better control the river and reduce the flood risk to their farm land. The Council considered this submission and in July 1996 (Report 96.288) approved an expenditure of \$20,000 to prepare a proposal for river works. A proposal was prepared that involved a substantial contribution from the affected landowners, and in March 1997 (Report 97.56) the Landcare Committee agreed to include the project in the 1997/2007 Rivers Department Operating Plan.

The project comprised widening the river on the north bank with associated protection works, and constructing a new stopbank on the north bank, all at a total cost of \$550,000. The works were to be funded by a \$160,000 contribution from the Council (by way of a loan, with financial costs funded from general rates) and land and cash contributions from landowners, and gravel extraction revenue. The \$160,000 Council funding represented a 29 percent contribution to the works.

The project reported to the Landcare Committee in April 1998 (Report PE-98.134) following receipt of tenders for the earthworks and gravel extraction contracts, and land access agreement negotiations. The revised costs at that stage showed a project shortfall as a result of higher than expected construction costs and lower than budgeted gravel returns. The Council resolved to contribute a further \$25,000 to the project in conjunction with a further \$8,500 from the landowners in order to balance the project shortfall.

4. **Construction of the Works**

Physical work on the project commenced in November 1998 when the earthworks contractor started stripping the new stopbank alignment. Silt was also stripped from the retreat area (where gravel was to be extracted) and used for construction of the new stopbank. Stopbank construction was substantially completed in April 1999, approximately 12 months behind the original programme due to the delay put on the project while the gravel income and landowner issues were resolved.

Gravel extraction to form the widened floodway commenced in November 1998 and was completed in January 2001. A significant proportion of the gravel was used for the production of precast concrete components for the WestpacTrust Stadium.

Bank edge protection works were constructed between May 1999 and June 2000. The protection works comprised rail iron and wire rope debris fences interplanted with willows. The construction of these new works could only be undertaken once the former farmland had been extracted down to the new design level.

Attachment 1 contains an oblique view of the site following construction of the stopbank but prior to the completion of the gravel extraction.

5. **Financial**

The following table summarises the actual costs and income at completion of the Upper Rahui Project.

	Final agreed budget (August 1998)	Actual	Variance
Stopbank and Land Improvements	\$230,500	\$273,000	(\$42,500)
Bank Edge Protection	\$130,000	\$118,600	\$11,400
Land	\$200,000	\$200,000	0
TOTAL COST	\$560,500	\$591,600	(\$31,100)

Landowner Cash	\$ 58,500	\$ 70,600	\$12,100
Gravel Returns	\$122,000	\$122,900	\$ 900
WRC	\$185,000	\$198,100	\$13,100
Land (Owner Contribution)	\$200,000	\$200,000	0
TOTAL INCOME	\$565,500	\$591,600	(\$26,100)
SURPLUS / DEFICIT	\$ 5,000		

Construction costs were \$42,500 greater than forecast primarily due to undertaking additional land improvements (spreading soil excavated from the retreat area) in the area behind the new stopbank. The edge protection works were able to be completed \$11,400 under budget due to savings in both materials and construction costs.

The more extensive land improvement works were primarily funded by an additional \$20,000 cash contribution from the benefiting landowners.

The total contribution from the landowners was lower than budgeted for two reasons. Firstly two south bank owners have not paid their \$500 contributions, and secondly, the amounts paid by the owners were inclusive of GST whereas we had budgeted on the basis of the payments being GST exclusive. This matter had not been made clear to the owners, most of who are not GST registered, and Council has made up the shortfall. The saving in the cost of the edge protection works and an additional contribution from the Council of \$13,100 balanced income and expenditure.

6. The End Result

Outcomes of the project include:

- a new stopbank on the north bank protecting the rural farmland down to Chrystalls Bend;
- a river channel widened to 280 metres as specified in the Otaki Floodplain Management Plan; and
- new edge protection works established on the north bank of the preferred channel alignment through the Rahui Reach.

Overall the completed project is a success. The north bank landowners are happy with the new works and Flood Protection staff are confident that the river is more manageable in its new configuration with reduced erosion risks.

The new north bank stopbank successfully contained the October 2000 flood event, and relatively little flood damage occurred to the new north bank edge protection works. However, the south bank is continuing to erode with no protection works constructed along the base of this 1km long cliff.

While construction of the Upper Rahui Improvements project is complete, a further three to five years will be required for the protection plantings to fully establish. In addition, further work is required to help establish the river in a centralised channel. There are a number of islands in the channel which require clearing and lowering using a bulldozer. Some of this work was done through the maintenance programme in the 2000/01 financial year and the balance will be completed in the 2001/02 financial year.

The works represent the implementation of a significant portion of the river management improvement of the Otaki Floodplain Management Plan in the reach of the river upstream of the State Highway 1 bridge.

7. **The South Bank**

The south bank of the Upper Rahui reach is still vulnerable to erosion as there are no protection works in place. In 1996 the south bank landowners were invited to join the original Upper Rahui Improvements Project but declined the invitation. The owners have subsequently come back to the Council about the matter and made a submission to the 2001/02 Annual Plan asking that urgent work be undertaken to stop further erosion of their properties. No change was made to the Annual Plan but officers have been asked to report on the options and costs for the protection of the south bank. Work is progressing on the options and costs and outcomes will be reported to the Landcare Committee at the 6 September 2001 meeting.

8. **Recommendation**

That the Committee receive the report and note the contents.

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Attachment 1 : Aerial view of completed stopbank