greater WELLINGTON
REGIONAL COUNCIL

Report **05.166**
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Committee **Landcare**
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Hutt River gravel extraction

1. Purpose

- To inform the Landcare Committee of the results of the analysis of the part cross-section survey conducted in the Hutt River following the January 2005 flood event.

- To obtain Landcare Committee endorsement of a substantial increase in gravel extraction rate, with the target of reaching 1998 bed levels by June 2009.

2. Significance of the decision

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. Background

After an eleven year moratorium, gravel extraction was reinstated in the Hutt River in 2001. A total of about 50,000m^3 of gravel was removed from Ewen bridge to Kennedy Good bridge between 2001 & 2004.

In September 2004, following a recommendation by the Hutt River Advisory Committee, Greater Wellington Regional Council (GWRC) adopted a set of revised Gravel Management Policies for the Hutt River. An agreement was subsequently reached with Horokiwi Quarry and Winstones Aggregates Ltd to extract an increased quantity of 30,000 m^3 per annum (up from 10,000m^3/annum). This extraction is progressing to target.

A 25-year return period flood event occurred in the Hutt River on 6 January 2005. This event was of a similar size to the October 1998 flood event, but certain areas of the river corridor in the lower Hutt Valley and Hathaway Avenue experienced increased flooding. While there are a number of factors involved in the higher flood levels, it is believed that this increased flooding was partly due to increased river bed levels in the reach between Melling Bridge and Kennedy-Good Bridge.

A limited cross-section survey through the extraction reach between Ewen Bridge and Belmont was carried out in February 2005 to determine changes in bed levels following the January flood.

4. Summary of gravel analysis results

4.1 Bed level changes

The results of the cross-section survey show that, in general, bed levels through the extraction reach between Ewen Bridge and Belmont have further increased from the 2004 levels, with an average increase of 100 mm and a maximum increase of 340 mm. **Attachment 1** shows the calculated 2005 mean bed levels in comparison with the 1987, 1998, and 2004 mean bed levels. The recommended maximum and minimum mean bed levels for the Hutt River are also shown.

4.2 Gravel volume changes.

An analysis of the 2004 and 2005 survey data shows that the general trend of increasing volumes through this reach is continuing. Our estimates show that 30,000 – 45,000 m^3 of gravel has accumulated in this reach from Ewen Bridge to Belmont during the 2004-2005 period. Bed levels have noticeably increased between 2004 and 2005.

5. Bed level options

Gravel bed levels in the Ewen Bridge to Belmont reach of the river are now at, or exceed, the maximum recommended bed level.

Lowering the river bed in the extraction reach is now considered by many people to be appropriate to reduce the frequency of flooding of the river berms and adjacent areas.

We have considered three options for managing the river bed levels.

- Option One – Maintain the status quo of removing 30,000 m^3 of gravel per year.
- Option Two – Increase the extraction rate to lower the current bed levels to about the 1998 levels.
- Option Three – Increase the extraction rate to lower the current bed levels to the 1987 levels.

5.1 Option One – Maintain status quo

For this option the extracton rate would remain at the current 30,000 m^3 per year. This is the estimated average annual gravel inflow rate to the extraction reach. Continuing extraction at this rate will remove the additional gravel entering the reach, but the bed levels will remain the same. Over the next four years until the next full cross-section survey, this would result in a total extraction amount of 120,000 m^3.

The current levels are very high, and in many cases are higher than the maximum recommended bed level, as shown in **Attachment 1**. Our assessment is that the current flood risk in low areas such as Hathaway Ave is too high and therefore maintaining the status quo is not acceptable.

5.2 Option Two – Lower river bed to 1998 levels

This option involves increasing the gravel extraction rate to lower river bed levels in the extraction reach to about the levels experienced in 1998, and achieve this by 2009. The next 5-yearly cross-section survey is due in 2008/09 and new extraction policies could be adopted after this survey. Option Two requires a total extraction amount of approximately 320,000 m^3. This results in an annual extraction rate of approximately 80,000 m^3 per year over the next four years.

This option would reduce the frequency of flooding on the berms and adjacent areas. Currently flood protection structures and systems in the Hutt River are designed using the 1998 bed levels. This option would therefore have the advantage of restoring the lower reaches to design bed levels. The 1998 bed levels provide a small buffer as they are generally below the maximum recommended bed levels, as can be seen in **Attachment 1**.

5.3 Option Three – Lower river bed to 1987 levels

This option involves introducing a gravel extraction rate that would lower river bed levels in the extraction reach to near the levels experienced in 1987, and achieve this by 2009. Option Three gives a total extraction amount of approximately 548,000 m^3. This results in an annual extraction rate of approximately 137,000 m^3 per year over the next four years.

This option would significantly reduce the frequency of flood on the berms and adjacent areas. However, **Attachment 1** shows that the 1987 levels are very close to the minimum recommended bed levels. Our previous experience would suggest that the 1987 levels are probably too low, and likely to cause additional lateral erosion and undermining of bank edge protection, thus increasing the risk that stopbanks could be breached. Extraction was stopped in 1990 because of erosion and bed level stability concern.

6. Proposal

It is proposed that Option Two be adopted, as it lowers the bed levels to below the maximum recommended levels, increasing the flood capacity of the river with a low risk of lateral erosion.

This option involves an increase of the annual gravel extraction rate from the current 30,000 m^3/year to approximately 80,000 m^3/year. We believe that 80,000 m^3/year is a practically achievable extraction rate with a minimal impact on the environment and at no cost to the ratepayer.

7. Where to from here

Because of the urgency of this work, Flood Protection staff have already started negotiations with our current contractor to increase the extraction rate. The contractor has responded positively to the new proposal. It is proposed to finalise a contract following Landcare Committee consideration of the proposal. The increased extraction rate is proposed to commence on 1 July 2005.

The current resource consent only allows extraction on the river beaches (to within 200 mm of the water level) in the river. The extraction of large quantities of gravel will require extraction below the water level. This will in turn require a variation to the current resource consent, so that extraction can occur in the water. The proposed "wet" extraction will have greater environmental effects than the current "dry" extraction regime. For that reason we expect the revised resource consent will have additional conditions for us to comply with. Flood Protection staff have started working on this and expect to lodge an application for this variation by July 2005.

8. Communication

We have already informed Hathaway Avenue residents, Hutt and Boulcott golf clubs and Waimarie croquet club about our intentions to recommend an increase the gravel extraction rates to lower the river bed. We will consult with other interest groups as part of the consent variation process. A news release will be issued should the Committee accept the recommendation.

9. Recommendations

That the Committee recommend to Council that it:

1. ***receive*** *the report.*

2. ***note*** *the contents of the report.*

3. ***endorse*** *the proposal to increase the gravel extraction rate to about 80,000m^3 per annum with the target of achieving 1998 survey bed levels by June 2009.*

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Attachment 1: Hutt River Mean Bed Levels