



EDGE CUMBE-RANGITAIKI PLAINS FLOOD MITIGATION WORKS

July 2010 Progress Report to Department of Internal Affairs

Bay of Plenty Regional Council

Edgecumbe and Rangitāiki River Flood Mitigation Project

July 2010 Progress Report to the Department of Internal Affairs

1 Executive Summary

Bay of Plenty Regional Council works on the Edgecumbe and Rangitāiki River Flood Mitigation Project comprise three separate aspects; geotechnical strengthening; Rangitāiki Floodway widening and construction of the Rangitāiki Spillway structure. Progress on the works and revised cost estimates as a result of more detailed design and undertaking the works themselves are reported.

Geotechnical strengthening works for the 2009/2010 financial year have progressed well; however delays with getting geotechnical investigations completed on time have caused some works to be carried forward to the 2010/2011 financial year. Consequently the geotechnical works expenditure for the year was \$869,087 compared with the budgeted amount of \$1,250,000. Cost estimates for geotechnical works are typically very uncertain until the final detailed investigation is undertaken. Revised cost estimates are that the geotechnical works will now cost \$2.6M more than the original estimates.

Floodway widening works are planned to be undertaken between 2012 and 2014, although some minor preparation work has been undertaken. Spillway control works are programmed for 2013-2014 so no significant work has been done in this area. Initial design work on the controlled spillway and revised cost estimates has these works now estimated to cost \$1.2M less than originally anticipated.

Key issues and risks of the works are discussed and ongoing communication of these works to the public is reported.

2 Background

Over the period 15 – 18 July 2004 the eastern Bay of Plenty was subjected to both extreme rainfall and a swarm of localised earthquakes, causing flooding damage and community disruption in the Whakatāne District. In May 2005, localised extreme rainfall caused additional flooding damage and community disruption.

Subsequently, Bay of Plenty Regional Council (BOPRC), in conjunction with the Whakatāne District Council (WDC), presented a request for special policy financial assistance to the Government for new hazard mitigation works related to the recovery from the 2004 and 2005 events.

On 17 June 2009, Cabinet agreed to the provision of \$3.367 million (GST exclusive) to BOPRC toward new hazard mitigation work to be conducted on the Rangitāiki River Flood Protection scheme, as detailed in Section 2.1.4 of Improved Hazard Mitigation in Whakatāne District business case claim.

The Government contribution is set out in the Agreement for Financial Assistance for Hazard Mitigation Work for the Rangitāiki River Flood Protection Scheme dated December 2009.

This progress report is required by the above agreement and covers only the BOPRC flood mitigation works. BOPRC and WDC are working closely together to implement the flood mitigation measures; however WDC will furnish progress reporting for their part of the project separately.

A previous progress report on this project has been provided by BOPRC dated February 2010.

3 Introduction

The BOPRC works comprise three separate aspects; geotechnical strengthening of the stopbanking system, Rangitāiki Floodway widening works and construction of the Rangitāiki Spillway structure. Progress with these areas is explained as follows:

4 Geotechnical strengthening works

Investigations into previous failures of the flood protection system revealed that the stability of the foundation materials beneath the stopbanks is substandard in many areas due to the pervious and light-weight nature of the highly variable subsoil layers. Significant geotechnical strengthening works have been recommended over much of the of stopbanked section of the lower Rangitāiki River. This work has been ongoing for several construction seasons now as this weakness was recognised as being the highest priority essential remedial works regardless of whether or not the Government would contribute toward the works.

Expenditure on the geotechnical strengthening works for the 2009-2010 financial year is shown in detail in Appendix 2. Overall expenditure to date and the estimates to complete the whole project are shown in Appendix 1. Expenditure during the 2009-2010 financial year closed significantly below budget (approximately \$300,000) as investigations into the Thornton School section of stopbank took longer than expected and the works would then have encroached into the whitebait spawning season which is prohibited by the Regional Water and Land Plan. BOPRC will carry forward that under-expenditure into the 2010-2011 financial year.

Progress with the high priority Edgecumbe urban stopbank strengthening works has been very good and all of the works programmed for the township have now been completed.

The berm reinstatement and rock protection works at the Thornton School has grown significantly in estimated cost now that site investigations are complete. This work, previously estimated at \$180,000, is now expected to cost approximately \$670,000 as a result of the length of the site trebling in size and significant berm reinstatement works being required. This site is particularly challenging from a geotechnical viewpoint as there is quite limited space between the rivers edge and the adjacent stopbank and East Bank Road. The power transmission lines that run along the site and the concrete floodwall also complicate construction methodology.

The overall cost of the geotechnical strengthening project is now expected to cost approximately \$2.6M more than the estimate provided with the business case claim.

The status of the geotechnical remedial works project (refer Appendix 3) is summarised as follows:

Status of works	Number of works	Percentage of total
To be investigated	7	16%
Under investigation	2	4%
Investigation complete	6	13%
Work in progress	1	2%
Works complete	29	65%
Total number of works	45	100%

Note: The percentage figure for “investigation complete” has reduced from the previous report as the status of those works have moved on to either “works in progress” or “works complete”.

The works programme and estimates for the 2010-2011 financial year is included in Appendix 4. Locations for all of the geotechnical strengthening works are shown on Map 1 and Map 2 attached.

5

Rangitāiki Floodway Widening Works

The major works involved in widening the lower reach of the Rangitāiki Floodway are programmed to occur in financial years 2011-2012 and 2012-2013 (refer capital works schedule from Council’s Ten Year Plan – Appendix 5). Notwithstanding, there are intermittent preparation works involving progressing detailed designs, landowner consultation, and other planning works occurring currently and this is expected to continue at a relatively low level of expenditure per annum until the works are imminent. An amount of \$100,000 has been brought forward to the current financial year to cover this enabling work; however the overall estimate for the floodway widening is unchanged.

6 Rangitāiki Spillway Works

The original business case application to Government included the Rangitāiki Spillway control structure design as a concrete/steel radial gate configuration. Further research following lodging of the business case has found that the profile of the spillway (ie. being long and shallow rather than narrow and deep as radial gates usually are) better suits an inflatable dam device. This option was investigated and costed. The inflatable dam option cost is estimated at \$1.9M compared with the radial gate structure option at \$3.1M. The inflatable dam option has now been included as the preferred option in the project estimate.

The spillway works are not programmed in Council's Ten Year Plan until 2013-2014 (refer Appendix 5).

7 Resource consent

Resource consent for the works herein was granted in September 2009.

8 Key issues/risks

8.1 Scope of remaining geotechnical strengthening works

The cost of the geotechnical works is dependent upon the scope of the remedial works recommended by the Geotechnical Engineer. The estimates included in Appendix 4 for the remaining works that have not yet been investigated (ie currently still 9 sites to be investigated or under investigation as shown in Appendix 3) are based upon the recommended remedial works being of a similar scope to those investigated to date. If these investigations reveal different field conditions than expected there is a likelihood that the estimates for the remedial works will change. This is demonstrated on the Thornton School berm reinstatement and rockworks where the length of the job has trebled in length with a resultant estimate increase for that work of approximately \$500,000.

This same issue applied to the original business case application where a relatively low number of sites had been investigated at that time. Consequently the estimate was based on insufficient information and there is now a significant variation in the estimated geotechnical works cost from \$1.5M in the business case to \$4.1M in the current project estimate.

8.2 Landowner acceptance of proposed remedial methods (eg inundation)

The recently completed investigation for Site 3c "Thornton School – Shaws/Tops lowland area" involves an area of approximately 80 hectares of low lying land that is significantly lower than the adjacent stopbanks. In an extreme flood event the geotechnical analysis indicates a high risk of a seepage induced foundation failure (ie similar to Sullivan's breach during the 2004 flood event). The recommended remedial works propose intentionally flooding the low lying basin prior to a flood event to minimise the head difference between the flood level in the river and the low lying ground. This option has yet to be discussed

with the affected landowners and it is expected that they will be very nervous about this approach and will want to know what safety and recovery measures will be put in place if and when this eventuality arises. The alternative remedy, to import fill material to provide resistance against the seepage uplift pressures (as has been the common remedial work at other sites) would be extremely expensive and not favoured at this stage.

8.3 Compensation for perceived loss of farm land value

Landowners affected by the proposed floodway widening works have expressed some concern that passing additional flow down the Rangitāiki Floodway (ie 200 m³/sec compared with the current 100 m³/sec) will reduce the value of their properties due to a perceived increase in flood risk. It has been explained to the landowners that the purpose of the floodway widening works is to make the flood protection more robust and therefore safer; however their perception is different.

This concern was raised during the resource consent consultation; however it was agreed that compensation, if any, for this issues would be addressed during the landowner permission phase. Once we have final design details completed for the floodway works we will be progressively seeking formal landowner agreement to enter their properties to carry out the proposed works. Compensation issues will be addressed at that stage, however landowners are in a strong bargaining position as BOPRC can't enter onto their property without first obtaining that entry agreement. There are other mechanisms for gaining authority to proceed (ie Public Works Act); however that is always the last resort as it is very costly and creates significant ill-feelings with the landowners and community.

While the estimated cost for the Floodway works includes land compensation based on usual compensation sums this issue has potential to increase costs above what has been budgeted.

8.4 Construction of the SH 2, Reids Central Canal bridge

The full capacity functioning of the widened Floodway relies on the State Highway Bridge at Reids Central Canal being replaced by a structure with increased waterway capacity. The resource consent for the flood mitigation project restricts commissioning of the Spillway structure until the replacement bridge is completed. BOPRC's Ten Year Plan capital programme has the structure planned for the 2013-2014 financial year (refer Appendix 5).

NZ Transport Agency has the bridge construction programmed for the 2011-2012 construction season. This will work in well with the programmed construction of the Spillway structure; however slippage of the NZTA programme could impact on completion of the spillway structure.

9 Grant payment schedule

In June 2009 Government approved a contribution of \$3,367,000 toward BOPRC's share of the Edgecumbe-Rangitāiki River Flood Mitigation Project.

The December 2009 agreement with The Department of Internal Affairs sets out the following schedule of Government contributions:

Amount (excluding GST)	Due Date	Status
\$462,500	January 2010	Received
\$462,500	July 2010	Pending this progress report
\$907,500	July 2011	
\$907,500	July 2012	
\$627,000	July 2013	
\$3,367,000		

10 Routine maintenance costs and 2004 flood response costs

The Rangitāiki-Tarawera River Scheme received Government funding assistance for the 2004 flood response and recovery works carried out on the scheme. The works involved in this flood mitigation project are separate from the 2004 response and recovery works and no aspects of the expenditure detailed here overlap with that project. Similarly, routine river maintenance works and any 'business as usual' costs are excluded from this claim. The stopbank strengthening works at site 43a have a component of stopbank raising work (identified as being lower than design height) and this will be surveyed before and following the work to measure and deduct the additional cost involved.

A declaration from the Chief Executive of BOPRC regarding routine maintenance costs and business as usual costs being excluded from this project is attached (refer Appendix 6).

11 Council Collaboration

BOPRC and WDC have been working closely together to get the Edgecumbe urban area works progressed. BOPRC staff have managed construction of the east side (north-east and south-seat quadrants) stopbank raising works, and parts of the south-west quadrant works for WDC. BOPRC has expended \$136,050 (refer Appendix 1) managing some of the Edgecumbe works on behalf of WDC. Revenue from WDC to cover this cost (some progress invoicing to come) is also shown on Appendix 1.

12 Public information

BOPRC has kept, and will continue to keep, the public aware of the significant financial contribution from the Government. Several news media releases have included this information and a media release was made specifically to

announce the decision in June last year. Wherever relevant the close cooperation between WDC and BOPRC is also emphasised. Recent media releases relating to the project are attached (refer Appendix 7).

Report prepared by Bruce Crabbe, Operations Manager Rivers & Drainage



**Bill Bayfield
Chief Executive**

Edgecumbe - Rangitaiki River Flood Mitigation Project

Project Expenditure Summary

	Actual Expenditures to Date				Estimates to Completion				Actuals + Estimate to Completion	Business Case Budget	Variance
	05/06	06/07	07/08	08/09	09/10 (see note 2 below)	10/11	11/12	12/13	13/14		
Options investigation, design, Business Case claim, & resource consent application		22,087	109,788	42,827	0					excluded	174,702
Geotech works management and supervision	excluded	excluded	15,891	9,198	33,758	40,000				incl below	98,847
Geotechnical Investigations (external engineering consultants)	24,043	74,002	65,646	36,792	30,756	40,000				incl below	271,239
Geotechnical stopbank strengthening works	30,763	489,789	668,378	423,891	804,573	1,692,000				1,500,000	2,609,395
Edgecumbe stopbank construction works					136,050					0	136,050
Floodway widening works					59,902	100,000	2,590,098	2,750,000		5,500,000	0
Spillway control structure									1,900,000	3,100,000	-1,200,000
Totals =>	54,806	585,878	859,703	512,708	1,065,039	1,872,000	2,590,098	2,750,000	1,900,000	10,100,000	2,090,233

Notes:

- 1. All cost details exclude GST and inflation adjustments.
- 2. Refer to Appendix 2, sheet "DIA Progress Report - July 2010 - Summary Revenue and Expenditure for 2009-2010 ex Tech1" for 2009-2010 expenditure details.
- 3. Geotechnical works for 2010/2011 are still being progressively investigated and firm cost estimates for 9 remaining sites have not been established yet.
- 4. The Edgecumbe stopbank construction works expenditure is funded by Whakatane District Council as their part of the flood mitigation project.

Appendix 1

Expenditure and Revenue Details from Environment Bay of Plenty Finance System

Component 1 drilldown for 721									
Criteria:									
Rangitāiki-Tarawera River Scheme - Capex Report for 2009-2010 Financial Year									
Project Level Details		Expenditure			Revenue			Annual Budget	
		Actual	Budget	Variance	Actual	Budget	Variance	Budget	% Net Exp of Ann Bud
RT000001 - Rangitāiki-Tarawera stopbank strengthening project stage 1		1,065,039	1,250,000	184,961	584,911			1,250,000	0.00%
Subproject Level Details		1,065,039	1,250,000	184,961	584,911			1,250,000	85.20%
Geotechnical Strengthening Works:									
RT01.GA0.CX.01 - Geotech works - Hydro Road (Jackson's) Toe-loading overlay works		47,332							
RT01.GB0.CX.01 - Geotech works - Langdon Site No 11, Seepage relief wells		22,810							
RT01.GC0.CX.01 - Geotech works - Langdon Site No 11a, Berm works		10,762							
RT01.GD0.CX.01 - Geo Works- Hydro Road - Jacksons Site drainage works		17,794							
RT01.GE0.CX.01 - Geo Works -Thornton - Moores Drain Site 2b		1,272							
RT01.GF0.CX.01 - Geo Works - Campbells Corner Site 49a		256,851							
RT01.GG0.CX.01 - Geotech Works - Otakiri Road Site 43		117,404							
RT01.GH0.CX.01 - Geotech Works - Blacks Site 49		134,994							
RT01.GI0.CX.01 - Geotech Works - Site 37a Main Street site		136,116							
RT01.GK0.CX.01 - Geotech Works - Site 37a Main Street site		40,117							
RT01.GO1.CX.01 - Rangitāiki-Tarawera stopbank geotech stage 1		19,121							
RT01.GO1.MA.01 - Rangitāiki-Tarawera stopbank geotech management and investigations		64,514							
RT01.CX0.GE.01 - Capital Works - DIA revenue									
Subtotals		869,087			462,500				
Edgecumbe Stopbank Works:									
RT01.SB1.CX.01 - EFM - Edgecumbe Eastern Stopbank reconstruction works		90,973							
RT01.SB2.CX.01 - EFM - Edgecumbe South-Western Stopbank reconstruction works		45,077			77,954				
Subtotals		136,050			44,457				
Floodway Widening Works:									
RT01.SB3.CX.01 - EFM - Fletcher Beam relocation to Reids Canal		22,106			122,411				
RT01.SB1.MA.01 - Edgecumbe Flood Mitigation project management and investigations		37,796							
		59,902							
Subtotals		1,065,039	1,250,000	184,961	584,911		0	1,250,000	0.00%

Rangitaihi River Geotechnical Works Schedule as at 30 June 2010				
Site No. (file #)	Geotechnical Report Section/Description	Location	Status	Remedial Measures
2a	Van den Top-Phillips	LB 1700 - 2150	Works Complete	Filled drain at stopbank toe
2b	July 2007 Report			
3a	Moore Road seepage	LB 1620-1900	Investigation complete	Salt water intrusion to low basin. Also concern that there could be further areas downstream and opp. Side of river . Works programmed for 2010/2011
3b	Thornton School - Seepage at Braemar water line	RB 2500-2600	Investigation complete	Possible seepage along water main under river. Works programmed for 2010/2011
	Thornton School - Berm & rock works	RB 2300 - 2950	Investigation complete	Works programmed for 2009/2010
3c	Thornton School - Shaws/Tropps lowland area	RB 2100 - 3100	Investigation complete	Consultation with affected landowners required before final option resolved. This work also addresses Site 5 seepage concerns
5	Section 11	RB 2900 - 3200	Works Complete	Stability and seepage. Wall joints, and foundations grouted to reduce seepage
8	East Bank Road Floodwall	RB 2900 - 3200	Works Complete	Stability and seepage. Wall joints, and foundations grouted to reduce seepage
10	Greig Road Floodwall	LB 3800	Works Complete	Possible seepage area Reynolds Bend. Works programmed 2010/2011
	Reynolds Bend	RB 4200 - 4900	To be investigated	Seepage relief wells and overlay
11	Langdons seepage	RB 4899 - 6300	Works Complete	
11a	Part section 4 above	RB 5650 - 5870	Investigation Complete	Berm material to be used for overlay work
15	Langdons berm	RB 6400 - 7350	To be investigated	Seepage analysis still to be done
22	Section 12	RB 8950 - 9100	To be investigated	Seepage analysis still to be done
23	Section 2	LB 9100 - 9300	Works Complete	Pressure relief trench
24	Opp. Tanekaha St	RB 9280 - 9370	No works required	No geotech works required. Required rockworks will be completed as maintenance works.
25	Hendri's to Tanekaha St	LB 9300 - 10150	Works Complete	Tree clearing, berm seepage cut-off and rockworks
25a	Concrete floodwall	LB9350-9720	Works Complete	Floodwall seepage cutoff nib-wall completed
28	63A College Road (Hendri's Subdivision)	LB 9820 - 9970	Works Complete	Overlay on town side of stopbank
29	Section 14	LB 10150 - 10300	Works Complete	Pressure relief trench and tree clearing completed
30	Section 1	LB 10300 - 10400	Works Complete	Sheet piling for seepage cutoff
30a	35 College Road	LB 10350 -10600	Works Complete	Rock protection/berm seepage cut-off
32	College Road	LB 10450 - 10600	Works Complete	Rock protection/berm seepage cut-off
33	Section 13	SH2 to Riverslea Floodwall	Works Complete	Pressure relief trenches, overlays & subsoil drains complete. Tennis court retaining wall completed.
33a	Upstream of Riverslea Wall	LB 10400 - 10600	Works Complete	Seepage stripdrain completed
37	Section 5	Kowhai Av. to SH2 (part of Ngaio Place works)	Works Complete	Pressure relief trench and 1m overlay.
37a	Upstream Rail bridge - Main Street	LB 11200 - 11500	Works Complete	Berm reinstatement & rock works on river bank underway
38	New section	LB 11300 - 11450	Works in progress	Coal concern re seepage. Toe loading
38a	Miro Place	RB 11200 - 11850	Works Complete	Debris pile on berm removed. Mound beneath bridges removed
38b	SH2 & Rail Bridge stopbank	RB11150-11180	Works Complete	Raise stopbank between bridges. Marianne concern re sand layers
38c	Hydro Road seepage wells	RB11700-11900	Works Complete	Seepage relief wells on Hydro Road complete
39	Section 3	Ngaio Place Section (Fert works to Kowhai Av.)	Works Complete	Pressure relief trench, wells (Ngaio Place) and overlay completed.
40a	Part Section 6	Hydro Road (Wayne Howe)	Works Complete	Seepage relief trench
41	Section 6	Downstream of Transpower	Works Complete	Rock protection/berm seepage cut-off
41a	Downstream of Transpower	RB 11600 - 12260	Works Complete	Toe-loading overlay works - multiple sites.
41b	Transpower to Miro Pl.	RB 11600 - 11950	Works Complete	Stopbank seepage control works
41c	Downstream of Transpower	RB 11950 - 12200	No works required	No geotech works required. Required rockworks will be completed as maintenance works.
43	Section 10	LB 12200 - 12700	Works Complete	Berm seepage, rockworks and stopbank seepage cutoff
43a	Otakiri Road area	LB 12400 - 14400	Works Complete	Seepage cutoff layer along stopbank
46a	Black's Farm	RB 12850	No works required	Wet area investigated - no works required (Marianne email of 10-9-07)
49	Section 8	LB 13000 - 13500	Works Complete	Berm seepage, rockworks and stopbank seepage cutoff
49a	Campbell's Corner	LB 14100 - 14350	Works Complete	Stopbank seepage control works completed
50	Upstream of Sullivan's	RB 13600 - 13800	To be investigated	Seepage concern (old meander course?)
53a	Kokohinau Bend (seepage trench/overlay)	LB 15870 - 16000	To be investigated	Seepage concern at original repair site
58	Section 7	LB 17600 - 18000	To be investigated	Seepage and stability (omo hole etc)
73	Omeheu Canal (Richardson's)	RB 3600-3700	Works Complete	Toe loading of seepage area completed - Omeheu Canal not on map
74	Reids Floodway (Vierbooms)	RB 1500- 1700	Investigation complete	Seepage concern - Cut off drain & overlay programmed 2010/2011
75	Reids Floodway (Shaws)	LB 2320-2740	To be investigated	Seepage concern
76	Thornton Hall Road	RB800-1000	Under investigation	Seepage concern. Overlay works programmed 2010/2011
77	Thornton Hall Road	RB1500-1900	Under investigation	Seepage concern. Overlay works programmed 2010/2011

Note: Refer to the aerial photo-plan maps attached for locations of works.

Edgecumbe-Rangitaiki River Geotechnical Remedial Works Project

Geotechnical Works Programme and Estimates

Description	2010/2011 Works
Site 2b: Moore property - Thornton. LB 1620-1900 Drainage stabilisation works to control seepage pressures	120,000
Site 3: Thornton School Section: RB 2100-3100 3a) Overlay and filter to control seepage around Braemar water pipe 3b) Berm reinstatement and rockworks 3c) Shaw/Top seepage remedial works: solution still unknown	10,000 670,000 100,000
Site 5: East Bank Road: Floodwall remedial works. The seepage issue at this site addressed by the 3c) works above	included above
Site 10: Reynold's Bend RB 4200-4900: Toe load/overlay assumed	72,000
Site 11a: Langdon's berm RB 5650-5870: material removal to overlay house block	10,000
Site 15: Upstream of Langdon's (cow shed to old house overlay) RB 6400-7350	50,000
Site 22: Opposite Soldiers Road RB 8950-9100	50,000
Site 37a: U/s Rail Bridge - Main Street Site LB 11300-11450 Berm seepage cut-off and rock protection works	40,000
Site 50: Upstream Sullivan's breach RB 13600-13800. Seepage trench/overlay	40,000
Site 53a: Kokohinau Bend. LB 15900-16000. Seepage trench/overlay	40,000
Site 58: Pryor seepage. LB17600-18000. Seepage trench/overlay	40,000
Site 74: Reids Floodway (Vierboom's) - RB 1500-1700. Toe-load/overlay	100,000
Site 75: Reids Floodway (Shaw's) - LB 2320-2740. Toe-load/overlay	50,000
Site 76: Thornton Hall Road RB 800-1000. Overlay work assumed	60,000
Site 77: Thornton Hall Road RB 1500-1900. Overlay work assumed	80,000
Works Only Subtotal	1,532,000
Supervision/Management	40,000
Geotechnical Engineering investigations (M O'Halloran)	40,000
Project Subtotal	1,612,000
Contingency sum	160,000
Estimate Totals	\$1,772,000

Refer to aerial photo-map for works locations

Activity: Rivers, Drainage and Flood Management Estimated Capital Expenditure – Inflation Adjusted

Type	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)	(\$000)
Capital expenditure by Programme (detail)										
Rangitaiki-Tarawera Rivers Scheme										
Rangitaiki-Tarawera stopbank strengthening (geotech) stage 1	Renewal	1,250	0	0	0	0	0	0	0	0
Rangitaiki-Tarawera stopbank strengthening (geotech) stage 2	Renewal	0	1,287	0	0	0	0	0	0	0
Rangitaiki Floodway widening - stage 1	New	0	0	2,926	0	0	0	0	0	0
Rangitaiki Floodway widening - stage 2	New	0	0	0	3,023	0	0	0	0	0
Rangitaiki spillway control structure	New	0	0	0	2,164	0	0	0	0	0
Rangitaiki-Tarawera stopbank (Te Teko school section)	New	0	0	0	0	118	0	0	0	0
Tarawera stopbanks - stage 1	Renewal	0	0	0	0	708	-0	0	0	0
Tarawera stopbanks - stage 2	Renewal	0	0	0	0	0	733	-0	0	0
Rangitaiki stopbank - stage 1	Renewal	0	0	0	0	0	0	762	-0	0
Rangitaiki stopbank - stage 2	Renewal	0	0	0	0	0	0	0	550	0
Floodway stopbank raising (outside of widened sections)	Renewal	0	0	0	0	0	0	0	0	1,074
Rangitaiki-Tarawera Matata Recovery Works	Renewal	400	0	0	0	0	0	0	0	0
Rangitaiki-Tarawera Reach 10 canal stopbanks	Renewal	400	0	0	0	0	0	0	0	0
		2,050	1,287	2,926	3,023	2,164	826	733	762	550
										1,074

Appendix 5

Appendix 6: Declaration

I hereby certify with reference to this progress report to the Department of Internal Affairs relating to BOPRC's part of the Edgecumbe-Rangitāiki River Flood Mitigation Project:

- That each River Scheme asset under consideration is maintained consistent with reasonable practice in the sector and that no grounds exist for believing that a lack of maintenance or protection has increased the cost of this remedial work in any way.
- That the geotechnical strengthening, floodway widening or spillway construction works detailed in this progress report do not overlap with any 'business as usual' routine maintenance costs associated with the scheme's management.



Bill Bayfield
Chief Executive



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Giant freebie cuts costs of floodway project

REUSING and recycling on a mammoth scale is likely to save the ratepaying members of the Rangitaiki-Tarawera flood protection scheme \$125,000.

Environment Bay of Plenty is recycling a giant reinforced concrete beam obtained from Fletcher Construction – just for the cost of transporting it from Tauranga.

The girder was surplus to the Tauranga harbour bridge expansion project, and is now destined for use as a replacement farm crossing on EnvBOP's Rangitaiki River floodway widening project.

The 70-tonne, 35-metre beam was moved by two specially-adapted heavy haulage trucks and is now stored on Glenn Shaw's farm at East Bank Road, near Thornton.

EnvBOP estimates the beam will save the floodway (known also as Reid's Canal) widening project \$125,000.

EnvBOP regulation monitoring and operations committee chairman Malcolm

Whitaker said two farm bridges would have to be replaced as part of the widening project, and the beam would bring other benefits as well as cost savings.

The beam will allow a bridge to be built across the canal without a central pier, which could otherwise become a collection point for flood debris Mr Whitaker said.

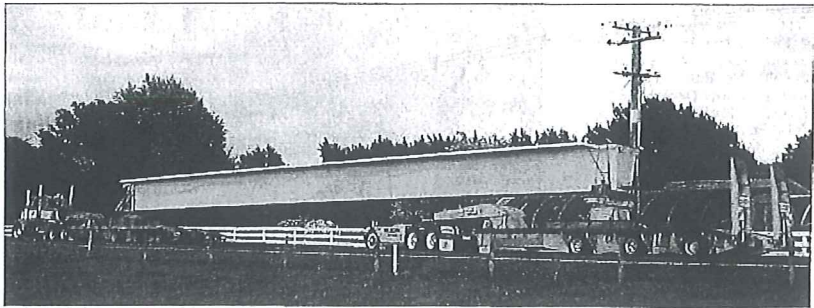
He said he was impressed at how EnvBOP staff members had worked with Fletcher Challenge to find a use for the surplus beam.

The beam will be stored until it is needed in two to three years.

Fletcher Construction bridge project manager Tony Pike said while the company would have preferred to have used the beam itself, it was pleased to see it was not being wasted.

Work to improve the stopbanks along part of the floodway has already started.

The Government has provided \$4.4 million to help fund the project.



BIG CARGO: Specially-adapted trucks were used to transport this massive girder from Tauranga to Thornton.
Image supplied



Whakatane Beacon

Friday 11/6/2010

Page: 12

Section: General News

Region: Whakatane Bay of Plenty Circulation: 7,835

Type: Community

Size: 122.79 sq.cms.

Frequency: -TW-F--

Index: 1.1

Brief: NT-ENVIBOP

New \$6.6m bridge aids flood defence

A NEW bridge across Reid's Canal on State Highway 2 near Edgecumbe will complement flood protection work being done there by Environment Bay of Plenty.

EnvBOP chairman John Cronin has welcomed the news that the New Zealand Transport Agency will provide \$6.6 million funding for the bridge.

Mr Cronin said the replacement of the 76-year-old bridge would complement recent work on the regional council's flood protection scheme.

"Recent heavy rain and resultant flooding has again shown to us just how important it is to ensure we have effective transport links throughout the region and that we're prepared for natural disasters," he said.

"State Highway 2 is an important freight route connecting the Eastern Bay with the rest of the region, and this upgrade will help ensure the route stays open and can be used – even during times of emergency."

The new bridge will provide more floodway clearance for the canal, and will be built to withstand a one-in-

1000-year earthquake.

The agency anticipates construction will begin in mid-2011 and take about a year to complete.

Harry Wilson, the agency's Bay of Plenty regional director, said the bridge had had a long, hard life and was due for replacement.

"The current bridge was damaged during the 1987 Edgecumbe earthquake and again in the June 2004 flood," he said.

"It has undergone various short-term upgrades to extend its useful life since then.

"The new bridge will be longer and higher providing more floodway clearance and protecting the bridge from future flood damage."

The higher bridge means new approaches will be needed.

Ramps up to 300 metres long on each side will be built, making the new bridge more than two metres higher than the existing structure. It will also be 3.8 metres wider, providing a safer environment for all road users.



Eastern Bay News
Thursday 17/6/2010
Page: 6
Section: General News
Region: Bay of Plenty Circulation: 19,452
Type: Community
Size: 53.39 sq.cms.
Frequency: ---T---

Index: 1.5
Brief: NT-ENVIBOP

New bridge to stand up to floods

Environment Bay of Plenty has welcomed \$6.6 million from the NZ Transport Agency (NZTA) to replace the 76-year-old bridge across Reid's Canal on State Highway 2, near Edgecumbe.

Regional council chairman John Cronin said: "State Highway 2 is an important freight route connecting the eastern Bay of Plenty with the rest of the region and this upgrade will help ensure the route stays open and can be used — even during times of emergency."

The new bridge will provide more floodway clearance for the canal and be built to withstand a one-in-1000-year earthquake.

The NZTA anticipates construction will begin in the middle of next year and take about a year to complete.

Appendix 7



Daily Post
Saturday 5/6/2010
Page: 3
Section: General News
Region: Rotorua Bay of Plenty
Type: Provincial
Size: 29.84 sq.cms.
Frequency: MTWTFs-

Index: 1.6
Brief: NT-ENVIBOP

NZTA glves \$6m for bridge

Environment Bay of Plenty has welcomed yesterday's announcement of \$6.6 million in funding from the New Zealand Transport Agency for a new bridge across Reid's Canal on State Highway 2 near Edgecumbe. Environment Bay of Plenty chairman John Cronin said State Highway 2 was an important freight route connecting the eastern Bay of Plenty with the rest of the region, and the upgrade would help ensure the route stayed open even during times of emergency. The agency anticipated construction would begin mid-2011 and take about a year to complete.

Bridge beam saves thousands

It's rethinking, reusing and recycling on a mammoth scale. And it's likely to save Rangitaiki-Tarawera River Scheme ratepayers more than \$100,000.

It's a 35 metre, 70 tonne beam that had been constructed by Fletcher Construction for the Tauranga Harbour Link bridge project. When it proved to be surplus to their requirements, it was offered to Environment Bay of Plenty for just the cost of removal.

Environment Bay of Plenty's Regulation Monitoring and Operations Committee Chairman Malcolm Whitaker said the beam will be used during a future stage of the Edgecumbe/Rangitaiki Flood Mitigation Project, during which the Rangitaiki Floodway (also known as the Reids Canal) will be widened.

"Because we're widening the floodway we're going to have to replace two existing farm access bridges that cross it," Councillor Whitaker said.

Councillor Whitaker said he was impressed to see how Environment Bay of Plenty Staff had worked with Fletcher Construction to think outside the square and make beneficial use of the surplus beam.

"This beam would likely otherwise be demolished, so aside from the cost savings, the environmental savings are to be noted."

The floodway widening works are still two to three years away, however landowner Glenn Shaw has agreed for Environment Bay of Plenty to store the beam in his yard till it's required.

Fletcher Construction project manager Tony Pike said while they would have preferred to have used the beam themselves, they were pleased to see it was not wasted.

"Once it was clear it would not meet our requirements we were keen to ensure the effort put into seeing it used," Mr Pike said. "We are proud that the work we do benefits the greater community, however we also acknowledge that it can at times be inconvenient. Whenever we have the opportunity to enhance the local communities we appreciate the chance to do so."

The Edgecumbe/Rangitaiki Flood Mitigation Project is supported by Government funding of \$4.4m.

Below: Environment Bay of Plenty Councillor Malcolm Whitaker with Fletcher Construction's Paul Gurrin and Tony Pike in front of the 35 m long beam that will save the Rangitaiki-Tarawera Rivers Scheme more than \$100,000

Did you know?

The bridge beam:

- Is 35 metres long
- Weighs 70 tonnes
- Was transported to the site from two special heavy haulage truck units, including the trailing truck unit which is a low profile truck to allow the beam to be carried over its top.

Happy people in the Bay

Nine out of 10 Bay of Plenty residents say they're happy living in the Bay, according to a new survey.

The Community Outcomes Survey is a joint, region-wide telephone survey of 15,000 people conducted every three years by the region's local authorities, led by Environment Bay of Plenty. The survey measures how people see their quality of life and how our communities are making progress on community outcome indicators listed in our Ten Year Plan.

More than nine out of every 10 people say they're very happy (43 percent) or happy (49 percent) in general and only one percent says they're unhappy. That's four percent more than the number who said they were happy in the last study in 2006.

When questioned about the environment, more than 84 percent thought the overall state of the natural environment in the Bay was good or very good. Forty percent think it's improving, while another 39 percent say it's the same as three years ago.

People are proud of, connected to and feel safe in their community. More than three-quarters say they feel proud about the way their local area looks and feels. Most say it's important to feel a sense of community with people in their neighbourhood, and most think their neighbourhood works together and supports each other.

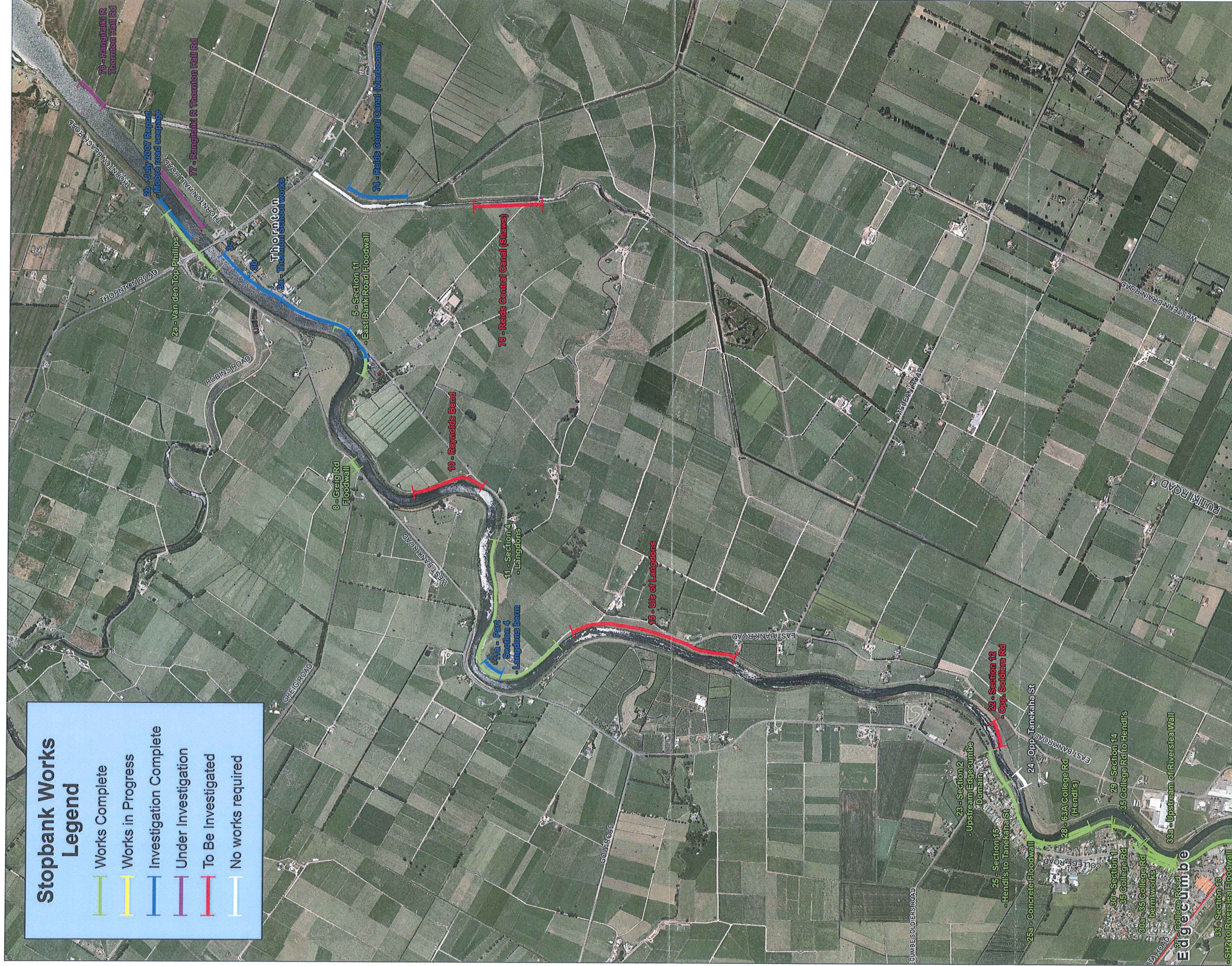
Almost all say they feel safe during the day at home or in their own neighbourhood, but almost half feel unsafe in the city centre after dark.

But when it comes to floods, earthquakes or other emergencies, few people say they're ready. Only 44 percent have an emergency kit ready to last their household for at least three days. More people who live in the Eastern Bay are prepared than those in Tauranga, along with people over 60, and those who have been here for more than five years.

When questioned about what they knew about their local councils, more now say they understand and have confidence in Regional Council decision-making. Nearly two-thirds of respondents say they understand how their Council makes decisions, and more than half are confident that the council makes decisions in the best interests of the area.

Stopbank Works Legend

- Works Complete
- Works in Progress
- Investigation Complete
- Under Investigation
- To Be Investigated
- No works required

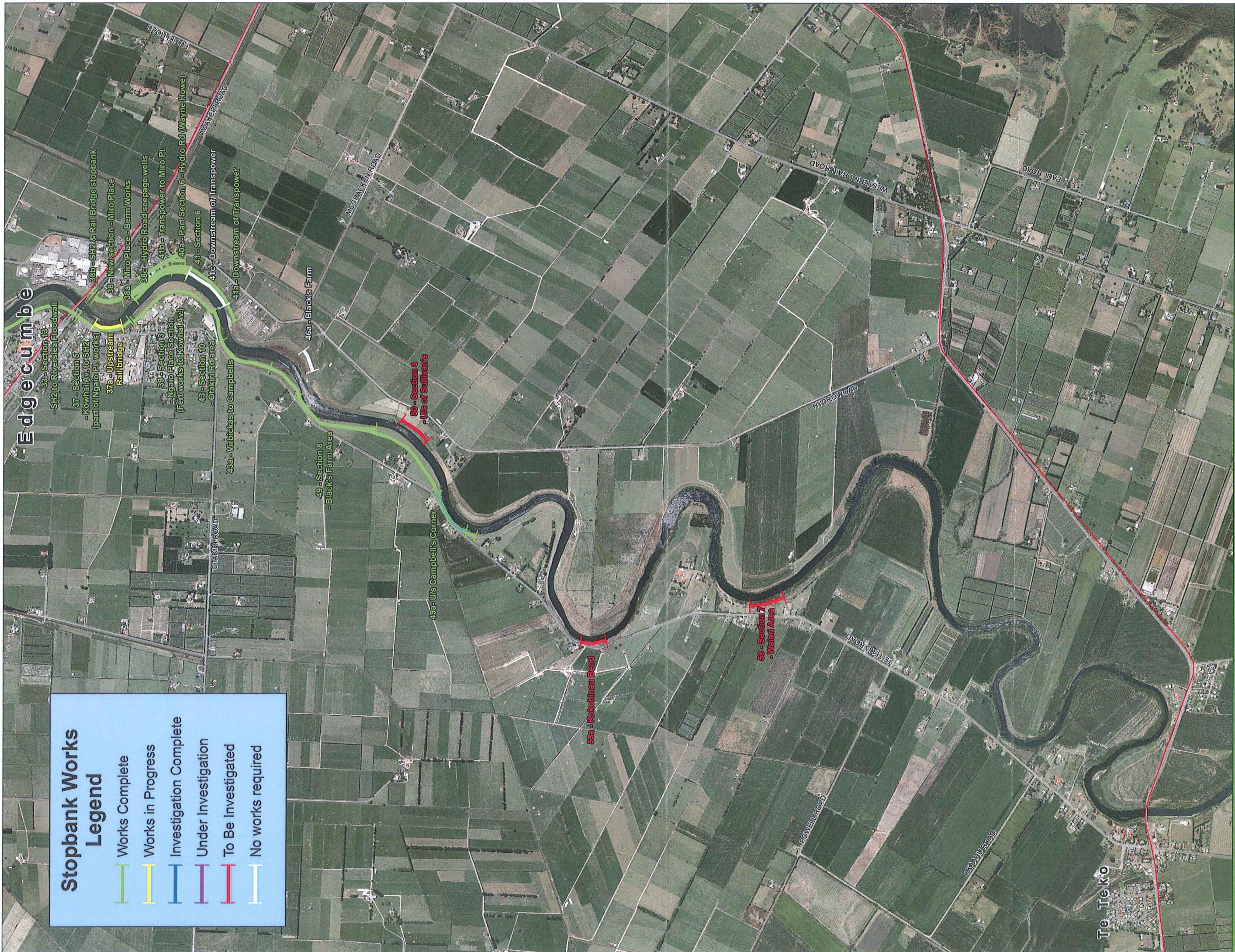


Map 1
M1804

Rangitaiki River - Geotechnical Remedial Works

As at 30 June 2010





Stopbank Works Legend

Works Complete

Works in Progress

Investigation Complete

Under Investigation

To Be Investigated

No works required