

**BEFORE THE MANAWATU – WANGANUI REGIONAL COUNCIL (HORIZONS  
REGIONAL COUNCIL)**

*In the matter of*      **The Resource Management Act 1991; and**

*In the matter of*      **The Proposed One Plan: Consolidated Regional Policy  
Statement, Regional Plan and Regional Coastal Plan  
for the Manawatu - Wanganui Region**

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**STATEMENT OF EVIDENCE BY ANDREW DAVID BASHFORD  
FOR PALMERSTON NORTH CITY COUNCIL**

**CHAPTERS 6, 13, 15 AND 16  
AND SCHEDULES B, C AND D OF THE ONE PLAN**

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Dated: 16 October 2009

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## Introduction

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1. My name is Andrew David Bashford. I hold the position of Planning Officer with the Palmerston North City Council. I hold the tertiary qualification of Bachelor of Resource and Environmental Planning from Massey University. I am a Graduate Member of the New Zealand Planning Institute and an Associate Member of the New Zealand Institute of Forestry. I have three and a half years planning experience, of which 18 months have been with the Palmerston North City Council (PNCC) and two years with Civic Corporation Ltd based in Queenstown.
2. I have read the One Plan Revised Hearing Procedures (dated October 2008) and the Directions and Minutes from the Chairperson as circulated to submitters at various dates and in particular Direction number 8 and Minute number 9. I have read the Code of Conduct for Expert Witnesses (section 5 of the Environment Court Consolidated Practice Note 2006). I agree to comply with this Code of Conduct.
3. My involvement with the Proposed One Plan has been relatively recent, having been asked to co-ordinate the preparation of evidence in support of the PNCC submission in relation to the water chapters of the Proposed One Plan.
4. I confirm that this is my own expert planning evidence. I also refer, in parts, to the evidence of other experts (PNCC engineers and consultant scientists) and legal advice as is referenced throughout this evidence.

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## Executive Summary

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5. In this evidence statement I discuss the issues that raise the most concern for the Palmerston North City Council (PNCC) in terms of water quality and water quantity. Specifically I address how the Proposed One Plan will affect the Palmerston North Wastewater Treatment Plant and the Turitea Water Supply Scheme and highlight some additional areas of uncertainty.
6. There are several aspects to the discussions relating to the water quality sections of the Proposed One Plan. Evidence is presented as to the costs of potential upgrades to infrastructure required to meet the water quality standards contained within Schedule D. It is found that these costs are significant and potentially exceed the immediate capabilities of many Territorial Authorities. It is shown that the proposed water quality management regime may not be the most effective or efficient approach in achieving the objectives of the One Plan. In some cases, improving the quality of point source discharges will come at extremely high cost and the benefits to water quality may be minimal.
7. There is uncertainty as to how the water quality standards contained in Schedule D will be implemented. This is a key issue and is examined in detail with particular focus over whether they are standards in the context of section 69 of

the RMA. It has been expressed by Horizons staff that the standards are not section 69 standards and that appears to be the intention within the One Plan. Section 69 contains pre-requisites and if they are met in the Plan then the section will apply regardless of the intention. Amendments are required to the Plan to ensure that section 69 does not apply. The appropriateness and application of the standards is also addressed in the evidence of Mr. Keith Hamill.

8. The activity status and relevant rules that apply to the stormwater discharges to Centennial Lagoon in Hokowhitu and the water takes from the water supply lakes on the Turitea Stream are also uncertain. This uncertainty has two causes; the Schedule E definitions of threatened habitats and the mix of rules, and rule guides within Chapters 12, 13 and 15.
9. The minimum flow and core allocation set for the Turitea Stream are addressed in this evidence statement and also in more detail in the evidence of Dr. Jack McConchie. It is found that there is no justification for the minimum flow and core allocation as set in Schedule B of the Proposed One Plan.
10. Recommendations are made throughout this evidence to address the issues as raised. Specific amendments to the wording of the Proposed One Plan are suggested and contained in Appendix 1.

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### **Structure of Evidence**

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11. My evidence is structured in the following manner:
  - a) Introduction (above)
  - b) Executive Summary (above)
  - c) Structure of Evidence (this section)
  - d) Scope of evidence
  - e) PNCC's interest in the water chapters of the Proposed One Plan
  - f) The basic elements of the water chapters of the Proposed One Plan
  - g) PNCC's submission points on the water chapters of the Proposed One Plan
  - h) Water quality
  - i) Water quantity and allocation
  - j) Conclusions
  - k) Appendices

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**Scope of Evidence**

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12. The primary purpose of my evidence is to:
- Provide planning evidence to support the submission points made by PNCC on the water chapters of the Proposed One Plan; and
  - Respond to Horizons s42A reports and recommendations.
13. My planning evidence covers two main topic areas:
- Water quality;
  - Water quantity and allocation.
14. My evidence takes into account the following matters that have occurred since the lodgement of PNCC's original submission on the Proposed One Plan:
- Ongoing discussions that have occurred between PNCC and Horizons Officers and experts on the Proposed One Plan;
  - The more detailed evidence and recommendations provided by Horizons through its s42A reports.

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**PNCC's Interest in the Water Chapters of the Proposed One Plan**

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15. PNCC lodged a submission on the Proposed One Plan in August 2007. PNCC also lodged a further submission on the Proposed One Plan in December 2007.
16. PNCC has a statutory obligation to provide and manage water based services such as water supply, wastewater and stormwater, each of which is potentially affected by the Proposed One Plan. In particular the Local Government Act 2002 provides that the purpose of local government is to promote the social, economic, environmental and cultural well-being of communities, in the present and for the future (section 10(b)). Part 7 of the LGA 2002 outlines specific obligations on local authorities including the delivery of water services. The Health Act 1956 also provides that it is the duty of local authorities to improve, promote and protect public health within their district (section 23) and has provisions relating to the provision of sanitary works (section 25).
17. PNCC has invested heavily in the provision of infrastructure for water based services and sanitary works. Such infrastructure includes, but is not limited to, the following examples:

- The Palmerston North City water supply system. This system includes the two dams in the Turitea Stream, the water treatment plant, the storage facility at Ngahere Park, pumping stations various water bores around the city and the reticulation network used to move water around the City.
  - The Ashhurst water supply system. This includes the water bore at Hacketts Road, storage tanks at Colyton Road, a water polishing unit and the reticulation network.
  - The Palmerston North City wastewater system. This includes the Wastewater Treatment Plant (WWTP) at Totara Road, pumping stations at various locations around the city and the associated reticulation system.
  - The Ashhurst wastewater system. This system includes the reticulation system within the township of Ashhurst, a pump station and the two stage oxidation pond treatment system at Hacketts Road.
  - The stormwater systems of both Ashhurst and Palmerston North. Generally these consist of a piped reticulation network, pumping stations, open channels and storage basins.
18. The Proposed One Plan contains provisions that may affect the way that the above services are operated and in at least one example potentially threatens the viability of its intended use.
19. Palmerston North City is growing. The City's population was estimated at 79,300 as at June 2008. Using Statistics New Zealand medium population projections the City's population is expected to reach 93,600 by 2031. PNCC needs to provide for this anticipated growth in its long term planning, including the provision for necessary expansion to water services.
20. PNCC has provided for improvements and increases to capacity in its Long Term Council Community Plan (LTCCP) and has prepared 20 year Asset Management Plans for its infrastructural assets. This type of long term planning can only occur effectively if certainty is provided that certain assets can be operated and maintained in the manner they were designed for.

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### **The Basic Elements of the Water Chapters of the Proposed One Plan**

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21. The Proposed One Plan is a consolidated Regional Policy Statement, Regional Plan and Regional Coastal Plan for the Manawatu-Wanganui Region. It consists of two key parts:
- Part I – The Regional Policy Statement
  - Part II – The Regional Plan

22. The key parts of the Proposed One Plan for the management of water (as notified) are:
- Chapter 6 – Water (RPS): Chapter 6 contains the significant resource management issues, objectives, policies and methods regarding water resources in the Region. The objectives and policies provide direction to the policies and rules contained within chapters 13, 15 and 16.
  - Chapter 13 – Discharges to Land and Water (Regional Plan): Chapter 13 contains policies and rules that relate to the management of discharges to land and water, including agricultural activities, discharges of water, sewage, stormwater and cleanfill, landfills and solid waste.
  - Chapter 15 – Takes, Uses and Diversions of Water, and Bores (Regional Plan): Chapter 15 has policies and rules relating to the use of water. In particular the chapter contains provisions for takes and uses of water, diversions of water and bore drilling and sealing.
  - Chapter 16 – Structures and Activities involving the Beds of Rivers, Lakes and Artificial Watercourses, and Damming (Regional Plan): Chapter 16 contains policies and rules relating to structures and activities in river and lake beds. Specific rules are included on special rivers and lakes, the use, maintenance, repair, removal and demolition of structures, dams, activities within flood control and drainage scheme areas, gravel extraction, disturbances and plants, and activities in artificial watercourses and lakes.
  - Schedule B – Surface Water Quantity: Schedule B contains provisions and information that relate to minimum flow for rivers, the location of flow monitoring sites and cumulative core allocation limits.
  - Schedule C – Groundwater Management Zones: Schedule C contains the proposed management zones for groundwater and the annual allocable volumes for each zone.
  - Schedule D – Values that apply to Waterbodies in the Manawatu-Wanganui Region: Schedule D contains a series of tables that outline the values and management objectives proposed to apply to the various water management zones across the region. The schedule also contains information regarding existing surface water takes within the region. Tables D.16 and D.17 propose water quality standards for streams and rivers in the Water Management Sub-zones while table D.18 identifies the Water Management Sub-zones where lake water and lake catchment water quality standards apply.
  - Schedule E – Indigenous Biological Diversity: Schedule E contains a series of tables which essentially define the terms *rare and threatened habitats* and *at risk habitats*.
23. Schedule E has not been formally identified as being included in the Water Hearing however the terms *rare habitat*, *threatened habitat* and *at risk habitat* have been incorporated within Chapter 6 and are also contained within the rules of Chapters 13, 15 and 16 along with reference to Schedule E itself. Schedule E

has also been included within the recommended changes to Schedule D. Taking into account the significance of the inclusion of Schedule E within the Water Chapters and its potential effects on the management and provision of water based services, in my opinion it is appropriate that Schedule E be included within the scope of the Water Hearings.

24. The above descriptions of the Proposed One Plan chapters are as originally proposed. The values and management objectives contained within Schedule D are now proposed to be included within Schedule Ba. This leaves the proposed surface water quality standards in Schedule D. I support this rearrangement of the information within the schedules as it provides a much more user friendly and simpler approach when searching for information relevant to the case in hand.

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### **PNCC's Submission Points on the Water Chapters of the Proposed One Plan**

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25. PNCC has made a number of submission points in respect of the Water Chapters of the Proposed One Plan and deliberately positioned itself to provide wide enough scope to cover all eventualities in terms of possible amendments to the Regional Plan section.
26. In terms of Chapter 6, PNCC submitted that it has serious reservations to the proposed approach of the One Plan regarding water quality and water quantity and made specific comments as follows:
- *PNCC strongly opposes the water quality standards applying to the Manawatu River, in particular the Lower Manawatu River Management Zone, and policies 6-2, 6-3, 6-4, 6-8 and 6-12 of the One Plan as they are not consistent with the purpose and principles of the RMA 1991.*
  - *PNCC submits that in developing the water section of the RPS section of the One Plan and the associated water quality standards for the Manawatu River, Horizons has placed too much emphasis on environmental aspirations without adequate consideration of the social and economic costs of achieving the anticipated environmental outcomes with respect to water quality and water quantity.*
  - *PNCC acknowledges surface water degradation and increasing water demand are two of the big four issues identified by Horizons within the One Plan, but submit the policy approach is both economically and socially unsustainable.*
  - *PNCC submits that the proposed policy approach does not provide sufficient certainty to existing resource users nor does it recognise recent and significant investment decisions that have been made by PNCC in good faith and in accordance with the policy applicable at that time e.g. the Palmerston North wastewater treatment plant.*

- *PNCC submits that to place the cost of improving water quality of the Manawatu River on one generation when the catchment has been significantly modified over the last century or more is simply unreasonable and unaffordable.*
  - *PNCC submits that Horizons has not adequately considered whether the proposed water quality standards for the Manawatu River are the most effective and efficient means of achieving the objectives of the One Plan with respect to water quality, as it is required to do under section 32 of the RMA 1991.*
  - *PNCC submits that the biggest threat to water quantity in the region is increased irrigation associated with the intensification of farming practices.*
  - *PNCC opposes the inclusion of public water supplies within the catch-all policy regarding the reasonable and justifiable need for water (Policy 6-12).*
  - *PNCC submits that Horizons has not adequately considered whether the proposed policies on water quantity are the most effective and efficient means of achieving the objectives of the One Plan with respect to water quantity, as it is required to do under section 32 of the RMA 1991.*
  - *[In terms of the PNCC Wastewater Treatment Plant] PNCC submits that it is reasonable to think that such recent existing resource consents rights would be preserved.*
  - *PNCC strongly opposes all policies within the One Plan regarding the review of existing resource consents as they do not provide sufficient certainty that PNCC will be able to continue to operate the wastewater treatment plant in the manner it was designed.*
27. PNCC opposed Policies 6-1 and 6-3 on the basis that they include reference to the water quality standards. Policies 6-4, 6-8, 6-12, 6-13, 6-14, 6-18 and 6-19 were opposed for the various reasons as discussed in the original PNCC submission. PNCC supports policies 6-22 and 6-23.
28. In terms of the Regional Plan section of the Proposed One Plan the following submission points were made:

#### Chapter 13

- *PNCC requests that Horizons make all consequential amendments required to the Regional Plan to give effect to the submission points made by PNCC on the RPS section of the One Plan.*

#### Chapter 15

- *PNCC opposes Policy 15-5(a) on the grounds that allowing for “the taking of water by as many resource users as possible, within the allocable limits set in this plan” contradicts the policies in Chapter 6.*



- *PNCC opposes Policy 15-5(b) on the grounds that public water supplies should take precedence over other water takes when water allocation limits may potentially be exceeded.*
- *PNCC requests that Horizons make all consequential amendments required to the Regional Plan to give effect to the submission points made by PNCC on the RPS section of the One Plan.*

#### Chapter 16

- *PNCC opposes Rule 16-11, Culverts, insofar as the Conditions/Standards/Terms for permitted culverts specify a maximum length of 20 metres and a maximum diameter of 1.2 metres.*
- *PNCC requests that Horizons make all consequential amendments required to the Regional Plan to give effect to the submission points made by PNCC on the RPS section of the One Plan.*

#### Schedule B

- *PNCC requests that Horizons make all consequential amendments required to the Regional Plan to give effect to the submission points made by PNCC on the RPS section of the One Plan.*

#### Schedule D

- *PNCC strongly opposes all the water quality standards relating to the Manawatu River, in particular the standards relating to the Lower Manawatu Zone management zone.*
- *[Decision Requested] That Horizons amend the water quality standards relating to the Manawatu River to provide relief that is consistent with the submission points made by PNCC regarding section 6 of the One Plan(water) or amend the One Plan to specifically provide for the PNCC wastewater treatment plant to continue to operate under its current resource consent.*

29. PNCC lodged a further submission in support of and in opposition to the views expressed in various other submissions on the Proposed One Plan. This further submission has had the effect of widening the scope of the issues that PNCC is concerned with throughout the Proposed One Plan process. Of note, PNCC submitted in support of the original submissions lodged by the Territorial Authority Collective.
30. The above submission points provide the necessary scope required for the issues raised in this statement of evidence to be examined. Where it is considered necessary a statement identifying the scope from the relevant submission points will be provided in the discussions below.

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## Water Quality

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31. The water quality sections of the Proposed One Plan (Chapters 6, 13 and Schedule D) have raised significant concerns for PNCC. PNCC operates three wastewater treatment plants within the Palmerston North District, each discharging to the Manawatu River. PNCC is also responsible for the maintenance and operation of stormwater networks in Ashhurst and Palmerston North which have numerous discharge points.
32. PNCC's concerns in relation to water quality are essentially focused on four main issues:
- The economic and social costs of implementing the Proposed One Plan regime;
  - Whether the Proposed One Plan regime is the most efficient and effective means of managing water quality;
  - The proposed water quality standards contained within Schedule D and their implementation, including during consent review;
  - Stormwater discharges to Centennial Lagoon.

### Economic and social costs

33. The Proposed One Plan has the potential to impose immense costs on territorial authorities in order to achieve compliance. This is likely to arise from upgrades and increased running costs of existing plant, and capital expenditure for new plant and facilities. These costs are likely to be compounded by the common catchment dates proposed.
34. As proposed the One Plan is unclear whether the values, management objectives and standards contained within Schedule D are standards pursuant to section 69 of the RMA 1991 or are objectives, guidelines, or targets. The difference is significant and to a large extent determines when the costs as discussed below will come into effect. How the standards are applied is discussed later in this evidence statement.
35. In terms of the PNCC example, all three wastewater treatment plants run by PNCC will require substantial upgrades to meet the requirements of the Proposed One Plan.
36. In the PNCC LTCCP (2009 to 2019) it is noted that the Aokautere treatment ponds are to be decommissioned with the wastewater connected directly to the City's main reticulation system for treatment at the Palmerston North WWTP. This has a budgeted cost of \$412,000 in the 2010/11 year.
37. Investigations are being carried out as to the future of the Ashhurst treatment ponds. Possible options include an upgrade to the existing scheme or to pipe the

waste to the Palmerston North WWTP. The LTCCP has budgeted \$2,118,000 for 'Ashhurst Pond Consent Improvements' in the 2011/12 year.

38. Both the Aokautere and Ashhurst examples above have been identified and provided for in the PNCC Asset Management Plan for Wastewater and the LTCCP in order to decrease risk to PNCC. The specific risk identified being:
- 'Unable to meet more stringent resource consent conditions when re-consenting Aokautere and Ashhurst treatment pond systems.'*
39. Of a more alarming nature are the costs associated with the increased running costs and upgrades required to the Palmerston North WWTP as identified by Mr. Chris Pepper, PNCC Water and Waste Services Manager, in his statement of evidence. At paragraph 23 of Mr. Pepper's evidence it is identified that increased phosphorus removal and provision for nitrogen removal would cost the Palmerston North community some \$1.75 million per year plus additional capital expenditure of an estimated \$20 to \$30 million is likely to be required.
40. The above is despite an upgrade to the WWTP in the order of some \$14 million as part of the 'Wastewater 2006' upgrade and re-consenting process. As part of this upgrade an ultra violet light disinfection system and phosphorus removal plant was added to the WWTP to meet the requirements of Rule 2 of the Manawatu Catchment Water Quality Regional Plan (MCWQRP). Clause 2.4(g) of Rule 2 contains standards relating to the maximum daily average concentration of dissolved reactive phosphorus (DRP) and came into effect for existing discharges on 1 June 2009.
41. It appears that PNCC, although having achieved compliance with the resource consent issued in accordance with the MCWQRP, may now be required to complete a significant further upgrade before the effects of the recently completed upgrade have been appropriately measured over a reasonable period of time.
42. Further compounding the costs to PNCC and other Territorial Authorities are the policies relating to the common catchment dates. These policies have the effect of requiring all resource consents within a Water Management Zone to be reviewed or renewed at the same time. For the Lower Manawatu Management Zone the date has been set at 1 July 2013. Therefore in 2013 it is possible that all the resource consents relating to water held by PNCC could be liable for a review or renewal as the case may be. Given the number of such consents held by PNCC<sup>1</sup> this represents an enormous workload over a short timeframe for PNCC staff, and is likely to require the assistance of outside consultants. It is also likely that any upgrades to infrastructure arising as a result of such reviews will be required to be implemented at the same time thereby increasing the financial burden on the Palmerston North community.
43. It is not clear in the Proposed One Plan as to who will pay for the costs of such 10 year reviews. It is common practice that if there are unexpected effects on the

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<sup>1</sup> 46 discharge/diversion permits, 9 water take permits, 8 consents for dams and river crossings, and some 36 consents for other structures and activities some of which will require renewal or be liable to review

environment from an activity requiring a review, or a consent is reviewed for the reasons outlined in section 128 of the RMA 1991 then costs may be payable by the consent holder or by the person otherwise identified within the Notice of Review under section 129(1)(e). However if a review is initiated by the consenting authority solely because a ten year expiry/review date passes then in my opinion the costs of such reviews should be borne by the consenting authority initiating the review.

44. Part 2 of the RMA 1991 outlines the purpose and principles of the Act and provides that the purpose of the Act is to 'promote the sustainable management of natural and physical resources'. Section 5(2) defines the term sustainable management as:

*'managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety while –*

- (a) sustaining the potential of natural an physical resource (excluding minerals) to meet the reasonable foreseeable needs of future generations; and*
- (b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
- (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

45. The PNCC submission includes points as follows:

- *PNCC strongly opposes the water quality standards applying to the Manawatu River, in particular the Lower Manawatu River Management Zone, and policies 6-2, 6-3, 6-4, 6-8 and 6-12 of the One Plan as they are not consistent with the purpose and principles of the RMA 1991.*
- *PNCC submits that in developing the water section of the RPS section of the One Plan and the associated water quality standards for the Manawatu River, Horizons has placed too much emphasis on environmental aspirations without adequate consideration of the social and economic costs of achieving the anticipated environmental outcomes with respect to water quality and water quantity.*
- *PNCC acknowledges surface water degradation and increasing water demand are two of the big four issues identified by Horizons within the One Plan, but submit the policy approach is both economically and socially unsustainable.*

46. Horizons has carried out a survey obtaining public perceptions regarding water quality throughout the Region. The summary of survey results available on the Horizons website indicates that some questions regarding the proportions of costs have been asked, however as far as I am aware the Horizons survey did not contain a 'willingness to pay' type question. PNCC has not carried out an analysis or survey, to determine whether its community would be willing to face

rates increases of the order required to meet the upgrades as discussed above so soon after the Wastewater 2006 project.

47. In terms of Part 2 of the RMA 1991 the activities of PNCC, including the WWTP, do support the purpose of the Act and encompass the principle of sustainable management. PNCC activities provide for social, economic and cultural wellbeing and provide for community health and safety. PNCC activities have current resource consents, or are in the process of obtaining resource consents, under the relevant Plans that impose conditions to sustain the potential of the natural and physical resources utilised. The current discharge (see Figure 1) from the WWTP has only been in operation for a short period of time thereby limiting assessments of the longer term effects of the discharge on the life-supporting capacity of water and ecosystems.



Figure 1: Palmerston North WWTP Land Passage Discharge

48. The above mentioned PNCC submission points do not appear to have been fully addressed in the s42A reports by Horizons officers. At paragraphs 4.1.1, 4.2.1 and 4.24.1 of Ms Barton's planning report it is noted that the submission points have been recognised. However in paragraph 4.2.2(f) the following comment is made:

*The matter of the Plan approach being economically and socially unsustainable is not a matter I have dealt with as I understand this is being dealt with by Ms Marr.*

49. I have read Ms Marr's s42A report and have noted that the issue is not addressed in terms of PNCC concerns but rather this report addresses the costs of the One Plan implementation to the farming community. Further to this, the issue does not appear to have been adequately addressed, or at least it is not

clear how it has been addressed, within the section 32 report on the Proposed One Plan. There is a cost-benefit analysis within the section 32 report that utilises a 'slider scale' and shows low costs for obtaining resource consents and the upgrading or provision of new infrastructure. How the 'low costs' were arrived at is not clear, and in my opinion the above discussion regarding the costs of upgrades casts a significant amount of doubt upon that analysis.

50. It is also noted that in Attachment 1 to the Planning and Recommendations Report the submission points of PNCC have been recognised with recommendations provided. For the most part it is stated that these points are to be addressed in supplementary evidence by Horizons at a later date thereby leaving little to respond to in terms of planning evidence at this stage.

### **Efficiency and effectiveness of the Proposed One Plan regime**

51. The issue of whether the Proposed One Plan regime is the most efficient and effective approach in terms of water quality arises from the potential requirements to improve the quality of point source discharges at a significant cost while not necessarily improving the receiving water quality by any significant amount.
52. PNCC made the following submission point on this issue:
- *PNCC submits that Horizons has not adequately considered whether the proposed water quality standards for the Manawatu River are the most effective and efficient means of achieving the objectives of the One Plan with respect to water quality, as it is required to do under section 32 of the RMA 1991.*
53. Policy 6-2 introduces the water quality standards, with policies 6-3, 6-4 and 6-5 providing the direction as to how they will be implemented in respect of the receiving water quality. Policy 6-8 relates specifically to point source discharges to water and further qualifies policies 6-3, 6-4 and 6-5. Section 32 of the RMA 1991 requires that an evaluation is carried out to examine whether, having regard to their efficiency and effectiveness, the policies, rules or other methods are the most appropriate for achieving the objectives. An assessment of various options identified as being appropriate to achieve the objectives has been carried out within the section 32 Report; however this does not actually assess the proposed policies, rules or standards in terms of their appropriateness for achieving the objectives.
54. It is stated in the opening chapters of the Proposed One Plan, within Issue 1: Surface Water Quality Degradation, that the run-off of nutrients, sediment and bacteria from farms is now the single largest threat to water quality in the Region. An example is provided outlining the Manawatu River and stating that research has found that, at Hopelands, 80% of the nitrogen and 50% of the dissolved reactive phosphorus found in the river is coming from run-off from agricultural land with the pattern repeated in other catchments. The above statements are supported by the analysis of point source and non-point source contributions at paragraphs 231 to 241 of Dr Jonathon Roygard's s42A report.

55. This does not come as a surprise. The MCWQRP became operative in October 1998 and to a large extent focussed its attention on point source discharges. Consequently there has been an improvement in the effectiveness of treatment of point source discharges since the introduction of the Plan. Mr. Barry Gilliland's evidence provides good background to this, particularly at paragraphs 26 to 32 and indicates, in general terms, that the largest improvements in water quality will be from the management of non-point sources in the future.
56. It is noted that Ms. Kathryn McArthur has stated<sup>2</sup> that the Proposed One Plan approach differs from the MCWQRP by applying standards to all activities that affect water, rather than just point source discharges. This would seem to be a sensible approach to improving water quality throughout the Region and an approach that I support. Unfortunately, in practice, Chapter 13 of the Proposed One Plan does not apply the water quality standards contained in Schedule D to all activities affecting water.
57. With the exception of closed landfills, the Proposed One Plan only applies the standards to point source discharges such as stormwater and wastewater. For example, the only rules that require compliance with the water quality standards are Rule 13-9: Discharges of water to water, Rule 13-24: Discharges of contaminants to surface water and Rule 13-26: Discharges of contaminants to land that may enter water. Rules that have retained control or discretion over water quality matters are Rule 13-17: Discharges of stormwater to surface water not complying with Rule 13-15, and Rule 13-21: Closed landfills. While Rules 13-22, 13-23 and 13-27 do not specifically require compliance with the standards, any activity falling within these rules would be assessed against the relevant objectives and policies that in turn refer to the standards.
58. It is notable that agricultural activities and a number of permitted activities are not required to comply with the standards. Given the above, I am uncertain how the Proposed One Plan will lead to improvements in water quality without applying the standards to non-point source discharges where the evidence presented by Horizons has shown that they contribute the most to the degradation of water quality.
59. Currently the water quality in the Manawatu River above the Palmerston North WWTP does not meet a number of the Schedule D standards within the Proposed One Plan. As proposed, Policy 6-4 appears to require that where there is a water body that does not meet the Schedule D standards, any discharges to that water body are to be of a quality that will enhance that receiving water. In effect the quality of the discharge would have to be substantially better than that of the receiving waters to show enhancement. This raises doubt as to whether discharges such as the Palmerston North WWTP could even be improved to such an extent that would enable it to have a resource consent approved. It is noted that Policy 6-4 has been amended to include the words '...maintains or enhances existing water quality...' This amendment is supported.
60. As stated in Mr Pepper's evidence, to remove nitrogen from the discharge of the Palmerston North WWTP would require capital investment in the order of \$20 to

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<sup>2</sup> Paragraph 23 of Ms. McArthur's S42A report.

\$30 million. Land based discharges have been investigated by PNCC as part of the Wastewater 2006 project and found to have their own set of environmental issues compounded by the volume of the WWTP discharge.

61. Since some of the information contained in the Horizons section 42A reports was collected, the Palmerston North WWTP has had a substantial upgrade, including the construction of a phosphorus removal plant. This is particularly noteworthy in relation to the data shown in Tables 15 and 16 and conclusions drawn from that information in Ms. Kathryn McArthur's s42A report.
62. Given the costs of improving the quality of point source discharges and the fact that these currently account for a smaller portion of the overall degradation off the Region's waterbodies, it is, in my view, inefficient to require further upgrades to point source discharges when superior overall gains in water quality may be achieved through an alternative approach. Such an approach may follow the model as provided by the Sustainable Land Use Initiative (SLUI) with benefactors helping to fund initiatives, through regional rates, to reduce the effects of non-point source discharges. It is acknowledged that such a programme will require further research and would take time to implement. This could be included in the One Plan as a new method or as an expansion to Method 6-7.
63. It is noted that the above option is not one of the options that has been assessed within the section 32 report, however some parts of such a regime have been, e.g. Option 4 – Assistance with habitat and quality improvement, Option 5 – Provision of education and information, and Option 6 – Research, monitoring and reporting. Unfortunately these have not translated into a scheme such as the SLUI as similar options have done for the Land Chapters of the One Plan.

### **Water Quality Standards**

64. It is perhaps the proposed Standards within Schedule D that have raised the most concern for PNCC in terms of water quality. As proposed, it is unclear whether the values, management objectives and standards contained within Schedule D (values and management objectives now in Schedule Ba) are standards pursuant to section 69 of the RMA 1991 or are objectives, guidelines, or targets which will provide desirable outcomes.
65. The difference between the two is significant. If section 69 applies then the One Plan must require compliance with the standards in Schedule 3 of the RMA, or those more specific or stringent standards expressed in the Plan. This creates an issue for existing discharges as permits could be reviewed under section 128(1)(b) and be required to meet the new standards. In the Palmerston North WWTP example this would mean incurring the significant costs as discussed above. Given the clear intention of reviews highlighted in the Proposed One Plan, within the provisions relating to the common catchment dates, such a review could affect the Palmerston North WWTP as soon as 2013 or earlier if the Proposed One Plan becomes operative before then.
66. If the provisions contained within Schedule D are considered to be a form of objective, guideline or a target then activities could still be reviewed in accordance with the resource consent conditions or common catchment dates



but would not necessarily be required to meet all of the standards immediately and incremental improvements could be made over time, allowing for major upgrades to be budgeted for over reasonable timeframes.

67. It is my view that the One Plan must be clear in its intention with respect to the proposed standards and section 69 if long term certainty for resource users and plan administrators is to be provided, and ultimately for the objectives of the Plan to be achieved.

#### Section 69 Standards

68. In general terms, Schedule D of the Proposed One Plan contains three sets of information:
1. The Water Management Zones and Sub-zones;
  2. The narrative style values and management objectives; and
  3. The numerical water quality standards that are applied to specific Management Zones and Sub-zones to give effect to the values identified in those zones.

It is noted that the Water Management Zones and Sub-zones and the narrative values are now contained within Schedule B and have been further refined into Part Ba1 - Water Management Zones, which defines the boundaries of the Water Management Zones and Sub-zones and Part Ba2 – Surface Water Management Values, which defines the values that apply in each Water Management Zone. The numerical standards remain in Schedule D.

69. Advice received from Horizons officers on whether section 69 applies has been that the Schedule D values and standards are not intended to be standards in the context of section 69, but rather that they are more akin to objectives. This has also been highlighted at paragraph 74 in the evidence presented by Mr. David Murphy at the Overall Plan Hearing as follows:

*“74. While this was not indicated in PNCC’s submission, Horizons officers and its legal advisor John Maassen, have now confirmed that the water quality standards included in the One Plan are not water quality standards within the context of section 69 of the RMA. It was also confirmed by John Maassen at the 26 May pre-hearing meeting that this was a deliberate decision by Horizons when drafting the One Plan. An indication was also given that the standards may be better defined as water quality guidelines or goals”.*

70. Section 69 of the RMA 1991 contains provision for rules relating to water quality and states that :

(1) *Where a regional council—*

(a) *provides in a plan that certain waters are to be managed for any purpose described in respect of any of the classes specified in Schedule 3; and*

(b) *includes rules in the plan about the quality of water in those waters,—*

*the rules shall require the observance of the standards specified in that Schedule in respect of the appropriate class or classes unless, in the council's opinion, those standards are not adequate or appropriate in respect of those waters in which case the rules may state standards that are more stringent or specific.*

(2) *Where a regional council provides in a plan that certain waters are to be managed for any purpose for which the classes specified in Schedule 3 are not adequate or appropriate, the council may state in the plan new classes and standards about the quality of water in those waters."*

71. Essentially, section 69 requires that if a plan states that water bodies are to be managed for any of the purposes specified in Schedule 3 of the RMA 1991 and the plan includes rules relating to the quality of those water bodies, then the rules must observe the standards in Schedule 3 (or may state standards that are more stringent or specific).
72. The Proposed One Plan sets out values and management objectives of which some correspond to the water quality classes listed in Schedule 3 of the RMA while others do not. The Proposed One Plan also contains water quality standards. There is no specific link between the values and the standards within the Proposed One Plan; instead the standards are linked back to the values through the Water Management Zones. E.g. Instead of the values having standards directly associated to them as laid out in the RMA, it is the Water Management Zones that have separate values and standards associated with them. This format allows Horizons to apply different water quality standards to different water bodies even though they may be managed for the same values. This enables a more flexible approach and provides for natural variability between different water bodies and catchments.
73. Adding to the uncertainty is how the water quality standards are referred to in the rules of the Proposed One Plan. Some of the rules in Chapter 6 require compliance with the standards, as outlined in section 69, or the activity defaults to a discretionary activity under Rule 13-27, e.g. Rules 13-9, 13-24 and 13-26. Some Rules have retained, as a matter of control or discretion, measures required to comply with or to maintain the water quality standards and values for the relevant Water Management Sub-zone(s), e.g. Rules 13-17 and 13-21. This indicates that the water quality standards are to be applied as guidelines or assessment matters. Other Rules appear to have their own separate set of standards incorporated within them, e.g. Rule 13-11. It is also noted that the Default Discharge Rule (Rule 13-27) does not specifically require compliance with the standards in Schedule D.

74. Given that the Proposed One Plan contains values that could be taken as Schedule 3 Classes and contains rules that require compliance with the water quality standards it could be said that section 69 does apply. However, from the above discussion it could be taken that the intention is for the Schedule D Standards to be implemented as section 69 standards for some permitted and restricted discretionary activities and as assessment criteria or targets for discretionary activities.
75. Confusion as to the status of standards is evident within Horizons s42A reports. Dr. Barry Biggs refers to numerical standards, in general, as providing ‘...an unequivocal baseline...’ at paragraph 16 of his evidence. Dr. John Quinn refers to standards as ‘water quality targets (or standards)’ at paragraph 20 of his evidence and at paragraph 28 states the following:

*‘The maximum (“shall not exceed”) standards are targets for Horizons management and any minor breaches that occur will be interpreted as such, and will not result in prosecutions...’*

76. In my view, it appears that the intention has been not to apply section 69 to the Proposed One Plan. The values are specifically referred to in Objective 6-1 and Policy 6-1 which are within the Regional Policy Statement section of the One Plan and do not make up part of the Regional Plan. Section 69 relates to classes, rules and standards within a plan, not a policy statement. The use of the terms ‘values’ and ‘management objectives’ instead of ‘classes’ and the fact that there are a number of values that do not align with classes leads me to believe that the RMA regime does not apply. This interpretation is consistent with Horizons officers advice at meetings leading up to the exchange of evidence. The use of Water Management Zones provides for some flexibility but also causes some separation between the values and standards within the Proposed One Plan. The rules only require compliance with the water quality standards in Schedule D for selected permitted and restricted discretionary activities.
77. The recommended addition of the 2030 date to Objective 6-1 also indicates that there is a 20 year lead in period in which existing discharges need comply. The addition of the date provides guidance that the values in Schedule D (now Ba) are to be recognised and provided for by 2030, and not necessarily immediately. The following comments are made in the Planners Report in relation to the addition of the date:

‘The intent of the change is to set a clear target which recognises that change is not expected to occur immediately and will take time’;<sup>3</sup> and

‘The intent of the new wording is to recognise that maintenance and enhancement will occur over a time period.’<sup>4</sup>

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<sup>3</sup> Planning Evidence and Recommendations Report, Paragraph 4.1.2(d).

<sup>4</sup> Planning Evidence and Recommendations Report, Paragraph 4.16..2.

78. However, as can be seen from Mr. Conway's legal advice<sup>5</sup> it is possible for other plan users to take a different approach and consider that section 69 does apply therefore meaning that all activities must comply with the standards. Other submitters may also seek that the standards be confirmed as Section 69 standards. For this reason, and to provide certainty to the Plan users, it is my view that the proposed One Plan requires amending to provide clarification as to whether section 69 applies or not, or to what parts of the Plan the section does apply to.
79. Amendments to the Proposed One Plan need to go beyond clarification of the intention of the Plan. Instead, certainty is required that the pre-requisite conditions as outlined by s69(1)(a) and s69(1)(b) do not apply. This can be addressed by including a statement, under section 68(7) of the RMA, in the relevant rules of the One Plan, in much the same way as the Manawatu Catchment Water Quality Regional Plan rules. A suggested amendment is made to Rule 13-27, as shown in Appendix 1. This statement (or similar) may be required to be added to other rules as well.

#### Appropriateness of standards

80. The appropriateness and application of the proposed water quality standards contained within Schedule D of the Proposed One Plan have been addressed in the evidence of Mr. Keith Hamill. Particular reference is made to the standards affecting the Lower Manawatu Management Zone. Mr Hamill also recognises the importance of defining the intention of the standards in the Proposed One Plan.
81. Mr Hamill supports the general approach taken in basing the water management zones on the Regional Environment Classification (REC). However he does highlight that a lot of the detail from the REC has been lost in the current classification system proposed. In my opinion this can be rectified over time through the introduction of further water management sub-zones that take into account the localised differences between waterbodies.
82. Mr. Hamill has made several recommendations as to how the standards could be amended to provide more flexibility and a more cost effective regime to water resource users. He has also made recommendations that will remove some uncertainty or confusion from the standards in the way they are applied. Mr. Hamill's recommendations will require amendments to the Standards Key found in Schedule D. Recommended changes to specific provisions of the One Plan are attached as Appendix 1.

#### Application of standards to existing resource consents

83. It is of considerable concern to PNCC that if the water quality standards in Schedule D are deemed to be standards in the context of section 69 of the RMA 1991, the Palmerston North WWTP discharge consent could be reviewed under section 128(1)(b) and be required to comply with the standards within a short time frame. The Proposed One Plan does not provide certainty as to how

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<sup>5</sup> See Appendix 2

existing consents are to be administered in light of the newly proposed water quality standards.

84. I note that paragraph 29 of Mr Conway's legal opinion indicates that if the provisions are standards, for them to be applied to existing consents, through a review, the rules of the Plan would need to specifically provide for that. As the proposed rules of the One Plan do not specifically indicate that the new standards will be applied to existing consents, a consent review could not require an existing discharge to meet the new standards.
85. If this interpretation is correct then in my opinion the existing consented discharges could continue under the existing consents. Obviously consent reviews would still apply but the new standards could not be imposed until a new consent was required for the discharge. As the Palmerston North WWTP consent expires in 2028 this would give PNCC sufficient time to plan for the necessary upgrades required to meet the proposed standards at that time.
86. However, in reading the relevant provisions of the RMA 1991 relating to this matter (sections 68(7), 128(1)(b), 130 and 130(5)) and in discussions with Mr Conway since the legal opinion was provided to PNCC, I have found that there is some uncertainty regarding this point. As section 68(7) ties in with section 130(5) it is possible that a view could be presented that section 68(7) only affects the notification requirements for reviews. On this interpretation it could be argued that section 128(1)(b) applies to existing consents even if the rules do not specifically refer to existing consents.
87. Given the uncertainty identified in the preceding paragraphs, the significant costs involved in meeting the proposed standards, as outlined in paragraphs 33 to 50 of this statement, and the relatively low regional benefits from an upgrade to meet those standards (outlined in paragraphs 51 to 63) in my opinion it is more appropriate for the One Plan to provide for the Palmerston North WWTP to be able to continue to utilise its current consent until expiry. That outcome could be achieved by Horizons to confirming in the Plan that the rules and standards do not apply to existing discharge permits.

## **Stormwater**

88. The stormwater discharge provisions of the Proposed One Plan do not raise too many concerns for PNCC. PNCC has a comprehensive bylaw, the Palmerston North Trade Waste and Stormwater Bylaw 2008, that effectively controls discharges to the PNCC stormwater system. All stormwater discharges from commercial yard operations are required to have interceptor traps installed and have a discharge consent (under the Bylaw). Specifications for the interceptor trap and its operation are specified within the discharge consents. All other discharges of contaminants into the Palmerston North stormwater system are prohibited.
89. However, one matter of concern to PNCC is the activity status of stormwater discharges to the Centennial Lagoon. This has been elevated to be a non-complying activity under Rule 13-23 as the discharge is to a natural lake. It also

appears that the Centennial Lagoon has been classified as a wetland with threatened habitat status within Schedule E.

90. PNCC has not specifically submitted on the stormwater provisions in its original submission; however it has submitted in general that the costs of implementing the provisions of the One Plan place high economic and social costs on communities. PNCC has also submitted on the complexity of Schedule E and requested that it be amended. It is considered that the following discussed issues fall within the scope of the following submission points:
- *PNCC submits that in developing the water section of the RPS section of the One Plan and the associated water quality standards for the Manawatu River, Horizons has placed too much emphasis on environmental aspirations without adequate consideration of the social and economic costs of achieving the anticipated environmental outcomes with respect to water quality and water quantity.*
  - *PNCC requests that Horizons make all consequential amendments required to the Regional Plan to give effect to the submission points made by PNCC on the RPS section of the One Plan.*
  - *That Horizons either remove or amend Policies 7-2 & 7-3, in particular by amending Schedule E so that landowners are informed directly which parts of their land are subject to regulation.*

In addition to the above submission points, PNCC has also made further submissions in support of other territorial authorities who have made submissions on the various rules relating to stormwater within Chapter 13.

91. Centennial Lagoon is an ox-bow lake located within the Hokowhitu area of Palmerston North. The area is residentially zoned under the Palmerston North City District Plan and the lake is predominately surrounded by residential dwellings to the north, east and west. The Manawatu Golf Club and the Massey University College of Education are located to the south. The lagoon is a highly modified water body with retained banks as can be seen in Figure 2. It is used for contact recreation sports such as kayaking, model boats, coarse fishing (e.g. perch and goldfish), and for feeding ducks. The surrounding park area to the south is used for picnics and various functions.
92. There are several stormwater discharges to the lake from the surrounding catchments as displayed in Figure 3. Further supplementing the inflow to the lake is a newly installed water bore which is designed to maintain the water level during the dry months of the year. The outflow is via a pipe to the Manawatu River.
93. As proposed<sup>6</sup>, it is unclear as to what activity status the One Plan classifies the stormwater discharges into the Centennial Lagoon, or what rules apply to the activity. Rule 13-15 permits discharges of stormwater to surface water so long as

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<sup>6</sup> Given the status of 'Provisional Determinations' this analysis has addressed Schedule E of the One Plan as proposed, in addition to the Provisional Determination version.

certain conditions are met, with one being that there shall not be any discharges to rare or threatened habitats. Rule 13-17 provides for discharges to surface water that do not comply with Rule 13-15 as a restricted discretionary activity. Again this is conditional on there being no discharges to a rare or threatened habitat, and goes further to include natural lakes. The Rule Guide relating to the stormwater rules states that discharges to rare and threatened habitats are regulated by Rules 12-7 and 12-8. It also states that discharges of stormwater not covered by, or that do not comply with, the rules above are a discretionary activity under Rule 13-27.



Figure 2: Centennial Lagoon, Hokowhitu





Figure 3: Stormwater discharges into Centennial Lagoon

94. The above seems relatively straightforward, but it is complicated by two matters. The first is Rule 13-23, which provides for discharges to Natural State Water Management Zones, Sites of Significance – Aquatic, and lakes and wetlands as a non-complying activity. Horizons officers have advised that this rule would apply to stormwater discharges to Centennial Lagoon as the lagoon is a lake. If this is the case then there should not be a Rule Guide indicating that stormwater discharges not covered by the specific stormwater rules are a discretionary activity under Rule 13-27. If Rule 13-23 does not apply then it should be clearer in its intention as to what activities it actually applies to. I note that Rule 13-23 has been amended in the officer's report to relate to 'Discharges of contaminants...' However, in my opinion this amendment does not clarify the matter as the definition of 'contaminant' is wide enough to include stormwater.
95. The second complication is in defining whether Centennial Lagoon is a rare or threatened habitat. As notified, defining rare or threatened habitats in the One Plan is carried out through a series of complex definitions contained within Schedule E. Firstly it must be an area of indigenous vegetation of a type identified in Table E.1 as being rare or threatened, and secondly it must meet the criteria described in Table E.2.
96. Table E.1 starts of with the habitat types being actual vegetation types. However as one gets through the table to wetland habitats, the habitat types change from vegetation to wetland types, e.g. seepages and springs, or bogs and fens. Clearly these are not necessarily areas of indigenous vegetation. The descriptive text for the wetland habitat types use terms such as: 'These wetlands can support sedgeland...' [emphasis added]. Of particular note is the entry for Lakes and Lagoons:



Lakes and lagoons and their margins (including dune lakes)	The lakes in the Manawatu-Wanganui Region are associated with dune, river (including ox-bow lakes) and volcanic activities. Lakes can exist entirely within a swamp, or have elements of wetland habitat on the lake margins. Lakes can also support terrestrial habitat on the lake margins	Threatened
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As can be seen lakes and lagoons are classified as being threatened, and this classification is used in determining whether they are a 'threatened habitat' even though it fails the first test of being 'an area of indigenous vegetation'. Further adding to the confusion is the habitat type 'Lake and Pond' classified in Table E.1 with no threat category being identified:

Lake and Pond	Open water contained within lakes and ponds	No Threat Category
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97. Moving on to Table E.2 it is seen that Wetland Habitat is qualified by the text within the brackets that state '(dominated by wetland vegetation)'; note that there is no mention of indigenous vegetation. Working through the table one can see that lakes, lagoons and their margins are included in the definition. Section (a) contains the criteria that the lake or lagoon must meet if it is to be classed as a threatened habitat. As section (a)(i) includes 'open water associated with wetland habitat...' it would appear that Centennial Lagoon would fall within this definition. However, in my opinion there is enough uncertainty in the interpretation of Schedule E that it could well be concluded that Centennial Lagoon is a lake, and not an area of indigenous vegetation, nor is it necessarily dominated by wetland vegetation, and therefore is not a threatened habitat.
98. This uncertainty has been partially clarified in the new Schedule E as proposed in the Provisional Determination dated 22 June 2009. Firstly the new Schedule E has been modified to include physical substrates as well as indigenous vegetation as being enabled to be identified as a rare or threatened habitat in Table E.1. There is now no doubt that lakes and lagoons are identified in Table E.1 with a threatened classification. Table E.2 has also been largely clarified and split into two sub-tables. The habitat type must meet at least one of the criteria in Table E.2(a) to be classified as a rare or threatened habitat but if it meets any of the criteria in Table E.2(b) then it is not a rare or threatened habitat.
99. Under Table E.2(a), Centennial Lagoon would most likely fall with Clause viii: Areas of naturally occurring indigenous wetland habitat covering at least 0.1ha. Again some uncertainty may arise as to whether Centennial Lagoon is an area of 'indigenous wetland habitat'. Under Table E.2(b) Centennial Lagoon may fall within the following definition under Clause viii:
- viii. Open water and associated vegetation created for landscaping purposes or amenity values where the planted vegetation is predominately exotic, or includes assemblages of species not naturally found in association with each other, on the particular landform, or at the geographical location of the created site.*

While it is clear that the open water portion of Centennial Lagoon was natural, it has been substantially modified over the years and the associated vegetation has been created for landscaping purposes and amenity values and is largely exotic.

100. While the above highlights uncertainty with the proposed Schedule E and possible uncertainty with the new Schedule E it seems that the intention of the One Plan is for Centennial Lagoon to be classified as a threatened habitat and as such I will assume that Centennial Lagoon has been identified as a threatened habitat for the remainder of this discussion.
101. This takes us back to Rule 12-8 as this rule regulates, as a non-complying activity, discharges to threatened habitats, as indicated by the Rule Guide relating to stormwater discharges in Chapter 13. Rule 12-8(c) relates to the discharges of contaminants into water. Rule 12-8(g) states that Rule 12-8 does not apply if the activity is classified as a non-complying activity under another rule, in which case that rule will apply to the activity. In the Centennial Lagoon example it is possible that Rule 13-23, as mentioned above, will apply. It is noted that in the Provisional Determination for Chapter 12, Rule 12-8 has been deleted and replaced by Rule 12-6 that provides for discharges to water in threatened habitats as a discretionary activity, with no exceptions.
102. As can be seen from the above discussion the stormwater discharges to Centennial Lagoon could be permitted under Rule 13-15, if the lagoon is not a threatened habitat, but would not be a restricted discretionary activity under Rule 15-17 due to the lagoon being a natural lake. If the Rule Guide is to be followed the discharge could be a discretionary activity under Rule 13-27 or depending on the version of Chapter 12, a discretionary activity or non-complying activity pursuant to Rules 12-6 and 12-8 respectively. If Rule 13-23 applies, i.e. the Rule Guide is not adhered to and stormwater discharges are considered to be a contaminant, then the discharge would be a non-complying activity and Rule 12-8 would not apply. This amounts to a very confusing situation and makes applying for a resource consent an unnecessarily complicated and costly exercise.
103. To remedy the uncertainty identified above there are two paths forward. It appears that the intention is for Centennial Lagoon to be classified as a threatened habitat. This being the case I am uncertain of any circumstances where a natural lake, wetland or lagoon would not be classified as being a threatened habitat. Therefore, there is no need for Rules 13-17 or 13-23 to refer to natural lakes or wetlands as discharges to these locations are already controlled under specific rules or under Rules 12-7 and 12-8 (now 12-6). If the references to lakes and wetlands were removed from the above rules then discharges to lakes would be a discretionary activity under Rule 12-6. This corresponds to the activity status of discharges not covered by, or complying with, the stormwater discharge rules and leaves the non-complying activity status only applying to discharges to Natural State Water Management Zones and Sites of Significance – Aquatic.
104. An alternative approach, and in my opinion the superior approach, would be for Horizons to identify and schedule the lakes and wetlands that it considers to be rare or threatened wetland habitat. Discharges to these areas would be assessed under Rule 12-6 as a discretionary activity. Other lakes and wetlands

that are not identified and scheduled would be provided for through the introduction of specific sub-zones with the appropriate values and standards applied accordingly. This approach utilises the existing proposed regime of the One Plan in the same way as used for rivers. In the Centennial Lagoon example, the lagoon could be sub-zoned and the values of 'amenity' and 'aesthetics' applied. As proposed the lagoon is contained within the Lower Manawatu sub-zone and does not have amenity or aesthetic values applied, yet clearly it does have amenity and aesthetic values to the Palmerston North community.

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## Water Quantity and Allocation

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105. The water quantity and allocation sections of the Proposed One Plan (Chapters 6, and 15 and Schedule B) have raised concern for PNCC with respect to the management and functionality of the Turitea water supply scheme. To provide some order to the following I have split the discussions under three main headings:
- Background: The background of the Palmerston North water supply;
  - Minimum Flow and Core Allocation: The minimum flow and core allocation values set for the Turitea Stream;
  - Schedule E: The threatened status given to the water supply lakes in the Turitea scheme

### Background

106. PNCC manages three public water supply systems that serve Palmerston North City, Ashhurst and the Linton rural area. The Ashhurst system is sourced entirely from groundwater with a bore at Hacketts Road. The Palmerston North City supply is sourced from both surface water (Turitea Stream) and ground water with bores located at various locations around the city. The Linton rural supply is connected to the main Palmerston North City supply with the water sourced from the Turitea Stream.
107. The groundwater and surface water takes for the Palmerston North City water supply are managed as one comprehensive system. Approximately 65% of the water for the City is sourced from the Turitea Stream with the remaining 35% from the groundwater bores. Water from the bores generally supplements the supply at periods of high demand, maintains pressure at required levels and is available if there is a supply problem with the Turitea supply. Given the effects on the Palmerston North community of a failure in a sector of the supply, e.g. a supply cut from Turitea or a failure of a water bore, PNCC holds consents to abstract more water than it actually requires on a daily basis. Current water take permits allow 79,000m<sup>3</sup> of water to be abstracted per day with 37,000m<sup>3</sup> of this from the Turitea supply. This compares to an actual maximum take for the City of 43,000m<sup>3</sup>.

108. The Palmerston North community has invested heavily in the Turitea water supply scheme. It includes the Turitea Controlled Catchment Area (2,711 ha), the upper and lower Turitea dams, the water treatment plant, the Ngahere Park reservoir, the various trunk mains and the access roads to the various facilities. The scheme has been in place for over 100 years with the original intake weir being constructed in 1889. To allow a constant water take in an environment where flows are naturally variable, two dams have been constructed to allow for storage of water harvested from the Turitea Stream at periods of high flow so that it can be utilised in times of lower flows. The lower dam was first constructed in 1907 and increased in height in 1912 and again in 1996. The upper dam was constructed in 1957 and includes a mini-hydro station (constructed in 2001) that supplies power to the water treatment plant. The dams are in good condition and a perpetual lifespan can be expected so long as appropriate maintenance is carried out.

### **Minimum Flow and Core Allocation**

109. The Proposed One Plan has introduced some uncertainty in respect of the Turitea water take. Rules 15-5 and 15-6 provide for water takes from surface water. Under the Activity Description contained within these rules, surface water is qualified further as being 'surface water from a river'. While the Turitea Scheme water is sourced from the Turitea Stream, the actual take is from the lake created by the lower dam. The lakes created by the Turitea dams qualify as lakes under the definition of lake in the RMA 1991, and are probably considered to be lakes in the Proposed One Plan in other sections, e.g. discharge rules contain specific reference to lakes as does the threatened habitat classifications in Schedule E. In the past the Turitea water take has been considered as a take from a river for resource consent purposes and it is noted that the definition of river in the RMA is also wide enough to include the two lakes of the Turitea scheme.
110. If Rules 15-5 and 15-6 do not apply to the lakes in the Turitea scheme then the water take would fall under Rule 15-8 and be a discretionary activity. If the intention is for Rule 15-5 to apply to the Turitea scheme then the water take will be a controlled activity subject to it complying with the core allocation and minimum flows. In addition the take shall not lower the water level in a wetland that is considered a rare or threatened habitat. In general, if the take does not comply with the core allocation or minimum flow conditions it would become a non-complying activity under Rule 15-6, and if it lowered the lake level of a rare or threatened wetland it would become a discretionary activity under Rule 15-8.
111. The Proposed One Plan needs to be clearer in what rules apply to storage lakes created by dams in rivers. It appears that the intention is for water takes from such storage lakes is to be considered under rules 15-5 and 15-6. A small amendment to both of these rules, such as that set out in Appendix 1, will make this intention clear.
112. For the Turitea Stream, Schedule B of the Proposed One Plan has set the core allocation limit at  $0.265\text{m}^3/\text{s}$  while the minimum flow has been set at  $50\text{l/s}$ . It is of particular note that these values are set as 'per second' values and no provision is made for averaging the values over a year, e.g.  $0.265\text{m}^3/\text{s}$  equals

22,896m<sup>3</sup>/day or 8,357,040m<sup>3</sup>/year. A strict interpretation of Rule 15-5 would mean that PNCC could not comply at certain times of the year with the core allocation. This is the reason the dams were constructed, to enable the storage of water for times of low supply or higher than usual need. A core allocation expressed as an annual amount would address this issue.

113. The current resource consent for the Turitea scheme allows a water take of 37,000m<sup>3</sup>/day and it is a condition of the consent that a residual flow of 25l/second be maintained from the lower dam to the Turitea Stream (see Figure 4). To maintain this level of water abstraction from the Turitea Stream would be a non-complying activity under the Proposed One Plan. In my opinion this gives an unacceptable level of uncertainty to the re-consenting of the water take for the Palmerston North City water supply.
114. In my opinion the water take from the Turitea is a sustainable water source. It has been serving Palmerston North City for over 100 years and visually it appears to have had little effect on the Turitea Stream below the dams, with the stream looking every part a typical hill country stream. The water scheme includes part of the Turitea Reserve (some 2,711 hectares is the Turitea Controlled Catchment Area) in which PNCC continues to operate a pest management strategy. With the uncertainty that comes with obtaining a non-complying activity status consent, it is my opinion that the activity status is unjustified. This is especially so when compared with the effects of a consent not being granted for the water take. If consent were refused the most likely scenario is that a controlled activity consent would be sought with the complying amounts of water taken, and new water bores would have to be established to make up the shortfall. This creates extra cost to Palmerston North rate payers, potentially places pressure on groundwater sources and under utilises the existing infrastructure in the Turitea scheme; hardly a sustainable outcome.



Figure 4: The 25l/s Outlet from the Lower Dam

115. Policy 6-17 outlines the approach for setting minimum flows and core allocations. Clause (a) indicates that where good hydrological information is available it shall be used to set minimum flows and core allocations. Clause (b) indicates that where the hydrological information is not available the minimum flows will generally be set at a value equal to the one day mean annual low flow (MALF) and core allocations will be set at a value equal to a percentage of the minimum flow. In the Turitea Stream, hydrological flows have been recorded for the past nine years, although there have been some gaps in this information record. In setting the minimum flow and core allocation for the Turitea Stream, Horizons do not appear to have utilised Policy 6-17, and have instead made a 'policy call'<sup>7</sup> apparently based on the existing PNCC water abstraction permit and the efficient use guidelines. It appears that the 'policy call' has been made in an attempt to provide for the existing water take and infrastructural investment in the Turitea Stream, however the limits set do not align with the existing situation.
116. The evidence of Dr. John (Jack) McConchie addresses the appropriateness of the minimum flow and core allocation for the Turitea Stream as set by the Proposed One Plan. In summary, Dr. McConchie finds that there is no hydrological justification for the setting of the minimum flow at 50l/s, nor the maximum core allocation at 0.265m<sup>3</sup>/s. Dr. McConchie has calculated the MALF for the Turitea Stream at the Ngahere Park monitoring site to be 35l/s. He has also explored the capability of the Turitea Stream maintaining a higher core allocation value that coincides with the current resource consent held by PNCC, e.g. 37,000m<sup>3</sup>/day and has concluded that this represents a small proportion of the total flow from the catchment and that the stream can sustain this level of abstraction without adversely affecting the flow regime. Relevant amendments to Schedule B are recommended in Appendix 1.

### Schedule E

117. PNCC has considerable concern that the Proposed One Plan has classed the water supply lakes in the Turitea Stream as a threatened habitat. A discussion on the uncertainty of defining such areas is found above in Paragraphs 77 to 94 in relation to Centennial Lagoon and the same reasoning holds true for the water supply lakes in the headwaters of the Turitea Stream. Using the Provisional Determination version of Schedule E, it is my opinion that the lakes would fall within the definition of a 'threatened wetland'. Under Rule 15-5, one of the conditions is that a water take shall not lower the water level in any wetland that is a rare or threatened habitat. If it does, it appears that the activity would be provided for under Rule 15-8 and be a discretionary activity. One can assume that the effects of the water take and the inherent variable water levels of the lakes on the indigenous vegetation and lake margins would be considered in the assessment of any resource consent application.
118. Given that the purpose of the lakes is to provide Palmerston North with secure storage of water and to even out the variability in the Turitea Stream flow, e.g. to capture water in periods of high flow for use in periods of low flow, it is a certainty

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<sup>7</sup> See S42A report of Ms. Raelene Hurndell (Paragraph 216 and Appendix 3) and the S42A report of Dr. Jonathon Roygard (Paragraph 89(v)).

that the lake levels will fall though the dryer months. If this ability were prevented there would be little use in maintaining or continuing the use of the dams at all.



Figure 5: Upper Turitea Lake

119. This issue was raised with Horizons Staff (Ms. Helen Marr) who has confirmed that the intention was always to exclude water supply dams from the definition in Schedule E. Ms. Marr indicated that the neatest way to deal with this would be to include an addition exclusion to Table E.2(b). I agree with this assessment and have suggested specific wording in Appendix 1.

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## Conclusions

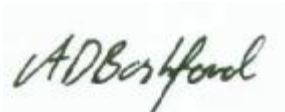
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120. Depending on how the water quality standards of the Proposed One Plan are implemented, Local Authorities could be facing capital expenditure in the immediate future that is likely to exceed their capabilities. The evidence of Mr Chris Pepper outlines the PNCC example; an upgrade to the Palmerston North WWTP to meet the proposed standards is likely to be in the order of \$20 to \$30 million. There will also be a significant increase in the costs of running existing plant for longer periods of the year. Costs will be exacerbated by the requirements for all consents within a catchment to be reviewed or renewed at the same time as determined by the common catchment dates. These costs do not appear to have been taken into account in the section 32 analysis with that analysis showing low costs for obtaining resource consents and the upgrading or provision of new infrastructure.

121. The proposed water quality management regime may not be the most effective or efficient approach in achieving the objectives of the One Plan. In some cases, e.g. Palmerston North WWTP discharge, improving the quality of the discharge will come with extremely high cost and the benefits to water quality may be minimal. This is due to background levels of pollution in the receiving water bodies being higher than that of the discharge. Evidence from Horizons indicates that non-point source discharges contribute more to the degradation to rivers than point source discharges with considerable improvements having been made to point source discharges since the MCWQRP became operative. A more effective and efficient regime may be to implement a programme, similar to the SLUI, where all ratepayers of the Region, as benefactors, contribute to the improvement of non-point source discharges.
122. There is uncertainty as to how the water quality standards contained in Schedule D will be implemented, with particular significance over whether or not they are standards in the context of section 69 of the RMA. The One Plan needs to be clear in the way it relates to section 69 to provide certainty to resource and plan users and it is recommended that Rule 13-27 is amended to provide this certainty.
123. Mr Keith Hamill has made recommendations on the appropriateness and application of the proposed water management zones and water quality standards with particular reference to the standards for the Lower Manawatu Management Zone. There is justification for further water management sub-zones to be introduced into the Plan over time to provide flexibility for differing water bodies, and for the standards key to be amended to reflect more appropriate application of the standards.
124. There is uncertainty as to what activity status and rules apply to the stormwater discharges to Centennial Lagoon in Hokowhitu. Rule 13-23 appears to apply to discharges to all lakes however a Rule Guide indicates that stormwater discharges not complying with the specific stormwater rules will be addressed under Rule 13-27. A second source of uncertainty is whether or not Centennial Lagoon is classed as a threatened habitat. There are inconsistencies between the Provisional Determination version of Chapter 12 and the stormwater rule guide in Chapter 13 with the rule guide referring to rules in Chapter 12 that no longer exist. This uncertainty should be removed from the One Plan to provide a clear and cost effective process for resource and plan users.
125. The Evidence of Dr. Jack McConchie has shown that the minimum flow and the core allocation values as set for the Turitea Stream in the Proposed One Plan are unjustified. He has recommended a minimum flow equal to the calculated MALF of 35l/s and a core allocation of 37,000m<sup>3</sup>/day as per the existing resource consent.
126. There is considerable concern that the water supply lakes in the Turitea Stream have been classified as a threatened wetland under Schedule E of the One Plan. The rule relating to water takes includes a condition that prohibits the lowering of the lake levels. The purpose of the lakes is to provide Palmerston North with secure storage of water and to buffer the variable flows in the Turitea Stream at different times of the year. The lakes levels are intended to fluctuate and levels



do decrease in summer. This appears to have been an oversight and a recommendation is made to include water supply lakes in the exclusions contained with Table E.2(b) of Schedule E.



Andrew Bashford  
**Planning Officer**  
PALMERSTON NORTH CITY COUNCIL

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### List of Appendices

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1. Recommended Amendments
2. Legal Opinion from Simpson Grierson

## Appendix 1: Recommended Amendments

From the above discussions a number of recommendations as to how the plan could be amended to address the concerns of PNCC have been made. Specific wording of such amendments are proposed below (all changes are highlighted with words recommended to be added shown underlined, and words recommended to be deleted shown in ~~strike-through~~):

### Chapter 13

Amend Rules 13-17, 13-23 and 13-27 as follows:

#### 13.5 **Rules - Stormwater**

Rule	Activity	Classification	Conditions/Standards/Terms	Control/Discretion Non-Notification
<b>13-17</b> <b>Discharges</b> <b>of stormwater</b> <b>to surface</b> <b>water not</b> <b>complying</b> <b>with Rule 13-</b> <b>15</b>	The <i>discharges</i> of <i>stormwater</i> into <i>surface water</i> which do not comply with Rule 13-15, and any associated takes or diversions of stormwater forming part of the stormwater system.	<b>Restricted Discretionary</b>	(a) There shall be no <i>discharge</i> to any <u>natural</u> <del>lake</del> , <i>rare habitat, threatened habitat, at-risk habitat</i> , or Natural State Water Management Sub-zone or Site of Significance - Aquatic.	Discretion is reserved over: (a) measures to control flooding and erosion (b) contaminant concentrations and loading rates (c) measures required to comply with s107(1) RMA (d) measures required to comply with the water quality standards for the relevant Water Management Sub-zone(s) (e) odour management (f) stormwater system maintenance requirements (g) contingency requirements (h) monitoring and information requirements (i) duration of consent (j) review of consent conditions.

13.8 **Rules – Discharges of contaminants to Natural State Water Management Sub-zones, Lakes and Wetlands**

Rule	Activity	Classification	Conditions/Standards/Terms	Control/Discretion Non-Notification
<b>13-23 Discharges of contaminants to Natural State Water Management Sub-zones, and Sites of Significance – Aquatic and lakes and wetlands</b>	Any direct <i>discharge of contaminants</i> into: (a) a Natural State Water Management Sub-zone (b) a water body identified as a Site of Significance – Aquatic in Schedule DBa (c) a natural lake, except Lake Otamangakau, Lake Te Whaiou and Lake Moawhango (d) a wetland classified as a rare habitats, or threatened habitat except the discharge of agrichemicals for the purpose of controlling pests control as defined in a regional pest management strategy prepared under the Biosecurity Act 1993 (this activity is regulated by Rule 14-2).	<b>Non-complying</b>		

**13.10 Rules – Default Discharge Rule**

Rule	Activity	Classification	Conditions/Standards/Terms	Control/Discretion Non-Notification
<b>13-27</b> <b>Discharges of contaminants to land or water not covered by rules in this Plan</b>	<p>The <i>discharge of contaminants</i> into surface <i>water</i> pursuant to s15(1)(a) RMA or <i>discharge of contaminants</i> into or onto <i>land</i> pursuant to ss15(1)(b), 15(1)(d) or 15(2) RMA which are not regulated by other <i>rules</i> in this Plan, or which do not comply with the <i>permitted activity, controlled activity or restricted discretionary activity rules</i> in this Plan.</p> <p><u>This Rule shall not apply to consented discharges existing the date of notification of this Plan, and shall only apply to those consents upon expiry of such consents or from 2030, whatever occurs earliest.</u></p>	<b>Discretionary</b>		

## Chapter 15

Amend Rules 15-5 and 15-6 as follows:

### 15.2 Rules – Takes and Uses of Water

Rule	Activity	Classification	Conditions/Standards/Terms	Control/Discretion Non-Notification
<b>15-5 Takes and uses of surface water complying with core allocations</b>	The taking and use of surface water from a river, or water storage lake on a river, pursuant to s14(1) RMA, except where the water take is controlled under Rule 13-1.	<b>Controlled</b>	<p>(b) Water shall only be taken when the river is above its minimum flow, as assessed in accordance with Schedule B except as provided for by:</p> <p>(ba) takes or portions of takes which are for the purposes of stock drinking water and domestic needs, or public water supplies predominantly for domestic use may continue below minimum flow provided the rates and volumes of takes do not exceed the maximum takes of low flow set out in Policy 6-19.</p> <p>(c) The amount of water taken, when assessed in combination with all other water takes within the same Water Management Sub-zone shall not exceed the relevant core allocation set out for Water Management Subzones in Schedule B.</p> <p>(d) The amount of water taken, when assessed in combination with all other water takes within the same catchment, shall not exceed the cumulative allocation for each Water Management Sub-zone in the same catchment.</p> <p>(e) The take shall not lower the water level in any wetland that is a rare habitat or threatened habitat.</p>	<p>Control is reserved over:</p> <p>(a) the volume and rate of water taken, and the timing of the take</p> <p>(b) the location of take</p> <p>(c) intake velocity and screening requirements</p> <p>(d) measures to avoid, remedy or mitigate any adverse effects on the values of the water body at the point of abstraction, including restrictions on the volume and rate of abstraction</p> <p>(e) the efficiency of water use</p> <p>(f) effects on other water takes</p> <p>(g) effects on rare habitats, and threatened habitats and at-risk habitats and Sites of Significance – Aquatic.</p> <p>(h) compliance with minimum flow requirements</p> <p>(i) duration of consent</p> <p>(j) review of consent conditions</p> <p>(k) compliance monitoring.</p> <p>Resource consent applications under this rule will not be notified and written approval of affected persons will not be required (notice of applications need not be served on affected persons).</p>

Rule	Activity	Classification	Conditions/Standards/Terms	Control/Discretion Non-Notification
<b>15-6 Takes of surface water not complying with core allocations</b>	<p>The taking of surface water from a river <b>or water storage lake on a river:</b></p> <p>(aa) which, when assessed in combination with all other water takes, exceeds the relevant core allocation set out in Schedule B. or</p> <p>(ab) at or below minimum flow (unless allowed by Rule 15-5(b))</p> <p>This rule does not include:</p> <p>(a) takes permitted under Rule 15-1</p> <p>(b) takes in circumstances where water is only taken when the river flow is greater than the median flow (these are a discretionary activity under Rule 15-8)</p> <p>(c) lawfully established takes for hydroelectricity generation (these are discretionary activities under Rule 15-8).</p>	<b>Non-complying</b>		

**Schedule B**

Amend the Turitea (Mana\_11b) Sub-zone within Table B1 as follows:

Table B1: Allocation Limits and Minimum Flows by Water Management Sub-zone					
Zone code	Sub-zone	Minimum Flow (m <sup>3</sup> /s)	Flow monitoring site	Flow monitoring site location	Cumulative core allocation limit (m <sup>3</sup> /s)
Lower Manawatu (Mana_11)	Turitea (Mana_11b)	<del>0.050</del> 0.035	Turitea at Ngahere Park	T24:354-852	<del>0.265</del> 0.428

## Schedule D

Make the following changes to the associated Standards Key within Schedule D:

### Schedule D Standards Key

Water Quality Standards Key: definition of abbreviations and full wording of the standards (placement of the numerical values for a specified standard are indicated by [...]).

Abbreviations used in Tables D:1 to D:4		Full Wording of the Standard
Header	Sub-header	
pH	Range	The pH of the water <sup>^</sup> shall be within the range [...] to [...].
	Δ	The pH of the water <sup>^</sup> shall not be changed by more than [...].
Temp (°C)	<	The temperature of the water <sup>^</sup> shall not exceed [...] degrees Celsius.
	Δ	The temperature of the water <sup>^</sup> shall not be changed by more than [...]degrees Celsius.
DO (%SAT)	>	The concentration of dissolved oxygen (DO) shall exceed [...] % of saturation.
sCBOD <sub>5</sub> (g/m <sup>3</sup> )	<	The monthly average five-days filtered / soluble carbonaceous biochemical oxygen demand (BOD) when the river <sup>^</sup> flow is at or below 20th percentile of flow shall not exceed [...] grams per cubic metre.
POM (g/m <sup>3</sup> )	<	The <b>average</b> concentration of particulate organic matter when the river <sup>^</sup> flow is at or below 50th percentile of flow shall not exceed [...] grams per cubic metre.
Periphyton (Rivers)	Chl a (mg/m <sup>2</sup> )	The <b>filamentous</b> algal biomass on the stream or river <sup>^</sup> bed <sup>^</sup> shall not exceed [...] milligrams of chlorophyll a per square metre.
	% cover	The maximum cover of visible stream or river <sup>^</sup> bed <sup>^</sup> by periphyton as filamentous algae more than 2 centimetres long shall not exceed [...] %. The maximum cover of visible stream or river bed by periphyton as diatoms or cyanobacteria more than 0.3 centimetres thick shall not exceed [...] %.
Algal biomass Chl a (mg/m <sup>3</sup> )	<	The annual average algal biomass shall not exceed [...] milligrams chlorophyll Algal biomass a per cubic metre.
	Maximum	no sample shall exceed [...] milligrams chlorophyll a per cubic metre.
DRP (g/m <sup>3</sup> )	<	The annual average concentration of dissolved reactive phosphorus (DRP) when the river <sup>^</sup> flow is at or below the 20th percentile of flow shall not exceed [...] grams per cubic metre, unless natural levels already exceed this standard. <b>Note that standard for DRP is set to support standards for periphyton cover and algae biomass. There may be specific situations and seasons when the nutrient standards are not necessary to achieve the standards for periphyton cover and algae biomass and discretion should be exercised during consent decision making processes.</b>
TP (g/m <sup>3</sup> ) (lakes)	<	The annual average concentration of total phosphorus (TP) shall not exceed [...] grams per cubic metre.
SIN (g/m <sup>3</sup> )	<	The annual average concentration of soluble inorganic nitrogen <sup>11</sup> (SIN) when the river <sup>^</sup> flow is at or below 20th percentile of flow shall not exceed [...] grams per cubic metre, unless natural levels already exceed this standard. <b>Note that standard for SIN is set to support standards for periphyton cover and algae biomass. There may be specific situations and seasons when the nutrient standards are not necessary to achieve the standards for periphyton cover and algae biomass and discretion should be exercised during consent decision making processes.</b>
TN (g/m <sup>3</sup> ) (lakes)	<	The annual average concentration of total nitrogen shall not exceed [...] grams per cubic metre.
MCI		The Macroinvertebrate Community Index (MCI) shall <b>not be less than 20% below natural reference conditions for the river.</b> <b>If natural reference conditions are not defined then the MCI shall exceed [...]. , unless natural physical conditions are beyond the scope of application of the MCI.</b> In cases where the river <sup>^</sup> or stream habitat is suitable for the application of the soft-bottomed variant of the MCI (sb-MCI) the standards shall also apply. <b>This standard will not apply if the natural physical conditions are beyond the scope of application of the MCI or sb-MCI.</b>
QMCI	%Δ	<b>Discharges to water to cause No</b> more than a 20 % reduction in Quantitative Macroinvertebrate Community Index (QMCI) score between upstream and downstream of discharges to water <sup>^</sup> .
Ammoniacal nitrogen (g/m <sup>3</sup> ) (rivers)	<	The <b>average</b> concentration of ammoniacal nitrogen shall not exceed [...] grams per cubic metre. <b>The values set in Table 8.3.7 of the ANZECC guidelines (2000) for protection of x% of species.</b>
Ammoniacal nitrogen (g/m <sup>3</sup> ) (lakes)	<	The concentration of ammoniacal nitrogen shall not exceed [...] grams per cubic metre when lake <sup>^</sup> pH exceeds 8.5 within the epilimnion (shallow lakes <sup>^</sup> ) or within 2 m of the water <sup>^</sup> surface (deep lakes <sup>^</sup> ).
Toxicants	<%	For toxicants not otherwise defined in these standards, the concentration of toxicants in the water <sup>^</sup> shall not exceed the trigger values defined in the 2000 ANZECC guidelines Table 3.4.1 for the level of protection of [...] % of species. <b>For metals the trigger value shall be adjusted for hardness and apply to the dissolved fraction.</b>
Clarity (m) (rivers)	%Δ	The clarity of the water <sup>^</sup> measured as being the horizontal sighting range of a <b>200 mm</b> black disc shall not be reduced by more than [...] %.
	>	The clarity of the water <sup>^</sup> measured as being the horizontal sighting range of a <b>200 mm</b> black disc shall equal or exceed [...] m when the river <sup>^</sup> is at or below the 50 <sup>th</sup> percentile of flow.
Clarity (m) (lakes)	%Δ	The clarity of the water <sup>^</sup> measured as Secchj depth (or horizontal sighting range of a 200 mm black disc) shall not be reduced by more than [...] %.
	>	The clarity of the water <sup>^</sup> measured Secchi depth (or horizontal sighting range of a 200 mm black disc) shall exceed [...] m.
E.coli/100ml (rivers)	<m	The concentration of Escherichia coli shall not exceed [...] per 100 millilitres from 1 November – 30 April (inclusive) when the river <sup>^</sup> flow is at or below the 50 <sup>th</sup> percentile of flow.
	<20 <sup>th</sup> %ile	The concentration of Escherichia coli shall not exceed [...] per 100 millilitres when the river <sup>^</sup> flow is at or below the 20th percentile of flow year round.
E.coli/100 ml (lakes)	Summer	The concentration of Escherichia coli shall not exceed [...] per 100 millilitres from 1 November – 30 April (inclusive).
	Winter	The concentration of Escherichia coli shall not exceed [...] per 100 millilitres from 1 May – 31 October (inclusive).
Euphotic Depth (lakes)	%Δ	Euphotic depth shall not be reduced by more than [...] %.



## **Schedule E**

Make the following amendments to Table E.2(b):

### **Table E.2(b):**

<p>If an area of any habitat type described in Table E.1 meets any of the following criteria it shall not be rare habitat*, threatened habitat* or at-risk habitat* for the purposes of this Plan.</p>
<p><b>Forest*, Treeland*, Scrub*, or Shrubland* Habitat Types Classified as Threatened or At-risk</b></p> <ul style="list-style-type: none"> <li>i. Areas of indigenous* tree* species planted for the purposes of timber harvest. Or</li> <li>ii. Indigenous* vegetation planted for landscaping, horticultural, shelter belts, gardening or amenity purposes. Or</li> <li>iii. Habitat areas 1 ha or less located within areas of existing forestry* provided that there is compliance with an operational plan* prepared for the habitat area and that such plan is submitted to the Regional Council upon request.</li> </ul> <p><b>Wetland^ Habitat Types Classified as Rare or Threatened</b></p> <ul style="list-style-type: none"> <li>iv. Damp gully heads, or paddocks subject to regular ponding, dominated* by pasture or exotic species in association* with wetland sedge and rush species. Or</li> <li>v. Ditches or drains supporting raupo, flax or other wetland species (e.g. Carex sp., Isolepis sp.), or populations of these species in drains or slumps associated with road reserves or rail corridors. Or</li> <li>vi. Areas of wetland^ habitat specifically designed, installed and maintained for any of the following purposes: <ul style="list-style-type: none"> <li>a) stock watering (including stock ponds), or</li> <li>b) water storage for the purposes of fire fighting or irrigation (including old gravel pits), or</li> <li>c) treatment of animal effluent (including pond or barrier ditch systems), or</li> <li>d) waste water treatment, or</li> <li>e) sediment control, or</li> <li>f) any hydroelectric power generation scheme. Or</li> <li>g) water storage for the purposes of public water supplies. Or</li> </ul> </li> <li>vii. Areas of wetland habitat maintained in relation to the implementation of any resource consent conditions or agreements relating to the operation of any hydroelectric power scheme currently lawfully established. Or</li> <li>viii. Open water and associated vegetation created for landscaping purposes or amenity values where the planted vegetation is predominately exotic, or includes assemblages of species not naturally found in association* with each other, on the particular landform, or at the geographical location of the created site.</li> <li>ix. Habitat areas 0.1 ha or less located within areas of existing forestry* provided that there is compliance with an operational plan* prepared for the habitat area and that such plan is submitted to the Regional Council upon request.</li> </ul>

**Appendix 2: Legal Opinion from Simpson Grierson**