

**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.

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**MEMORANDUM OF COUNSEL FOR THE CHRISTCHURCH CITY COUNCIL IN  
RESPONSE TO COMMISSIONERS' MINUTES 4 AND 5**

**8 February 2019**

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CHRISTCHURCH CITY COUNCIL  
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## **INTRODUCTION**

1. This memorandum is in response to the Commissioners' Fourth Minute dated 21 November 2018 (Minute Four) and Fifth Minute dated 29 November 2018 (Minute Five).
2. Minutes Four and Five requested specific further information or evidence by 8 February 2019 and Minute Five directed the applicant to provide a draft set of conditions on the same date.
3. Counsel notes that the Commissioners' directions in Minute Five are that any responses from submitters to the information and draft conditions proved here must be provided in writing by 22 February and that the applicant will then file its right of reply (addressing any reply matters arising from the hearing), final proposed consent conditions and the Environmental Monitoring Programme by 1 March.

## **APPLICANT'S DRAFT PROPOSED CONDITIONS**

4. Accompanying this memorandum is the applicant's draft set of proposed conditions, for the purpose of submitters providing any comments in writing by 22 February and the applicant then lodging its final set of proposed conditions with the applicant's right of reply on 1 March.
5. Whilst not expressly directed by the Commissioners, the applicant is also now supplying a track change version of the draft Environmental Monitoring Programme proposed by the applicant.
6. The applicant is here providing the draft consent conditions in a document in three columns that show:
  - 6.1 Column 1: The conditions as they were proposed by the applicant at the start of the hearing on 5 November, with track changes showing any differences between those and the ones that were attached to the application;

- 6.2 Column 2: All of the conditions now proposed by the applicant, with track changes that show the differences between these and those that were proposed by the applicant on 5 November;
- 6.3 Column 3: The applicant's brief description or explanation of the reason for the proposed amended condition. If the applicant considers that it will assist the Commissioners, there may be further description or explanation provided in the applicant's right of reply.
7. In preparing these proposed conditions the applicant has engaged extensively with the reporting officers for the Canterbury Regional Council. It is the applicant's understanding that the reporting officer now considers that it is appropriate that consent be granted with these proposed conditions, subject to further consideration of a small number of drafting issues.
8. The applicant has engaged with the river care groups concerning a condition for establishing the River Care Liason Group. The applicant now proposes that condition to address a concern that they raised at the hearing. The applicant understands that the river care groups who submitted support that addition.
9. In preparing these draft conditions the applicant has also engaged with Christchurch International Airport Ltd (CIAL), Lyttelton Port Company (LPC) and the oil companies submitter.

*Result of engagement with CIAL*

10. CIAL had two outstanding concerns at the hearing.
11. The first was CIAL's dependence on the Christchurch City Council's consent CRC000315 and the submitter's concern that a condition of this consent would require the Council to surrender that consent prior to the exercise of this consent. CIAL was concerned about the way forward for future discharges into land from the roofs of buildings at the airport.
12. As a result of subsequent engagement between the applicant, CIAL and ECan staff, the applicant has agreed to remove CRC000315 from the proposed condition requiring the surrender of Christchurch City Council's other global

consents in order to maintain flexibility on the timing of this surrender. This provides time for CIAL to apply for and obtain its own replacement consent. It is the applicant's understanding that this addresses the CIAL concern.

13. The second was conditions to mitigate the risk of birdstrike arising from the location and design of stormwater facilities.
14. CIAL has proposed to the applicant one change to a consent condition and one new consent condition that the CIAL considers appropriately addresses that risk. The applicant has adopted both proposed changes in the draft conditions now proposed by the applicant.

#### *Result of engagement with LPC*

15. The applicant has simplified proposed conditions 1-3 to address LPC's concerns. LPC agreed with the intent of these changes but may comment further upon review of the final proposed conditions.
16. LPC identified an issue with the wording of Condition 41(b)(iii) not being sufficiently clear as to whether "sites undergoing re-development" means "re development sites" or "development sites" as defined in the consent. The applicant now proposes an amendment to this condition for clarity.
17. LPC had further questions about the implementation of stormwater discharge authorisation processes and how TSS limits would be set under Condition 40. These queries were resolved and resulted in no changes to conditions.

#### *Result of engagement with oil companies*

18. The Oil Companies engaged with the applicant to improve certainty over the timing and engagement of industry with regard to development of the industrial site risk matrix in condition 3. The result of this discussion was inclusion of a new proposed condition 3(c) which provides for improved specificity of the engagement and development timeline for the risk matrix. The Oil Companies also agreed to changes to proposed condition 38 which requires the consent holder to engage with relevant industry groups on an annual basis to discuss effectiveness and operation of the consent.

*Draft proposed Environmental Monitoring Programme*

19. Minor edits have been made to the EMP following the November hearing to further clarify information and to update the monitoring site maps with the latest information. The applicant's understanding is that these are agreed to by the Canterbury Regional Council's experts. The changes are:
  - 19.1 Figure 1: updated to reflect reduction to six monitoring sites as proposed at the hearing by Mr Norton and agreed to by Mr Freeman;
  - 19.2 Figures 9, 10 and 12: updated to reflect changes to monitoring sites as proposed at hearing by Dr Margetts;
  - 19.3 Section 5.4: clarification that the guideline for BOD is for filtered samples;
  - 19.4 Table 3: clarification that metals at coastal sites will be compared to 95th percentiles and not medians, as requested post-hearing by Dr Bolton-Ritchie;
  - 19.5 Table 3: correction of TSS waterway guideline reference;
  - 19.6 Section 6.5 and references: addition of important source reference of Simpson.

**THE FURTHER INFORMATION REQUESTED BY THE COMMISSIONERS**

- 20 The further information requested by the Commissioners is primarily contained in the joint statement of stormwater experts that is being filed and served with this memorandum.
- 21 The applicant's position with regard to that further information, and its implications, is primarily as set out in the joint statement. The following passages of this memorandum explain the applicant's reply in relation to each of the Commissioners' information requests.

*Why the various baseline years in Schedule 7 were chosen<sup>1</sup>*

22 This is answered in the joint experts' statement at paragraphs 7 to 13. It is noted that the experts there state their agreement that this is appropriate.

*The reasons for not specifying a volume limit in Schedule 7: Receiving Environment Attribute Target Levels for Water Quantity and what the effects of such a limit may be. If the Commissioners are to decide that a volume limit is appropriate, what that limit should be<sup>2</sup>.*

23 The further information in response to the three parts of this question are all set out in the joint expert statement: (i) why there is no volume limit in schedule 7; (ii) what the effects of a volume limit would be; and (iii) If the commissioners decide that a volume limit is appropriate, what it should be.

24 *Why there is no volume limit specified now in the proposed conditions:* Mr Harrington expresses an opinion in the joint statement, and all of the experts agree, that the volume limits cannot be set at this point in time because the necessary issues have not been identified and investigations have not been done to be able to be specific on any volume limits. All the experts agree that the appropriate process for identifying and specifying this is the SMP investigations. As a result, the experts recommend, and the applicant now proposes, an amendment to condition 6 which requires that this must be considered as part of the SMP process.

25 *The effects of a volume limit:* The joint experts' statement addresses that at paragraphs 14-17. The volume limits described in the joint statement relate to locations of flooding and not locations of discharge. This provides some flexibility for the applicant in managing the effects of development and targets any constraints on discharges, or application of mitigation measures, on any potential flooding effects. In targeting considerations of volume at critical flooding locations the applicant recognises that this will take more significant investigative effort but will align the management of the catchment with the impacts of the proposed activity.

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<sup>1</sup> Minute 4 at paragraph 7(a) and Minute 5 at paragraph 11.

<sup>2</sup> Minute 4 and paragraph 7(b) and Minute 5 at paragraph 12.

- 26 *If the commissioners decide that a volume limit is appropriate, what it should be:*  
As the joint experts' statement expresses the view that the volume limit cannot be set now and requires site specific work at the SMP development stage, the applicant respectfully submits that it cannot provide this requested information at this time, but that the applicant's proposed amendment to the consent conditions – as recommended by the joint experts - appropriately addresses this issue.

*The assumptions in the water quantity model, particularly in relation to the Styx River channel<sup>3</sup>*

- 27 The applicant's memorandum of 26 November noted that those assumptions are recorded in documents that are referred to in the Styx River Stormwater Management Plan and that these would be summarised, expanded upon and submitted with the other information developed in response to Minute 4.
- 28 The joint experts' summary response on this is in the joint statement at paragraphs 21 to 41. Mr Parsons there sets out the assumptions in the model with regard to "roughness" of the river channel, as the experts assume that to be the Commissioners' area of interest in those assumptions.
- 29 The documents referred to above from the Styx SMP show that there are a number of key assumptions that apply to the Pūharakekenui / Styx River model, including:
- 29.1 That the topographic survey data collected reflects the actual system condition;
- 29.2 The model assumes a fixed bed. Any effects that might alter the bed shape during an event are ignored in the model as the cross section and floodplain topography are assumed to be fixed. Given that the catchment is relatively flat there is unlikely to be significant or widespread variance in bed and bank shape during an event;
- 29.3 The model calibration is suitable for extrapolation to other extreme events;

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<sup>3</sup> Minute 4 paragraph 7(c)

- 29.4 Design storm rainfall is representative of actual rainfall. The modelling approach also assumes uniform rainfall across the catchment during the design rainfall event;
- 29.5 Timing and combination of boundary conditions. The applicant assumes a combination of the peak tide with the arrival of the peak flood flows in a design scenario. This is a conservative assumption for setting design flood levels. In addition to the timing, the applicant combines an infrequent rainfall event with a frequent tide event to establish levels for given design scenarios. For example, a 1 in 50 year ARI rainfall event combined with a 1 in 5 year tide event;
- 29.6 Lumped catchment hydrology does not model pluvial flooding. The model approach does not model hydraulically the collection of runoff prior to discharging to a waterway or pipe network as this is done within the lumped catchment hydrological model. This means that the flood maps will not show flooding that occurs solely due to rainfall ponding, as opposed to flooding from the waterways and stormwater network which is represented;
- 29.7 The system is clean. The model does not allow or account for blockage or sedimentation of bridges, pipes, culverts, grills or other structures. It is assumed that the system is clean of debris during an event. The model does account for weed as described in the joint statement and below.
- 30 Further modelling was undertaken prior to the Styx SMP discharge consent hearing. The model was re-calibrated to the August 2008 flood event, which resulted in revisions to Manning's n roughness values used within the model. The experts' joint statement provides the re-calibrated roughness values utilised in modelling.
- 31 The impact of weed growth is addressed separately below.



*Potential drainage impacts of fill of Brooklands and whether such fill was consented or otherwise authorised*<sup>4</sup>

- 32 The joint experts' statement sets out information regarding what fill has occurred, and what the effects of that fill are, at paragraphs 48-62 of the joint statement.
- 33 Paragraph 55 of the Joint Statement notes that "*tidal flooding from Brooklands Lagoon, fluvial flooding from the Styx River will not be materially impacted by the filling given the location of the filling relative to the flood source*". The applicant considers that this indicates that the filling in the Earlham St area will not have a material impact on flooding beyond the local Earlham St area and is also not material in terms of the wider modelling assumptions. This local ponding is more of a drainage issue than a flooding issue, as alluded to in Mr Harrington's introductory slides 19 and 20 plus his reference to the "Rodrigues Drainage Options" in paragraphs 17 to 20 of his Rebuttal evidence.
- 34 The experts recommend physical drainage works to address the effects of that fill.
- 35 The Council's enforcement unit has commenced an enforcement investigation regarding the lawfulness of the fill. Staff are of the view at this stage that there has been unlawful fill. The Council's enforcement unit will independently make a decision on whether there has been unlawful filling and, if so, what the response by the Council as a regulatory authority will be. That consideration of possible responses will have regard to the benefits of reinstatement of the drainage pathways referred to in the experts' joint statement. It is respectfully submitted that there can be no further attention by the Commissioners to that separate regulatory, enforcement function by the Council.

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<sup>4</sup> Minute 5 at paragraph 13.

*If the commissioners decide that it is appropriate to include a receiving environment attribute target level for a 1 in 5 year event, what are the appropriate levels and attributes? "We direct the applicant to propose an appropriate level and attribute". If the applicant considers that should be a 1 in 10 year event instead, expand on the reasons as to why.*<sup>5</sup>

36 The issue of frequent rainfall events was considered during the technical caucusing (Paragraphs 42 to 47 of the joint statement). Agreement was reached that the most appropriate time to consider the effects of frequent rainfall events was during the development or review of the SMPs. Agreement could not be reached on what might be an appropriate frequent event to consider or if additional reporting of a frequent event is necessary in all SMPs.

37 The applicant proposes a change to condition 6 to enable frequent rainfall events to be considered in SMPs, which is consistent with the view of all the experts. The outcome of this consideration will be that any attribute target levels would be set for the most appropriate frequent event, if any.

*Information regarding river maintenance and its impact on the effects of stormwater discharge particularly interested in the effects of river maintenance on the parts of the catchment that are subject to flooding in 1:8 events*<sup>6</sup>

20. The experts' joint statement states that there was an assumption in the modelling that "roughness", to which weed is one contributor, will be in the range of 0.032 to 0.044 and that this is in the "normal range". It says that the weed might cause the *modelled* water level in the river to be 300mm higher than would result from the modelled assumption in a 1 in 10 year event.

21. Mr Parsons has separately reviewed the modelling results that were developed to test the model sensitivity to weed assumptions for the purposes of assessing the effects of that worst case river "roughness" on out-of-channel flooding in the 10 year ARI rainfall event. He has advised the applicant that when the results of that are overlaid the Council building foot print data none of affected buildings were habitable dwellings with a predicted flood level to be at or above of what

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<sup>5</sup> Minute 4 paragraph 7(d) and Minute 5 paragraph 14.

<sup>6</sup> Minute 5 paragraph 8.

Council has surveyed or estimated the floor level to be (based upon building age and ground level).

22. That model sensitivity testing has shown increased depth of flooding in some areas. The areas of increased flood depth are almost exclusively on open rural land. The Rodrigues' dwelling was not shown to be inundated in either scenario however there was some flooding on the property away from the dwelling predicted in the high roughness scenario.
23. The applicant notes that the experts' joint statement at paragraph 40 expresses the view that improved weed management is essential for the control of the river water levels and that fundamental research is necessary to find a practical solution to that issue. The applicant has started discussions on that with the Canterbury Regional Council reporting officers and will be stating its position on this in the right of reply and final proposed conditions on 1 March 2019.



**BK Pizzey**

8 February 2019