

IN THE MATTER of the Resource Management Act 1991 (the Act)

AND

IN THE MATTER of application for Resource Consent by South Wairarapa District Council for discharge of treated wastewater from the Martinborough Wastewater Treatment Plant to the Ruamahanga River.

**MARTINBOROUGH WWTP DISCHARGE TO THE RUAMAHNAGA RIVER
JOINT RESPONSE OF DR BRIAN COFFEY AND DR OLIVIER AUSSEIL
TO QUESTIONS RAISED BY THE HEARING PANEL
12 November 2015**

1 INTRODUCTION

- 1.1 This joint statement was prepared in response to the following points raised by the Hearing Panel on 3 June 2015.
- a) the experts are to provide advice/recommendations on the implications of the high flow back channel for their previous opinions and conclusions;
 - b) Drs Ausseil and Coffey are to review appropriate monitoring locations (include review influence of GWRC high-flow channel);
 - c) Provide reviewed recommended condition(s) for instream study (Schedule 2; Condition 8) following outcome of review of discharge location and monitoring location and implementing paragraphs 4.2.5 to 4.2.7 of the Ausseil/Coffey JWS;

2 MONITORING LOCATIONS

- 2.1 Dr Ausseil visited the MWWTP site on 13 August 2015, with Mr Kerry Geange. Due to a combination of other commitments and river flow conditions, the site visit could not be organised before that date. Figure 1 below presents the different monitoring sites and discharge locations as we understand them. From upstream to downstream, the sites are:
- a) Site A. This is the upstream site for the ecological monitoring (marked as Site U2 on Dr Coffey's ecological reports). We see no reason for changing the location of this site, which should be used as the main upstream site for both water quality and aquatic ecology;
 - d) "Discharge from ponds" this is the approximate location of the point where the discharge from the WWTP emerges from the stopbank and flows towards the river.
 - e) "Current (August 2015) discharge point to river" This is the point at which the channel carrying the discharge reached the river, as of 13 August 2015.

- f) "Historical discharge point to the River". This is the point at which the discharge carried by side channel through the willows used to reach the river during periods of low flow, as observed by Dr Coffey during previous ecological assessments
 - g) Site D1 is the first downstream monitoring site for the ecological assessments carried out by Dr Coffey (Site D1 on Dr Coffey's ecological reports);
 - h) Site B is the historical "250 m downstream Martinborough receiving water" water quality monitoring site, as shown on the maps accompanying the draft consent conditions. The distance between this point and the "current (August 2015) discharge point to river" is close to 370 m, but approximately 250m when measured from the "Historical discharge Point to the river"
 - i) Site C is the second downstream monitoring site for the ecological assessments carried out by Dr Coffey (Site D2) on Dr Coffey's ecological reports);
 - j) The furthest downstream monitoring site is GWRC's second water quality monitoring site (500 d/s monitoring site).
- 2.2 It seems evident that Dr Coffey and GWRC have been measuring distances from different points. This discrepancy is likely to have been the cause to some confusion with regards to the zone of reasonable mixing.
- 2.3 Site D1 (the first downstream monitoring site used by Dr Coffey) is only 20-50m downstream of the historical discharge point and c. 150m downstream of the current monitoring point. Given the mixing characteristics of the discharge with the Ruamahanga River water, we agree that reasonable mixing will not have occurred at this point.
- 2.4 We recommend that:
- a) Site D1 be abandoned for future ecological monitoring. This site is well within the mixing zone (i.e. before reasonable mixing has occurred), and should not be used to assess the effects "after reasonable mixing".
 - b) In the future, water quality and ecological monitoring should be undertaken at the same points, at one site upstream and two sites downstream of the discharge;
 - c) The upstream monitoring site should be at site A, as shown on Figure 1
 - d) The first downstream site should be at Site B as shown on Figure 1;
 - e) The second downstream monitoring site should be at the GWRC 500m downstream site. Monitoring at this site may be able to be discontinued after an initial period (3 years) if the absence of significant adverse effects at the first downstream site is confirmed.
- 2.5 We recommend that SWDC maintain the existing (as of August 2015) discharge channel and discharge location to the Ruamahanga River. Based on the site visit, Dr Ausseil considers that only very minor works will be required. Regular inspection and maintenance of the discharge channel is recommended, and such requirement may need to be included in the consent conditions.
- 2.6 Assuming the discharge point is maintained as above, we agree that it is likely that the discharge will not cause significant adverse effects on aquatic life at the first downstream monitoring site recommended above during stage 1A. Specifically, we consider it likely that the "no more than 20% reduction in QMCI" target will be met at this site. It is highly likely that this target will be met at the second downstream site during Stage 1A.
- 2.7 We consider highly likely the discharge will not cause significant adverse effects on aquatic life at either of the recommended downstream monitoring sites, and that the "no more than 20% reduction in QMCI" target will be met at both downstream sites Stage 1B.

- 2.8 In the unlikely event that the “no more than 20% reduction in QMCI” target is not met at either of the downstream monitoring sites during Stage 1A or 1B, we recommend that the option of shifting the discharge point approximately 70m upstream of its current location (to immediately downstream of the existing water take). The river channel characteristics at that point will ensure much better initial mixing than at the current discharge point, ensuring full or near-full mixing at the first downstream monitoring site, ensuring in turn (based on existing monitoring results) that the QMCI change target is met.
- 2.9 If the above recommendations are followed, we consider that a mixing study (such as required in Schedule 2, condition 8) would only be necessary if and when significant adverse effects (or a more than 20% reduction in QMCI) persist at either downstream monitoring sites after the discharge location is shifted as recommended in paragraph 2.8 above.

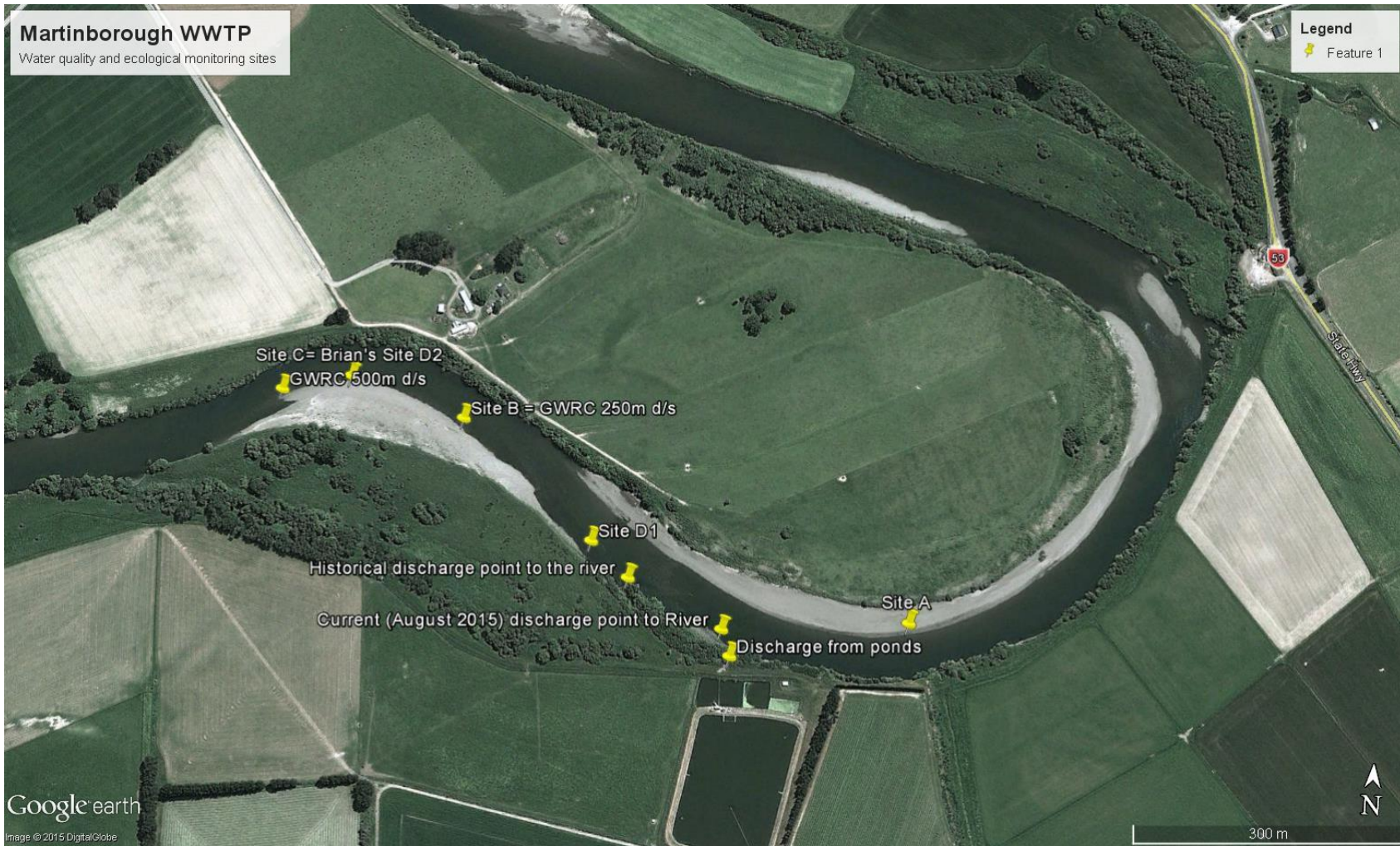


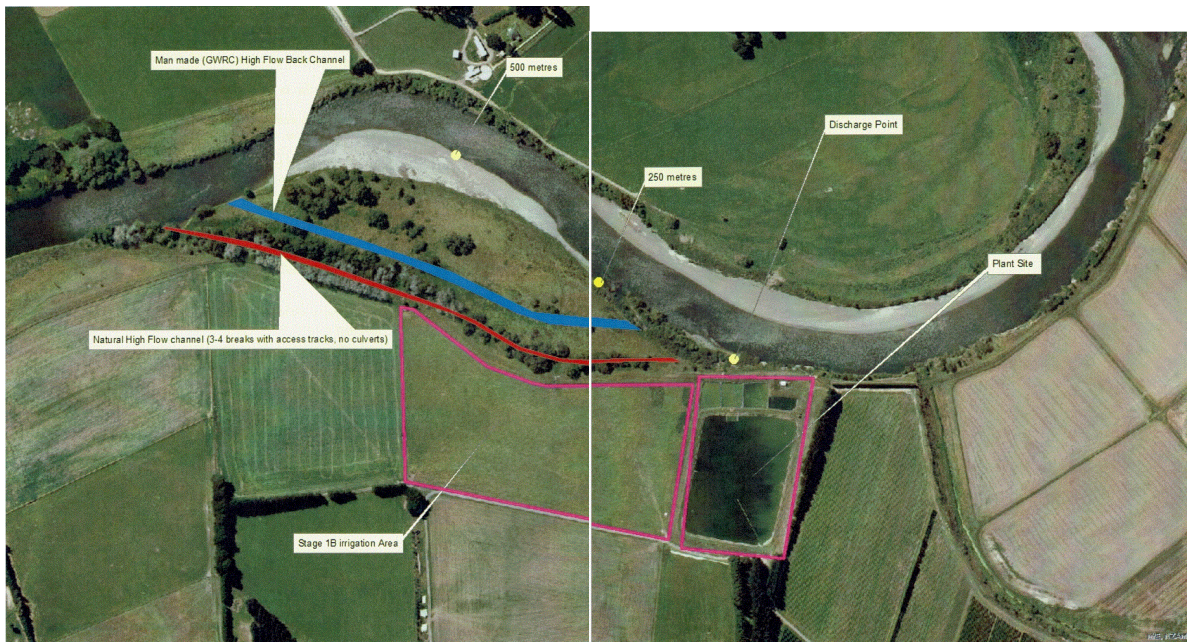
Figure 1: Martinborough WWTP: historical and current monitoring and discharge locations.

3 Implications of the High Flow Channel

- 3.1 It is understood that, in the current state of the high flow channel, only greater than normal river flows (i.e. $>50 \text{ m}^3/\text{s}$ as measured at Waihenga) will enter the engineered high flow back channel on the left bank of the Ruamahanga River as shown in Figure 2. It is also our understanding that GWRC will not maintain the lip at the entrance of the engineered channel. In other words there is no guarantee that the current situation will remain in the future. We comment in turn on the current situation (i.e. the high flow channel as observed in August, with a lip preventing flows $< 50 \text{ m}^3/\text{s}$ from entering the channel), and the potential implications of changes in the future (i.e. if the lip is eroded and allows lower river flows to enter the channel).
- 3.2 No river discharge from the MWTP is expected during Stage 1B and Stage 2A upgrades when flow in the Ruamahanga River at Waihenga is less than half median flow (< 25 cumecs).
- 3.3 Under the current situation, a proportion of any discharge from the MWWTP to the Ruamahanga River that occurs at river flows in excess of 50 cumecs may be entrained in the engineered high flow back channel and enter the Ruamahanga River downstream of the 500 m site shown in Figure A. Indeed, given the locality of the intake for the engineered high flow back channel, most of the discharge from the MWWTP to the Ruamahanga River that occurs at river flows in excess of 50 cumecs would be expected to enter the engineered high flow back channel and discharge to the Ruamahanga River downstream of the 500 m site shown in Figure A.
- 3.4 However, we consider that, during Stages 1B and Stage 2A, the discharges to the river most at risk of causing ecological effects are those that will occur at river flows between half median flow and $50 \text{ m}^3/\text{s}$. By contrast, discharges to the river at river flows $>50 \text{ m}^3/\text{s}$ are highly unlikely to cause significant adverse effects on water quality or ecology.
- 3.5 On this basis, under the current high flow channel configuration, the monitoring sites recommended above are considered appropriate, and no changes are recommended as a result of the high flow channel (assuming that the high flow channel only operates at flows $>50 \text{ m}^3/\text{s}$).
- 3.6 We now consider the scenario under which the lip of the high flow channel is eroded and allows flows significantly lower than $50 \text{ m}^3/\text{s}$ to enter the channel.
- a) If that occurred during Stage 1A then the monitoring sites (as recommended above) would not “capture” the discharge, and their location would have to be re-assessed at the time;
 - b) If that occurred during Stage 1B:
 - i. If, as expected, the proposed river monitoring programme following the Stage 1B upgrade showed no significant adverse instream effects, no further concern would exist in relation to the in-river effects of the MWWTP river discharge, and monitoring could be discontinued. In that situation, the configuration of the high flows channel would be of little relevance
 - ii. If, as we consider unlikely, significant adverse effects persist at the downstream monitoring site(s) during Stage 1B, then then the monitoring sites (as recommended above) would not “capture” the discharge, and their location would have to be re-assessed at the time;
 - c) If that occurred during stage 2A or 2B, then this would only have minor implications in relation to in-river monitoring, given that there is a high degree of certainty that the effects of the discharge during these stages will be no more than minor.
- 3.7 We recommend that the configuration of the entrance to the high flow channel be monitored during Stage 1A and during stage 1B. If this changes to a point where flows close to half median

flows are able to enter the channel, then the adequacy of the existing monitoring sites should be reviewed by a suitably qualified expert.

Figure 2: *Engineered High Flow Back Channel that has recently been constructed downstream of the MWWTP by Greater Wellington Regional Council.*



4.6 DISAGREEMENT AND REASONS

4.6.1 There were no points of disagreement

4.7 RESERVATIONS

4.7.1 There were no reservations

4.8 CODE OF CONDUCT

4.8.1 We both complied with the Code of Conduct for Expert Witnesses when preparing this statement.

Martinborough WWTP

Dr Brian Coffey

Dr Olivier Ausseil

Attachment: Excerpts from Practice Note 2011

5.6 General Directions on Conferencing

5.6.1 Subject to any specific directions from the Court, any expert conference is to be conducted subject to the following general conditions:

- (a) before the conference the experts are to be provided with the following:
 - (i) a copy of the Environment Court's Expert Witnesses Code of Conduct;
 - (ii) a copy of the application and any proposed amendment, the Notice of Appeal, the Assessment of Environmental Effects and the proposed conditions and all other documents necessary to enable them to thoroughly understand the issues in the proceeding;
 - (iii) copies of the relevant evidence (if prepared) and any relevant reports;
- (b) the experts are to familiarise themselves with the Code of Conduct before commencing the conference;
- (c) the experts are to confer in the absence of the parties and their legal counsel;
- (d) the experts are not to be instructed as to what may be agreed or not agreed at the conference;
- (e) the experts must confer in their roles as experts and are not to act as advocates for the parties who engage them;
- (f) the experts must only confer on matters within their fields of expertise;
- (g) while conferencing is inherently an iterative process and may require a number of meetings to be concluded, the experts may request that the Court approve a formal adjournment of the process if, for instance, it is agreed that further information or analysis is required.
- (h) at the conclusion of the conference the experts, without the assistance of counsel for the parties, will prepare and sign a joint witness statement.
- (i) the joint witness statement is to be lodged with the Court and circulated to all parties who have given an address for service.

5.6.2 The joint witness statement will include the following matters:

- (a) the key facts and assumptions that are agreed upon by the experts;
- (b) identification of any methodology or standards used by the experts in arriving at their opinions and reasons for differences in methodology and standards (if any);
- (c) the issues that are agreed between the experts;

- (d) the issues upon which the experts cannot agree and the reasons for their disagreement;
- (e) an identification of all material regarded by the experts as primary data: and
- (f) identification of published standards or papers relied upon in coming to their opinions;
- (g) confirmation that in producing the statement the experts have complied with the Code of Conduct for Expert Witnesses.

5.6.3 The joint witness statement may include reservations by one or more participants about issues on which they are uncertain about the substantive law (for instance, whether the concept of a 'permitted baseline' applies) or about procedural matters.

5.6.4 Other than matters agreed by the experts to be primary data, the matters discussed at the conference of expert witnesses (but not included in the joint witness statement) must not be referred to at the hearing unless all the parties by whom the expert witnesses have been engaged so agree.