

BEFORE THE HEARINGS PANEL

IN THE MATTER OF the Resource Management Act
1991

AND

IN THE MATTER OF the Proposed Horizons Regional
Council One Plan for the
Manawatu-Wanganui Region
(Water Hearing)

**SUPPLEMENTARY STATEMENT OF EVIDENCE OF LOGAN BROWN
ON BEHALF OF THE MINISTER OF CONSERVATION**

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SUPPLEMENTARY STATEMENT OF EVIDENCE OF LOGAN BROWN

INTRODUCTION

1. My full name is Logan Arthur Brown.
2. My qualifications and experience are set out in my October 2009 statement of evidence.
3. The following supplementary evidence deals with some points which require further clarification from my primary statement of evidence or points that have been raised throughout the hearing process that I wish to comment on, namely:
 - a. the importance of small streams and tributaries;
 - b. the recruitment of migratory fish species;
 - c. the effects from point source discharges;
 - d. the provision of Sites Of Significance–Aquatic (SOS-A); and
 - e. the Environmental Code of Practice (ECOP).

The importance of small streams and tributaries:

1. I agree with and support the comments made by Kate McArthur at paragraphs 33 - 36 of her supplementary evidence in response to submitters who were questioning the appropriateness of setting values and standards for tributary streams throughout the Region. Streams and tributaries of large streams and rivers are significant from an aquatic biodiversity perspective and provide important habitat for native fish species.
2. The narrow width of small streams means the entire stream is able to be covered with riparian vegetation, shading the entire stream. This provides an important food source for those fish species whose diet is partially comprised of the terrestrial invertebrates that fall from riparian vegetation, such as kokopu species.
3. This riparian vegetation also provides debris within the stream channel and leads to the habitat complexity, such as pools, undercut banks and backwaters which all provide habitat for various native fish species.

4. As outlined in my primary statement of evidence, it is this habitat complexity/variation which enables small streams to maintain high biodiversity values.
5. I consider that it is appropriate to assign values and standards to small streams and tributaries.

Recruitment of migratory fish species:

6. It was commonly thought that the larvae of migratory fish were unlikely to return to the stream in which they were spawned, i.e. that the larvae mixed fully at sea and then returned to the river closest to where they had been carried on the ocean currents. This therefore implied that it was possible to look at migratory fish recruitment at a national rather than a local scale.
7. Recent research from Otago University has shown that there tends to be larvae retention around the rivers that the larvae are derived from. The research suggests that the larvae are therefore using the estuarine zone and the river mouth as part of the sea-living phase of their life cycle (Hicks, New Zealand Freshwater Sciences Society, November 2009 and Hicks, pers comm., 2010).
8. This means that the majority of larvae returning to the freshwater environment are likely to have originally hatched within the catchment, although there is known to be leakage (mixing) among catchments.
9. Therefore at a local scale (i.e. each river), the degradation/enhancement of spawning and adult habitat will have direct effects on the juveniles that migrate upstream and form part of the whitebait catch or adult populations.
10. This, therefore provides further support for water management zones in that management can be directed towards particular values. Plan provisions and management may need to change as over time, science continues to inform management decisions.

Effects from point source discharges:

11. I understand that the hearing panel has heard about the effects of discharges at low flows. The results of kakahi (freshwater mussel) surveys recently conducted

by the Department of Conservation within the Whanganui Conservancy may assist with understanding some of these effects.

12. The Department of Conservation recently conducted kakahi (freshwater mussel) surveys within the Whanganui Conservancy. During these surveys, sites above and below the Hunterville sewage treatment plant, which discharges treated sewage into the Porewa Stream, were sampled (refer to appendix 1 for sampling sites around Hunterville). The results of these surveys assist in understanding the effects of point source discharges (particularly at times of low flow which are common in the Porewa Stream).
13. Kakahi are filter feeders and are dependant on food suspended within the water column for sustenance. These food particles can include suspended algae and microorganisms.



Fig. 1. Kakahi located in the streambed, showing open siphons. Photo: Logan Brown

14. Kakahi surveys in streams involve visually searching and physically feeling for kakahi in the streambed (refer to photo above). Searches are generally conducted

for periods of 30 minutes or 1 hour to allow catch per unit effort to be calculated.

15. From the recent survey work, the following pattern in kakahi numbers above and below the Hunterville sewage discharge was observed (refer to table below).

Table 1. Results from kakahi surveys above and below the Hunterville sewage discharge. *Time searching* is the amount of time that was actually spent searching for kakahi within the streambed. *Distance searched* is the length of streambed searched. *Catch per unit effort (CPUE)* is a calculation of the number of kakahi located per person, per hour.

Site	Time searching	Distance searched	CPUE
Simpsons Reserve	1 hour	20 metres	161.5
State Highway 1	1 hour	30 metres	38
Hunterville Reserve	30 minutes	30 metres	162
Green's above	2 hours	90 metres	12
Green's below	2 hours	230 metres	3.25
Voelkaerling	1 hour	150 metres	0
Bruce Park	1 hour	150 metres	0
Tributary: Ongo Stream true left	30 minutes	30 metres	46
Tributary: Ongo Stream mainstem	30 minutes	20 metres	174

16. The above table shows that there is a substantial decrease in the number of kakahi encountered below the Hunterville discharge, with the furthest two sites (Voelkaerling and Bruce Park) having no kakahi present. Although kakahi were present at the 'Green's below' site (albeit in extremely low numbers), there were no juveniles (defined as kakahi under 30 mm in length). It is likely that kakahi at this site had been washed downstream during a flood event and were surviving in the sub-optimal habitat below the discharge; how long they can endure at this site is not known.

Sites Of Significance - Aquatic:

17. In paragraphs 40 and 41 of my evidence in chief I identified six sites to be identified as SOS-A based on the presence of brown mudfish (*Neochanna apoda*) and banded kokopu (*Galaxias fasciatus*). At paragraph 17 of his November 2009 evidence, Mr Lambie agrees that these six sites befit SOS-A status. I accept Mr Lambie's assertion at paragraph 18 that one of the six sites is already identified as a SOS-A, that being an unnamed stream in Santoft Forest with the presence of banded kokopu (referred to as Artillery Swamp in my primary evidence).

18. In relation to the remaining five sites, in paragraph 18 of Mr Lambie's supplementary evidence dated November 2009, Mr Lambie states that the addition of these sites as SOS-A will not provide them any fuller protection as they are wetlands under the Biodiversity and Heritage provisions of Chapter 12 and Schedule E of the POP and therefore he has no concern around their omission. I disagree with this justification for their omission. Although their classification as SOS-A may not provide additional protection, it would provide a consistent approach for species which have been identified as rare or threatened in the region.

19. I therefore seek that the sites in my primary statement of evidence are added to SOS-A, excluding Artillery Swamp (which already has SOS-A status).

Environmental Code of Practice (ECOP):

20. Since Mr Lambie's supplementary evidence has been circulated we have had the opportunity to caucus on some of the issues raised in my primary statement of evidence. The table below (Appendix 2) summarises the outcomes of these

discussions. Where we have reached agreement in regard to the ECOP this is recorded in the Table at Appendix 2. For those areas where we have disagreed I have suggested alternatives. If deemed appropriate I think that we could resolve the remaining differences through further caucusing.

21. The changes discussed below relate to the November 2009 Environmental Code of Practice (ECOP).
22. I agree with the change in dates contained in ECOP Part 3 Site Specific Special Standards table provided for in paragraph 59 of Mr Lambie's evidence for the dotterel provisions ending on the 31st December to align with the permitted activity status (Table 16.1(n i and ii)). However, I do not agree with allowing for work when an "inspection shows no dotterel are present" and believe that this qualifier should be removed. The reason for this is that there is no certainty around what such an inspection will involve. As set out in Appendix 5 in my October 2009 statement of evidence, dotterel eggs, chicks and adults readily blend into the surrounding environment. Therefore a simple visual inspection may miss the presence of these species, unless conducted by a suitably qualified person.
23. I agree with the retention of the two standards for dotterel which follow on from the above which allow for work to be done "within 7 days following a flood of the area of beach that is the subject of the activity; or where the extraction or disturbance commenced at the same location prior to 1st August and has not been interrupted for more than 7 days."
24. In the table contained at Appendix 7 of my original evidence I provided a date from the 1st September to the 31st December as the period for spawning and juvenile recruitment for dwarf galaxiid. Due to fieldwork carried out from the 16th -18th December 2009, I believe that these dates do not provide enough time for juveniles to be able to withstand artificial disturbances within the streambed. Juveniles are reliant on having slow moving/still backwaters in order to develop as they are unable to withstand moderate to strong currents. I therefore recommend that the exclusion period be extended in dwarf galaxiid sites to the 31st January (that is, from the 1st of September to the 31st of January).

25. I agree with Mr Lambie's supplementary evidence paragraph 65 that the kakahi populations of concern in my primary evidence are not contained within the Lower Whanganui Scheme works area. The headwaters of the stream instead fall into the Matarawa Scheme and the reach of concern which contains the kakahi does not fall into any of the works areas in the November 2009 ECOP. With this understanding there should be no effects on the current known extent of the kakahi population in the Matarawa Stream.

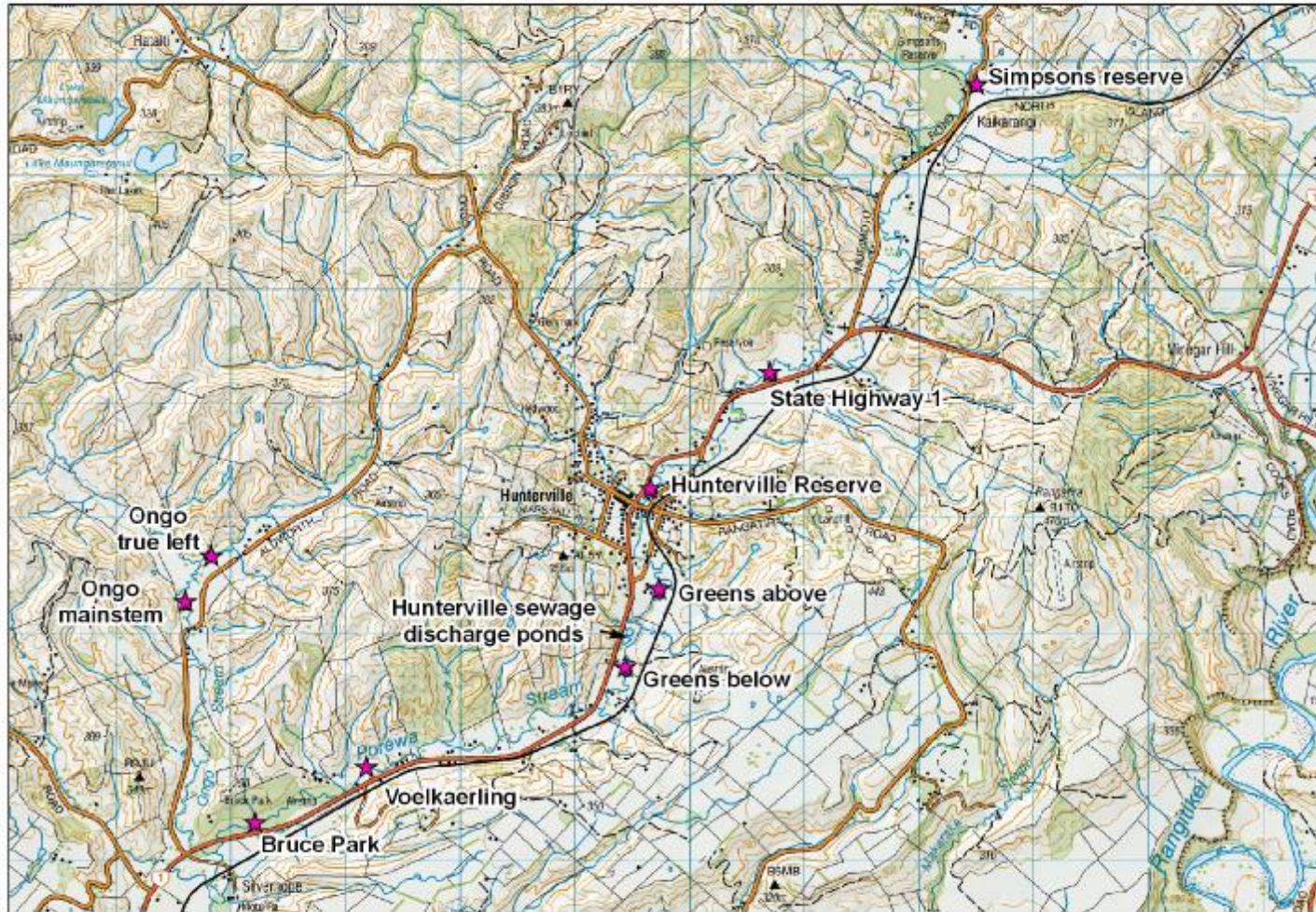
26. Mr Lambie in paragraph 64 of his supplementary evidence maintains that the standards for Inanga spawning sites in the August 2009 version of the ECOP will provide protection of spawning sites (Generic Special Standards 1.3). I do not believe that these will provide adequate protection of spawning habitat and that those contained in my October 2009 brief Appendix 7 would provide better protection.

March 2010

References:

Hicks, A (2009). Limited dispersal and non-diadromous recruitment: implications for larval habitat requirements of amphidromous fish. Presentation at New Zealand Freshwater Sciences Society Conference 2009.

Appendix 1 - Whanganui Conservancy Kakahi (freshwater mussel) sampling sites around Hunterville.



Appendix 2: Collation of the Site Specific Special Standards as they appear in the Environmental Code of Practice for River Works dated 2007 compared to the recommendations contained in my primary statement of evidence, recommendations by Mr. James Lambie as contained in his supplementary evidence of November 2009 and my latest comments.

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
	Ashhurst	None	Not listed	[Added to the list to indicate no concern]	Unnecessary to include in Site Specific Special Standards table	Agree
	Forest Road	Inanga Spawning Whitebait migration	Not listed in the table, but apply as Generic Special Standards	Inanga and Whitebait – refer to generic standards	Unnecessary to include in Site Specific Special Standards table	Agree
	Foxton East	None	Not listed	[Added to the list to indicate no concern]	Unnecessary to include in Site Specific Special Standards table	Agree
	Haunui	None	Not listed	[Added to the list to indicate no concern]	Unnecessary to include in Site Specific Special Standards table	Agree
A41	Himatangi	Brown Mudfish	A consent will be required to undertake in-stream works (drain clearance) between 1 February and 30 April except for the reach upstream of SH1	A consent will be required to undertake works at this site; OR Drainage is to occur on a maximum five year return cycle. No work is to occur during the spawning season (late autumn – spring) Staff with appropriate training are to be present during the operation to retrieve aquatic life, recording numbers and species, then replace them in the stream. Department of Conservation staff are to be made aware of the operation at least five working days before commencement to allow staff to be on site if resources allow. Inanga and Whitebait – refer to generic standards	Mechanical drainage clearance is to occur on a maximum five year return cycle Drain spraying is to occur on a maximum of two year return cycle No work is to occur during the spawning season (1 Feb to 30 April)	Agree Agree Agree Staff with appropriate training are to be present during the operation to retrieve Brown mudfish, recording numbers, then replacing them in the stream.
(Whitebait Creek)	Himatangi	Inanga Spawning Whitebait	Not listed in the table, but apply as Generic Special Standards	Inanga and Whitebait – refer to generic standards	Unnecessary to include in Site Specific Special Standards table	Agree

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
		migration				
A149	Hokio	Giant kokopu Inanga spawning Whitebait migration	Left out of original table with preference for relying on the overarching clause that consent is needed for sites that are not listed in the table.	A consent will be required to undertake instream works between the 1 st October to the 31 st December (whitebait recruitment) A consent will be required to undertake instream works between the 1 st April – 30 th July (spawning season). Inanga and whitebait - refer to generic standards.	Unnecessary to include in Site Specific Special Standards table.	Agree
A50	Koputaroa	Brown Mudfish	A consent will be required to undertake in-stream works (drain clearance) between 1 February and 31 May	A consent will be required to undertake works at this site; OR Drainage is to occur on a maximum five year return cycle. No work is to occur during the spawning season (late autumn – spring) Staff with appropriate training are to be present during the operation to retrieve aquatic life, recording numbers and species, then replace them in the stream. Department of Conservation staff are to be made aware of the operation at least five working days before commencement to allow staff to be on site if resources allow.	A consent will be required to undertake works at this site unless work is for the purposes of wetland enhancement	Agree
A46	Makerua	Brown Mudfish	A consent will be required to undertake in-stream works at this site	A consent will be required to undertake works at this site.	Retain original provisions in the Site Specific Special Standards table.	Agree
A45	Makerua Lower Manawatu	Redfin bully Koaro Banded kokopu	A consent will be required to undertake in-stream works (excluding flood gate outlet clearance) between 1 July and 1 March (this includes anything that is carried out instream that could release sediment including but not limited to gravel extraction, channel clearance, instream vegetation or debris removal). In January and February instream	A consent will be required to undertake instream works between 1 st July and 30 th November (redfin bully - breeding). Avoid works instream between 30 th November and 1 st February where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been	A consent will be required to undertake instream work 1 April to 30 September Instream works between 1 October and 1 February should be avoided where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be	A consent will be required to undertake instream work between 1 April to 30 November Instream works between 1 st December and 1 February should be avoided where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
			<p>works may be carried out for erosion protection if the discharge of sediment as a result of the works is for no more than 5 days and for more than 12 hours in any one of those five days.</p> <p>Flood gate outlet clearing within the exclusion time is allowed if work area banded to stop release of sediment.</p> <p>(Note: the effects of clearing of drains that discharge into this area is considered minor and can be dealt with under generic standards in the Code of Practice)</p>	<p>undertaken shall be documented in accordance with the Code of Practice reporting and monitoring standards (redfin bully recruitment).</p> <p>A consent will be required to undertake instream works between 1st April and 30th June (Koaro spawning).</p> <p>A consent will be required to undertake instream works between 1st October and 31st December (Koaro recruitment).</p> <p>A consent will be required to undertake instream works between 15th April and 30th June (Banded kokopu spawning).</p> <p>A consent will be required to undertake instream works between 1st August and 30th November (Banded kokopu recruitment).</p>	<p>documented in accordance with the Code of Practice reporting and monitoring standards.</p> <p>(Note: the effects of clearing of drains that discharge into this area is considered minor and can be dealt with under generic standards in the Code of Practice)</p>	<p>the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring standards.</p>
A47, A48, A49	Makerua Lower Manawatu	Short jaw kokopu Redfin bully Koaro	A consent will be required to undertake in-stream works upstream of the bridge. Works downstream of the bridge are permitted if carried out under the Code of Practice Standards.	[No comment]	Retain original provisions in the Site Specific Special Standards table.	A consent will be required to undertake in-stream works upstream of the SH57 bridge. Works downstream of the bridge are permitted if carried out under the Code of Practice Standards (insertion of bridge name).
R13	Makerua Lower Manawatu	Dotterels	<p>Between 1 August and 10 January, gravel extraction and bed disturbance on gravel beaches shall only take place:</p> <ul style="list-style-type: none"> when an inspection of the site shows no dotterel are present; or within 7 days following a flood of the area of beach that is the subject of the activity; or where the extraction or disturbance commenced at the same location prior to 	[bundles these site with other Makerua SOS but does not comment]	Retain original provisions except to change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards	Remove "when an inspection of the site shows no dotterel are present"

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
			1 st August and has not been interrupted for more than 7 days [these are here-on referred to as the original dotterel provisions]			
R19	Makerua Lower Manawatu	Dotterels	Mud and silt dredging shall only occur as an incidental part of gravel extraction. [original dotterel provisions] [this combination is heron referred to as the original wader and dotterel provisions]	[bundles this site with other Makerua SOS but does not comment]	The wader value does not have to be attributed to reach R19 but retaining it with R18 is operationally useful. Retain original provisions except to change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards	Remove "when an inspection of the site shows no dotterel are present"
A37	Lower Manawatu	Brown Mudfish	A consent will be required to undertake drain clearance 200m upstream or downstream of this site between 1 February and 31 May	A consent will be required to undertake works at this site.	A consent will be required to undertake works at this site.	Agree
R15 R16 R13 Also R9 and R14	Lower Manawatu	Dotterels	[original dotterel provisions]	Mud and silt dredging shall only occur as an incidental part of gravel extraction. Between 1 st August and 10 th January, gravel extraction and bed disturbance on gravel beaches shall only take place: <ul style="list-style-type: none"> • within 7 days following a flood of the area of beach that is the subject of the activity; or • where the extraction or disturbance commenced at the same location prior to 1st August and has not been interrupted for more than 7 days. [reference to site R9 is not included in Mr. Brown's table] [These provisions are heron referred to as the modified dotterel and standard wader provisions]	Retain original provisions, except to change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards.	Remove "when an inspection of the site shows no dotterel are present"
R18	Lower Manawatu	Waders Dotterels	[original wader and dotterel provisions]	[modified dotterel and standard wader provisions]	Retain original provisions, except to change the exclusion dates for dotterel to between 1 August and 31	Remove "when an inspection of the site shows no dotterel are present"

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
	Moutoa Scheme				December to align with Permitted Activity Standards	
R16	Te Kawau	Dotterels	[identified above]	[identified above].	[It is not necessary to repeat provisions on per scheme basis]	Remove "when an inspection of the site shows no dotterel are present"
	Whirikino	None	Not listed	[Added to the list to indicate no concern]	Unnecessary to include in Site Specific Special Standards table	Agree
A137, A138 Also A136, A139	Akitio	Redfin bully Banded kokopu Inanga Spawning Whitebait migration	A consent is required to undertake work [in sites A136 and A137]. Avoid works instream between 1 November and 1 March where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring standards.	A consent will be required to undertake instream works between 1 st July and 30 th November (redfin bully - breeding). Avoid works instream between 30 th November and 1 st February where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring standards (redfin bully recruitment). A consent will be required to undertake instream works between 15 th April and 30 th June (Banded kokopu spawning). A consent will be required to undertake instream works between 1 st August and 30 th November (Banded kokopu recruitment). Inanga and whitebait refer to generic standards.	Refer to sites A136 (banded kokopu), and A137 and A138 (Redfinbully and Banded kokopu) because they are adjacent to the works area. Note in the table that a consent will be required to work at these sites. Delete reference to site A139 because it is well away from the works area.	Agree
R1	Eastern Manawatu	Dotterels	Except at the gravel extraction sites specified below, between 1 August and 10 January, gravel extraction and bed disturbance on gravel beaches shall only take place: <ul style="list-style-type: none"> when an inspection of the site shows no dotterel are present; or within 7 days following a flood of the area of beach 	[modified dotterel provisions]	Delete reference to gravel extraction sites and change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards	Remove "when an inspection of the site shows no dotterel are present"

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
			<p>that is the subject of the activity; or</p> <ul style="list-style-type: none"> where the extraction or disturbance commenced at the same location prior to 1st August and has not been interrupted for more than 7 days. <p>The gravel extraction restrictions specified above do not apply at the gravel extraction sites listed in Table 3.1 where gravel extraction may be carried out at anytime 100 metres upstream and downstream in accordance with the Code of Practice.</p> <p>[there are heron referred as the gravel extraction exclusion provisions]</p>			
	Ihuraua	None	Not listed	[Added to the list to indicate no concern]	Unnecessary to include in Site Specific Special Standards table	Agree
R17	Kiwiŕea Scheme	Dotterels	Not listed in error	[modified dotterel provisions].	<p>Add reference to this site and add the following provision;</p> <p>Between 1 August and 31 December January, gravel extraction and bed disturbance on gravel beaches shall only take place:</p> <ul style="list-style-type: none"> when an inspection of the site shows no dotterel are present; or within 7 days following a flood of the area of beach that is the subject of the activity; or where the extraction or disturbance commenced at the same location prior to 1st August and has not been interrupted for more than 7 days. 	Remove "when an inspection of the site shows no dotterel are present"
A46, A45, R18, R19,	Lower Manawatu	[Various]	[Sites A45, A46, R13, R15, R16, R18, R19 are addressed above. R8 is in the	[An extensive list of conditions already described which are bundled under the	[It is unnecessary to repeat provisions per scheme. Site R8 should not be	Agree

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
R13, R16, R15, R8			Upper Manawatu and is address below]	Lower Manawatu Scheme]	ascribed to Lower Manawatu]	
R29, R29	Lower Whanganu i	Waders Dotterels Inanga Spawning Whitebait migration	Not listed as this Scheme was added after the original Code was developed	Mud and silt dredging shall only occur as an incidental part of gravel extraction. Between 1 st August and 10 th January, gravel extraction and bed disturbance on gravel beaches shall only take place: <ul style="list-style-type: none"> within 7 days following a flood of the area of beach that is the subject of the activity; or where the extraction or disturbance commenced at the same location prior to 1st August and has not been interrupted for more than 7 days. Inanga and whitebait refer to generic standards. [reference to site R20 instead of site R28 is assumed to be in error]	Mud and silt dredging shall only occur as an incidental part of bed disturbance associated with erosion protection work. Between 1 August and 31 December, gravel extraction and bed disturbance on gravel beaches shall only take place: <ul style="list-style-type: none"> when an inspection of the site shows no dotterel are present; or within 7 days following a flood of the area of beach that is the subject of the activity; or where the extraction or disturbance commenced at the same location prior to 1st August and has not been interrupted for more than 7 days. 	Reference to R29 twice, this should read R28 and R29. Remove "when an inspection of the site shows no dotterel are present"
	Makirikiri	None	Not listed	[Added to the list to indicate no concern]	Unnecessary to include in Site Specific Special Standards table	Agree
R5	Mangatain oka	Dotterel	[Gravel extraction exclusion and original dotterel provisions]	[modified dotterel provisions].	Delete reference to gravel extraction sites and change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards	Remove "when an inspection of the site shows no dotterel are present"
	Matarawa	Inanga Spawning Whitebait migration	Not listed	Inanga and whitebait refer to generic standards.	Unnecessary to include in Site Specific Special Standards table	Agree
A127, A130, A145, A146, A147	Ohau Manakau	[Various]	[Sites A127, A128, A145, A146 – consent required] [Site A130 – refer to provisions for site A129 below] [Site A147 – refer to provision for site	[Bundled blanket conditions for all species present – refer to provisions for site A129 below]	These sites are either not in the works area, or the original specification was for consent to be required. Delete reference to these sites and rely on the overarching provision that unlisted sites require consent.	Agree

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
			A148 below]			
A128	Ohau Manakau	Banded kokopu Redfin Bully	A consent will be required to undertake work at this site	[Bundled blanket conditions for all species present – refer to provisions for site A129 below]	A consent will be required to undertake instream works between 15 April and 1 March.	Agree
A129	Ohau Manakau	Redfin bully	<p>A consent will be required to undertake in-stream works in the Makiokio Stream (A130).</p> <p>A consent will be required to undertake in-stream works in unnamed Muhunoa East trout spawning tributary of the Ohau River.</p> <p>A consent will be required to undertake in-stream works in Ohau River or Tributaries between 1 September and 1 November.</p> <p>Avoid works in-stream between 1 November and 1 March where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring Standards.</p>	<p>A consent will be required to undertake instream works between 1st July and 30th November (redfin bully breeding).</p> <p>Avoid works instream between 30th November and 1st February where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring standards (redfin bully recruitment).</p> <p>A consent will be required to undertake instream works between 15th April and 30th June (Banded kokopu spawning).</p> <p>A consent will be required to undertake instream works between 1st August and 30th November (Banded kokopu recruitment).</p> <p>A consent will be required to undertake instream works between 1st May and 30th June (shortjaw kokopu spawning).</p> <p>A consent will be required to undertake instream works between 1st November and 31st December (shortjaw kokopu recruitment).</p> <p>A consent will be required to undertake instream works between the 1st September to the 31st February (blue gill bully spawning)</p> <p>A consent will be required to undertake</p>	<p>A consent will be required to undertake in-stream works in Ohau River or Tributaries between 1 September and 1 November.</p> <p>Avoid works in-stream between 1 November and 1 March where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring Standards.</p>	<p>A consent will be required to undertake in-stream works in Ohau River or Tributaries between 1st July and 30th November.</p> <p>Instream works between 1st December and 1 February should be avoided where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring standards.</p>

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
				<p>instream works between the 1st November – 31st January (blue gill bully recruitment).</p> <p>Before starting work on a reach, record the number of pools and ensure that works do not reduce the total number of pools within that reach.</p> <p>Indigenous vegetation shall only be removed if it has fallen into the bed of the stream.</p> <p>Willows shall be selectively cleared in accordance with the Code of Practice.</p> <p>A consent will be required to undertake instream works (excluding flood gate outlet clearance) between 1st September and 31st December. This includes anything that is carried out instream that could release sediment including but not limited to gravel extraction, channel clearance, instream vegetation or debris removal (lamprey spawning).</p>		
A148	Ohau Manakau Scheme	Redfin bully Shortjaw kokopu	<p>A consent will be required to undertake instream works in Waikawa River upstream of where it is crossed by North Manukau Road.</p> <p>A consent will be required to undertake instream works in Waikawa River upstream of where it is crossed by State Highway 1 between 1 March and 30 June.</p> <p>A consent will be required to undertake instream works in the Waikawa River downstream of where it is crossed by State Highway 1 between 1 September and 1 November.</p> <p>Avoid instream works in the Waikawa River between 1 November and 1</p>	[Bundled blanket conditions for all species present – refer to provisions for site A129 above]	Retain original provisions for this site.	<p>A consent will be required to undertake instream works in Waikawa River upstream of where it is crossed by North Manukau Road. Agree</p> <p>A consent will be required to undertake instream works in the Waikawa River downstream of where it is crossed by State Highway 1 between 1 September and 30 November.</p>

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
			March where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring Standards.			Avoid instream works in the Waikawa River between 30 November and 1 March where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring Standards.
R39 R42	Ohau Manakau	Dotterels Waders Inanga Spawning Whitebait migration	[original wader and dotterel provisions] No removal of riparian vegetation downstream of confluence with Kuku Stream	[standard wader provisions]. [modified dotterel provisions] Inanga and whitebait -refer to generic standards.	Retain original provisions, except to change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards.	Remove "when an inspection of the site shows no dotterel are present"
A125	Pakahi	Whio	A consent will be required to undertake work at this site.	Between 1 st July and 1 st March, works that disturb the bed or riparian margin shall only take place: <ul style="list-style-type: none"> when an inspection of the site using suitably qualified avian expert or a whio dog shows no whio are present. 	Retain original provisions or remove reference altogether – this site is not in the works area	Agree
A31 A33 A38	Pohangina / Oroua	Brown Mudfish Koaro Redfin bully	A consent will be required to undertake works at these sites	[Bundled blanket conditions for all species present – refer to provisions for site A12 above] [Reference to site A34 is included]	Retain original provisions. Do not refer to A34 – it is not in a works area.	Agree
A32	Pohangina / Oroua Scheme	Koaro	No barriers to fish passage in the Pohangina River	A consent will be required to undertake works at [the site for brown mudfish] A consent will be required to undertake instream works between 1 st April and 30 th June (Koaro spawning).	Retain original provisions	Agree

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
				<p>A consent will be required to undertake instream works between 1st October and 31st December (Koaro recruitment).</p> <p>A consent will be required to undertake instream works between 1st July and 30th November (redfin bully - breeding).</p> <p>Avoid works instream between 30th November and 1st February where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring standards (redfin bully recruitment).</p>		
R11 R12 R10 R14	Pohangina / Oroua Scheme	Dotterel	[original dotterel provisions]	[modified dotterel provisions]	Retain original provisions, except to change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards	Remove "when an inspection of the site shows no dotterel are present"
	Porewa	None	Not listed	[Added to the list to indicate no concern]	Unnecessary to include in Site Specific Special Standards table	Agree
A62	Rangitikei Scheme	Redfin bully	Avoid instream works in the Waikawa River between 1 November and 1 March where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring Standards.	[not addressed]	Retain original provisions	<p>A consent will be required to undertake instream works between 1st August and 30th November (redfin bully spawning).</p> <p>Avoid works instream between 1st December and 31st December where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of</p>

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
						the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring standards (redfin bully recruitment).
A63, A64	Rangitikei	Brown Mudfish Giant kokopu	A consent will be required to undertake work in site A63 A consent will be required to undertake instream works (drain clearance on the Amon Drain/Paranui No. 2 Drain between 15 August and 30 November. Drain spraying of the Forest Road Man Drain shall be undertaken when the drain is not flowing.	Brown Mudfish: <ul style="list-style-type: none"> A consent will be required to undertake works at this site. Giant kokopu: <ul style="list-style-type: none"> A consent will be required to undertake instream works between the 1st October to the 31st December (whitebait recruitment) A consent will be required to undertake instream works between the 1st April – 30th July (spawning season). Drain spraying of the Forest Road Main Drain shall be undertaken when the drain is flowing. 	Retain existing condition for site A63. Change the drain clearance restriction dates to 1 October and 31 December as proposed by Mr. Brown. Change the specification for drain spraying to when the drain IS flowing as proposed by Mr. Brown.	Agree Agree Agree
R22 R23	Rangitikei	Dotterels	[original dotterel provisions]	[modified dotterel provisions] [reference to site R21]	Retain original provisions, except to change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards Do not include site R21 – this site is not in the works area.	Remove “when an inspection of the site shows no dotterel are present”
R24	Rangitikei	Waders Dotterels	[original dotterel and wader provisions]	[modified dotterel provisions] [Wader provisions have been inadvertently overlooked]	Retain original provisions, except to change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted	Remove “when an inspection of the site shows no dotterel are present”

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
		Inanga spawning Whitebait migration		Inanga and whitebait refer to generic standards.	Activity Standards	
A2 A3 A4 A5 A6 A7	South East Ruahine	Dwarf galaxias	<p>A consent will be required to undertake instream works in Tamaki East between 1 May and 1 March.</p> <p>A consent will be required to undertake instream works in the Kumeti site of significance between 1 September and 31 December.</p> <p>A consent will be required to undertake instream works in West Tamaki, Rokaiwhana, Mangapukakakahu, Otamarahu and Oruakeretaki site of significance's between 1 September and 31 December. Machinery used for planting and layering work will be driven up the dry bed of the river in accordance with the standards in the Code of Practice, crossing the wetted channel a minimum number of times.</p> <p>Avoid instream works in site of Significance (A3) in Tamaki upstream of Top Grass Road between 1 September and 31 December where practicable. Where it is not practicable to avoid works, sediment from those works shall not discolour more than 25% of the width of the wetted channel at the works site and the reasons why works have been undertaken shall be documented in accordance with the Code of Practice reporting and monitoring standards.</p>	<p>Dwarf galaxias: A consent will be required to undertake instream works in the Mangaatua Site of Significance between 1st September and 31st December (dwarf galaxias spawning and recruitment).</p>	Retain original provisions for these sites	<p>A consent will be required to undertake instream works in the site of Significance (A3) in Tamaki upstream of Top Grass Road between 1 September and 31 January.</p> <p>A consent will be required to undertake instream works in Tamaki East between 1 May and 1 March.</p> <p>A consent will be required to undertake instream works in the Kumeti site of significance between 1 September and 31 January.</p> <p>A consent will be required to undertake instream works in West Tamaki, Rokaiwhana, Mangapukakakahu, Otamarahu and Oruakeretaki site of significance's between 1 September and 31 January.</p> <p>Machinery used for planting and layering work will be driven up the dry bed of the river in accordance with the standards in the Code of Practice, crossing the wetted channel a minimum number of times.</p>
A22	South East Ruahine	Short jaw kokopu	<p>No barriers for fish passage (temporary or permanent) will be introduced into the Manga Atua.</p> <p>A consent will be required to undertake</p>	<p>A consent will be required to undertake instream works in the Mangaatua Site of Significance between 1st May and 30th June (shortjaw kokopu spawning).</p>	Retain original provisions for this site	<p>No barriers for fish passage (temporary or permanent) will be introduced into the Manga Atua.</p> <p>A consent will be required to</p>

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
			instream works in the Manga Atua site of significance between 1 March and 1 June	A consent will be required to undertake instream works in the Mangaatua Site of Significance between 1 st November and 31 st December (shortjaw kokopu recruitment).		undertake instream works in the Mangaatua Site of Significance between 1 st April and 30 th June (shortjaw kokopu spawning).
A1	South East Ruahine	Dwarf galaxias Koaro	A consent will be required to undertake works between 1 April and 1 June.	[Reference to this sit is not in Mr. Brown's table, but provisions for it are]. [Dwarf galaxias conditions as reported above] Koaro: A consent will be required to undertake instream works between 1 st April and 30 th June (Koaro spawning). A consent will be required to undertake instream works between 1 st October and 31 st December (Koaro recruitment).	Retain original provisions for this site	A more specific definition of the works areas within the South East Ruahine scheme. A consent will be required to undertake instream works between 1 st April and 30 th June (Koaro spawning). A consent will be required to undertake instream works in the site of Significance (A1) between 1 September and 31 January.
R1 R2 R3	East Ruahine Scheme	Dotterels	[original dotterel provisions] [original gravel extraction exclusion provision]	[modified dotterel provisions]	Delete reference to gravel extraction sites and change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards.	Remove "when an inspection of the site shows no dotterel are present"
	Tawataia-Mangaone	None	Not listed	[Added to the list to indicate no concern]	Unnecessary to include in Site Specific Special Standards table	Agree
A63	Tutaenui Scheme	Brown Mudfish	A consent will be required to undertake works at this site.	A consent will be required to undertake works at this site.	Retain original provisions for this site.	Agree
A20, A21	Upper Manawatu Scheme	Koaro Shortjaw kokopu	Not listed	A consent will be required to undertake instream works between 1 st April and 30 th June (Koaro spawning). A consent will be required to undertake instream works between 1 st October and 31 st December (Koaro recruitment). A consent will be required to undertake instream works in the Mangaatua Site of Significance between 1 st May and 30 th June (shortjaw kokopu spawning). A consent will be required to undertake instream works in the Mangaatua Site of	These sites are not in the works area. It is unnecessary to include them in Site Specific Special Standards table	Agree

Site	Scheme	Species	Current 2007 Code Special Standards	Recommendations as contained in my primary statement of evidence	James Lambie's Recommendations / comments	My Comments
				Significance between 1 st August and 31 st December (whitebait recruitment).		
R6, R8, R3, R2, R1,	Upper Manawatu Scheme	Dotterels	[original dotterel provisions] [original gravel extraction exclusion provision]	[modified dotterel provisions]	Delete reference to gravel extraction sites and change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards.	Remove "when an inspection of the site shows no dotterel are present"
A65 to A76, A80, A81, A82, A85, A105, A102, A103	Upper Whanganu i	Whio	Between 1 July and 1 March, works that disturb the bed or riparian margin shall only take place: <ul style="list-style-type: none"> when an inspection of the site shows no blue ducks are present; or within 7 days following a flood of the area of beach that is the subject of the activity; or where the works or disturbance commenced at the same location prior to 1 July and has not been interrupted for more than 7 days. 	Whio: Between 1 st July and 1 st March, works that disturb the bed or riparian margin shall only take place: <ul style="list-style-type: none"> when an inspection of the site shows no whio are present; or by the use of a suitably qualified avian expert or the use of a whio dog. 	The whio sites are not in the works area. There is no risk in retaining the original provisions (preferred outcome) or having the requirement for consent for these sites.	Recommend removal from the table as the SOS-A are outside of the works area.
R37	Whangaehu Scheme	Dotterels Waders Inanga Spawning Whitebait migration	[original wader and dotterel provisions]	[standard wader provisions]. [modified dotterel provisions] Inanga and whitebait -refer to generic standards.	Retain original provisions, except to change the exclusion dates for dotterel to between 1 August and 31 December to align with Permitted Activity Standards	Remove "when an inspection of the site shows no dotterel are present"

