

**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**

**CLINT CANTRELL FOR CHRISTCHURCH CITY COUNCIL**

**5 November 2018**

---

**TABLED AT HEARING**

Application: CRC190445

Date: 5 Nov 2018

CHRISTCHURCH CITY COUNCIL  
PO BOX 73015  
Christchurch 8154  
Solicitor Acting: Brent Pizzey  
Tel 64-3-9415550  
*Brent.Pizzey@ccc.govt.nz*

## **INTRODUCTION**

1. My name is Clint Cantrell. I here summarise key points of my evidence which is focused on an independent technical review of Council's application for a comprehensive stormwater discharge consent.

## **KEY POINTS OF EVIDENCE**

2. My evidence focusses on the technical aspects of Council's application, with a particular emphasis on how this compares to international and national best practice based on my own professional experience.

### **Adaptive Management Approach for Delivering Optimal Outcomes**

3. Based on my own professional experience in New Zealand and overseas I have found that the relationship between urban stormwater pollution sources and waterway effects are highly complex. In addition these relationships can vary substantially based on site specific issues and characteristics, adding a further level of complexity. When focusing on options to improve urban waterway ecosystems, it is important to understand the complexities of linking effects causation, to sources. By not understanding the relative role that each source plays (e.g. contaminants, hydrology, flow modifications to waterways) and prioritising accordingly, there is a risk that mitigation options will yield little benefit to ecological improvements.
4. In my opinion the most important issue is determining which stormwater contaminant sources are dominant at locations where effects are observed and not compliant with guidelines, standards and/or consent conditions. Sources that play a dominant role can vary widely on a catchment by catchment basis, so where effects are assessed as high or high risk – local site investigations may be required to determine what sources are most important to mitigate. I believe that Council's proposed Stormwater Quality Investigation Actions (Table 3 of the proposed consent), Environmental Monitoring Plan, and high risk monitoring condition (condition 3c(iii)) provide an adequate means of conducting such investigations, including identified hot spot locations.

5. Because of the points raised in paragraphs 2 through 4 above, I believe that international and national best practice demonstrates an adaptive management approach provides the best framework for managing urban stormwater contaminants. The application proposed by Council is consistent with an adaptive management approach. My opinion is consistent with the key conclusion in the s42A Officer's Report: "Overall, it is considered that an Adaptive Management Approach, in light of the complexities surrounding stormwater management at this scale, is appropriate."<sup>1</sup>

### **Proposed Mass Load Reductions and Use of the CCLM**

6. Mass contaminant load reduction conditions proposed in this Application provide a degree of flexibility that is consistent with international best practice for stormwater discharge management programmes. The conditions provide a basis for the Council to focus mitigation efforts in areas where effects are observed and can be linked back to identified sources. This, in addition to the proposed timeframe of the consent, provides the ability to take an Adaptive Management Approach. Essentially this means that the improvement programme can continually be reviewed and adjusted to ensure a high degree of benefits in return for the investments made in mitigation measures, and this can be done within the constraints set out by this proposed consent.
7. I consider that Council's proposed conditions for reduction of Zn, Cu and TSS discharged from urban storm drains over time, coupled with the wider suite of mitigation tools and use of a Contaminant Load Model to demonstrate compliance, is appropriate and facilitates an Adaptive Management Approach. As proposed in this consent application, consent compliance and progress towards improved waterway conditions is in my view best confirmed with a combination of modelling (such as the proposed C-CLM model) and waterway effects assessment studies (EMP, Stormwater Quality Investigation Actions, and high risk monitoring condition 3ciii). Models can simulate many more conditions than what is possible to observe with periodic discharge sampling, and provides a better understanding of progress towards targeted mass pollutant load reductions. Furthermore I believe this

---

1 CRC S42A Executive Summary, page 4.

proposed approach enables the development of cost effective mitigation options and progressive improvement of waterway conditions over a practical timeframe.

### **Source Control Measures and Wider Stakeholder Participation**

8. Source control measures can provide a cost effective means for reducing targeted stormwater contaminants such as dissolved metals (e.g. copper and zinc), particularly in catchments where these contaminants are found to have a measurable effect on waterways. As such it is my opinion that in some cases source control measures (which Council can support in terms of lobbying efforts and audits of industrial and commercial site) may provide a more cost effective option than treatment at the point of discharge.
9. Based on international best practice, it is practical to expect that Council can implement measures to reduce some sources of pollution that are found to play a significant role in adverse waterway ecological and aesthetic effects. This includes treatment intervention options, source control measures and identification and prevention of illicit discharges into storm drains. However, international experience also shows that many sources that are likely having a substantial effect on Christchurch waterways cannot be practically, or fully, controlled by Council, and wider stakeholder participation will be required.

### **Effects Based Planning Approach Informed by Risk Assessments**

10. My evidence includes a number of recent case studies that demonstrate that the best way to deliver ecological health improvements is to take an effects based planning (EPB) approach (i.e. to prioritise contaminant reduction efforts in areas where undesirable waterway effects have been confirmed). The adoption of a rigorous risk assessment methodology is key to the success of an EBP approach. This ensures that the more expensive and time consuming detailed investigations are targeted at locations where the risks are high, the benefits are significant, and the costs of the investigations represent a small proportion of the total scheme cost. I note that the Council is adopting a recommendation in the s42A report that the Council take a “risk matrix” approach to transition planning for the high risk sites that will be authorised by this consent from 2025, and that the Council also

takes a targeted approach under existing consents, and under these proposed consent conditions, to audit of high risk industrial sites. I support both of those initiatives. It is also my opinion that Council's proposed EMP, Stormwater Quality Investigation Actions and Condition 3c(iii) (high risk monitoring condition) as well as data provided by the annual water quality reports provides a good framework for informing an effects based programme to successfully mitigate urban pollution effects from identified storm drain sources.

### **Interventions Implemented to Date by Council**

11. Based on field reconnaissance I completed in August of this year, it is my professional opinion that stormwater mitigation measures implemented to date by Council are impressive both in scale and technical approach, and benchmark well against other similar cities (e.g. Wellington, Auckland).

### **Management of High Risk Source Locations**

12. Waterway water quality data collected by CCC indicates a strong correlation between observed stormwater pollution "hot spots" and the presence of industrial/commercial facilities. This supports a strong business case for enhanced management of runoff from industrial/commercial areas including inspections, auditing, sampling and (if necessary) powers of enforcement to ensure corrective actions are implemented.

### **Evidence from Dr. Belinda Margetts**

13. I concur with Dr. Belinda Margett's evidence that a consent duration of 25 years is appropriate given the time required to implement mitigations and improve waterway conditions.

**CLINT CANTRELL**

5 November 2018

