

BEFORE THE CANTERBURY REGIONAL COUNCIL

UNDER THE Resource Management Act 1991

AND

IN THE MATTER of application CRC190445 by the Christchurch City Council for a comprehensive resource consent to discharge stormwater from within the Christchurch City area and Banks Peninsula settlements on or into land, into water and into coastal environments

EVIDENCE SUMMARY

DR BELINDA ISOBEL MARGETTS FOR CHRISTCHURCH CITY COUNCIL

5 November 2018

TABLED AT HEARING

Application: CRC190445

Date: 6 Nov 2018

CHRISTCHURCH CITY COUNCIL
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INTRODUCTION

1. My name is Belinda Margetts. I here summarise key points of my evidence, highlighting areas of agreement and disagreement between my opinion and that expressed by or on behalf of submitters and in the s42A report. I also highlight areas where I recommend changes to the conditions and/or the Environmental Monitoring Programme (**EMP**) to address issues raised.

KEY POINTS OF EVIDENCE

2. My evidence focusses on the effects on surface water and ecology of waterways and coastal areas, due to the proposed stormwater discharges.
3. Given the current state of the receiving environment, and the 'mitigation toolbox' proposed, which will result in an overall improvement in contaminant loads from stormwater discharges, I consider effects on surface water quality and ecology of waterways and coastal areas will be minor. This is especially true in areas where maximum development is already occurring with predominantly untreated stormwater discharges, and retrofitting of treatment devices and source control will occur (e.g., the Avon River catchment).
4. I consider that a consent duration of 25-years is appropriate, with regard to matters that are within my area of expertise. This is due to the:
 - 4.1. appropriateness of the proposed 'mitigation toolbox';
 - 4.2. responses to the monitoring condition requiring any issues in the receiving environment to be addressed at the time; and
 - 4.3. likely timeframe for the receiving environment to recover.

RESPONSE TO SUBMISSIONS

5. The submissions I respond to in my evidence (at Paragraphs 61-86) generally raised the following issues:
 - 5.1. appropriateness of using the current state of the environment to assess and benchmark standards to be achieved;
 - 5.2. the lack of in-pipe monitoring;
 - 5.3. the lack of alignment of Attribute Target Levels (**ATL**) to the Land and Water Regional Plan (**LWRP**);
 - 5.4. a lack of consistency with the New Zealand Coastal Biodiversity Action Plan and the National Policy Statement for Freshwater Management; and
 - 5.5. the potential degradation of the receiving environment and the need for stringent monitoring requirements.

6. I consider many of these issues are misunderstandings that I have clarified, or are addressed by the 'mitigation toolbox' approach as described in my evidence. As such, I have not proposed any amendments to the conditions or the EMP in response to submissions.

RESPONSE TO S42A REPORT

Key areas of agreement

7. I am in agreement with a number of issues identified in the s42A report. As a whole, I consider these review comments are very useful to ensure that the objectives of the proposed consent are being met. These issues, and my recommended changes to the conditions and EMP in response, are detailed in paragraphs 88-93 of my evidence.

8. In general, these proposals relate to:

- 8.1. reporting timeframes;
- 8.2. purpose and methodology of monitoring (including additional monitoring, site locations and guidelines for comparison);
- 8.3. Receiving Environment Objectives and ATL;
- 8.4. a programme of targeted wet weather monitoring of the receiving environment (under the Stormwater Quality Investigation Actions table of the proposed conditions);
- 8.5. specific requirements for monitoring of high-risk sites; and
- 8.6. links between the conditions and EMP to ensure assessment of compliance.

Points of clarification

9. There are also a number of issues raised in the s42A report that I believe are based on misunderstandings, which I have clarified in my evidence in paragraphs 94-102. These predominantly cover responses to monitoring, the Receiving Environment Objectives and ATL, guideline levels, and instream sediment monitoring. To clarify and prevent these misunderstandings, I have recommended changes to the conditions and EMP.

Key areas of disagreement

10. The recommendations from the s42A report that I do not support are discussed in detail within paragraphs 103-108 of my evidence. These disagreements include:
 - 10.1. the reporting approach for metals in surface water at coastal sites;
 - 10.2. the erection of warning signs, and instigation of further investigations and actions, if faecal coliforms in surface water at the Akaroa coastal site are exceeded;

- 10.3. including additional monitoring at Horseshoe Lake and the Ihutai/Avon-Heathcote Estuary, and additional instream sediment sites over time as urban areas grow;
- 10.4. aligning of instream sediment and aquatic ecology monitoring at eight sites;
- 10.5. responses to monitoring if the ATL for instream sediment are not met, rather than having the proposed investigation and remediation programme (Condition 37, Items 7-8 of Table 3 of the July conditions version); and
- 10.6. a five-yearly review of the Semi-Volatile Organic Compounds to be analysed in the instream sediment samples.

EXPERT CAUCUSING

11. I have since carried out caucusing with Ms Michele Stevenson and Dr Lesley Bolton-Ritchie on behalf of Environment Canterbury regarding the areas of disagreement highlighted in my evidence.

Recommended changes to the conditions and EMP

12. I have recommended additional changes to the conditions (numbering below relates to the July version) and EMP following these discussions, which include:

- 12.1. Condition 6(d)(v): addition to this SMP condition that areas designated as having Significant Natural Value under the Regional Coastal Environment Plan will also be prioritised (in reference to Paragraph 66 of Dr Bolton-Ritchie's s42A report):

*Prioritising stormwater treatment in catchments that discharge: in proximity to areas of high ecological or cultural value, such as habitat for threatened species, or **Areas of Significant Natural Value under the Regional Coastal Environment Plan (Canterbury Regional Council, 2012)**, and/or in areas with high contaminant loads*

12.2. Condition 51(c): addition to this responses to monitoring condition to receive feedback from Environment Canterbury on the intended method of investigations before investigations are carried out, and to provide guidance on how site investigations will be prioritised:

Engage with Environment Canterbury about and perform an investigation to identify whether this is due to the effects of stormwater network discharges, with site investigations prioritised for areas with high levels of contaminants, or sensitive or high value receiving environments

12.3. Section 5.5 of the EMP: addition to this surface water quality reporting section that parameter levels for tidal waterway sites shall take into consideration the influence of the tidal nature of these sites (e.g. for conductivity, turbidity and Total Suspended Solids).

13. I have also received additional comments regarding the EMP from Dr Bolton-Ritchie informally via email since the caucusing. As a result, I have recommended the following minor changes to the EMP:

13.1. confirmation in the surface water quality monitoring method section (Section 5.4) that salinity will be measured *in situ*;

13.2. clarification in the surface water quality monitoring method section (Section 5.4) that the hardness modification of tidal waterway sites will occur only where relevant, and an assessment will also be made at this time as to whether freshwater or marine guidelines are most appropriate for these sites; and

13.3. specific reference to the ANZECC guidelines in the reporting section for instream sediment quality (Section 6.5).

Outstanding issue

14. With these above recommended changes, it was agreed at the caucusing that only one issue remains where agreement cannot be reached between Council and Environment Canterbury. This is in relation to Dr Bolton-Ritchie's recommendation of additional wet weather sampling of coastal areas (Paragraph 49 of Dr Bolton-Ritchie's s42A report and Paragraph 91.7 of my evidence):

14.1. Dr Bolton-Ritchie states in her s42A report that she does not consider the proposed five-yearly wet weather monitoring is sufficient to robustly assess whether the Receiving Environment Objectives for coastal areas are being met at a time when stormwater is being discharged;

14.2. Dr Bolton-Ritchie considers that at least three wet weather events should be sampled each year and that monitoring could be carried out either by (1) having a more flexible monthly monitoring programme that targets sampling during wet weather events, and the annual data then assessed separately for dry (e.g. nine events) and wet (e.g. three events) events, or (2) monitoring is carried out additional to the monthly monitoring;

14.3. Additional to the information provided in my evidence, I note that monitoring of coastal sites using autosamplers or similar may be more difficult than sampling waterway sites, due to the tidal nature of these sites. I could not find any example studies that have used autosamplers within coastal environments. It is my understanding that the NIWA wet weather monitoring project referred to in Ms Stevenson's evidence at Paragraph 100 relates only to urban waterways. As such, I consider wet weather sampling of coastal areas will likely have to be undertaken by grab sampling;

14.4. As discussed in Paragraph 91.3 of my evidence, whilst I agree with the appropriateness of wet weather monitoring, there are technical and logistical issues with undertaking this type of sampling using grab sampling. As outlined in the EMP in more detail, rainfall events need to be forecasted correctly to meet the sampling criteria, such as sufficient rainfall depth and the number of dry days prior. Samplers are then required to get to several

sites within the time of 'First Flush'. These criteria are important, to achieve representative results of stormwater effects. However, invariably events are never as forecasted, and often occur outside the time of reasonable health and safety expectations (e.g. at night), during times samplers are already busy undertaking other fieldwork, or when the lab is not open to receive the samples within the appropriate time period (e.g. on the weekend). As an example, for this calendar year, Council is required to sample the Styx River at four sites over two rainfall events and only one sampling event has been achieved to date. Often what sampling does occur, not surprisingly does not meet the sampling criteria and sometimes misses the 'First Flush'. Given the large geographical area to be covered for coastal areas (Ihutai/Avon-Heathcote Estuary, Lyttelton Port, Cass Bay and Akaroa Harbour) this would likely mean more events are needed to ensure that each site is sampled during the 'First Flush';

14.5. Paragraphs 91.4 and 91.5 of my evidence highlight the balanced approach that Ms Stevenson has recommended of targeted investigations for waterway sites. In response to these comments, I recommended in Paragraph 91.6 of my evidence that an additional investigation programme be added to the Stormwater Quality Investigation Actions under Table 3 of the conditions. I consider that this programme would encompass coastal areas;

14.6. As noted in Paragraph 91.7 of my evidence, on average the monthly monitoring does achieve the three days of rainfall recommended by Dr Bolton-Ritchie. However, I do not support the added complexity of partitioning the monthly monitoring data into dry and wet weather samples. Given the large resource requirement to analyse the large dataset as it stands, let alone with the additional monitoring proposed under this consent, this would be overly onerous and may also limit the robustness of analyses, due to limiting sample sizes. This partitioning could be done on an on-need basis to further understand exceedances, as occurs currently (e.g. to see if exceedances align with rainfall); and

14.7. As mentioned in Paragraph 91.2 of my evidence, there is a gap in knowledge with regards to appropriate ATL for wet weather events. Until such time as acute guideline values are available, I consider comparisons to ATL for wet weather events will be very conservative.

Dr Belinda Margetts

5 November 2018

