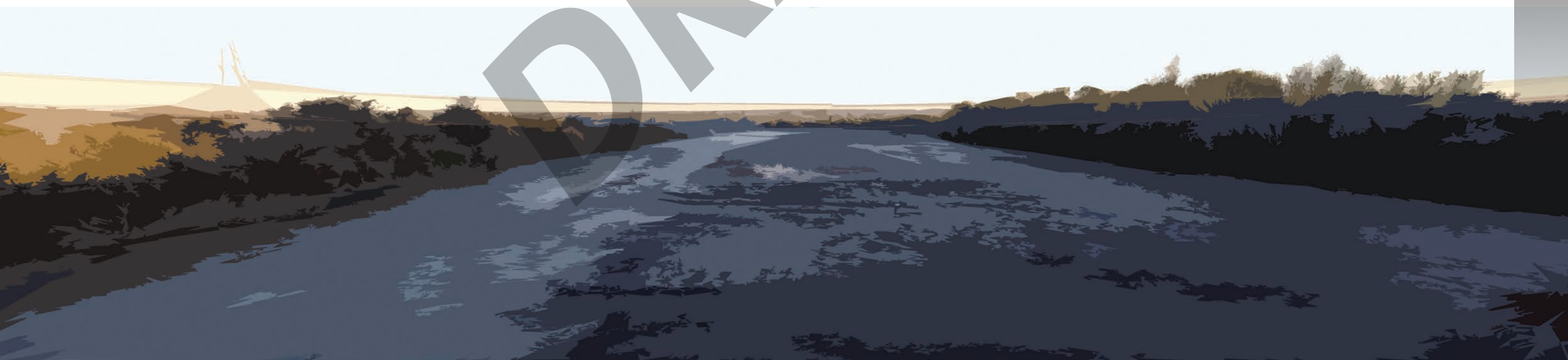


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Appendix 1 Issues Summary

RESPONSES SPECIFIC TO INDIVIDUAL ISSUES - FOR GENERAL RESPONSES FOR EACH REACH REFER TO RESPONSE SUMMARY

ID	RIVER	REACH	NAME	ISSUE DESCRIPTION	THREAT	AT RISK	RANK	PRIMARY COMMON METHOD	SECONDARY COMMON METHOD	TERTIARY COMMON METHOD	3RD PARTY ASSET OWNER LIAISON	COMMENT
1	Ruamāhanga	2	State Highway 2	SH2 runs close to a gorge section of the Ruamāhanga River and sits within the erosion study area. The risk of erosion here is considered low because of natural rock control. Further information on geology may clarify any risk.	Erosion	Infrastructure	Low	River edge envelope	Code of Practice		3rd party asset owner liaison	
2	Ruamāhanga	2	SH2 bridge	SH2 crosses the Ruamāhanga and the abutments sit within the erosion study area. This section of the river is well entrenched and gorge like and risk to this structure is considered low.	Erosion	Infrastructure	Low	River edge envelope	Code of Practice		3rd party asset owner liaison	
3	Ruamāhanga	2	Scheme upstream boundary location	The upstream boundary of the Scheme sits below the gorge area of the river, it is recommended that this is reviewed in consultation with landowners in this area.	Erosion	Flood Protection	Low to Moderate	River edge envelope				Scheme expansion unlikely
4	Ruamāhanga	2	House	A house at 2036A SH2 sits within the erosion study area extent, but outside the modelled 1%AEP flood area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning	3rd party asset owner liaison	
5	Ruamāhanga	2	House	A house at 1986 SH2 sits within the erosion study area extent, but outside the modelled 1% AEP flood area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning	3rd party asset owner liaison	
6	Ruamāhanga	2	House	A house at 1964 SH2 sits within the erosion study area extent, but outside the modelled 1% AEP event.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning	3rd party asset owner liaison	
7	Ruamāhanga	2	Private stock bridge	There is a stock bridge that crosses the river which sits within the erosion study area and potentially at risk of damage from debris flows, bed level changes and flood events.	Flood & Erosion	Infrastructure	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
8	Ruamāhanga	2	House	A habitable structure sits within the erosion study area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
9	Ruamāhanga	2	SH2	SH2 sits within the erosion study area extent, but is considered to be at low risk because of geology in area and distance from active channel.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Code of Practice		3rd party asset owner liaison	
10	Ruamāhanga	2	Channel alignment	No design channel exists for upstream of scheme boundary.	Erosion	Flood Protection	Low	River edge envelope				
11	Ruamāhanga	2	Private bridge	A private bridge structure crossing the river with abutments is within the erosion study area. This may be susceptible to debris flows, erosion issues, and bed level changes.	Flood & Erosion	Infrastructure	Low to Moderate	River bed level monitoring	Emergency management planning			
12	Ruamāhanga	2	Dunvegan Forest Remnants RAP sites	Dunvegan Forest Remnants are within erosion study area and within the 1% AEP modelled flood extent.	Flood & Erosion	Environment	Low	River edge envelope	Protection against deforestation in the upper catchment	Flood hazard maps		
13	Ruamāhanga	3	Site of regional significance	The Hidden Lakes area is a site of regional significance. It is within the erosion study area extents and current regional planning is unclear if there will be a requirement to protect this against possible future erosion.	Erosion	Cultural Value	Moderate	River edge envelope	Code of Practice	Environmental strategy		
14	Ruamāhanga	3	Outbuildings	Possible farm ancillary buildings are within the erosion study area and within the 1% AEP flood area.	Flood & Erosion	Business	Low to Moderate	River edge envelope	Flood hazard maps	Emergency management planning		
15	Ruamāhanga	3	House	A house at 65 Fenemor Road is located within the erosion study area. It is situated outside the 1% AEP flood area.	Flood	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
16	Ruamāhanga	3	Houses	Houses near 1158 SH2 are within the erosion study area. The properties around these houses are within the 1% AEP flood area.	Flood & Erosion	House	Moderate	River edge envelope	Flood hazard maps	Emergency management planning		
17	Ruamāhanga	3	House	A house at 1050 SH2 sits within erosion study area. The house is not within the 1% AEP flood area but areas of the surrounding property area affected.	Flood & Erosion	House	Low to Moderate	River edge envelope	Flood hazard maps	Emergency management planning		
18	Ruamāhanga	3	Gravel extraction site	This location is a good gravel extraction point with good current access, it is used and licensed by GWRC Flood Protection.	Land use	Flood Protection	Low	River bed level monitoring	Code of practice			

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19	Ruamāhanga	3	Houses	Houses at 8 Opaki Kaiparoro Road and 212 Opaki Kaiparoro Road are within the erosion study area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
20	Ruamāhanga	3	SH2	SH2 sits within the erosion study area but is considered to be at low risk because of the geology.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Emergency management planning		3rd party asset owner liaison	
21	Ruamāhanga	3	Railway line	The main north-south railway line sits within the erosion study area, the natural rock control in this area is currently protecting the line. The line is infrequently used.	Erosion	Infrastructure	Moderate	River edge envelope	Code of Practice	Emergency management planning	3rd party asset owner liaison	
22	Ruamāhanga	3	Double bridges	The SH2 and Rail bridges are susceptible to bed level changes. Current bed levels provide adequate freeboard for the bridge soffits, however there are concerns about scour around the piers. The bridge abutments are protected by natural rock controls.	Flood & Erosion	Infrastructure	Moderate	River bed level monitoring	Code of Practice	Emergency management planning	3rd party asset owner liaison	
23	Ruamāhanga	3	Houses	The houses in vicinity of the southern bridge abutment are within the erosion study area, however are likely to be protected by the natural rock controls around the SH2 and Rail bridges.	Erosion	House	Low to Moderate	River edge envelope	Emergency management planning			
24	Ruamāhanga	4	Opaki water race intake	This water race intake is reasonably stable and only requires occasional maintenance to ensure it operates.	Erosion	Infrastructure	Low to Moderate	River bed level monitoring	Code of Practice	Emergency management planning	3rd party asset owner liaison	
25	Ruamāhanga	4	Swimming hole	The double bridges swimming hole is very popular, but it is also a hazardous swimming location.	Land use	Recreation	Low to Moderate	Environmental strategy	Community Support Officer			
26	Ruamāhanga	4	Bluff Rangitumu Road	The road sits within the erosion study area but is likely to be of low risk due to natural rock control.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Emergency management planning			
27	Ruamāhanga	4	Stopbank	Stopbank within the buffer, needs to be moved to the outer extent of buffer and away from erosion pressures from river.	Flood & Erosion	Flood Protection	Low	River edge envelope	Rural stopbank policy			
28	Ruamāhanga	4	Erosion control works	Erosion control works for Rathkeale stopbank are used to maintain the design fairway in this area.	Erosion	Flood Protection	Moderate	River edge envelope			3rd party asset owner liaison	Major project response
29	Ruamāhanga	4	Stopbank	The Rathkeale stopbank is located in the erosion study area. It currently requires protection from bank erosion.	Erosion	Flood Protection	Moderate	River edge envelope			3rd party asset owner liaison	Major project response
30	Ruamāhanga	4	Urupa	A historic urupa site which sits on the edge of a cliff above the Ruamāhanga River and is located within the erosion study area.	Erosion	Cultural	Moderate	River edge envelope	Environmental strategy			
31	Ruamāhanga	4	House	A house at 143A Matapihi Road sits within the erosion study area, but it is outside the 1%AEP flood area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
32	Ruamāhanga	4	Rathkeale College buildings	Rathkeale College sheds are located within the erosion study area and the 1%AEP flood area.	Flood & Erosion	Business	Low to Moderate	Flood hazard maps	Emergency Management Planning	Community resilience	3rd party asset owner liaison	Major project response
33	Ruamāhanga	4	Rathkeale College sewage pond	The sewage treatment ponds for Rathkeale College are located within the erosion study area and are within the 1% AEP flood area.	Flood & Erosion	Business	Moderate	Flood hazard maps	Emergency Management Planning	Community resilience	3rd party asset owner liaison	Major project response
34	Ruamāhanga	4	Bed armouring	The river bed is becoming armoured (hard packed together) due to the addition of finer sediments falling onto it from the cliffs above.	Erosion	Flood Protection	Low to Moderate	River bed level monitoring	Isolated Works support			
35	Ruamāhanga	4	House	A house on 7 Matapihi Road is located within the erosion study area but outside the 1% AEP flood area.	Erosion	House	Low to Moderate	River edge envelope	Emergency management planning			
36	Ruamāhanga	4	Houses	At 365 Black Rock Road, the house is located within the erosion study area and sits on the edge of the 1%AEP flood area.	Flood & Erosion	House	Low to Moderate	Flood hazard maps	River edge envelope	Emergency management planning		
37	Ruamāhanga	4	Private water take	A private water intake for an irrigation system is located within erosion study area. No known issues.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Community resilience			
38	Ruamāhanga	4	Outbuilding	A farm storage or utility building is located within the erosion study area but outside the 1% AEP flood area.	Erosion	Business	Low to Moderate	River edge envelope	Code of Practice			

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39	Ruamāhanga	4	Road	Black Rock Road is within the erosion study area at this location, it has required erosion protection within the last decade.	Erosion	Infrastructure	Moderate	River edge envelope	Code of Practice	Emergency management planning	3rd party asset owner liaison	
40	Ruamāhanga	4	Houses	147 to 240 Black Rock Road have houses which sit within the erosion study area. The houses on these properties sit outside the 1%AEP flood area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
41	Ruamāhanga	4	Water intake	The subsurface gallery intake consent application would be at risk of channel degrade.	Erosion	Infrastructure	Low	River bed level monitoring	Code of Practice			
42	Ruamāhanga	4	Private frost protection intake	The private water intake for frost protection system sits within the erosion study area.	Erosion	Infrastructure	Low	River edge envelope	Code of Practice	Emergency management planning		
43	Ruamāhanga	4	Channel alignment	At XS245+50m - hard edge protection holds a narrow design channel alignment at this location, the river may naturally tend to a wider channel.	Erosion	Flood Protection	Low	River edge envelope	Code of Practice			
44	Ruamāhanga	4	House	138 Gordon Street sits within the erosion study area, but is well set back from the river channel behind a high bank.	Erosion	House	Low	River edge envelope	Emergency management planning			
45	Ruamāhanga	4	Henley Lake water intake	The channel alignment and bed levels in this area cause intake problems for water to Henley Lake.	Erosion	Infrastructure	High	River edge envelope	River bed level monitoring		3rd party asset owner liaison	
46	Ruamāhanga	4	Te Ore Ore stopbank	The stopbank is believed to be of low standard of protection but several properties behind it are affected by the modelled 1% AEP flood area.	Flood	Flood Protection	Low to Moderate	Rural stopbank policy	Code of Practice	Flood hazard maps		
47	Ruamāhanga	4	Industrial yards	Sheds, machinery, possible contaminants are sitting within the erosion study area and the 1%AEP flood area.	Flood & Erosion	Environment	Low to Moderate	River edge envelope	Flood hazard maps	Community resilience		
48	Ruamāhanga	4	Powerlines north of Te Ore Ore bridge	Transmission lines are located north of the Te Ore Ore bridge and the pylons are located outside river bed but may be affected by the erosion study area.	Erosion	Infrastructure	Low	River edge envelope	Emergency management planning		3rd party asset owner liaison	
49	Ruamāhanga	4	Te Ore Ore Bridge	This bridge is relatively new and therefore risk of scour issues is unlikely. It may be affected by changes to weir arrangements, and abutments sit within erosion study area.	Flood & Erosion	Infrastructure	Low	River bed level monitoring	River edge envelope			
50	Ruamāhanga	4	Te Ore Ore weir	Ongoing effects of damaged rock and rail weirs across the river. It is visually unattractive and a safety concern for recreation users of the river.	Erosion	Recreation	High	Code of Practice	Environmental strategy			
51	Ruamāhanga	5	Henley Lake	Henley Lake park area is being eroded and historically has been threatened by erosion. There is a current staged land retreat in progress to allow greater room for the river.	Erosion	Recreation	High	River edge envelope	Code of Practice			
52	Ruamāhanga	6	Powerlines	Transmission lines cross the river, the pylons are located outside river bed but within the erosion study area.		Infrastructure	Low to Moderate	River edge envelope	Emergency management planning		3rd party asset owner liaison	
53	Ruamāhanga	5	Narrow river channel	River flows regularly break out onto paddocks on the true left bank of the river, this alleviates some of the erosion and flood risks to River Road properties.	Flood & Erosion	Flood Protection	Low to Moderate	River edge envelope	Code of Practice			
54	Ruamāhanga	5	Houses	Approximately 14 River Road properties are at risk of erosion from the Ruamāhanga River. They have historically been threatened in floods.	Flood & Erosion	House	High	River Edge envelope	Code of Practice	Emergency Management Planning		Major project response
55	Ruamāhanga	5	Cemetery	The cemetery sits within the erosion study area. It has historically suffered from erosion and light rock protection is in place to manage some of these effects.	Erosion	Infrastructure	Moderate	River edge envelope	Code of Practice			
56	Ruamāhanga	5	Closed landfill	Potential erosion of contaminated material. This area has eroded previously, it is now protected with light rock and willows.	Erosion	Environment	Moderate	River edge envelope	Code of Practice			
57	Ruamāhanga	5	Stopbank	A 10-20-year stopbank infested with trees has an increasing risk of failure which would affect the Wastewater Treatment Plant.	Flood & Erosion	Flood Protection	Moderate	Code of Practice	Rural stopbank policy			
58	Ruamāhanga	5	Channel alignment	The true left bank of the channel in this location is maintained by groynes on an alignment outside of the design fairway.	Erosion	Flood Protection	Low to Moderate	River edge envelope	Code of Practice			

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59	Ruamāhanga	5	Stopbank	The level of service of this stopbank is unclear from downstream of the closed landfill.	Flood	Flood Protection	Low to Moderate	Rural stopbank policy	Code of Practice			
60	Ruamāhanga	5	WWTP irrigation beds	A proposed irrigation area is protected by a vulnerable ~2-year stopbank. These irrigation beds currently sit within the buffers and are within the erosion study area and 1% AEP flood area.	Flood & Erosion	Infrastructure	High	Recognition of buffers as a river management tool	Flood hazard maps		3rd party asset owner liaison	
61	Ruamāhanga	5	MDC Waste Water Treatment Plant	The Wastewater Treatment Plant sits within both the erosion study area and the 1% AEP flood area. There are some 1% AEP stopbanks protecting the asset however these are outflanked further upstream.	Flood & Erosion	Infrastructure	Moderate	Flood hazard maps	River edge envelope	Emergency management planning	3rd party asset owner liaison	Major project response
62	Ruamāhanga	5	House	A house at 374A Lees Pakaraka Road sits within the erosion study area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
63	Ruamāhanga	5	Road	Lees Pakaraka Road sits within the erosion study area and on the edge of the 1% AEP flood area.	Flood & Erosion	Infrastructure	Moderate	River edge envelope	Flood hazard maps	Emergency management planning	3rd party asset owner liaison	
64	Ruamāhanga	5	WWTP discharge point	The Wastewater Treatment Plant discharges treated water to the Ruamāhanga River.	Land use	Environment	High	River edge envelope	Code of Practice		3rd party asset owner liaison	
65	Ruamāhanga	4	Channel alignment	Historically the channel was wider at this location than the current very narrow design channel alignments.	Erosion	Flood Protection	Low to Moderate	River edge envelope	Historic channel lines			
66	Ruamāhanga	5	Three houses	Three houses in erosion study area are considered to be at lower risk than the road upstream due to high bank and cemented deposits. There is no history of erosion.	Erosion	House	Low	River edge envelope	Code of Practice	Emergency management planning		
67	Ruamāhanga	5	Wardells Bridge	The river bed in the location of this bridge is observed to be a very stable site, with low risk of erosion or scour. The road to the north of the bridge is within by the 1% AEP flood area.	Flood & Erosion	Infrastructure	Moderate	Code of Practice	Flood hazard maps		3rd party asset owner liaison	
68	Ruamāhanga	6	Waingawa-Ruamāhanga confluence	Instability from Waingawa flows influences the Ruamāhanga at this location making it a very challenging area to manage and the river management lines are very difficult to achieve.	Erosion	Flood Protection	Low to Moderate	River edge envelope	Code of Practice			
69	Ruamāhanga	6	Ruamāhanga river terrace RAP site	An RAP site is on the edge of the 1%AEP flood extent and within erosion study area.	Flood & Erosion	Environment	Low	River edge envelope	Environmental strategy	Flood hazard maps		
70	Ruamāhanga	6	Channel alignment	The channel is naturally wider than the design channel alignment in this location.	Erosion	Flood Protection	Low	River edge envelope	Code of Practice			
71	Ruamāhanga	6	Houses	There are several houses located in the erosion study area. They are located on reasonably firm material, on a high terrace which is unlikely to erode.	Erosion	House	Low	River edge envelope				
72	Ruamāhanga	6	River alignment	This section of the river has proved to be a challenge to manage to the river management lines and pushes out towards the edge of its buffers on both banks.	Erosion	Flood Protection	Low	River edge envelope	Code of Practice			
73	Ruamāhanga	6	Frost protection water intake	There is an erosion threat to a private water intake located within the erosion study area, the landowner has provided some protection.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
74	Ruamāhanga	6	River alignment	The river alignment in this location needs constant management and if alignment is not well managed, it spills extra water onto Te Whiti Flats, and the Te Whiti stopbank is at risk of overtopping.	Flood & Erosion	Flood Protection	Moderate	River edge envelope	Code of practice			
75	Ruamāhanga	6	Fish habitat	This is a site for fish habitat.	Land use	Environment	Low	Land use controls	Environmental strategy			
76	Ruamāhanga	6	Dakins Road - public road	Erosion affecting the end section of Dakins Road, near Cottier Estate has been addressed in past with rock works. These rock works have protected the immediate area they were installed to protect, but adjacent areas are still affected by erosion.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Isolated Works support	Emergency management planning		
77	Ruamāhanga	6	Te Whiti Stopbank	The stopbank sits within the erosion study area and in places within the current buffers. There is a risk that it may erode and expose protected areas. It currently protects a known flooding area.	Flood & Erosion	Flood Protection	Moderate	River edge envelope	Code of practice			
78	Ruamāhanga	6	Channel alignment	Buffer widths upstream of the Taueru confluence require review.	Erosion	Flood Protection	Low	River edge envelope				

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79	Ruamāhanga	6	Fish passage	This is an important confluence between the Ruamāhanga and Taueru Rivers.	Land use	Environment	Low to Moderate	Environmental strategy				
80	Ruamāhanga	6	Gladstone complex	The Gladstone pub, sports fields and several houses sit within the erosion study area and are within the 1%AEP flood area. Despite these risks there is no recorded history of flooding or erosion.	Flood & Erosion	Business	Low to Moderate	Flood hazard maps	River edge envelope	Emergency management planning		
81	Ruamāhanga	6	Gladstone Bridge	There are no known issues of scour or erosion at this bridge, however an exclusion zone applies to 100m upstream and downstream. Freeboard to soffit is ok and debris flow risk is ok.	Flood & Erosion	Infrastructure	Low to Moderate	Code of Practice				
82	Ruamāhanga	7	Stopbank	This stopbank protects farmland and is of very poor quality. It is overgrown with trees and believed to be susceptible to failure.	Flood & Erosion	Flood Protection	Low to Moderate	Rural stopbank policy				
83	Ruamāhanga	7	Ahiaruhe Stopbank	This stopbank protects farmland against small, more frequent, flood events. It is located within the erosion study area and close to the river. It is full of trees and has a high risk of failure.	Flood & Erosion	Flood Protection	Moderate	Rural stopbank policy				
84	Ruamāhanga	7	River access	An easement has been created to allow access to Carter Reserve. This site is not being promoted and there is a risk that disuse may lose future opportunities.	Land use	Recreation	Low	Care groups and clubs	Environmental strategy	Land use controls		
85	Ruamāhanga	7	Gravel extraction site	Ahiaruhe gravel extraction site	Land use	Flood Protection	Low	Code of Practice				
86	Ruamāhanga	7	Outbuildings	Farm or other utility buildings are located within the erosion study area and 1% AEP flood area.	Flood & Erosion	Business	Low to Moderate	Flood hazard maps	River edge envelope			
87	Ruamāhanga	7	Channel alignment	The channel in this location narrows at XS201 and widens out at XS198. This creates erosion issues upstream and downstream of this location.	Erosion	Flood Protection	Low to Moderate	River edge envelope	Code of Practice			
88	Ruamāhanga	7	Channel alignment	Buffer width on true right bank of river is very narrow and on the true left of river is very wide. The currently managed alignment does not match design alignments.	Erosion	Flood Protection	Low	River edge envelope				
89	Ruamāhanga	7	Channel alignment	The channel naturally widens in this area outside of the design channel alignment.	Erosion	Flood Protection	Low	River edge envelope	Code of Practice			
90	Ruamāhanga	7	Outbuildings	There are outbuildings within the erosion study area and 1% AEP flood area.	Flood & Erosion	Business	Low to Moderate	Flood hazard maps	River edge envelope			
91	Ruamāhanga	7	Kokotau Bridge	No known issues with this bridge, abutments sit within erosion study area and the road to north is within the 1%AEP flood area.	Flood & Erosion	Infrastructure	Low	Code of Practice	River bed level monitoring	Flood hazard maps		
92	Ruamāhanga	8	Stopbank	A small stopbank with a low protection level is within the erosion study area.	Flood & Erosion	Flood Protection	Low to Moderate	Rural stopbank policy				
93	Ruamāhanga	8	Channel alignment	The buffer strip in this area is very narrow and needs to be wider.	Erosion	Flood Protection	Low to Moderate	River edge envelope				
94	Ruamāhanga	8	Channel alignment	The design channel alignment in this location is difficult to maintain and it has been recommended that the design lines may need to be reviewed.	Erosion	Flood Protection	Low to Moderate	River edge envelope				
95	Ruamāhanga	8	Farm buildings	250 Taumata Road contains a number of structures at risk of erosion on the edge of a thin buffer, it is also within the 1% AEP flood area.	Flood & Erosion	Business	Low to Moderate	Flood hazard maps	River edge envelope	Emergency management planning		
96	Ruamāhanga	8	House	A house on 142 Foreman-Jury Road is within the erosion study area and on the edge of the modelled 1% AEP flood area. Several buildings near the address are within the buffer.	Flood & Erosion	House	Low to Moderate	River edge envelope	Flood hazard maps	Emergency management planning		
97	Ruamāhanga	6	Taumata Lagoon	A potential fish habitat site is within the 1% AEP flood area.	Flood	Environment	Low to Moderate	Land use controls	Environmental strategy	Flood hazard maps		

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99	Ruamāhanga	8	Kokotau to Waiohine scheme reach	There is little funding spend in this area. The landowners that contribute to the wider schemes have questions about value for money for them.	Flood & Erosion	Flood Protection	Low	Code of Practice	Community Support Officer			
100	Waipoua	10	Channel alignment	The channel alignment in this area is identified as being significantly outside the recommended design fairway.	Erosion	Flood Protection	Low to Moderate	River edge envelope				Volume 3
101	Waipoua	10	Scheme upstream boundary expansion	The scheme has previously been longer, extending upstream into the Massey Farm property.	Flood & Erosion	Flood Protection	Moderate	River edge envelope	Scheme decision making policy			Scheme expansion unlikely
102	Waipoua	10	Design lines	There are currently design lines in place for the Waipoua River upstream of the scheme boundary, however, they are not used for any purpose.	Erosion	Flood Protection	Low to Moderate	River edge envelope				
103	Waipoua	10	Massey irrigation water intake	The intake for the irrigation system sits within the erosion study area.	Erosion	Infrastructure	Moderate	River edge envelope	Code of Practice			
104	Waipoua	10	Massey farm sheds and bridge	Several farm buildings and an access bridge sit within the erosion study area.	Erosion	Business	Low to Moderate	River edge envelope	Code of Practice			
105	Waipoua	11	Mikimiki bridge	There is observed ongoing bed degradation which affects the bridge, road and the water level recorder site. Work has been carried out in the past to tackle issues with scour.	Erosion	Infrastructure	Moderate	River bed level monitoring	Code of Practice		3rd party asset owner liaison	
106	Waipoua	11	Farm building	A farm outbuilding is located within the modelled 1%AEP flood area.	Flood	Business	Low	Flood hazard maps	Community resilience			
107	Waipoua	11	Channel alignment	The design fairway narrows at this location and may require revision - XS40+100m - 85m narrows to a 45m design width.	Erosion	Flood Protection	Low to Moderate	River edge envelope				
108	Waipoua	11	Design lines	Current design lines have been identified as possibly too narrow.	Erosion	Flood Protection	Low to Moderate	River edge envelope				
109	Waipoua	11	Farm outbuilding	A farm outbuilding is located with the modelled 1%AEP flood area and within the erosion study area.	Erosion & Flood	Business	Low	Flood hazard maps	Community resilience			
110	Waipoua	11	Bridge	A private bridge is located within this property. There are possible issues with the abutments creating an obstruction to flow and being susceptible to erosion.	Erosion	Infrastructure	Low	Code of Practice	Community resilience			
111	Waipoua	11	Telecom line	A private telco line which runs beneath the river bed that is potentially susceptible to damage by machinery or scour.	Erosion	Infrastructure	Low	River bed level monitoring	Code of Practice	Emergency management planning		
112	Waipoua	11	Water intake	A private water intake for Watson Lake is within the erosion study area.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Code of Practice			
113	Waipoua	12	Channel alignment	The buffer strip in this area has been identified as being too narrow and it is recommended that a wider buffer be established in accordance with the recommended design channel alignments.	Erosion	Flood Protection	Low to Moderate	River edge envelope				
114	Waipoua	12	Private erosion structures	These erosion protection structures were privately constructed, but have from time to time been maintained by GWRC operations.	Erosion	Flood Protection	Low	Code of Practice	Isolated Works support			
115	Waipoua	12	Water intake	A private water intake for a lake on private property is situated within the erosion study area.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Code of Practice			
116	Waipoua	12	Channel alignment	The buffer planting on the true right bank has been reinforced with a rock line. This has made the buffer strip narrow in this area, however due to the protection a review of the appropriate buffer may be appropriate.	Erosion	Flood Protection	Low to Moderate	River edge envelope	Code of Practice			Volume 3
117	Waipoua	12	Road	A section of Matahiwi Road is within erosion area and modelled to be 0.6m deep in a 1%AEP flood.	Erosion & Flood	Infrastructure	Low to Moderate	Flood hazard maps	River edge envelope	Emergency management planning	3rd party asset owner liaison	
118	Waipoua	12	House	A house at 236 Matahiwi Road is situated within the erosion study area and the 1%AEP flood area.	Erosion & Flood	House	Low to Moderate	Flood hazard maps	River edge envelope	Emergency management planning		

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ID	RIVER	REACH	NAME	ISSUE DESCRIPTION	THREAT	AT RISK	RANK	PRIMARY COMMON METHOD	SECONDARY COMMON METHOD	TERTIARY COMMON METHOD	3RD PARTY ASSET OWNER LIAISON	COMMENT
119	Waipoua	12	Houses	A number of properties on Matahiwi Road are modelled to be within the 1%AEP flood area.	Flood	House	Low to Moderate	Flood hazard maps	Flood forecasting and warning system	Emergency management planning		
120	Waipoua	12	Road	Road at risk of flooding during a modelled 1%AEP event to a depth of between 0.3m and 0.8m.	Flood	Infrastructure	Low to Moderate	Flood hazard maps	Flood forecasting and warning system	Emergency management planning		
121	Waipoua	12	Stopbank	The stopbank on the true left banks sits on the edge of the active channel and within the erosion study area. There has been past consideration of revision of the design lines in this location to relocate the active channel away from the structure.	Erosion	Flood Protection	Low to Moderate	Rural stopbank policy	River edge envelope			
122	Waipoua	12	Low quality stopbank	This stopbank is very close to the river and at risk of erosion. It is affected by substantial tree growth making it vulnerable to storm damage and piping effects along root pathways.	Erosion	Flood Protection	Low to Moderate	Rural stopbank policy	Code of Practice			
123	Waipoua	12	Serpentine confluence	Aggradation in the area of the Serpentine confluence with the Waipoua River increases the likelihood of flooding and blockage.	Flood	Flood Protection	Low to Moderate	River bed level monitoring	Code of Practice			
124	Waipoua	12	Serpentine stopbank	This stopbank is of concern because it partially protects a number of properties however the management objectives of the structure are unclear. It is very close to the river and within the erosion study area.	Erosion & Flood	Flood Protection	Moderate	Rural stopbank policy	Emergency management planning			
125	Waipoua	12	Houses	There are houses within erosion study area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
126	Waipoua	12	Bridge capacity	The Paierau Road bridge is potentially creating additional flooding problems upstream.	Flood	Infrastructure	Low to Moderate	Flood forecasting and warning system			3rd party asset owner liaison	
127	Waipoua	12	Paierau Road	The stopbanks upstream of the Paierau Road bridge overtop and flood the road frequently creating a hazard to life.	Flood	Infrastructure	Moderate	Flood forecasting and warning system	Emergency management planning	Community resilience	3rd party asset owner liaison	Major project response
128	Waipoua	12	Houses	Matahiwi Rd/Akura Road homes are at risk of flooding in a 1%AEP modelled flood event.	Flood	Infrastructure	Low to Moderate	Flood hazard maps	Flood forecasting and warning system	Emergency management planning		
129	Waipoua	12	Houses	There are houses within erosion study area.	Erosion	House	Moderate	River edge envelope	Code of Practice	Emergency management planning		
130	Waipoua	12	Stopbank	The quality, standard of protection, alignments and purpose of the flood protection infrastructure in the area of the Serpentine confluence is variable and has been of concern for sometime.	Flood & Erosion	Flood Protection	Low to Moderate	Rural stopbank policy	Code of Practice			
131	Waipoua	12	Stopbank	The stopbank on the true right bank of the river gets close to the river channel and within the erosion study area at its downstream extent.	Flood & Erosion	Flood Protection	Low to Moderate	Rural stopbank policy	Code of Practice			
132	Waipoua	12	Akura Nursery	Akura Nursery floods from overland flow originating from upstream of Paierau Road bridge.	Flood	Land use	Low	Flood forecasting and warning system	Emergency management planning	Community resilience		
133	Waipoua	12	Stopbank	The stopbank on the true left bank of the river is within the erosion study area and has required protection to reduce risk.	Flood & Erosion	Flood Protection	Low to Moderate	Rural stopbank policy	Code of Practice			
134	Waipoua	12	Houses	There are houses located within the 1%AEP flood area.	Flood	House	Low to Moderate	Flood hazard maps	Flood forecasting and warning system	Emergency management planning		
135	Waipoua	12	Golf course	The golf course is located in the modelled 1%AEP flood area and is also within the erosion study area.	Erosion & Flood	Land use	Low	Flood hazard maps	River edge envelope	Emergency management planning		

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136	Waipoua	12	Narrowed channel	The river channel becomes more confined as it approaches the railway bridge upstream of Masterton.	Flood	Land use	Low to Moderate	River Edge envelope				
137	Waipoua	13	Channel alignment	No design fairways have been created for the section of the Waipoua River which flows through Masterton. This creates management challenges due to a lack of guidance for river engineers.	Erosion	Flood Protection	Low to Moderate	River edge envelope				Volume 3
138	Waipoua	13	Oxford Street properties Flooding	There are houses in the flood hazard area.		Flood	High	Flood hazard maps				Volume 3
139	Waipoua	13	Stopbank	The alignment of the stopbank puts it close to the active channel and within the erosion study area. The stopbank is modelled to overtop in a 1% AEP flood event. There are known low spots along its length which may have created flooding issues in paddocks.	Flood & Erosion	Flood Protection	Low to Moderate	Flood hazard maps				Volume 3
140	Waipoua	13	Bed control weirs	Structures which cross the channel to prevent channel degradation are susceptible to damage in high flow events and susceptible to erosion. Ownership of these structures is unclear and may rest either with MDC or GWRC.	Erosion	Flood Protection	Moderate	Code of Practice	River bed level monitoring	River edge envelope	3rd party asset owner liaison	Volume 3
141	Waipoua	13	Sewer lines	Sewer lines run down both banks of the Waipoua River along its length through Masterton. These are located on the river side of the stopbanks and within erosion study areas.	Erosion	Infrastructure	Low to Moderate	Code of Practice	River bed level monitoring	River edge envelope	3rd party asset owner liaison	Volume 3
142	Waipoua	13	Bed control weirs	Structures which cross the channel to prevent channel degradation are susceptible to damage in high flow events and susceptible to erosion. Ownership of these structures is unclear and may rest either with MDC or GWRC.	Erosion	Flood Protection	Moderate	Code of Practice	River bed level monitoring	River edge envelope	3rd party asset owner liaison	Volume 3
143	Waipoua	13	Channel alignment	There is a mismatch between the fairways and the extents of the bed control weirs in the urban reach of the Waipoua River.	Erosion	Flood Protection	Low to Moderate	River edge envelope	Code of Practice			Volume 3
144	Waipoua	13	Bed control weirs	Structures which cross the channel to prevent channel degradation are susceptible to damage in high flow events and susceptible to erosion. Ownership of these structures is unclear and may rest either with MDC or GWRC.	Erosion	Flood Protection	Moderate	Code of Practice	River bed level monitoring	River edge envelope	3rd party asset owner liaison	Volume 3
145	Waipoua	13	Irrigation water intake	The rugby grounds irrigation water intake is located within the erosion study area.	Erosion	Infrastructure	Low	Code of Practice	River bed level monitoring	River edge envelope	3rd party asset owner liaison	Volume 3
146	Waipoua	13	Sewer siphon	The Landsdowne sewer siphon crosses the river and is at risk from flood damage and is within the erosion study area.	Flood & Erosion	Infrastructure	Low	Code of Practice	River bed level monitoring	River edge envelope	3rd party asset owner liaison	Volume 3
147	Waipoua	13	Emergency sewer discharge point	An emergency sewer discharge point is located on the river bank.	Land use	Environment	Low to Moderate	Code of Practice	River bed level monitoring	River edge envelope	3rd party asset owner liaison	Volume 3
148	Waipoua	13	Channel alignment	No design fairways have been created for the section of the Waipoua which flows through Masterton. This creates management challenges due to a lack of guidance for river engineers responsible for the scheme management.	Erosion	Flood Protection	Low to Moderate	River edge envelope				Volume 3
149	Waipoua	13	Bed control weirs	Structures which cross the channel to prevent channel degradation are susceptible to damage in high flow events and susceptible to erosion. Ownership of these structures is unclear and may rest either with MDC or GWRC.	Erosion	House	Low to Moderate	River Edge envelope	Code of Practice	Emergency Management Planning		Major project response
150	Waingawa	15	MDC water supply intake	Part of the Masterton water supply network is located in the headwaters of the Waingawa River. In relatively stable gorge section.	Erosion	Infrastructure	High	Emergency management planning				
151	Waingawa	15	MDC water supply pipe bridge	There are problems with build up of the river bed level, the risk of debris flow damage. This poses a risk to the water supply to Masterton.	Erosion	Infrastructure	High	River bed level monitoring	Emergency management planning			Major project response
152	Waingawa	15	MDC water supply pipeline	There is a currently managed erosion risk to the main water supply pipeline. It is located between the river bank and the road.	Erosion	Infrastructure	High	River edge envelope	Code of Practice	Emergency management planning		Major project response

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153	Waingawa	16	House	A house at 114 Waingawa Road is in the erosion study area and in 1%AEP flood area.	Erosion & Flood	Erosion & Flood	Moderate	Flood hazard maps	River edge envelope	Emergency management planning		
154	Waingawa	16	Upper Waingawa Road	The upper Waingawa Road is modelled to be flooded to a depth of 0.9m in a 1%AEP flood.	Flood	Infrastructure	Moderate	Flood hazard maps	Flood forecasting and warning system	Emergency management planning		
155	Waingawa	16	Farm buildings	A milking shed and other outbuildings are in the erosion study area and flood risk area.	Erosion & Flood	Erosion & Flood	Low to Moderate	Flood hazard maps	River edge envelope	Emergency management planning		
156	Waingawa	16	Taratahi water race intake	Bed degradation means achieving water intake level is difficult, river alignment is difficult to maintain with current alignment, it is necessary to balance between scour and aggradation to keep intake clear.	Erosion	Infrastructure	High	River bed level monitoring	Pool, riffle, run envelope	River edge envelope		
157	Waingawa	16	MDC water supply pipeline	Bed degradation at Black Creek is creating a risk to the Masterton water supply pipeline. The pipeline also sits within the erosion study area at this location.	Erosion	Infrastructure	High	River bed level monitoring	River edge envelope	Emergency management planning		Major project response
158	Waingawa	16	Waingawa River bush RAP sites	Waingawa River Bush RAP site is within the design channel buffer and close to the edge of the design channel alignment.	Erosion	Environment	Moderate	River edge envelope	Environmental strategy			
159	Waingawa	16	Houses	Houses are located within the erosion study area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
160	Waingawa	16	MDC Water Treatment Plant - Main facility	Parts of the Masterton Water Treatment Plant are within the erosion study area, the main plant is not affected by this.	Erosion	Infrastructure	Moderate	River edge envelope	Code of Practice	Emergency management planning	3rd party asset owner liaison	
161	Waingawa	16	MDC Water Treatment Plant - Sludge area	The sludge treatment sections of the MDC water treatment plant are located on the lower terraces within the erosion study area.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning	3rd party asset owner liaison	
162	Waingawa	16	MDC water supply - Boost pump station	The boost pump station for the Masterton water supply is located within the 1%AEP flood area.	Flood	Infrastructure	High	Flood hazard maps	Flood forecasting and warning system	Emergency management planning		
163	Waingawa	16	House	There is a house in flood hazard area - the address is unclear.	Flood	House	Moderate	Flood hazard maps	Flood forecasting and warning system	Emergency management planning		
164	Waingawa	16	House	A house at 636D Norfolk Road sits within the erosion study area and Wairarapa Combined District Plan erosion area. It is not affected by the modelled 1%AEP flood area.	Erosion	House	Moderate	River edge envelope	Code of Practice	Emergency management planning		
165	Waingawa	16	MDC water supply	An area designated for potential future water treatment that sits within the erosion study area and the 1% AEP flood area.	Flood	Infrastructure	Low	Land use controls	Code of Practice		3rd party asset owner liaison	
166	Waingawa	16	Historic river channel	An old river channel used to flow through this location, and an overflow path in the updated 1%AEP flood area. The old gravel river bed has been planted over and closed off with a stopbank.	Erosion	Flood Protection	Low to Moderate	Historic channel lines	Land use controls	Rural stopbank policy		
167	Waingawa	16	River alignment	Buffer zones are an issue at this location. There has been ongoing trouble managing the river to within the design lines. Erosion on true right bank is currently beyond the buffer extents.	Erosion	Flood Protection	Low to Moderate	River edge envelope				
168	Waingawa	16	Tararua Drive atobanks	The stopbanks in this location are of low level and crest height is monitored. It is recommended that the levels are confirmed (Tararua Drive - 3no. Low level banks).	Flood	Flood Protection	Moderate	Rural stopbank policy				
169	Waingawa	16	House	At 65 Totara Park Drive the house and outbuildings are in the erosion study area, they are not within the 1%AEP flood area.	Erosion	House	Moderate	River edge envelope	Code of Practice			
170	Waingawa	16	Flap-gates in stopbank	Two flap-gates in Skeets stopbank create possible back flow routes. These are occasionally blocked open because of misunderstandings.	Flood	Flood Protection	Low to Moderate	Code of Practice				

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171	Waingawa	16	Skeets stopbank	This stopbank protects against and overflow path which has historically connected the Waingawa River to the Waipoua River. It is currently maintained by GWRC Flood Protection but a failure could have flood consequences for Masterton.	Flood	Flood Protection	High	Code of Practice	River edge envelope			
172	Waingawa	16	Buildings	There are several buildings which are part of 123 Upper Manaia Road and 161 Upper Manaia Road which sit with the erosion study area.	Erosion	House	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning		
173	Waingawa	16	SLUR Site	A site at 81 Upper Manaia Road is registered on the SLUR database and sits within the erosion study area.	Erosion	Environment	Low	River edge envelope	Code of Practice	Emergency management planning		
174	Waingawa	16	Distribution powerlines	Pylons just upstream of the rail bridge - distribution network. One pole is currently situated in the river bed, the others are at risk of erosion on berms.	Erosion	Infrastructure	Moderate	River edge envelope	Code of Practice	Emergency management planning	3rd party asset owner liaison	
175	Waingawa	16/17	Contractors yards	Contractors yards within the erosion study area and are within the 1%AEP flood area. Known erosion management area.	Erosion & Flood	Business	Low	Flood hazard maps	River edge envelope	Emergency management planning		
176	Waingawa	16	Transmission powerlines	Pylons just upstream of rail bridge - transmission lines. Pylons sit on the edge of the erosion study area.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Code of Practice	Emergency management planning	3rd party asset owner liaison	
177	Waingawa	16	Rail bridge	Contractors yards within the erosion study area and are within the 1%AEP flood area. Known erosion management area.	Erosion & Flood	Infrastructure	Low to Moderate	River bed level monitoring	Code of Practice		3rd party asset owner liaison	
178	Waingawa	16	Contractors yards	Contractors yards within the erosion study area and are within the 1%AEP flood area. Known erosion management area.	Erosion & Flood	Business	Low to Moderate	Flood hazard maps	River edge envelope	Emergency management planning		
179	Waingawa	16	Stopbank	This stopbank is believed to be a high failure risk.	Erosion & Flood	Flood Protection	High	River edge envelope	Emergency management planning			Major project response
180	Waingawa	16	Channel alignment	The buffer zones between the two bridges are very narrow, and have been recommended for review.	Erosion & Flood	Flood Protection	Low	River edge envelope				
181	Waingawa	16	Channel alignment	The buffer zones between the two bridges are very narrow and have been recommended for review.	Erosion	Flood Protection	Moderate	River edge envelope				
182	Waingawa	16	Sewer, water on road bridge	Key infrastructure is at low risk of being damaged by flood and debris flows attached to the road bridge.	Erosion & Flood	Infrastructure	Low to Moderate	Flood hazard maps	Emergency Management Planning		3rd party asset owner liaison	
183	Waingawa	16	Road bridge	Bed degradation is a managed problem in the area around the road bridge.	Erosion & Flood	Infrastructure	Moderate	River bed level monitoring	Code of Practice		3rd party asset owner liaison	
184	Waingawa	17	Pump station for sewer line	The pump station is located on the edge of the 1%AEP flood area, and within the erosion study area.	Erosion & Flood	Infrastructure	Moderate	Flood hazard maps	River edge envelope	Emergency management planning	3rd party asset owner liaison	
185	Waingawa	17	Powerlines	Transmission network power line pylons are located within erosion study area, 200m downstream of SH2.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Code of Practice	Emergency Management Planning	3rd party asset owner liaison	
186	Waingawa	17	Contractors yards	Contractors yards within the erosion study area and are within the 1%AEP flood area. Known erosion management area.	Erosion & Flood	Business	Low to Moderate	Flood hazard maps	River edge envelope	Emergency management planning		
187	Waingawa	17	Contractors yards	Contractors yards within the erosion study area and are within the 1%AEP flood area. Known erosion management area.	Erosion & Flood	Business	Low to Moderate	Flood hazard maps	River edge envelope	Emergency management planning		
188	Waingawa	17	Powerlines	Distribution network power line pylons are located within erosion study area, 30m downstream of SH2.	Erosion	Infrastructure	Low	River edge envelope	Code of Practice	Emergency Management Planning	3rd party asset owner liaison	
189	Waingawa	17	Land retirement agreements	There is ongoing work to manage buffers through land use change to planted willow buffers.	Land use	Flood Protection	Moderate	River edge envelope	Mixed vegetation planting			

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190	Waingawa	17	Illegal dumping	The good access and relatively secluded location make this site a popular location for illegal rubbish dumping.	Land use	Environment	Low	Environmental strategy	Community Support Officer	Care groups and clubs		
191	Waingawa	17	Recreation area	The good access to the end of Hughes Line makes it a popular area for recreation groups. There is interest in developing this access and area further from a number of interest groups.	Land use	Recreation	Low to Moderate	Community Support Officer	Care groups and clubs	Environmental strategy		
192	Waingawa	17	Flight path	There is a controlled level for tree height for aircraft taking off from the Hood Aerodrome.	Land use	Flood Protection	Moderate	Code of Practice				Major project response
193	Waingawa	17	Aerodrome runway	The aerodrome runway is known to be affected by erosion and has been eroded in the recent past (2000), it is situated within the erosion study area.	Erosion	Infrastructure	High	River edge envelope			3rd party asset owner liaison	Major project response
194	Waingawa	17	SLUR Site	Hood Aerodrome is a registered SLUR site which sits within the erosion study area.	Erosion	Environment	Low	Emergency management planning	Land use controls	Environmental strategy		
195	Waingawa	17	Private water intake	A private water intake is located within the erosion study area.	Erosion	Infrastructure	Low	River edge envelope	Code of Practice			
196	Waingawa	17	Drag strip	The drag strip sits within the erosion study area and is within the 1%AEP flood area.	Erosion & Flood	Environment	Low to Moderate	River edge envelope	Flood hazard maps			
197	Waingawa	17	Distribution powerlines	Pylons for a distribution network area located within the erosion study area on the true right bank and may be close to the erosion study area boundary on the true left bank.	Erosion	Infrastructure	Low	River edge envelope	Emergency Management Planning	Community resilience	3rd party asset owner liaison	
198	Waingawa	17	Private water intake	A private water intake is located within the erosion study area.	Erosion	Infrastructure	Low to Moderate	River edge envelope	Code of Practice			
199	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
200	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
201	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
202	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
203	Kopuaranga	Kopuaranga River	Culvert/road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
204	Kopuaranga	Kopuaranga River	Private road/culvert	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
205	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
206	Kopuaranga	Kopuaranga River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
207	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
208	Kopuaranga	Kopuaranga River	Private access/culvert	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
209	Kopuaranga	Kopuaranga River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed

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210	Kopuaranga	Kopuaranga River	Road/bridge & graveyard	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
211	Kopuaranga	Kopuaranga River	Rail bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
212	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
213	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
214	Kopuaranga	Kopuaranga River	Rail	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
215	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
216	Kopuaranga	Kopuaranga River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
217	Kopuaranga	Kopuaranga River	Rail	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
218	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
219	Kopuaranga	Kopuaranga River	Private bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
220	Kopuaranga	Kopuaranga River	Woolshed	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
221	Kopuaranga	Kopuaranga River	House and buildings	Potential oxbow cut-off		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
222	Kopuaranga	Kopuaranga River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
223	Kopuaranga	Kopuaranga River	Shed	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
224	Kopuaranga	Kopuaranga River	Rail	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
225	Kopuaranga	Kopuaranga River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
226	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
227	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed

RESPONSES SPECIFIC TO INDIVIDUAL ISSUES - FOR GENERAL RESPONSES FOR EACH REACH REFER TO RESPONSE SUMMARY												
ID	RIVER	REACH	NAME	ISSUE DESCRIPTION	THREAT	AT RISK	RANK	PRIMARY COMMON METHOD	SECONDARY COMMON METHOD	TERTIARY COMMON METHOD	3RD PARTY ASSET OWNER LIAISON	COMMENT
228	Kopuaranga	Kopuaranga River	Rail and private access	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
229	Kopuaranga	Kopuaranga River	Private bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
230	Kopuaranga	Kopuaranga River	Private access/ outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
231	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
232	Kopuaranga	Kopuaranga River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		Scheme expansion proposed
233	Kopuaranga	Kopuaranga River	Rail bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
234	Kopuaranga	Kopuaranga River	Mauriceville settlement	Within 1% AEP flood area and within the erosion study area.		Flood	High	Flood hazard maps	Code of Practice	Isolated Works support		
235	Kopuaranga	Kopuaranga River	Private access	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
236	Kopuaranga	Kopuaranga River	Rail and road access	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
237	Kopuaranga	Kopuaranga River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
238	Kopuaranga	Kopuaranga River	Rail	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
239	Kopuaranga	Kopuaranga River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
240	Kopuaranga	Kopuaranga River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
241	Kopuaranga	Kopuaranga River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
242	Kopuaranga	Kopuaranga River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
243	Kopuaranga	Kopuaranga River	Rail bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
244	Kopuaranga	Kopuaranga River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
245	Kopuaranga	Kopuaranga River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		

RESPONSES SPECIFIC TO INDIVIDUAL ISSUES - FOR GENERAL RESPONSES FOR EACH REACH REFER TO RESPONSE SUMMARY

ID	RIVER	REACH	NAME	ISSUE DESCRIPTION	THREAT	AT RISK	RANK	PRIMARY COMMON METHOD	SECONDARY COMMON METHOD	TERTIARY COMMON METHOD	3RD PARTY ASSET OWNER LIAISON	COMMENT
246	Kopuaranga	Kopuaranga River	Private access bridge (may be MDC maintained - Donovan's Road)	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
247	Kopuaranga	Kopuaranga River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
248	Kopuaranga	Kopuaranga River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
249	Kopuaranga	Kopuaranga River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
250	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
251	Whangaehu	Whangaehu River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
252	Whangaehu	Whangaehu River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
253	Whangaehu	Whangaehu River	Road and private access	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
254	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
255	Whangaehu	Whangaehu River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
256	Whangaehu	Whangaehu River	House and buildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
257	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
258	Whangaehu	Whangaehu River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
259	Whangaehu	Whangaehu River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
260	Whangaehu	Whangaehu River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
261	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
262	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
263	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		

RESPONSES SPECIFIC TO INDIVIDUAL ISSUES - FOR GENERAL RESPONSES FOR EACH REACH REFER TO RESPONSE SUMMARY												
ID	RIVER	REACH	NAME	ISSUE DESCRIPTION	THREAT	AT RISK	RANK	PRIMARY COMMON METHOD	SECONDARY COMMON METHOD	TERTIARY COMMON METHOD	3RD PARTY ASSET OWNER LIAISON	COMMENT
264	Whangaehu	Whangaehu River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
265	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
266	Whangaehu	Whangaehu River	Private access	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
267	Whangaehu	Whangaehu River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
268	Whangaehu	Whangaehu River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
269	Whangaehu	Whangaehu River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
270	Whangaehu	Whangaehu River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
271	Whangaehu	Whangaehu River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
272	Whangaehu	Whangaehu River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
273	Whangaehu	Whangaehu River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
274	Whangaehu	Whangaehu River	Access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
275	Whangaehu	Whangaehu River	Woolshed	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
276	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
277	Whangaehu	Whangaehu River	Access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
278	Whangaehu	Whangaehu River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
279	Whangaehu	Whangaehu River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
280	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
281	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		

RESPONSES SPECIFIC TO INDIVIDUAL ISSUES - FOR GENERAL RESPONSES FOR EACH REACH REFER TO RESPONSE SUMMARY

ID	RIVER	REACH	NAME	ISSUE DESCRIPTION	THREAT	AT RISK	RANK	PRIMARY COMMON METHOD	SECONDARY COMMON METHOD	TERTIARY COMMON METHOD	3RD PARTY ASSET OWNER LIAISON	COMMENT
282	Whangaehu	Whangaehu River	House and buildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
283	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
284	Whangaehu	Whangaehu River	Road and bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
285	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
286	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
287	Whangaehu	Whangaehu River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
288	Whangaehu	Whangaehu River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
289	Whangaehu	Whangaehu River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
290	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
291	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
292	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
293	Whangaehu	Whangaehu River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
294	Whangaehu	Whangaehu River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
295	Whangaehu	Whangaehu River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
296	Whangaehu	Whangaehu River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
297	Whangaehu	Whangaehu River	Outbuildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
298	Whangaehu	Whangaehu River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
299	Whangaehu	Whangaehu River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
300	Whangaehu	Whangaehu River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		

RESPONSES SPECIFIC TO INDIVIDUAL ISSUES - FOR GENERAL RESPONSES FOR EACH REACH REFER TO RESPONSE SUMMARY												
ID	RIVER	REACH	NAME	ISSUE DESCRIPTION	THREAT	AT RISK	RANK	PRIMARY COMMON METHOD	SECONDARY COMMON METHOD	TERTIARY COMMON METHOD	3RD PARTY ASSET OWNER LIAISON	COMMENT
301	Whangaehu	Whangaehu River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
302	Whangaehu	Whangaehu River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
303	Whangaehu	Whangaehu River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
304	Whangaehu	Whangaehu River	Private access	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
305	Taueru	Taueru River	Road and bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
306	Taueru	Taueru River	House and buildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
307	Taueru	Taueru River	House and buildings	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
308	Taueru	Taueru River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
309	Taueru	Taueru River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
310	Taueru	Taueru River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
311	Taueru	Taueru River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
312	Taueru	Taueru River	Road	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
313	Taueru	Taueru River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
314	Taueru	Taueru River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
315	Taueru	Taueru River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
316	Taueru	Taueru River	Private access	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
317	Taueru	Taueru River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
318	Taueru	Taueru River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
319	Taueru	Taueru River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		

RESPONSES SPECIFIC TO INDIVIDUAL ISSUES - FOR GENERAL RESPONSES FOR EACH REACH REFER TO RESPONSE SUMMARY

ID	RIVER	REACH	NAME	ISSUE DESCRIPTION	THREAT	AT RISK	RANK	PRIMARY COMMON METHOD	SECONDARY COMMON METHOD	TERTIARY COMMON METHOD	3RD PARTY ASSET OWNER LIAISON	COMMENT
320	Taueru	Taueru River	Stock bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
321	Taueru	Taueru River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
322	Taueru	Taueru River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
323	Taueru	Taueru River	Private access bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		
324	Taueru	Taueru River	Road bridge	Within erosion study area		Erosion	Low	Code of Practice	Emergency management planning	Isolated Works support		

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