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

Otaki River : Upper Rahui South Bank Erosion Report

1. Purpose

To advise the Committee on the options and costs for protecting the cliffs on the south bank of the Otaki River at Upper Rahui.

2. Background

The Policy and Finance Committee requested this report following a submission to the Draft 2001/02 Annual Plan by six landowners who are concerned at the erosion of their properties.

The landowners submission made *“an urgent plea to the Regional Council that the draft Annual Plan be amended to make financial provision for works to be implemented to prevent further erosion of their properties”*.

3. The Erosion and Previous Works

The Otaki River has been observed flowing against the cliffs for at least 55 years, since the first aerial photography was taken in the mid 1940s. Over that time the cliffs have been slowly eroding. Numerous works have been put into place to try and prevent the erosion, with only moderate success. In the last ten years the cliffs have eroded back an average of 10m with some areas remaining constant and others retreating up to 30m. A total of 1.5 Ha of land at the top of the cliffs has been lost.

The problem was considered as part of the Otaki Floodplain Management Plan (OFMP). A cliff top erosion zone 15m wide is defined in the Kapiti Coast District Council's District Plan. A number of bank edge protection measures were identified as being necessary to hold the river within a preferred channel alignment. The works were then estimated to cost \$600,000. The works are considered a low priority, when compared to other works identified in the plan, and are not included in the Council's 2000-2010 Long-term Financial Strategy (LTFS).

In 1997 the owners on the north bank of the river expressed their concern at the erosion in the reach and asked Council to implement the river protection works ahead of other programmed works. The north bank owners contributed land and cash, representing 70 percent of the total cost of the works. At that time the south bank owners were asked to contribute to similar works on the south bank but declined; in the end only the works on the north bank were completed. The bank edge protection works on the north bank are now complete and have considerably reduced the erosion risks to both banks by widening the river channel to 250m. Ongoing work to hold the river centrally within the 250m channel is being undertaken within the maintenance budget.

A plan of the site is shown in **Attachment 1** to this report.

4. **Options and Costs**

Three options cover a range of approaches for the works, although only one option will provide the full benefits anticipated by the OFMP. The options are:

(1) **Continue with the Current River Management Within the Existing Budgets**

This option involves continuing to manage and improve the river alignment within the existing maintenance budget. The works include cross-blading, beach clearing and some planting, balanced appropriately with other maintenance priorities. This approach, combined with the benefits from the recently completed Upper Rahui works, will slow the erosion of the south bank but will not stop it.

(2) **Implement Part of the Works Proposed in the OFMP**

The cliff tops have eroded well outside the preferred channel alignment in two sections. It is possible to begin training the river out towards the correct alignment with debris fences and willow planting. The two sections could be implemented separately if necessary although it would be more effective to do both at the same time. The cost estimate for this approach is approximately \$200,000. The partial works will be at greater risk of damage during a flood than the full works.

(3) **Implement the Full OFMP Works**

The full works, to train the river to the preferred channel alignment, are estimated to cost between \$750,000 and \$800,000. This total is 30 percent more than the 1998 OFMP estimate, primarily due to the additional erosion that has occurred since then. The works include debris fences, some with rock heads, beach shaping and willow planting.

5. Considerations

Any decision to construct erosion protection works at the base of the cliff must be considered against a number of issues, as set out below.

5.1 Other Work Priorities

There are a number of discreet projects proposed in the Flood Protection Group's Business Plan that are higher priority than the protection of the cliffs. The priorities were established after considering the:

- number of people at risk.
- value of the works.
- value of assets at risk of flooding.
- social benefits.
- ecological, recreational and landscape benefits.

The south bank works would improve landowner safety. The main asset at risk is the farm land at the top of the cliffs. The value of land eroded over the last ten years is estimated to be around \$30,000. Significant ecological and landscape benefits would occur if the work was done. A substantial stand of old Totara trees is being lost through the cliff top erosion.

Works included within the current 2000-2010 LTFS are the Chrystals extended stopbank, below State Highway 1 (to protect the Otaki township) and river works that prevent erosion of the stopbanks which currently protect Otaki. To provide some comparison, both of these works provide direct benefit to several thousand people and millions of dollars of assets.

5.2 River Alignment

The river has eroded up to 100m outside the preferred channel alignment and there is a danger that this could result in a misalignment developing further downstream. The river will not be allowed to develop such a meander outside the preferred channel alignment once the OFMP works have been put in place.

5.3 Buying Priority

The Council could consider a similar proposition to that offered to the north bank owners. They bought a higher priority by contributing a substantial proportion (approximately 70 percent) of total project cost.

The number of landowners on the south bank (13) and the small scale and diverse nature of lifestyle blocks mean that it will be more difficult for them to co-ordinate a similar initiative to complete the total project.

5.4 **Implementing a Portion of the OFMP Works**

This option presents a “middle road”, but again the issue of priority over other planned projects arises. The Regional Council would achieve some ecological benefit for the community by protecting the stand of Totara, and limiting further migration of the river away from the preferred alignment. These benefits in themselves are not sufficient to advance the works ahead of other planned projects. Any partial implementation of the south bank works would probably require the same formulae for buying priority as was given to the north bank Rahui initiative.

6. **Summary**

The current 2000-2010 LTFS workload, and the additional projects that have arisen, already present a challenge for Flood Protection staff. We recommend that the Regional Council consider a partial implementation of the full OFMP Rahui south bank alignment works as part of the 2003-2013 LTFS process. That process will commence in late 2002. At that stage, the overall balance of flood protection projects and corresponding costs can be considered in context with the Regional Council’s other functions.

In the interim we should continue the channel alignment work allowed for in the annual maintenance programme.

7. **Recommendations**

- (1) *That the report be received and the contents noted.*
- (2) *That Council:*
 - (a) *consider partial implementation of the Otaki Floodplain Management Plan, Rahui south bank river alignment works (approximate cost \$200,000) as part of the 2003-2013 LTFS process.*
 - (b) *advise the six submitters to the Regional Council’s 2001/02 Annual Plan of the recommendations of this report.*

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Attachment 1 : Aerial Photograph of the Upper Rahui Reach