



MARLBOROUGH
DISTRICT COUNCIL



Only Marlborough



Marlborough **Rivers Gravel Extraction Strategy**

Record No. 1676134
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1. Purpose

The purpose of this report is to update Council's policies for extraction of gravel and sediment from Marlborough rivers. These policies were last considered on a District-wide basis in 2008.

2. Background

Gravel comprises the bed and banks of most rivers in Marlborough. Extraction of gravel alters the shape of the river bed and has an environmental impact potentially both good and bad.

Carefully controlled gravel and sediment extraction can be of benefit for river control purposes.

Flood capacity of a river and floodway channel will be increased by extraction over a reach of a river; and this is of particular benefit where the river is traversing its floodplain (eg; Wairau River and floodplain below the Waihopai confluence).

Controlled gravel extraction can also redirect main channel flows away from banks and so reduce potential damaging erosion of land on the outside of bends.

However, uncontrolled gravel extraction can have deleterious impact on fish and birds. This can be through direct modification of their habitat or pollution of the river, or other less direct mechanisms. Uncontrolled gravel extraction can also have deleterious impacts for recreational users of the riverbed.

The immediate potentially deleterious aspects of gravel extraction can be controlled by straightforward rules regarding the methodology of gravel extraction. The Proposed Marlborough Environment Plan (MEP) contains such rules under which Council's (Assets & Services Department) may direct the extraction of gravel. This Strategy operates in conjunction with the proposed MEP and the rules contained within it.

However there may be other environmentally deleterious effects that would show up in a subsequent flood and /or in the longer term.

These longer term effects are associated with too much gravel extraction. Too much gravel extraction can lower the riverbed levels so as to encourage bank collapse; or undermine bridges and other riverbed structures; or lower water levels so that irrigation intakes are left high and dry. Uncontrolled gravel extraction can also redirect river braids in an undesirable direction.

Controls are therefore required to restrict amounts of gravel extraction so that the impact of extraction is less than minor. It is to be noted that for some rivers where the definition of what comprises the "riverbed" is difficult, the Proposed Marlborough Environment Plan 2016 specifies a "floodway" boundary to which river rules apply.

To be noted is that private contractors carry out the gravel extraction under direction from Council Assets and Services staff through a permit system, usually at commercial advantage to themselves.

The maximum length of time for a permit is one year, because of the potential for annual floods to alter gravel extraction sites to an unforeseen degree.

Access arrangements over private land are not covered by this permit system.

This Strategy document outlines Council's (Assets & Services Department) policies for limiting amounts of gravel and other relevant controls regarding Marlborough's riverbeds. Marlborough rivers have been divided into nine different areas, with different policies for each area. A map depicting the areas is shown in Appendix 1, and a table of recorded historical gravel extraction rates for each area is listed in Appendix 3.

3. Policies for Various River Areas

3.1 Wairau Downstream of Waihopai Confluence

Council has built and maintains a comprehensive stop banking system to control the Wairau River downstream of the Waihopai confluence from flooding and eroding its fertile floodplain, townships and Blenheim. The 22 km length of gravel channel is typically 400 metres wide from the Waihopai confluence to downstream of Tuamarina. The gravel channel stretches just down into the upper reaches of the Wairau Diversion and the Lower Wairau.

Historically build-up of gravel was reducing the floodway capacity of this important reach of river. Gravel extraction is a preferred method of maintaining floodway capacity than raising of the stopbanks, providing it is economic.

From 1994 to 2013 Council was actively encouraging gravel extraction as a river control tool to counter the riverbed aggradation occurring and to direct erosive flows away from sensitive riverbanks. This was done through the Wairau River Floodways Management Plan (1994) and subsequently the Wairau Awatere Resource Management Plan (1998). Annual average extraction was 150,000 m³/year from 1994 to 2016.

Regular riverbed survey has been carried out at typically four year intervals to monitor riverbed levels. By the mid-2000s it was apparent that gravel extraction was becoming excessive with undermining and collapse of expensive rock lined riverbanks. Annual gravel extraction amounts from this reach of the Wairau were exceeding 200,000 cubic metres per year, about 70% of total Marlborough rivers gravel extraction.

In 2006 Council implemented a major change in gravel extraction policies for the Wairau below Waihopai.

This was done in consultation with gravel extraction contractors using as a base discussion document "Statement of Proposal Wairau River Gravel Extraction Policies Dec 2005". The recommendations therein were adopted by Council.

Following riverbed resurvey in 2009 Council reviewed the 2005 Wairau gravel policies. Some areas were closed for gravel extraction.

Further riverbed resurvey and review was carried out in 2012. At the October 2012 Assets & Services meeting Council approved the recommendation of "Wairau Gravel Extraction Review 2012" for implementation from March 2013 to March 2017. The document specifies annual amounts of gravel that may be extracted from six different zones of the river downstream of Waihopai confluence. The total amount allowed to be extracted in this reach in 2013 was 135,000 m³/year, and reducing annually. The document is Council's current policy for this reach of river, and is attached as Appendix 2.

3.2 Southern Valley Rivers and Streams

(This includes the Taylor, Omaka, Fairhall, Opawa, Utawai and other tributaries feeding into the Opawa or Riverlands Co-op rivers).

These rivers have generally been extracted to their maximum in the past and further gravel extraction will generally be deleterious. Any further gravel extraction should be to correct a specifically identified river control concern and following inspection by Council staff.

Annual average extraction has been 5000 m³/year since 1994.

3.3 Wairau River Between Waihopai Confluence and Wye Confluence

This 37 km reach of the Wairau River is partially stopbanked and much of its narrow riparian floodplain is planted in valuable grapes. Erosion of riverbanks and flooding of grape land is of concern. The wide braided river channel appears to have considerable gravel quantities and because of its width (typically 600 metres) it is likely to sustain substantial amounts of gravel extraction without undermining riverbanks. Annual average extraction is 12,500 m³/year since 1994, mainly in the 5 km reach from the Waihopai to Marchburn stream.

The riverbed was surveyed in 1958, but there has been limited resurvey since then. The 9 km reach from Waihopai confluence to Bartletts Creek was resurveyed and analysed in 2006/2007 by K Christensen ("Wairau River – Waihopai to Bartletts Creek R540-08, March 2007").

The 4 km reach from Marchburn Stream to Loddon Lane was identified as aggrading with an undesirable river alignment that had caused stopbank failure which was too expensive to repair and a river breakout channel still flowing today. Christensen's report identified that up to 1 million cubic metres of gravel may be available over this reach, and so reduces the amount of flow going down the breakout channel.

It is recommended that up to 80,000 m³/year of gravel be allowed to be extracted, subject to regular monitoring in the Marchburn Stream to Loddon Lane Reach. The next monitoring survey here is scheduled for summer 2016/2017.

From Marchburn Stream downstream to the Waihopai confluence the riverbed has been lowering and further gravel extraction should not be allowed unless it can be demonstrated to have specific river control benefit.

Upstream of Loddon Lane any gravel extractions should be limited to 20,000 m³/year until further analysis shows the acceptability of higher extraction rates, and subject to staff inspection.

3.4 Waihopai River

The Waihopai River tributary supplies a disproportionately large amount of gravel and sediment to the Wairau River. The construction of the Benhopai dam in 1928 however cut off this supply of gravel to the Waihopai River downstream (and subsequently the Wairau River).

Gravel build-up upstream of the Benhopai Dam is still continuing, pushing up past Maori Ford Bridge, threatening the bridge and causing flooding of the road.

Aggradation rates are still 40,000 m³/year.

An acceptable gravel extraction rate is up to 60,000 m³/year spread over the reach from Benhopai Dam to Maori Ford Bridge.

Downstream of the Benhopai Dam it is proposed no further gravel extraction be allowed unless it can be demonstrated by staff inspection to have specific river control benefit.

The average extraction rate from the Waihopai since 2014 has been 6,500 m³/year, mainly in the vicinity of SH 63 Bridge.

3.5 Wairau River Above Wye Confluence and All Other Wairau Tributaries

Demand for gravel from the upper Wairau, its northbank and other tributaries has been low, averaging 8,500 m³/year since 1994.

No riverbed surveys have been carried out.

However it is clear from visual inspection that for some river reaches that gravel extraction would be beneficial because of poor river alignment and high gravel beaches.

3.6 Sounds Rivers

Gravel extraction takes place from exposed beaches of many small rivers and streams throughout the Marlborough Sounds and also the Pelorus River. The annual average extraction rate since 1994 is 18,000 m³/year. Extraction sites include a small gravel trap on the Waikawa River.

No riverbed survey has been carried out on these rivers. However it is clear from visual inspection that for some river reaches that gravel extraction would be beneficial because of poor river alignment and high gravel beaches.

Gravel extraction to date has been on the basis of site by site inspection by a Council staff member.

It is proposed that continuing gravel extraction be based on a site by site inspection basis. Particular attention needs to be paid to preventing the possibility of too much gravel extraction undermining bridge abutments and piles.

3.7 Awatere River Below Medway Confluence

This 40 km reach of wide braided river is generally down cut below riparian farmland. Consequently there is a low flooding risk. However there are many irrigation intakes on both sides the river. Uncontrolled gravel extraction has the possibility of affecting the irrigation intakes by encouraging movement of the river braid, or lowering of the riverbed.

It is not known if the riverbed is aggrading or lowering, though a baseline LIDAR survey was carried out in 2008.

Gravel extraction has averaged 12,000 m³/year since 2014.

Since 2008 there have been specific limitations on resource consents for gravel extraction here, and these limitations should continue. Thus it is proposed that gravel extraction here have the following limitations

- 10,000 m³/year within 1.5 km upstream or downstream of SH 1 Bridge.
- 15,000 m³/year further upstream than 1.5 km of the SH 1 Bridge.
- 15,000 m³/year from 1.5 km downstream of SH 1 Bridge to the sea.
- That all gravel extraction is limited to between 1 April to 31 August in any year so as to minimise conflict with bird nesting, unless a bird nesting survey is carried out to demonstrate that extraction can be carried out without disturbing nesting birds.
- That all gravel extraction be based on a detailed inspection by a Council staff member, including if necessary physical survey. This site inspection needs to address the potential impact on nearby irrigation intakes, including consultation with the irrigation intake owners.

3.8 Ure River

The final 10 km of the Ure River to the sea is a wide braided river. No riverbed survey has been undertaken, but visual inspection indicates some aggradation. The annual average gravel extraction rate since 2014 is 1,700 m³/year.

It is proposed that gravel extraction be:

- Limited to up to 15,000 m³/year.
- Extraction to be within an 80 metre wide central fairway, but not within 100 metres of any bridge over the river.
- Be within 1 April to 21 August each year to minimise conflict with bird nesting or irrigation intakes.
- Subject to site inspection by a Council staff member.

3.9 Other East Coast Rivers

The average gravel extraction rate from other east coast rivers (including the Awatere above Medway confluence) is minimal, averaging 200 m³/year.

It is proposed that gravel extraction be based on site inspection by a Council staff member.

4. Review of This Strategy

The main river area for gravel extraction is the Wairau below the Waihopai confluence. The Wairau Gravel Extraction Review of October 2012 covers a four year period to March 2017, and requires a review in late 2016 for implementation from March 2017. The bed level survey for this review is complete and subsequent analysis about to get underway.

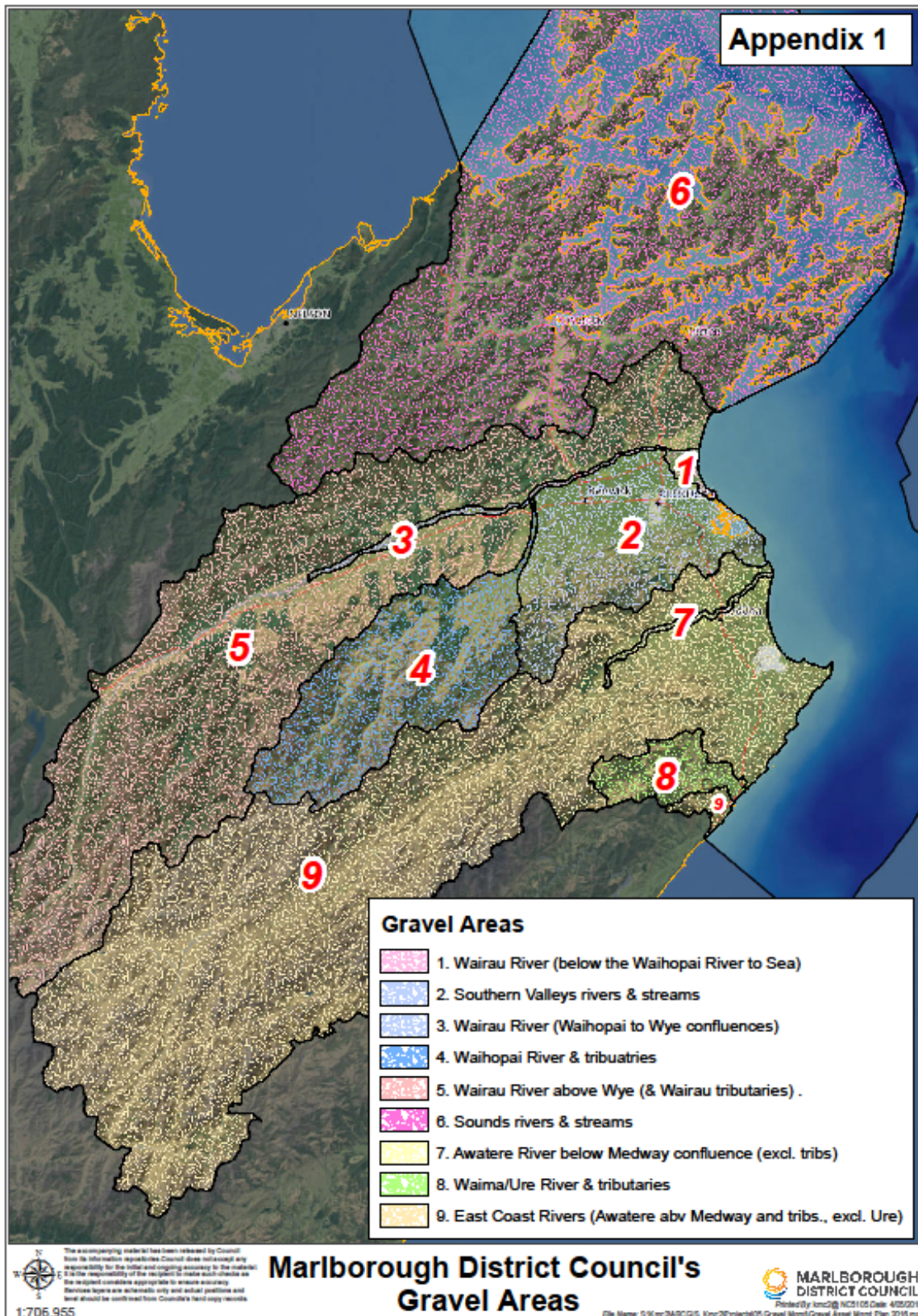
It is proposed that the broader strategy herein for all Marlborough rivers be for the same time period, ie; subject to review in late 2016 with implementation from March 2017.

Assets & Services Committee approval

The Assets & Services Committee approved on 3 May 2016 the extraction policies contained in this report and notes that the next review of this Strategy is planned for later in the year following analysis of the recently completed Wairau riverbed level survey.

Appendix 1

Map depicting the various river areas referred to in this report



Appendix 2

"Wairau Gravel Extraction Review 2013-2017"

Council Approved Agenda item at its Assets and Services Committee meeting 11 October 2012.

Wairau Gravel Extraction Review

(Cllr Leggett) (Report prepared by B Williman, L Kuta, K McFall, G Dick)

R540-08

Purpose of Report

1. The purpose of this report is to set gravel extraction policies for the four years from 1 March 2013 in terms of location and amount of gravel allowed to be extracted from the Wairau in the reach from Tuamarina to Waihopai. This is based on a review of the last three years of gravel extraction operations since Council's review in 2009.

Background

2. Since 1994 Council has actively encouraged gravel extraction as a river control tool in the Wairau River. Controlled gravel extraction has been beneficial in increasing flood capacity in required locations and has also been used in directing erosive flows away from sensitive riverbank areas. Gravel extraction was encouraged from 1994 in the stopbanked reach from Tuamarina to Waihopai.
3. Council has Wairau Awatere Resource Management Plan permitted use status to extract gravel for river control purposes. Under this permitted use status Rivers section has developed a permit system for gravel extractors.
4. This annual permit system has enabled Rivers staff to work with and closely control gravel extractors by assigning sites and directing the manner of extraction to minimise environmental impact while achieving river control aims. This has proved a harmonious and effective operation that is in contrast to some other areas of NZ where adversarial situations have developed between extractors and Regional Council regulatory staff.
5. By the mid-2000s it was becoming apparent that gravel extraction was becoming excessive with adverse effects in some locations. In 2005 Council implemented a major change in gravel extraction policies by adopting tighter controls on the amounts and location of gravel extraction, and a differential charging system.
6. The differential charging system paid for roads and river tracks to facilitate gravel extraction from desired sites of river control benefit. The differential charging system also provided some funding where there was increased bank erosion partly due to heavy gravel extraction lowering riverbed levels. The differential charges – with the more distant sites being cheaper – were accepted by the contractors with few complaints.
7. In 2009 Council reviewed the 2005 Wairau gravel policies based on a 2008 resurvey of river bed levels. Some areas were closed for gravel extraction. The 2009 review was required to be reviewed again in three years, and this is that review.

Riverbed Changes to 2012

8. The Wairau riverbed was resurveyed in 2012 from just downstream of Tuamarina Bridge to the Waihopai confluence a distance of 22 km. This required repeat surveys of the standard cross sections at 800 metres spacing. A detailed analysis of the survey has been carried out by L Kuta. Key results and figures from his report are included herein and his fuller report is also available.
9. The mean bed levels (referenced to sea level) for each of those dates is plotted on Figure 3.2 (from L Kuta's report), in which a sloping datum is used rather than mean sea level, and thus emphasises any changes in bed level.

10. Figure 3.2 shows that bed levels have decreased for almost all cross sections between 2008 and 2012, and are generally well below the benchmark bed levels of 1969, the date from which the Wairau river was effectively trained into its current channel position.

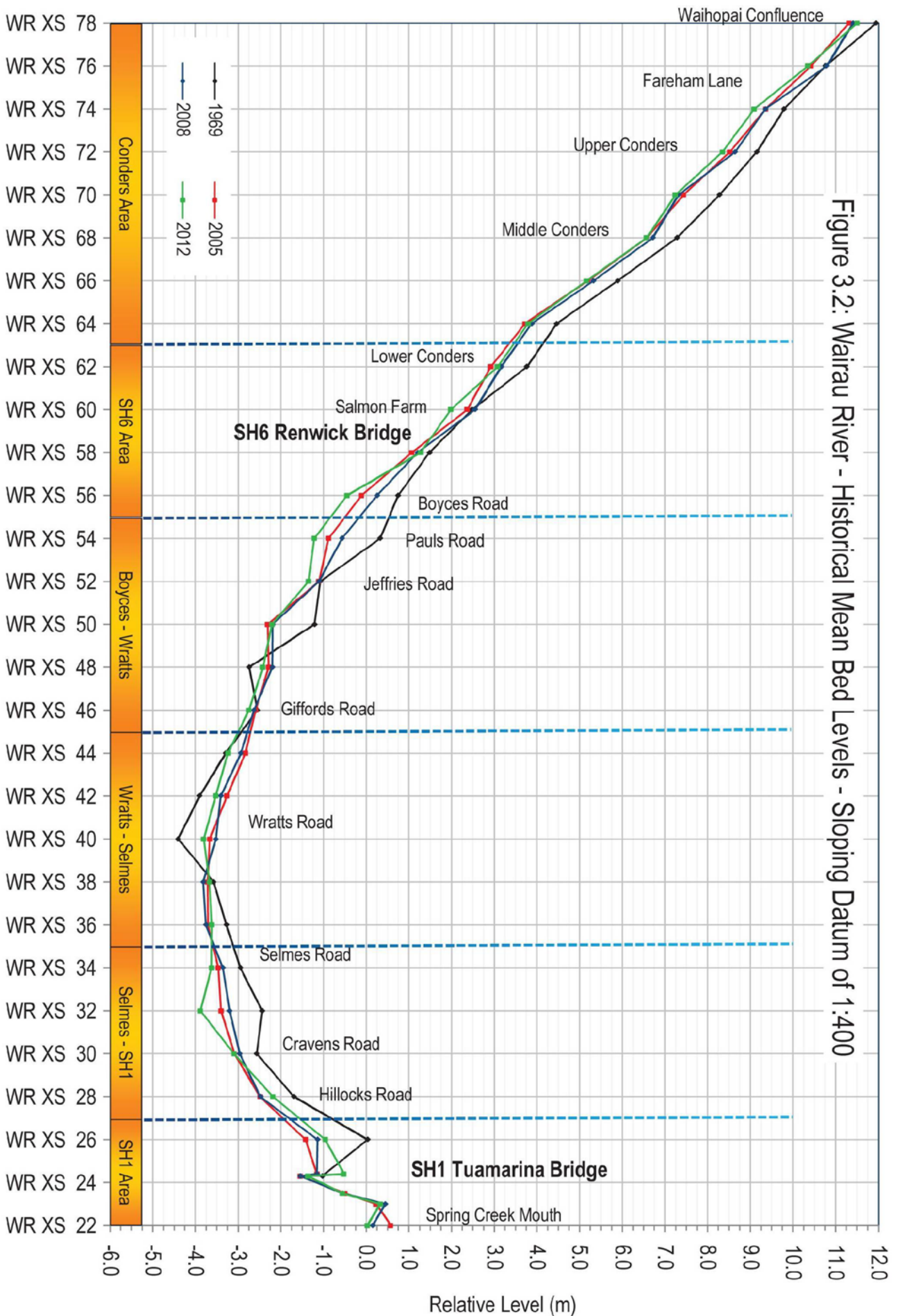
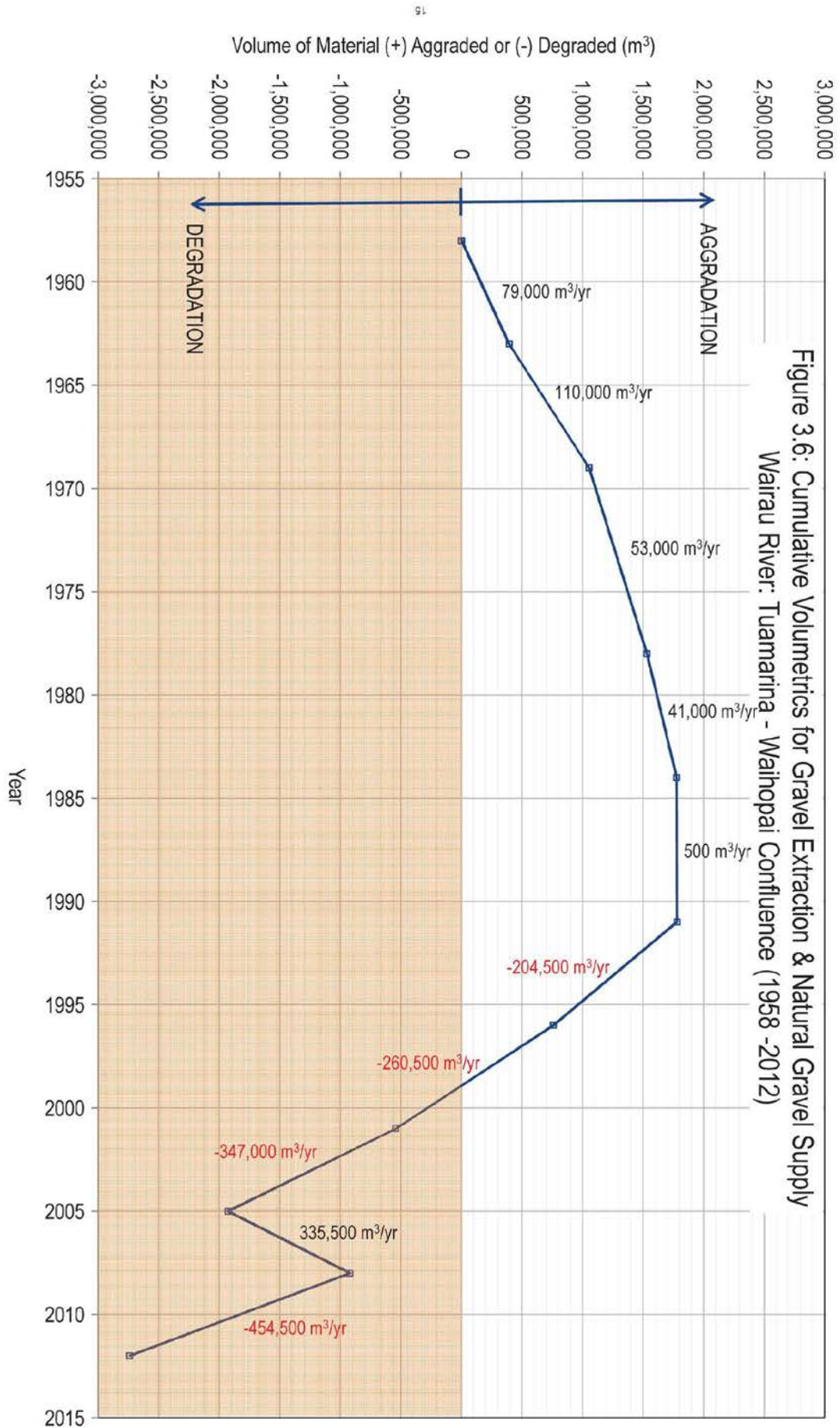


Figure 3.2: Wairau River - Historical Mean Bed Levels - Sloping Datum of 1:400



11. Figure 3.6 is a plot of the volumetric change of the river channel from the first riverbed surveys in 1957 to 2012. The plot shows two distinct periods.
12. From 1957 to 1991 there was steady build-up of the river bed totalling 1.8 million cubic metres over 34 years. This was a period of relatively small amounts of gravel extraction (typically 40,000 m³/year) and steady supply of gravel from upstream.
13. Since 1991 there has been a major change in the situation. The channel has lost 4.5 million cubic metres over these 21 years. Overall the channel has lost 2.7 million cubic metres of material since 1969. This represents an average lowering of the river channel of half a metre.
14. The period from 1991 has been one of greatly increased gravel extraction to in excess of 200,000 m³/year and minimal supply of gravel from upstream. In effect the gravel is being mined from the river in an unsustainable manner.
15. The survey in 2008 represented an anomaly in the ten surveys since 1957. It shows a temporary build-up of river bed levels for the 2005 to 2008 period. If this survey is omitted there would be a smooth plot of riverbed levels dropping from 1991 to 2012.
16. The reasons for the anomaly are unknown. It is recognised that there are margins of error in using quite widely spaced cross sections to represent the whole riverbed, though the errors in all 32 cross sections tend to balance each other out when taken as a whole.

Gravel Extraction Amounts

17. Annual gravel extraction from this reach of the Wairau River has averaged over 200,000 cubic metres for over 20 years. Detailed records since 2005 of the annual amounts of gravel extraction is shown on table 1. Extraction reached a peak of 270,000 cubic metres in 2008/09. The annual rate is measured on a March to March year.
18. Under the 2008 review the permitted annual allocation for the reach of the Wairau was set at 245,000 m³/year.
19. The figure of 245,000 had been based on the usage over the previous four years. The rise in bed levels indicated by the 2008 survey justified the maintaining of these high extraction rates at that time.
20. In fact over the last three years gravel extraction has reduced considerably to be much less than the allocated 245,000. In the 2011/12 year actual extraction reduced to 128,000 cubic metres, and in the six months of this 2012/13 year it has been holding a similar rate.

Gravel Extraction Benefits and Disadvantage

21. Gravel extraction can have two main river control benefits. Firstly it can be used to increase flood capacity as an alternative or additional to raising stopbanks. Secondly it can be used to help direct erosive flows away from sensitive banks to reduce the need for bank erosion works. Gravel extraction is also used in the flow split area of Diversion and Lower Wairau to help control the flow split proportions.
22. Gravel extraction over time will deepen the channel if there is not replenishment from upstream. River bank heights will increase. This can lead to bank protection works of rock or willow trees being undermined. The actual damage to bank protection works does not occur at the time of the gravel extraction, but during subsequent floods which may be many months if not years later.
23. Lowering of the riverbed can also detrimentally affect bridges, irrigation intakes and other structures in the riverbed.
24. Figure 3.8 shows recent undermining of riverbank protection works and the need for costly upgraded rock work following the several quite large floods in the Wairau over the last two years.

25. Some of this damage is considered to be due to the lowering of river bed levels by over half a metre since 1969 when scheme works were initially constructed to train the river to its current channel.
26. The differential charging system provides for some funding to be used for such repair work. However it is suggested that a metre reduction in river bed level is indicative of where major bank reconstruction is likely to be required. Gravel extraction causing a drop in riverbed levels of a metre is considered unsustainable. Several reaches of the river have already dropped in excess of 0.7 metres.

Recommended Future Extraction Rate

27. Gravel extraction from Tuamarina to Waihopai reach of the Wairau River has now reached a stage that it is of limited benefit for river control purposes and the scale of disadvantage is beginning to outweigh the benefits.
28. Future gravel extraction should be reduced to considerably less than the current allocation.
29. However any change to the permitted gravel extraction rate needs to involve the gravel extraction contractors as well as consideration of the river system. Council has established a gravel permit system and a working relationship with extractors which have been of considerable benefit.
30. Changes should be preferably be evolutionary. Gravel extractors would need time to adjust where they obtain construction aggregate. Also if the Wairau was to aggrade again Council will want extractors available to remove the build-up. We do not want extractors to be completely removed from the river.
31. It is proposed that next year's gravel extraction rate be reduced from 245,000 to 135,000 cubic metres. The figure of 135,000 m³ is based on the rate of extraction for the last 18 months, and is slightly higher than an annual rate of 105,000 m³ based on river considerations suggested by L Kuta.
32. This 135,000 m³ would apply from 1 March 2013 to 1 March 2014.
33. It is further proposed that this gravel extraction rate be reduced by 10% per year over the next four years till a further review is implemented in March 2017. An increase to a four year review period from the current three year period is proposed because the analysis and review process in itself takes a year to carry out.
34. The proposed annual extractions are therefore 2013/14 135,000 m³; 2014/15 121,500 m³; 2015/16 109,000 m³; 2015/16 98,000 m³.

The total of 135,000 m³ would be split up into acceptable allocations specified for six defined zones. This split will be based primarily on the appropriateness of extraction from a river control viewpoint, but also fine-tuned with regard to likely acceptability from the contractors.

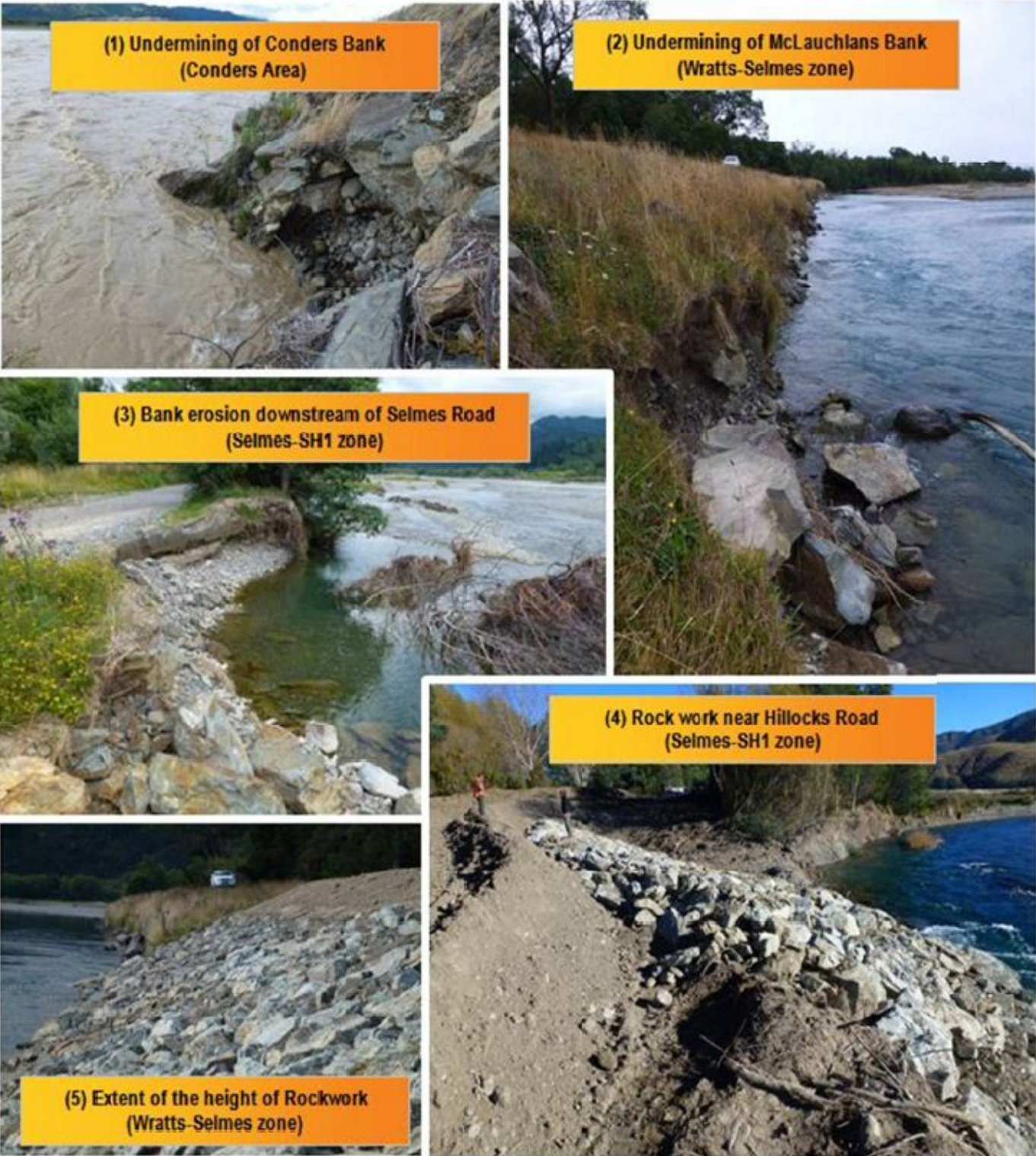


Figure 3.8 –Undermining of banks and rockwork throughout the study area

Extraction Zones

35. Map 1 shows the breakdown into the zones of Conders Area, SH 6 Area, Boyces - Wratts, Wratts-Selmes, Selmes- SH 1, SH 1 Area.
36. Figure 3.3 depicts how the average bed level has changed for each zone for the seven survey periods between 1969 and 2012. Bed levels for the Wratts - Selmes zone are still slightly higher than in 1969, but for all the other zones bed levels exceed 0.5 metres lower than in 1969.
37. Gravel extraction issues and proposed allocations for each zone are discussed on a zone by zone basis.
38. Zone: Tuamarina Bridge Flow Split Area
Gravel extraction in this area needs to be managed to optimise flow between the Lower Wairau and Diversion channels with specified target percentages, and to keep flood levels below SH 1 bridge soffit level. Proposed annual extraction rate for 2013/14 of 15,000 m³/year is required to achieve this.
39. Zone: Selmes Road to SH 1
Despite a moratorium on gravel extraction in this reach for the past seven years this zone has continued to lower so that the average bed levels are nearly 0.8 metres below 1969 levels and requiring significant repair of bank protection works. Proposed extraction rate for 2013/14 to be nil.
40. Zone: Wratts Road to Selmes Road
Although bed levels have lowered a little in the last three years this zone remains the reach in which bed levels are higher than the benchmark 1969 bed levels and thus the most appropriate area for gravel removal. However there are some access limitations to this zone. Proposed extraction rate for 2013/14 of 50,000 m³/year.
41. Zone: Boyces Road to Wratts Road
Gravel extraction over the last few years has lowered this reach of the river so that average bed levels are now 0.5 metres below benchmark 1969 levels. Proposed extraction rate for 2013/14 of 25,000 m³/year.
42. Zone: SH 6 Bridge Area
This zone has lowered substantially over the last three years to be 0.6 metres below 1969 benchmark levels. It is desirable to reduce extraction in this zone. Proposed extraction rate for 2013/14 of 30,000 m³/year.
43. Zone: Conders Area
Historically there has been little gravel extraction in this large zone. However it has lowered naturally so that bed levels are now 0.7 metres below benchmark 1969 levels. However it is a convenient area for small extractors and some extraction is appropriate. Proposed extraction rate for 2013/14 of 15,000 m³/year.

Gravel charges

44. Currently Council has five differential charges for gravel extraction. A fee of 0.75 cents is charged as a monitoring and supervision charge and applies to all extraction on all rivers regardless of ownership. This fee funds riverbed surveys and supervision time.
45. Council owns or controls the floodway land of the Wairau from below Tuamarina to the Waihopai. Since 2005 it has therefore been able to charge a further fee depending on location This charge is to cover the cost of building access tracks on the berms, upgrading Council roads and covering the increased costs of bank erosion works due to extraction encouraging slumping of the banks. The more distant sites and/or those of more river control benefit are charged less on a sliding scale.

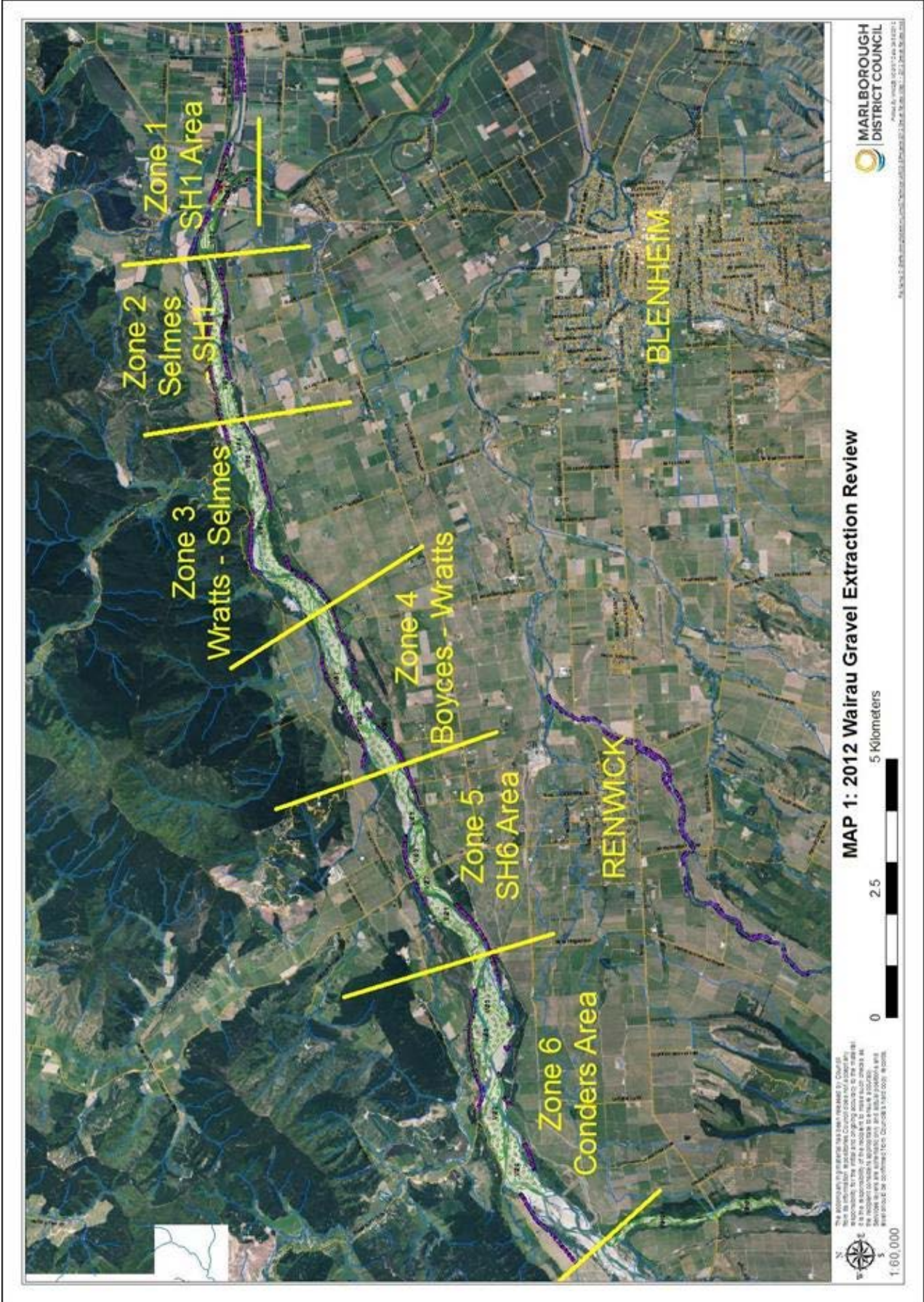
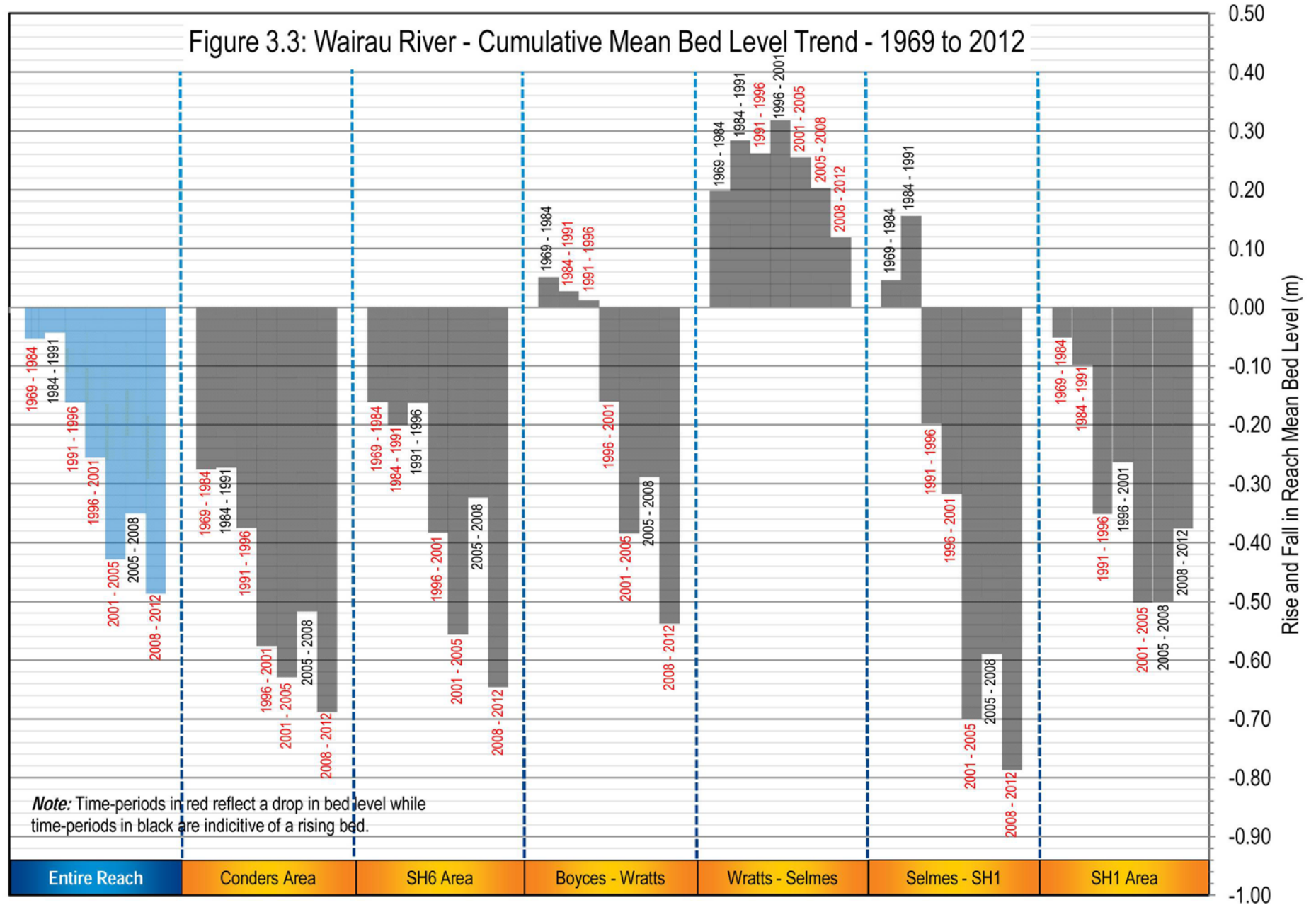


Figure 3.3: Wairau River - Cumulative Mean Bed Level Trend - 1969 to 2012



46. Where Council stockpiles gravel for the use of small contractors, a further charge is levied to cover the stockpiling costs.
47. The gravel extraction charges were set in 2008 and it is proposed that these charges be increased by 10% to cover increases in road maintenance, river stopbank maintenance and fuel since the last review.

	2008-2012	2013-17
Category A	\$4.20	\$4.60
Category B	\$3.60	\$4.00
Category C	\$3.00	\$3.30
Category D	\$2.40	\$2.65
Category E	\$1.75	\$1.95
Category F (supervision only)	\$0.75	\$0.80

48. A summary of the proposed zones and site charges is shown on table 4.

Gravel Management Zones	Site Code	Site Dist km	Site Description	Cost Category	Allocation	
Tuamarina Bridge flow split area	W19	12.0	Spring Creek Mth	A	15,000	
	W1	12.4	D/S Tuamarina Bridge Sth Bank	A		
	W4	12.5	Diversion Entry Bothams 'Mid River'	A		
	W2	13.0	U/S Tuamarina Bridge Sth Bank	A		
SH1 to Selmes Road	W3	14.3	Lower Barnetts Nth Bank	B	0	
	W6	15.4	Cravens Road Sth Bank	B		
	W5	16.3	Upper Barnetts Nth Bank	C		
Selmes Rd to Wratts Rd	W14	17.3	Selmes	C	50,000	
	W18	18.3	Waikakaho Mth	E		
	W7	20.0	Wratts Road	E		
	W10	21.0	Brooke Taylor	D		
Wratts Rd to Boyces Rd	W8A	21.3	Lower Jeffries	A	30,000	
	W17	22.4	Gibsons Road	D		
	W8	23.5	Jeffries Rd	A		
	W20	25.0	D/S Renwick Br Nth Bank	B		
SH6 Renwick Bridge Area	W9A	25.5	D/S Renwick Br Sth Bank (Ext)	A	25,000	
	W9	26.5	D/S Renwick Br Sth Bank	A		
	W22	27.2	U/S Renwick Br Sth Bank	A		
	W21	28.0	Salmon farm	B		
Conders Area	W23	29.3	Middle Conders	B	15,000	
	W25	30.5	Onamalutu Overflow	D		
	W22	32.0	Opp Rock Ferry	C		
	W26	33.2	Upper Conders	D		
Total =					135,000	

Other Rivers

49. Gravel extraction from other Marlborough rivers totals about half of that extracted from the Wairau between Tuamarina and Waihopai. This gravel extraction is not reviewed in this report and the 2008 policies still apply for those rivers.
50. Gravel extractors are likely to look for more extraction from other sources as and when they are restricted from taking gravel from the Tuamarina to Waihopai reach of the Wairau.
51. The Wairau above Waihopai is seen as a future substantial long term available gravel resource, with available gravel running into the millions of cubic metres. Distance and access roads are a substantial cost barrier at present at only approx 10,000 m³/year.
52. In particular the Wairau river reach at Loddon lane (10 km upstream of the Waihopai confluence) has been identified as being able to supply over 1 million cubic metres of gravel, and extraction here will also be to the benefit to riparian landowners. Rivers section already operates a stockpile system here.
53. Other potential river sources of gravel include the Omaka, Waihopai and Wairau Diversion. Though these rivers have constraints in limited quantities, uncertain quality and usually more difficult access.
54. There are some coastal beach gravels immediately to the north of Lower Wairau mouth that may be a source of gravel aggregate. These gravels have been swept across the river mouth in flood periods. The gravels are slowly building into a delta. This delta hinders the efficiency of the river mouth rock guidebank. Controlled removal of the gravel build up would increase the longevity of the rock guide bank. Consultation and a resource consent would be required for extraction of this gravel.
55. Another alternative for aggregate is further development of hard rock quarries. Hard rock quarries require a resource consent which usually involves significant time to obtain.

Equity of Allocation for Extractors

56. There is potential for friction between extractors competing for gravel extraction sites on the Wairau. To date this has not occurred with Council staff working with the contractors in allocation of sites and amounts so as to achieve harmonious relationships.
57. It is proposed that gravel allocation for 2013/14 be set for each contractor, and that this figure be based primarily on the percentage of use over the previous three years.
58. A slightly greater percentage is proposed for MDC to supply small contractors from stockpiles. A maximum of 2,000 m³ per extractor is proposed. This could also be used to assist if necessary for the large extractors who may need to go slightly over their main allocation. It can also be used to some degree as a source for potential new extractors.
59. The maximum time for a gravel extraction permit to be issued for any one site is one year because changes to the riverbed from flood to flood are unpredictable.

Discussion with Contractors

60. There has been considerable day to day interaction between Council staff and gravel extractors and harmonious relationships have been developed. This report has not however been discussed with them. It is therefore considered that discussion with the contractors should occur before Council fully adopts the proposals contained within this report.
61. The volume cannot be altered without significant risk to stopbanks but individual allocations and gravel charges can be further considered.

RECOMMENDED

- 1. That Council approve the reduction in gravel extraction volumes recommended in this report.**
- 2. That current charges be increased 10%.**
- 3. That specific impacts on contractors be discussed with them.**

Appendix 3

Historical Gravel Extraction Rates

Table 1: 1994 - 2015 Annual Gravel Extraction

Year	Gravel Extraction Areas								
	1	2	3	4	5	6	7	8	9
	Wairau River downstream of Waihopai confluence.	Southern Valleys rivers and streams	Wairau River (btwn Waihopai confluence and Wye confluence.)	Waihopai River	Wairau River above Wye confluence, and all other Wairau tributaries	Sounds rivers	Awatere River below Medway confluence.	Waima/Ure River	Other East Coast rivers
1994	64,540	3,689	1,138	-	3,295	9,781	2,517	-	-
1995	193,540	8,437	134	-	-	19,733	2,810	800	-
1996	91,709	1,768	3,860	4,364	4,676	24,655	8,422	2,585	-
1997	126,486	3,802	2,100	1,000	2,000	13,994	5,930	500	640
1998	52,902	5,025	2,050	1,066	5,275	13,493	2,366	1,500	1,400
1999	163,515	4,767	3,830	1,646	1,342	22,484	3,246	1,180	110
2000	280,459	1,572	1,100	212	9,206	14,509	4,787	500	-
2001	124,758	4,613	5,122	940	14,458	10,366	2,812	-	500
2002	132,585	332	7,993	1,202	2,399	23,128	21,585	2,100	-
2003	187,198	-	1,580	5,048	16,961	16,376	10,545	-	-
2004	133,451	820	41,761	1,423	22,798	22,433	17,408	-	-
2005	165,128	312	70,744	21,113	8,498	27,071	20,070	2,000	-
2006	157,167	6,776	28,093	10,307	1,784	23,556	43,126	12,033	-
2007	209,180	8,024	28,874	8,935	15,784	13,975	14,634	1,534	1,000
2008	185,185	8,424	30,542	13,545	16,966	18,785	5,105	1,000	-
2009	203,358	20,113	2,959	24,724	10,109	17,387	15,443	1,500	-
2010	159,547	6,277	7,359	15,707	5,073	14,772	20,052	2,200	-
2011	161,592	3,144	4,469	5,820	9,028	26,772	37,996	-	-
2012	130,768	2,484	9,240	215	1,872	15,826	2,598	-	-
2013	123,026	3,041	2,176	2,995	10,090	18,099	11,181	2,000	-
2014	134,478	4,937	15,213	13,084	12,994	19,069	5,602	2,000	100
2015	127,733	11,577	4,035	6,980	11,802	9,554	6,000	4,400	100
1994-2015 Annual Average Extraction	150,378	4,997	12,471	6,378	8,473	17,992	12,011	1,720	175