

Independent Hearing Commissioners

Date of Report: 6 November 2020

Date of hearing commencement: 30 November 2020

Applicant: Wairoa District Council
Activity Type: Discretionary (when bundled)
Notification Type: Publicly Notified (requested by applicant)
Authorisation Numbers and Activities: See Table 1 (below)

Table 1: Consents Sought by the Applicant

Activity Number	Activity Description	Activity Location
AUTH-123608-01 (replacement)	to discharge treated wastewater from the Wairoa Wastewater Treatment Plant to the Wairoa River within the coastal marine area via an outfall structure (pipeline) (Rule 160 – Regional Coastal Environmental Plan (RCEP))	Wairoa River, Wairoa (CMA)
AUTH-123614-01 (replacement)	to discharge aerosols and odour to air associated with the receipt, treatment and storage of wastewater from the Wairoa Wastewater Treatment Plant (Rule 28 – Regional Resource Management Plan (RRMP))	Whakamahi Road, Wairoa
AUTH-123624-01 (new)	to discharge untreated wastewater from the Alexandra Park and North Clyde pump stations via overflow outlet pipes into the Wairoa River (Rule 52 – RRMP)	Wairoa River (Marine Parade & cnr of Freyberg Street & River Parade)
AUTH-123625-01 (new)	to replace the main outfall structure (pipeline) and any associated earthworks (Rule 97 – RCEP)	Wairoa River, Wairoa
AUTH-123626-01 (new)	the maintenance and potential re-establishment of the main outfall structure within the coastal marine area (relocation of main outfall structure) (Rule 117 – RCEP)	Wairoa River, Wairoa

AUTH-123627-01 (new)	to allow for the relocation, the maintenance and operation of the overflow outlets from the North Clyde, Alexandra Park, Kopu Road and Fitzroy Street pump stations (Rule 69 – RRMP)	Wairoa River, Wairoa
AUTH-123628-01 (new)	to carryout earthworks, construction and rehabilitation activities related to the relocation and maintenance of the main outfall structure (Rule 130 – RCEP)	Wairoa River, Wairoa
AUTH-123630-01 (new)	to allow vegetation clearance and soil disturbance within the coastal marine area associated with the replacement (and future modification/relocation) of the main outfall structure (Rule 8 – RCEP)	Wairoa River bank, Wairoa
AUTH-123631-01 (new)	the occupation of riverbed for the main outfall structure within the Coastal Marine Area (Rule 178 – RCEP)	Wairoa River, Wairoa
AUTH-124094-01 (new)	to discharge untreated wastewater from the Kopu Road pump station via overflow outlet pipe into the Wairoa River (Rule 9 – RCEP)	Wairoa River (Kopu Road) (Coastal Margin)
AUTH-124095-01 (new)	to discharge treated wastewater from the Wairoa WWTP via overflow outlet pipe into the Wairoa River (Rule 160 - RCEP)	Wairoa River (Whakamaki Road)

1. REPORT STATUS, AUTHOR AND FORMAT

1. This report is a section 42A report prepared under the Resource Management Act 1991 (RMA). It provides an independent assessment and recommendations on the application made by Wairoa District Council. This section allows a Council officer to provide a report to the decision-maker on a resource consent made to the Council, and allows the decision-maker to consider the report at the hearing. Section 41(4) of the RMA allows the decision-maker to request and receive from any person who makes a report under Section 42A "any information or advice that is relevant and reasonably necessary to determine the application".
2. This report does not represent any decision on the application and only provides the professional assessment and opinions of the report author. This report will be considered by the Independent Commissioners in conjunction with the consent application and all other technical evidence and submissions which have been received to date and any further material that may be presented at the hearing. The report and recommendations do not have any greater weight than any other material or submissions that will be considered by the Commissioners.

3. This report has been prepared by Tania Diack Team Leader Consents at Hawke's Bay Regional Council (Council). I have over 17 years experience working in local government in Hawke's Bay in various regulation roles within both consenting and compliance teams and hold a current RMA Hearing Commissioner certification. I have processed a number of discharge permits to discharge contaminants to land and into water from industrial, rural and residential activities, water permits, and land use consents for activities in the beds of rivers and over aquifers, including processing notified resource consent applications for various land use activities within Napier.
4. In preparing this report I have referred to and have been guided by the technical advice from the following experts:

Dr Shane Kelly – Dr Kelly has a PhD in biological sciences, and over 25 years' experience studying and working in environmental and marine science. He is a technical expert with respect to marine ecology, marine water quality, marine water quality, sediment contaminant, shellfish contaminant, and estuary monitoring programmes and is an independent consultant and Director of Coast and Catchment Limited. Dr Kelly has significant experience working on research and resource management projects in coastal and marine ecology. He has also been a senior technical advisor on major urban infrastructure programmes related to stormwater, wastewater and land use management. And he has also designed and reports annually on the harbour monitoring programme for New Zealand's largest wastewater treatment plant at Mangere, Auckland.

Nicholas John Dempsey – Mr Dempsey is a Technical Director – Water at Mott MacDonald NZ Ltd and is responsible for wastewater treatment plant design, commission, operations support and process optimisation. He holds a Bachelor of Engineering degree, majoring in bioprocess engineering and is a Chartered Member of Engineering New Zealand. Mr Dempsey has worked in Environmental Engineering and wastewater treatment for the last 14 years and has been involved in a range of different wastewater projects in New Zealand, Australia, the UK and other countries in the Asia Pacific region.

Laddie Kuta – Mr Kuta is a technical expert with respect to the proposed replacement main outfall structure and is a Partner and Associate Engineer of e2Environmental Ltd. He is a Chartered Professional Engineer and International Professional Engineer with Engineering New Zealand in the practice fields of Civil Engineering and Environmental Engineering with specialised focus in River Environmental Management and Engineering. Mr Kuta has been working in this field in New Zealand since 2008 for both District and Regional Councils.

5. This planning report is presented as follows:

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6. The series of appendices that complete this report are as follows:

Appendix 1: Draft recommended consent conditions 2020 version 21	pages 78 to 97
Appendix 2: Technical Memorandum's and Evidence	pages 98 to 164
Appendix 3: Summary of Submissions received	pages 165 to 171

Summary of Approach to Recommendation

7. The proposal is complex, even though the discharge into the Wairoa River has occurred for many years. The non-compliance issues, the nature of the current discharge clashes with cultural values held by the Tangata Whenua and the communities expectations versus their ability to carry the financial burden are some of the issues the Wairoa District Council (the applicant) have tried to address as part of this replacement consent process. Submissions received regarding the proposal showed that what was discussed during pre-lodgement consultation was very different from what is currently being proposed and the perception by the submitters was discharging the wastewater to land was going to be recognised through this consenting process.

8. It is the opinion and recommendation of the report writer that the application and associated activities can be **granted** subject to further details in regard to the outstanding issues presented in the evidence of Council's technical experts attached to this report as **Appendix 2** and summarised by this report in various sections. This recommendation is subject to the receipt of further information from the applicant on the potential effects relating to the matters outlined below;
- 1) The potential effects on the mahinga kai, particularly as a result of the installation/construction of the proposed replacement outfall structure needs to be addressed. The results of the recent seabed (riverbed) survey along the outfall alignment being undertaken by the applicant's consultant Dr Shaw Mead should be made available prior to or at the hearing which is an issue raised by both the submitters and Dr Shane Kelly. Any changes to the recommended consent conditions could be updated to suit the results of the survey.
 - 2) Evidence that written approval has been obtained from Te Rohe o Te Wairoa Reserves Board - Matangirau to occupy and to discharge wastewater into Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve. If the location and design details for the replacement main outfall structure needs to be amended to suit after the hearing is concluded and the proposal is successful, a review clause has been recommended to ensure those changes can be made (**as is included in recommended consent condition 55(k)**).
 - 3) The final matter that needs to be addressed through the evidence from the applicants and finalised at the hearing, is the intended pathway that will be undertaken to secure land for irrigation and additional storage. There are many references in the application documents to both options and the proposed consent conditions being offered (**refer to recommended consent conditions 43 and 44 in Appendix 1**) seem to acknowledge that they are needed but there is no commitment to ensure either option is implemented. 3rd party participation should not be relied on solely for the discharge to land and that other alternatives should be presented to the independent hearings committee to consider.
9. Draft conditions have been prepared and these largely adopt the conditions proposed by the applicant with some modification as described in this report and advised by the technical reports which have helped inform this report. These draft conditions are provided as **Appendix 1 (version 21)** and may be refined through the hearing process and by the commissioners when formulating their decision, should the consents be granted.

2. DETAILS OF THE PROPOSAL

10. Wairoa District Council (the applicant) proposes to replace their current wastewater discharge consent known as CD940404W, which authorises the disposal of treated domestic sewage effluent from a treatment plant (two stage treatment system consisting of a mechanically aerated lagoon and oxidation pond), including a discharge to air from the main wastewater plant. **Figure 2** shows the existing layout of the Wastewater Treatment Plant (WWTP) facility showing the inlet screen that removes solids from the wastewater pumped from the municipal sewer network. The wastewater is then discharged into the smaller of the two ponds, which since 2018, has a submerged air sparge rather than surface mechanical aerators. The wastewater is then piped and discharged into the main maturation pond of which any treated wastewater passes through a weir which controls the timing of the discharges into the Wairoa River via the existing outlet structure as per **Figure 1**. The storage capacity of the current WWTP is 5,400m³ which directly reflects the total maximum discharge volume allowed for in CD940404W (condition 2.).
11. The proposal seeks to obtain retrospective approval for three pump station overflow structures and associated discharges that discharge untreated wastewater during events when the municipal sewer network is overwhelmed with stormwater water. There is also an overflow pipe that discharges treated wastewater and is characterised as a 'surcharge pressure release overflow structure' which discharges close to the Wairoa River bank. Modifications to the existing main outfall structure have been undertaken without consent approval in response to non-compliance issues (refer to **section 2b Compliance History CD940404W**). These modifications originally included replacing the existing 300mm diameter surcharge and outfall pipes with larger 400 mm pipes, extending the surcharge pipe to the base of the riverbank, and altering the existing main outfall structure¹. Retrospective approval for these works is required however it would only apply for a short period of time until the replacement main outfall structure pipe is installed and operational as discussed below.
12. The applicant is also seeking to replace the main outfall structure and to have the ability to alter the structure within the river channel/bed when the pipe and/or discharge has been compromised with sediment or other obstructions within the Wairoa River. Adjacent to the existing main outfall structure is an overflow pipe that has and will discharge treated wastewater during events when the main wastewater treatment plant is overwhelmed. Retrospective approval was requested by the applicant for this overflow, however the latest design of the replacement main outfall structure would suggest it is no longer required and will be decommissioned. Also improvements to reduce infiltration have lessened the risk of this happening.

¹ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application and AEE – prepared by LEI, dated November 2018, page 10

13. The current river discharge regime is considered too restrictive by the applicant and they are seeking to modify the discharge regime to align with the river flows rather than only discharging between the hours of 6.00 pm and 6.00 am and only occurring during periods of ebb tide 30 minutes after high tide to 6 hours after high tide. The new proposed discharge regime would align with the Wairoa River flow median which they have defined, however is adjustable to suit future Wairoa River flow levels (refer to definitions stated in **Appendix 1**). The proposed discharge regime from the applicant also includes additional treatment for the wastewater, additional storage and irrigation to land, however it may be difficult for all three to be implemented with only the additional treatment requiring to be installed through proposed consent conditions.
14. Additional treatment of the wastewater has been offered with Ultra Violet treatment (UV) and a sand filter (filtration) to be installed prior to discharge but after the existing two stage treatment system. Very little information has been provided on the actual treatment system and instead of confirming the system that will be used the applicant has offered draft consent conditions allowing them more time to investigate options and installation does not have to occur immediately (previously two years of this proposal being granted, recommended to be reduced to 1 year).
15. The 10,000m³ additional storage being suggested by the applicant is not guaranteed through proposed consent conditions. No sites have been secured for this to occur, no timeframes of when storage pond(s) will be constructed and nor is it clear if this storage is part of the existing WWTP and/or associated with the land treatment areas.
16. The 50 hectares of land treatment areas being suggested by the applicant, as the initial treatment area needed, are not guaranteed through proposed consent conditions. This matter is very poignant and has been debated in various meetings during the pre and post application process. The applicant has not secured a site for this to occur (with resource consent approval) and no timeframes have been offered through the proposed consent conditions as to when they are likely to irrigate to land. This will be discussed later in this chapter and in various parts of this report and technical evidence included in **Appendix 2**.
17. The proposal also includes construction, maintenance, vegetation clearance and occupation to occur in the Wairoa River located within the Coastal Marine Area (CMA), this is to allow the construction of the proposed replacement outfall structure, which still needs to be finalised with only preliminary engineering designs (dated 12/09/19) provided in response to the abatement notice issued by Council Compliance staff (refer to **section 2b Compliance History CD940404W**). The original application lodged mentioned construction of a new structure within CHZ1 for the purposes of a network utility operation however this was in relation to the modification of the existing structure rather than the replacement outfall structure that is now proposed, "When the modification of the existing structure is

considered through the lens of a 'new activity', the proposed condition framework provides for the consideration of the matters referred to in (b) (i) and (b) (ii) of Guideline 2 of Policy 18.1"(RCEP).²

18. The applicant is also seeking flexibility around when the new replacement outfall structure needs to be altered and relocated for operational reasons, including not having to obtain separate resource consent approval every time that this may occur. A resource consent condition has been proposed which would require a 'Structure Design Report' to be approved by Council Manager (this term is defined) prior to these modification works taking place, however this was not supported by Council staff or technical experts and the report writer has recommended to strike them out accordingly.
19. Through the section 92 process it was discovered that there was no existing approval for the stormwater that was captured from the WWTP catchment area other than the water that directly went into the ponds and then was discharged through the existing wastewater discharge. The applicant has now acknowledged that the stormwater is separate from the main municipal stormwater network and discharges separately into the Wairoa River. At the time of writing this report an application had not been received by the applicant and it is unclear how this stormwater is managed once it leaves the WWTP site even though there was a commitment from the applicant to lodge an application in a timely manner on 11 October 2019.³
20. Finally, the most important aspect of the replacement of this discharge that was not previously monitored or fairly characterised in the current resource consent CD940404W by either the applicant or the consenting authority is the impact the proposed discharge and structure had and is likely to have on cultural values for the many generations of Māori in Wairoa. Both the applicant and the Council now recognise the significance of discharging waste into the awa has on cultural values and is on the face of it at the forefront of the proposed consent conditions from the applicant. Unfortunately, through this consenting process the "aspirations" held within the application have been questioned by many submitters and it is considered that the eventual removal of the wastewater from the awa and shared decision making that Tangata Whenua are pursuing has not been fully realised through the proposed consent conditions. This is discussed in closer in **Section 7** this report.
21. Overall, the applicant seeks to continue to discharge into the Wairoa River. The quality of the wastewater discharge is set to improve in conjunction with reducing the discharge quantity to the Wairoa River. The main discharge is proposed to occur further into the River channel and the number of discharges from the overflow pipes should decrease with the proposed improvements, however these are not likely to not occur in the immediate future.

² Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, page 45

³ Response to second further information request for consent application APP-123774 – Wairoa District Council dated 11 October 2019

22. It should be made clear that the proposal does not include a discharge to land application (land discharge or land disposal) nor does it include additional storage for treated wastewater as indicated in various application documents in regards to the “Package”. “Table 3.1: Summary of Wairoa’s Future Treated Wastewater Discharge System” located on page 17 of the document “Wairoa Wastewater Treatment Plant Discharge Resource Consent Application and AEE has been referenced in a number of other application documents. This table should not be given any weight as this “aspirational” concept is not included in this proposal. The applicant has clarified the intent of this consent application as per “Further information request response and intent of consent application APP-123774” dated 25 June 2019. Investigations will continue with the community as 3rd party participation is necessary as the applicant does not currently have the ability to discharge the treated wastewater onto land their own and is out of scope of this proposal.

Figure 1. Wairoa’s Wastewater System and Current Discharge Locations

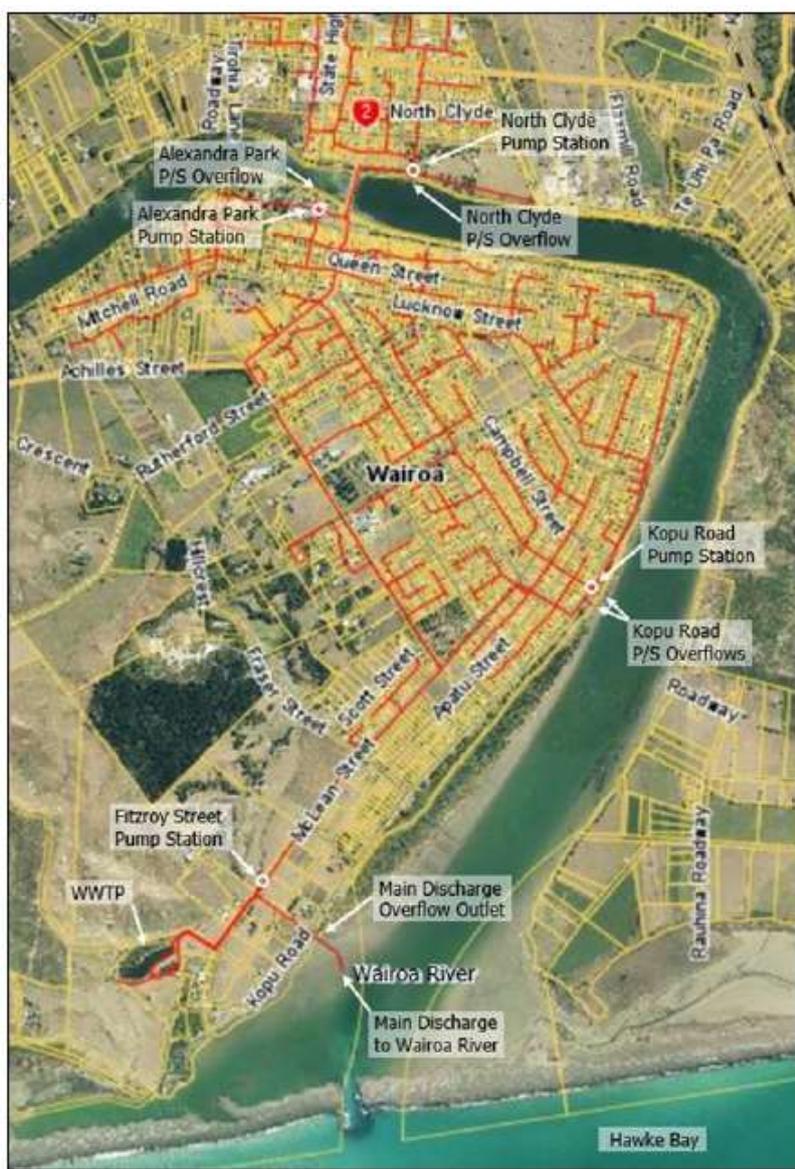


Figure 2. Wairoa's Wastewater Treatment Plant – Whakamahi Road



Figure 3. Proposed replacement outfall pipeline structure location (blue) and existing outfall (red)



Figure 4. Proposed replacement outfall pipeline structure location (blue) and relocation area (yellow) with the existing outfall structure in red



2a. Consent history – DP940404W

23. The following is the history of the current resource consent DP940404W – to dispose of treated domestic sewage effluent from the treatment plant (two stage treatment system consisting of a mechanically aerated lagoon and oxidation pond) to address continued non-compliance issues;

- Consent was originally granted 23 August 1999;
- A change of consent conditions (application reference DP940404Wa) was sought on 15 December 2017 as a result of on-going issues with the main outfall of which an unconsented diffuser had been attached to the end of the pipe and the unconsented emergency overflow directly adjacent to the main outfall;
- Council could not accept the application as it did not include evidence that the views from the relevant Customary Marine Title (CMT) groups had been sought (s62(3) of the Marine and Coastal Area (Takutai Moana) Act 2011) – letter sent 9 January 2018;
- Email response from the applicant was received 16 April 2018 confirming that the views of the CMT groups were being sought as part of this consent and the replacement consent process;

- A second application was lodged on 28 June 2018 of which the two activities were split into two separate applications – DP940404Wb change of consent conditions to include the unconsented works to the main overflow pipe & DP180254L a new application for the emergency overflow discharge of treated wastewater;
- A request for further information (s92 of RMA) was sent 23 July 2018;
- A response from the applicant’s consultants Grey Wilson 14 August 2018 requesting DP180254L be placed on hold and confirmed DP940404Wb would be assessed as part of the replacement consent process;
- At the time, it was considered by Council staff that combining all of the unconsented activities with the replacement consent to be the best outcome, given the timing and that it was likely that the adverse effects from both discharges included in DP940404Wb and DP180254L would be more than minor therefore would require to be publicly notified;
- This decision however was based on the information provided in the application document that stated “Overall, WDC has found that its wastewater system has operated well over time and that is a fit for purpose system which has not incurred significant unanticipated operational costs. However, several particular issues have been experienced in terms of the functionality of the system”, and;
- There was no indication that the existing main outfall structure needed to be replaced in its entirety, it seemed that the application for both activities being sought were for retrospective approval only.

Table 2. Timeline of Replacement Consenting process

Date	Activity/Issue	Result/Conclusion
From October 2017	Various correspondence between both Councils and meetings held prior to lodgement was received due to compliance issues with current consent, lodgement of separate applications	Refer to compliance reporting history
29 November 2018	Lodgement of replacement consent application	
10 December 2018	s88 assessment completed	Application was accepted
16 December 2018	s37 extension of time agreed to with applicant given the lodgement was prior to the holiday period, as time was needed for the reviews to be completed by technical experts	Timeframes agreed to with 20 working days provided for due to the complexity of the application
8 February 2019	Site visit was undertaken	
13 February 2019	Memo from Council Engineering team	No issues raised from application documents
13 February 2019	Report from Shane Kelly (first draft received 15 January prior to site visit)	s92 issues identified

15 February 2019	Report from Nick Dempsey (first draft received 8 January prior to site visit)	s92 issues identified
12 – 21 February 2019	s37 extension of time was discussed in relation to potential s92 issues identified	
22 February 2019	Prior to a formal s92 request being sent an email with an attached table of questions was sent to the applicant	18 March was the date for a response
14 March 2019	A request from the applicant to extend the 18 March timeframe to 25 March to allow for a review to be completed by Council technical experts	25 March timeframe agreed to by Council
19 March 2019	Response received from the applicant on the table of questions	
25 March 2019	Review completed by Shane Kelly & Nick Dempsey	s92 issues remain with the table of questions updated to suit
26 March 2019	Formal s92 request sent to the applicant with an updated table of questions. An update was also provided to Mr Paul Mucalo as reference was made to his application (DP180173L)	Response due by 16 April
10 to 18 April 2019	Various email correspondence - Clarification sought from the applicant on specific questions and timeframes around s92 responses and time from Council to review	20 May – the applicant to provide s92 response 31 May – Council to have completed a review of response
19 May 2019	Response to s92 received from the applicant with various attachments	20 May Information passed onto technical experts to review
28 May 2019	Responses back from technical experts	Still outstanding issues
29 to 31 May 2019	Telephone conversations and emails were sent and received from the applicant, it was clear from the responses received from Council technical experts that information was still outstanding	A meeting was agreed to between both the applicant and Council to see if outstanding issues could be resolved – 6 June
6 June 2019	A meeting was held with Stephen Heath (WDC – Group Manger Community Assets and Services), Hamish Lowe, Cameron Drury, Phil Lake (via telephone), Malcolm Millar (HBRC Manager Consents), Reece O’Leary (HBRC Principal Consents Planner) and the reporting officer	Refer to meeting minutes. Written confirmation on matters that were discussed or resolved was to be provided by the applicant
7 June 2019	Email received from Phil Lake with a timetable of when tasks were proposed to be completed	
11 June 2019	Email response sent with Council’s stance on current application	A further response from the applicant was to be provided
12 June 2019	Information regarding bubble plots was missed	Information passed onto Shane Kelly as part of his final review
14 June 2019	Replacement outfall structure design submitted to Council as a result of abatement notice #EAC - 20047	Information passed onto e8Environmental Ltd to review as HBRC do not currently have an internal expert
17-21 June 2019	Clarification was sought by Phil Lake from Nick Dempsey re: conditions 4b) and 4f) of s92	
25 June 2019	Updated s92 and an overview of the application as it currently stands (including the proposed replacement outfall) submitted to Council. The overview was to provide clarification regarding what the applicant was	It was very clear from their email that the applicant wanted to progress with notification of this application stating “ publicly notified as soon as possible ”

	applying for in this application and to make it very clear that land discharge was not included in this application	despite Council not having had a chance to review the information provided. Council staff reluctantly agreed.
26 June 2019	Latest information provided to Council technical experts to complete their final review, which were included as part of the application documents	All three technical experts were to also confirm timeframes to complete their review as it would determine the notification date
27 June 2019	Council replied to email and reluctantly agreed to public notification despite not knowing from experts if s92 had been satisfied	
28 June 2019	Email sent to Grey Wilson (consultant preparing Wairoa municipal stormwater application) confirmation regarding on-site stormwater for WWTP as there was a presumption it would be a part of the municipal network	Ms Wilson confirmed on 3 July that on-site stormwater is discharged into the wastewater system
1 July 2019	Email response from Phil Lake acknowledging Council's frustrations and further discussion on points made	
3 July 2019	Confirmation that a hui was to be held 28 July and a public meeting to be held 29 July regarding the application proposal (providing an update)	
4 July 2019	Received a request to place public notification on hold until the public meeting is held	Public notification on hold until 29 July
12 July 2019	Council receives reports from all three technical experts. A second s92 request is sent regarding on-site stormwater for the WWTP site and the design details for the replacement outfall pipe plus all three technical reports are provided to the applicant for their reference	Response from the applicant advising Senior staff at Council had known that the existing outfall pipe was compromised (2 years). Reply confirming s92 reflects application documents which do not highlight any issues with pipe
28 July 2019	Hui-a-hapū held at Whaakirangi Marae	Council staff involved with this application were not in attendance
29 July 2019	Public Meeting held at War Memorial Hall	Email received from the applicant soon after the meeting to proceed with public notification
13 August 2019	Application Notified - After several emails relating to the detail/wording to be placed in the advertisements (HB Today and Wairoa Star) from Hamish Lowe relating to the proposed activities this application was notified	Delay to notify also due to the Wairoa Star is only published on a Tuesday or Thursday
10 September 2019	Submissions closed – 20 submissions had been received by this date with 2 late submissions received soon after.	
17 October 2019	Pre hearing meeting #1 – A summary of Tangata Whenua representatives was created identifying the common issues the submitters had with the proposal (discussed further in section)	It was agreed during that meeting that another pre-hearing meeting was required with the applicant committing to providing updated consent conditions, cost of alternatives options and reasons for not pursuing them.

28 February 2020	Pre hearing meeting #2 – New submitters were heard at the meeting and the mauri compass work undertaken by Katarina Kawana was presented (however this document has not been submitted as part of this application).	The information promised in the first meeting was not pre-circulated before and was only provided during the meeting. This delayed the issue around proposed consent conditions
18 March 2020	Revised draft consent conditions were provided to Council and submitters by LEI	Comments and any proposed changes were requested by LEI and they dealt with ourselves and the submitters separately on this matter
17 April 2020	A copy of the submitters proposed changes were submitted to Council to pass onto the applicant	
24 April 2020	Council proposed draft consent conditions were provided to the applicant	From this point on Council staff were excluded from discussions had between the applicant and the submitters regarding the proposed consent conditions
18 August 2020	Email received from Hamish Lowe regarding potential hearing dates now that the discussions/hui with the submitters had been completed	Hearings panel to be finalised as those tentatively booked prior to COVID-19 were no longer available
26 August 2020	Email sent requesting latest s92 request to be answered by applicant as information still outstanding particularly regarding the new outfall structure and latest draft consent conditions had not been provided to Council	
8 September 2020	Outstanding information provided and then passed onto Council technical experts for review and final	
7 October 2020	Hearing date set for 30 November 2020 and all interested parties formally advised	
12 October 2020	Email received from Hamish Lowe regarding the timelines for s42a report, applicant's evidence and submitters evidence need to be changed to suit their workload rather than what is provided for under s103B of the RMA	
13 October 2020	Email response from Malcolm Miller that we will endeavour to provide all of our evidence prior to the 9 th of November, however the timeframes stated in the letters will remain the same.	

2b. Compliance reporting history – DP940404W

24. Compliance reporting for the current resource consent DP940404W from 2009 were prepared and issued for the following monitoring periods; 2008/2009, 2010/2011, 2012/2013, 2013/2014, 2016/2017 and 2018/2019. The following table provides a brief summary of what was reported for each monitoring year within those HBRC Compliance reports with the most recent compliance report 2018/2019 described in greater detail later in this report.

Table 3. Compliance reporting history from 2009 to now

Monitoring period	Overall compliance grade	Summary of performance
2008/2009	Moderately non-compliant	<ul style="list-style-type: none"> • discharges out of tide and time restrictions, • exceedances in maximum volume and quality, • failure to follow up on exceedances, • discharges of untreated sewage from pump stations
2011/2012	Significantly non-compliant	<ul style="list-style-type: none"> • discharges out of tide and time restrictions, • exceedances in maximum volume and quality, • failure to follow up on exceedances, • discharges of untreated sewage from pump stations
2012/2013	Significantly non-compliant	<ul style="list-style-type: none"> • discharges out of tide and time restrictions, • exceedances in maximum volume and quality, • failure to follow up on exceedances, • discharges of untreated sewage from pump stations, • failure to provide data
2014/2015	Significantly non-compliant	<ul style="list-style-type: none"> • discharges out of tide and time restrictions, • exceedances in maximum volume and quality, • failure to follow up on exceedances, • discharges of untreated sewage from pump stations, • failure to provide data
2016/2017	Significantly non-compliant	<ul style="list-style-type: none"> • discharges out of tide and time restrictions, • exceedances in maximum volume and quality, • failure to follow up on exceedances, • discharges of untreated sewage from pump stations, • failure to provide data,

		<ul style="list-style-type: none"> • discharging through unconsented overflow and manholes on Fitzroy Street, • altering the diffuser without consent
2017/2018	Significantly non-compliant	<ul style="list-style-type: none"> • discharges out of tide and time restrictions, • exceedances in maximum volume and quality, • failure to follow up on exceedances, • discharging through unconsented overflow and manholes on Fitzroy Street
2018/2019	Significantly non-compliant	<ul style="list-style-type: none"> • discharges out of tide and time restrictions, • exceedances in maximum volume and quality, • failure to follow up on exceedances, • discharging through the unconsented overflow
2019/2020	<p>At the time of writing this report this Compliance report was being prepared by the HBRC Environmental Compliance staff. Early indication from them suggested that it was likely that a significantly non-compliant grade would be given due to the following –</p> <ul style="list-style-type: none"> • discharges out of tide and time restrictions, • exceedances in maximum volume and quality, • discharging through the unconsented overflow 	

25. To provide an in-depth analysis of the above the following consent conditions for DP940404W do not currently comply as stated in the latest report for the monitoring period 1st January 2018 to 30th June 2019. They are summarised as follows;

Consent Condition 1 – The Consent Holder shall provide for the discharge as authorised by this Resource consent generally in accordance with the drawings, specifications, statements of work techniques and other information supplied with the application....

Consent Condition 2 – The total discharge of sewage effluent as authorised by this Resource Consent shall not exceed 5400 cubic metres per day.

Consent condition 3 – The discharge of sewage as authorised by this Resource Consent shall i) Only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide, ii) Only occur after 6:pm and iii) Shall cease by 6:00 am at all times.

Consent condition 6 – Discharge of sewage effluent as authorised by this Resource Consent shall be by way of the existing structure, as displayed in figure 1 of the application document.

- Conditions 1, 2, 3 and 6 were graded significantly non-compliant as a result of discharges occurring from the unconsented overflow pipe and manholes along Fitzroy Street. Based on data provided from the applicant this would suggest that 30% of discharges result in the overflow being used.
- The total discharge has been exceeded on several occasions and the discharges were found to not operate as per approved drawings and specifications as there are unconsented emergency overflow pipes at three of the four pump stations and the existing main outfall structure has been modified without consent approval being obtained.
- The discharge times have occurred outside of the times required by consent condition 3, majority have occurred due to overloading of the system during rainfall events, however there have been recorded incidences when there has been no rainfall event.

Consent condition 11 – Sewage effluent discharged from the treatment plant shall meet the following standards: COD not greater than 220 mg/l, Total Ammonia not greater than 36 mg/l, Suspended Solids not greater than 87 mg/l.

Consent condition 17 – This condition outlines the steps the consent holder needs to take in the event of an exceedance of the effluent discharge standards stated in condition 11.

- Conditions 11 and 17 were respectively graded moderately and significantly non-compliant due to exceedances in effluent quality of COD (chemical oxygen demand) and TSS (total suspended solids) on a regular basis, of which the applicant failed to carry out follow up sampling and investigations.
- It was suggested by the applicant that the exceedances were caused by high algal growth within the settling ponds. It is also understood that the applicant now has an agreement in place with their contractor who undertakes the sampling that if an exceedance does occur that they will follow up immediately with additional sampling.

26. A timeline summary of complaints that have occurred since 2015 have been outlined in **Table 4** below. This time period was determined to be the most relevant to the on-going compliance issues the applicant is having with its current system and its ability to comply with the current consent conditions in CD940404W.

Table 4. Timeline of Complaints from 2015 to now

Date	Location	Incident summary	Response summary
21/12/2015	Overflow pipe to Kopu Road drain and Fitzroy St manhole	Overflow discharging into the roadside drain	Minor discharge and WDC investigating. No enforcement action taken.

14/05/2017	Overflow pipe to Kopu Road drain and Fitzroy St manhole	Report of effluent leaking from manhole on Fitzroy St, samples taken by HBRC Compliance staff and HBDHB informed	WDC Utilities Manager contacted and aware of issue. 1x infringement notice issued for illegal discharge, 1x infringement issued for on-going unlawful discharge and 1x abatement notice to cease unlawful discharge.
05/09/2017	Overflow pipe to Kopu Road drain and Fitzroy St manhole	Discharge from the Fitzroy St manhole through the overflow into the Wairoa River	Inspection undertaken by HBRC Compliance staff and HBDHB informed as potential health risk. No enforcement action taken.
02/10/2017	Overflow pipe to Kopu Road drain and Fitzroy St manhole	WDC have installed an open air drain for emergency overflows to discharge from the manhole into the Wairoa River.	For HBRC Compliance staff reference only.
05/10/2018	Overflow pipe to riverbank	Effluent discharged through the emergency overflow is ponding at low tides on the river bank where people are using and there are no signs in place.	WDC notified and remedying the manhole discharge issue. No enforcement action taken.
18/11/2018	Overflow pipe to riverbank	Discharge from the emergency overflow into the Wairoa River intertidal area.	WDC notified, site visit undertaken by HBRC staff and remedial works to stop the discharge requested. No enforcement action taken.
31/12/2018	Overflow pipe to Kopu Road drain and Fitzroy St manhole	Discharge from the emergency overflow into the Wairoa River intertidal area. Also a discharge from several manholes along Fitzroy Street associated with the effluent network.	WDC notified, repairs on the manhole overflow undertaken. No enforcement action taken.
19/01/2019	Overflow pipe to riverbank	Discharge from the emergency overflow into the Wairoa River intertidal area.	WDC notified. No enforcement action taken.
02/02/2019	Overflow pipe to riverbank	Discharge from the emergency overflow into the Wairoa River intertidal area.	WDC notified. No enforcement action taken.
04/03/2019	Overflow pipe to riverbank	Discharge from the emergency overflow into the Wairoa River intertidal area.	WDC notified. No enforcement action taken.
19/03/2019	Overflow pipe to riverbank	Discharge from the emergency overflow into the Wairoa River intertidal area.	WDC notified. No enforcement action taken.
01/04/2019	Overflow pipe to Kopu Road drain and Fitzroy St manhole	Discharge from the emergency overflow into the Wairoa River intertidal area. Also a discharge from several manholes along Fitzroy Street associated with the effluent network.	WDC notified, site visit undertaken by HBRC staff and all Fitzroy St manholes inspected. Repairs on the manhole overflow being undertaken as original repairs were not sufficient. No enforcement action taken.
25/04/2019	Overflow pipe to riverbank	Discharge from the emergency overflow into the Wairoa River intertidal area.	WDC notified. Two abatement notices issued in May as a result of the on-going non-compliances discussed below in further detail.

23/09/2019	Main outfall structure	Discharge of treated wastewater from the main overflow pipe outside of the time limits allowed in DP940404Wa	Infringement notice issued for a discharge of contaminant to water (\$750)
14/042020	Main outfall structure	Discharge of treated wastewater from the main overflow pipe outside of the time limits allowed in DP940404Wa	Infringement notice issued for a discharge of contaminant to water (\$750)

27. To further clarify the enforcement action undertaken for the incident that occurred 25/04/2019 that resulted in the two abatement notices being issued. The first abatement notice was instructing the applicant to cease the discharge from the emergency overflow by 31st October 2019, it should be noted that the applicant continued to be non-compliant with this abatement notice. The 2nd abatement notice instructed the applicant to provide an engineered solution by June 2019 to enable WDC to cease the discharge from the emergency overflow of which a solution was provided in 2019, however the most recent design is different from that initially proposed but clearly shows the overflow pipe will be decommissioned.
28. Overall HBRC recognise that we have a role to play in the non-compliances that have occurred over the years. Monitoring and enforcement of the existing consent (and unfortunately others similar to this) that have been consistently non-compliant we have in the past focussed on education and limited or no enforcement action has been undertaken, when on reflection it may have been more appropriate to take enforcement action sooner. This approach was as a result of both resourcing of the HBRC Compliance Team and a direction to work with consent holders to achieve compliance instead of taking enforcement action. Between 2018 and 2020, the HBRC compliance monitoring and enforcement team underwent a restructuring process to better define roles, specialisations, and resourcing requirements within our enforcement and monitoring functions. An important part of this work was the adoption and implementation of national best practise guidance and increase in technical knowledge and an increase in enforcement action where necessary. This has resulted in a more consistent and adaptive delivery of our monitoring and enforcement functions which is reflected in the enforcement action taken over the last couple of years in order to achieve better levels of compliance.

3. CLASSIFICATION OF THE ACTIVITIES

Relevant Rules and Provisions

29. The proposed activities will be located within the Coastal Marine Area (CMA) and on land outside of the CMA and therefore the provisions of the Hawke's Bay Regional Coastal Environment Plan (RCEP) and the Regional Resource Management Plan (RRMP) are both relevant to the proposal,

Figure 5 shows the outline of both plans in relation to the Wairoa River. The applicant engaged with Council pre-application to discuss and determine which RCEP and RRMP rules related to their proposal. Supporting document C9 of the application discusses the RCEP in general and specifically the rules relevant to the proposed activities⁴. **Table 5** below outlines the rules of the RCEP and **Table 6** outlines the rules of the RRMP that are relevant to the proposal.

Figure 5. Outline showing the area included in the RCEP in Pink and RRMP in Yellow



Table 5: Relevant Rules in the RCEP⁵

Activity	Plan Rule	Status	Rationale/Principal Reason
Discharge of wastewater from main outfall pipe			
The discharge of a contaminant or water into water in the coastal marine area, or the discharge of a contaminant into or onto land in the coastal marine area	Rule 160	Discretionary	This part of the proposal is to allow treated wastewater to continue to discharge from the Wairoa WWTP to the main outfall pipe into the Wairoa River. It will also include the replacement main outfall structure (pipeline) discharge. The applicant has requested that the current constraints around the timing of the discharge are changed to reflect the river flow.

⁴ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, pages 7-11, 24-27 and 31-36

⁵ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, pages 32 -34

Structures in the Coastal Marine Area

The maintenance and potential re-establishment of the outlet structure	Rule 117	Discretionary	The proposal involves being able to relocate the replacement main outfall structure (pipeline) within a designated area to avoid sediment build up and to ensure that the discharge is within the Wairoa River channel. This is clearly identified in Figure 3 shown in section 2 of this report.
Construction of a new structure within coastal hazard zone 1 (CHZ1) for the purposes of a network utility operation	Rule 97	Restricted Discretionary	This rule applies to replacing the main outfall structure (pipeline) and any associated earthworks.

Disturbances, Depositions and Extractions in Coastal Marine Area

Disturbances of the foreshore or seabed not regulated by, or not complying with other rules.	Rule 130	Discretionary	This rule will apply to the earthworks, construction and rehabilitation activities related to the relocation and maintenance of the main outfall structure (including the relocation of the pipeline structure).
Vegetation clearance and soil disturbance that does not comply with Rule 7	Rule 8	Restricted Discretionary	To allow works to be undertaken within the CMA for any activity associated with construction of the replacement main outfall structure (pipeline) and relocation.

Discharge of wastewater - emergency outfalls (within the Coastal Margin)

Discharges not regulated by, or not complying with other rules.	Rule 9	Discretionary	There are two existing emergency outfall pipes of which the point of discharge is within the Coastal Margin but not the CMA, being Kopu Road pump station which discharges untreated wastewater and the emergency overflow adjacent the main outfall pipe which discharges treated wastewater. These discharges are only to occur during times of system capacity exceedance or emergency events.
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Occupation of Space in Coastal Marine Area

Occupation of CMA not regulated by, or not complying with other rules.	Rule 178	Discretionary	This applies to the main outfall structure (pipeline) within the designated area in Figure 3.
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Table 6: Relevant Rules in RRMP⁶ -

Activity	Plan Rule	Status	Rationale/Principal Reason
Discharge to air			
The discharge of contaminants into air from waste disposal activity	Rule 28	Discretionary	The air discharge relating to the Wairoa WWTP located on Whakamaki Road.
Structures			
Any activity which cannot comply with any of the rules in section 6.8 of this Plan and which is not expressly regulated by other rules in this Plan.	Rule 69	Discretionary	This is for retrospective consent approval for the overflow pipes associated with the pump stations. This does include relocation, maintenance and operation from the existing pump stations.
Discharge of wastewater - emergency outfalls (not within the CMA or Coastal Margin)			
Discharges not regulated by, or not complying with other rules.	Rule 52	Discretionary	There are two existing emergency outfall pipes of which the point of discharge is not within the Coastal Margin being Alexandra Park and North Clyde) of untreated wastewater during times of system capacity exceedance.

30. Section 104B of the Act states that Council may grant or refuse the application and if it grants the application, the Council may impose conditions under section 108. Furthermore, sections 105 and 107 apply to this application.

4. BACKGROUND AND PHYSICAL ENVIRONMENT

Background

31. Wairoa's Wastewater Plant is located on Rangihoua (also known as Pilot Hill) which is listed in schedule 4 of the Iwi and Hapū of Te Rohe of Te Wairoa Claims Settlement Act 2018 as an historic reserve. With the pump stations located at various locations, mainly adjacent to the Wairoa River and associated overflow pipes located directly in the Wairoa River. The current main outfall pipe is located within Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve⁷ with the adjacent overflow pipe discharging within the riverbank area.

⁶ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, pages 34-35

⁷ This reserve is also listed in Schedule 4 of the Iwi and Hapū of Te Rohe of Te Wairoa Claims Settlement Act 2018.

32. Te Wairoa-hōpūpū-hōnengenenge-matangi-rau River is the full name of Wairoa River and is traditionally referred to in three parts being Te Wairoa-hōpūpū from Te Kapu to Turiroa; Te Wairoa-hōnengenenge from Turiroa to Kaimango; Te Wairoa-matarangi-rau from the mouth of the Awatere Stream to the sea⁸. A historical overview has been provided by the applicant⁹ which paints a picture of what life must have been like for Tangata Whenua in the nineteenth century.
33. The applicant has provided a document “Tangata Whenua Worldviews for Wastewater Management in Wairoa” which is in supporting documents section of the application (C8). I am mindful of section 42A ¹⁰(1A) but believe the historical overview included above, direct from this document, is crucial as it reinforces the cultural significance of Wairoa River.
34. Today the current water quality of the lower reaches of the Wairoa River has high levels of bacteria and is unsafe for swimming and this has had a significant impact on the recreational values of this area.¹¹ Recreational activities such as water skiing, rowing, sailing and swimming are popular activities undertaken on the Wairoa River due to it being wide and slow moving in nature, however the water quality either limits this to occur or people from putting themselves at risk.
35. The existing consented discharge currently occurs within the Coastal Marine Area (CMA) which has until recently become unsuitable due to the existing pipe being compromised plus the location of the discharge has sediment build up which does not allow the discharge to occur within the River channel. This inability to discharge has resulted in a number of non-compliances to occur over the last couple of years, which was previously discussed under compliance history. Also previous compliance visits have revealed unconsented work such as emergency overflows from each pump station which discharge raw wastewater when the system is overloaded or there is no electricity to the pump stations, an overflow adjacent to the main overflow structure which discharges treated wastewater which may have occurred regularly not just when the system is overloaded, works undertaken on the existing main outfall structure (alterations and additions made to the pipe), stormwater discharge at the wastewater plant and possibly any associated disturbances to the riverbed associated with the unconsented works to the pipe.
36. In summary, this proposal sets out the current Wairoa’s Wastewater System and the Discharge Locations which includes previously consented and unconsented works. The existing system has failed and is likely to continue to fail if changes are not made and the pathway for this proposed by the applicant has only recently become apparent to the Council and to Wairoa community through this consenting process and recent enforcement action taken by the HBRC Compliance Team.

⁸ Tangata Whenua Worldviews for Wastewater Management in Wairoa, prepared by Nigel How, Nov 2017, B.4. Wāhi Mahi

⁹ Tangata Whenua Worldviews for Wastewater Management in Wairoa, prepared by Nigel How, Nov 2017, page 3

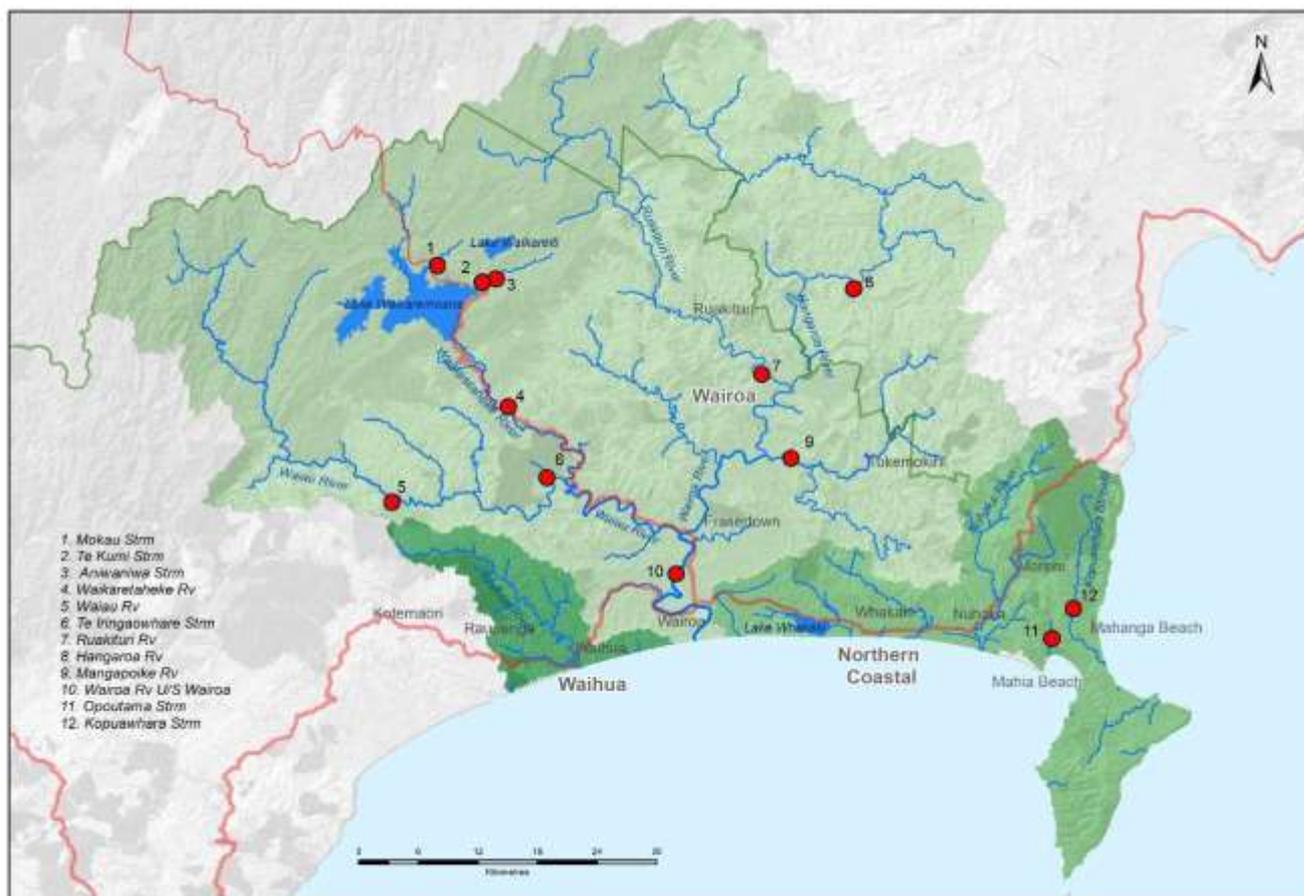
¹⁰ RMA (1991) Section 42A (1A) The report does not need to repeat information included in the applicant’s application under section 88(2).

¹¹

Wairoa River Location and Geographic Setting

37. The geographical setting is described in detail by the applicant in section 4 (Receiving environment) of the application and AEE¹². However, for completeness the Wairoa River physical geography is “located in the northern part of Hawke’s Bay region, draining into the sea at the township of Wairoa and is Hawke’s Bay’s largest catchment at 3,670 km². The river is formed by the confluence of the Hangaroa and the Ruakituri Rivers which meet at Te Reinga Falls. The upper part of the catchment is in the indigenous forest of Te Urewera National Park.”¹³

Figure 6. Wairoa and Northern Coastal catchments and state of the environment monitoring sites in red



38. The Wairoa River mouth opening is known to move location regularly, with a number of the application documents referencing the mouth location close to Ngamotu Lagoon, during the site visit the mouth opening was adjacent to Whakamahi Lagoon. HBRC staff work with contractors

¹² Wairoa Wastewater Treatment Plant Discharge Resource Consent Application and AEE – prepared by LEI, dated November 2018, pages 19 to 30

¹³ HBRC Report No. RM16-12 – 4793, Wairoa and Northern Catchments State and Trends of River Water Quality and Ecology, May 2016 prepared by Ausseil, Hicks, Uytendaal, Wade & Death, pages 13 & 14

and the applicant to ensure that the river mouth does remain open with only 3 bar openings occurring in the last 5 years. There are health and safety risks for staff and contractors associated with opening the bar and HBRC are reluctant to undertake this work unless certain factors can be met such as relatively flat sea and suitable weather conditions.

39. The land use for this catchment is predominately farming and forestry due to the productive nature of the land with a smaller portion being urban occupation. The population of Wairoa is close to 9,000 with recent estimates placing the population at 8,810 30 June 2019 which is significantly lower compared to 30 June 1996 when the population was 10,200, but seems to be on the rise since 2013 (8,300).¹⁴
40. Soil characteristics of the Wairoa catchment varies however overall it is dominated by fine, soft sedimentary geology. There are small tributaries close to the Wairoa River mouth that have alluvial deposits, which include gravels, sand and mud. The north western headwaters of the Wairoa River flow through tertiary sandstone and siltstone while the eastern and middle reaches of the catchment “consist of younger tertiary calcereous fine to medium sandstone, limestone, and siltstone”.¹⁵
41. River flows of the Wairoa River, like many in Hawke’s Bay, are slow moving in calm climatic conditions with the Wairoa River estuary at the southern point of the river tidal driven. The river mouth opening is influenced by a natural gravel dune which is known to be very mobile, which has resulted in the river flows passing through the gravel dune rather than a defined channel opening. The applicant has provided hydrodynamic modelling for the existing discharges to the river plus a range of discharge scenarios to assist in the development of the best practicable discharge option (which has since changed during this consenting process).
42. Of notable interest and in the vicinity of the main discharge (existing and proposed) is the Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve, refer to **Figure 7**¹⁶. Schedule 4 of Iwi and Hapū o Te Rohe o Te Wairoa Claims Settlement Bill identifies this reserve and four other reserves including Ngamotu Lagoon Wildlife Management Reserve which is to the east of the main discharge, as part of the cultural redress from the Crown to Tātau Tātau o Te Wairoa control and manage those reserves through a joint board.

¹⁴ Population statistics from .id – the population experts website, <https://profile.idnz.co.nz/wairoa/population-estimate>

¹⁵ HBRC Report No. RM16-12 – 4793, Wairoa and Northern Catchments State and Trends of River Water Quality and Ecology, May 2016 prepared by Ausseil, Hicks, Uytendaal, Wade & Death, pages 14 & 15

¹⁶ Appendix 2 Whakamahi Lagoon Government Purpose (Wildlife management) Reserve, Item 5.2 – Matangirau Reserves Board, Wairoa District Council Extraordinary Council Meeting Agenda, 23 May 2019

43. The Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve is approximately 144 hectares in size and includes the lagoons, sandspit and mudflats attached to the Wairoa River mouth and the Wahakamahi Lagoon. This area is home to both introduced and native waterbirds and has breeding populations of Canadian Goose and a small number of South Island pied oystercatcher¹⁷. In the Hawke's Bay RiVAS (River Values Assessment System) assessments undertaken in 2012, Wairoa River was identified as regional significant for native birdlife.

Figure 7. Outline of Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve



44. Te Rohe o Te Wairoa Reserves Board – Matangirau was established with Wairoa District Council representatives appointed in 2019 as determined in the Wairoa District Council Extraordinary Council meeting 23 May 2019 with the first meeting held on 20 October 2019. To date approval has not been obtained by the applicant to allow the proposed new outfall to be positioned in the locality identified in **Figure 3** or to allow the discharge of wastewater within the Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve. It should also be noted that no record exists of the approval from the Department of Conservation for the current outfall structure and discharge allowed by DP940404W.

¹⁷ HBRC Report No. SD18-02 – 4979, Summary of recreation, landscape and ecology values associated with water bodies in Hawke's Bay, page 20

45. Wairoa's climate and weather is important to consider and is a key fundamental of the environmental context, with the climate in the upper Wairoa catchment characterised as having "extremely high precipitation and cool temperatures. The lower catchments also receive considerable rainfall, but a warmer climate prevails".¹⁸ The applicant also confirmed that the wettest months were generally April, June and July while the driest months were November, December and February. And the wind conditions for Wairoa are consistently calm to light with the most common wind direction being NNW.
46. The applicant has provided a concise description of the receiving environment in regards to the Wairoa catchment, river hydrology, natural hazards and amenity. Other aspects of the existing environment are lacking in the application and are discussed further in this report and are reflected in the technical expert memos in **Appendix 2**.

5. SITE VISIT

47. A site visit was undertaken on 8 February 2019 by the reporting officer, Reece O'Leary (HBRC Principal Consents Planner at the time), Shane Kelly, and Nick Dempsey representing HBRC. The applicant had Hamish Lowe, Phil Lake, Cameron Drury and Patrick Knerlich (acting Utilities Manager) in attendance. An agenda for the day was circulated which focused on the following –
- Prior to visiting any sites of interest a meeting was held by the applicant's team to go over the application and some clarification was provided however it was clear that not all of the s92 issues identified were not going to be answered during the site visit.
 - Pump stations and emergency overflow pipes – There are four pump stations however it was agreed that only two needed to be visited being the North Clyde Pump Station and the Fitzroy Street Pump Station.
 - The Wastewater Treatment Plant – A walk around the site was undertaken looking at the two ponds and associated infrastructure on site. It was noted during the visit that there was very little odour and the ponds were both relatively full at the time. There was a brief discussion regarding the neighbouring site which is owned by the Mucalo Family whom have lodged an application with Council to discharge treated wastewater to land (this is further discussed in **section 8 – Assessment of Alternatives**).

¹⁸ HBRC Report No. RM16-12 – 4793, Wairoa and Northern Catchments State and Trends of River Water Quality and Ecology, May 2016 prepared by Ausseil, Hicks, Uytendaal, Wade & Death, page 14

- The group also went to the location of the existing main outfall structure and walked along the river bank. The structure was not visible as it was high tide at the time of the visit however it was obvious where the overflow pipe was located with some scouring of the bank visible. Temporary fencing and signage were also visible advising the public not to walk in this area.
- The river mouth at the time was located adjacent Whakamahi Lagoon and had moved further south from that referenced in the application documents, which confirms the variability of the river mouth.
- There was no one suitably qualified or with the local knowledge during the site visit to discuss the sites of significance to Māori¹⁹ in any great detail with HBRC staff which in hindsight to the report writer would have been useful, however the map provided in the CIA was used as a reference tool.

48. The independent commissioners appointed to manage the hearing and decision making process are undertaking a similar site visit on **Tuesday 1 December at 7.30am**.

6. SUBMISSIONS

49. **22** submissions were received in total. Of these **22** submissions, **5** submissions were neutral, **1** was in support of the proposal and **16** were in opposition to the overall proposal or, specific parts of the proposal. 2 of the submissions were received by Council after the submission period had closed, these were the submissions received from Ngā Tokorima a Hinemanuhiri Trust and a joint submission from Ngāti Kahungunu Iwi Incorporated and Ngāti Kahungunu (Wairoa Taiwheuna) Inc. Also Christina Stockman confirmed her submission was in opposition rather than support once submissions had closed.
50. The applicant has no issue with the two late submissions being received and considered. A decision requested of the commissioners is that they waive compliance with the time limit for lodging submissions s97(2) for these two submissions pursuant to s37(1)(b).

¹⁹ Cultural Impact Assessment of Wairoa Wastewater Discharges to Wairoa River, prepared by Nigel How, page 28, Appendix A – Map of Cultural Landscape Significant Sites within 2 kilometres of the Wairoa WWTP

Submissions in Support

51. There were two submissions originally stating they were in support of the proposal however it seems both submissions numbers 11 (John Waihape) and 15 (Christina Stockman) read as though they do not support the proposal. Council sought to clarify this matter and only Christina Stockman had confirmed on 26 September 2019 her stance was to oppose rather than support the proposal.
52. John Waihape's submission asks for the applicant to "halt all non-essential expenditure and divert funding to addressing the need for a fully functioning treatment plant that does not necessitate the discharge of any untreated waste into the river. The river is not a drain for our conveniences(s!). Stop doing this". This does not seem to be a submission in support of this proposal, and the commissioners are requested to view this submission as such.

Submissions in Opposition

53. The submissions that were received in opposition raised a number of concerns regarding the application. A summary is available in **Appendix 3**, however as a brief summary the submissions related to a number of potential effects on or, relating to; discharges are culturally offensive and need to stop going into the Wairoa River; discharges of raw sewage; the Wastewater Stakeholder Group; non-compliance with current consent; inability to harvest or swim; the costs associated with the proposal, and; alternatives should be considered over this proposal (land discharge and ocean outfall).
54. There is a consistent view from the submissions that the discharges should cease going into the Wairoa River, in particular the raw sewage during high flow events. Many feel they have been misled through the Wastewater Stakeholder Group process with no indication during those meetings that there were any issues with the existing main outfall structure, that the proposed discharges could occur during the day, that the duration sought is 35 years not 30 years and that no minutes were taken during these meetings.
55. Many of the submitters felt that discharge to land should be investigated as any discharge to water is culturally offensive and has been referred to in application documents. In contrast two of the submitters requested that an ocean outfall discharge should be considered (this is discussed in **Section 8 – Assessment of Alternatives** of this report).

Neutral Submissions

56. There were five neutral submissions received from Gary Mayo, AFFCO New Zealand Limited, Hawke's Bay District Health Board, Ngā Tokorima a Hinemanuhiri Trust and a joint submission from Ngāti Kahungunu Iwi Incorporated and Ngāti Kahungunu (Wairoa Taiwheuna) Inc, who are

interested in a number of different issues which are also outlined in **Appendix 3**. Those issues range from concerns with the cost of a replacement outfall structure to issues with the Wastewater Stakeholder Group, which are similar comments to those made by submitters that oppose the proposal, whom were also part of this group.

Pre-Hearing Meetings

57. Two pre-hearings were held for this proposal leading up to the hearing. The first pre-hearing meeting was held in Wairoa on 17 October 2019 and the second pre-hearing meeting was also held in Wairoa on 16 March 2020. All submitters were invited to both pre-hearing meetings, not just those who indicated in their submission that they would like to attend and both meeting memorandums were provided to all submitters regardless of their attendance. The pre-hearing meetings were facilitated by Matanuku Mahuika a certified commissioner and Tumu Whakararae (Partner – Chairperson) of Kāhui Legal.
58. The agenda for the first meeting was focused on issues raised by the submitters and allowed those who attended to briefly speak to their submissions and ask questions directly of the applicant and their consultants. The time needed for this meeting was underestimated by all interested parties and it was agreed by those still present near the end that a second pre-hearing meeting should be held to address seven points the submitters had jointly raised –
- A commitment to land based alternative to discharging in the Wairoa River
 - A mātauranga Māori monitoring programme based on the mauri compass
 - A review of the discharge times and durations
 - Greater detail on the proposed consent conditions
 - The removal of untreated and mortuary waste from any discharges into the Wairoa River
 - Costs of alternatives considered by WDC.
59. It was understood that the applicant would circulate information identified in the first pre-hearing prior to the 2nd pre-hearing meeting, however this did not eventuate and even at the 2nd pre-hearing meeting copies of their presentations were not provided.
60. The 2nd pre-hearing meeting included discussions regarding the current status of the river discharge, the applicant’s budget for works associated with the proposal, mātauranga Māori monitoring already undertaken, water quality monitoring and assessment work, mortuary waste to land and proposed consent conditions (version 15).

61. The outcome of the meeting was the applicant was willing to continue to work with submitters in attendance and try and resolve outstanding issues, particularly through the proposed consent conditions. Dates were set out in the memorandum prepared by Mr Mahuika however soon after this meeting COVID-19 had escalated so it wasn't physically possible for face to face meetings to occur and delayed when the applicant could meet with submitters.

7. ENVIRONMENTAL EFFECTS

62. The applicant commissioned a number of specialist studies and pre application documents to assist the development of their AEE. The table below sets out the list of specialist studies and reports that make up the complete resource consent application, plus the additional information sought through HBRC staff and technical experts.

Table 7: Application and supporting documents

Folder reference / Appendix	Subject/Report Title	Author/Date
	Consent Application and AEE (Assessment of Environmental Effects)	Phil Lake/Hamish Lowe – Lowe Environmental Impact Ltd (LEI) – November 2018
	Covering letter and application forms	Wairoa District Council – 29 November 2018
	Report Relationships-AEE	LEI – 29 November 2018
	Consultation Summary	LEI – 29 November 2018
	Certificates of Title	
	Draft Conditions	Wairoa District Council – 29 November 2018 (version 14)
	Schedule 4 RMA Checklist	LEI – 29 November 2018
	CD940404W – copy of current resource consent approval	
	Wairoa Wastewater Treatment and Discharge - Best Practicable Option	LEI – October 2018
	Conceptual Design for Wairoa Wastewater Treatment and Discharge	LEI – November 2018
	Wairoa WWTP Outfall: 3D Hydrodynamic Numerical Modelling	eCoast – 24 November 2018 (version V4)
	Infrastructure Development - Workshop Minutes	LEI – 23 May 2018
	Wairoa Catchment Contribution C3 - Memo	LEI – 20 November 2018
	Wairoa Wastewater Treatment and Discharge – Assessment of Environmental Effects – Marine Ecology	eCoast – 26 November 2018 (version V2)
	Cultural Impact Assessment of Wairoa Wastewater Discharges to Wairoa River	Nigel How – 26 November 2018
	Wairoa Wastewater Treatment Plant Discharge – Resource Consent Application	Stradegy – 29 November 2018

	Wairoa District Council Sewage Reticulation – Investigation of Options	goodearthmatters – September 2017 (Revision A)
	Wairoa Wastewater Discharge Re-Consenting – Summary of Wastewater and Stormwater Overflow Issues	LEI – October 2015
	Wairoa Wastewater Modelling – Stage 1 – Trunk Model Downstream of Pump Stations	OPUS – January 2012
	Wairoa Wastewater Modelling – Stage 3 – Detailed Wastewater Network Model	OPUS – August 2012
	Wairoa WWTP Outfall Model Build and Assessment Report	OPUS – October 2017
	Geotechnical Assessment of Water Treatment Ponds	Land Development & Exploration Ltd – 17 August 2017
	High Rate Land Passage - Memo	LEI – 11 September 2017
	WWTP System Data and Compliance Summary	LEI – October 2017 (version 2)
	Current Outfall Pipe Description	LEI – 11 September 2017
	Stage 1:Peer Review of Estuary/Ocean Receiving Environment Report	eCoast – 2 April 2018
	Assessment of effects of Wairoa District Council’s existing intertidal sewage discharge on benthic sediment characteristics and ecology – Wairoa Estuary	eCoast – 26 November 2018 (V3 - version 2)
	Recreational Use Analysis – Interim Analysis of Open Water Use	LEI – 7 August 2017
	Wairoa River Estuary Impact Summary	LEI – 23 May 2017
	Benthic Effects Monitoring of the Wairoa District Council Municipal Wastewater Outfall at sites in the lower Wairoa estuary: 2017 Survey	Triplefin – May 2018
	Existing Environmental Data Summary	LEI – September 2017 (Version 3)
	Public Health Risk Summary - Memo	LEI – 9 September 2018
	Additional Environmental Monitoring Data - Memo	LEI – 17 October 2018
	Task A315 Wairoa River Recreational Use Survey - Memo	LEI – 28 February 2017
	Assessment of Ecological Effects on the Wairoa River Estuary from the Wairoa Wastewater Treatment Plant Outfall	environmental assessments & monitoring ltd (EAM) – July 2007
	Monitoring of benthic effects of the Wairoa District Council wastewater treatment plant outfall discharge at sites in the lower Wairoa River Estuary: 2011 survey	EAM – May 2012
	Tangata Wheuna Worldviews for Wastewater Management in Wairoa	Nigel How – November 2017 (version 8)
	Preliminary Feasibility Assessments of Land Passage Options	LEI – October 2017 (version 2)

	Wairoa Wastewater Consenting Project – Land Treatment Opportunities	LEI – October 2017 (version 2)
	Task A512 – Cost of land procurement - Memo	LEI – 9 October 2017
	A611 – Preliminary Assessment of values for wastewater discharge	LEI – 20 October 2017
	Ocean Outfall Concept and High Level Cost - Memo	LEI – 5 September 2017
	Wairoa Wastewater Discharge Consenting Planning Considerations	LEI – April 2018
	Wairoa Wastewater Discharge Re-Consenting Natural Hazard Implications	LEI – January 2017
	Wairoa River Mouth Data & Pioneering History - Memo	LEI – 14 August 2017
	High Level Options and Associated Costings - Memo	LEI – 15 March 2017
	Discharge Options	LEI – August 2017
	Integrating Wastewater Options and Holistic River Health Approach - Memo	Rationale Limited – 30 August 2017
	Wairoa River and Wastewater A Big Picture Solution	LEI – November 2017
	Wairoa Wastewater Package – A Way Forward	LEI – November 2017
	Wairoa WWTP and Reticulation Upgrade Options	LEI - July 2017
	Initial information request - after site visit, technical reviews and comments back from LEI and WDC	HBRC – 26 March 2019
	2 nd information request – proposed replacement outfall structure and stormwater discharge	HBRC – 12 July 2019
	S92 response table	WDC & HBRC – 25 June 2019
	Letter outlining the intent of consent application and response to further information request – to be read in conjunction with S92 response table	WDC – 25 June 2019
	Review of Consent Application and Section 92 Responses – wastewater treatment system	Mott MacDonald – 11 July 2019 (Rev B)
	Wairoa Wastewater Treatment Plant – wastewater discharge (current outfall pipe) and management of the Wairoa River mouth	HBRC – 13 February 2019
	Wairoa Wastewater Treatment Plant – wastewater discharge regime and relocating of pipe (current outfall pipe)	HBRC – 20 December 2018
	Wairoa Wastewater Treatment Plant – Proposed replacement outfall structure review	e2environmental Consulting Engineers – 4 July 2019
	Review of Wairoa WWTP Ecological Assessments	Coast & Catchment Ltd – 4 July 2019

63. The assessment of effects on the environment provided by the applicant in relation to the applications was in part ambiguous in terms of the “aspirational” nature of discharge to land and the actual proposal that had been presented to the community pre-lodgement versus the actual proposal being sought. An overview “Intent of Consent Applications” was provided to Council soon after a meeting held on 6 June 2019 which does list the key intentions of this proposal and has provided the much needed clarification that the AEE is lacking. Council had technical experts review a number of the reports above to inform the recommendation set out by this report. However, in some cases the reports were not further reviewed and therefore the conclusions of the report writer and assessment of the effects undertaken by the applicant has been adopted or alternative commentary is provided by the report writer in relation to the potential effects of the proposed activities.
64. Council experts identified some areas of the application where further information was required to suitably inform them and to assist their review of the potential effects for the proposal. The further information sought throughout processing, including the section 92 requests, and the response to these questions from the applicant have been provided in this report as **Appendix 2**.
65. The applicant has identified a number of circumstances where mitigation is required and has subsequently been worked into the design of the outfall structure or is offered through a set of draft proposed consent conditions. The applicant accepts that there are a wide range of components of the environment which could potentially be impacted in either a short term or long term (permanently) by certain elements of the proposal²⁰. Equally the applicant has undertaken and/or proposes mechanisms to avoid, remedy or mitigate these potential effects which is consistent with the framework provided by the RMA.
66. For the purpose of this report, the assessment of effects is presented under the following topics being:
- **Effects on Cultural Values**
 - **Effects on Water Quality**
 - **Effects on Marine Ecology**
 - **Construction Effects**
 - **Effects on Recreational Use and food gathering (Mahinga Kai)**
 - **Effects on Natural Character and Landscapes**
 - **Effects of River Hydrology**

²⁰ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application and AEE – prepared by LEI, dated November 2018, pages 42 and 43

- **Effects on Natural Hazards**
- **Effects on Air Quality**
- **Public Health Risks**
- **Positive Effects**

Effects on Cultural Values

67. The protection of Māori and their culture and traditions is recognised under the RMA as a matter of national importance as is the protection of protected customary rights.
68. The applicant has acknowledged the need to recognise and provide for these matters and has provided evidence of an attempt to do this from pre-lodgement engagement, pre-notification hui and engaging their own cultural expert Nigel How to prepare a Cultural Impact Assessment (CIA) which is supported by another document “Tangata Whenua Worldviews on Wastewater Management in Wairoa” (Tangata Whenua Worldviews).
69. Tangata Whenua Worldviews was the initial document and was also prepared by Nigel How with input from Duane Culshaw (WDC Māori Relationships Manager), Katarina Kawana, Naomi Wilson and Michelle McIlroy (Tangata Whenua representatives on the Wairoa Wastewater Stakeholder Group). The purpose of this document was to provide the applicant with Tangata Whenua perspectives and worldviews on the appropriateness of the discharge and its location, and to assist in the decision making in regards to the best practicable discharge option (BPO).
70. The applicant sought the views of respective ‘CMT and PCR applicants’ under the Marine and Coastal Area (Takutai Moana) Act 2011. Furthermore, Council directly notified these parties of the applications at the time of public notification.
71. Both the Tangata Whenua Worldviews and CIA offer a technical appraisal of Māori cultural values regarding the area and its resources. The reports identify the potential impact of the proposed activities on Māori values such as Kawa, Tapu and Noa, Tikanga, Karakia, Inoi and Mauri²¹.
72. In assessing the potential cultural effects, I rely on the information presented in the CIA and Tangata Whenua Worldviews documents, the effort made by the applicant in its consultation pre-lodgement and post notification of this application and the mechanisms proposed by the applicant and recommended through draft conditions of consent to avoid, remedy or mitigate potential effects including those on Māori cultural values.

²¹ Tangata Whenua Worldviews for Wastewater Management in Wairoa, prepared by Nigel How, Nov 2017, pages 8 & 9

73. I am not an expert in tikanga Māori or in Māori culture and values and although I have made an effort to better understand the values of mana whenua, I respect that it is for those who hold mana whenua and mana moana to identify and express these matters. Therefore, as opposed to paraphrasing the main body of contents within the CIA and the Tangata Wheuna Worldviews for Wastewater Management in Wairoa, both authored by Mr How, I encourage the hearing commissioners and other parties to these consent applications to familiarise themselves with the contents of both documents and the important values they detail.
74. The CIA does provide a number of recommendations which seem to be grouped under the river discharge and proposed cultural monitoring however overall the main message taken from the CIA for the applicant to do is – *“a commitment made to continued research into achieving 100% drinkable water quality for wastewater discharge to waterways as an alternate option to 100% land based wastewater discharge”*²²
75. Unfortunately the conclusions reached in the CIA do not seem to be adequately reflected in the proposal in its current form, with much of the assessment Mr How had undertaken being based on Table 3.1 of the AEE, which the applicant has referred to as being “aspirational” and has since conceded are not currently part of the approval they are seeking through this process.
76. The applicant has acknowledged that the current discharge is culturally unacceptable. Through agreed proposed consent conditions with submitters (including tangata whenua), Māori engagement, cultural monitoring and the creation of the Māori Wastewater Working Party (MWWP)) do go some way to address cultural effects, however it is unclear if the discharge will be reduced as the proposed staging would achieve, as the proposal currently stands, it does not require the applicant to provide additional storage or land discharge being secured by a certain date. There are proposed consent conditions to deal with Mortuary waste with a view to remove it from the municipal wastewater discharge, but again as this matter is controlled through the Wairoa Trade Waste Bylaw, the outcome of that Bylaw review falls outside of this consenting process.
77. It is the view of the report writer that timeframes for the initial land treatment area and additional storage should be placed on this consent, however as there is limited funding information provided by the applicant it is difficult to recommend dates. It is hoped that through the hearing process this is made clearer to the Commissioners so they may consider if this is a viable option as the cost of implementing would likely fall on the ratepayers of Wairoa.

²² Cultural Impact Assessment of Wairoa Wastewater Discharges to Wairoa River, prepared by Nigel How, page 24, section 9 - Recommendations

Effects on Water Quality

78. The applicant proposes to continue to discharge into the Wairoa River however seeks to implement a discharge regime based on the river flows (discussed further under Effects on River Hydrology) The applicant is also seeking to legitimise existing emergency discharges of untreated wastewater from each of the pump stations and an overflow discharge of treated wastewater, located adjacent to the existing main outfall pipe structure close to the river bank. The original application did try to incorporate possible scenarios where the discharges could be reduced over different stages with the implementation of land discharge and additional storage. However, as the consenting process has unravelled the only attainable option to reduce the discharge into the river is through the I&I work that has been undertaken (at the time of writing this report it is unclear how much of this work had been completed).
79. The Wairoa River water quality has been degraded over many years and “The dominant issue for the Wairoa catchment was poor recreational value as indicated by *E. coli* and clarity / turbidity”.²³ And because of the location of the discharges, the existing main outfall discharge is within the coastal environment whilst the non-consented pump station emergency overflows are within the fresh water environment.
80. The coastal environment is of significance and is nationally recognised, as the existing and proposed discharge point of the main outfall lies within the Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve. Through HBRC coastal environmental monitoring sediment stress is a key issue observed in estuaries across Hawke’s Bay including the Wairoa Estuaries, and it was concluded that of those high peaks in suspended sediments were likely during flood events.²⁴ Sediment nitrogen levels in Wairoa Estuaries were not indicative of excessive eutrophication and relatively low compared with the rest of the region which is confirmed in the monitoring of nutrient levels within the Wairoa Catchment.²⁵
81. The applicant has stated that they believe the Wairoa River is “not a sensitive environment for discharges of Wairoa’s treated wastewater because of its large flow rate compared with daily wastewater flow rates and poor river water quality from upstream rural sources of sediment and pathogens. During flood events the river’s characteristics are even less sensitive, especially to pump station overflows and elevated discharge volumes of treated wastewater from WWWT.”²⁶

²³ Draft HBRC Report No. 5433, Wairoa and Northern Coastal Catchments – State and Trends of River Water Quality and Ecology, July 2020 prepared by Dr Gary Rushworth, page 70

²⁴ HBRC Report No. 5425, State of Hawke’s Bay Coastal Marine Environment: 2013 to 2018, April 2020 prepared by Anna Madarasz-Smith and Becky Shanahan, pages 19 & 75

²⁵ Draft HBRC Report No. 5433, Wairoa and Northern Coastal Catchments – State and Trends of River Water Quality and Ecology, July 2020 prepared by Dr Gary Rushworth, page 71

²⁶ Consent Application and AEE (Assessment of Environmental Effects), prepared by LEI, page 50

They go on to conclude “The overall effects of the wastewater discharges on the river environment will be less than minor to negligible.”²⁷

82. The technical advice memorandums provided by Council experts Dr Shane Kelly and Nick Dempsey are attached to this report with the other evidence and documentation provided by Council’s technical experts and should be referenced in regards to understanding the effects the discharge will have on the receiving environment. These documents make up **Appendix 2** of this report.
83. The applicant has undertaken hydrodynamic modelling of the river based on scenarios where the river mouth opening is directly out to sea rather than its current position which is through the Whakamahi Lagoon. This eastern location is considered by the applicant’s experts as the ‘worse case scenario’ for when the river mouth is open. Dr Kelly has provided a review of the modelling undertaken and has determined the following for toxicity effects the key contaminant of concern is likely to be ammonia-N. When the River mouth is open the concentrations in the discharge will be rapidly diluted to levels below the ANZECC (2000) trigger value for slightly to moderately disturbed systems (refer to **Appendix 2a**).
84. The modelling provided scenarios for both outgoing and incoming tides, however the incoming tides modelling was based on the discharge being released continuously, whilst the first 8 scenarios showed lower dilutions as they are based on a discharge being released only during the outgoing tide. Also specific contaminants such as bacteria, nutrients, viruses and sediment were not used in the modelling as monitoring data is not available therefore an assessment of the discharge effects on the river water quality was not included in the modelling.²⁸
85. No modelling has been done for when the river mouth is closed, however Dr Kelly’s request for further information on this matter was not fully resolved and that there is the potential for adverse effects to occur, mostly likely human health and ecological risks will be elevated²⁹. It is understood that during the writing of this report additional hydrodynamic modelling was being or had been carried out in relation to the proposed outfall location (which had changed from original modelling) by Dr Shaw Mead. Council and Council technical experts are not privy to the results from that modelling, however Dr Mead has had a brief discussion with Dr Kelly and the suggested changes

²⁷ Consent Application and AEE (Assessment of Environmental Effects), prepared by LEI, page 61

²⁸ Wairoa WWTP Outfall:3D Hydrodynamic Numerical Modelling prepared by eCoast Revision 3 dated 24 November 2018 - conclusions

²⁹ Memo prepared by Dr. Shane Kelly dated July 6, 2020, page 1

to the monitoring conditions made by Dr Kelly were rejected by the Applicant (version 20 of proposed consent conditions).

86. Proposed treatment options to improve water quality prior to discharge are currently sand filtration and UV treatment, which will improve ammonia removal and is likely to improve TSS and E.coli levels however the applicant's analysis does not factor in the "reduction of dilutionary effects of the I&I reduction campaign".³⁰ Mr Dempsey proposes a more detailed assessment is needed of the proposed network and treatment changes, which will provide a better understanding and "provide greater confidence that the discharge regime being proposed will behave as expected".
87. There are other matters to consider in relation to the effects such as cultural effects as it is obvious from the discussion above, the information provided in the CIA and Tangata Whenua Worldviews and many of the submissions that any discharge that is not of "100% drinkable water quality" is highly offensive to Tangata Whenua. The treatment options do go some way to improve the water quality, the I&I works will help reduce the volumes of water discharging into the Wairoa river, however discharges need to continue into the River to effectively operate the Wairoa WWTP as there is no viable alternative option offered by the applicant.
88. The advice and recommendations provided by Dr Kelly and Mr Dempsey regarding consent conditions have been included in the recommended draft consent conditions (**Appendix 1**).

Effects on Marine Ecology

89. The potential effects on marine ecology is a key consideration in regard to the main discharge into the Wairoa River and for the construction and associated maintenance of the new replacement main outfall structure.
90. Given the nature of the proposed activities there is the potential for significant adverse effects on ecology, fisheries and marine mammals if the proposal was not managed appropriately, Council sought the advice and expertise of Dr Kelly to review the application documents in relation to potential effects on marine ecology.
91. The memos provided by Dr Kelly are attached to this report with the other evidence provided by council's technical experts. These documents make up **Appendix 2a** of this report.
92. In summary, the issues of concern raised by Dr Kelly include but are not limited to³¹;

³⁰ Memo prepared by Nick Dempsey dated 11 July 2019 – refer to point 3.3 Conceptual Design for Wairoa Wastewater Treatment and Discharge

³¹ Memo prepared by Dr. Shane Kelly dated July 4, 2019 – refer to conclusions

- No information had been provided regarding blooms of nuisance marine macroalgae, which are a key indicator of nutrient effects;
 - Limited information has been provided regarding the effects on human health and ecological effects when the River mouth is closed. Dr Kelly did note that measures such as storage, opening of the River mouth and notifying the public will reduce their impact;
 - Dr Kelly acknowledges the degradation of the existing receiving environment as a result of the cumulative effects from various sources within the catchment and from the information available “the existing discharge from the WWTP does not appear to be compounding those effects on benthic communities or habitats to any substantial degree.”;
 - Relocating the outfall structure does have the potential to physically disturb pipi beds (or other subtidal species), however this survey has not been provided for the proposed construction area and the proposed relocation area. Consent conditions to address the construction of the replacement outfall structure have been recommended, refer to **Appendix 1**;
 - The potential effects on kaimoana have not been adequately addressed and this is also supported by Tangata Whenua who have submitted on this application;
 - And the final comment was regarding the monitoring plan that was still to be developed. Dr Kelly has since provided proposed consent conditions to provide for a suitable monitoring framework, refer to **Appendix 2a memo dated 6 October 2020**.
93. Further to the concerns raised by submitters and the similar concerns stated in Dr Kelly’s evidence, other matters raised by submitters (not just Tangata Whenua) were details on shellfish and harvesting in the estuary, disturbance on pipi beds, surveying of local fishers and health risks associated with the discharges.
94. In regard to the potential effects on benthic ecology and fisheries, I rely on the guidance and expertise of Dr Kelly. Therefore, I consider that further information is required in relation to the matters outlined above before a definitive conclusion can be made in relation to the potential effects in these areas.
95. The issues of concern raised by Dr Kelly will need to be addressed in the evidence provided by the applicant or during the course of the hearing to provide the commissioners with the necessary information to make a decision.

Construction Effects

96. The proposal includes the construction of a replacement outfall structure (pipeline) which only during the consenting process has the applicant confirmed that the current discharge structure “is not operating as intended”.³² A brief and preliminary design specification and location map had been submitted to Council prior to notification which was followed by a number of questions from our technical expert Laddie Kuta included in the 2nd section 92 information request with subsequent s92 questions from the 2nd review undertaken in April 2020 which have been adequately addressed in the additional information provided from the applicant in a letter dated 4 September 2020.
97. The applicant has advised that this structure design is to address the non-compliances (as stated in **section 2b** of this report). The new structure will result in the removal of the adjacent overflow pipe as drawn in the most recent structure drawing (Site Investigation Details, drawing no. DR-190504-020 prepared by Offshore and Coastal Engineering Ltd dated 20/10/19), however this is yet to be reflected in other documentation from the applicant including the proposed consent conditions with the associated overflow outlet pipe consent still being sought (refer to Definitions table – Resource Consents and relevant Activity numbers (AUTH-124095-01)).
98. The proposed new outfall structure is to be connected to the existing manhole where the existing outfall structure is connected located on the river bank along Whakamaki Road. The new outfall structure has a 400mm diameter SDR17 and therefore has a wall thickness of 23.5 mm and will be buried into the riverbed using 12m long piles (approximately penetrated 8m into the riverbed). Concrete weight blocks will be installed on alternate sides of the pipe every 5m and at the end of the pipe structure there will be double piles with pile clamps to end weight blocks, adjacent to the piled diffuser protection structure. Mr Kuta has made recommendations that the pile cover of 1.5m is increased to 2m to reduce the risk of scouring. The sand filled geotextile bags could also be extended out to cover the last 20m of pipeline and again Mr Kuta believes this will “ensure the pipeline is not exposed at the outfall”. The distance from the diffuser to the existing manhole where the structure will be connected to is approximately 395m, based on the outfall endpoint being NZTM 198263E – 5667217 N.
99. The applicant has not assessed the effects associated with the construction of the proposed new outfall against Rule 97 of the RCEP as the application previously assumed that the existing outfall structure did not need to be replaced, that it would only be altered to suit. The matters of control / discretion within Rule 97 are as follows with commentary from the report writer –

³² Further Information Response and Intent of consent Application APP-123774, Further discharge consent condition section

Table 8: Rule 97 of the RCEP – Matters for control / discretion with commentary

Matters for control / discretion	Comment / observation
a) The need for the structure to be located in the Coastal Hazard Zone	As stated throughout this report and the documents provided by the applicant, until land can be secured for land irrigation/disposal then discharging into the Wairoa River is the only suitable method of disposing of treated municipal wastewater (refer to alternatives discussed in section 8)
b) Effects on people’s health and safety	It is unclear with the new pipe design and location within the Wairoa River whether this will impact on the people’s health and safety in regards to people’s ability to use the river for recreational use. A resource consent condition is recommended to ensure there are no adverse effects from the new structure.
c) Effects of structure on natural coastal processes	Previous modelling was based on a smaller structure rather than the current proposed plans. And as discussed under headings - Effects on Marine Ecology and Effects on Recreational use and food gathering, a recent seabed survey along the outfall alignment is being undertaken by the applicant’s consultant Dr Mead. An update on this is therefore required from the applicant and a resource consent condition has been recommended to capture this information.
d) Effects of natural coastal processes on structure and network utility operation	The recent s92 response dated from the applicant addresses previous concerns Mr Kuta had with flood scour of the new outfall structure’s anchor piles concluding “Based on the largest recorded flood event for the Wairoa River (Cyclone Bola, 1988), eCoast’s model predicted that the river velocity at the new outfall’s location was likely to be up to 4.0 m/s or 8 knots. This confirmed that OCEL’s scouring estimation was based on conservative estimates of river velocities during flood events at Wairoa. OCEL’s conclusions are therefore considered to be an appropriate risk assessment of the proposed new outfall’s scouring risks under flood conditions”. Scouring and coping with thrust and flood loads are the main coastal processes that the infrastructure will need to withstand. Notwithstanding that final drawings/specifications have not been provided and amended to suit Mr Kuta’s suggestions on page 1 of his memo, we are satisfied that the effects from the natural coastal processes have been adequately addressed.
e) Probability and magnitude of erosion and inundation	Refer to comment above.
f) Methods to avoid or mitigate effects of coastal hazard to structure and network utility operation	This was also addressed in the above s92 response with modifications to the pipe cover including a meandering thalweg and extend the geotextile bag placement suggested by Mr Kuta in his memo in Appendix 2b).
g) Degree to which any protection works to the property or structure have been carried out	This will be determined once final design drawings/specifications have been provided. Also during the construction process it is not uncommon for alternative solutions to be sought particularly when issues arise that were never factored into the final design.
h) Matters in Chapter 26.2	Not applicable.

100. Mr Kuta's final conclusion on the most recent information provided for the outfall structure states "Overall the outfall design and proposed consent conditions limits environmental impacts on the Wairoa River as best practically possible".³³
101. The applicant is seeking flexibility through their proposed resource consent conditions to allow the relocation and modification of the outfall structure without going through a formal s127 RMA process. This is not considered tenable, particularly as possible changes are likely to impact interested parties such as (but not limited to) Te Rohe o Te Wairaa Reserves Board - Matangirau, customary rights and customary marine title applicants, the submitters and depending on the changes, public notification may be warranted. Also at the time the application was lodged a new outfall structure was not being proposed with changes to the existing outfall structure being considered. Now that a considerably more robust and substantial structure is being proposed these consent conditions should no longer be required and have been struck out from the Council's recommended consent conditions in **Appendix 1**.
102. In terms of the existing pump station emergency overflows, there are no plans held by either the applicant or the Council which is not helpful in determining their suitability as an emergency overflow. However the Council consider that with the network improvements and changes to the outfall structure these overflows should not be required therefore proposed consent conditions regarding the relocation, maintenance and operation of the overflow outlets for Kopu Road, North Clyde and Alexandra Park should also be struck out (refer to Public Health Risks regarding the proposed untreated discharges from the pump station overflows).
103. If the consents are to be granted, I suggest that the recommended resource consent conditions in the attached version 21 are adopted, however it is unclear to the report writer how to address the emergency overflow structures as to whether they should be decommissioned in the same manner as the overflow structure attached to the existing main outfall structure. It is hoped through the hearing process that the commissioners will be able to make a decision on this particular matter.

Effects on Recreational Use and food gathering (Mahinga Kai)

104. The protection of recreational use and public access to the coastal environment is given significant emphasis by the RMA, the New Zealand Coastal Policy Statement and the RCEP. Access to the Wairoa River can be limited due to the planting of Willows along the river bank. There is limited access to the River around the main outfall area with the existing vegetation, however perhaps the biggest impediment in the public using this area is the potential health risks as a result of the overflow discharge.

³³ Memo reviewed by Laddie Kuta, e2environmental, subject: Wairoa Wastewater Treatment Plant – Outfall Structure dated 13 October 20

105. The lower reaches of the Wairoa River are popular for a range of recreational activities such as water skiing, waka ama, rowing, sailing and swimming, of which is dependant on water quality and at the time of writing this report was graded as “Unsuitable for swimming” due to overall *E.coli* risk on the lawa.org.nz website. This obviously has significant impacts for the recreational values for this part of the river and is an issue that needs to be addressed through this process and other similar discharges into the Wairoa River that contribute to the elevated bacteria levels.
106. The effects the current discharge is having on mahinga kai has not been adequately investigated by the applicant as initially they did not believe this was an issue that they needed to answer as they believed that mahinga kai was not available to gather in the immediate area. During the processing of this consent Dr Kelly had raised this issue a number of times and his comments were included in the s92 information requests sent to the applicant. It is understood that Dr Mead has undertaken a seabed (riverbed) survey which confirmed that adult pipi and cockles were present along the outfall alignment.³⁴ However as the information is only limited Dr Kelly cannot provide any advice on likely ecological effects at the time of writing this report.
107. A number of submitters have suggested that their ability to use the coastal environment for recreational purposes such as fishing, diving and gathering of kai moana have been compromised by the existing discharges. It does become a health and safety issue to undertake those activities in the Wairoa River particularly after a large rainfall event with not only in an increase in the volume of consented treated wastewater but the discharging to untreated wastewater and stormwater (a global stormwater discharge will be addressed in a separate resource consent application to be lodged by the applicant which is likely to be submitted to Council by the end of 2020).
108. It is difficult to determine the impacts this proposal will have on both the recreational use and mahinga kai based on the little information Council has been provided given the applicant’s reluctance to acknowledge what is occurring in this area of the Wairoa River. However, provided the activities are undertaken in accordance with best practice to minimise potential effects where possible, and through the recommended resource consent conditions I consider that the extent of the effects on recreational access to the overall riverbed should be less than minor because the effects from the construction works and improved discharge quality are expected to be localised and of a short to medium-term nature.

Effects on Natural Character and Landscapes

109. The natural character of the coastal environment requires preservation. Because landscape and visual values contribute to people’s appreciation of an area’s amenity, even when substantially modified from a natural state.

³⁴ Memo prepared by Dr Shane Kelly, Coast & Catchment Environmental Consultants dated 6 October 2020

110. As previously stated the Wairoa River begins the confluence of the Hangaroa River and Ruakituri Rivers just before Te Reinga Falls which is approximately 40 km from the Wairoa River mouth. Te Reinga Falls consists of four waterfalls which are described as “spectacular, however the view is not perfect due to limited access – the waterfalls are seen only partially from the official lookout”.
111. Along many parts of the Wairoa River Willows have been planted over the years to protect the banks of the Wairoa River from erosion, however this does make access for fishing and other recreational activities difficult.
112. The surrounding environment adjacent to the existing main outfall structure is coastal in nature with two significant lagoons bordering the Wairoa River estuary to the north – Ngamotu and Whakakito the south, of which are part of a large group of wetlands that are supported by the River, Ohuia, Waihoratuna, Wairau, Te Paeora and Patangata. Making this area as a collective the largest wetlands system on the east coast of the North Island.



Photo taken during site visit (8/2/2019) from the Wairoa Wastewater Treatment Plant site

113. The site visit undertaken on 8 February 2019, highlighted the challenges the applicant has to contend with to ensure that the existing natural character and landscape are not altered further by this proposal. The main WWTP site is elevated however set below the ridge so is not visible from the low-lying areas of Wairoa with appropriate planting surrounding the outer fenced boundary. The combined footprint of the four pump stations and associated infrastructure are minimal and do not dominate the reserve areas where they are located.
114. It is considered prudent that any outcomes or Regional Plan changes as a result of Proposed Plan Change 7 – Outstanding Water Bodies (discussed in further detail in Section 9 – Policy Context and Evaluation) should be reflected in this proposal and it recommended that a review clause is added as per the following wording - To address any new regional or national rules, standards, or regulations relating to freshwater and/or coastal water management.

Effects on River Hydrology

Figure 8 – Wairoa River levels



115. **Figure 8** provides a snap shoot of the river levels at the Marumaru site from November 2010 to October 2020 with regular updates provided on the HBRC website³⁵ including a River Level forecast available during a severe weather event. As with other rivers across Hawke’s Bay, during the winter months it is more likely to see larger spikes in the Wairoa River levels with occasional storm events during the drier months (December to April).

³⁵ <https://www.hbrc.govt.nz/environment/river-levels/>

116. Council Hydrology staff have confirmed that the current median of the Lower Wairoa River is currently estimated at 79.18 m³/s, which is very different from the figure of 31 m³/s³⁶ provided by the applicant, however this figure was based on key flow statistics from LAWA. During this consenting process no one from the applicant's team had been in contact with Council Hydrology staff and when the proposed definition of River Flows was recently discussed with them by the report writer (version 20), they requested that the calculation provided by the applicant (Wairoa at Marumaru x 1.1.4639) + Waiau at Ardkeen) was removed and to reference the current median of 79.18 m³/s. The adjustment to the current median flow value noted in the definition of the river flow is recommended to align with the review clause included in proposed review **consent condition 55(e)**, allowing the median flow rate to be changed annually if required.
117. The applicant has confirmed that the current discharge is only 0.2% of the river's median flow rate with the main discharge from the existing outfall structure pipe does not "impede or deflect the river flow as it passes the discharge outfall."³⁷ The proposed new outfall structure is unlikely to change that statement with the majority of it proposed to be buried in the river bed.
118. The proposed new discharge regime offered by the applicant aligns with the river flows with the frequency and volume managed depending on the median river flow. This approach was unsettling for some of the submitters, as they assumed that a discharge could potentially occur on a continued basis "24/7". This is what the applicant has requested however during this consenting process the proposed discharge volume has decreased from 5,000m³ to 3,000 m³. Council have also recommended placing restrictions on discharges occurring after 6 pm to only occurring during the months of April to November and after 7pm during the months of December to March, being the summer months when the community are likely to be utilising the river later at night.
119. As identified by the applicant, when the river mouth is occasionally closed due to the very mobile gravel dune the marine inflows and river outflows are restricted which has a damming effect and can result in the raised height of estuary water levels. "This then backs up the lower reaches of the river so that the height of the river water level is maintained at increased elevations for several km inland (it has been observed upstream of the Railway Bridge) during low to moderate flows".³⁸ There are various proposed consent conditions relating to when the river mouth is restricted such as the timing of discharging wastewater into the river and the applicant notifying Council prior to or when there is a river mouth restriction using a camera.

³⁶ Consent Application and AEE (Assessment of Environmental Effects), prepared by LEI, page 21

³⁷ Consent Application and AEE (Assessment of Environmental Effects), prepared by LEI, page 51

³⁸ Consent Application and AEE (Assessment of Environmental Effects), prepared by LEI, page 21

120. Based on the evidence provided and the data that has been collected by Council and the applicant it is considered that the increased discharge of wastewater could align with the median river flow, however it would need to be regularly monitored by the applicant. The conditions will refer to a specific flow as being the median flow as determined from the recorded data. It is recommended that any changes to the median river flow would need to be approved by the Council Hydrology team either by a change of consent conditions or using the review clause (May of every year), depending on the timing of the necessary change.

Effects on Natural Hazards

121. The applicant has stated that the outfalls (the main outfall discharge, the adjacent overflow and emergency overflows from the pump stations) are insignificant in regards to their footprint size and the protrusions from the riverbank or on the river bed so “are of no consequence for flood hazards or tsunamis”.³⁹
122. HBRC is responsible for opening of the Wairoa River mouth and from the current practice note provided for in **Appendix 1** the conditions need to be appropriate for health and safety reasons for Council staff and contractors to attempt to open the mouth. From records kept over the last 5 years the mouth has only been opened three times being February 2015, May 2016 and June 2016.
123. Another natural hazard that occurs in Hawke’s Bay and that could impact on the operation of the WWTP and discharges are earthquakes. It is anticipated that the design of the parts of the system will be done with earthquake in mind but in the extreme there are likely to be network failures prior to the wastewater reaching the WWTP, the ponds failing, etc and it is likely that actual discharges may no longer be occurring during this time as proposed. This is something that would need to be managed as an emergency.
124. With our built environment, mostly located along the Hawke’s Bay coastline, the impacts of sea level rise is a real issue that is acknowledged in the RCEP. Other natural hazards that can occur across Hawke’s Bay include volcanic ash from eruptions of any of the North Island active volcanoes and as mentioned earlier tsunamis and liquefaction as a result of an earthquake.

³⁹ Consent Application and AEE (Assessment of Environmental Effects), prepared by LEI, page 61

125. Overall, the main natural hazard that the applicant deals with on a regular basis is flooding/high river flows which have in the past affected the applicant's ability to treat the wastewater prior to discharge and to control when those discharges occur. As previously discussed in Construction Effects, the new outfall structure has been designed to cope with the known natural processes of the Wairoa River. The biggest challenge will be managing the volume of the wastewater discharge with the existing storage capacity.

Effects on Air Quality

126. The proposal does produce odour which does occur on the WWTP site, however it is unlikely that it would extend beyond the site boundaries onto neighbouring rural properties nor would it be likely to be any more than low intensity.
127. The applicant has confirmed that the closest residential dwelling is within 200m whilst 6 other dwellings are within 500m of the WWTP boundaries. The zoning for this area is Rural and that is obvious with the farming activities that are currently being undertaken on neighbouring sites.
128. From Council records there have been no complaints received or evidence of non-compliance of the existing air discharge consent conditions over the last 5 years. And it was noted that during the site visit to the WWTP there was only a slight odour however this was when standing close to the screen or either of the ponds which is to be expected.

Public Health Risks

129. Limited information has been provided regarding the effects the existing discharge has on public health or what impact this proposal will have as very little investigation into this has been undertaken. The applicant does however recognise that there are public health risks related to recreational contact and consuming fish and shellfish when the river is contaminated.
130. The applicant believes that the upstream sources of contamination dominate rather than their proposed discharges and with the proposed treatment of UV and sand filtration prior to discharge, in conjunction with the proposed discharge regime of discharging when the river flows rates assist in the dilution of the discharges, this will "ensure that any elevated pathogen concentrations in the discharge are diluted so that public health is protected outside of the 100 m dispersion zone."⁴⁰

⁴⁰ Consent Application and AEE (Assessment of Environmental Effects), prepared by LEI, page 58

131. Through proposed consent conditions proposed by the applicant, Council technical experts, HBDHB and submitters, the impact this discharge is having on public health risks should be informed and lessened through monitoring and educating the public of the risks of potential contamination..
132. It is also recommended that the overflows from the pump stations of untreated wastewater are not allowed through consent conditions as the improvements to the network should not require this to continue. That is not to say that emergency situations will require this to occur however they are best dealt with through s330 of the RMA – Emergency works and power to take preventive or remedial action. This section of the RMA allows any network utility operator (the applicant) *affected by or likely to be affected by—*
- (1)(d) an adverse effect on the environment which requires immediate preventive measures; or*
(e) an adverse effect on the environment which requires immediate remedial measures; or
(f) any sudden event causing or likely to cause loss of life, injury, or serious damage to property—
133. Once the Council and HBDHB are advised of any emergency then the appropriate measures can be put in place to notify the public as this should be a rare occurrence and the degraded state of the Wairoa River should not be justification or an excuse to consent such discharges as when the applicant deems necessary.

Positive Effects

134. The potential positive effects associated with the proposal are important and must be given consideration because they contribute towards the purpose and principles of the RMA by enabling people and communities to provide for their social, economic, and cultural well-being and for their health and safety⁴¹.
135. To determine the potential positive effects associated with the proposal, the applicant has unfortunately focused on the “aspirational package” referred to in Table 3.1: Summary of Wairoa’s Future Treated Wastewater Discharge System and the existing state of the Wairoa River rather than the actual proposal and its discharge water quality⁴².

⁴¹ RMA, Part 2, Section 5

⁴² Consent Application and AEE (Assessment of Environmental Effects), prepared by LEI, page 50

136. The report writer acknowledges the importance of the applicant's role in providing necessary and vital services to its community. One of those services is being able to provide a municipal sewer network that can discharge treated wastewater legitimately, effectively and ultimately in an appropriate manner.
137. Further into the consenting process it has become apparent that there was comprehensive preparation undertaken by applicant's consultants leading up to application lodgement. This is reflected in the numerous reports that have been submitted, unfortunately many are no longer relevant in part as they focused on the "aspirational package" which does diminish some of the positive effects that are offered, given they are not achievable with where the proposal has since landed.
138. Upon completion of the treatment options, I&I work and construction of the replacement outfall structure, the applicant's consultants are adamant that the water quality prior to discharge will be greatly improved and with the placing the discharge in the actual river channel when the river level meets the proposed consent conditions will have little or no more than minor effect on the Wairoa River, "As a result of the treatment improvements and changes of discharge regimes, there will be beneficial improvement for the river water quality and its interconnected habitats and ecology, even if those improvements are unable to be detected or negligible against the background effects of the upstream sources of contaminants".⁴³
139. The applicant is still however hopeful that in future private land owners will obtain their own resource consent approval to be able to discharge treated wastewater to their properties, therefore being able to take a stage approach to ultimately reduce the total volume of wastewater being discharged into the Wairoa River. Whether this is a feasible option for 3rd party participation remains to be seen and is beyond the scope of this report.

8. ASSESSMENT OF ALTERNATIVES

140. The RMA (section 104 and schedule 4) requires a description of any alternative locations or methods for undertaking the activities proposed if it is likely that the activity will result in any significant adverse effect on the environment⁴⁴. Similarly, if the activity includes the discharge of any contaminant⁴⁵, a description of any possible alternative methods of discharge, including

⁴³ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application and AEE – Prepared by LEI dated November 2018 Page 61

⁴⁴ Schedule 4, subsection 6(1)(a).

⁴⁵ **Contaminant** includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat—
(a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of water; or
(b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged, RMA (1991).

discharge into any other receiving environment must be included in the AEE. The applicant has provided a number of alternatives to this proposal which involves alternative receiving environments which are discussed in greater detail in the document “Wairoa Wastewater Treatment and Discharge Best Practicable Option” prepared by LEI dated October 2018, and are summarised under the following headings; discharge to land; discharge to the ocean; removal of wastewater from District, and; treatment options.

Discharge to Land

141. There are “aspirations” from the applicant to remove the discharge from the Wairoa River in a staged approach as per Table 3.1: Summary of Wairoa’s Future Treated Wastewater Discharge System, however this application does not provide the mechanism nor the requirement via consent conditions to hold the applicant to ensure that this “aspiration” becomes a reality. Any discharge to land is reliant on 3rd party participation from adjacent land owners who have the means and ability to pipe the treated wastewater to their site and apply it when needed for irrigation purposes. From what the applicant has explained this requires the land owner to obtain resource consent approval not the applicant and for the land owner to control and manage the irrigation on their site (application rate, timing and any requirements required in the consent approval).
142. The applicant has not applied/obtained resource consent for land discharge nor is it likely they will unless they own a suitable site to do so and to the knowledge of the report writer the applicant does not own such a property or are in the process or in a financial position to secure a suitable site(s).
143. Irrigation vs non-deficit irrigation has been discussed in the application with LEI and rather than reiterating this I have reference the applicable application documents, Wairoa Wastewater Treatment Plant Discharge Resource Consent Application and AEE – Prepared by LEI dated November 2018 Page 48 and Wairoa Wastewater Treatment and Discharge Best Practicable Option pages 28 to 30.
144. If land discharge is to be a viable option then on-site storage would also need to be considered. This will have to occur on the site(s) where land discharge is to occur and would be based on the number of days of wet weather flows with the ability to irrigate fully in more favourable conditions. Previously a staged approach was suggested, which would see an increase in storage as the discharge into the Wairoa River decreases.

145. Council currently has on hold an application from adjacent land owners (P I and J R Mucalo) who have applied to discharge treated municipal sewage to their land at 1 Fitzroy Street, Wairoa. This application is on hold pursuant to s92 with no update from them or their consultant's LEI since 15 July 2019. The proposal was to irrigate close to 38 ha of this 52 ha farm, however a review of the application from the Council's consultants Pattle Delamore Partners concluded that this area may have to be reduced to meet a number of issues including suitable buffer zones along boundaries, to archaeological sites, to wells, and nearby dwellings. Council has been advised by LEI in several meetings that this discharge to land is very separate to this application, however for transparency and completeness this discharge to land application should at least be acknowledged in this report as it does show that there has been an attempt to secure land for irrigation.
146. Council have, throughout this consenting process, had concerns regarding the applicant's approach to discharging to land, which involves relying heavily on 3rd party participation. The potential consent conditions a 3rd party would need to fulfil to ensure that the treated wastewater is applied appropriately would require them to be suitably trained and have some experience in carrying out particular tasks (application rates, location and during suitable conditions for example). Council feel that the applicant will need to reconsider their role in this process if they want this to be successful in the future and manage the application of treated wastewater to land themselves potentially through contractors.

Discharge to the ocean

147. The potential to discharge into the ocean was considered by the applicant back in the 1970's however it was not followed through. The main issue with directing the discharge into the ocean (potentially also cost prohibited for the district based on Hastings and Napier's outfall installation figures) is any pipeline from the existing wastewater treatment plant would need to traverse through the Whakamaki Estuary, Wairoa River mouth and out to the coastline area 'Whakaki' (Significant Conservation Area 14 on HBRC Planning maps). Council recognises this area as a 'Significant' coastal area due to their estuary areas of national importance for fisheries and wildlife values. Whakaki 'provide habitat for many bird and fish species including anadromous species like eels and catadromous species such as Inanga'.⁴⁶

⁴⁶ HBRC Report No.4554, Hawke's Bay Biodiversity Inventory – Current State of Knowledge, August 2014 prepared by Keiko Hashiba, Oliver Wade and Warwick Hesketh, page 46

148. Culturally this is not a good alternative as it still results in a discharge to water “As water is alive and an integral part of daily life Tangata Whenua developed tikanga, enforced through Tapu and Noa to enhance, maintain or alter the status of each of these water categories. The aim was to keep water in a healthy state through karakia and tikanga.”⁴⁷
149. Planning for the Napier wastewater treatment plant project was started in 2007 with construction started in September 2012 and completed August/September 2014 with a cost to the ratepayers of \$30M which was collected over many years through a rated levy so no external funding or debt required⁴⁸, with the discharge of treated wastewater into the ocean from Awatoto. The Hastings District Council was granted a 35 year discharge consent on 25 June 2014 for the disposal of their treated wastewater into the ocean at East Clive, south of the Napier discharge. Both outfalls have had to undertake remedial works over the last two years with the Compliance Team overseeing some of the works during non-routine compliance visits.

Removal of wastewater out of Wairoa District

150. The applicant has included options of sending the wastewater out of the District either by shipping bulk volumes of wastewater that has been treated to a potable quality (drinking water) to countries that have “scarcely drinking water sources”, which the applicant describes as “assist arid nations, and gain some revenue for the applicant”⁴⁹, however this option is currently unavailable due to the Wairoa not having port facilities nor the desire to treat the water to a drinkable standard. The applicant has not confirmed what the worldwide demand is for such a resource however this seems to be a moot point given the applicant’s inability to deliver such product.
151. The other option to remove the wastewater from the Wairoa District was to transport it to space via the Rocket Lab. This seems, as does the shipping, ‘fanciful’ in nature and possibly the applicant could have discounted these options rather than including them in their application.

Treatment Options

152. The CIA had a recommendation for the applicant to commit to “continued research into achieving 100% drinkable water quality for wastewater discharge to waterways as an alternate option to 100% land based wastewater discharge”. This approach has not specifically addressed this approach however they did look at different treatment options such as; no changes; filtration + UV (low bugs); Filtration only; and High Rate Land Passage – Overland Flow (HRLP-OLF).

⁴⁷ Tangata Whenua Worldviews for wastewater Management in Wairoa – Prepared by Nigel How dated 26 November 2018 Page 12

⁴⁸ Napier City Council website – napier.govt.nz/napier/projects/wastewater-treatment/

⁴⁹ Wairoa Wastewater Treatment and Discharge Best Practicable Option – Prepared by LEI dated October 2018 Page 20

153. The cost of treatment options is one of the main drivers for not investing more into further treatment other than just UV treatment and filtration, “In order to justify the expense of modifying the treatment processes, there needs to be an adverse effect resulting from its discharge which cannot be rectified by some other means.”⁵⁰ The state of the receiving environment has also been used as an example for not investing in better treatment “The community have acknowledged that these upstream of contaminants are more significantly impacting on the river’s poor water quality than the urban wastewater discharges. They are also accepting of the fact that ceasing the wastewater discharge will not address the limitations of water quality in the river.”⁵¹
154. In summary, the applicant has undertaken a suitable assessment of alternative options in regards to the proposal. However, given the enthusiasm to discharge to land that is evident in the CIA and many parts of different application documents the applicant would have done better to spend time investigating this further prior to lodgement.

9. POLICY CONTEXT AND EVALUATION

155. The applicant’s assessment against the relevant planning instruments is comprehensive. The policy assessment undertaken by the applicant is set out in Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Stradey, 2018:C9. In general, I agree with the policy evaluation that the applicant has undertaken. Therefore, to avoid unnecessary duplication, I have taken the approach of specifying the areas of the assessment that I agree with in full, adding any information that I feel has been overlooked and identifying any points of disagreement.
156. In deciding these applications, the RMA contains a number of provisions that require consideration. These include sections 104, 105 and 107. Section 104(1) is subject to the matters contained in Part 2 of the RMA, which contains sections 5, 6, 7 and 8.
157. The Fourth Schedule of the RMA (clause 2(1)(g)) requires an assessment of the activity against any relevant provisions of a document referred to in section 104 (1)(b). Clause 2(2) of the Fourth Schedule explains that this assessment must include an assessment against:
- a) any relevant objectives, policies or rules in a document; and
 - b) any relevant requirements, conditions or permissions in any rules in a document; and

⁵⁰ Wairoa Wastewater Treatment and Discharge Best Practicable Option – Prepared by LEI dated October 2018 Page 16

⁵¹ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application and AEE – Prepared by LEI dated November 2018 Page 31

- c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).

158. In terms of section 104(1)(b) the relevant documents may be:

- a) a national environmental standard;
- b) other regulations;
- c) a national policy statement;
- d) a New Zealand coastal policy statement;
- e) a regional policy statement or proposed policy statement; and
- f) a plan or proposed plan.

159. In terms of the overall section 104(b) list of documents, the following are considered relevant, have been assessed by the applicant and their provisions are also analysed below:

- The National Policy Statement for Freshwater Management 2020 (Freshwater NPS 2020);
- the 2010 New Zealand Coastal Policy Statement (NZCPS);
- the operative regional policy statement (RPS), which is part of the Regional Resource Management Plan, 2006 (sections 2 and 3 of the Plan);
- the operative Hawke’s Bay Regional Coastal Environment Plan (RCEP) 2014; and
- the operative Hawke’s Bay Regional Resource Management Plan (RRMP) 2006.

160. Proposed Plan Change 7 – Outstanding Water Bodies and the Three Waters Review were both publicly notified at the time of processing this application and were calling for submissions on both draft proposals and recommendations on how they could be incorporated into a consent approval are as follows. A hearing on submissions for Plan Change 7 will now be held in early December.

Proposed Plan Change 7

161. Council publicly initially notified Proposed Plan Change 7 – Outstanding Water Bodies in September 2019, which seeks to change the RPS by adding a list of the Hawke’s Bay’s outstanding water bodies (which includes Wairoa River) and to incorporate a framework that results in a high level of protection for these particular water bodies. This plan change will reflect NPSFM provisions that set clear direction to Regional Councils to manage water bodies in a consistent, integrated and sustainable way and will allow the protection of the significant values of outstanding water bodies.

162. To be considered on this list of Outstanding Water Bodies the water bodies identified encompass the following “unique ecology, exceptionally high natural character, significant landscapes or geology, outstanding cultural and spiritual values or providing an exceptional recreational experience”.⁵²

⁵² HBRC website – Outstanding Water Bodies page

163. This plan change does not add any rules to the RCEP, however it will provide a framework of policies and objectives that will apply to the development of catchment-based plan changes and future resource consents.
164. An assessment for Wairoa River has been included as part of the supporting documentation for this Plan Change (Wairoa River – Summary of Values HBRC Publication Number: 5517) and has been referenced throughout this report as it does provide a useful snapshot of the four key values identified for this identified Outstanding Water Body, being; Cultural; Recreation; Ecology (wildlife, fisheries),and; Landscape (geological features). However other technical reports that are referenced throughout this report do provide an in-depth analysis of the values stated and are given more weight.
165. A hearing for the 41 submissions to be heard will also start on Monday 30 November 2020 with some of those submissions directly referencing the Wairoa River.

Three Waters Review – Action for healthy waterways

166. At the time of processing this application Central Government had been undertaking a review for the regulation of drinking water, wastewater and stormwater. This review was the result of the Havelock North contamination event in 2016 when it became clear to Central Government that the supply of safe drinking water could not be relied on with contributing factors putting people’s health, environment and economy at risk which includes the management of wastewater.
167. The overarching issues that the review has identified for NZ communities are summarised as per the following –
- “Our health and safety – depends on safe drinking water, safe disposal of wastewater and effective stormwater drainage.
 - Our prosperity – depends on adequate supply of cost effective three waters services for housing, businesses and community services.
 - Our environment – depends on well managed extraction of drinking water, and careful disposal of wastewater and stormwater”.⁵³
168. The applicant collaborated with the other Hawke’s Bay Councils to create their own review known as ‘Hawke’s Bay’s Three Waters Review’. This review aligns with all five Council’s shared strategic priority for 2019-2022 – water safety, security and planning.

⁵³ Three Waters Review, Department of Internal Affairs website

169. Investigations have been undertaken to see whether there are benefits to develop a region-wide solution for managing the three waters. When Central Government announced the \$761m Three Water stimulus in July 2020 Hawke's Bay was well positioned and the proportion of those funds granted to the region clearly reflected the collaborative approach and leadership the Councils have shown on this matter.
170. The Hawke's Bay's Three Waters Review is complete and was presented to all five Councils together with their respective Māori Standing Committees over the month of August 2020.⁵⁴
171. While preparing this report it is unclear what impact both reviews will have on this particular application, however it is obvious that investment is needed to deliver effective and affordable municipal wastewater that is carefully disposed of into the environment.
172. It is recommended that the following review clauses are included to provide for the following which aligns with the new proposed regulatory framework for drinking water;
- any requirement for the applicant as an operator of the WWTP to report annually on a set of national environmental performance measures;
 - any requirement for the applicant as an operator the WWTP to meet the national good practice guidelines for the design and management of wastewater networks;
 - any requirement for the applicant as an operator the WWTP to monitor emerging contaminants in wastewater and coordinating national responses where necessary.

Fresh Water Environment –

National Policy Statement for Freshwater Management (Freshwater NPS 2020)

173. During the consent processing of this application the National Policy Statement for Freshwater Management 2020 came into force (3 September 2020). Freshwater NPS 2020 sets out the objectives and policies for freshwater management under the RMA and supersedes Freshwater NPS 2014 (amended 2017).

174. The new key requirements of Freshwater NPS 2020, which are relevant –

⁵⁴ About Hawke's Bays Three Waters Review, Hb3waters.nz website

- Te Mana o te Wai – freshwater needs to be managed by involving and “working with Tangata Whenua and communities to set out long-term visions in the regional policy statement”⁵⁵
- Manage natural and physical resources firstly the health and wellbeing of water bodies, secondly what is needed for human health and finally other uses (to provide for social, economic, and cultural well-being)
- Improve degraded water bodies, maintain and improve all others within five years
- Monitor and report annually on freshwater (Council)

175. Te Mana o te Wai is a holistic and integral part of freshwater management, upholding Te Mana o te Wai is to acknowledge and protect the mauri of the wai “Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community”. There are 6 principles within the concept of Te Mana o te Wai and they are –

- **Mana whakahaere:** the power, authority, and obligations of Tangata Whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater
- **Kaitiakitanga:** the obligation of Tangata Whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations
- **Manaakitanga:** the process by which Tangata Whenua show respect, generosity, and care for freshwater and for others
- **Governance:** the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future
- **Stewardship:** the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations
- **Care and respect:** the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

⁵⁵ National Policy Statement for Freshwater Management 2020– Ministry of Environment website

176. The health and wellbeing of water bodies is the intent of Plan Change 7 specific to Outstanding Water Bodies which does include Wairoa River, in terms of the safeguards (management) that will be applied to Wairoa River will be determined through that hearing process.
177. The planning assessment included in the application documents did provide an overview of the previous Freshwater NPS 2014 (amended 2017) of which at the time of receipting the application the report writer agreed with, however there is no acknowledgement of Te Mana o te Wai, which is not a new concept introduced by Freshwater NPS 2020 or references to the compulsory national values of which the Wairoa River would fail to meet such as ecosystem health, human health for recreation, mahinga kai and fishing as per discussions in **Section 7**.

Coastal Environment –

New Zealand Coastal Policy Statement (NZCPS)

178. The Resource Management Act (RMA) 1991 established a coastal management regime through the NZCPS. The NZCPS applies to the coastal environment. The CMA is thus just part of the broader area to which the NZCPS applies. The NZCPS must be given effect to through planning and decisions of regional and district councils. In the preamble, the NZCPS notes that *“poor and declining coastal water quality in many areas as a consequence of point and diffuse sources of contamination, including stormwater and wastewater discharges”*.
179. The New Zealand Coastal Policy Statement (NZCPS) took effect in December 2010, after the RCEP was publicly notified (30 August 2006) and decisions were notified (19 July 2008). Therefore, it cannot be assumed that the RCEP gives full effect to the NZCPS, hence it is important that the applicant has suitably addressed the relevant NZCPS provisions.
180. The NZCPS promotes the sustainable management of the natural and physical resources of the coastal environment through stated objectives and policies, including coastal land, foreshore and seabed, and coastal waters from the high tide mark to the 12 nautical mile limit. The NZCPS contains seven objectives and 29 more detailed policies.
181. The NZCPS guides regional and district (city) councils in the day to day management of the coastal environment, and in particular provides a coastal management framework expressed through the objectives, policies and rules in the relevant regional policy statement and the regional coastal plan.

182. The analysis of the NZCPS undertaken by the applicant in of their application and AEE has correctly identified the objectives and policies that may be applicable to the consents sought. I agree with the commentary that the applicant has provided in respect to the relevant objectives and any associated policies⁵⁶.
183. I agree with the applicant's approach in proposing cultural monitoring conditions that include Cultural Health Index monitoring. This could contribute in achieving the goals set out by the CIA discussed in **section 7** under **Effects on Cultural Values** of this report. However, further information from the applicant on the potential effects relating to mahinga kai, and the Mauri Compass which was suggested in submissions from Ngāti Kahungunu Iwi Incorporated, Ngāti Kahungunu (Wairoa Taiwheuna) Inc and Ngā Tokorima a Hinemanuhiri is required. And this is supported in the discussion in **section 7** under **Effects on Recreational Use and food gathering (Mahinga Kai)**. Also the ongoing collection of data and involvement in cultural monitoring is considered to be consistent with the CIA and Cultural Health Index (CHI).
184. The Mauri Compass is a concept that is being introduced into this application, ideally it should have been completed and presented with the other application documents, however it is believed from the discussions during the 2nd pre-hearing meeting that there was still work to be done. The proposed consent conditions from the submitters will allow multiple tools for assessing cultural health including the Mauri Compass work to be completed and provide a better understanding of the health of the river and is recognised as a life force and that its essence is restored and enhanced.
185. The NZCPS is a comprehensive framework for coastal management. I agree with the assessment undertaken by the applicant that the proposal is not inconsistent with the NZCPS. Subject to the receipt of further information from the applicant on the potential effects relating to the matters outlined by this report, the mitigation which is either inbuilt within the proposal or is proposed through draft conditions has been able to ensure that effects will all be minor or less and consistent with the management framework set out by the NZCPS.

⁵⁶ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, pages 12 to 17

Hawke's Bay Regional Policy Statement

186. This Regional Policy Statement is incorporated in the Hawke's Bay Regional Resource Management Plan, which became operative in 2006. The Regional Policy Statement comprises Chapters 1 to 4 of the overall plan⁵⁷ with Chapters 2 and 3 setting out the main objectives and policies. Chapter 4 however recognises non-regulatory methods of achieving the objectives including information and education.

187. Table 24-1 sets out key objectives and related policies of the Regional Policy Statement which are relevant to the proposal. Note that Objectives 6, 7 and 9 are set out under the heading of Chapter 3.2 – The Sustainable Management of Coastal Resources. This section contains only objectives, as the applicable policies are found in RCEP. This is explained under the heading of Policy in this section of the Plan.

Table 9: Summary of Key Objective and Policy Themes of the Regional Policy Statement

Objective and Policy	HB Regional Policy Statement Objective and Policy Theme
Objective 6	Coastal water quality - the management of coastal water quality to achieve appropriate standards, taking into account spatial variations in existing water quality, actual and potential public uses, and the sensitivity of the receiving environment.
Objective 7	Coastal characteristics of special significance to iwi – The promotion of the protection of coastal characteristics of special significance to iwi, including waahi tapu, tauranga waka, taonga raranga, mahinga kai and mahinga mataitai.
Objective 9	Investment and maintenance - requires appropriate provision for economic development within the coastal environment, including the maintenance and enhancement of infrastructure, network utilities, industry and commerce, and aquaculture.
Objectives 17 & 18 Policies 7 & 8	Off site impacts from nuisance effects (odour) – For existing activities (including their expansion), the remedy or mitigation of the extend of off site impacts or nuisance effects arising from the present location of conflicting land use activities. For the expansion of existing activities which are tied operationally to a specific location, the mitigation of off site impacts of nuisance effects arising from the location of conflicting land activities adjacent to, or in the vicinity of, areas required for current or future operational needs.
Objective 27 Policies 46 & 47	Surface Water Quality – The maintenance or enhancement of the water quality of rivers, lakes and wetlands in order that it is suitable for sustaining or improving aquatic ecosystems in catchments as a whole, and for contact recreation purposes where appropriate.
Objective 32 Policy 56	Ongoing operation and development – provides for the ongoing operation, maintenance and development of physical infrastructure that supports the economic, social and/or cultural wellbeing of the region's people and communities and provides for their health and safety.

⁵⁷ See Chapter 1.2.1.

Objective and Policy	HB Regional Policy Statement Objective and Policy Theme
Objectives 34 to 37 Policies 57 to 66	Matters of significance to Iwi/Hapū – requires the recognition of tikanga Māori values, such as consultation being <i>‘kanohi ki te kanohi’</i> (face to face) or personal contact, and the contribution they make to sustainable development and the fulfilment of HBRC’s role as guardians, as established under the RMA, and Tangata Whenua roles as kaitiaki, in keeping with Māori culture and traditions. – consultation with Tangata Whenua should be undertaken in a manner that acknowledges Māori values. – requires the protection of waahi tapu, tauranga waka, taonga raranga, mahinga kai and mahinga mātaimai by avoiding significant adverse effects on them.

188. In regard to the proposal’s consistency with the RPS, I agree with the commentary provided by the applicant and their assessment⁵⁸. The applicant explains that the proposal can be considered to be consistent with the objectives and policies of the Regional Policy Statement. The investment and ongoing maintenance/reporting/monitoring proposed is in line with this regional policy.

Hawke’s Bay Regional Coastal Environment Plan (RCEP)

Introduction and General Policy Framework

189. Decision-makers on resource consent applications must have regard to the provisions of the RCEP as required by section 104(1)(b)(vi) of the RMA when considering the applications for coastal permits.

190. The RCEP became fully operative on 8th November 2014. It can be regarded as the most significant policy document directly influencing the application activities whilst the RRMP discussed in **section 3** of this report relates to only 3 of the 11 activities included in the proposal. It also contains the rules which establish the status of the applications.

191. As would be expected, there are a large number of objectives and policies that are directly relevant to the application. Many have been derived from the NZCPS and the RPS, and have effectively been analysed earlier in this section. For completeness, the applicant has provided a full assessment against the provisions of the RCEP and RRMP. Those provisions which have already been addressed in relation to the RPS and NZCPS are marked with an asterisk.

⁵⁸ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, pages 17-18 and 23-24

Table 10: Summary of Key Objectives and Policy Themes of the RCEP

Objective and Policy	RCEP Objective and Policy Theme
<p>Objective 2.1* Policy 2.1 Policy 2.3 Policy 2.4 Policy 2.6 Policy 2.7(e) Policy 2.8 Policy 2.9</p>	<p>Natural character – preservation of natural character and protection from inappropriate use and development; avoiding adverse effects on natural character; promoting use and development in areas where natural character is already modified; to recognise that local authorities have statutory functions on behalf of their communities including provision of services for wastewater, stormwater, water supply, parks and recreation, roads solid waste disposal; to have particular regard to the avoidance of adverse effects of the following dynamic coastal process on the physical environment: natural water quality; to mitigate effects on natural coastal processes; and to seek to maintain and enhance existing cultural and amenity values.</p>
<p>Objective 3.1 Policy 3.3 Policy 3.4 Policy</p>	<p>Outstanding natural features and landscapes – Protection of outstanding natural features and landscapes within the coastal environment from inappropriate subdivision, use and development; to ensure the visual quality, the physical and ecological integrity of outstanding natural features and landscapes within the coastal environment are restored or rehabilitated where appropriate; to protect physical and ecological values of existing wetlands, dune systems, lagoons, estuaries and river mouths in the coastal environment;</p>
<p>Objective 4.1* Policy 4.1 Policy 4.2 Policy 4.4</p>	<p>Indigenous species – protecting areas of regionally or nationally significant habitat of indigenous fauna or ecosystems; avoiding adverse effects on fishing grounds, indigenous biota, etc; ensuring adverse effects are remedied or mitigate (where complete avoidance is not practicable) on outstanding or rare species or habitats; and ensuring avoidance, remedy or mitigation of adverse effects on SCAs.</p>
<p>Objective 6.1* Policy 6.1 Policy 6.4 Policy 6.5 Policy 6.7 Policy 6.8 Policy 6.9 (this suite of provisions already evaluated in section 7.</p>	<p>Tangata Whenua – protection of the characteristics of the coastal environment of special significance to tangata whenua; recognising and supporting kaitiaki roles; ensuring adverse effects on cultural sites are avoided, remedied or mitigated; active involvement of Tangata Whenua in management of cultural resources; to enable customary uses and management practices relating to natural and physical resources of the coastal marine area; adequate consultation; and taking into account findings of cultural impact assessments.</p>
<p>Objective 7.1 Policy 7.1 Policy 7.3</p>	<p>Historic heritage – protection of historic heritage from inappropriate development; and avoid, remedy and mitigate adverse effects on historic heritage in the CMA</p>
<p>Objective 9.1 Policy 9.1</p>	<p>Surface Water Quality – to maintain and enhance the water quality of rivers in order that the existing species and natural character are sustained, maintain and enhance mauri⁵⁹, and the protection of aquatic ecosystems; Table 9-1:</p>

⁵⁹ Mauri can be described as a “generic life force” - everything has a mauri including water and the forest. Mauri is the essence that has been passed from Ranginui (Sky father) and Papatuanuku (Earth mother) to their children Tane Mahuta (God of the

Objective and Policy	RCEP Objective and Policy Theme
	Environmental Guidelines that applies across the entire Coastal Margin – Surface Water Quality
Objective 16.1 Objective 16.2 Objective 16.3 Objective 16.4 Policy 16.1	Discharge of contaminants into CMA – Maintain or enhance water quality of the CMA to sustain or improve aquatic ecosystems, and for contact recreation purposes; to avoid, remediate or mitigate adverse effects of activities on mauri in the CMA; adverse effects on the environment associated with discharge of contaminants to the CMA are avoided, remedied or mitigated; the life supporting capacity of water in the coastal marine area is safeguarded; Table 16-1: Environmental Guidelines – Discharge of contaminants in CMA
Objective 17.2 Policy 17.1	Disturbances, depositions and extractions in CMA – Adverse effects on the environment associated with drilling, excavation and/or removal of sand, gravel, shell or other natural material in the CMA are avoided, remedied or mitigated; Table 17-1: Environmental Guidelines – Disturbances, depositions and extractions in CMA
Objective 18.1 Objective 18.2 Policy 18.1	Structures and occupation of space in CMA – Adverse effects on the environment arising from the use and development of structures in the CMA are avoided, remedied or mitigated; Adverse effects from the occupation of space in the CMA are avoided, remedied or mitigated; Table 18-1: Environmental Guidelines – Structures and occupation of space in CMA

Hawke’s Bay Regional Coastal Environment Plan (RRMP)

Introduction and General Policy Framework

192. Decision-makers on resource consent applications must have regard to the provisions of the RRMP as required by section 104(1)(b)(vi) of the RMA when considering the applications for activities that sit outside the coastal environment that are the function of the Council.

193. The RRMP became fully operative on 28 August 2006. It also contains the rules which establish the status of the applications in relation to the air discharge from the WWTP, any works and discharges that occurs within the Wairoa River that is not in the CMA.

Table 11: Summary of Key Objectives and Policy Themes of the RRMP

Objective and Policy	RRMP Objective and Policy Theme
Objective 39 Policy 69	Air Quality – A standard of ambient air quality is maintained at a level that is not detrimental to human health, amenity values or the life supporting capacity of air; there shall be no offensive or objectionable odour beyond the boundary of the subject property.
Objective 40 Policies 71 and 72	Surface Water Quality – to maintain and enhance the water quality of rivers in order that the existing species and natural character are sustained; Table 9:

forests), Tangaroa (God of the oceans), ma (and others), including the members of the hapū, and down to all living things through whakapapa. Mauri also establishes the inter-relatedness of all living things – the hau. The linkages between all living things within the ecosystem are based on the whakapapa or genealogies of creation. This establishes the basis for the holistic view of the environment and our ecosystem.

Objective and Policy	RRMP Objective and Policy Theme
(refer to Objective 9.1 Policy 9.1 of the RCEP)	Environmental Guidelines that applies across the entire Hawke’s Bay region– Surface Water Quality
Objective 45 Policy 79	Beds of Rivers – to maintain or enhance the natural and physical resources, and use and values of the beds of rivers within the region; to manage the effect of activities affected river beds as per Table 12. Environmental Guidelines – Beds of Rivers and Lakes

194. Subsequent changes to the activities included in this application may require further assessment to be undertaken, particularly those relating to the construction of the replacement main outfall structure. The objectives and policies identified under the RCEP that may be relevant as a result of the findings of the seabed (riverbed) survey may include (but not limited to); natural character (objective 2.1); outstanding natural features and landscapes (objective 3.1); indigenous species (objective 4.1); Tangata Whenua (objective 6.1); Disturbances, depositions and extractions in CMA (objective 17), and; Structures and occupation of space in CMA (objective 18).

195. In general, I agree with the assessment undertaken by the applicant in relation to both the RCEP and RRMP provisions summarised above and set out by the applicant in the application document Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Stradegey, 2018:C9, with the exemption pending the outcome of the potential effects on the mahinga kai, particularly as a result of the installation/construction of the proposed replacement main outfall structure needs to be addressed.

Wairoa District Plan

196. Wairoa District Council approval will need to be obtained from the applicant for land use consent(s) for the removal or alteration of vegetation within 20m of the Wairoa River and would be assessed as a Discretionary Activity pursuant of Rule 26.5.6 of the Operative Wairoa District Plan. An Outline Plan would be required if there were any changes to the WWTP as it is Designated under the District Plan.⁶⁰

⁶⁰ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Stradegey, 2018:C9, pages 28 to 29 and 36

197. Council has previously stated that it may be in the applicant's best interests to hold a joint hearing (if needed) to avoid incurring additional costs associated with holding two separate hearings. We were advised that it was unlikely that such an application subject to Rule 26.5.6 would require public notification, however they were to liaise with WDC Planning staff on this matter. To date we have not been advised if this matter has been followed through, however if notification is required it will sit outside of this consenting process.

Statutory Acknowledgement Tātau Tātau o Te Wairoa Trust

198. Statutory acknowledgements are appended to both the RRMP and the RCEP.

199. A statutory acknowledgement is a formal recognition made by the Crown of a claimant group's particular cultural, spiritual, historical and traditional association with a specific area (statutory area) owned by the Crown.

200. As previously discussed, there is a statutory area within the discharge area in the Wairoa River known as Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve, therefore approval will need to be obtained by the applicant from the Te Rohe o Te Wairoa Reserves Board - Matangirau to be able to not only discharge into the proposed area shown in **Figure 3** but to also construct the proposed replacement main outfall structure within it, as per Section 62 of Statutory Declaration of Tātau Tātau o Te Wairoa Trust.

201. The applicant may need to approach the board prior to any relocation of the replacement main outfall structure to ensure approval can be obtained in the future, this will need to be investigated at the commencement of this consent if the applicant is successful as this falls outside of the jurisdiction of the Council and this consent process.

RMA Sections 105 and 107

202. As well as the framework for decisions established in section 104 of the RMA, sections 105 and 107 provide specific additional considerations for section 15 applications (discharges, including within the CMA). The key requirements of the parts of these sections that the applicant considers apply to the applications, and the applicant's comments on them, are set out in **Table 12** below.

Table 12: Analysis of Applications in terms of RMA sections 105 and 107

RMA Section	Commentary
105(1)(a)	<p>This provides an additional matter for decision-makers to have regard to in relation to discharge permits (RMA section 15) or coastal permit – <i>“the nature of the discharge and the sensitivity of the receiving environment”</i>.</p> <p>Consents are sought for actual or incidental discharges of wastewater (both treated and untreated) into the Wairoa River, but also include construction/future relocation of the new proposed replacement outfall structure pipe and maintenance activities associated with infrastructure.</p> <p>The nature of the existing discharge is likely to change with the proposed improvements the applicant is already implementing (I&I investigations), those changes they will introduce once they obtain resource consent approval (UV and filter) and possibly the regime changes (discharges based on median river flows). The nature of the receiving environment has been taken into account, and effects assessed on that basis. Of particular relevance is the information and assessment provided in sections 4 and 5 of the application and AEE and in the background reports referred to in those sections (excluding references to Table 5.5: Summary of Wairoa’s Future Treated Wastewater Discharge System).</p>
105(1)(b)	<p>This provides an additional matter for decision-makers to have regard to in relation to discharge permits (RMA section 15) or coastal permit – <i>“the applicant’s reason for the proposed choice”</i>.</p> <p>As previously discussed consents are sought for actual or incidental discharges of wastewater (both treated and untreated) into the Wairoa River, but also include construction/future relocation of the new proposed replacement outfall structure pipe and maintenance activities associated with infrastructure.</p> <p>The reasons for the applicant’s proposal and the alternatives considered are set out in various application documents however the original overview was in sections 5 and 7 of the Wairoa Wastewater Treatment Plant Discharge Resource Consent Application and AEE – Prepared by LEI and include the economic reasons for this in section 3. However, the documents that should be referenced as to the actual proposal are the section 92 further responses dated 19 May, 24 June and 11 October 2019 and additional information provided 4 September 2020. Ultimately the applicant seeks to continue to discharge into the Wairoa River, whilst introducing improvements in achieving better water quality, reduce reliance in having to use the emergency and overflow pipes adjacent to the pump stations and main outfall structure and to closely monitor and report on the discharges unlike previous years. The applicant is also seeking relaxation in the times they can discharge into the Wairoa River and to also not have to commit through proposed consent conditions to land discharge or introduce further treatment to the wastewater as recommended in the CIA.</p>

105(1)(c)	<p>This provides an additional matter for decision-makers to have regard to in relation to discharge permits (RMA section 15) or coastal permit – <i>“any possible methods of discharge, including discharge into any other receiving environment”</i>.</p> <p>Consideration of alternatives such as discharge locations, receiving environments, discharge regimes and discharge options, have been discussed as set out in section 8 of this report. Many of the submissions that oppose this proposal do discuss alternatives they believe are more suitable, the majority involve discharges that do not occur in the Wairoa River.</p>
107(1) and (2)	<p>The first sub-section of section 107 provides “bottom line” standards relating to the actual and potential effects of discharges, and requires that any discharge does not give rise to conspicuous change in colour or visual clarity, odours, scums, foams, floatable objects, oil or grease films, or significant adverse effects on aquatic (marine) life. The second sub-section provides that a consent authority can grant a permit in such circumstances if either:</p> <ul style="list-style-type: none"> – there are exceptional circumstances justifying the discharge; or – the discharge is of a temporary nature; or – the discharge is associated with maintenance; and – appropriate conditions are applied. <p>There was no assessment against section 107 that could be found in the application documents, however it is considered that the proposed consent conditions offered by the applicant will ensure compliance with section 107 will be regularly measured. In particular, reference to recommended consent conditions under the headings discharge quality parameters, in-river monitoring and review.</p>

203. While RMA sections 105 and 107 provide additional considerations relating to discharge consents, these do not prevent the proposed activity being granted consents subject to the outstanding issues identified by this report being resolved.

Part 2 of the RMA

204. Part 2 of the RMA is the Act’s purpose and principles, including matters of national importance in section 6, other matters which particular regard must be had in section 7, and Treaty principles in section 8. Section 104(1) of the RMA makes all decisions on resource consent applications subject to Part 2. The phrase “subject to Part 2” was subject to appeal in the recent case *R J DAVIDSON FAMILY TRUST v MARLBOROUGH DISTRICT COUNCIL* [2019] NZCA 57. The result of this appeal makes it very clear “that pt 2 should be considered and would override the provisions of planning instruments in the event of a conflict between those and pt 2”. Particularly if it is clear there is a shortfall or gap in the objectives, policies or provisions in a Regional or District Plan(s) as was found in the DAVIDSON case. I have considered the applicant’s assessment against Part 2 and also briefly set out my own analysis of the relevant parts of Part 2 for this proposal below.

205. In terms of **section 6**, I agree with the applicant's assessment of the proposal in relation to matters of national importance as set out in the application⁶¹. The applicant noted that subsections (a), (b), (c), (d), (e), (g) and (h) may all be relevant. I agree with this statement. It should be noted that this assessment refers to a BPO that has since changed, however the statements made are still relevant.
206. In terms of **section 7**, other matters to which the applicant believes particular regard must be had are found in subsections (a), (b), (c), (d), (f) and (i). I agree with the applicant's assessment of **section 7**⁶² and consider that the application and recommended conditions ensure that particular regard has been given to these matters and/or will be given to the matters throughout the durations of the proposed consents. An example of this is the Māori engagement that the applicant has committed to undertake including the formation of the Māori Wastewater Working Party (MWWP) and cultural monitoring.
207. **Section 8** requires that Treaty of Waitangi principles must be taken into account. The applicant has approached this proposal on the basis that there will be continued consultation with Tangata Whenua and as mentioned previously there is a long term commit to Māori engagement through working groups and cultural monitoring. This is also outlined in the application and proposed consent conditions.⁶³

10. CONSULTATION AND NOTIFICATION ASSESSMENT

208. The applicant requested that the application be publicly notified. The application was notified on Tuesday 13 August 2019, with the submission period ending (after 20 working days) on 10 September 2019.
209. In addition to the notice in the local newspaper, hard copies being available to view and access to the application online, direct notification was also sent to the following parties:
- Wairoa District Council
 - Hawke's Bay Regional Council
 - Hawke's Bay District Health Board
 - Department of Conservation (Te Papa Atawhai East Coast District Office)

⁶¹ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, pages 59 to 61

⁶² Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, pages 61 and 62

⁶³ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, page 62

- Department of Conservation (Wellington Hawke's Bay Conservancy)
- Hawke's Bay Fish and Game Council
- Heritage New Zealand Pouhere Toanga
- Paul & Josie Mucalo
- Wairoa Awa Restoration Project
- Tātau Tātau o Te Wairoa Trust
- Ngāti Kahungunu Iwi Incorporated
- Ngāti Kahungunu (Wairoa Taiwheuna) Inc
- Cletus Maanu Paul
- Ngāti Kaahu and others (Representative Group: Te Rauhina Marae Trustees)
- Ngāti Kahukura and Ngāti Rakaipaka (Kahukura Whanau Trust) -
- Ngāti Kirituna (Archie Fabiam Waikawa) - customary rights and customary marine title
- Ngāti Rahui , Ngai te Apatu (Ngai te Apatu Trust) - customary rights and customary marine title
- Peter Riki Mihaere - on behalf of Ngāti Kurupakiaka, Te Aitanga a Puata & Ngāti Tauira - customary rights and customary marine title
- Rihari Dargaville (for NZ Māori Council) - customary rights and customary marine title
- Te Rauhina Marae & Hapū (Ngāti Kahu, Te Uri o Te O, Ngā Huka o Tai, Aitanga a Puata, Ngai Te Rangituanui, Ngai Matua, Ngāti Koropi)
- Te Wairoa Tapokorau Whānui
- Te Wairoa Tapokorau Mai Tāwhiti
- Ngā Tokorima a Hinemanuhiri
- Te Hononga o Ngā Awa
- Te Whakakī-Nui-A-Rua Trust

²¹⁰. As discussed in **section 6** of this report, 22 submissions were received, of these **22** submissions, **5** submissions were neutral, **1** was in support of the proposal and **16** were in opposition to the overall proposal or, specific parts of the proposal.

11. RECOMMENDED CONSENT CONDITIONS

²¹¹. A set of recommended consent conditions is provided in **Appendix 1** for consideration. These conditions are similar to the conditions recommended by the applicant and for continuity a new version of the previous resource consent conditions has been provided for, particularly important as majority of the submitters are familiar with what has been proposed and in a format that has carried through since this consenting process was started.

212. If the consents are granted, the suite of conditions finalised by the commissioners will be transferred onto the standard Council consent document template. The conditions relevant to each activity sought have been presented in a way that the report writer considers to be best suited as an appendix to this report. It is expected that the conditions will be further refined through the hearing and decision making process.

213. Notable changes to the conditions proposed by the applicant that have been made by the reporting officer are, in summary:

- The removal of pump station overflow discharges and structures, reasons for this have been referenced throughout this report;
- The removal of any reference to allowing future relocation and modification of the new outfall structure, s127 of the RMA or the trigger of any review clauses are best to deal with this;
- The inclusion of the monitoring objectives that will clearly define the In-River Monitoring Plan that needs to be prepared by the applicant;
- Requiring an Annual Monitoring Report rather than two yearly, this change aligns with all other recently granted municipal discharge to water consents;
- The removal of the Wastewater Monitoring Strategy, this was considered a double up of other monitoring reporting;
- The report writer has also altered other proposed consent conditions to suit matters that have been discussed throughout this report and have been highlighted to emphasise those changes deemed necessary. It is anticipated that the conditions will be further refined by the evidence of the applicant and through the hearing process.

12. CONSENT DURATION

214. In recommending a consent duration, the reporting officer has considered a number of factors including but not limited to the below:

- The duration of consent sought by the applicant.
- The Regional Coastal Environment Plan (November 2014) and the Regional Resource Management Plan (August 2006).
- The level of information provided regarding the effects of the activities.
- The potential effects of the activities.
- Other municipal discharge comparisons.

215. In terms of the Act, sections 5(2) and 123(c), the following matters are relevant factors to be considered:
- enabling people to provide for their economic well-being (in the context of a statutory purpose)
 - the economic effects on the consent holder of a particular consent term.
216. Section 29.2.3 of the RCEP provides guidance on consent duration. The RCEP states that the Regional Council will grant land use consents for land use activities pursuant to section 9, and reclamations pursuant to section 13 of the RMA for an unlimited period, and resource consent for other activities, including discharges, for a period of 20-35 years unless one or more of the following exceptions apply:
- the activity has a duration of less than 20 years, in which case a consent will be granted for the duration of the activity
 - there is a need to align the consent expiry date with others, in order that the cumulative effects of activities can be considered through a common consent renewal process
 - the consent is for the allocation of gravel or another resource whose availability changes over time in an unpredictable manner
 - the type of activity has effects that are unknown or potentially significant for the locality in which it is undertaken
 - at the time of granting consent, the effects of the activity are/were unknown or little understood and a precautionary approach is adopted
217. A decision on what is the appropriate term of the applications requires an assessment of the actual and potential effects on the environment, the nature of the discharge, the sensitivity of the receiving environment to adverse effects and discharge alternatives.
218. The effects of the activity have been discussed in **Section 7** of this report and by the evidence of Council's experts attached as **Appendix 2**. The findings and conclusions of the information and scientific reports provided by the applicant in relation to the proposal and its effects are not considered sufficient. Therefore, I do not consider that a term of 35 years would be warranted.
219. The applicant has focused on the proposed condition framework in regards to the consent duration of 35 years they are seeking. Siting that the "proposed condition framework seeks to improve the quality of the discharge and reduce discharges to the river. This is achieved through implementation of a series of initial actions followed by a framework of reviews and further actions

to achieve specific objectives around increased storage and the establishment of land based discharge options”.⁶⁴

220. As mentioned previously there is no mechanism requiring the applicant to provide for a land based discharge or to increase their storage capacity therefore the above comment made by the applicant is flawed and cannot be enforced by the proposed consent conditions they have offered. And there is no certainty that private land owners are willing to discharge the wastewater onto their properties other than the one application Council currently has on hold, which may or may not be granted.
221. The proposal involves a long-term investment with a replacement main outfall structure as being the only option available to the applicant as the discharge into the Wairoa River will need to continue into the foreseeable future, however that also isn't guaranteed with no formal approval obtained from the Te Rohe o Te Wairoa Reserves Board - Matangirau to discharge into the Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve.
222. Based on the above the consent duration of **20 years** has been recommended.

13. MONITORING

Monitoring by Consent Holder

223. The draft conditions of consent recommended require significant input from the applicant prior to construction of the replacement main outfall structure and throughout the term of the consent sought. These requirements are set out by the recommended conditions of the consents which are supplied in draft format anticipating that some changes may be required following further discussion of issues at the hearing.

Monitoring by Council

224. It is recommended there be provision for Council to undertake monitoring during the installation of the proposed outfall structure and the subsequent decommissioning of the existing outfall structure and overflow pipe. Cost of this monitoring will be charged to the consent holder and shall be in accordance with the Annual Plan in place at that time.
225. The recommendation is that routine monitoring of this consent may be undertaken by a Council officer no more than once a year to check compliance with the consent conditions of the consent. The costs of this routine monitoring and any formal monitoring programme that may be established in consultation with the consent holder will be charged to the consent holder in accordance with the Annual Plan current at the time.

⁶⁴ Wairoa Wastewater Treatment Plant Discharge Resource Consent Application – Planning Assessment prepared by Strategy, 2018:C9, pages 63-64

226. "Non routine" inspections will be made on other occasions if there is reason to believe (e.g. following a complaint from the public, or monitoring) that the consent holder is in breach of the conditions of this consent. The cost of non-routine monitoring will be charged to the consent holder in the event that non-compliance with conditions is determined, or if the consent holder is deemed not to be fulfilling the obligations specified in the RMA.

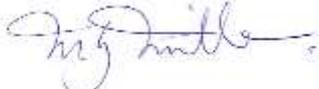
14. CONCLUSION

227. This assessment has been carried out in accordance with s 104, 105, 107 and 104B of the RMA and it is recommended that consent be granted. This recommendation is subject to further information from the applicant on the potential effects relating to the matters outlined below;

- 1) The potential effects on the mahinga kai, particularly as a result of the installation/construction of the proposed replacement outfall structure needs to be addressed. The results of the recent seabed (riverbed) survey along the outfall alignment being undertaken by the applicant's consultant Dr Mead should be made available prior to or at the hearing which is an issue raised by both the submitters and Dr Kelly. Any changes to the recommended consent conditions could be updated to suit the results of the survey.
- 2) Evidence that written approval has been obtained from Te Rohe o Te Wairoa Reserves Board - Matangirau to occupy and to discharge wastewater into Whakamahi Lagoon Government Purpose (Wildlife Management) Reserve. If the location and design details for the replacement main outfall structure needs to be amended to suit after the hearing is concluded and the proposal is successful, a review clause has been recommended to ensure those changes can be made (**as is included in recommended consent condition 55(k)**).
- 3) The final matter that needs to be addressed through the evidence from the applicants and finalised at the hearing is the intended pathway that will be undertaken to secure land for irrigation and additional storage. There are many references in the application documents to both options and the proposed consent conditions being offered (**refer to recommended consent conditions 43 and 44 in Appendix 1**) seem to acknowledge that they are needed but there is no commitment to ensure either option is implemented. 3rd party participation should not be relied on solely for the discharge to land and that other alternatives should be presented to the independent hearings committee to consider.

15. RECOMMENDATION

228. The recommendation of the Team Leader Consents (subject to the matters outlined previously) is that the resource consent, as attached in draft format, be granted to Wairoa District Council.

Recommending Officer	Reviewed By	Recommendation Confirmed
		
Tania Diack Team Leader Consents REGULATION GROUP	Malcolm Miller Manager Consents REGULATION GROUP	Liz Lambert Group Manager REGULATION GROUP
6 November 2020	6 November 2020	6 November 2020

Appendix 1: Draft recommended consent conditions 2020 version 21

CONDITIONS RELATING TO WAIROA DISTRICT COUNCIL WASTEWATER DISCHARGE CONSENTS
CONSENT HOLDER: WAIROA DISTRICT COUNCIL
WAIROA WASTEWATER TREATMENT PLANT AND PUMP STATION OVERFLOW DISCHARGES AND DISCHARGE STRUCTURES

Version Control

Version	Who	Date	Reason
14	LEI	29/11/18	With application
15	HL	27/2/20	Updated before prehearing – additions to application version in tracked changes
16	CD/HL	13/3/20	Updated after prehearing – additions to application version in tracked changes
17	CD/HL	26/4/20	Incorporated changes suggested by submitters and HBRC. Comments included for further discussion. SS – Shade Smith
19	HL/CD	5/5/20	Incorporated comments from HBRC reviewers
20	LEI/WDC/CD	4/09/20	WDC team review to address feedback from HBRC and submitters, and to rationalise conditions.
21	HBRC	6/11/2020	HBRC proposed draft conditions – hearing document

Definitions:

The following definitions apply across all resource consents:

Terminology	Revised Definition
Consent Holder	Means Wairoa District Council
Activities	Means the Activities authorised by the Resource Consents
WWTP	Means the Wairoa wastewater treatment plant including all current and future treatment processes and storage facilities within the WDC land parcel located at Whakamahi Road legally described as Part Lot 1 DP 3350 SO 7253, Wairoa District, C/T HBJ2/800.
Resource Consents and relevant Activity Numbers	Means resource consents granted by Hawke’s Bay Regional Council to the Consent Holder for the following Activities: <ul style="list-style-type: none"> AUTH-123608-01 To discharge treated wastewater from the Wairoa WWTP to the Wairoa River within the coastal marine area via an outfall structure (pipeline) and its associated overflow outlet pipe (AUTH-124095-01); (Rule 160 – Regional Coastal Environmental Plan (RCEP)); AUTH-123624-01 To discharge untreated wastewater from the Alexandra Park and North Clyde pump stations via overflow outlet pipes into the Wairoa River (Rule 52 – RRMP); AUTH-124094-01 To discharge untreated wastewater from the Kopu Road pump station via overflow outlet pipe into the Wairoa River (Rule 9 – RCEP); AUTH-123627-01 To allow for the relocation, maintenance and operation of the overflow outlets from the North Clyde, Alexandra Park, Kopu Road and Fitzroy Street pump stations (Rule 69 – RRMP); AUTH-12614-01 To discharge aerosols and odour to air associated with the receipt, treatment and storage of wastewater from the Wairoa WWTP (Rule 28 – Regional Resource Management Plan (RRMP)); AUTH-123631-01 The occupation of riverbed for the Wairoa WWTP’s outfall structure within the Coastal Marine Area (Rule 178 – RCEP); AUTH-123625-01 To replace the Wairoa WWTP’s outfall structure (pipeline) and any associated earthworks (Rule 97 – RCEP); AUTH-12626-01 The maintenance and potential re-establishment of the Wairoa WWTP’s outfall structure within the coastal marine area (relocation of main outfall structure) (Rule 117 – RCEP); AUTH-123628-01 To carry out earthworks, construction and rehabilitation activities related to the relocation and maintenance of the Wairoa WWTP’s main outfall structure (Rule 130 – RCEP); AUTH-12360-01 To carry out vegetation clearance and soil disturbance within the coastal marine area associated with the replacement (and future modification, relocation, and including maintenance) of the Wairoa WWTP’s outfall structure (Rule 8 – RCEP).
body representing Māori interests	Body or bodies representing the views of Māori with respect to wastewater management.
Treated Wastewater	Means secondary treated wastewater derived from the Consent Holder’s Wairoa WWTP.
Wairoa River	Te Wairoa Hōpūpū Hōnengenenge Matangirau which starts at Te Kapu (Frasertown) and ends at the sea. Te Wairoa Hōnengenenge from Turiroa to Kaimango (Spoooner’s Point) and Te Wairoa Matangirau from Kaimango to the sea are the reaches of the Wairoa River that receive Wairoa’s wastewater discharges.

River Flows ½ Median Median 3 x median	Are calculated based on the median flow for the Lower Wairoa River being 60 m ³ /s as determined by Hawke’s Bay Regional Council’s hydrologists based on daily flow data for 1985-2014-1988-2018 . The Lower Wairoa River flow is calculated as follows: (Wairoa at Marumaru x 1.14639) + Waiau at Ardkeen The median flow is calculated using a synthetic time series generated for measurements at Ardkeen, Marumaru and other areas. The current median flow – 79.18 m ³ /s (as at 29/10/2020) Advice Note: HBRC’s hydrologists may adjust the value of the median from time to time to reflect changes indicated by more recent river flow data, however it is unlikely that any changes would be needed prior to 5 years from the consent being granted.
Outlet structure	Means the pipeline and its diffuser structure that are used for discharging treated wastewater into the Wairoa River from the WWTP. The pipe enters the riverbed opposite the intersection of Kopu Road and Fitzroy Street. Outlet structure endpoint NZTM – 1982613E – 5667217 N
Outlet structure design plan	Means the detailed design plan of the outlet structure.
Council Manager	Means the Compliance Manager of the Hawke’s Bay Regional Council.
Council	Means the Hawke’s Bay Regional Council
MWWP	Means the Māori Wastewater Working Party
River mouth restriction	Means when the channel at the river mouth is less than 2 m in width.
UV Treatment System	Means a pathogen removal system which includes infiltration and ultraviolet light disinfection.
Māori words or phrases	Means a glossary specific to this consent document to be prepared in conjunction with the MWWP

Colour code key
Bold, yellow highlight and strikethrough are changes to conditions – version 21

NUMBER	WDC’s PROPOSED REVISED WORDING OF DRAFT CONDITIONS INCLUDING SOME SUBMITTER FEEDBACK
	OVERARCHING PRINCIPLES
1	<p>Except as otherwise required by any other condition of the Resource Consents, the Activities must be carried out in general accordance with the following information provided by the applicant (collectively referred to as ‘the Application’) where the most recent information takes priority over older information in the event of any conflicts:</p> <p>(a) Wairoa Wastewater Discharge – Resource Consent Application and AEE, dated November 2018, including Appendices A- F; and</p> <p>(b) Section 92 further information responses dated 19 May, 24 June, and 11 October 2019; and</p> <p>(c) Additional information provided from the applicant in a letter dated 4 September 2020; and</p> <p>(d) <u>Agreed outcomes from engagement with submitters as detailed in</u></p> <p style="margin-left: 40px;">a. ?</p> <p style="margin-left: 40px;">b. ?</p> <p style="margin-left: 40px;">c. ?</p> <p>Advice Note: If any conflict arises between the conditions of the consent and the application, the conditions of this consent will prevail.</p>

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	<p>Māori Engagement</p>
	<p>Advice Note: the following summary provides an overview of condition structure to assist with demonstrating how Māori views and values have been taken into account.</p> <p>The purpose of the condition structure is to ensure the following outcomes are and remain core goals and principles that guide future changes to the consented activities:</p> <ul style="list-style-type: none"> (a) the mauri of the Wairoa River is enhanced, (b) the role of [body representing Māori interests] as kaitiaki is enhanced, and the concept of whanaungatanga is implemented; (c) mahinga kai is not compromised; (d) wastes from mortuaries and funerary activities are separated from municipal wastewater and do not form part of the discharge to the Wairoa River Estuary. (e) treated wastewater discharges from the WWTP do not result in detectable adverse effects on the Wairoa River estuary and coastal water quality after reasonable mixing; (f) options and funding sources to reduce the discharge of treated wastewater into the river and its effects on the river are investigated and implemented to the greatest practicable extent, including but not limited to inflow and infiltration reduction, storage and land discharge schemes. (g) Removal of untreated wastewater associated with network overflows. the public understanding and awareness are increased regarding how the public's actions can reduce water use and wastewater volumes. (h) catchment enhancement opportunities that improve the quality of freshwater within the wider Wairoa River Catchment are consistently identified, coordinated with Iwi other stakeholders, funded, and actioned within an identified reasonable timeframe; and (i) reporting on system performance is focussed on water quality improvements, and opportunities to reduce the volume of wastewater that needs to be discharged to the Wairoa River
2	<p>To achieve Condition 2 above demonstrate its commitment to Māori engagement the Consent Holder must:</p> <ul style="list-style-type: none"> (a) ensure human E. Coli associated with the wastewater treatment plant is not detected in the Wairoa River by undertaking faecal source tracking once every two years at Site X and Y in accordance with condition 23 24; (b) contribute to Wairoa River catchment enhancement in accordance with condition 46 47; (c) have considered and, if practically possible, ceased the discharge of mortuary waste to the sewer system in accordance with conditions 40-42 41-43; (d) Make best endeavours to transition to land-based discharge in accordance with conditions 51-53 53-55; and (e) invite [body representing Māori interests] to: <ul style="list-style-type: none"> i. prepare cultural health protocol and monitoring in accordance with condition 28 27; ii. nominate three five representatives to sit on the MWWP in accordance with condition 3; iii. involve the MWWP in reviews and system optimisation in accordance with condition 53 55; iv. develop wānanga and karakia options to restore the mauri of the Wairoa River from the effects of wastewater treatment plant discharges and to restore cultural connections. <p>Advice Note: The purpose of the MWWP (Condition 3) is for ongoing direct engagement between Māori and the Consent Holder in relation to activities at and discharges from the wastewater treatment plant.</p>
3	<p>Within 6 months after the commencement of this Consent the Consent Holder shall invite the following parties to establish a Māori Wastewater Working Party (MWWP) to assist its decision making around the review, operation and management of the Wairoa wastewater discharges, including preparation of the System Improvement Plans, In River Monitoring Plan and Cultural Health Index Monitoring:</p> <ul style="list-style-type: none"> (a) five Māori representatives to be selected by [body representing Māori interests]; (b) two District Council Councillors; and (c) the Infrastructure Services Manager (or nominee) <p>In respect of (a) above, [body representing Māori interests] must inform the Consent Holder of their selected representatives within 3 months of the commencement of consent if they want to be involved. All reasonable endeavours will be taken to ensure representatives are consistent and attend meetings and other such requirements.</p> <p>In addition to the parties in a – b c, independent expert technical advisors in the areas of community wastewater treatment, discharges and Mātauranga Māori can attend.</p> <p>An independent facilitator appointed by the representatives of the MWWP at their first meeting (and replaced as necessary by appointment of the MWWP during the term of the consents) shall run the meetings, producing an agenda and minutes.</p> <p>Advice Note: Further to the above, the purpose of the MWWP is to:</p>

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	<p>(a) evaluate information produced from the conditions of consent,</p> <p>(b) help consider limitations (including funding and certainty of outcome) and opportunities</p> <p>(c) Identify and discuss opportunities to integrate tikanga Māori and to implement changes where those changes would reduce cultural effects;</p> <p>(d) Consider expert assessment from independent expert technical advisors;</p> <p>(e) Review, comment and make recommendations, including possible changes to design, methodology, management, operation of the network and treatment and discharge system or any monitoring or mitigation;</p> <p>(f) Identify and discuss external influences that may influence the impact of wastewater management, such as National and Regional policy changes, population growth and changes within the catchment;</p> <p>(g) Address implications for costs and affordability to the wider community;</p> <p>(h) Create a glossary of Māori words and phrases specific to this consent document to assist the Consent Holder and Council staff in their understanding and interpretation of Māori words and phrases made throughout this consent document; and</p> <p>(i) Assist the Consent holder to achieve its goals, these being:</p> <ul style="list-style-type: none"> i. the mauri of the Wairoa River is enhanced, ii. the role of [body representing Māori interests] as kaitiaki is enhanced, and the concept of whanaungatanga is implemented; iii. mahinga kai is not compromised; iv. wastes from mortuaries and funerary activities are separated from municipal wastewater and do not form part of the discharge to the Wairoa River Estuary; v. treated wastewater discharges from the WWTP do not result in detectable adverse effects on the Wairoa River estuary and coastal water quality after reasonable mixing; vi. options and funding sources to reduce the discharge of treated wastewater into the river and its effects on the river are investigated and implemented to the greatest practicable extent, including but not limited to inflow and infiltration reduction, storage and land discharge scheme; vii. removal of untreated wastewater associated with network overflows; and viii. the public understanding and awareness are increased regarding how the public's actions can reduce water use and wastewater volumes.
4	The MWWP must be invited to meet a minimum of annually with notice provided by the Consent Holder 4 weeks before the meeting and an agenda with relevant documents circulated 2 weeks before the meeting.
5	<p>Any:</p> <p>(a) unanimous recommendations of the MWWP representatives shall be implemented by the Consent Holder unless other statutory approvals or processes are also required. If such statutory approvals or processes are required, the Consent Holder shall use reasonable endeavours to obtain them.</p> <p>(b) recommendations of the MWWP that are not unanimous must be considered by the Consent Holder and if not implemented reasons must be provided to the MWWP and recorded in the Annual Report (Condition 48 51).</p>
6	On receipt of an itemised invoice, the Consent Holder shall provide for reasonable costs of members of the MWWP not otherwise employed by a Territorial Authority preparing for and attending MWWP meetings. shall be paid by the Consent Holder. Reasonable costs shall be initially determined by the MWWP at its first meeting and reassessed every 3 years thereafter.

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	OPERATIONAL MATTERS
	Discharge Volumes and Timing
7	<p>Subject to Condition 10 [river mouth restriction], and until filtration and UV treatment is commissioned under Condition 39 and storage of an additional 10,000 m³ and 50 ha of irrigation have been commissioned, when Wairoa River flows are:</p> <p>Subject to Condition 10, this condition shall apply at all times prior to :</p> <ul style="list-style-type: none"> - the commencement of UV treatment and filtrations in accordance with condition 38 and, - the commissioning of 10,000 m³ of additional storage and, - the commissioning of 50 ha of land based irrigation. <p>(a) When flow in the Wairoa River is less than the median the discharge of Treated Wastewater from the outlet structure shall:</p> <ol style="list-style-type: none"> i. be limited to 3,000m³ during any 24 hour period; ii. only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; iii. only occur after 6 pm, and during the months of April to November inclusive; iv. only occur after 7pm during the months of December to March inclusive; and v. shall cease by 6 am at all times. <p>(b) When flow in the Wairoa River is between the median and 3 x median the discharge of Treated Wastewater from the outlet structure shall:</p> <ol style="list-style-type: none"> i. be limited to 5,000m³ during any 24 hour period; ii. only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; and iii. can occur at any time of the day providing (i) and (ii) are met. <p>(c) When flow in the Wairoa River is above 3 x median the discharge of Treated Wastewater from the outlet structure can occur at any time and volume is not limited.</p>
8	<p>Subject to Condition 10 [river mouth restriction], and once filtration and UV treatment is commissioned under Condition 39 and storage of an additional 10,000 m³ and 50 ha of irrigation have been commissioned, when Wairoa River flows are:</p> <p>Subject to Condition 10, this condition shall apply at all times following:</p> <ul style="list-style-type: none"> - the commencement of UV treatment and filtrations in accordance with condition 38 and, - the commissioning of 10,000 m³ of additional storage and, - the commissioning of 50 ha of land based irrigation. <p>(a) When flow in the Wairoa River is less than ½ median the discharge of Treated Wastewater from the outlet structure shall:</p> <ol style="list-style-type: none"> i. be limited to 1,600 m³ during any 24 hour period; ii. only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; iii. only occur after 6 pm, and during the months of April to November inclusive; iv. only occur after 7pm during the months of December to March inclusive; and v. shall cease by 6 am at all times; and vi. no more than 30 days discharge in December to March. <p>(b) When flow in the Wairoa River is more than ½ median and less than the median the discharge of Treated Wastewater from the outlet structure shall:</p> <ol style="list-style-type: none"> i. be limited to 3,000 m³ during any 24 hour period; ii. only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; and

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	<p>iii. can occur at any time of the day providing (i) and (ii) are met.</p> <p>(c) When flow in the Wairoa River is between median and 3 x median the discharge of Treated Wastewater from the outlet structure shall:</p> <ul style="list-style-type: none"> i. be limited to 5,000 m³ during any 24 hour period ii. only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; and iii. can occur at any time of the day providing (i) and (ii) are met. <p>(c) above 3 x median the discharge of Treated Wastewater from the outlet structure can occur at any time and volume is not limited.</p>
	<p>River mouth restriction</p>
9	<p>Within 6 months of the commencement of this consent, the Consent Holder shall install and maintain in working order a camera to continuously record a view of the Wairoa River mouth. A single daily image for 9 am shall be archived.</p> <p>Advice note: if the location of the river mouth changes then the camera direction will need to change.</p> <p>Or if a camera location cannot be found:</p> <p>On each weekday the Consent Holder must view the river mouth from an elevated position on Rangihoua (Pilot Hill) and visually assess the extent of river flow passing from the river to the sea. If the channel is restricted, the discharge flow restrictions as detailed in Condition 10 shall apply.</p>
10	<p>During times of river mouth restriction, the Consent Holder shall cease the discharge of Treated Wastewater to the Wairoa River unless:</p> <ul style="list-style-type: none"> (a) The ability to store excess wastewater has been exceeded; and/or (b) Prior to storage capacity at the wastewater treatment plant being exceeded increased, it is recognised that the maximum storage capacity is likely to be exceeded during a time when no discharge is allowed. <p>In the event that (a) or (b) apply, the Consent Holder may resume the discharge of Treated Wastewater to the Wairoa River in accordance with Conditions 7 or 8.</p>
11	<p>If river mouth restriction is imminent, or has occurred, the Consent Holder must immediately contact the Council and enter into discussions to determine the options for mechanical opening of the river mouth. If deemed appropriate and the Council chooses to take action, the Consent Holder shall provide all assistance as deemed necessary.</p>
12	<p>If the river mouth is restricted and wastewater is likely to be discharged in accordance with Condition 10, prior to that discharge occurring, and as soon as reasonably practicable after becoming aware that a discharge will be necessary, the Consent Holder must notify the MWWP, Hawke's Bay District Health Board's Public Health Unit (DHB), Wairoa District Council's Environmental Health Officer (EHO), and the Council.</p> <p>Within 10 working days of a discharge undertaken in accordance with this consent condition ceasing, the consent holder shall provide the Council with written confirmation of the dates and times when a discharge commenced and ceased. This reporting shall also detail:</p> <ul style="list-style-type: none"> (a) time of notification of Council, EHO, MWWP, and the DHB; (b) actions taken by the Consent Holder to limit and restrict river discharges occurring including, where appropriate, discharges to land as an alternative to the river; and (c) results of discussions with Council, including options, for mechanical opening of the river mouth.

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	Discharge Quality Parameters
13	<p>The discharge shall not give rise to any of the following effects in the Wairoa River after reasonable mixing:</p> <ul style="list-style-type: none"> (a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or (b) Any conspicuous change in the colour or visual clarity; or (c) Any emission or objectionable odour; or (d) The rendering of fresh water unsuitable for consumption by farm animals; or (e) Any significant adverse effects on aquatic <u>life</u>; or (f) No More than 3°C change in temperature compared to upstream.
14	<p>The Consent Holder must ensure that the Treated Wastewater meets the following standards prior to discharge to the Wairoa River:</p> <ul style="list-style-type: none"> (a) The concentration of Carbonaceous five-day Biochemical Oxygen Demand (BOD₅) must not exceed 25-220 21 g/m³ in more than 8 out of 12 consecutive monthly samples, or 75 61g/m³ in more than 2 out of 12 consecutive monthly samples; (b) The concentration of Total Suspended Solids (TSS) must not exceed 70 50g/m³ for more than 8 out of 12 consecutive monthly samples, or 150 118g/m³ in more than 2 out of 12 consecutive monthly samples; (c) The concentration of Escherichia coli (<i>E. coli</i>) must not exceed 20,000 5,500 cfu/100 mL for more than 8 out of 12 consecutive monthly samples, or 200,000 75,000 cfu/100 mL in more than 2 out of 12 consecutive monthly samples; (d) The concentration of Enterococci must not exceed 10,000 3,200 cfu/100 mL for more than 8 out of 12 consecutive monthly samples, or 100,000 34,000 cfu/100 mL in more than 2 out of 12 consecutive monthly samples; and (e) The concentration of Ammoniacal Nitrogen (NH₄-N) must not exceed 25 15 g/m³ for more than 8 out of 12 consecutive monthly samples, or 40 27 g/m³ in more than 2 out of 12 consecutive monthly samples. <p>Advice Note: Compliance will be demonstrated based on the samples required by Condition 23 [monitoring section]. The exceedance frequency allowed for the Treated Wastewater quality values identified above are based on monthly sampling over an annual 12-month monitoring period of 1 July to 30 June each year in accordance with the New Zealand Municipal Wastewater Monitoring Guidelines (NZWERF, Sept 2002) Table 13.2. If the frequency of sampling is more than monthly, the allowed numbers of annual exceedances will need to be amended to remain in line with the New Zealand Municipal Wastewater Monitoring Guidelines (NZWERF, Sept 2002) Table 13.2.</p>
	MONITORING
	General and Standards
15	<p>The Consent Holder must measure and record the daily Treated Wastewater volume discharged to the Wairoa River as follows:</p> <ul style="list-style-type: none"> (a) Prior to the installation of the new outlet structure - the Consent Holder must calculate the daily discharge volume based on raw wastewater inflows pumped through the Fitzroy Street pump station, changes in storage levels in the WWTP's ponds, percentage of discharge valve opening, and duration of discharge. (b) Following the commissioning of the new UV treatment system a flow meter shall be installed in the discharge pipe after the outlet of the WWTP. The flow meter used to measure and record the Treated Wastewater volume must be calibrated to an accuracy of plus or minus 5%. The Treated Wastewater volume records must be transferred daily to the Council via telemetry in a format compatible with the Regional Council's telemetry system. (c) Prior to the flow meter described in 15b) being installed the Consent Holder shall provide a copy of the meter specifications to Council confirming that it is suitable for its intended use and can meet the calibration requirements in condition 16.
16	<p>The Consent Holder must have the Treated Wastewater flow meter calibrated annually by an authorised and certified contractor which confirms that the flow meter is accurate to within +/- 5% or better. This calibration must be completed with the meter in-situ to ensure that the calibration takes into account any variability due to its location and installation. The calibration certificate must be provided to the Council by 30 June of each year commencing in 2021.</p>
17	<p>After the installation of the UV disinfection system (Condition 38 39), the Consent Holder must measure and record the UV transmissivity of the wastewater after the filtration unit, and before the UV disinfection system measured hourly. The transmissivity meter used to measure and record the Treated Wastewater transmissivity must be calibrated to an accuracy of plus or minus 5%. The Treated Wastewater transmissivity records must be transferred monthly to the Council Manager.</p>
18	<p>The Consent Holder must establish and maintain an electronic system that allows daily tidal conditions cycles to be assessed and recorded.</p>
19	<p>To assist with making decisions in accordance with Conditions 7 and 8, the Consent Holder must develop a telemetry system to receive river flow data from the Wairoa at Marumaru and Waiiau at Ardkeen flow gauging sites operated by the Council.</p> <p>If such data exchange cannot be established with the Council, then manual retrieval of the appropriate electronic data through alternative means may be necessary. Should this not be possible then river flows measured no earlier than 3 pm shall apply for the following overnight discharge period and, where relevant, river flows measured within 1 hour of 9 am shall apply for the following daytime discharge period.</p>

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20	The Consent Holder must ensure that all sampling equipment, including meters and field measurement devices, are maintained in good working order by suitably qualified persons in accordance with the manufacturer's instructions and industry best practice guidelines. Records of calibration shall be kept and made available to the Council upon request.
21	<p>In respect of monitoring required by the Consents, the following apply:</p> <ul style="list-style-type: none"> (a) All monitoring and sampling techniques employed in respect of the conditions of the Resource Consents must be carried out by suitably experienced and qualified persons; (b) All analytical testing other than on-site measurements, undertaken in connection with these Resource Consents must be performed by a laboratory that is IANZ accredited for the analytical tests or any other method approved in advance in writing by the Council Manager; (c) All water sample analyses must be undertaken in accordance with the methods detailed in the "Standard Methods For The Examination Of Water And Waste Water, 2017" 23rd edition by A.W.W.A., A.P.H.A. and W.E.F., or any other method approved in advance in writing by the Council Manager; and (d) If any monitoring sites are identified as unsuitable, alternative monitoring sites must be identified and developed within a reasonable time after consultation with the Council Manager.
22	The results of the monitoring undertaken in accordance with the conditions of this consent must be provided to the Council upon request. Copies of original laboratory analytical reports for all analyses shall also be made available upon request.
	Discharge Chemistry and Pathogens
23	<p>From the commencement of this Consent, and until the UV treatment system is installed, the Consent Holder must take samples of Treated Wastewater once per month from the WWTP's main oxidation pond outlet until the UV treatment system is installed, and then After the UV Treatment system has been installed, the Consent Holder must take samples of Treated Wastewater once per month from a dedicated sampling port between the UV treatment system and the outlet thereafter. The samples must be analysed for:</p> <ul style="list-style-type: none"> (a) Carbonaceous five-day Biochemical Oxygen Demand (CBOD₅) mg/L; (b) Total Suspended Solids (TSS), mg/L; (c) Total Nitrogen (TN), mgN/L; (d) Ammoniacal-Nitrogen (NH₄-N), mgN/L; (e) Nitrate Nitrogen (NO₃-N), mgN/L; (f) Nitrite Nitrogen (NO₂-N), mgN/L; (g) Total Phosphorus (TP), mgP/L; (h) Dissolved Reactive Phosphorus (DRP), mgP/L; (i) <i>Escherichia coli</i> (<i>E. coli</i>), cfu/100mL; (j) <i>Enterococci</i>, cfu/100mL (k) Dissolved oxygen (DO) (field measurement), mgO/L; (l) pH (field measurement), (m) Temperature (field measurement) °C
24	Prior to the discharge of Treated Wastewater using UV treatment, the Consent Holder must install and maintain a sampling port between the outlet and the Wairoa River discharge point.

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	In-River Monitoring
25	<p>Within three months of the commencement date of this consent, the Consent Holder must submit to the Council an In-River Monitoring Plan for certification.</p> <p>The In-river Monitoring Plan shall include monitoring objectives that align with the following, but not limited to:</p> <ul style="list-style-type: none"> (a) provided timely feedback on plant performance; (b) provide for the timely detection of spikes, trends or other changes in discharge and /or environment quality; (c) trigger changes to treatment processes or discharge timing if adverse spikes, trends or changes occur; (d) demonstrate compliance with consent conditions; (e) measure the type, scale and magnitude of discharge effects on receiving water quality, sediment quality and ecology; and, (f) inform plans for improving wastewater systems and processes.
24 26	<p>The In-river Monitoring Plan shall include benthic surveys and water quality monitoring at a minimum of five monitoring sites, sampling for but not limited to:</p> <ul style="list-style-type: none"> (a) Sediment particle grain size analysis (by weight); (b) Sediment heavy metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn); (c) Sediment organic content/matter (TVS) and organic carbon; (d) Sediment nutrients (Total Recoverable P, DRP, Total N) (e) River water nutrients (DRP, SIN, NH₄-N); (f) Sediment pathogens (E. coli, Enterococci); (g) Faecal source tracking; and (h) Infauna (a) Total ammoniacal nitrogen; (b) Nitrate nitrogen; (c) Nitrite nitrogen; (d) Soluble reactive phosphorus; (e) Total phosphorus; (f) Chlorophyll <i>a</i>; (g) Total suspended solids; (h) Temperature; (i) Dissolved oxygen; (j) Salinity; (k) pH; (l) enterococci; (m) faecal coliforms; (n) Infauna; and, (o) Broadscale habitat map.

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	<p>The plan must also detail how sampling corresponds to river and tidal conditions and cultural monitoring sites and the reasons for the proposed monitoring regime. Work with a tangata kaitiaki from the tangata whenua group will be required to develop monitoring plan, and will also be included in the monitoring work. The frequency of sampling (benthic and water quality) shall be stipulated and is to include the river mouth restriction. The plan shall also detail the multivariate analyses to be used in assessing differences in fauna communities and also compare relevant levels from Hawke's Bay.</p> <p>Advice Note: The In-river Monitoring Plan may want to consider plans being prepared by others, including the Council and Iwi, so as to provide joint opportunities to share information and provide for consistent collection, analysis and interpretation methodologies.</p>
27	<p>Within 12 3 months of the commencement date of this consent, receiving confirmation that Council have certified the In-river monitoring plan the Consent Holder must have commence monitoring in accordance with the certified In-river Monitoring Plan required by Condition 26 24.</p> <p>(a) Within two months of receiving any Plan requiring certification under the conditions of this consent, the Council must advise, in writing, the Consent Holder whether or not they have certified the Plan.</p> <p>(b) If the Council refuses to certify the Plan it must advise the Consent Holder why this view is held. The Consent Holder shall resubmit a revised Plan to the Council for certification as soon as practicable, and no later than three months after receiving notification from the Council that it refused to certify the Plan.</p> <p>If the Council certifies the Plan the Consent Holder shall commence what is set out in the Plan as required by conditions of consent or as soon as practicable where no timeframe is specified.</p>
	<p>Cultural Monitoring</p>
28	<p>Within two years of the commencement of this consent, the Consent Holder must invite a [body representing Māori interests] to undertake Cultural Health Index Monitoring according to their respective tikanga. If the engagement is accepted, the Consent Holder must commission that [body representing Māori interests] or nominees (as advised) to undertake Cultural Health Index Monitoring in compliance with the Cultural Health Index Monitoring Protocol prepared in accordance with Condition 29 28.</p> <p>The Consent Holder shall take guidance from the trustees of Tātau Tātau o Te Wairoa in inviting the [body representing Māori interests]</p>
29	<p>If the engagement is accepted to undertake Cultural Health Index Monitoring as set out in Condition 28 27, the Consent Holder must commission the [body representing Māori interests] to prepare a Cultural Health Index Monitoring Protocol that as a minimum, must:</p> <p>(a) describe the relationship of tangata whenua to the discharge area and the sites of interest in or near the locations to which these Permits apply;</p> <p>(b) describe the tikanga relevant to the proposed cultural monitoring (including kaitiakitanga, mauri of awa, whenua, tangata, whanaungatanga and te ha tawhirimatea), the activities, and the site(s);</p> <p>(c) identify and map (with map references) the site(s) to be monitored;</p> <p>(d) set out the frequency of monitoring;</p> <p>(e) describe the procedures required to access the application site for the monitoring (in particular health and safety requirements);</p> <p>(f) identify the parameters and methods used for the monitoring and assessments of effects on cultural health; and</p> <p>(g) set out the matters to be included in the Cultural Health Index Monitoring Report and the frequency of the reporting obligations.</p> <p>(h) Set out the procedures for amendments to the Cultural Health Index Monitoring Protocols,</p> <p>(i) set out the procedure for replacing members of the cultural health assessment panel or re-establishing the cultural health assessment panel.</p> <p>Advice Note: there are multiple tools for assessing cultural health, including the Mauri Compass. The selection of the methodology is up to the [body representing Māori interests].</p>
30	<p>The Consent Holder must provide a copy of the Cultural Health Index Monitoring Protocol, or any amended version, and any subsequent Cultural Health Monitoring Reports to the Council Manager within 1 month of receiving it.</p> <p>Advice Note: These documents are the intellectual property of the Māori cultural health experts and are not subject to certification or review by the Consent Holder or Council.</p>

NUMBER	WDC's PROPOSED REVISED WORDING OF DRAFT CONDITIONS INCLUDING SOME SUBMITTER FEEDBACK
	DISCHARGE STRUCTURES
	Pump Station Overflows
30	The existing pump station discharge structures shown on Plan 2 shall be maintained or replaced in substantially the same locations and dimensions as the existing structures.
	Location and Timing of Construction
31	<p>The existing discharge structure, including piping, shall be replaced with a new outfall structure constructed in accordance with Condition 32 and Plan 2, within 18 months of obtaining any necessary concessions. After construction all wastewater discharged to the Wairoa River from the WWTP shall be conveyed to the new outfall and the existing overflow structure is to be decommissioned.</p> <p>The existing discharge structure shall be used for this purpose in the interim and all relevant consent conditions shall be complied with until the new outfall structure is operational.</p>
32	<p>Installation of the new outfall structure shall comply with the following:</p> <p>(a) The Consent Holder shall give the Council Manager a complete and final set of construction drawings/specifications at least 20 working days' prior to commence works for review and feedback.</p> <p>(b) The Consent Holder shall give the Council Manager at least two working days' notice of the intention to commence works and shall advise the Council Manager of having finished the works immediately following their completion.</p> <p>(c) The Consent Holder shall take all practical measures to limit the amount of sediment and prevent contaminants from entering the waterbody during the works. Such measures include, but are not limited to:</p> <ul style="list-style-type: none"> i Any surplus soil, cleared vegetation, excavated trench material or debris shall be deposited at least 20 m from any waterbody or deposited or contained in a manner to reasonably prevent the transportation or deposition of disturbed matter into any waterbody. ii The wash water from containers and tools shall not be discharged into any waterbody and the washing of equipment shall not occur in any waterbody, and plant shall occur at least 20 m away from mean high water springs. iii As far as practicable, all machinery work in the riverbed shall be undertaken during low river flow conditions and from the banks of the river or a craft rather than in the river. iv Refuelling and carrying out machinery maintenance at least 10 m inland from MHWS (Mean High Water Springs). v The use of silt fences and other erosion control methods shall be in accordance with the Council 2009: <i>Guidelines for Waterways: Erosion and Sediment Control Guidelines</i>. <p>(c) The Consent Holder shall ensure that at the completion of the works, any newly established surfaces and any grassed slopes or vegetated areas that were cleared or damaged as a result of the activity, are revegetated in order to prevent sediment from entering the waterbody.</p> <p>(d) The design and installation of the structure shall be such that it does not cause any long-term erosion of the bed or banks of the waterbody.</p> <p>(e) The design and installation of the structure shall not impede the use of the Wairoa River for recreational use.</p> <p>(f) To ensure worksite spills are managed appropriately, the consent holder shall produce a Spill Management Plan (SMP) appropriate for the activities being undertaken on site. The SMP must;</p> <ul style="list-style-type: none"> i include procedures for preventing contaminants such as hydrocarbons or chemicals entering any waterbody in the event of a spill; ii be prepared by a suitably qualified person; iii be provided to the Council prior to commencement of the works. <p>The consent holder and any contractors engaged to undertake work on their behalf shall abide by the SMP and a copy of this SMP must be present on site at all times while the work is being undertaken.</p> <p>(f) The Consent Holder shall check, clean and dry machinery used in the bed of the waterbody to limit the spread of aquatic pests.</p> <p>(g) Any wet concrete cast on site shall be fully contained during casting and, where possible, cast in a dry work area.</p> <p>(h) No concrete or excess construction materials shall be dumped into the bed of any waterbody.</p> <p>(i) The Consent Holder shall use methods and materials non-toxic to aquatic life, except where it is necessary and appropriate to use marine grade construction materials, and limit disturbance of the seabed to the smallest practicable area.</p> <p>(j) In the event of any archaeological site or waahi tapu being uncovered during the exercise of this consent, activities in the vicinity of the discovery shall cease. The Consent Holder shall contact the Council Manager and the [body representing Māori]. The Consent Holder shall then consult with the relevant local hapu or marae and Heritage New Zealand Pouhere Taonga, and shall not recommence works in the area of the discovery until the relevant Heritage New Zealand Pouhere Taonga and tangata whenua approvals to damage, destroy or modify such sites have been obtained.</p>

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	(k) The Consent Holder shall ensure that any contractors engaged to undertake work authorised by this consent abide by the conditions of this consent. The person responsible for the work on site shall be familiar with the consent conditions and a copy of this consent shall be present on site at all times while the work is being undertaken.
	Modification
33	<p>In the event of any proposed modification, extension or relocation of the discharge structure, the Consent Holder must provide a Structure Design Report to the Council Manager for certification prior to any works being undertaken. The design report shall (but is not limited to):</p> <ul style="list-style-type: none"> (a) Be prepared by suitably qualified and experienced, independent expert/s, (b) Detail why changes are required, including details and a cost benefit analysis of the alternatives considered, with particular regard to whether more rapid implementation of land discharge and storage systems may be a better environmental and economical solution, (c) Ensure that the discharge structure, or any portion thereof, is retained within the area shown in Plan 2, (d) Include plans and supporting explanation for the proposed works, including details on the extent and nature of seabed disturbance, and how any adverse environmental effects are to be minimised, (e) Outline solutions regarding navigational hazards, (f) Include a Construction Management Plan, (g) Include details of the construction timetable (h) Include specification of appropriate marine grade construction materials, design standards to be met and expected service life of materials.
	Maintenance of Discharge Structures
33	Any maintenance and associated disturbance of the riverbed or seabed undertaken to ensure the stability and proper functioning of the outlet structure or pump station discharge structures shall comply with the requirements set out in Condition 32 (new outfall).
	MAINTENANCE AND ASSET MANAGEMENT
34	<p>The Consent Holder must:</p> <ul style="list-style-type: none"> (a) ensure that the above ground physical infrastructure of the treatment system is inspected weekly, and that relevant parts of the systems are also inspected whenever any alarms associated with the systems are activated; and (b) visually inspect the land surface of all discharge piping routes every 2 weeks, and that relevant parts of the systems are also inspected whenever any alarms associated with the systems are activated; (c) visually inspect the piping and discharge location at pumps stations following any high level alarms that indicate potential overflow discharge; (d) Install, maintain and monitor at all times, an alarm system to monitor high levels within all pump stations and the wastewater treatment plant; and (e) The Consent Holder must notify Council if an alarm is received indicating high levels within the pump stations or wastewater treatment plant that may indicate an actual overflow is occurring or is likely to occur.
35	The Consent Holder must ensure that all components of the wastewater treatment plan and outfall structure are maintained in good working order, and in accordance with industry best practice guidelines.
36	The Consent Holder must record the details of all inspections and works undertaken in accordance with Condition 34. Those records shall be made available to the Council upon request.
37	The Consent Holder must include in an asset management plan provision for condition assessments to be undertaken no less frequently than every five years. The relevant provisions and results of any assessment shall be made available to Council upon request.

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	INITIAL IMPROVEMENTS AND ACTIONS
	Filtration and UV Treatment
38	<p>Within two years one year of the commencement date of this consent, the Consent Holder must have installed and be operating a filtration and ultraviolet (UV) disinfection treatment system. The detailed design for the system installed shall (but is not limited to):</p> <p>(a) Be prepared by suitably qualified and experienced, independent expert/s;</p> <p>(b) Clearly detail the:</p> <ol style="list-style-type: none"> i. location of the disinfection system within the treatment process with supporting explanation, ii. inflow and discharge quality parameters, including UV transmissivity (UVT) that achieves or exceeds a minimum UVT of 60% when discharge flows of Treated Wastewater are 5,000 m³/d or less; iii. flow rate and daily total volume able to be accommodated by the disinfection system, and <p>(c) Take into consideration key operational matters including daily, weekly and monthly maintenance checks.</p> <p>Within two months of receiving the detailed design report, the Council must advise, in writing, the consent holder whether or not they have certified the detailed design.</p> <p>(a) If the Council refuses to certify the detailed design it must advise the consent holder why this view is held. The consent holder shall resubmit a revised detailed design to the Council for certification as soon as practicable, and no later than three months after receiving notification from the Council that it refused to certify the initial detailed design.</p> <p>(b) If the Council certifies the detailed design, the consent holder shall commence construction of the grit trap and filtration and UV disinfection treatment system in accordance with the timetable set out in the report.</p>
	Network Management Plan
39	<p>Within 12 months of the commencement date of this consent, and thereafter timed to coincide with each System Improvement Plan (condition 53) the Consent Holder must submit to the Council Manager a Network Management Plan. The Plan shall include, but is not limited to:</p> <p>(a) Details of work undertaken since 2015 (or most recent reporting period) to reduce the volume of infiltration into the reticulated wastewater network.</p> <p>(b) Details of further work planned to be done over the next 5 years to reduce inflow and infiltration into the reticulated wastewater network, including (but not limited to):</p> <ol style="list-style-type: none"> i. On-going private property inspections for compliance. Ie no illegal storm water connections to the sewer network. ii. Installation of new chopper pumps at every pump station, iii. Installation of emergency power generators at every pump station, iv. Network rehabilitation works planned to address pipes and assets known to be contributing to infiltration or in poor condition. <p>(c) Timeframes for completion of future works.</p> <p>(d) Calculations of predicted reductions in wastewater flows received at the wastewater treatment plant WWTP as a result of the planned works.</p> <p>The Consent Holder shall undertake the planned works as set out in the Network Management Plan, within the timeframes specified. The Plan shall be reviewed and revised by the Consent Holder and incorporated as part of preparing each Wastewater System Review Report Improvement Plan as required by Condition 53 55.</p>
	Mortuary Waste
40	<p>Within 24 12 months of the commencement date of this consent, the Consent Holder shall have prepared a Mortuary Waste Summary Document to be presented to the second first MWWP meeting. The summary document shall address:</p> <ol style="list-style-type: none"> (a) The volume and characteristics of mortuary wastes currently discharged; (b) Expected changes in management of mortuary wastes entering the wastewater sewer; (c) Cultural and social implications for the current discharge; (d) Current regulatory rules and limitations with mortuary waste discharge into the wastewater sewer; (e) Cost implications to ratepayers for possible changes in management of mortuary wastes; (f) The requirements and limitations for management of wastes from multiple fatalities;

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	<p>(g) Potential alternatives to the current management practices, including cultural, social and financial implications.</p> <p>Advice Note: <i>MWWP and its operation is defined in Condition 3.</i></p>
41	<p>Based on guidance given by the MWWP from the presentation of the summary document in Condition 40 41, the Consent Holder shall prepare a Mortuary Waste Action Plan. This plan shall have received input from any operators currently discharging mortuary waste to the wastewater sewer. This plan shall be presented to the third second meeting of the MWWP, and subject to revisions, within 6 months of that meeting, recommendations shall be made to the Wairoa District Council Infrastructure Committee to modify, if appropriate, the management of mortuary waste entering the wastewater sewer.</p> <p>Advice Note: <i>such recommendations could be modification of the Trade Waste Bylaws that govern acceptance of mortuary waste.</i></p>
42	<p>If recommended to the Wairoa District Council Infrastructure Committee as an outcome of Condition 41-42, within 18 months of the commencement date of this consent, the Consent Holder must have initiated a Trade Waste Bylaw review consultation process that proposes mortuary waste being prohibited from entering the sewer and treatment system.</p>
	<p>Initial Land Treatment Area</p>
43	<p>The Consent Holder must provide annual updates to the Council Manager during the month of June of each year from the commencement date of this consent as to progress towards establishing the ability to discharge treated effluent to up to 50 ha of land. The updates may cease once 50 ha of land application area is commissioned.</p>
	<p>Initial Storage Facilities</p>
44	<p>The Consent Holder must provide annual updates to the Council Manager during the month of June of each year from the commencement date of this consent as to progress towards establishing the ability to construct and operate up to 10,000 m³ of additional storage of wastewater. The updates may cease once 10,000 m³ of additional storage is commissioned.</p>
	<p>Wastewater Education Plan</p>
45	<p>Within 12 months of the commencement date of this consent, the Consent Holder must prepare and implement a Wastewater Education Plan (WEP) detailing a multi-faceted programme designed to increase the public's understanding and awareness of how their [the public's] actions/activities can influence wastewater volumes, and the ways in which the public can reduce water use. Within six months after submitting the WEP to the Council Manager, the Consent Holder shall commence delivery of the WEP. The Plan shall be reviewed and updated as part of preparing each System Review Data Report as required by Condition 51 53.</p>
	<p>Catchment Enhancement Plan</p>
46	<p>Within 12 months of the commencement date of this consent, the Consent Holder must submit to the Council Manager a Catchment Enhancement Plan detailing actions taken in the past 24 months and intended actions over the next 3 years towards facilitating the involvement of the Wairoa District Council in activities that improve the quality of freshwater within the wider Wairoa River Catchment. This shall include (but not be limited to):</p> <ul style="list-style-type: none"> (a) Progress on and assistance provided to establishing a catchment improvement group; (b) Financial and in-kind contributions to individual and collaborative catchment programmes; (c) The financial commitment given to various programmes, and that planned; <p>The Catchment Enhancement Plan shall include specific programmes, timing of contributions and involvement and financial commitments (such as undertaking a broad scale benthic survey once every 3 years within the Whakamahi and Ngamotu Lagoons downstream of the outfall).</p> <p>1. The Consent Holder shall undertake the planned works as set out in the Catchment Enhancement Plan, within the timeframes specified, subject to obtaining all necessary approvals and funding. The Plan shall be reviewed and updated as part of preparing each System Improvement Plan as required by Condition 53 55 and shall be submitted to Council.</p> <p>Advice Note: <i>The Catchment Enhancement Plan may want to consider plans being prepared by others, including the Council and Iwi, so as to provide joint opportunities to share information and provide for consistent approaches and methodologies.</i></p>

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	REPORTING AND NOTIFICATION
47	<p>The Consent Holder must notify the Council Manager as soon as possible and no later than within two working days of 24 hours from the identification of any actual or potential non-compliance or when it becomes evident that a breach of with Consent Conditions. is about to occur. For conditions requiring compliance with a particular water quality standard, notification of the Council Manager is required within two working days 24 hours of receipt of the water quality analysis result from the Laboratory of the non-compliance.</p>
	Annual Monitoring Report
48	<p>By 31 August 2021, and annually thereafter every two years, the Consent Holder must prepare an Annual Monitoring Report that summarises and assesses all of the monitoring information required under Conditions 19, 20 and 21 of the Resource Consents for the preceding 24 months (1 July to 30 June) or part thereof for the duration of this Consent. The raw monitoring data from Conditions 19 and 21 should be made available to the Council Manager. The Annual Monitoring Report must assess whether compliance has been achieved with each of the Resource Consent conditions 19, 20 and 21. This report must be prepared by a suitably qualified and experienced person and submitted to the Council Manager in a suitable electronic format. The report shall address and summarise (but not be limited to) the following:</p> <ul style="list-style-type: none"> (a) daily discharge volumes, and corresponding river flows, river mouth conditions, and tidal sequences, and compliance with discharge limits; (b) summary of any wastewater quality monitoring information and compliance with Treated Wastewater quality standards; (c) the occurrence of any pump station overflow and corresponding rainfall, river flows and tidal sequence; (d) storage management; and (e) the volume discharged to alternative receiving environments; (f) identification and comment on any trends in discharge data collected, both within the annual period and compared to previous years, including comment on the potential environmental implications of these trends; (g) any areas of non-compliance and actions taken to rectify them; (h) summary and assessment of receiving environment monitoring data, both within the annual current period and compared to previous years; (i) any cultural health monitoring undertaken; (j) details of any improvements or changes made to the system; and (k) any recommendations for improvement/changes to the monitoring programmes. <p>By 31 August 2021, and annually thereafter every two years, the Consent Holder must prepare an Annual Monitoring Report covering the preceding 12 month period from 1 July to 30 June. Each section of the report shall be prepared by suitably qualified and experienced persons depending on the topic outlined below (i.e. water quality scientist, cultural expert, WWTP operator) and shall include, but is not limited to:</p> <ul style="list-style-type: none"> (a) A summary of all monitoring undertaken as required by this consent, including cultural health monitoring, and may include additional monitoring undertaken by the consent holder to better characterise the effects of the discharge on the Wairoa River. (b) daily discharge volumes and times, corresponding river flows, river mouth conditions and tidal conditions (c) A critical analysis of the results of sampling required by conditions 14, 23 and 26. (d) A critical analysis of the monitoring information in terms of compliance with consent conditions and actual or potential adverse environmental effects. (e) An assessment of compliance with the discharge quality standards specified in condition 14. Any exceedances of these standards shall be clearly identified and reasons for each exceedance (if known) provided. A summary of any remedial action taken to mitigate or remediate the impacts of the exceedance and any actions taken to prevent a reoccurrence of the exceedance. (f) comment on any operational issues during the period and steps taken to address these (g) identification and comment on any trends in discharge data collected, both within the annual period and compared to previous years, including comment on the potential environmental implications of these trends; (h) details of any works undertaken or proposed to improve performance of the treatment system, and timeframes for any proposed works. (i) The volume discharge to alternative receiving environments.
	Pump Station Performance

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50	<p>Should a pump station overflow occur, the Consent Holder must:</p> <p>(a) Advise the following parties within 24 hours of becoming aware of the incident:</p> <ul style="list-style-type: none"> i The Council Manager; ii MWWP; iii The EHO and Hawke's Bay District Health Board's Public Health Unit; marae with close proximity to the Wairoa River; and iv Taiwhenua. <p>(b) Erect signage along the riverbank and issue public notices via local mass media, social media, and the Consent Holder's website to advise the community of the incident; and</p> <p>(c) Provide a summary report to the Council Manager within 48 hours of the discharge ceasing and which details:</p> <ul style="list-style-type: none"> i the location and timing of the overflow; ii the approximate volume released (if practicable to quantify); iii river and tidal conditions at the time of the discharge; iv any observed effects; v the cause of the discharge; and vi remedial action if known and practicable to avoid or reduce the likelihood of such discharge occurring again.
	PROGRESSIVE IMPROVEMENT PROGRAMME
	Wastewater Stakeholder Group
49	<p>No less than 6 months prior to the submission date of the 'System Review Data Reports' required by Conditions 51 and 52 53 and 54, the Consent Holder must facilitate the establishment and meetings of a Wastewater Stakeholder Group (the Group) for the purposes of providing feedback on the matters of discussion referred to under Conditions 51 and 52 53 and 54 [system review data reports]. In consultation with the MWWP, invitations shall be extended to, but are not limited to, representatives of different sectors of the Wairoa community including:</p> <ul style="list-style-type: none"> (j) A youth representative; (k) A representative of the older population; (l) Tangata whenua; (m) Local business owners; (n) Local industries; (o) Hawke's Bay Regional Council; (p) The Department of Conservation; (q) Hawke's Bay District Health Board; (r) Wairoa District Council. <p>The Group may be disbanded between each review provided the Group is reformed in accordance with this condition 6 months prior to each System Review Data Report being finalised.</p>
50	<p>The first task of the Wastewater Stakeholder Group shall is to draft a 'Terms of Reference' ('Terms') for the group that set out how the group is to operate to meet its purpose, and must include, but are not limited to, details of meeting frequency, resourcing, decision making processes, group membership, expectations of members, and reporting processes. Once agreed to by the majority of attendees a copy of the 'Terms' shall be provided to the Council Manager.</p>

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	System Review Exercise and Reports
51	<p>Within five years of the commencement date of this consent, the Consent Holder must prepare a 'System Review Data Report' including but not limited to:</p> <ul style="list-style-type: none"> (a) works undertaken to reduce inflow and infiltration; (b) A summary of changes that have been made to the wastewater treatment plant and details of changes proposed; (c) An analysis of discharge volume and river flow and tidal conditions, and opportunities to lessen the frequency of any discharges below 3 x median flow; (d) The dates and river flow conditions of when any overflow discharges occurred from the pump stations or outlet overflow, and a commentary around how works undertaken to reduce inflow and infiltration have reduced the frequency of overflow discharges. This should include an analysis of any trends in discharge frequency and action proposed to be taken to further reduce overflows; (e) A summary of all monitoring undertaken as required by this consent, including cultural health monitoring, and may include additional monitoring undertaken by the consent holder to better characterise the effects of the discharge on the Wairoa River. (f) A summary of irrigation and other land-based discharge systems that have been implemented and changes that have been considered and plans or opportunities to increase the irrigation areas up to 150 ha in the next 5 years; (g) A summary of storage expansion that has been implemented and changes to storage sizes, locations, and designs that have been considered and plans or opportunities to increase the storage volume up to an additional 10,000 m³ in the next 5 years; and (h) Whether the discharge quality standards of this consent can be adjusted to improve discharge quality; (i) Key contributions made to improve the quality of freshwater within the wider Wairoa River Catchment, including summary of discussions with AFFCO and other major point source dischargers into the Wairoa River; (j) Funding sources investigated to assist with wastewater system improvements. <p>The data must be provided in a manner to facilitate discussion on the options available at the time to reduce the volume of wastewater that needs to be discharged to the Wairoa River by considering the following:</p> <p>(Aa) The feasibility of and methods to amend the discharge regime so that:</p> <ul style="list-style-type: none"> i During flows less than ½ median: <ul style="list-style-type: none"> • Discharge volumes will be limited to 1,600m³ during any 24 hour period, • The discharge will: <ul style="list-style-type: none"> ○ only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; ○ only occur after 6 pm; ○ shall cease by 6 am at all times; and ○ be limited to no more than 30 days discharge in the months of December through to March ii During flows between ½ median to median: <ul style="list-style-type: none"> • Discharge volumes will be limited to 3,000m³ during any 24 hour period; • The discharge will only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; iii During flows between median to 3 x median: <ul style="list-style-type: none"> • Discharge volumes will be limited to 5,000m³ during any 24 hour period, • The discharge will only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; <p>(Ab) Any changes to the filtration and UV treatment system;</p> <p>(Ac) The availability of any other alternative discharge and/or treatment options;</p> <p>(Ad) Details of the work programme and timeframes for implementation of each discharge and/or treatment option considered;</p> <p>(Ae) The likely storage requirements for implementation of each discharge option; and</p> <p>(Af) Updates to the Catchment Enhancement Programme Plan.</p>

NUMBER	WDC's PROPOSED REVISED WORDING OF DRAFT CONDITIONS INCLUDING SOME SUBMITTER FEEDBACK
52	<p>Within ten years of the commencement date of this consent, and on a ten year basis thereafter, the Consent Holder must prepare further 'System Review Data Reports' that provide data in relation to the matters referred to in Condition 51(a)-(g) 53(a)-(g) to facilitate discussion on:</p> <p>(a) Methods to increase storage as follows:</p> <ul style="list-style-type: none"> i To 50,000-100,000m³ as part of the first 10 year review ii To 200,000-400,000m³ as part of the second 10 year review <p>(b) The feasibility of the application of wastewater to land, with the view of this involving:</p> <ul style="list-style-type: none"> i up to 300ha as part of the first 10 year review ii up to 600ha as part of the first 10 year review <p>(c) The feasibility of and methods to amend the discharge regime:</p> <ul style="list-style-type: none"> i As part of the first 10 year review so that: <ul style="list-style-type: none"> • During flows less than ½ median there is no discharge to the river, • During flows between ½ median to median: <ul style="list-style-type: none"> ○ Discharge volumes will be limited to 3,000m³ during any 24 hour period, ○ The discharge will only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; ○ only occur after 6 pm; and ○ shall cease by 6 am at all times • During flows between median to 3 x median: <ul style="list-style-type: none"> ○ Discharge volumes will be limited to 5,000m³ during any 24 hour period, ○ The discharge will only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; ii As part of the second 10 year review so that: <ul style="list-style-type: none"> • During flows less than the median there is no discharge to the river, • During flows between median to 3 x median: <ul style="list-style-type: none"> ○ Discharge volumes will be limited to 5,000m³ during any 24 hour period, ○ The discharge will only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide; ○ only occur after 6 pm; and ○ shall cease by 6 am at all times <p>(d) Any changes to the filtration and UV treatment system;</p> <p>(e) The availability of any other alternative discharge and/or treatment options;</p> <p>(f) A summary of all monitoring undertaken as required by this consent, including cultural health monitoring, and may include additional monitoring undertaken by the consent holder to better characterise the effects of the discharge on the Wairoa River.</p> <p>(g) Details of the work programme and timeframes for implementation of each discharge and/or treatment option considered; and</p> <p>(h) Updates to the Catchment Enhancement Programme Plan.</p>

NUMBER	WDC's PROPOSED REVISED WORDING OF DRAFT CONDITIONS INCLUDING SOME SUBMITTER FEEDBACK
	System Improvement Plans
53	<p>Within 6 months of the System Review Data Reports being provided to the Stakeholder Group, the Consent Holder must prepare, in consultation with the MWWP and Stakeholder Group, and submit to the Council Manager, a 'System Improvement Plan' that sets out:</p> <ul style="list-style-type: none"> (a) Details of improvements and/or changes to be made to the wastewater treatment and discharge system over the period to the next review to implement tikanga Māori and to improve the mauri of the Wairoa River; (b) Inclusion of the Network Management Plan, including further details on works undertaken to reduce inflow and infiltration; (c) Details of improvements and/or changes to be made to the Wastewater Treatment System over the period to the next review to reduce the volume of wastewater that needs to be discharged to the Wairoa River; (d) Clear reasons why those changes are being made (including views of the Wastewater Stakeholder Group on the changes proposed); <p>Where agreement of the Wastewater Stakeholder Group is reached on specific matters and actions, this shall be reflected in proposed actions included in the final Systems Improvement Plan. Should consensus and preference not be reached, or the consent holder does not support the Wastewater Stakeholder Group's preference, this difference shall be documented in the Systems Improvement Plan with an explanation of the outstanding position and/or difference and the Consent Holders alternative proposal where needed.</p> <ul style="list-style-type: none"> (e) An indicative work programme setting out steps necessary to implement changes proposed; (f) A summary of updates to the Catchment Enhancement Plan
	Wastewater Monitoring Strategy
56	<p>Within 12 months of submitting the 'System Improvement Plans' required by Condition 58-55 to the Council, the Consent Holder may submit to the Council Manager for certification a Wastewater Monitoring Strategy (WMS) or amendments to an existing WMS. The WMS shall:</p> <ul style="list-style-type: none"> (a) Be prepared by a suitably qualified and experienced, independent expert/s, (b) Outline the monitoring that the consent holder will undertake to assess the effects of the discharge. <p>Within two months of receiving the Wastewater Monitoring Strategy the Council must advise, in writing, the consent holder whether or not they have certified the WMS.</p> <ul style="list-style-type: none"> (a) If the Council refuses to certify the WMS it must advise the consent holder why this view is held. The consent holder shall resubmit a revised WMS to the Council for certification as soon as practicable, and no later than three months after receiving notification from the Council that it refused to certify the WMS. (b) If the Council certifies the WMS the consent holder shall immediately commence the monitoring set out in the WMS (at the frequencies stated in the WMS). <p>Advice Note: For clarity, the monitoring set out in the Wastewater Monitoring Strategy may supersede the monitoring required by Conditions 12-9 to 25-24.</p>
	COMPLAINTS
54	<p>The Consent Holder must maintain and make available to Council on request, a record of complaints which lists all complaints received alleging adverse effects attributable to the Activities. The record must include but not be limited to the following:</p> <ul style="list-style-type: none"> (a) Name, address and contact details of the complainant (if given); (b) The nature and duration of the alleged effect; (c) The date and time the alleged effect was detected; (d) The location where the alleged effect was detected; (e) The prevailing river and weather conditions e.g. flow rate, river mouth status, wind speed and direction; (f) Description of the Activities occurring at the time of the complaint; (g) Description of investigations carried out to investigate the complaint and their outcomes; (h) The likely cause of the effect (if detected under (f)); (i) Any measures taken to avoid, remedy or mitigate the effect (if detected under (f)) and its recurrence; and

NUMBER	WDC's PROPOSED REVISED WORDING OF DRAFT CONDITIONS INCLUDING SOME SUBMITTER FEEDBACK
	(j) Details of the follow up undertaken to inform the complainant of the actions taken in response to the complaint and the outcomes of the investigations.
	REVIEW
55	<p>The Hawke's Bay Regional Council may annually during the month of May review the conditions of the consent in accordance with Sections 128, 129, 130, 131 and 132 of the Resource Management Act 1991 for the following purposes:</p> <ul style="list-style-type: none"> (a) To address any adverse effect on the receiving environment that can be reasonably attributed to the Activities which may arise from the exercise of the resource consent and which is appropriate to deal with at a later stage. (b) To modify the monitoring programme required by the resource consent or require additional monitoring if there is evidence that the current monitoring requirements of the resource consent are inappropriate or inadequate. (c) To modify the reporting requirements of the resource consent if there is evidence that the current reporting requirements of the resource consent are inappropriate or inadequate. (d) To address any new regional or national rules, standards, or regulations relating to freshwater and/or coastal water management. (e) To modify the median Wairoa River levels as calculated and recorded in the definition of River Flows. (f) To address any requirement to report annually on a set of national environmental performance measures. (g) To modify the design and management of wastewater networks to meet the national good practice guidelines. (h) To monitor emerging contaminants in wastewater and coordinating national responses where necessary. (i) To add or amend monitoring provisions and to add provisions for implementation of works or actions that are identified in the certified In-River Monitoring Plan and Cultural Health Index. (j) To deal with any relevant changes as a result of the development of wānanga and karakia options. (k) To modify the design of the Outlet structure to suit the requirements of Te Rohe o Te Wairoa Reserves Board – Matangirau.

Appendix 2: Technical Memorandum's and Evidence

Reference number	Technical Expert	Document	Page no.
2.a	Dr Shane Kelly	Introduction	98 – 101
		Memo dated October 6, 2020	102 – 116
		Memo dated July 4, 2019	117 – 123
		Memo dated February 13, 2019	124 – 131
2.b	Laddie Kuta	Introduction	132 – 133
		Memo dated 13 October 20	134 – 136
2.c	Nick Dempsey	Introduction	137 – 138
		Memo dated 06 October 2020	139 – 158
		WDC Effluent Sampling Results Wairoa WWTP with proposed limits	159 – 164

2.a Dr Shane Kelly

BEFORE THE Hawke's Bay Regional Council APP- 123774

IN THE MATTER of the Resource Management Act 1991

And in the Matter Of an application by Wairoa District Council to discharge wastewater into the Wairoa River and related activities

**EVIDENCE OF DR SHANE KELLY
ON BEHALF OF HAWKE'S BAY REGIONAL COUNCIL**

Ecological Effects

November 2020

INTRODUCTION - QUALIFICATIONS AND EXPERIENCE

1. My full name is Shane Kelly. I have a PhD in biological sciences, and over 25 years' experience studying and working in environmental and marine science. For instance, I spent 5 ½ years as a Project Leader/Principal Advisor in Environmental Research and Monitoring at the Auckland Regional Council. In this capacity, I managed marine ecology, marine water quality, sediment contaminant, shellfish contaminant, and estuary monitoring programmes. I was also a senior technical advisor on major urban infrastructure programmes related to stormwater, wastewater and land use management (which included acting as the environmental manager for the Regional Discharges Programme). While at the ARC, also I led the development of the Benthic Health Model (which was developed to assess the health of intertidal communities), and the development of the Waitemata Harbour and Pahurehure Stormwater Contaminant Accumulation Models.
2. In 2008 I established Coast and Catchment Ltd, and since that time have provided technical advice on the effects of numerous coastal and land use activities including the effects of stormwater and wastewater discharges, dredging, mangrove removal and pollution spills. My work has also included: fisheries surveys; the assessment of environmental values and issues in a number of harbours and estuaries; acting as a hearing commissioner; and providing technical advice on aquaculture development and regulation. I was also commissioned to lead the production of four "State of the Hauraki Gulf" reports for the Hauraki Gulf Forum.
3. I designed and report annually on the harbour monitoring programme for New Zealand's largest wastewater treatment plant at Mangere, Auckland and have carried out ecological assessments for five other wastewater treatment plants in the Auckland Region. I have also assessed or advised on coastal impacts associated with industrial and/or municipal discharges in other parts of New Zealand (e.g. Gisborne, Wanganui, Invercargill, Wellington and Napier), and investigated relationships between wastewater discharges and harbour water quality and primary productivity, and the use of aerial photographs and satellite imagery to monitor blooms of nuisance macroalgae. My expertise in this area has also led to me being commissioned to act as a technical advisor or panel member at multiple consent hearings.
4. I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and have complied with it in preparing this evidence. I confirm that the issues addressed in this evidence are within my area of expertise and I have not omitted material facts known to me that might alter or detract from my evidence.

SCOPE OF INVOLVEMENT

5. I was engaged by HBRC to undertake an assessment of the application (including s92 responses and any additional information provided by the applicant) and attend a site visit on 8 February 2019.
6. My advice was provided through memos that informed the s92 request and provided feedback on the Applicant's s92 responses. Also I have reviewed and provided comment on draft consent conditions.
7. Key reports I have referred to during that process include:
 - Greer, D., Mead, S. (2018) Wairoa WWTP outfall: 3D hydrodynamic numerical modelling. Client report for Wairoa District Council, eCoast, Raglan. 50 p.
 - Haggitt, T., Mead, S. (2018) Wairoa Wastewater treatment and discharge – Assessment of environmental effects: Marine ecology. Client report for Wairoa District Council, eCoast, Raglan. 21 p.
 - Haggitt, T., Mead, S., Mead, W., O'Neill, S. (2018) Assessment of effects of Wairoa District Council's existing intertidal sewage discharge on benthic sediment characteristics and ecology – Wairoa Estuary. Client report for Wairoa District Council, eCoast, Raglan. 41 p.
 - Wairoa District Council (2018) Wairoa WWTP AEE Appendix D: Proposed Conditions – 29 November 2018– Version 14. Wairoa District Council, Wairoa, and subsequent versions (the latest being Version 20).
 - Lake, P., Lowe, H. (2018) Wairoa Wastewater Treatment Plant discharge resource consent application and AEE. Consent application and AEE, Wairoa District Council, Wairoa. 67 p. (plus appendices).
 - Lowe, H. (2018) A3I3 Public Health Risk Summary. Memo to Cox J., Wairoa District Council, Dated 9/9/2018, 7 p., Lowe Environmental Impact.
 - Lane, A., Lake, P. (2018) Additional environmental monitoring data (LEI, 2018: A3I4). Memo to Heath S., Wairoa District Council, Dated 17/10/2018, 9 p., Lowe Environmental Impact.
 - Petch, J., Lowe, H., Lane, A. (2017) Task A3D5 recreational use analysis – Interim analysis of open water use. Memo to Cox J. Wairoa District Council, 7 August 2017, 8 pp., Lowe Environmental Impact.
8. My memos dated **February 13, 2019, July 4 2019 and 6 October 2020** are attached to the Officer's report. They contain my assessments of the Application (including relevant technical reports and additional information provided) and associated recommendations.
9. I have been asked to attend the hearing and will be available to provide comment and answer questions at the hearing.

SUPPLEMENTARY EVIDENCE

10. I will review the evidence when it is provided by the applicant and shall provide supplementary evidence if that is necessary.

A handwritten signature in black ink, appearing to read 'Shane Kelly', written in a cursive style.

Dr Shane Kelly

MEMO	
ATTENTION	Tania Diack, Hawke's Bay Regional Council
FROM:	Shane Kelly
CC	
DATE:	October 6, 2020
REGARDING	Wairoa wastewater discharge consent application APP-123774

BACKGROUND AND SCOPE

Hawkes Bay Regional Council have previously commissioned me to review information provided in support of a resource consent application by Wairoa District Council to:

- discharge treated wastewater from the Wairoa Wastewater Treatment Plant (WWTP);
- discharge untreated wastewater from engineered overflows in the wastewater network; and,
- to reposition of the current WWTP outfall.

Details from my initial reviews are provided in two previous memos (dated 13 Feb, and 4 Jul 2019). Those reviews highlighted a number of matters, for which further information was sought to obtain a better understanding the potential impacts of the proposed activities. My memo from 4 July 2019 provides a summary of my previous conclusions, which for your convenience are copied below:

The information provided in support of these applications suggests that:

- *The key contaminant of concern for toxicity effects is likely to be ammonia-N. Concentrations in the discharge will be rapidly diluted to levels below the ANZECC (2000) trigger value for slightly to moderately disturbed systems when the mouth of the estuary is open.*
- *Blooms of nuisance marine macroalgae are a key indicator of nutrient effects, but no information was provided on their presence or absence in the estuary. The observations and local knowledge of submitters may provide insights into whether or not they occur.*
- *The potential for adverse human health and ecological effects is greater when the mouth is closed. Few details have been provided on the likelihood and nature of those effects, but measures including storage, mouth clearance, and public notification are used to reduce their impacts.*
- *Wairoa Estuary has been degraded by the cumulative effects of multiple catchment activities. The existing discharge from the WWTP does not appear to be compounding those effects on benthic communities or habitats to any substantial degree.*
- *Moving the outfall into the channel has the potential to physically disturb pipi beds (or other subtidal species), but subtidal habitats and communities in the proposed area have not been surveyed. If consent is granted, I recommend conditions be included that require the disturbance area to be minimized.*
- *In my opinion, potential impacts on kaimoana have not been adequately addressed. Further context may be provided by submitters.*

- *An appropriate monitoring plan is still to be developed.*

Additional information was subsequently provided in September and October 2020. Matters of relevance to my expertise, included:

- an updated set of proposed consent conditions;
- detailed plans of the proposed outfall location, alignment and design;
- a proposal to collaboratively develop a river monitoring plan; and,
- agreement that a survey would be conducted to characterise the seabed community along the outfall alignment, and some preliminary observations from the seabed survey which simply confirmed that adult pipi and cockles were present along the outfall alignment (I cannot provide advice on likely ecological effects until further details are provided).

I have also:

1. Provided feedback on proposed conditions, including additions to the condition related to river monitoring, with the aim of providing a more robust water quality monitoring framework. This was done because:
 - I believe the proposed monitoring parameters are poorly aligned to potential water quality effects and discharge quality monitoring;
 - the proposed monitoring parameters are unlikely to inform regulatory and process management, by providing adequate feedback on the environmental performance of the treatment plant; and,
 - little real progress has been made on collaboratively developing a river monitoring plan, and I believe there is a risk that such a process will not eventuate or be unsuccessful (this is discussed in more detail below). Providing an appropriate set of minimum requirements through consent conditions is therefore critical.
2. Had a meeting with the Applicant's environmental advisor, Dr Shaw Mead, where we briefly discussed river monitoring and the potential for the outfall pipe and discharge structure to have adverse, physical effects on the seabed community.

Based on my meeting with Dr Mead, I also understand that additional hydrodynamic modelling is being/has been carried out in relation to the proposed outfall location. However, at the time of preparing this memo:

- I have not seen the results of the additional modelling;
- I have only seen some preliminary findings from the seabed survey along the route of the proposed pipeline, confirming that adult pipi and cockles are present;
- only one, brief discussion about monitoring has taken place; and,
- my suggested changes to the monitoring conditions were rejected by the Applicant.

As a consequence, most of the matters raised and conclusions reached in my July 2019 memo are still relevant, and I refer you to that memo.

I have provided a number of observations and recommendations on monitoring requirements, and further information was sought from the Applicant on those matters. The Applicant indicated in their response that WDC and HBRC technical experts would collaborate on drafting a benthic monitoring plan during the public notification period. If that process was unsuccessful, they further indicated that a revised set of draft conditions would be provided. Due to the lack of

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progress on the monitoring plan or conditions, I address those in more detail below, with the view towards ensuring river monitoring requirements are part of an integrated monitoring and management framework if consent is granted.

MONITORING FRAMEWORK

Section 5.14.1 of the AEE lists the following reasons for monitoring:

1. To support appropriate management of the treatment processes.
2. To observe any changes in parameters over time.
3. To trigger changes to treatment processes or discharge timing.
4. To demonstrate compliance with consent conditions.
5. To measure the scale of effects of the discharges on the receiving environment.

These appear logical and could be adapted to monitoring objectives set as a condition, similar to those provided below.

The objectives of monitoring are to:

- a) *provide timely feedback on plant performance;*
- b) *provide for the timely detection of spikes, trends or other changes in discharge and/or environmental quality;*
- c) *trigger changes to treatment processes or discharge timing if adverse spikes, trends or changes occur;*
- d) *demonstrate compliance with consent conditions; and,*
- e) *measure the type, scale and magnitude of discharge effects on receiving water quality, sediment quality and ecology;*
- f) *inform plans for improving wastewater systems and processes.*

Such objectives provide clear direction on the purpose of monitoring, which revolves around providing feedback on plant performance and consent compliance, through the measurement of discharge and environmental quality. The provision of such objectives also provides direction on the type of monitoring required and what should be measured. It should be recognised that things change over time. It is therefore good practice to incorporate a process for reviewing and refining monitoring processes.

The proposed conditions provide a framework for meeting such monitoring objectives. They can generally be grouped in conditions that:

1. Provide limits on discharge volumes, phasing, and quality:
 - Conditions 7-8 set requirements for discharge volumes and phasing;
 - Conditions 9-12 set requirements for when the river mouth is closed;
 - Conditions 13-14 set some minimum standards for environmental and discharge quality.
2. Set monitoring requirements to ensure compliance with the above limits, and track changes in discharge and environmental quality:

- Conditions 15–22 set general monitoring requirements and standards, including the measurement of discharge volumes, river flows, tides;
 - Condition 23 sets requirements for monitoring discharge quality;
 - Condition 24 sets requirements for monitoring in-river quality, including the development of an in-river monitoring plan;
 - Conditions 25–26 set the processes to be followed in relation to certifying and implementing the in-river monitoring plan.
3. Require monitoring results to be reported to the Regulator:
- Condition 49 sets requirements for the reporting of monitoring results.
4. Require wastewater management systems and processes to be reviewed:
- Conditions 53–54 require “System Review Data Reports” to be prepared;
 - Condition 55 requires a “System Improvement Plan” to be prepared based on the findings of the System Review Data Reports.
5. Provide for monitoring requirements to be periodically reviewed and amended:
- Condition 56 allows the Consent Holder to submit a Wastewater Monitoring Strategy (WMS) within 12 months of a System Review Data Report. The Wastewater Monitoring Strategy provides a process for changing the monitoring requirements.

However, for such a framework to work properly, the right criteria need to be monitored, results need to be analysed and reported in a timely manner, and results of monitoring need to be a central consideration in systems reviews. These three elements are considered below.

PROPOSED MONITORING REQUIREMENTS

As outlined above, Conditions 15 to 23 cover the general monitoring and discharge quality requirements. I understand that Nick Dempsey has reviewed those requirements for HBRC, and therefore, I have focused on Condition 24 (in-river monitoring), Condition 49 (monitoring report), and Conditions 53 and 54 (systems review).

CONDITION 24: IN RIVER MONITORING

Condition 24 requires an in-river monitoring plan to be prepared within three months of the consent commencing and provides minimum requirements in relation to the parameters and number of sites to be monitored. The parameter list is based on the recommendations of Haggitt and Mead (2018), but a clear rationale for why the parameters and number of sites were selected¹, and how they align and integrate with the framework outlined above is not provided.

I am particularly concerned about water quality effects. Water quality is the immediate environmental receptor, and consistency between river water and wastewater parameters allow

¹ I understand that the number of sites is based on requirements for benthic monitoring, but they also apply to water quality monitoring, which may or may not be appropriate.

direct linkages to be made between cause and environmental effect. In my experience,² benthic ecology and sediment quality tend to be much less sensitive indicators of wastewater effects (particularly benthic ecology) than water quality. I also note that the empirically based assessment of water quality provided with the application was very rudimentary, and the complexity of the river system, with its shifting and occasionally closing mouth, mean modelling predictions, while useful, are unlikely to reflect the reality experienced over the term of consent.

In terms of water quality, the starting point for selecting monitoring should be the identification of the issues of potential concern. For wastewater discharges, these typically include:

- high nutrient loads causing or exacerbating microalgal or nuisance macroalgal blooms, as indicated by high chlorophyll a concentrations and/or the appearance/expansion of nuisance macroalgal beds, leading to reduced water clarity, increased turbidity, and greater variation in oxygen saturation;
- effects of toxic contaminants;
- the direct (through particulate loads in the discharge) or indirect enrichment (through increased productivity) of sediments, indicated by elevated sediment concentrations of total organic carbon and total organic matter, and an increase in the proportion of fine sediments, leading to reduced sediment quality and changes in the characteristics of benthic communities;
- the effects of oxygen demanding substances, indicated by low dissolved oxygen concentrations in river water leading to adverse effects on river biota.

The required monitoring parameters and sampling designs (sites, times, and sampling methods) should be based on these issues of concern. The temporal and spatial resolution of sampling should take into account:

- the likely spatial scales and magnitudes of impact (these will vary among issues);
- likely rates of change (which may vary from diurnal to decadal depending on the parameter);
- methods of analysis; and,
- practicality and cost.

A typical water quality parameter list therefore includes:

- fundamental water quality parameters: temperature, salinity/conductivity, pH, dissolved oxygen and oxygen saturation;
- nutrients and productivity: ammonia-ammonium nitrogen (often referred to as $\text{NH}_3\text{-NH}_4^+\text{-N}$, total ammonia-N, ammoniacal-N, or simply ammonia-N), nitrate nitrogen, nitrite nitrogen, total nitrogen; soluble reactive phosphorus, total phosphorus and chlorophyll a;
- water clarity: turbidity, total suspended solids and Secchi depth;
- microbial contamination³:
 - marine contact recreation – enterococci;
 - freshwater contact recreation – *Escherichia coli*;
 - shellfish gathering – Faecal coliforms.

² See appended list giving examples of reports and publications that illustrate my experience in wastewater, water quality and benthic assessments and monitoring.

³ These microbial indicators may provide an overestimate health risk for UV treated wastewater.

I note that these parameters closely align with the parameters selected for monitoring discharge quality (which reflects the fact that the discharge monitoring parameters are based on issues of concern).

In comparison, the water quality parameters listed in proposed Condition 24 only include some soluble forms of phosphorus and nitrogen (soluble reactive phosphorus⁴, ammonia-N ($\text{NH}_3\text{-N}$), and soluble inorganic nitrogen (commonly called total inorganic nitrogen⁵). I assume that these were selected because soluble forms of nitrogen and phosphorus are immediately available for uptake by algae, and potentially, because ammonia is toxic at high concentrations. However, I note:

- Ammonia toxicity is mainly attributed to the un-ionised form of ammonia (NH_3), whereas nitrogen from both the un-ionised and ionised (ammonium, NH_4^+) forms is available for uptake by algae. The proportion of total ammonia in these two forms is highly dependent on pH and temperature. Consequently, total ammoniacal-N ($\text{NH}_3\text{-NH}_4^+\text{-N}$) rather than $\text{NH}_3\text{-N}$ is typically measured in water quality monitoring programmes associated with wastewater outfalls (and in other coastal water quality monitoring programmes). This is the most accurate indicator of ammonia-based nitrogen and is a conservative indicator of potential toxicity.
- Total forms of nitrogen and phosphorus can have stronger relationships with chlorophyll a concentrations (as an indicator of productivity) than soluble forms, and therefore, may be better indicators. For instance, analyses I have done showed mean summer concentrations on total nitrogen (TN) explained around 40% of variation in mean summer chlorophyll a concentrations in Manukau Harbour, while total inorganic nitrogen only explained 29% of variation (Kelly 2018). Similar results were obtained when maximum chlorophyll a concentrations were considered.
- Indicators of primary productivity are not included (i.e., the direct endpoint of nutrient effects). These would typically include chlorophyll a concentrations, and the appearance and extent of nuisance macroalgae. The exclusion of these indicators means that the effects of nutrients cannot be directly quantified.
- Fundamental water quality parameters assist in the interpretation of water quality data and can be cheaply measured using hand-held multiparameter meter(s) have not been included (dissolved oxygen; salinity; conductivity; temperature; and pH). I strongly recommend their inclusion.
- Pathogens are a key wastewater contaminant. It would therefore be reasonable to include indicators of microbial contamination in the list of monitoring parameters (although I note that UV treatment should reduce viable virus loads, which will potentially affect relationships between the indicators of microbial contaminants and health risk).

Consideration should also be given to how the effects of wastewater discharges can be separated from the effects of other activities. Aligning in-river monitoring as closely as possible with discharge monitoring assists with that and allows long-term relationships between river and WWTP discharge volumes, quality and loads to be examined.

⁴ Also called dissolved reactive phosphorus or DRP.

⁵The sum of ammoniacal nitrogen ($\text{NH}_3\text{-NH}_4^+\text{-N}$), nitrate nitrogen ($\text{NO}_3\text{-N}$) and nitrite nitrogen ($\text{NO}_2\text{-N}$).

Given the absence of a clear rationale for the selection of water quality monitoring parameters in Condition 24, I recommend including the following set of typical monitoring parameters:

- total ammoniacal nitrogen;
- nitrate nitrogen;
- nitrite nitrogen;
- total nitrogen;
- soluble reactive phosphorus;
- total phosphorus;
- chlorophyll a;
- total suspended solids;
- temperature;
- dissolved oxygen;
- salinity;
- pH;
- enterococci; and,
- faecal coliforms⁶.

Those variables are generally aligned to the discharge monitoring, cover off the key effects of wastewater discharges, and/or co-vary with wastewater indicators, and are therefore needed to interpret monitoring results.

I note that five sites are unlikely to be required for water quality monitoring. Water quality commonly displays a high degree of temporal variability and fewer sites monitored more frequently (e.g., monthly, reducing to daily when the river mouth is closed) may be preferable.

Having said that, I acknowledge concerns expressed by the Applicant about safety and collecting samples while the discharge is occurring (see comments version of proposed consent conditions). The Applicant suggests that *“There is only value in river water quality sampling if they are collected while the discharge is occurring (which will generally be at night time or at times of high flow and sampling would not be practical or safe). Dilution will be rapid and there are health & safety concerns with this.”*

They go on to state “HBRC’s scientists have noted that the Wairoa River estuary is not prone to nuisance macroalgae accumulations due to the low nutrients and high silt concentrations. Therefore, monitoring of a range of nutrient and biological indicators in the water column would be of limited or no value. Also, there will be no discharge at the time of sampling as noted above. However, some parameters could be sampled in the sediment, such as E. coli and Enterococci.”

While health and safety concerns are important, I note the Applicant has offered to monitor soluble forms of phosphorus and nitrogen in river water samples from the five sites. I assume those samples can be collected safely and see no reason why sufficient water cannot be obtained at the same time to allow for the measurement of the additional parameters. Periodic monitoring of a site below the outfall by Hawkes Bay Regional Council also indicates that monitoring can be carried out safely. If safety remains a concern, new methods, such as drone

⁶ The proposed consent only includes DRP, SIN, NH₄-N.

sampling, which allow sampling to be carried out cheaply and safely, may be suitable for Wairoa⁷.

The Applicant's assertion that water sampling would be useful, only if it is done when the discharge is occurring may have merit. Sampling over a 24-hour period would allow changes in water quality before, during and after discharges occur would allow that assertion to be tested and assist in the design of a suitable water monitoring programme. I note that the additional environmental quality data provided in the application (A314, Lane & Lake 2018) indicates that daytime median and maximum ammoniacal nitrogen concentrations below the outfall were substantially higher than those at an upstream monitoring site. To put those results into context, I compared them with monitoring results associated with New Zealand's largest WWTP, at Mangere, Auckland, which discharges into Manukau Harbour (Kelly 2019). Daytime concentrations below the Wairoa WWTP appear comparable to those from sites closest to Mangere WWTP (see Figure 1 to Figure 3), which have the worst coastal water quality in Auckland Region (Ingleby 2020). On the face of it, those results suggest that the discharge does have a significant influence on water quality below the outfall, and that there is merit in daytime sampling. However, I acknowledge that the two systems are quite different and that other upstream and downstream sites could have had an influence. A properly designed and implemented water quality monitoring programme could resolve those issues.

Having said that, I acknowledge the concerns of the Applicant, and believe it would be reasonable to provide for a trial period in the monitoring plan to identify monitoring sites and sampling methods, that allow sampling to be carried out safely and for robust results to be obtained.

Other, general comments about the proposed monitoring requirements are provided below:

- I see little point in sampling *E. coli* and enterococci in sediment. I don't know how that information would be interpreted, as there is little comparable data, and guideline values for contact recreation and shellfish gathering are applied to water quality (I also note the guideline for shellfish gathering applies to faecal coliforms). In my opinion, it would be more appropriate to monitor microbial contamination through water sampling.
- The proposed measurement of sediment heavy metals concentrations will provide contextual information, but heavy metals do not tend to be an important component in wastewater discharges (which is consistent with previous monitoring results). I therefore see little point in monitoring them.
- In terms of sediment nutrients, I consider sediment concentrations of total recoverable phosphorus and total nitrogen to be sufficient (i.e., I do not consider the measurement of DRP concentrations necessary).

Finally, it is important to understand that the effects of wastewater discharges on coastal environments are complex, and that robust data and a good understanding of the processes involved is required to disentangle the effects of the discharge from other sources of variation. The complexity of the Wairoa river mouth and proposed discharge regime makes this even more important.

⁷ I have discussed this with Nick Vigar, Auckland Council's Safeswim Programme Manager, who has been trialling water sampling with drones.

CONDITION 49: MONITORING REPORT

Among other things, proposed Condition 49 has been amended to reduce the frequency of reporting from yearly to 2-yearly. In my opinion this change reduces the capacity for the monitoring data to provide timely feedback on plant performance. I therefore recommend reverting to annual reporting.

I also, note that the reporting requirements of Condition 49 cover a multitude of issues. In my opinion, the analysis and reporting of water quality and ecological data needs to be done by scientists with specific experience and expertise on those topics. As noted above, this is a complex issue, and important findings can be missed or misinterpreted if the reporting is done by someone without the requisite skills. I expect that similar comments could be made about the other issues to be reported on.

CONDITIONS 53 TO 55: SYSTEM REVIEW EXERCISE AND REPORTS

Conditions 53 and 54 require "System Review Data Reports" to be prepared at years 5 and 10, and at 10-year intervals thereafter. Those reports feed into the development of System Improvement Plans (Condition 55) and Wastewater Monitoring Strategies (Condition 56), with the latter condition providing for alterations to monitoring requirements.

Condition 53 lists the information to be provided in System Review Data Reports. A notable omission from that list are monitoring results. In my opinion, a robust evaluation of wastewater systems, and a robust review of monitoring requirements cannot be made unless monitoring results are considered.

CONCLUSIONS AND RECOMMENDATIONS

My conclusions from earlier reviews of the consent application are provided in my memo from July 2019. Conclusions and recommendations from that memo are still relevant, but I note that the alignment and location of the proposed outfall have now been fixed, and the Applicant has committed to surveying the seabed ecology along its alignment. At the time of preparing this memo, I had only been provided preliminary observations from that survey, which simply confirmed that adult pipi and cockles were present along the outfall alignment. I cannot provide advice on likely ecological effects until further details are provided.

Due to the lack of progress on the monitoring plan or monitoring conditions, I have also reviewed the monitoring framework built into the proposed consent conditions. Based on that review I recommend that if consent is granted, the proposed conditions are amended to incorporate:

1. New Condition: adding a consent condition that defines monitoring objectives. In my opinion, and based on the reasons given for monitoring, they should:
 - a. provide timely feedback on plant performance;
 - b. provide for the timely detection of spikes, trends or other changes in discharge and/or environmental quality;
 - c. trigger changes to treatment processes or discharge timing if adverse spikes, trends or changes occur;
 - d. demonstrate compliance with consent conditions;
 - e. measure the type, scale and magnitude of discharge effects on receiving water quality, sediment quality and ecology; and,
 - f. inform plans for improving wastewater systems and processes.

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2. Condition 24: requiring monthly monitoring of river water quality for total ammoniacal nitrogen; nitrate nitrogen; nitrite nitrogen; total nitrogen; soluble reactive phosphorus; total phosphorus; chlorophyll a; total suspended solids; temperature; dissolved oxygen; salinity; pH; enterococci; and faecal coliforms. Monitoring frequency should reduce to daily when the river mouth is closed. If required, the monitoring plan should provide for a trial period to enable the identification of suitable monitoring sites and sampling methods.
3. Condition 49: requiring the preparation of an annual monitoring report, with the analysis and reporting of water and benthic monitoring results to be done by scientists with experience and expertise on those specific topics.
4. Condition 53: adding the results of monitoring to the matters required to be included in System Review Data Reports.

Figure 1: Extract from Lane and Lake (2018) showing a summary of water quality results at sites above and below the Wairoa WWTP outfall.

A314 Additional Environmental Monitoring Memo

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Table 2: HBRC Data for Wairoa River Water Quality Results for 2000-18

Monitoring Site and Sample Date Ranges	Ammoniacal-Nitrogen (g/m ³)		Dissolved Reactive Phosphorus (g/m ³)		Total Suspended Solids (g/m ³)		E. coli (cfu/100ml)		
	Range	Median	Range	Median	Range	Median	Range	Median	95 th %ile
Railway Bridge									
May 2000 or Aug 2004 – Nov 2008 ¹	<0.010 – 0.061	0.020	<0.001 – 0.043	0.008	<3 – 261	13	<1 – 150	28	86
Feb 2009 – Dec 2016	<0.005 – 0.12	<0.010	<0.001 – 0.032	0.010	0.7 – 2,900	11	<1 – 14,000	80	3,800
Jan 2017 – Dec 2017	<0.005 – 0.014	<0.005	<0.001 – 0.019	0.008	2.9 – 250	11	23 – 1,100	58	935
All data	<0.005 – 0.12	0.020	<0.001 – 0.043	0.010	0.7 – 2,900	12	<1 – 14,000	56	2,500
Wairoa Ski Club									
Nov 2010 – Dec 2016							<1 – >100,000	70	2,320
Jan 2017 – Mar 2018							3 – 4,300	223	1,114
All data							<1 – >100,000	80	1,250
Downstream of WWTP Discharge									
May 2000 or Aug 2004 – Nov 2008 ¹	<0.010 – 0.25	0.061	<0.001 – 0.030	0.013	3 – 1,280	47	<1 – 280	25	175
Feb 2009 – Jun 2012	<0.010 – 0.11	0.044	<0.004 – 0.078	0.010	7.1 – 1,210	53	<1 – 19,000	160	8,380
All data	<0.010 – 0.25	0.054	<0.001 – 0.078	0.013	3 – 1,280	50	<1 – 19,000	48	1,112
Guideline or Limit² and Source of Limit	Maximum 0.1 mg/l at or below median river flows		Maximum 0.015 mg/l at or below median river flows		Maximum 25 mg/l at all river flows		Median <130 cfu/100 ml and 95 th percentile <1,200 cfu/100 ml		
	HBRC RRMP (2006)		HBRC RRMP (2006)		HBRC RRMP (2006)		NPS-FM 2017, Attribute State C		

Notes: ¹ Data for the Railway Bridge and Downstream of WWTP Discharge sites commenced in August 2004 for *E. coli* and commenced in May 2000 for all other parameters.
² 1 g/m³ = 1 mg/l.

Figure 2: Water quality monitoring sites in Manukau Harbour where the data in Figure 3 was obtained.

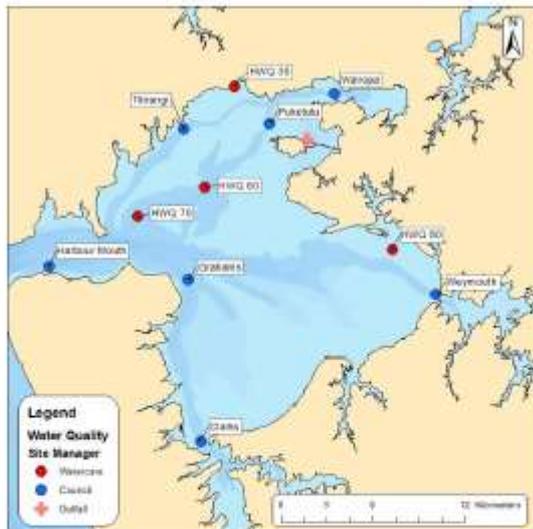
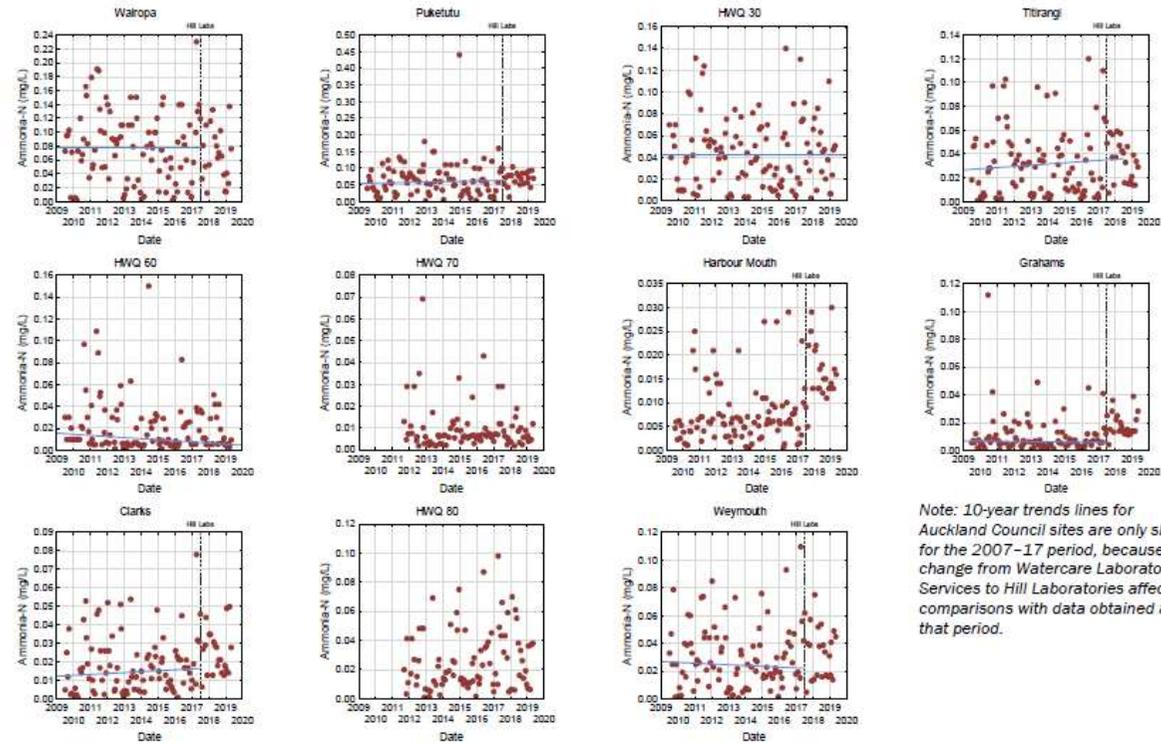


Figure 3: Extract from Kelly (2019), showing variation in ammonia-N ($\text{NH}_3\text{-NH}_4\text{-N}$) concentrations obtained from water quality monitoring sites in Manukau Harbour between July 2009 and June 2019. Sen slope trend lines are fitted for sites with 10 years of continuous data (blue line). Note that the scale of the y-axis varies among graphs, and that values below detection limits were derived from regression on statistics estimates.



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APPENDIX 1: EXAMPLES OF RELEVANT REPORTS AND PUBLICATIONS THAT ILLUSTRATE MY EXPERIENCE

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MEMO

Attention Tania Diack, Hawkes Bay Regional Council

From: Dr. Shane Kelly

CC Reece O’Leary, Hawkes Bay Regional Council

Date: July 4, 2019

Regarding Review of Wairoa WWTP Ecological Assessments



1 Scope of this Review

Hawkes Bay Regional Council have previously commissioned me to review information provided in support of a resource consent application by Wairoa District Council to:

- discharge treated wastewater from the Wairoa Wastewater Treatment Plant (WWTP);
- discharge untreated wastewater from engineered overflows in the wastewater network; and,
- to reposition of the current WWTP outfall.

Conclusions and recommendations from my initial reviews are provided in two previous memos. Those reviews highlighted several matters, and further information was sought (and provided) to obtain a better understanding the potential impacts of the proposed activities. The purpose of this memo is to review that information in relation to effects on Wairoa Estuary.

2 Hydrodynamics

Hydrodynamic modelling was used to explore the dilution and dispersal of the discharges to the estuary. The assessment described model inputs and development, but questions remained about the potential for rapid geomorphological changes and/or proposed changes to the position of the wastewater outfall to invalidate predictions. Further information was therefore sought on these matters. The additional information provided¹ indicated that the eastern opening of the river mouth modelled can be considered as a worst-case scenario for those periods when the mouth is open. A visual assessment of the model predictions suggests that under those conditions, and for various scenarios of river flow and discharge volume, discharges will be diluted by about 200 times within around 100-200 m of the outfall.

¹ Wairoa wastewater treatment plant and reticulation network discharge resource consent applications. Applicant’s responses to HBRC’s requests for further information dated 26 March 2019.

The key contaminant of concern for toxicity effects is likely to be ammonia-N (the effects of oxygen demanding substances is a secondary concern). Final treatment quality data indicated ammonia-N concentrations ranged from 4.0 to 36 mg/l between 2008 and 2016 (Table 5.2 in Hill et al. (2017)). Dilutions of 4.4 to 39.6 times would therefore be required to reduce concentrations to levels below the ANZECC (2000) marine toxicity trigger value for the protection of 95% of species (0.91 mg/l). Model plots suggest that when the river mouth is open, ammonia-N concentrations are likely to fall below the trigger value within 100 m of the outfall.

Figures provided for ammonia-N concentrations in raw influent (Table 5.2 in Hill et al. (2017)), coupled with model plots from network overflows (Greer & Mead 2018), and taking into account the dilution of wastewater prior to discharge during storm events (which Greer and Mead (2018) suggest could be up to 98%) indicate that dilution to levels below the toxicity trigger value is likely to occur within a smaller radius around network overflow points.

Periods when the river mouth is closed were not modelled, but the responses to requests for further information acknowledge the potential for adverse effects when this occurs. Few details are provided on the nature of those effects, but it would be reasonable to expect both health and ecological risks to be elevated. Those risks are currently managed through wastewater storage, river mouth clearance, and by issuing public health warnings. In the future, WDC also expect those risks to also be reduced through the application of filtration and UV treatment.

3 Benthic habitats and ecology

An ecological assessment was carried out to evaluate the effects of the wastewater discharge on sediment quality and benthic communities (Haggitt et al. 2018). The assessment built upon the work of earlier monitoring and assessments, which surveyed three sites around the outfall. Seven additional sites were sampled by Haggitt et al. (2018), with appropriate sampling design and methods being used.

In summary, the sampling results showed:

- Total sediment metal concentrations were relatively low, with the exception of elevated lead concentrations near an overflow inshore from the WWTP outfall. The cause of elevated lead concentrations was not determined, but the potential for it to have originated from dumped material was highlighted in the response to a request for further information. This seemed reasonable, as lead is not a typical wastewater contaminant.
- There were no clear spatial trends in the percentages of silt or organic matter in seabed sediments around the outfall in 2018. This, together with the low metal concentrations, suggests that the discharge was not having a marked effect on sediment quality.
- Infaunal macroinvertebrate diversity was relatively low at the 10 sites sampled in 2018 (17 taxa in total), with the dominant taxa described as being *synonymous with degraded/impacted environments*. Sites closest to the outfall tended to have higher diversity and abundance, but fewer pipi than the more remote sites. This could be due to the discharge or it could reflect natural variation, as differences in community composition were also apparent among groups of remote sites (see Figures 9-11 in Haggitt et al. 2018).

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Overall, there is evidence that benthic ecology and habitat quality in the estuary are impacted by catchment activities, but the existing discharge does not appear to be compounding those effects to any substantial degree.

Further information was also sought on whether nuisance macroalgae blooms were present in the lower Wairoa River. Blooms of marine macroalgae such as *Gracilaria* and *Ulva* (sea lettuce) are a key indicator of nutrient effects and commonly occur in nutrient enriched estuaries, where dense beds can cover intertidal sand and mud flats.

The Applicant's response indicated that no periphyton growth was observed during field data collection and noted that *periphyton growth is unlikely to develop in soft-bottomed rivers such as the lower Wairoa River, regardless of dissolved nutrient concentrations.*

And,

This in combination with the occasionally high water flow rates and poor water quality in terms of light penetration (very turbid), indicate that periphyton blooms are unlikely to occur in the Wairoa estuary.

I note that the growth of periphyton, which typically occurs in freshwater systems, differs from the nuisance macroalgae blooms that occur in harbours and estuaries (see example in Figure 3-1 below). Nuisance macroalgae blooms tend to grow in intertidal areas and be visually obvious (they can also cause offensive odours). Consequently, they are likely to be noticed by members of the public. Further information on this matter may therefore be provided by submitters.



Figure 3-1: *Gracilaria* growing on mudflats in Manukau Harbour.

4 Effects of repositioning the outfall

Additional information was sought on the potential effects of repositioning the outfall. The response provided by the Applicant indicated that it would result in the broader distribution of suspended materials in the discharge, but sedimentation patterns will largely be determined by river migration, the position of the entrance, and sand bars in the lower estuary. Based on the modelling information provided, those conclusions seem reasonable.

In relation to benthic ecological effects, the Applicant indicated that effects on pipi are expected to be localized and temporary. The raw pipi data in Appendix B of Haggitt et al. (2018) indicates that relatively dense populations of juvenile pipi are spread throughout intertidal areas in the lower estuary. However, the subtidal area proposed for the new outfall has not been surveyed.

I note that, adult and juvenile pipi can live in separate areas (pipi move by secreting mucus threads that allow them to drift). In Whangateau Harbour, northeastern New Zealand, Hooker (1995) found that:

- pipi recruits occurred in a small mid-intertidal band;
- juveniles occurred below the recruits in the lower intertidal to subtidal zone;
- adults mainly occurred sub-tidally, forming very dense, discrete beds with juveniles missing in central parts of the beds.

It is therefore possible that moving the outfall into the channel will disturb adult pipi beds. In the absence of site-specific information, I therefore recommend that, if consent is granted, the area of disturbance be minimized during construction.

5 Kai moana

In response to a request for further information on what and where edible species of kaimoana can be gathered around the river mouth, the Applicant states in 6a of their response:

In terms of gathering kaimoana around the river mouth, such as shellfish in the sediment and/or on hard substrate, none are gathered due to river water quality being too poor (in terms of high levels of E. coli that would make them inedible). More importantly, it is because there are few there, and they don't grow to maturity.....

.....This trend appears unrelated to silt content, however it must be stressed that all pipi enumerated were <30 mm in size, therefore are likely to be stressed at all sites where they are encountered....

.....Local residents and their families who recreationally fish and represent several decades' experience have confirmed that shellfish are not collected anywhere in the estuary because of public health warnings, shellfish population declines, and the small sizes of pipi and mussel spat....

.....It should also be noted that all MACA claimants were sent a summary of the proposed package of changes for future consenting and were subsequently sent a copy of the AEE. Their complete absence of feedback suggests that kaimoana and mahinga kai are not valued and perhaps do not exist in the vicinity of the WWTP discharge pipeline or its plume....

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As noted above:

- the ecological assessment indicated that juvenile pipi are relatively abundant and widespread in the estuary;
- the lack of adult pipi at the intertidal sites sampled does not mean adult beds are not present sub-tidally;
- neither does it mean that pipi at those sites are stressed (as the Applicant infers in their response to HBRC's request for further information).

The Applicant did not provide details on which local residents gave details on shellfish harvesting, so I am unsure about the reliability of that information. I also note that there could be many reasons why MACA claimants did not provide feedback on the application. I consider it unwise to assume that the lack of feedback means *kaimoana and mahinga kai are not valued and perhaps do not exist in the vicinity of the WWTP discharge pipeline or its plume*.

In my opinion, effects on kai moana have not been adequately addressed. Further details on shellfish occurrence and harvesting in the estuary may be provided by submitters.

6 Proposed discharge monitoring parameters

In my previous memo I provided a number of observations and recommendations on monitoring requirements. Further information was sought from the Applicant on those matters. The Applicant indicated in their response that WDC and HBRC technical experts would collaborate on drafting a benthic monitoring plan during the public notification period. If that process was unsuccessful, they further indicated a revised set of draft conditions would be provided. Consequently, this matter is yet to be resolved.

7 Staging

The addition of filtration and UV treatment at the outlet of the facultative pond within 2 years of consent being granted is a positive step that should reduce health risks associated with discharges from the WWTP. Risks from bypass events and other sources of microbial contamination will remain.

In principle, the staging of other WWTP initiatives also appear reasonable. However, the application highlights that key targets in Stages 1 and 2 depend on commitments outside resource consent processes and that Stages 3 and 4 are aspirational. Consequently, there is little certainty that the proposed staging will be implemented.

I also note that the proposed staging relaxes the current requirement of only discharging at night. This is unlikely to have a tangible effect on benthic macrofauna or sediment quality but could have other environmental implications (e.g. increasing health risks).

8 Conclusions

The information provided in support of this applications suggests that:

- The key contaminant of concern for toxicity effects is likely to be ammonia-N. Concentrations in the discharge will be rapidly diluted to levels below the ANZECC (2000) trigger value for slightly to moderately disturbed systems when the mouth of the estuary is open.
- Blooms of nuisance marine macroalgae are a key indicator of nutrient effects, but no information was provided on their presence or absence in the estuary. The observations and local knowledge of submitters may provide insights into whether or not they occur.
- The potential for adverse human health and ecological effects is greater when the mouth is closed. Few details have been provided on the likelihood and nature of those effects, but measures including storage, mouth clearance, and public notification are used to reduce their impacts.
- Wairoa Estuary has been degraded by the cumulative effects of multiple catchment activities. The existing discharge from the WWTP does not appear to be compounding those effects on benthic communities or habitats to any substantial degree.
- Moving the outfall into the channel has the potential to physically disturb pipi beds (or other subtidal species), but subtidal habitats and communities in the proposed area have not been surveyed. If consent is granted, I recommend conditions be included that require the disturbance area to be minimized.
- In my opinion, potential impacts on kaimoana have not been adequately addressed. Further context may be provided by submitters.
- An appropriate monitoring plan is still to be developed.

9 References

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A handwritten signature in black ink, consisting of several loops and flourishes, located in the upper left quadrant of the page.

MEMO

Attention Tania Diack, Hawkes Bay Regional Council

From: Dr. Shane Kelly

CC Reece O’Leary, Hawkes Bay Regional Council

Date: February 13, 2019

Regarding Review of Wairoa WWTP Ecological Assessments



1 Scope of this Review

Hawkes Bay Regional Council commissioned me to conduct a technical review of information provided in support of a resource consent application by Wairoa District Council to discharge treated wastewater from the Wairoa Wastewater Treatment Plant (WWTP) and from designed overflows in the wastewater network, and to reposition of the current WWTP outfall. The key documents provided for review were:

- Greer, D., Mead, S. (2018) Wairoa WWTP outfall: 3D hydrodynamic numerical modelling. Client report for Wairoa District Council, eCoast, Raglan. 50 p.
- Haggitt, T., Mead, S. (2018) Wairoa Wastewater treatment and discharge – Assessment of environmental effects: Marine ecology. Client report for Wairoa District Council, eCoast, Raglan. 21 p.
- Haggitt, T., Mead, S., Mead, W., O’Neill, S. (2018) Assessment of effects of Wairoa District Council’s existing intertidal sewage discharge on benthic sediment characteristics and ecology – Wairoa Estuary. Client report for Wairoa District Council, eCoast, Raglan. 41 p.
- Wairoa District Council (2018) Wairoa WWTP AEE Appendix D: Proposed Conditions – 29 November 2018– Version 14. Wairoa District Council, Wairoa.

Additional documents that I referred to during this review included:

- Lake, P., Lowe, H. (2018) Wairoa Wastewater Treatment Plant discharge resource consent application and AEE. Consent application and AEE, Wairoa District Council, Wairoa. 67 p. (plus appendices).
- Lowe, H. (2018) A313 Public Health Risk Summary. Memo to Cox J., Wairoa District Council, Dated 9/9/2018, 7 p., Lowe Environmental Impact.
- Lane, A., Lake, P. (2018) Additional environmental monitoring data (LEI, 2018: A314). Memo to Heath S., Wairoa District Council, Dated 17/10/2018, 9 p., Lowe Environmental Impact.
- Petch, J., Lowe, H., Lane, A. (2017) Task A3D5 recreational use analysis – Interim analysis of open water use. Memo to Cox J. Wairoa District Council, 7 August 2017, 8 pp., Lowe Environmental Impact.

Specific feedback was sought on:

- whether the AEE Marine Ecology was fit for purpose and robust.

1

- whether the river discharge parameters are reasonable or if alternative discharge parameters should be investigated.
- whether other/further management regimes should be required to manage effects on the Wairoa River and Wairoa Estuary.
- proposed monitoring conditions and/or any changes to those proposed.
- whether the proposed staged works are reasonable regarding timing.
- any other matters relevant to the proposal.

A site visit with some of the Applicant’s technical experts was also conducted on 8 February 2019.

2 Qualifications and Experience of the Reviewer

I have a PhD in biological sciences, and over 20 years’ experience studying and working in environmental and marine science. Among other things, my work has included co-authoring the “blueprint” for monitoring urban estuaries and preparing state of the environment reports for coastal water, sediment and shellfish monitoring in the Auckland Region. I also prepared catchment plans and environmental assessments for stormwater management, covering much of Auckland’s urban area and provided technical input into Wellington City Council’s (WCC) city-wide stormwater discharge consents and catchment plans. I have assessed urban stormwater impacts in Wellington and Porirua Harbours, and in Napier’s urban waterways. I designed and report on the harbour monitoring programme for New Zealand’s largest wastewater treatment plant at Mangere, Auckland and have carried out ecological assessments for five other wastewater treatment plants in the Auckland Region. I have investigated relationships between wastewater discharges and harbour water quality and primary productivity, and investigated the use of aerial photographs and satellite imagery to monitor blooms of nuisance macroalgae. I have also acted as a technical advisor and panel member at Regional Council hearings involving industrial and municipal wastewater discharges.

3 Information presented in assessments

3.1 Hydrodynamic modelling

Hydrodynamic modelling was used to explore the dilution of the wastewater throughout the estuary. The assessment provides background information on the physical nature of the lower Wairoa River, and describes the data sources and calibration procedures used in the modelling. Greer and Mead (2018) highlighted that the river mouth is very dynamic, with lateral shifts in its position of 800 m being recorded together with occasional closures, requiring the mouth to be reopened by digger. Because of the difficulty of incorporating such changes into a numerical model, a stable bathymetry was used based on measurements made eCoast.

The area was a complex system to model, leading to some disparities between measured and modelled results, particularly for salinity. Nevertheless, Greer and Mead (2018) were confident that calibration results indicated that the model’s performance was sufficient for discharge scenario modelling.

2

However, questions remain about the potential for rapid geomorphological changes and proposed changes to the position of the wastewater outfall to invalidate predictions based on a fixed geomorphology and current outfall location. In my opinion, the potential influence of those changes needs to be considered in more detail, given that model outputs could be used to inform key decisions. Further information/advice should therefore be sought on:

- how sensitive are the model results likely to be to changes in the geomorphology of the river mouth or position of the outfall?
- what, if any, key decisions were predicated on the model outputs? and,
- if the modelling has been used to inform key decisions about discharges to Wairoa River, what, if any, contingencies have been put in place to manage uncertainties?

Leaving that aside, 10 scenarios were modelled using various combinations of: outfall flow; the timing of the discharge relative to tidal stage; and, river flow. Outputs included patterns of wastewater dispersal and dilution. A conservative tracer was used rather than any specific contaminant (such as bacteria/viruses, nutrients or sediment), with dilution maps and plots being produced for this tracer. Greer and Mead (2018) indicated that these can be used to provide conservative estimates of river concentrations based on pollutant concentrations at the outfall. However, they did not provide guidance on how the dispersal and dilution patterns should be interpreted for different types of contaminants. I note that while a conservative tracer may be a reasonably good proxy for soluble and microbial contaminants that remain in suspension (at least over short periods), it may not be suitable for particulates that settle out and affect seabed communities (such as sediment, organic matter and the contaminants that bind to those materials).

Further information/advice should therefore be sought on:

- how the dispersal and dilution patterns should be interpreted for different types of contaminants.

Shear stress was also modelled to identify areas where sediments are likely to be mobilized (and conversely be relatively stable). Unsurprisingly the results indicated that shear stress was high through the river mouth and low in the eastern and western arms. Greer and Mead (2018) also highlighted a concordance between low shear stress and fine sediments and vis versa, and gave examples to illustrate this point. A number of anomalies were highlighted that don't make intuitive sense. Overlaying bubbleplots of the silt values obtained from each site on the shear stress plots would assist with interpreting the relationship between these parameters. Some discussion about the potential influence of changes in the mouth morphology would also be useful.

I therefore recommend that a request be made for:

- bubbleplots of silt values overlaid on shear stress plots;
- further information/advice on the potential influence of changes in the mouth morphology on shear stress, and potential areas of sediment and contaminant accumulation.

3.2 Ecological assessment

An ecological assessment was carried out to evaluate the effects of the wastewater discharge on sediment geochemistry and infaunal biota (ecology). The ecological report outlines the propose of

the assessment and describes the environmental setting. It builds upon the work of earlier monitoring and assessments, which established three sites around the outfall where sediment quality and benthic communities were monitored:

- an “impact” site ~100 m south of the outfall;
- an “impact” site ~100 m north of the outfall; and
- a reference site ~500 m north of the outfall.

Seven additional sites were sampled by Haggitt et al (2018). At each site sediment samples were obtained and analysed for:

- the depth of the REDOX discontinuity layer;
- organic matter;
- sediment texture;
- total recoverable concentrations of phosphorus, nitrogen and a key heavy metals;
- the identification and counts of macrofauna.

Sediment quality in samples collected next to the Fitzroy St pump station overflow outfall were also analysed. That showed unusually high sediment concentrations of lead were present in that area, but the lead sources were not identified. I recommend that further information be sought on that matter.

The sampling design and methods described for the assessment appear to be appropriate for the WWTP outfall, but the original laboratory results were not appended to the report. These should be requested. I also note that no information was provided on the occurrence (or lack of) of nuisance macroalgae, which is a key indicator of benthic wastewater effects. Information on whether nuisance macroalgae blooms are present in the lower Wairoa River should therefore be requested.

The results appear to have been analysed appropriately and in my opinion enough information is provided to enable impacts on benthic macrofauna and sediment quality to be determined for the current outfall configuration. However, the effects of re-positioning the WWTP outfall do not appear to have been addressed. Information should be sought on the potential effects of that activity.

4 Adequacy of the parameters measured

The scope of the ecological assessment was limited to the analysis of benthic macrofauna and sediment quality (referred to as sediment geochemistry in the reports). The parameters assessed were suitable for determining the effects of treated wastewater on those values, although some additional comment on the potential effects of emerging contaminants of concern would be useful. Water quality information has been reported separately, but I have not reviewed that information in detail.

5 Need for other management regimes

The information provided in the AEE and assessment documents shows that water and habitat quality is degraded in the lower Wairoa River, and indicates that the current state of the river arose from the combined, adverse effects of multiple landuse activities over many years: including discharges from the Wairoa wastewater network and treatment plant. This seems to be a reasonable conclusion, as many of New Zealand's rivers have similar histories. However, it is beyond the scope of this review to determine the processes and actions required to improve outcomes for the river.

Having said that, it is clear that (among other things) a meaningful, long term commitment will be required from multiple stakeholders to reduce sediment and contaminant loads to the river. Remediation is likely to require a mix of voluntary and regulatory processes.

6 Proposed discharge monitoring parameters

The proposed conditions include a requirement for an in-river monitoring plan to be prepared within three months of the consent commencing, and provides minimum requirements in relation to the parameters and number of sites to be monitored. More detailed recommendations for river monitoring are provided in Haggitt and Mead (2018). In my opinion, the proposed approach of providing high level direction in conditions, with the detail being fleshed out in a monitoring plan is appropriate. I also recommend that clear monitoring objectives be specified in the conditions and some amendments to the monitoring parameters and proposed sampling designs are advised.

Section 5.14.1 of the AEE lists the following reasons for monitoring:

1. to support appropriate management of the treatment processes;
2. to observe any changes in parameters over time;
3. to trigger changes to treatment processes or discharge timing;
4. to demonstrate compliance with consent conditions; and
5. to measure the scale of effects of the discharges on the receiving environment.

These appear logical and could be adopted as monitoring objectives. However, I do not consider the parameters proposed by Haggitt and Mead (2018) for in-river water quality monitoring to be sufficient.

The monitoring plan should provide a clear rationale for the selection of monitoring parameters and sampling design. The starting point for that should be the identification of the issues of potential concern. For example, these could (but not necessarily) include:

- high nutrient loads causing or exacerbating microalgal or nuisance macroalgal blooms, as indicated by high chlorophyll *a* concentrations and/or the occurrence/expansion of nuisance macroalgal beds, leading to reduced water clarity, increased turbidity, and greater variation in oxygen saturation;

- effects of toxic contaminants on benthic communities indicated by elevated sediment concentrations of heavy metals and/or other contaminants, leading to changes in community composition;
- the direct (through particulate loads in the discharge) or indirect enrichment (through increased productivity) of sediments, indicated by elevated sediment concentrations of total organic carbon and total organic matter, and an increase in the proportion of fine sediments, leading to reduced sediment quality and changes in the characteristics of benthic communities;
- the effects of oxygen demanding substances, indicated by low dissolved oxygen concentrations in river water leading to adverse effects on river biota.

The required monitoring parameters and sampling designs (sites, times, and sampling methods) should fall out of such an analysis. The temporal and spatial resolution of sampling should take into account:

- the likely spatial scales of impact (these will vary among issues);
- likely rates of change (which may vary from diurnal to decadal depending on the parameter),
- methods of analysis, and,
- practicality and cost.

A typical water quality parameter list would include:

- **Fundamental water quality parameters:** temperature, salinity/conductivity, pH, dissolved oxygen and oxygen saturation.
- **Nutrients and productivity:** Ammonia-ammonium nitrogen, nitrate nitrogen, nitrite nitrogen, total nitrogen; soluble reactive phosphorus, total phosphorus and chlorophyll *a*.
- **Water clarity:** turbidity, total suspended solids and Secchi depth.
- **Microbial contamination¹:**
 - Marine contact recreation – Enterococci
 - Freshwater contact recreation – Escherichia coli
 - Shellfish gathering – Faecal coliforms.

Consideration should also be given to how the effects of wastewater discharges can be separated from the effects of other activities. Aligning in-river monitoring as closely as possible with discharge monitoring could assist with this and allow long-term relationships between river and WWTP discharge volumes, quality and loads to be examined. The AEE indicates that monthly wastewater quality will be monitored using grab samples, instead of collecting composites of 30-minute grab samples over a discharge event as currently occurs. An explanation for this change is not provided, but it potentially compromises the ability to estimate discharge loads. This would hinder the analysis of relationships between discharge and river quality.

Importantly, monitoring should be carried out at frequent enough intervals to provide meaningful feedback for adaptive management. I therefore recommend that further information is sought on:

- confirming the objectives of monitoring;

¹ These microbial indicators may provide an overestimate health risk for UV treated wastewater.

- the actual issues of concern and the monitoring required to detect trends and ensure adverse effects remain within acceptable ranges (parameters, sites, times, and sampling methods);
- how in-river monitoring will be integrated with discharge monitoring, including how discharge volumes and loads will be determined;
- how the results will be used to inform and adapt the management of the wastewater network and treatment plant over the term of consent.

A monitoring plan would ideally be prepared prior to a hearing (assuming there will be one) and appended to the conditions, so the panel can consider its content during their decision process. However, it is common for such plans to be prepared after consent has been granted, and I have no issue with that approach. I would also recommend including a specific condition that allows the plan to be reviewed and, if necessary, amended at appropriate intervals.

7 Staging

The addition of filtration and UV treatment at the outlet of the facultative pond within 2 years of consent being granted is a positive step that should reduce health risks associated with discharges from the WWTP. Risks from bypass events and other sources of microbial contamination will remain.

In principle, the staging of other WWTP initiatives also appear reasonable. However, the application highlights that key targets in Stages 1 and 2 depend on commitments outside resource consent processes and that Stages 3 and 4 are aspirational. Consequently, there is little certainty that the proposed staging will be implemented.

I also note that the proposed staging relaxes the current requirement of only discharging at night. This is unlikely to have a tangible effect on benthic macrofauna or sediment quality but could have other environmental implications (e.g. for health risk). If it has not been already provided, a clear rationale is needed for the proposed changes and the selection of discharge criteria, including an assessment of environmental implications (particularly for human health).

8 Other

In their memo on river water quality, Lane and Lake (2018) indicate that:

“HBRC’s monitoring of the Railway Bridge and historic monitoring of a site downstream of the WWTP discharge indicate that ammoniacal-nitrogen, DRP, and suspended solids all increase as the river flows towards Hawke Bay. However, these increases probably reflect the more saline, tidal, and turbulent estuarine environment with abundant birdlife rather than being attributable to the WWTP’s treated wastewater discharges.”

In my opinion this is highly speculative. The fragmented nature of the data presented, and lack of formal analyses makes it very difficult to interpret the information on water quality presented, let

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alone attribute or discount potential causal linkages. I recommend that further comment on this matter be sought from the Applicant on this matter.

Finally, the results of the recreational use survey (summarised in Petch et al. (2017)) indicate that fishing/gathering/whitebaiting are important activities around the river mouth, but details on what and where edible species are gathered are not provided. I recommend that further information be sought on this matter.

A handwritten signature in black ink, appearing to be 'S. H. H.', written in a cursive style.

2.b Laddie Kuta

BEFORE THE Hawke's Bay Regional Council APP- 123774

IN THE MATTER of the Resource
Management Act 1991

And in the Matter Of an application by Wairoa
District Council to discharge
wastewater into the Wairoa
River and related activities

**EVIDENCE OF RMW (LADDIE) KUTA
ON BEHALF OF HAWKE'S BAY REGIONAL COUNCIL**

**Reviewed design plans and information relating to the proposed replacement main
outfall structure**

November 2020

INTRODUCTION - QUALIFICATIONS AND EXPERIENCE

1. My full name is Robert Matthew William (Laddie) Kuta.
2. I am a Chartered Professional Engineer and International Professional Engineer with Engineering New Zealand (Reg.No. 1015386) in the Practice fields of Civil engineering and Environmental Engineering with specialised focus in River Environment Management & Engineering. I have been practicing in this field in New Zealand since 2008 for district and regional authorities both as a employee and as a consultant.
3. I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and have complied with it in preparing this evidence. I confirm that the issues addressed in this evidence are within my area of expertise and I have not omitted material facts known to me that might alter or detract from my evidence.

SCOPE OF INVOLVEMENT

4. Engaged by HBRC to undertake an assessment of the application (including s92 responses and any additional information provided by the applicant).
5. Key reports referred include:
 - 5.1. Application-AEE-AppD-Draft_conditions-181129_AEE.pdf;
 - 5.2. Application-C0-WDC2018C0-Wairoa_WWTP_Discharge_Consent_AEE-Final.pdf;
 - 5.3. FI-10292-WDC-Proposed_outfall_overlaid_on_AEE_outfall_envelope-190612-pl.pdf;
 - 5.4. New Outfall Design.pdf;
 - 5.5. RF12 10292-WDC-Plans_for_proposed_wastewater_consent_conditions-200908.pdf;
 - 5.6. SKM_C554e-C20031916110.pdf;
 - 5.7. Wairoa Outfall Drawing Set 01-10-19.pdf;
 - 5.8. Wairoa WWTP consent APP-123744 - WDC response to second s92 request - 191011.pdf;

- 5.9. Wairoa WWTP consenting overview -190625.pdf;
 - 5.10. Wairoa WWTP.pdf;
 - 5.11. Wairoa_wastewater-proposed_consent_conditions-200310-SH; and
 - 5.12. RF12 Wairoa WWTP consent_APP-123744-
WDC_response_to_HBRC_feedback_re_2nd_s92_responses-200907.pdf.
- 6. Assistance provided in the way of question to inform the s92 request and comments in response. Also I have reviewed and provided comment on draft consent conditions.
 - 7. I have provided a memo dated 13 October 2020 which is attached to the Officers report.
 - 8. I have been asked to be available on both days 30 November and 1 December via Microsoft Teams/mobile phone to provide comment and answer questions at the hearing.

SUPPLEMENTARY EVIDENCE

- 9. I will review the evidence when it is provided by the applicant and shall provide supplementary evidence if that is necessary.



RMW (Laddie) Kuta

Memo

To: Tania Diack
Cc: Laddie Kuta
From: Peter Harte
Date: 13 October 20

Subject: Wairoa Wastewater Treatment Plant – Outfall Structure

E2environmental Ltd were engaged by Hawkes Bay Regional Council (HBRC) to review the Wairoa District Council (WDC) Wastewater Treatment Plant (WWTP) outfall structure (discharge pipeline) and the related discharge consent conditions. Three formal reviews were completed, they are summarised below commencing with the most recent. In summary:

- Other than stating the testing methodology to ensure pipeline integrity prior to operational use as noted in review no.2 no other information is missing or new information is required. RFI responses from WDC has answered e2's questions.
- The flood scour concerns around the outfall structure have been addressed with hydrodynamic modelled results estimating a flood flow velocity that is 2/3 of what was initially assumed and designed to resist.
- It is noted that the Drawing 190504-002 [2] notes a nominal pipe cover of 1.5m. This could be increased to 2m at the outfall structure to reduce the risk of scouring around the outfall as a result of the shallow pipe cover and a meandering thalweg compared with the diffuser protection structure at 2.4m. The geotextile bag placement could be extended out to cover the last 20m of pipeline to ensure the pipeline is not exposed at the outfall and hence contribute to increased scouring of the outfall structure.
- Overall the outfall design and proposed consent conditions limits environmental impacts on the Wairoa River as best practically possible.

Review no.3 – October 2020

I have reviewed the latest consent conditions proposed (Version 20, dated 4 September 2020) by HBRC in regards to the Wairoa District Council Wastewater Treatment Plant (WWTP) outfall structure (discharge pipeline) and the s92 response provided by WDC, 7 September 2020. The following is noted:

- proposed consent conditions #31-#34. The suggested consent condition updates by e2 have been incorporated into the latest conditions where agreed between HBRC with WDC. No other consent condition changes are recommended.
- Further information has been provided about flood scouring around the new Outfall structure (WDC RFI response dated 7 September 2020) and how effects would be mitigated and addressed. In summary I am satisfied that the response design information provided demonstrates an acceptable risk for scour management within the practical limitations of the environment.

Review no.2 - April 2020

I have reviewed the latest consent conditions proposed (Version 16, dated 13 March 2020) by HBRC in regards to the Wairoa District Council Wastewater Treatment Plant (WWTP) outfall structure (discharge pipeline) and the information provided by WDC, 11 October 2019. The following is noted:

- proposed consent conditions #9-#13 from version14 (now #26-#30). The suggested consent condition updates are recommended in the attached e2 memo dated 4 July 2019. These have not been adopted in version16 currently.

The response from WDC answers questions in the e2 memo and includes updated drawings by Offshore and Coastal Engineer Ltd. I am satisfied that all the questions have been answered appropriately and that the design drawings are fit for purpose; however, the following is noted:

- In regards to the pipeline testing methodology, clarification of a pipeline pressure test was being asked. I understand the vacuum seal terminology was confusing. A pressure pipeline test should be performed to ensure water-tightness as part of the compliance documentation.
- It is noted that all reinforcing and plate steel will be HDG900 treated. This should ensure a minimum 50year service life.

Review no.1 - July 2019

I have completed a review of the proposed consent application by Wairoa District Council (WDC) and the proposed consent conditions #9-#13 by HBRC in regards to the WDC Wastewater Treatment Plant (WWTP) outfall structure (discharge pipeline). Overall the application and consent conditions limits environmental impacts on the Wairoa River as best possible.

The following changes to the consent conditions are suggested:

Expand condition 10, *"In the event of any modification, extension or relocation of the discharge structure, the consent holder shall provide a Structure Design Report to the Council for certification. The design report shall (but is not limited to):"*, to include the following:

- g) **Specification of appropriate marine grade construction materials, design standards met and expected service life of materials.**
- h) **Include operation and maintenance considerations, including operation during both open and closed river mouth conditions.**
- i) **Include risk register for design, construction, operation and maintenance.**

Condition 13bi

"Any surplus soil, cleared vegetation, excavated trench material or debris, shall be deposited at least 20 m from any waterbody or deposited or contained in a manner to reasonably prevent the transportation or deposition of disturbed matter into any waterbody".

Condition 13h

"No concrete or excess construction materials shall be dumped into bed of any waterbody".

The wording and proposed inclusion of condition 9a is acceptable with the noted modifications to condition 10 and 13.

It is assumed condition 12 only references condition 13.

The following queries either need to be addressed in the structural design report (yet to be submitted) or as part of this consent application process. (*i.e. Request: Can you please provide comment on the following related to the Wairoa Treatment Plant consent application:*).

- Section 1.8 notes the existing discharge to the river has not been shown to have caused detectable effects on the river's water quality or sediment characteristics. The drawing provided DR-190504-001[1] details a duckbill diffuser located close to the riverbed. How will the riverbed be protected against scour from the jet flume and will any potential scour become an issue during periods of high flood flow?
- Will a reduction in cover due to riverbed migration cause buoyancy/stability issues for the pipeline? What is the anchor spacing? Testing methodology to ensure vacuum seal?
- The report states that the main outfall pipe is proposed to be relocated within the Outfall Relocation Area as indicated in Figure 5.1 of the consent application. Drawing DR-190504-001[1] details the outfall pipe being buried, anchored by concrete and looks rigid. If a location change is required, will the existing pipeline be abandoned or will all infrastructure be excavated and relocated?
- Please provide a trenching detail for the pipeline.
- When the outfall pipeline is operating at maximum pressure does the outfall bend structure require a thrust block or similar reinforcing to stabilise? or is the diffuser armour the thrust stabiliser if so, how are they connected?
- What is the maximum flowrate capacity of the two-duckbill discharge system in L/sec?
- More design details required for 90 degree turn at outfall, missing flange details etc.
- Will the steel piles attached to the diffuser armour be driven 6m into the ground as per the pipe anchors?

2.c Nick Dempsey

BEFORE THE Hawke's Bay Regional Council APP- 123774

IN THE MATTER of the Resource
Management Act 1991

And in the Matter Of an application by Wairoa
District Council to discharge
wastewater into the Wairoa
River and related activities

**EVIDENCE OF NICK DEMPSEY
ON BEHALF OF HAWKE'S BAY REGIONAL COUNCIL**

**Reviewed existing wastewater treatment system, staging of the proposed works,
management regimes and monitoring conditions.**

5 November 2020

INTRODUCTION - QUALIFICATIONS AND EXPERIENCE

1. My full name is Nicholas John Dempsey.
2. I am a Chartered Member of Engineering New Zealand, an Associate Member of the Institution of Chemical Engineers (U.K.), and a registered International Professional Engineer (New Zealand). I hold a Bachelor of Engineering degree, majoring in bioprocess engineering.
3. Currently I am Technical Director – Water at Mott MacDonald New Zealand Limited with responsibility for wastewater treatment plant design, commissioning, operations support and process optimisation.
4. I have worked in the field of environmental engineering and wastewater treatment for the last 14 years and during this time I have been directly involved in numerous wastewater engineering projects in New Zealand, Australia, the UK and in a number of other countries in the Asia Pacific region. I have been involved in scientific and engineering investigations of several wastewater treatment and disposal projects. During these investigations my role has been in identifying suitable discharge consent conditions as well as design and management of treatment plants to meet such conditions. I have previously been engaged as a wastewater expert for numerous wastewater treatment plant discharge consent applications and enforcement processes, including conducting reviews for regional councils where consent conditions have been set.
5. I have read the Code of Conduct for Expert Witnesses contained in Section 7 of the Environment Court Practice Note 2014 and have complied with it in preparing this evidence. I confirm that the issues addressed in this evidence are within my area of expertise and I have not omitted material facts known to me that might alter or detract from my evidence.

SCOPE OF INVOLVEMENT

6. I was engaged by HBRC to undertake a review of the consent application (including s92 RMA responses and any additional information provided by the applicant), assessment of environmental effects (AEE) and attend a site visit on 8 February 2019.
7. Key reports (electronic file names) referred to in my review are:
 - 7.1. AEE: Application-C0-WDC2018C0-Wairoa WWTP Discharge Consent AEEFinal.pdf
 - 7.2. Draft Conditions: Application-AEE-AppD-Draft conditions-181129 AEE.pdf (*version 14*)
 - 7.3. Discharge BPO: B4-Application-LEI2018B4-Discharge BPO-181029-AEE.pdf
 - 7.4. Discharge Concept Design: C1.0-Application-LEI2018C1.0-Discharge conceptual design-181109-AEE.pdf
 - 7.5. System Data and Compliance Summary: A2I1-Treatment-LEI2017A2I1-System Data Compliance-171020-AEE.pdf
 - 7.6. 10292-WDC-Draft conditions-200313 V16.docx (*version 16*)
 - 7.7. Wairoa WWTP consent APP-123744-WDC response to HBRC feedback re 2nd s92 responses-200907.pdf
 - 7.8. 10292-WDC-Plans for proposed wastewater consent conditions-200908.pdf
 - 7.9. 10292-WDC-Draft conditions-200904 V20.docx (*version 20*)
 - 7.10. 10292-WDC-Draft conditions no commentary-200904 V20.docx (*version 20*)
 - 7.11. WDC Effluent Sampling Results Wairoa WWTP with proposed limits200904.xlsx
8. I assisted by providing questions to inform the s92 request and comments in the response. Also, I have reviewed and provided comment on draft consent conditions.
9. I have provided a memorandum report with relevant supporting data and analysis dated 6 October 2020 which are attached to the Officers report.
10. I have been asked to attend the hearing and will be available to provide comment and answer questions at the hearing.

SUPPLEMENTARY EVIDENCE

11. I will review the evidence when it is provided by the applicant and shall provide supplementary evidence if that is necessary.



Nick Dempsey

Hawke's Bay Regional Council
159 Dalton Street
Napier 4110
Attention: Tania Diack

Your Reference
Wairoa WWTP Consent

**WAIROA WWTP DISCHARGE CONSENT - REVIEW OF CONSENT
APPLICATION AND SECTION 92 RESPONSES (Rev C)**

Our Reference
343853BA10 RevC

06 October 2020

Mason Bros. Building
Level 2, 139 Pakenham
Street West
Wynyard Quarter
Auckland 1010
PO Box 37525, Parnell,
1151
New Zealand

Dear Tania,

1 EXECUTIVE SUMMARY

Mott MacDonald were commissioned to review the resource consent renewal application and supporting documents for Wairoa District Council's Wairoa wastewater treatment plant (WWTP) discharge. The specific objectives of our review were to focus on the existing wastewater treatment system, and comment on the proposed staging of the works, management regimes, and monitoring conditions.

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Our findings relating to the treatment plant and associated treated effluent discharge are summarised as follows:

- Detailed assessment of treatment plant performance has now been provided, but not the expected performance after network and treatment plant upgrades. This is particularly important for the filtration and UV system, which is pivotal to the conditions related to increased flexibility in discharge times. We have previously recommended including different conditions for pre and post UV system installation, but WDC have noted that they don't have sufficient information to set pathogen limits for after the UV system is installed. Changes to the conditions are therefore recommended to ensure that pathogen conditions are revised once pilot trial information is available.
- Greater detail is required to define how the filtration and UV system will be operated in terms of bypasses, and recording of bypasses. We have recommended that this be included in the detailed design report for this system.
- Treatment plant performance as summarised in the reports indicates regular, but not consistent compliance with existing consent conditions, but would appear to be benefiting from significant dilution from the network. Reducing the I&I is an important step for bringing the treatment system into compliance consistently, and should be considered in the assessment of performance. We have recommended that consent conditions be modified slightly to ensure that I&I continues to be a focus for the term of the consent.
- The proposed draft consent conditions have now been revised with effluent discharge parameters more aligned with historical treatment plant performance. However, some revision of these is recommended to ensure a continuation of the current effect on the receiving environment. We have accepted the requested 1-year assessment of compliance against discharge parameters, but noted that lower consent conditions are required as a result.

- We have recommended that temperature be included in the field tests carried out monthly, and that grab samples are acceptable given the parameters being tested.
- Reporting on treatment performance should be conducted annually.

Our further recommendations to HBRC relating to the broader application are:

- Inclusion of an issues list or similar, or reflection of the key outcomes identified in the BPO within the consent conditions, including some form of review against these. Specific clauses in the draft consent conditions (version 14) that this relates to have been identified as 16, 17, 18, 21, 22, and 23.
- Assess whether the land discharge applications should be combined with this consent application, given that they represent the same WWTP discharge and are part of the same identified BPO.
- Consider suitability of a 35-year consent term, given that the adaptive approach prescribed in the draft conditions, and the staged BPO strategy only provide a degree of certainty around the improvements that will be made for the first 10 years (the remaining stages are described as "aspirational").
- Ensure that the loosening of discharge flow effects as described in the draft conditions (1/2 median, median, 3x median etc. in Condition 2 and 3) is adequately assessed for effects based on review by other technical expert reviewers.
- Consider additional suitable conditions covering UV transmissivity, minimum flows to UV treatment before bypassing.

2 INTRODUCTION

Mott MacDonald (MM) were commissioned by Hawkes Bay Regional Council (HBRC) to review the consent application and associated technical reports by Lowe Environmental Impact Ltd (LEI) on behalf of Wairoa District Council (WDC), relating to wastewater discharges from the Wairoa wastewater treatment plant (WWTP) to the mouth of the Wairoa River.

A site visit was undertaken on 08 February 2019 and the following documents were reviewed:

- AEE: *Application-C0-WDC2018C0-Wairoa_WWTP_Discharge_Consent_AEE-Final.pdf*
- Draft Conditions: *Application-AEE-AppD-Draft_conditions-181129_AEE.pdf* (noted as version 14)
- Discharge BPO: *B4-Application-LEI2018B4-Discharge_BPO-181029-AEE.pdf*
- Discharge Concept Design: *C1.0-Application-LEI2018C1.0-Discharge_conceptual_design-181109-AEE.pdf*
- System Data and Compliance Summary: *A2I1-Treatment-LEI2017A2I1-System_Data_Compliance-171020-AEE.pdf*

Specifically, the scope of the review covered:

- Review the application and in particular the above reports and comment on whether the existing wastewater treatment system and proposed staged changes are fit for purpose and are robust enough for the proposed duration of the consent.
- Comment on whether the proposed staged works are reasonable in regard to timing.
- Your view on whether other/further management regimes should be required to manage the existing infrastructure and proposed upgrades.
- Any recommended monitoring conditions and/or any changes to those proposed.

- Any other comments on the proposal.
- Review comments addressing the above to be provided as written memo/letter.

Given the number of documents in the application, a number of initial queries were raised with the applicant informally in February 2019, to clear up areas of uncertainty for the reviewers. Where these could not be resolved quickly, formal Section 92 questions were lodged on 26 March 2019, and responded to on 19 May 2019.

This review document has been revised (Rev B) based on the responses from the applicant in February and May 2019:

- *10292-WDC-Draft_conditions-200313_V16.docx* (version 16)

Revision C is based on updated information provided by WDC in September 2020, including:

- *Wairoa_WWTP_consent_APP-123744-WDC_response_to_HBRC_feedback_re_2nd_s92_responses-200907.pdf*
- *10292-WDC-Plans_for_proposed_wastewater_consent_conditions-200908.pdf*
- *10292-WDC-Draft_conditions-200904_V20.docx* (version 20)
- *10292-WDC-Draft_conditions_no_commentary-200904_V20.docx* (version 20)
- *WDC_Effluent_Sampling_Results_Wairoa_WWTP_with_proposed_limits-200904.xlsx*

3 PRELIMINARY FINDINGS

Our findings from the original application documents are summarised under each report as follows:

3.1 Wairoa Wastewater Treatment Plant Discharge Resource Consent Application and AEE (LEI, 2018:C0)

Table 1.1, in Section 1.4, outlines a summary of the proposed future treated wastewater discharge system for Wairoa. However, the text in this section notes that Stages 3 and 4 of the programme (11-20 years and 21-30 years respectively) are aspirational only, despite taking place within the consenting term (35 years) being sought. The text also notes that only the river discharge parameters in this table are covered in this consent application. We also note that the proposed strategy is not directly reflected in the proposed consent conditions (see below).

Section 1.5 notes that consents are sought for a 35-year term for:

- Pump station overflows to the Wairoa River;
- Treated wastewater discharge to the Wairoa River;
- Discharges to air from the WWTP;
- Riverbed occupation and disturbance in the Wairoa River bed.

We note that irrigation to forestry and farms, storage facilities, and catchment improvements are not included within this consent application (Section 1.6), despite being part of the overall package defined by the best practicable option (BPO).

The separation of the surface water discharge and land irrigation consents is problematic in my view. Gradual transfer of discharge flows is identified as part of the BPO (see further comment on this below), and the change in flow regime identified will require greater storage and/or irrigation.

Section 2.1 notes that a treated discharge pipeline overflow into an adjacent stormwater channel exists, but this volume and frequency of this discharge is not

known. This is one of the drivers for an upgrade to the outfall pipeline; to remove capacity limitations.

The three pump stations are noted to overflow during wet weather events. The frequency and dilution of these overflows is not stated. This is one of the drivers for network improvements to reduce inflow and infiltration, increase pumping capacity and reliability, and therefore pump station inundation.

The existing consent conditions related to the discharge are noted in the AEE, and copied below.

2. *The total discharge of sewage effluent as authorised by this Resource Consent shall not exceed 5400 cubic metres per day.*
3. *The discharge of sewage effluent as authorised by this Resource Consent shall;*
 - (i) *Only occur during periods of ebb tide 30 minutes after high tide to 6 hours after high tide;*
 - (ii) *Only occur after 6:00 pm; and*
 - (iii) *Shall cease by 6:00 am at all times.*
4. *During times of river mouth closure, the Consent Holder shall cease the discharge of sewage effluent into the Wairoa River, unless:*
 - (i) *The ability to store excess effluent has been exceeded; or*
 - (ii) *Prior to full capacity, it is recognised that the maximum storage capacity is likely to be exceeded during a time when no discharge is allowed.*

Where discharge is required for reasons 4(i) and 4(ii) above, the discharge shall only be in accordance with condition 3. The Consent Holder shall give notice to the Environmental Regulation Section of the Hawke's Bay Regional Council of the date discharge was stopped due to river mouth closure, and the date discharge re-commenced.
11. *Sewage effluent discharged from the treatment plant shall meet the following standards:*
 - COD not greater than 220 mg/l*
 - Total Ammonia not greater than 36 mg/l*
 - Suspended Solids not greater than 87 mg/l*

It is noted in the report "WWTP System Data and Compliance Summary" (LEI, 2017:A211) that despite low Hydraulic Retention Times (HRTs), high Inflow and Infiltration (I&I), high BOD load, and high sludge volumes, the plant still performs as per typical maturation pond guidelines.

However, the data presented in Table 1.2 of LEI, 2017:A211 indicates that average influent TP is 3.3mg/L, and average influent ammonia is approximately 17mg/L (derived from the effluent and % reduction). Typically, these values would be expected to be two to three times higher, indicating that the effluent discharge is likely benefiting from significant dilution from infiltration in the network.

Given the known issues around high I&I flows in the network, and the likely resultant of contaminants in the treatment plant discharge, we would recommend considering a load-based discharge consent to ensure that consent conditions are met through treatment rather than dilution.

Section 2.3 notes that a comprehensive community consultation process was carried out, involving expert and community reviews of a variety of options for the treatment and discharge of Wairoa's wastewater. From this, the following key features were agreed:

- Additional treatment was required for pathogen control prior to discharge;
- Ideally 100% land discharges should replace the 100% river discharge regime;
- Significant volumes of storage will be necessary for discharge management; and

- Development of future storage and irrigation needed to occur gradually so that it would remain affordable for the community.

These goals should be represented in some form in the draft consent conditions.

Section 3.1 of the AEE outlines high level information on the treatment plant system, i.e. an aerated pond (4,750m³) followed by a maturation pond (18,250m³), two aerators in the aerated pond (noted to be diffused air Aquarator units at the site visit), and 500mm storage depth in the maturation pond.

Greater detail of these pond parameters is reference in the report WWTP System Data and Compliance Summary (LEI, 2017:A211).

In A211, Table 3.2 indicates WWTP performance data, and suggests a number of parameters (such as TP and TN), which have been "corrected". Whilst many of these do appear erroneous, the values used to replace erroneous data are significantly lower, and we would recommend that these are deleted from the set rather than revised to some arbitrary value which could skew statistical analysis.

Section 4.3 of A211 sets out the pond design parameters. However, it does not correlate the BOD surface loading rate of the pond – a common design parameter for pond capacity assessment. So, it is not possible to determine whether the pond system is actually performing as would be expected (rather than relying on dilution). We recommend that these loading rates are provided to assess this.

From A211 Section 7.3 Dot point 4 after Table 7.1, notes the following:

"Discharge quality limits for COD and/or SS have been exceeded on 1-4 occasions out of 12 in every compliance report, and either the effluent quality limits are too tight and should be increased upon renewal of the discharge consent or treatment is occasionally poorer than expected. It has been noted by HBRC that sludge accumulations have reduced the WWTP's performance, but high I & I may also contribute. The effluent quality has a wide range despite its median values being well below the consented limits. More recent resource consent conditions for other WWTP discharges, in recognition of the inherently variable effluent quality, often allow the rolling 12-month median to exceed any of the effluent quality limits on 2 out of 12 monthly sampling occasions before they are deemed to be a breach of the effluent quality limit condition. Adopting this approach might have resulted in Wairoa WWTP achieving full compliance most, if not all, of the time."

The findings of only four compliance reports were presented (2009, 2011, 2013, and 2014). If other compliance reports are available, these should also be included in the assessment, especially given comments regarding worsening performance in recent years.

Exceedances are noted on numerous occasions for flow, and on few occasions for some pollutant parameters.

Table 1: Summary of key compliance report exceedances related to treatment

Year	Oct 2009	Feb 2011	Jun 2013	Apr 2014
Flow - <5,400m ³ /d	Exceeded for storm flows			
Flow – falling tide at night	Exceeded for storm flows			
COD <220mg/L	1 of 12	3 of 12	3 of 12	2 of 12
Suspended Solids <87mg/L	None	1 of 12	4 of 12	2 of 12

The above indicates that managing I&I would assist with compliance with similar conditions in a future consent, and that percentile concentration targets (rather than maximum values) would also be more achievable, as is more common for wastewater discharge consents.

If it is the case that the existing discharge can be shown to have little or no effect on the receiving environment, then we would expect to see a detailed analysis of treatment performance over recent years to demonstrate appropriate median and percentile targets. Graphical and statistical data over the recent years of performance should be provided.

Section 5.7 of the AEE indicates that the only upgrades to the treatment plant will include filters and UV treatment (and possibly a grit trap, which is noted only in the consent conditions). No other upgrades are planned for the treatment plant, as "its treatment performance is currently adequate" and the installation of filtration and UV lamps will improve the treated wastewater quality so that it is more acceptable to discharge.

If the application demonstrates that no effects are noted in the environment, then the above described upgrades may be warranted for the other reasons outlined in the BPO. However, continued performance of the treatment plant ponds requires ongoing upkeep, in terms of sludge management, and aeration. If these aspects are not maintained, then performance will deteriorate.

We also note that the goal of the proposed UV and filtration system is to remove pathogens. Given this aim, membrane filtration may be a better option, especially if the network I&I can be better managed. This option does not seem to have been considered in the BPO or application, and would have similar if not better results.

Current treatment performance is summarised in Table 5.3, Section 5.9 of the AEE. This in turn is extracted from Tables 4.3 and 4.4 of the Conceptual Design Report (LEI, 2018:C1.0).

Table 5.3: Treated Wastewater Quality During 2008-16

Parameter	Current Quality (2008-16)			Potential Quality		
	Range	Mean	Median	Range	Mean	Median
COD (g/m ³)	34 – 620	158	126	20 – 60	40	35
CBOD (g/m ³)	6 – 190	31	23	3 – 30	20	17
NH ₃ -N (g/m ³)	4.0 – 36	16.1	15.6	2.5 – 25	12	10
TSS (g/m ³)	7 – 290	64	52	2 – 50	15	10
<i>E. coli</i> (cfu/100 ml)	8 – 470,000	5,250	5,200	0 – 5,000	60	50

No basis is provided for the "Potential Quality", and given the inclusion of only filtration and UV in the treatment plant upgrade, and flow reductions removing the dilutionary effects, these values seem very unlikely.

3.2 Wairoa Wastewater Treatment and Discharge Best Practicable Option (LEI, 2018:B4)

As noted in Section 3.1 of the BPO Report, the RMA defines the best practicable option (BPO) as:

"the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to—

- a) the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and*
- b) the financial implications, and the effects on the environment, of that option when compared with other options; and*
- c) the current state of technical knowledge and the likelihood that the option can be successfully applied."*

It is also worth noting that the requirements of the NZ Coastal Policy Statement (discussed in the BPO Report Section 3.2), describe the requirements for managing the discharge of human sewerage. This is particularly important when related to the pump station and treatment plant overflows of untreated wastewater.

"In managing discharge of human sewage, do not allow:

(a) discharge of human sewage directly to water in the coastal environment without treatment; and

(b) the discharge of treated human sewage to water in the coastal environment, unless:

(i) there has been adequate consideration of alternative methods, sites and routes for undertaking the discharge; and

(ii) informed by an understanding of tangata whenua values and the effects on them."

The BPO Report generally describes the process undertaken to establish the BPO. The applicant describes in this document (and some supporting documents), how stakeholder groups used workshops to establish the guiding values that options should be assessed against, and then development of options and scoring to obtain the BPO.

We have viewed the memo which summarises the outcome of the Values Workshop (LEI,2017 A611) and sets out the agreed scoring and ranking system. However there doesn't appear to be a summary or minutes of the option development and scoring with the Stakeholder group. Providing these minutes will assist with confirmation of the appropriateness of the BPO process, i.e. that the BPO is actually the BPO.

The selected BPO is described in the BPO report (Section 10) as:

"continued discharge to Wairoa River while implementing a package of wastewater irrigation to a series of farms, reductions of reticulation leakage and pump station overflows, installation of filtration and UV treatment at the WWTP outlet, installation of treated wastewater storage, and support for wider Wairoa River catchment improvement projects."

It is important that these aspects of the BPO are reflected in the consent conditions. It is worth noting that the BPO has identified increased storage and irrigation over time (i.e. shifting the discharge receiving environment), but this intent is not a clear requirement of the draft consent conditions (further comment below).

3.3 Conceptual Design for Wairoa Wastewater Treatment and Discharge (LEI, 2018 C1.0)

This document builds upon the findings of the BPO report, to further develop the preferred solution. In particular, it discusses broad concepts for:

- Filtration and UV treatment;
- Storage systems;
- Discharge system; and
- Discharge regimes.

We note that the in developing the discharge regime, future potential treated wastewater quality values are noted as Table 5.1, (transposed from tables 4.3 and 4.4 in the same report). As noted earlier in our assessment, the likelihood of achieving improved ammonia removal through introduction of filtration, UV treatment, and reduced network dilution is very low. Some improvement in TSS and *E.coli* are likely as noted, but the improvement presented is significant, and doesn't take into account the reduction of the dilutionary effects of the I&I reduction

campaign. A more detailed assessment of expected treatment plant performance from the proposed network and treatment changes is recommended, to provide greater confidence that the discharge regime being proposed will behave as expected.

Section 6 of the Conceptual Design report outlines the proposed phasing over four stages, spanning 5 or 10 years each. The report notes that Stages 3 and 4 (11 to 20 years, and 21 to 30 years respectively) are aspirational only. Given that a 35-year consent is being sought, and proposed changes to address the BPO are only outlined for the first 10 years, we would question whether a 35-year term is appropriate. If an adaptive management approach is progressed in the consent conditions, then greater certainty should be provided that the issues identified in the application, and in particular BPO, will be addressed over the full term of the consent.

We note from this report that the ponds are not known to be lined, and so may lose some volume to groundwater.

3.4 WDC's Draft Consent Conditions (AEE-AppD, Version 14, 29 Nov 2018)

Note, the comments below relate to Version 14 of the draft conditions, which have now been superseded. Comments related to Version 20 are included later in this letter.

This document sets out WDC's proposed draft conditions for consideration.

We note that the Definitions section at the start, defines the median Wairoa River flow as 60 m³/s. This value will be critical in determining the discharge regime as outlined in the following conditions. If the Wairoa River's median river flow changes over time, will this trigger value be modified, and if not, what effect will it have on the achievability of meeting discharge regime requirements. Sensitivity testing of these changes may assist with demonstrating this.

Proposed Condition 2 continues the currently consented discharge conditions up to median river flows only (previously applicable at all river flows), allows discharge on any tide from median to 3x median river flows, and discharge at any time and volume above 3x median river flow. In effect this is a loosening of the current consent condition. Confirmation is recommended by other technical experts that this the required dilution will be achieved under these conditions – assuming the current WWTP effluent performance.

Proposed Condition 3 expands on Condition 2, and is applicable once filtration, UV disinfection, and storage are in place at the WWTP. It further reduces the river flow regime triggers under which treated wastewater can be discharged to the Wairoa River. Given earlier comments in this review about the low likelihood of achieving the "Potential Quality" outlined in the Conceptual Design Report, we recommend that the applicant demonstrate the dilution and effects of the discharge assuming a more realistic assessment of the treatment plant performance after upgrade with filtration, UV and storage.

Condition 8 outlines discharge quality conditions for the treated wastewater. Parts (a) through (d) set out limits for soluble carbonaceous BOD₅, TSS, *E.coli*, and ammonia-N. All of these limits have two target parameters worded as follows:

1. ... must not exceed XX g/m³ in more than 8 out of 12 consecutive monthly samples, or
2. XX g/m³ in more than 2 out of 12 consecutive monthly samples.

It is normal practice that a median target is specified, or 6 of 12 consecutive monthly samples. The upper limit (83% requirement) is a common approach taken in consents, rather than applying a maximum, which is not usually workable with

biological wastewater treatment systems. We recommend that Point 1 (above) is modified in each case as noted above.

Condition 8(a) sets a soluble carbonaceous five-day biochemical oxygen demand (scBOD₅) of 220g/m³ (to be achieved only 4 out of 12 samples). The previous condition was for COD as a maximum at the same value – 220g/m³. ScBOD₅ is filtered to remove particulate matter, and modified to remove the effects of nitrification in the test seed. cBOD₅ is a common parameter for pond discharges as they do not typically nitrify. This parameter change from the previous consent condition introduces a significant loosening of oxygen demand condition for the following reasons:

- BOD always measures at a lower value than COD in any sample, as it only measures the biological oxygen demand, whereas COD measures all oxygen demand (i.e. including chemically available). Typically, BOD is approximately half of COD measurements in raw wastewater, and can vary in treated wastewater depending on the treatment process. Lower target values are required to maintain a similar environmental discharge if changing from COD to BOD.
- Filtering the sample will reduce the measure COD or BOD in the sample. This change also requires that lower target values be set if changing from unfiltered to filtered. In fact, we would expect that even the influent scBOD₅ at a municipal WWTP would be less than the proposed effluent condition.
- Conditions in the previous consent were maximum values, and the monitoring reports indicated that BOD and TSS were exceeded in most years 1 to 4 times out of 12 samples. Changing this to 8 out of 12 samples provides the ability to discharge much higher concentrations on a regular basis.
- The two conditions indicated 220mg/L and 224mg/L are so close together, and with vastly different requirements for frequency of exceedance, that the need for two conditions is meaningless.

For the above reasons, these conditions require revision, and need to align with a more detailed assessment of the expected treatment plant performance after I&I reductions, and the addition of filtration, UV, and storage.

Similarly, Condition 8(b) for TSS, the proposed conditions are 87g/m³ and 98g/m³ for the two exceedance frequency parameters respectively. Again, these parameters are very close together, and the difference is likely to be meaningless. As noted above, the existing consent imposes a maximum limit of 36g/m³, whereas this proposed condition reduces this to a limit that only needs to be achieved ~33% of the time. This condition allows a significant relaxation in treatment performance and cannot stand up to a claim that a similar level of treatment will be maintained to maintain the same level of effects in the receiving environment.

No parameters have yet been proposed Condition 8l for *E.coli*. Given that these are not being driven by receiving environment requirements, but rather cultural and recreational drivers as set out in the BPO, target values should be aligned with a realistic assessment of the treatment plant performance before and after upgrade.

Condition 8(d) for ammoniacal nitrogen, proposes conditions of 36g/m³ and 40g/m³ for the two exceedance frequency parameters respectively. Again, these parameters are very close together, and the difference is likely to be meaningless. As noted above, the existing consent imposes a maximum limit of 36g/m³, whereas this proposed condition reduces this to a limit that only needs to be achieved ~33% of the time. This condition allows a significant relaxation in treatment performance, and cannot stand up to a claim that a similar level of treatment will be maintained to maintain the same level of effects in the receiving environment.

For plants with UV disinfection, we would typically expect to see a condition around achieving UV transmissivity of a suitable percentage. This ensures that UV

disinfection actually takes place, and is managed in reality by maintaining effective treatment and filtration upstream. We recommend that a transmissivity condition is included.

We would also recommend setting a minimum flow to be filtered and UV treated before bypass of these systems is initiated. There is generally an expectation that these systems cannot be sized to treat all wet weather flows, and this agrees with the Conceptual Design report. But a level of treatment should be outlined that will address the solution requirements set out in the BPO.

We note that there is only one set of effluent discharge parameters proposed, despite an upgrade to the treatment plant taking place within the term of the consent. We would expect that two sets of parameters be provided, the first maintaining an equivalent treatment performance to the existing consent, and the second demonstrating the improved treatment performance provided by the upgrade. In this case, discharge TSS and *E.coli* parameters will improve in line with the BPO requirements.

We recommend that a condition be added (or this added to an existing reporting condition) to measure sludge levels in the two ponds approximately every 5 years, and desludge when levels exceed the design requirements for the ponds.

Conditions 25 & 26. We recommend that measurement of influent wastewater to the treatment plant is also measured, as this will be the key gauge of success of the I&I programmes (Condition 15, Network Management Plan).

There are a number of reporting requirements set out in the proposed consent conditions as summarised below.

Table 2: Draft Consent Condition (Version 14) report and comments

Cond.	Proposed condition	Comment
10 to 12	Structural Design Report (in the event of a change to the discharge structure).	
14	UV and filtration system detailed design report (within 2 years of consent).	
15	Network Management Plan (within 12 months of consent).	
16	Annual updates in first 5 years on achieving 50ha of irrigation.	Recommend that a council review is required against the issues outlined to be addressed as part of the BPO and AEE.
17	Wastewater Education Plan (WEP) (within 12 months of consent). Consent holder must undertake these.	Recommend that a council review is required against the issues outlined to be addressed as part of the BPO and AEE.
18	Catchment Enhancement Plan (within 12 months).	Recommend that a council review is required against the issues outlined to be addressed as part of the BPO and AEE.
19	Facilitate a Wastewater Stakeholder Group (>6months prior to System Review Data Reports submission).	
21 & 22	System Review Data Report (SRDR) (within 5 years, and at 10, 20, 30 years).	Recommend that a council review is required against the issues outlined to be addressed as part of the BPO and AEE.

		Also consider including assessment of performance against the last SRDR. This condition does not appear to specify who these are issued to. Stakeholder Group? Council?
23	System Improvement Plans (within 6 months of SRDRs).	Recommend that a council review is required against the issues outlined to be addressed as part of the BPO and AEE.
24	Wastewater Monitoring Strategy (WMS) or amendments to the existing WMS. (within 12 months of submitting System Improvement Plans).	
34	In River Monitoring Plan (within 3 months).	
35	Invite panel for Cultural Health Index Monitoring (within 2 years).	
36	Cultural Health Index Monitoring Protocol (no timeframe).	
41	Asset Management Plan provision every 5 years. Available to Council on request.	
42	Annual report. 2020 and every 2 years thereafter.	Should be every year or renamed a Biennial Report. Suggest date is linked to 1 year after start of consent.

In general, we recommend that the required reporting is reviewed against the stated issues that are being addressed in the BPO report. These could be set out in a separate issues list generated with the application, or set out individually in the conditions.

For example, Condition 16 – Land treatment. This requirement is outlined in the BPO and AEE as an integral component in the first 5 years. If this is a part of the BPO, then the issues that it is intended to address should be outlined, and the reporting on this be reviewed by Council or the Stakeholder Group against these issues. At present, the proposed condition requires reporting, but not commitment to work towards the proposed staged upgrades and BPO.

4 SUMMARY OF S92 REQUESTS ISSUED 15 FEBRUARY 2019

Specific questions to be raised initially informally and then through s92 requests to the applicant (Mott MacDonald letter dated 15 February 2019) are as follows. Responses provided by the applicant through informal discussions and s92 responses and revised draft consent conditions (07 September 2020) are added with bullet pointed below the questions. Question numbers refer to the HBRC s92 question numbering.

AEE, BPO, Conceptual Design and Data Summary Reports

1. Please provide evidence that the data set modifications prescribed in Report A211 do not significantly modify the resultant summary data.
 - s92 Q 4a) Details of the data modifications were provided.
2. Provide full data sets and summary calculations, including graphical and statistical representations of performance, that form the basis of AEE table 5.3:
 - a. Historical performance flow and load/concentration data for the WWTP;
 - b. Historical influent parameter records (flows and loads).

- c. Confirm whether there is any treatment plant influent and effluent performance data for 2017 and 2018.
 - s92 Q 4b) Some additional data provided, but complete data sets not provided.
 - Additional data provided 07 September 2020, with letter "Responses to further information requests for consent application APP-123774 and revised conditions". Includes historical discharge information.
3. Provide technical assessment of the pond treatment capacity against established pond design parameters. This should cover at least historical kgBOD/ha.day, and assessment of changes to performance due to reduced I&I in the network, and changes to the treatment process.
 - s92 Q 4c) The response to this question has been unsatisfactory. Greater detail is required to assess the effects of changing network I&I conditions, and the resultant WWTP treatment effectiveness, given the inconsistent compliance with existing consent conditions.
4. Confirm when the two ponds were last desludged, and what are the measured sludge levels at present.
 - s92 Q 4d) Confirmed that the aerated lagoon was desludged in April 2017, with about 517m³ (dry basis) removed. The maturation pond was desludged in May to September 2010. The latter date indicates that de-sludging may be required again soon (depending on measured sludge levels).
5. Only four compliance reports are included in the assessment in A211, up to the year 2014. Were additional compliance reports available for inclusion in the assessment and if so, what is their impact on A211 Table 7.1.
 - s92 Q 4e) Satisfactory response provided.
6. Provide median and other percentile performance data for the existing pond such that ongoing median values can be considered for consent conditions.
 - s92 Q 4f) Satisfactory response provided.
7. Confirm whether membrane filtration was considered in the BPO long list of options in lieu of filtration and UV.
 - s92 Q 4g) Satisfactory response provided.
8. Does the proposed programme to improve network conditions quantify the expected improvements in influent wastewater?
 - s92 Q 4h) Satisfactory response provided.

Draft Consent Conditions

9. Confirm whether there has been any sensitivity testing of the proposed 60m³/s median flow in the Wairoa River. If the actual median flows of the river change over time, what will impact will this have on either effects, or ability to achieve conditions.
 - s92 Q 9e) Agree that this can be addressed with conditions that address any future changes in median river flow through reviews of river flow rates and the associated regime of treated wastewater discharge rates.
 - Noted that this has been addressed with an advice note in the Definitions section of WDC's revised draft consent conditions (07 September 2020), which allows for HBRC hydrologists to modify the median river flow when additional river flow data warrants this.
10. Consider rewording of Condition 8 to reflect a median (i.e. 6 of 12 samples) and higher percentile parameter that are aligned with the current treatment plant performance data and realistic performance of the upgraded plant (and network).
 - s92 Q 9f) Agree to resolve this when consent conditions are settled.

- WDC's revised draft consent conditions (07 September 2020) still refer to a limit for 4 of 12, and 10 of 12 samples. See detailed responses in sections below.
11. Confirm why soluble carbonaceous five-day Biochemical Oxygen Demand (scBOD₅) is proposed for the consent measurement? Has there been any performance data for the existing plant been collected to date for this parameter?
- s92 Q 9g) Agree that there is no evidence to support the use of scBOD₅ for discharge conditions, and that another parameter will need to be agreed to (either cBOD or COD) when consent conditions are settled.
 - WDC's revised draft consent conditions (07 September 2020) now propose a limit for carbonaceous five-day Biochemical Oxygen Demand (cBOD₅). See detailed responses in sections below.
12. Confirm why BOD is being proposed as the oxygen demand parameter, as opposed to COD in the previous consent?
- s92 Q 9h) Satisfactory response provided.
13. Confirm why such lenient percentiles (e.g. for scBOD₅, 4/12 = 220mg/L 33% of the time, and 10/12 = 224mg/L 83% of the time) are being proposed. However, "current" treated wastewater median is ~23mg/L for cBOD. Current consent is for COD <220mg/L. Note COD will always be significantly higher than scBOD₅.
- s92 Q 9i) Agree to resolve this when consent conditions are settled.
 - Conditions persist in WDC's revised draft consent conditions (07 September 2020). See detailed responses in sections below.
14. Explain why such narrow bands are to be met between the 33% and 83% trigger values.
- s92 Q 9j) Agree to resolve this when consent conditions are settled.
 - Conditions persist in WDC's revised draft consent conditions (07 September 2020). See detailed responses in sections below.
15. Provide treated wastewater consent parameters for pre and post upgrade to the network and treatment plant.
- s92 Q 9k) Satisfactory for now, but will need to be resolved when consent conditions are settled.
16. Provide proposed consent conditions for *E. Coli*.
- s92 Q 9l) Agree to resolve this when consent conditions are settled.
 - Provided in WDC's revised draft consent conditions (07 September 2020). See detailed responses in sections below.
17. Conditions 25 & 26. Confirm whether measurement of influent wastewater to the treatment plant is possible, as this will be the key gauge of success of the I&I programmes (Condition 15, Network Management Plan).
- s92 Q 9n) Satisfactory response provided.
18. Conditions 21 and 22. Confirm who the System Review Data Reports are intended to be issued to at 5, 10, 20, and 30 years.
- s92 Q 9m) Satisfactory response provided.
19. Condition 42. Is the intention that these reports be issued annually or biennially?
- s92 Q 9o) Satisfactory response provided.

5 SUMMARY OF OTHER RECOMMENDATIONS MADE 15 FEBRUARY 2019

Specific recommendations for HBRC to consider that are not directly related to the provision of information from the applicant, are as follows:

1. Revision of the consent conditions to measure load equivalent to the existing discharge, so that continued effects can be assured.

- Reducing discharge flow conditions, and maintenance of historical discharge concentrations (as now provided) is satisfactory to address this.
- 2. Inclusion of an issues list or similar, or reflection of the key outcomes identified in the BPO within the consent conditions, including some form of review against these. Specific clauses in the draft consent conditions that this relates to have been identified as 16, 17, 18, 21, 22, and 23.
 - Included in the System Reporting and System Improvement Plan conditions.
- 3. Assess whether the land discharge applications should be combined with this consent application, given that they represent the same WWTP discharge and are part of the same identified BPO.
 - These consents continue to be isolated, and therefore the outcome of the river discharge consent does not fully address the requirements of the BPO. Whilst reporting of considerations for storage and irrigation are included in the draft conditions, physical solutions are not obligatory.
- 4. Suitability of a 35-year consent term, given that the adaptive approach prescribed in the draft conditions, and the staged BPO strategy only provide a degree of certainty around the improvements that will be made for the first 10 years (the remaining stages are described as "aspirational").
 - This remains a concern.
- 5. Ensure that the loosening of discharge flow effects as described in the draft conditions (1/2 median, median, 3x median etc. in Condition 2 and 3) is adequately assessed for effects based on review by other technical experts in the team.
 - Addressed in WDC's revised draft conditions (07 September 2020) with reduced flow limits.
- 6. Consider addition of conditions for UV transmissivity to ensure effective disinfection, and minimum flows to UV treatment before bypassing.
 - Addressed in WDC's revised draft conditions (07 September 2020) with conditions for measuring and recording UV transmissivity, and design requirements for achieving >60% UVT when peak flows less than 5,000m³/d.
- 7. Consider the addition of a sludge measurement and reporting condition for the treatment plant.
 - Not included, but can be managed indirectly through the discharge conditions.

6 ADDITIONAL WDC CONSENT CONDITION INFORMATION DATED 07 SEPTEMBER 2020

WDC's letter of 07 September 2020 provides further responses to s92 requests, and includes revised draft consent conditions.

The letter discusses WDC's reluctance to provide historical influent and effluent data for the treatment plant to aid in reviewing the performance of the plant, and developing reasonable discharge conditions for the future consent. It should be noted that HBRC were not able to provide the data for this purpose, and only have a small number of compliance reports on record (September 2008, October 2009, and June 2013).

The spreadsheet of treated wastewater measurements provided with WDC's letter is the first opportunity provided to determine future consent conditions in a meaningful way, despite being requested since February 2019. In order to discuss and agree conditions, it is necessary for both parties to be working from the same data.

We note that the letter discusses keeping consent limits close to the existing consent limits. However, the correct approach should be to align new conditions to

historical performance, given that the demonstration of environmental impact is based on the actual discharges that have taken place over recent years.

Filtration and UV System

The letter notes a continued reluctance from WDC to impose conditions related to the improvement that will be provided from the proposed filtration and UV system, because "there are no environmental reasons for imposing stricter limits but also because it is difficult to quantify the likely improvements in quality".

In our view this is not the case, because:

1. The consent conditions are not only intended to protect river quality, but also public health and the mauri of the river.
2. The installation of the filtration and UV system were identified as a requirement in the BPO process, and
3. The filtration and UV system is one of the pivotal requirements for modifying the discharge flow conditions in the consent (see draft conditions 7 and 8), along with storage and irrigation.

WDC have previously noted (letter to HBRC 26 June 2019, FURTHER INFORMATION REQUEST RESPONSE AND INTENT OF CONSENT APPLICATION APP-123774), that the intended purpose of the filtration and UV system within the consent condition framework is:

"a. Installation of sand filtration and UV disinfection to improve effluent quality – primarily intended to at least partly address public health, river health, social, and cultural values,"

And:

"Establishes a discharge regime, that once UV treatment has been installed, allows greater flexibility to discharge during greater portions of the day when river flows are elevated so as to avoid pressure and storage capacity issues in the system that could lead to overflow discharges elsewhere, or force larger discharges during subsequent periods of lower river flows,"

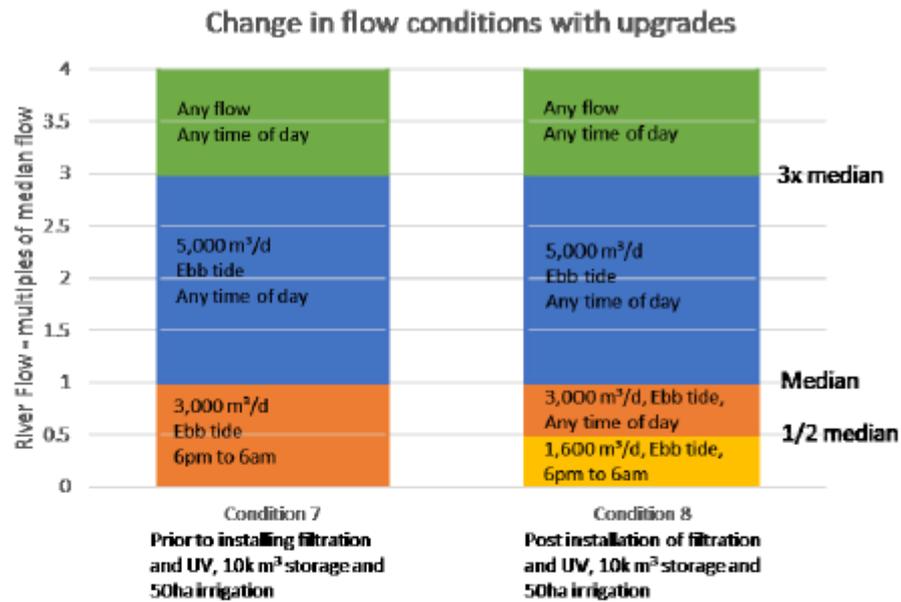
And:

"Key points to note are:

- *UV treatment is expected to enable discharge on outgoing tides regardless of the time of day during flows greater than ½ median (during flows less than ½ median discharge will still be limited to the nighttime hours),"*

The diagram below highlights that the change in discharge flow conditions will allow increased contact of treated wastewater with recreational users (between ½ median and median river flows), and therefore requires conditions that ensure improved pathogen removal.

Figure 1: Change in flow conditions with upgrades



Given the consent’s intent, and the above requirements that define the need for filtration and UV system, it is not unreasonable to include conditions that measure the effectiveness of the system, both after installation, and into the future – ensuring effective operation and maintenance.

WDC note in their letter (07 September 2020) that they will undertake pilot trials of the filtration and UV system to determine performance capabilities. We recommend a condition that uses the output from these trials to work with HBRC and agree pathogen discharge conditions post installation of the UV system.

We suggest that the reporting on trials be incorporated in the Detailed Design report prepared for the filtration and UV system (condition 39), and that this be reported to Council. Changes to consent conditions can then be incorporated within the System Review (condition 53), Improvement Plan (Condition 55), and Wastewater Monitoring Strategy (condition 56) reporting cycles already described in the draft consent conditions. Proposed changes are tracked in the attached edited version of the draft consent conditions (version 20).

Commentary on Specific Conditions

The numbering of conditions below refers to those provided in WDC’s version 20 of the draft consent conditions, dated 4 September 2020. A marked up copy of WDC’s draft consent conditions Version 20 is included with this letter to be read in conjunction with the notes below.

Definitions

We recommend an additional definition to define the UV system, as this at various parts of the conditions and application, this includes or omits the filtration requirement, as follows:

- Means a treatment process located after the treatment ponds, which includes filtration and ultraviolet light disinfection.

Conditions 7 and 8 – Treated Wastewater Discharge Volumes

See discussion above regarding link with Filtration and UV system.

These conditions are now dependent upon the installation of a Filtration and UV system (condition 39), 10,000m³ storage (condition 44), and 50ha irrigation (condition 45). The last of these is newly added to this draft set of conditions. Of these, only the UV system has a condition with fixed date for installation in the consent; the others are only required to be investigated and reported on. In effect, this means that the consent holder may never install the storage and irrigation, never move to the second flow conditions (condition 8), and maintain compliance.

Condition 13 – Discharge Effects

These requirements are reasonable, in line with other consents, and as expected to ensure no offensive impacts in the immediate receiving environment.

Condition 14 – Treated Wastewater Discharge Standards

The proposed discharge conditions from the wastewater treatment plant have improved considerably from the initial application. In addition, supporting data which demonstrates previous performance of the treatment plant has now been provided with this update.

Assuming that the historical effects on the receiving environment have been demonstrated to be less than minor (based on findings from other experts), then it stands that the consent conditions going forward should reflect historical treatment plant performance.

The applicant's proposed consent conditions are all presented based on a lower and upper limit value. This is typical, but is more often based on a median and an upper value. WDC have requested a lower limit which requires only 4 of 12 samples to be below that value, and the upper limits require 10 of 12 samples to be below that value. While not conventional, I can accept this approach so long as the limits reflect historical performance. In effect this will mean that at the worst with a sample set of 12, four values can be below the lower limit, six between the lower and upper, and two above the upper to achieve compliance.

The data set provided extends back to 1999 for many parameters, approximately 21 years (some parameters only have data extending back to 2008), and the assessment of parameters provided by WDC is based on all of this data. In the case of some parameters, it is clear that there have been changes in treatment quality over the past two decades, with some visible improvements from around 2010. I consider that one decade of historical data is sufficient, and more reflective of the recent performance than the full 20-year data set.

In addition, it is noted that the spreadsheet of data provided, assesses exceedances based on a rolling 12-month evaluation of exceedances. However, the proposed conditions suggest an annual assessment of 12 samples in a given year. These two options present different target consent limits from the historical data set, as demonstrated in the below two figures. If annual reporting is preferred, then slightly lower limits are required.

The graphs show the number of times the limit is exceeded by greater than the number allowed in the condition (i.e. more than eight of two times respectively). Where the curves meet zero, provides the limit which could have been achieved consistently for the 10 or 20 year period if the curve. The solid lines show rolling average calculations, and the dashed lines show an annual assessment of data (January to December).

Figure 2: Lower Limit Breaches of greater than 8 times per Condition for Ammonia

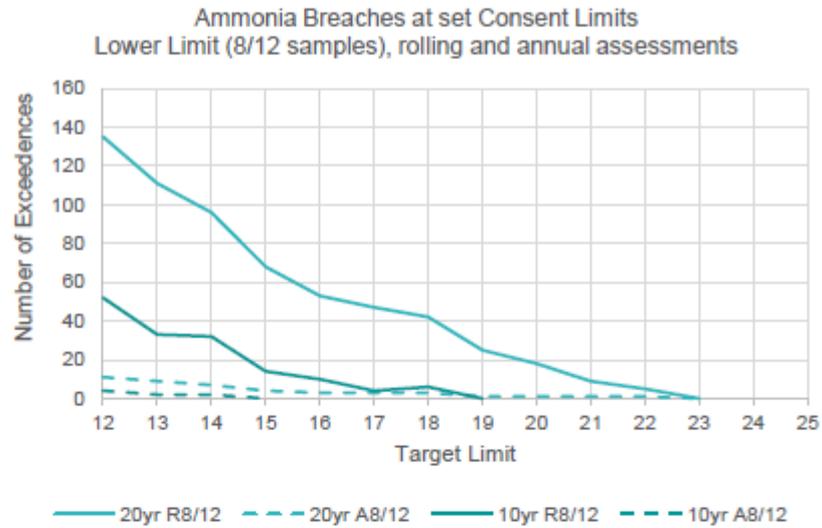
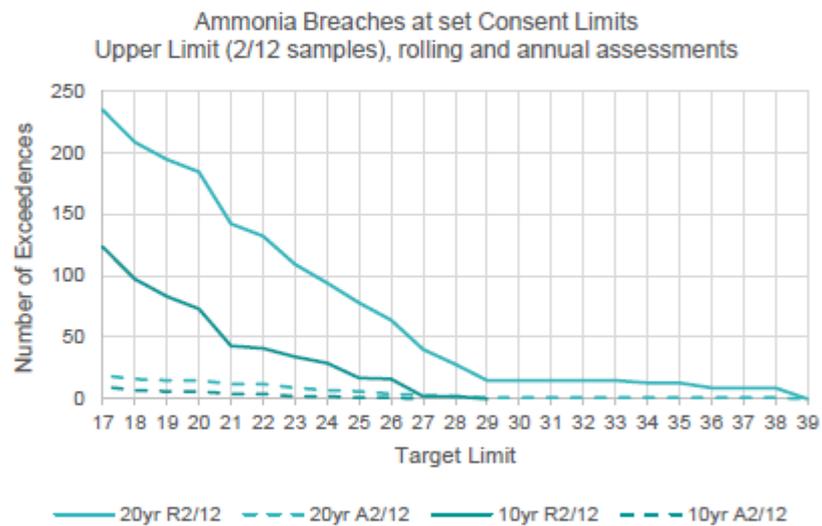


Figure 3: Upper Limit Breaches of greater than 2 times per Condition for Ammonia



Given the reporting requirements, we can support an annual assessment of the discharge against limits, but will require lower limits to represent actual past performance (over the past decade). The recommended limits are therefore provided below.

Table 3: Summary of draft consent conditions

Parameter	Previous Consent	Proposed by WDC		Recommended revised values	
	Max	8/12	2/12	8/12	2/12
Ammonia	36	25	40	15	27
cBOD ₅	-	25	75	21	61
COD	220	-	-	158	300
TSS	87	70	150	50	118
<i>E.coli</i>	-	20,000	200,000	5,500	75,000
<i>Enterococci</i>	-	10,000	100,000	3,200	34,000
UVT	-	-	-	54	65

At the proposed revised values above, the existing treatment plant would have been compliant for the past decade, noting the assumptions below.

My assessment above is based on 10 years of data from January 2010 to March 2020, and an annual assessment of 12 samples between January and December each year. The COD and UVT values are presented for comparison purposes only. In order to make this assessment, some data which was clearly outlier information, has been removed as follows:

- cBOD₅ – 160 on 28/02/2010, and 190 on 31/05/2020;
- COD – 1,870 on 11/10/2017;
- TSS - 550 on 13/07/2018.

Condition 23 – Sampling Requirements

Recommend that these are noted as grab samples, as composite samples will not provide accurate measurements of ammonia or pathogen parameters.

Additionally, it is recommended that a field measurement of temperature is made with the pH and DO measurements.

Condition 39 – Filtration and UV Treatment

It is impractical to expect a filtration and UV system to be designed to treat all flows during peak wet weather events. As a result, some flows will need to be bypassed, and the extent of this should be defined in the consent conditions. In addition, the frequency and extent of bypasses should be recorded. We recommend that clauses are added to note how bypasses should be measured, and/or FM located to ensure that full flows are measured, and UV treated flows are measured. The intent is not to require the cost of a second flowmeter, but rather trigger a bypass alarm when bypasses occur, and measure the full discharge flow downstream of where the flows converge again.

The following additional clauses are recommended:

- (a) iii. flow rate and daily total volume able to be accommodated by the disinfection system, with a minimum expectation of 3,000m³/d prior to triggering high flow bypass, and
- (a) iv. flow switches or similar that record when high flow bypasses occur (and can be referenced to the concurrent flow on the discharge flowmeter at a downstream point where the filter/UV bypass flow converges).
- (d) Be submitted to Council to provide a record of the design intent.

Condition 40 – Network Management Plan

We have recommended additional text to clarify the requirement to revise the Network Management Plan in line with the System Improvement Plan (condition 55).

Condition 44 – Initial Land Treatment Area

This condition includes no commitment to land treatment by a certain date. Only annual reporting on progress is required.

Condition 45 – Initial Storage Area

This condition includes no commitment to additional storage by a certain date. Only annual reporting on progress is required.

Condition 49 – Annual Monitoring Report

Given the changes in reporting requirements, reporting on discharge quality and environmental impacts every two years is not appropriate nor consistent with other regional consents. Recommend that the reporting is reverted to annual.

In addition, the occurrence and scale of filtration and UV system bypasses should be reported on.

Condition 54 – System Data Review

Recommend that only alternative treatment or discharge arrangements that enhance the treated wastewater are considered.

Yours sincerely,

For and on behalf of
Mott MacDonald New Zealand Limited.



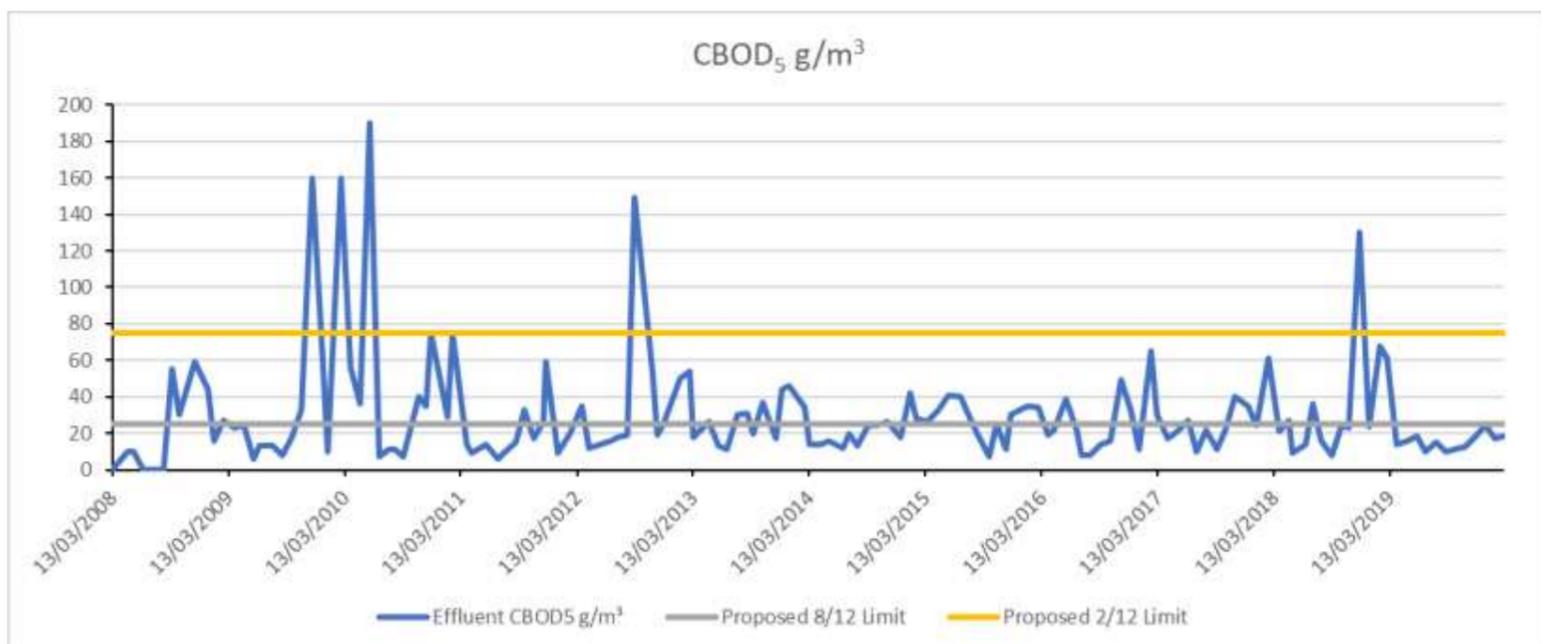
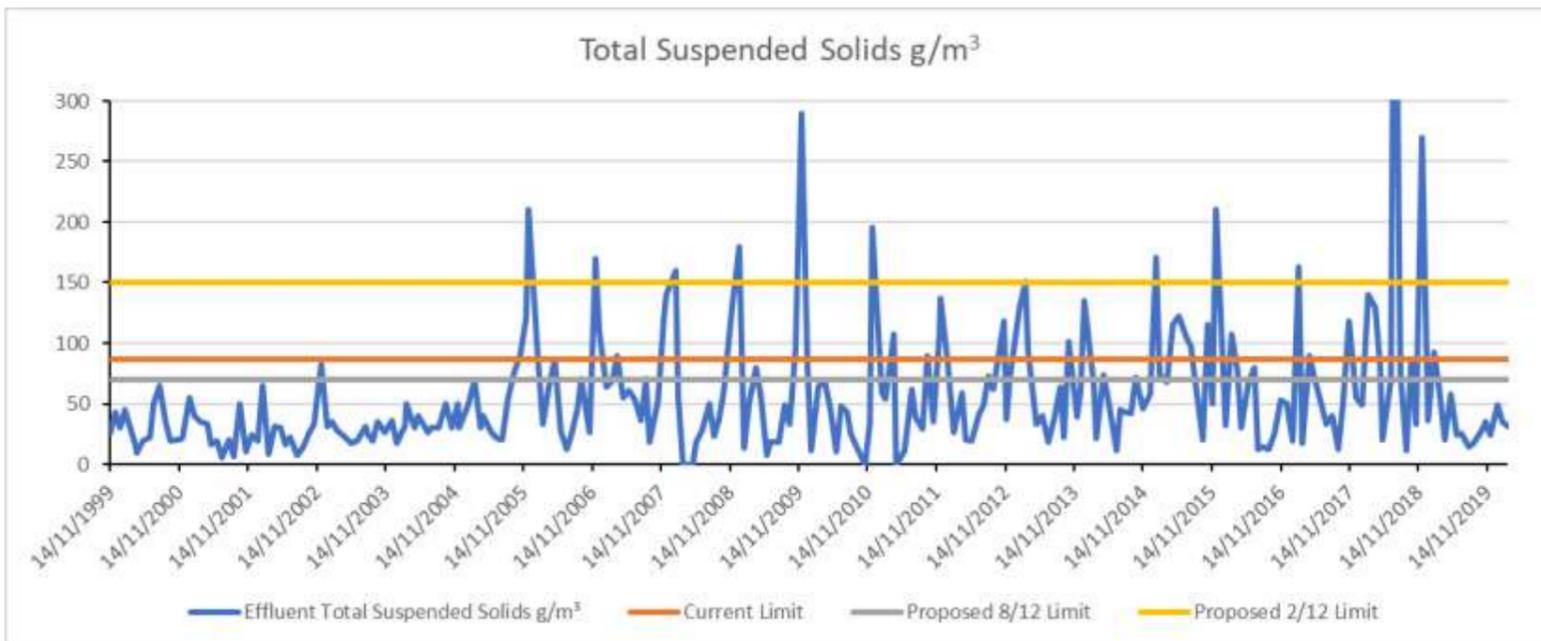
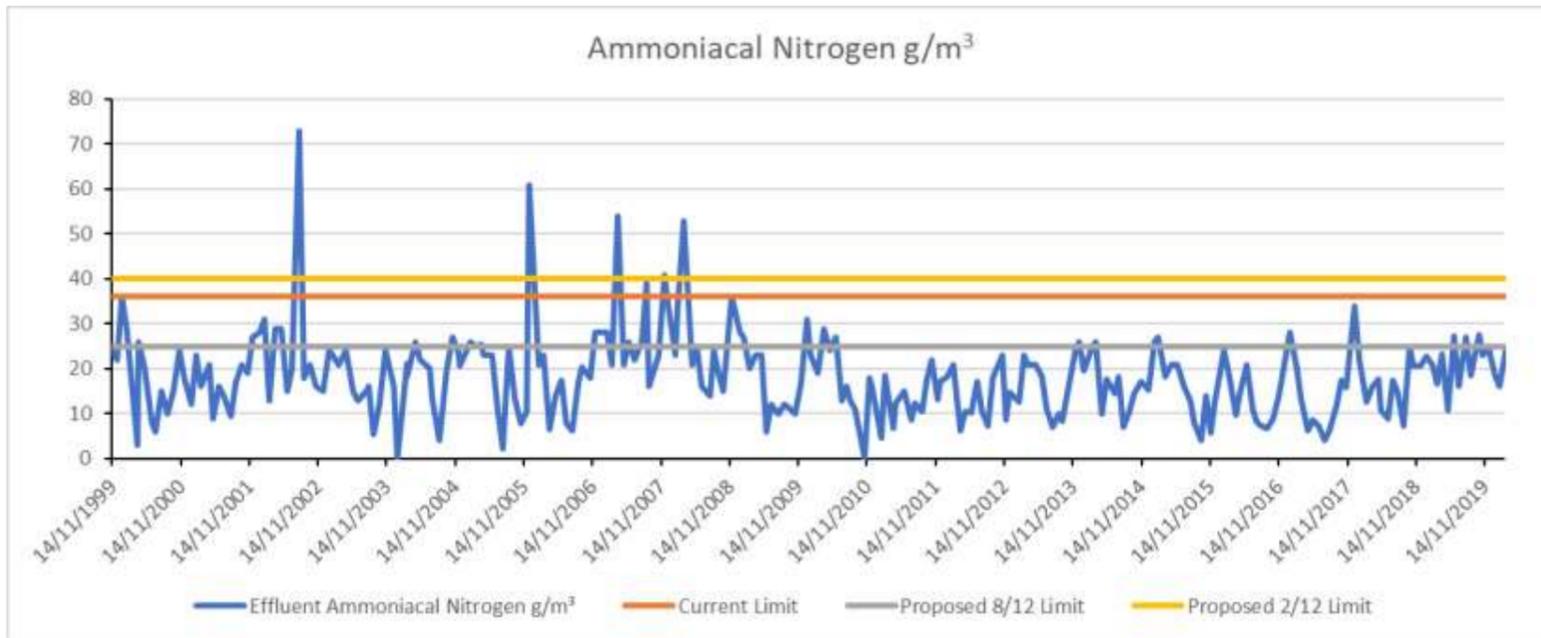
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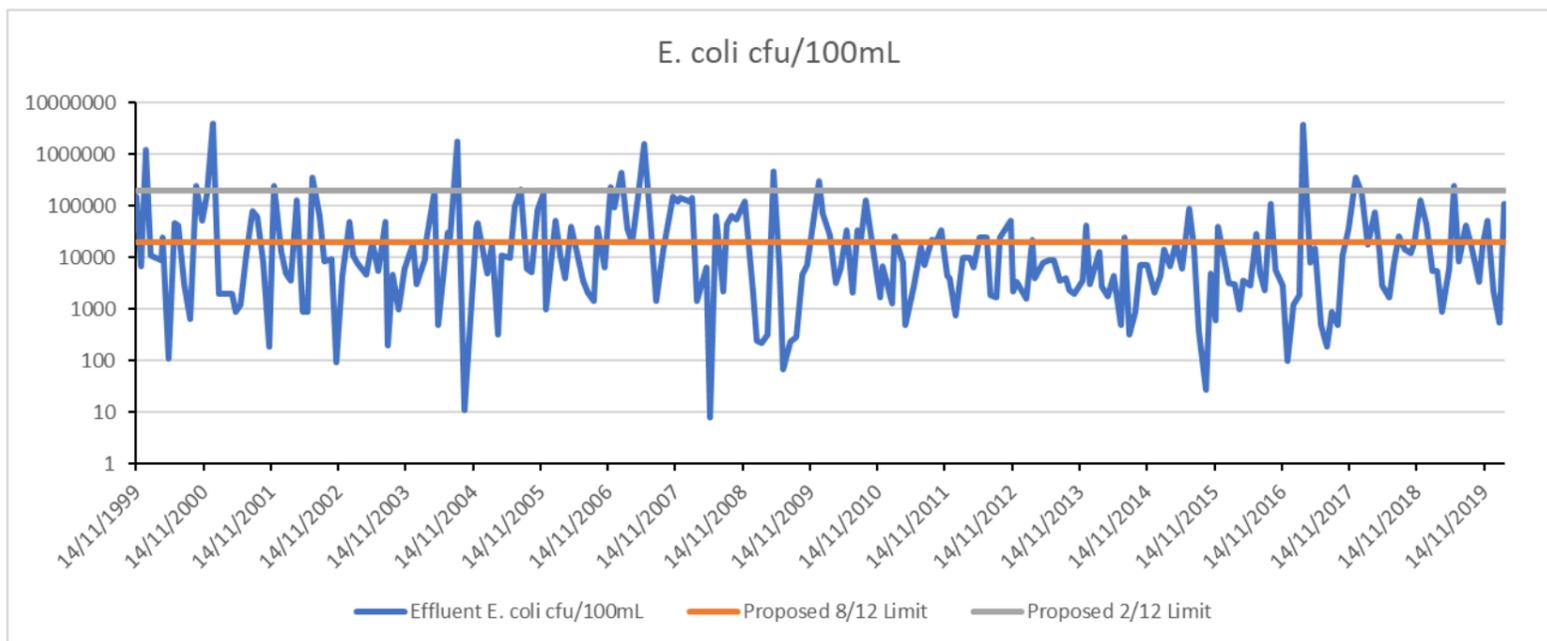
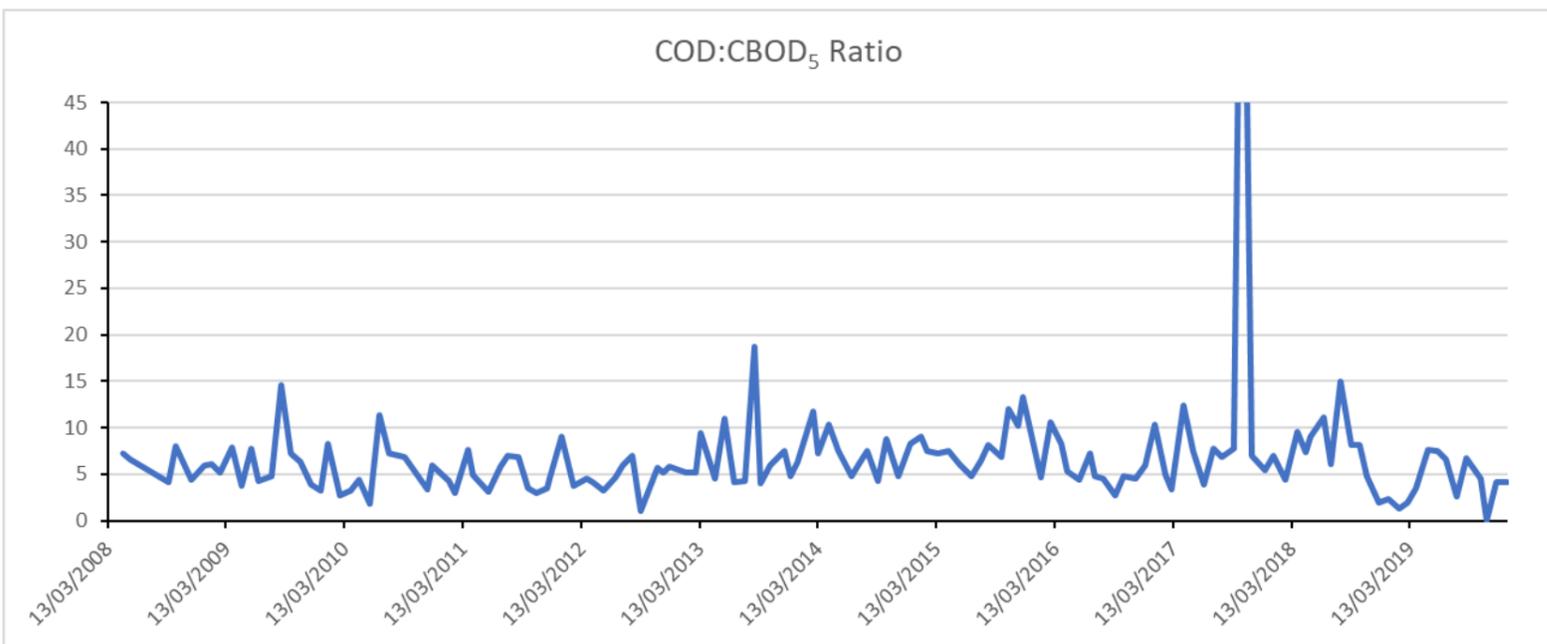
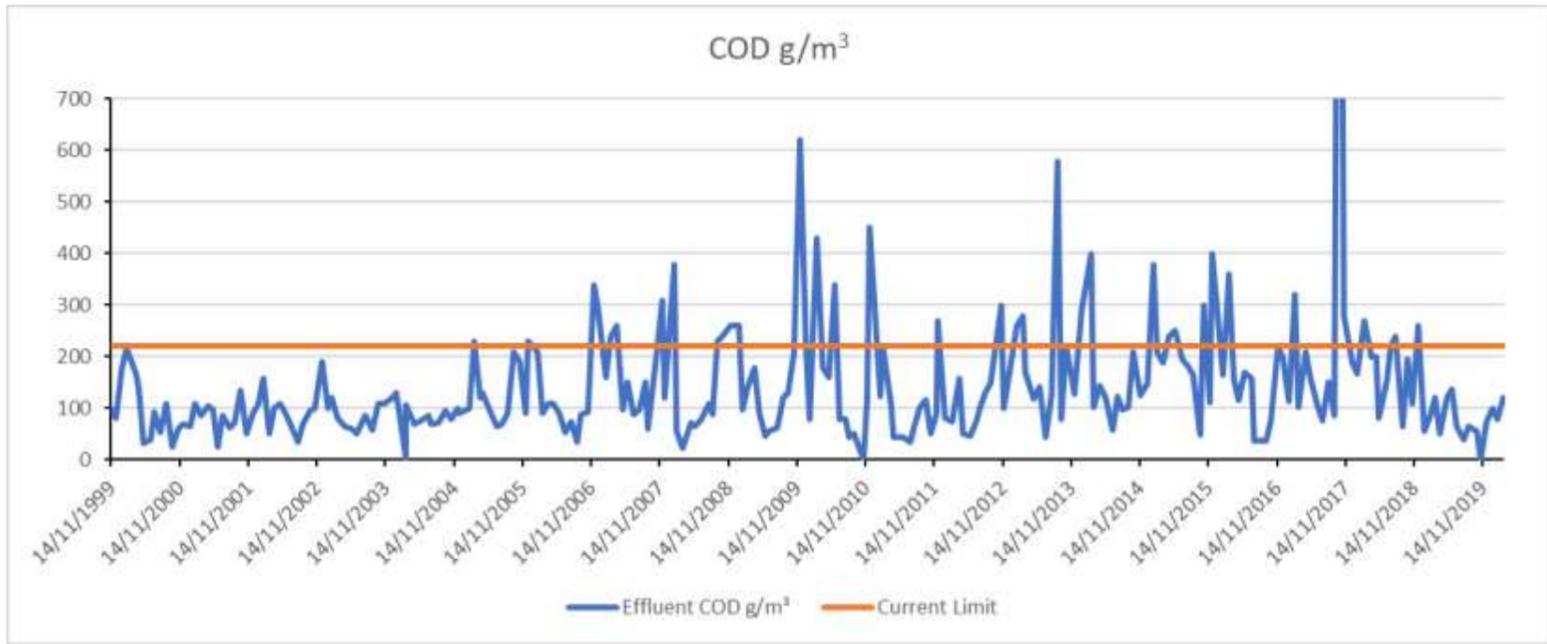
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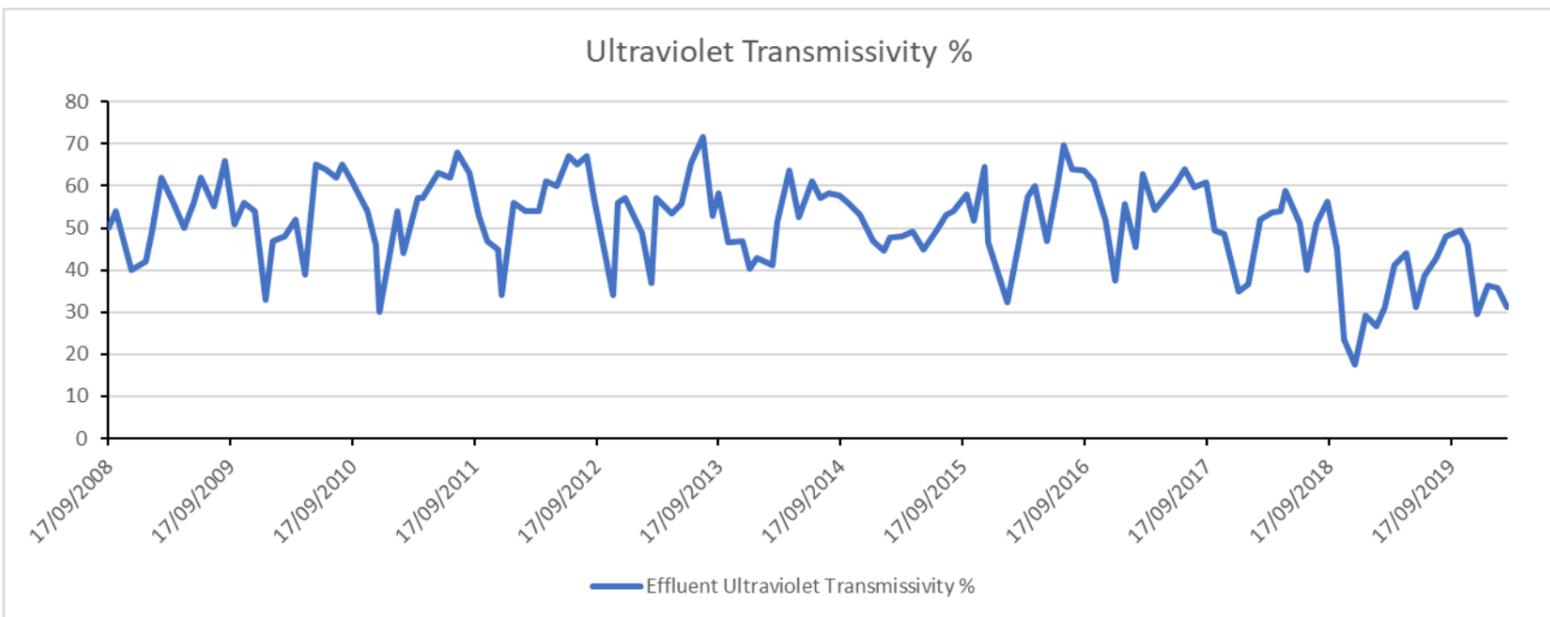
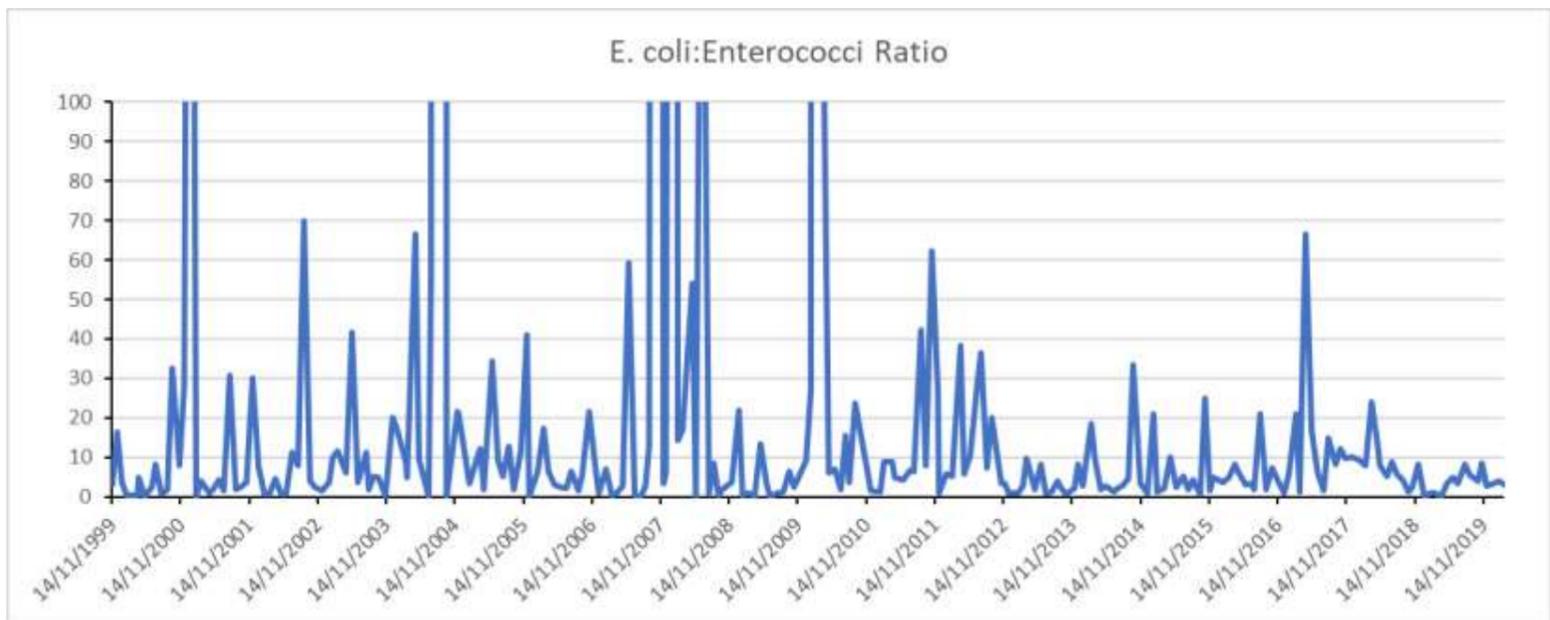
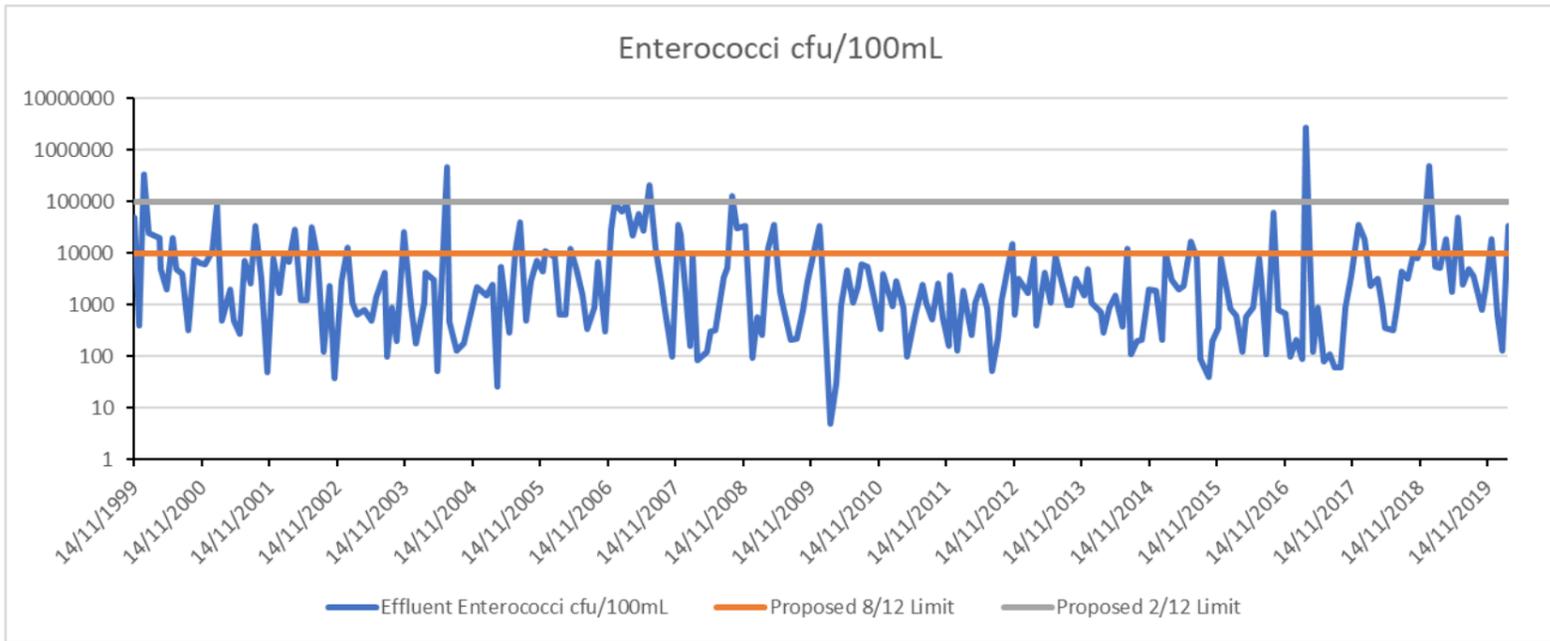
1. Marked up copy of WDC's Draft Wairoa's Consent Conditions – 4 September 2020 – Version 20.
10292-WDC-Draft_conditions_no_commentary-200904_V20 MARKEDUP.docx
2. Reviewers assessment of historical effluent data to determine discharge consent conditions.
WDC_Effluent_Sampling_Results_Wairoa_WWTP_with_proposed_limits-200904 MARKEDUP.xlsx

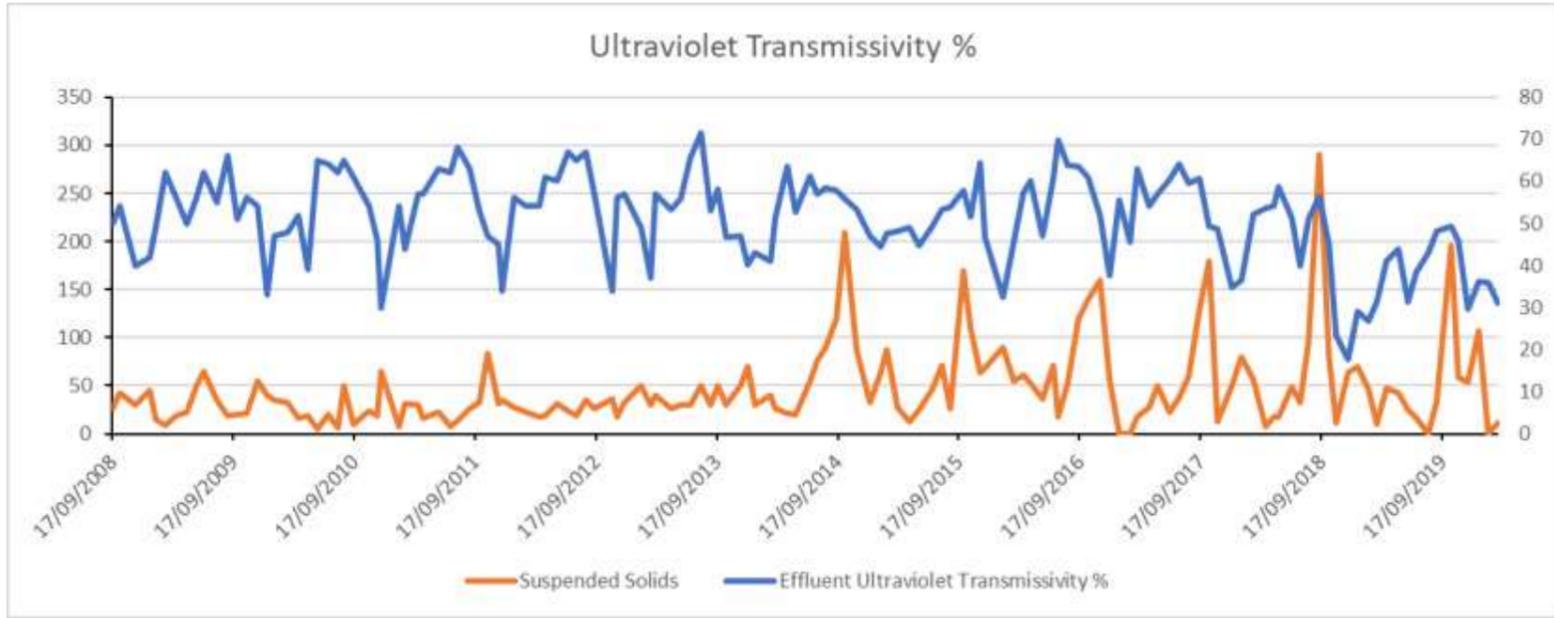
WDC Effluent Sampling Results Wairoa WWTP with proposed limits

Proposed Limit Compliance









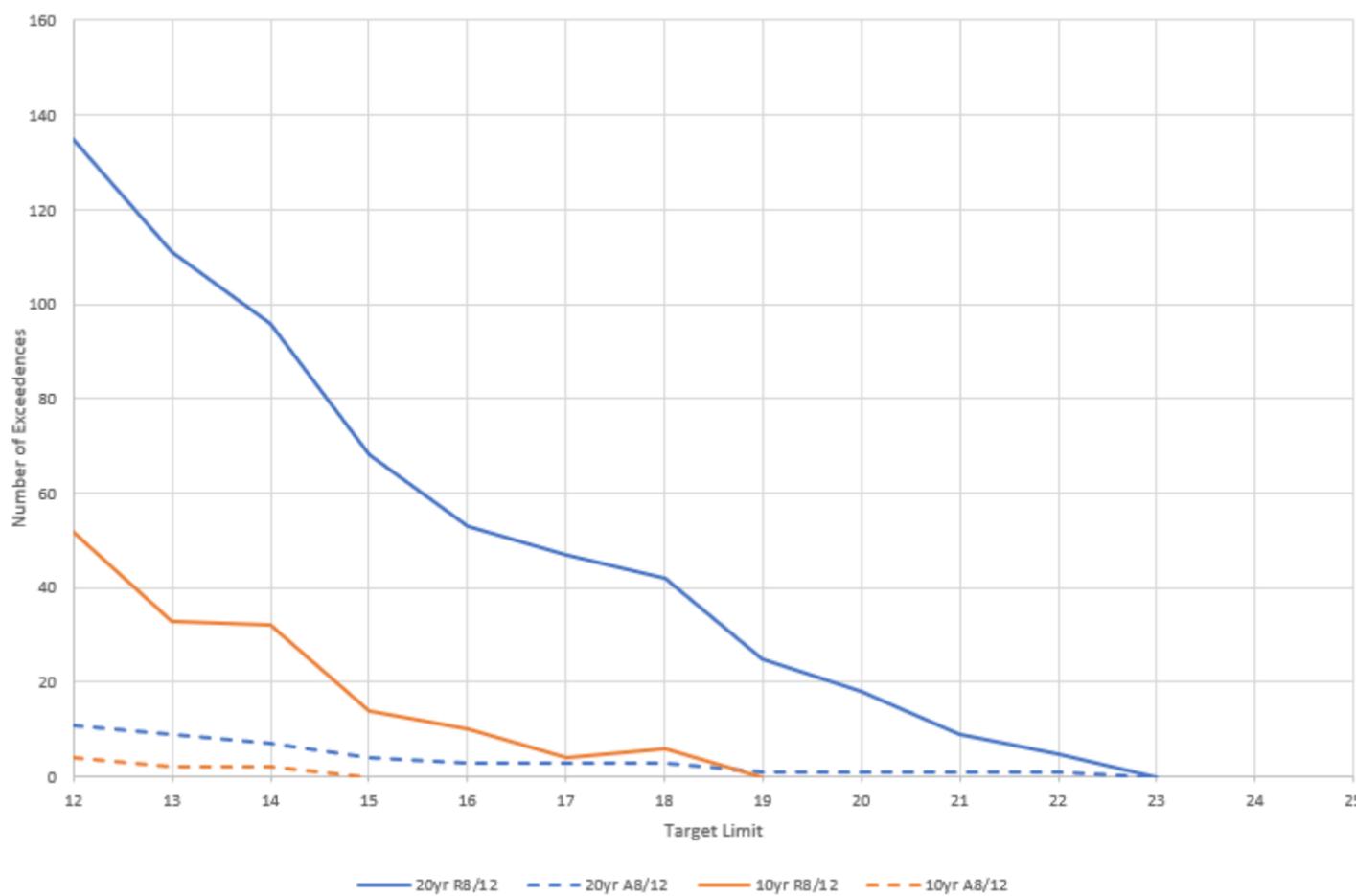
Checking for Limits

Breaches													
Ammonia													
	20yr		10yr		20yr		10yr		20yr		10yr		
Limit	20yr R8/12	20yr A8/12	10yr R8/12	10yr A8/12	20yr R6/12	20yr A6/12	10yr R6/12	10yr A6/12	20yr R2/12	20yr A2/12	10yr R2/12	10yr A2/12	
12	135	11	52	4	202	16	94	7	234	19	123	10	
13	111	9	33	2	183	14	75	5	234	19	123	10	
14	96	7	32	2	163	13	62	4	234	19	123	10	
15	68	4	14	0	136	11	53	3	234	19	123	10	
16	53	3	10		108	9	36	3	234	19	123	10	
17	47	3	4		96	8	29	2	234	19	123	10	
18	42	3	6		76	5	15	0	208	16	97	7	
19	25	1	0		66	5	9		194	15	83	6	
20	18	1			54	3	9		184	15	73	6	
21	9	1			31	2	2		142	12	43	4	
22	5	1			28	2	2		132	12	41	4	
23	0	0			12	1	1		109	9	34	2	
24					10	1	0		94	7	29	2	
25					8	1			78	6	17	1	
26					0	0			64	4	16	1	
27									40	3	2	0	
28									28	2	2		
29									15	1	0		
30									15	1			
31									15	1			
32									15	1			
33									15	1			
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35									13	1			
36									9	1			
37									9	1			
38									9	1			
39									0	0			

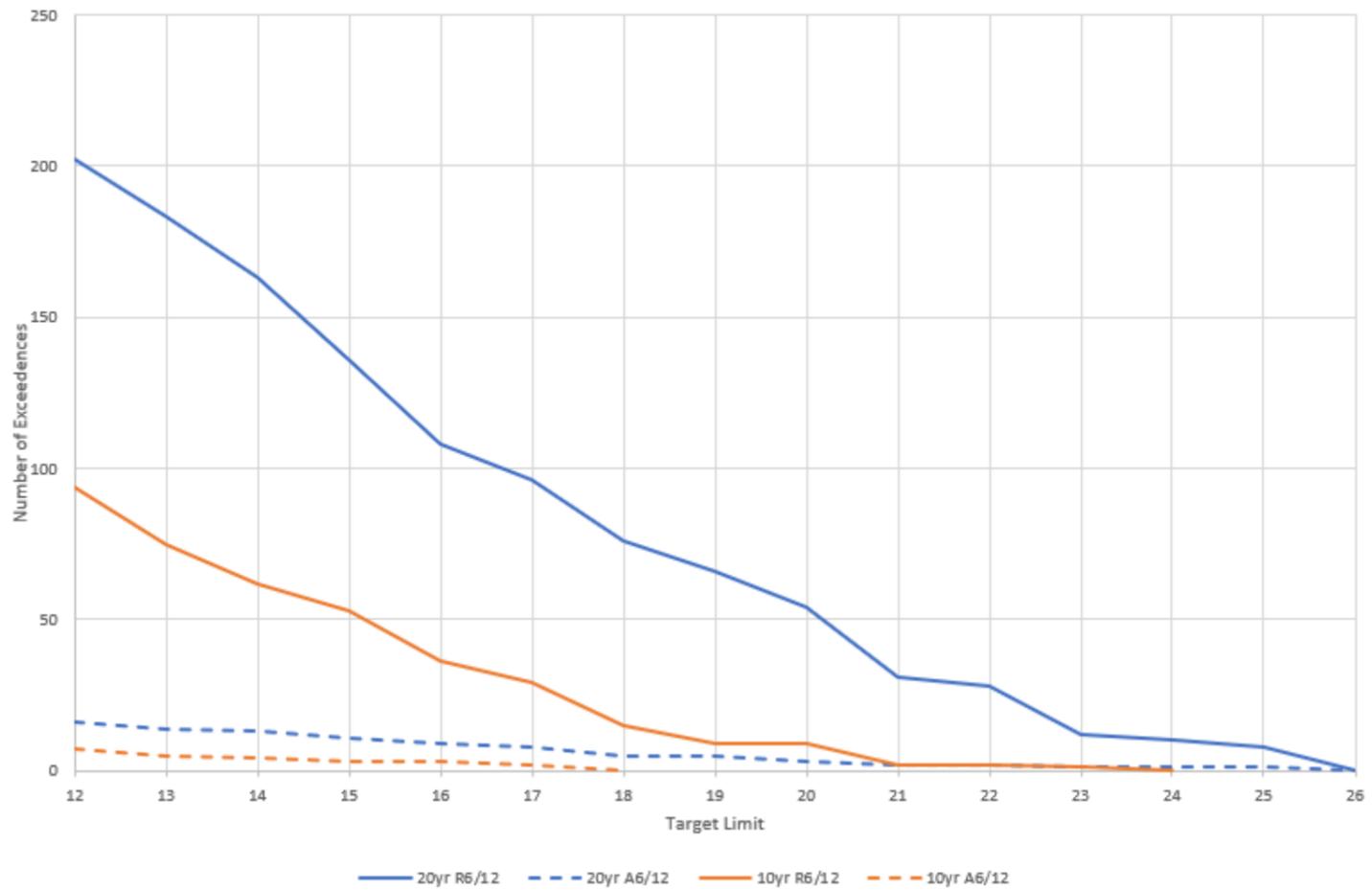
Proposed Values for Rolling Average							
Parameter	Previous Consent	Proposed by WDC		HBRC for discussion			
	Max	8/12	2/12	8/12	Median	2/12	
Ammonia	36	25	40	19	24	29	
oBOD ₅	-	25	75	25	29	61	
COD	220	-	-	182	194	340	
TSS	87	70	150	68	98	196	
E.coli	-	20,000	200,000	23,000	33,000	180,000	
Enterococci	-	10,000	100,000	5,000	5,300	34,000	
UVT	-	-	-	56	61	66	

Proposed Values for Annual Assessment							
Parameter	Previous Consent	Proposed by WDC		Proposed revised values			
	Max	8/12	2/12	8/12	Median	2/12	
Ammonia	36	25	40	15	18	27	
oBOD ₅	-	25	75	21	29	61	
COD	220	-	-	158	164	300	
TSS	87	70	150	50	77	118	
E.coli	-	20,000	200,000	5,500	12,000	75,000	
Enterococci	-	10,000	100,000	3,200	5,200	34,000	
UVT	-	-	-	54	57	65	

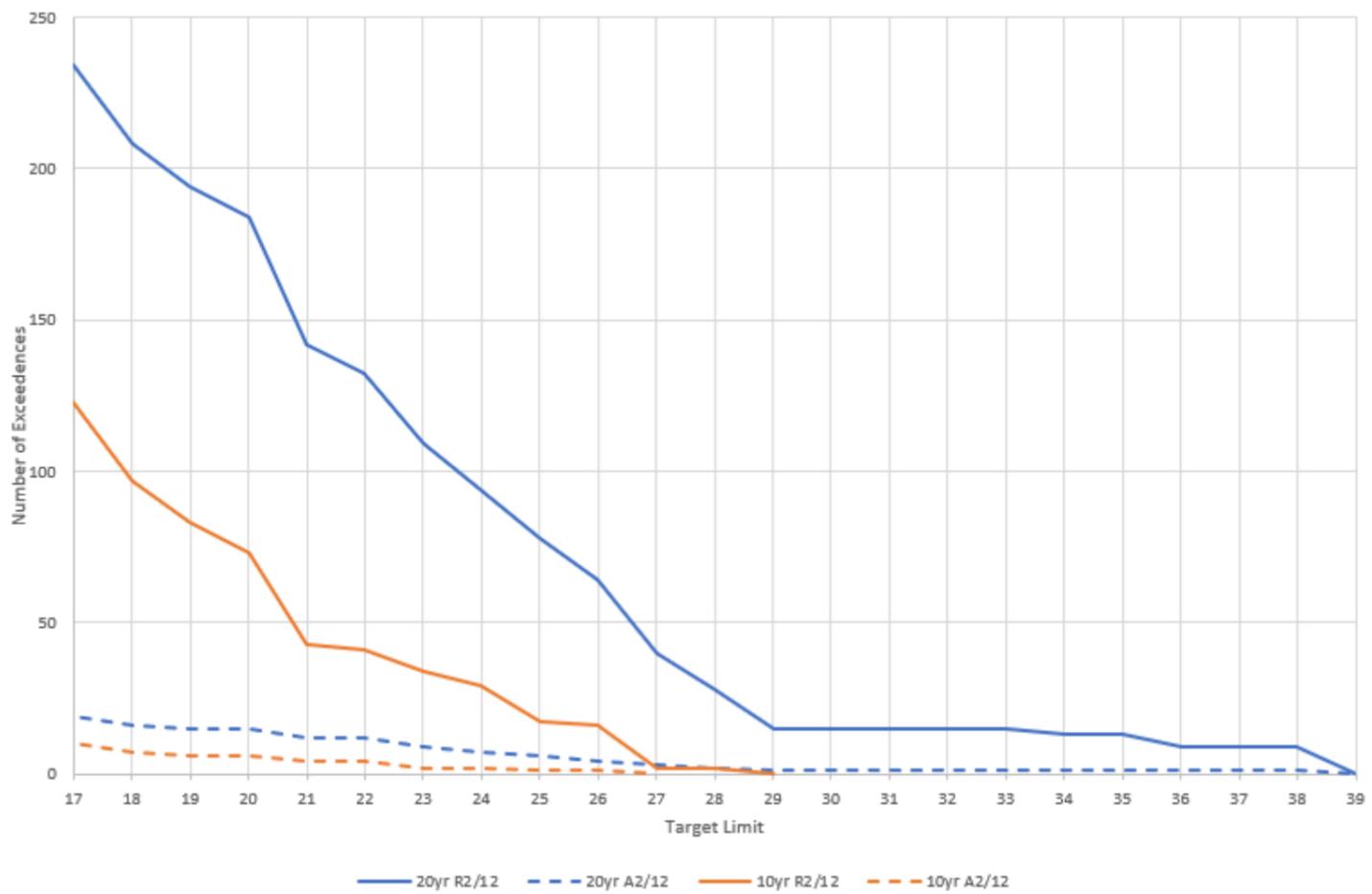
Ammonia Breaches at set Consent Limits
Lower Limit (8/12 samples), rolling and annual assessments



Ammonia Breaches at set Consent Limits
Median Limit (6/12 samples), rolling and annual assessments



Ammonia Breaches at set Consent Limits
Upper Limit (2/12 samples), rolling and annual assessments



Appendix 3: Summary of Submissions received

Application Number: •APP-123774

Submission Closure Date: 10 September 2019

Applicant Name: Wairoa District Council

Application Purpose: Activities and discharges associated with the receipt, treatment, storage and general management of wastewater received at the Wairoa Wastewater Treatment Plant

#	Name	Date Rec.	For	Neutra l	Ag ain st	Wise s to be heard	Ack	Iris
1	Julianna Dawson	27 August 2019			✓		✓	✓
2	Suzanne Lyons	27 August 2019			✓		✓	✓
3	Michelle Mclroy	29 August 2019			✓	✓	✓	✓
4	John Waihape	29 August 2019	✓				✓	✓
5	Cheryl Te Amo	30 August 2019			✓	✓	✓	✓
6	Vicky White	30 August 2019			✓		✓	✓
7	Pania Ormond	31 August 2019			✓		✓	✓
8	Murray Olsen	31 August 2019			✓		✓	✓
9	Shane Hubbard	3 September 2019			✓	✓	✓	✓
10	Phil Beattie	3 September 2019			✓		✓	✓
11	Lucia Ehu-Hamilton	5 September 2019			✓		✓	✓
12	Ina Kumeroa Kara- France	7 September 2019						
13	Gary Mayo	6 September 2019		✓			✓	✓
14	Lis Battes	8 September 2019			✓		✓	✓
15	Christina Stockman	9 September 2019			✓	✓	✓	✓
16	AFFCO New Zealand Limited	9 September 2019		✓		✓	✓	✓
17	Wendy Howe	9 September 2019			✓		✓	✓
18	Te Wairoa Tapokorau Whanui Trust	10 September 2019			✓		✓	✓
19	John Hubbard	10 September 2019			✓	✓	✓	✓
20	HBDHB	10 September 2019		✓		✓	✓	✓
21	Nga Tokorima a Hinemanuhiri Trust	12 September 2019		✓		✓	✓	✓
22	Ngati Kahungunu Wairoa Taiwhenua and Ngati Kahungunu Incorporated	12 September 2019		✓		✓	✓	✓

Summary of Submissions

Submission Number	Submitter Name	Support/ Oppose/ Neutral	Summary of Submission	Outcome requested
1	Julianna Dawson	Oppose – Rules 160, 28, 52, 9.	<p>1.1 Does not want untreated wastewater discharged into the Wairoa River</p> <p>1.2 States that the River needs to be at a standard to enable swimming and harvesting of kai</p>	HBRC to stop granting irresponsible consents
2	Suzanne Lyons	Oppose – Rules 28, 52, 9, 160.	2.1 Opposes raw sewage being put in the rivers	Option (proposal) provided is inappropriate in its entirety
3	Michelle McIlroy	Oppose – Rules 52, 9, duration of 35 years & consent conditions 2 & 3. (Pre hearing attendance and wishes to be heard at a hearing)	<p>3.1 Believes the aspirational goals do not provide a clear pathway in removing the discharge from Te Wairoa Hopupu Honengenenge Matangirau</p> <p>3.2 Wastewater Stakeholder Group – minutes not taken, over representation by WDC staff and concerns with conflict of interest</p> <p>3.3 Were only advised of 24/7 discharge in final meeting, oppose this request</p> <p>3.4 Discharge of raw sewage is highly offensive to mana whenua</p> <p>3.5 Duration of 30 years was discussed in meetings not 35 years as per application</p> <p>3.6 Proposal does not support the Articles of the Treaty and within the jurisdiction of the Matangirau Reserves Board</p> <p>3.7 “whakarauora ake te mauri o te awa – restore the mauri of the awa Te Wairoa Hopupu Honengenenge Matangirau”</p>	HBRC to not support the application
4	John Waihape	Support - all	<p>4.1 Asks the WDC to halt all non-essential expenditure and divert funding to a plant that does not need to discharge any untreated waste in the river</p> <p>4.2 “The river is not a drain for our convenience(s!). Stop doing this.”</p>	As per submission
5	Cheryl Te Amo	Oppose - all (Pre hearing attendance and wishes to be heard at a hearing)	<p>5.1 No to discharge (raw)</p> <p>5.2 “Fish - Scope whitebait - and SWIM”</p>	Does not want any discharges into the River

6	Vicky White	Oppose – Rules 52 (RRMP) & 9 (RCEP)	6.1 States does not want untreated waste added to the river that is already in trouble 6.2 Believes Council should prevent untreated wastewater being put into the Wairoa River, apply for funding to complete the necessary work	As per submission
7	Pania Ormond	Oppose – Rules 52 (RRMP), 9 & 160 (RCEP) (Pre hearing attendance)	7.1 Opposes untreated water in awa as tangata whenua as it pollutes drinking water, white bait, and town water supply. 7.2 Believes Treaty of Waitangi obligations to the tangata whenua of Wairoa have been broken	As per submission
8	Murray Olsen	Oppose – all (Pre hearing attendance)	8.1 States the Council should not discharge untreated wastewater into awa or sea	The application should be denied and WDC to do its job properly.
9	Shane Hubbard	Oppose - all (Pre hearing attendance and wishes to be heard at a hearing)	9.1 Opposes raw sewage being dumped into Wairoa River 9.2 Believes alternatives need to be looked at	As per submission
10	Phil Beattie	Oppose - all	10.1 “River is food”	As per submission
11	Lucia Ehu-Hamilton	Oppose – costs, consultation, options (ocean outfall should be considered)	11.1 Submission consists of four emails that include non-compliance issues with the overflow pipe adjacent to the main outfall structure, overflows at manholes, recommending signage and barricades around overflow area 11.2 States that the Wairoa Stakeholder Group were unaware of the overflow and it’s frequency 11.3 States community concerns include solids within the discharge, discharge outside the consented period, poor process, application is not the core business of LEI, \$3m capital cost does not provide for repairs 11.4 Submission also outlines a number of concerns regarding the cost of works particularly regarding the outfall structure	* Proposes the resource consent should be reworked * Once costs are confirmed then a decision can be made * Prefers an ocean outfall * HBRC inaction has resulted in the current situation and should not be involved with the process
12	Ina Kumerora Kara-France	Oppose – Rule 52 (RRMP), Rules 9, 160, 177, & 178 (RCEP)	12.1 The submission provides a summary on the adverse impacts on Māori Cultural Values, Principals and Traditional Practices 12.2 Believes it breaches RMA Part 2: Section 8, NPS for Fresh water Management	* Proposes that Māori – Iwi and Hapū are in partnership in finding a new solution (possibly land solutions) * Financial compensation to be paid to Hapū and

				Wairoa Community for RMA breaches * Both Councils (HBRC & WDC) restore the Wairoa Awa
13	Gary Mayo	Neutral – all associated with Wastewater Stakeholder Group	<p>13.1 Information regarding the estuary outfall being in a state of disrepair was not given to the Wastewater Stakeholder Group</p> <p>13.2 Believes the proposed replacement outfall has changed the scope of the project that was discussed at the meeting and as such is concerned with the cost to Wairoa ratepayers</p>	That HBRC requires WDC to rework the application after agreement is reached with ratepayers as to cost
14	Lis Battes	Oppose - all	<p>14.1 The submission states the application was prepared while the compromised outfall was ignored and has resulted inadequate consultation on the matter.</p> <p>14.2 States the cost to the Wairoa community has not been adequately consulted on particularly if Opoutama and Mahia Beach communities are expected to contribute to the proposal</p> <p>14.3 Believes that the council does not have the mandate to deliver the project that the application commits to an as such feels the Auditor General should be consulted</p> <p>14.4 Believes the consenting process should be transferred to an independent entity</p> <p>14.5 Believes a \$7.8m ocean outfall is a viable option that should be considered</p>	A new application should be submitted and that WDC should use another consultant
15	Christina Stockman	Opposes – Rules 160 & 9 (RCEP) & Rule 52 (RRMP) (Pre hearing attendance and wishes to be heard at a hearing)	<p>15.1 Supports the key messages from community consultation being that discharges of wastewater to the river were no longer acceptable.</p> <p>15.2 Leads waka ama and is concerned that one of their key goals “is to sustain mauriora and wellness in our young people” which conflicts with the state of the awa</p> <p>15.3 Does not believe the impact of the proposal will be minimal</p> <p>15.4 The submission touches on the importance of the river to Māori , and references the CIA</p>	No more consents to be issued by HBRC and no more discharges (treated or untreated)

			<p>prepared by Nigel How 'All water is an integral part of identity to hapū of the Wairoa district...'</p> <p>15.5 States that discharging into the river must cease immediately</p>	
16	AFFCO New Zealand Limited	Neutral – all (Pre hearing attendance and wishes to be heard at a hearing)	<p>16.1 Supports the discharge as it is fundamental to the ongoing viability of AFFCO in Wairoa</p> <p>16.2 Acknowledges that their own discharge is discussed in application documents and that they have been part of the consultation process</p>	Decision on proposal does not compromise AFFCO's rights to discharge into the Wairoa River
17	Wendy Howe	Oppose – Rules 9, 160 & 178 – RCEP & Rule 52 (RRMP)	<p>17.1 States the discharge is culturally offensive and provided a brief summary as to why</p> <p>17.2 Opposes all discharging into the river</p> <p>17.3 The submitters property in Kopu Road is not connected to municipal wastewater but would like it to be so they can live in Wairoa</p>	As per submission – “No discharge AT ALL into the awa”
18	Te Wairoa Tapokorau Whanui Trust	Oppose - all	<p>18.1 Wants land based discharge with timeframes in place with regular progress reports provided</p> <p>18.2 Until land discharge occurs wants independent monitoring to be undertaken to ensure no breaches occur</p> <p>18.3 Is concerned that a mortuary discharges into the awa</p> <p>18.4 “He Taiao Kurupounamu – Environmental Sustainability – Te Wairoa awa and Taiao are restored and revitalised.”</p>	Does not want a resource consent to be granted allowing WDC to discharge untreated wastewater into the awa
19	John Hubbard	Oppose - all (Pre hearing attendance and wishes to be heard at a hearing)	<p>19.1 States “as tangata whenua it is our responsibility to ensure our Awa is being cared for appropriately”</p> <p>19.2 States there is a lack of alternative solutions</p> <p>19.3 Issue with availability from WDC and HBTC to produce regular reports with independent scientific evidence evaluating harm done to the river and immediate area</p> <p>19.4 Highlighted WDC's inability to put timeframes around the conclusion of projects listed in the application</p>	To cease existing discharging into the awa and all future discharge applications
20	HBDHB	Neutral – all (Unsure of pre hearing attendance and	20.1 Supports the proposal to establish a schedule of improvements for Wairoa wastewater management	As per submission

		wishes to be heard at hearing)	<p>20.2 Encourages WDC to consider treatment of wastewater even during high flows</p> <p>20.3 Recommends that discharging during incoming tides will not result in pathogens being transported upstream is reviewed and verified by HBRC or an independent scientist</p> <p>20.4 States that commonly used communication channels are used to make the community aware of raw wastewater discharges as to avoid contact for at least 48 hours</p>	
21	Nga Tokorima a Hinemanuhiri Trust	Neutral – all (Unsure of pre hearing attendance and wishes to be heard at hearing)	<p>21.1 The submission provides a history on the waterways in Te Rohe o Te Wairoa, the importance of them to iwi and Hapū and the changes that have impacted the water quality and on fisheries</p> <p>21.2 The submission also refers to the deed of settlement for Ngamotu Lagoon and Whakamahia Lagoon</p> <p>21.3 Supports findings made by Dr Shane Kelly & Nick Dempsey</p> <p>21.4 Outlines issues with the Wastewater Stakeholder Group such as no meeting minutes were taken, tangata whenua prefer the order to start with the whakapapa of water not reflected in the “Māori Worldview” document, duration of consent was discussed at 30 not 35 years, any discharge would be drinkable, engagement on an annual basis, representation not right, and the willingness and ability to learn and understand two world views is needed by those in the group to make well informed decisions</p> <p>21.5 “Mauri o te wai (the life supporting capacity of vitality of water) and areas of food gathering must be protected from degradation.”</p>	<p>The outcomes requested are in the form of conditions and solutions which need to be reviewed, as per the following;</p> <ul style="list-style-type: none"> * timing of the discharge, * incorporating a monitoring plan, * limit the untreated discharge to 5 – 10 years, * include aspirational improvements, * Public warnings about health risks when river mouth is closed, * Holistic management of discharges, * Hydrodynamic modelling seem overly optimistic, * 2nd s92 request needs to be responded to, * Effects on kai moana not adequately addressed, * Benthic monitoring outstanding, * Disturbance area needs to be minimised, * WDC’s opinion on mahinga kai and cultural values not robust, * No Mauri Compass assessment was provided, * The Tripartite Arrangement with Tatau Tatu o Te Wairoa, WDC and

				<p>HBRC has been overlooked, * The Matangirau Reserves Board was also overlooked with the discharge area within its affected area.</p>
22	<p>Ngati Kahungunu Wairoa Taiwhenua Incorporated and Ngati Kahaungunu Incorporated</p>	<p>Neutral – all (Pre hearing attendance and wishes to be heard at hearing)</p>	<p>22.1 The submission provides a history on the waterways in Te Rohe o Te Wairoa, the importance of them to iwi and Hapū and the changes that have impacted the water quality and on fisheries</p> <p>22.2 The submission also refers to the deed of settlement for Ngamotu Lagoon and Whakamahia Lagoon</p> <p>22.3 Supports findings made by Dr Shane Kelly & Nick Dempsey</p> <p>22.4 Outlines issues with the Wastewater Stakeholder Group such as no meeting minutes were taken, tangata whenua prefer the order to start with the whakapapa of water not reflected in the “Māori Worldview” document, duration of consent was discussed at 30 not 35 years, any discharge would be drinkable, engagement on an annual basis, representation not right, and the willingness and ability to learn and understand two world views is needed by those in the group to make well informed decisions</p> <p>22.5 “Mauri o te wai (the life supporting capacity of vitality of water) and areas of food gathering must be protected from degradation.”</p>	<p>The outcomes requested are in the form of conditions and solutions which need to be reviewed, as per the following; * timing of the discharge, * incorporating a monitoring plan, * limit the untreated discharge to 5 – 10 years, * include aspirational improvements, * Public warnings about health risks when river mouth is closed, * Holistic management of discharges, * Hydrodynamic modelling seem overly optimistic, * 2nd s92 request needs to be responded to, * Effects on kai moana not adequately addressed, * Benthic monitoring outstanding, * Disturbance area needs to be minimised, * WDC’s opinion on mahinga kai and cultural values not robust, * No Mauri Compass assessment was provided, * The Tripartite Arrangement with Tatau Tatu o Te Wairoa, WDC and HBRC has been overlooked, * The Matangirau Reserves Board was also overlooked with the discharge area within its affected area.</p>